

Section 00 00 00

Remodel Specifications

Paragraphs below modify specification in the divisions that follow. The specifications are what would be required for the construction of a new Publix store; therefore, not all sections will apply to a remodel of an existing Publix store. The paragraphs in this division modify the specification by adding sections required for a remodeled store.

00 21 13.1.1.1 Definitions: Publix Super Markets, Inc. shall be referred to as Owner within Construction Documents unless noted otherwise. Jacobs and/or their Subconsultants shall be referred to as Architect or Engineer within Construction Documents unless noted otherwise.

01 11 00.1.1.1 For remodeled stores, scope of work under this agreement shall include all required demolition and new construction work at a Publix Super Markets Store Building located as indicated on the title block of these drawings.

01 11 00.1.4.13 Terminal board for Door Heater Control, referred to as "TB-A".

01 11 00.1.5.25 Water Softener or Filtration Systems (except Contractor shall install Publix-supplied bypass valves with connections for softeners/filters and electrical connections where required)

01 25 00.1.2.1 Where the words "or equal", "equal to, or "approved", or other synonymous terms are used in reference to material or methods, the Contractor shall request acceptance from the Architect, who shall present to Owner for approval.

01 26 00.1.1.5 The Contract for construction (the Work) shall include Supplementary Conditions.

01 33 00.1.1.1 For remodeled stores send all required submittals to: Architect/Engineer. Letters of intent shall be submitted to Publix Super Markets, Inc.

01 33 00.1.3.4 Architect reviews submittal:

1.3.4.1 Approve or annotate submittals, keep file copy, send one copy to Publix, return others to General Contractor.

1.3.4.2 If disapproved, notify General Contractor.

01 77 00.1.1 Electric Service for remodels: Payment for electrical service will be the responsibility of Owner.

03 30 00.2.4.3.1 Maximum W/C Ratios for remodels: 0.55 for 3000 psi, 0.44 for 4000 psi. Provide minimum of 500 lbs. portland cement per cubic yard of concrete.

04 20 00.2.2.1.2 For remodels: Type M shall be used at or below grade and for retaining walls.

04 20 00.2.3.2 Provide concrete pump mix for filled cells as follow for remodels. In accordance with ASTM C476: Slump Limits: 8" to 11" at point of placement.

04 20 00.3.8.3 Install steel lintels where indicated.

04 20 00.3.8.4 Provide precast or formed-in-place masonry lintels. Cure precast lintels before handling and installation. Temporarily support formed-in-place lintels.

05 12 00.2.1.2 Steel Columns, Beams, Plates, etc. for remodels: See Structural General Notes sheet for material specifications.

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- 05 12 00.2.1.8 When galvanized coating is required, it shall conform to Hot Dipped Process according to ASTM A123.
- 05 12 00.3.8.7 Install and tighten high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A-325 or A-490 bolts. For remodels: Tighten to snug tight condition unless noted otherwise. Tension control bolts shall be pretensioned.
- 05 30 00.2.2.1 For remodels provide minimum 26 gauge SDI type "C" deck (9/16 inch). See design documents for additional design requirements.
- 06 00 00.2.13 Backer board substrate for FRP panels and for stainless steel wall finish behind and adjacent to all grease hoods: Georgia Pacific DensShield backer board, 5/8" thickness.
- 07 21 00.1.2.3 Division 09 50 00 Section "Ceilings".
- 07 21 00.1.3.3 Submittals for concealed insulation in remodels:
- 1.3.3.1 General: Submit each item in this article according to the conditions of the contract and Division 1 Specifications Sections.
 - 1.3.3.2 Product Data for each type of insulation product specified.
 - 1.3.3.3 Samples of exposed insulation for initial selection in the form of actual units or sections of units showing the full range of colors available for each type of exposed insulation indicated.
 - 1.3.3.4 Product test reports from and based on tests performed by a qualified independent testing agency evidencing compliance of insulation products with specified requirements including those for thermal resistance, fire-test-response characteristics, water-vapor transmission, water absorption, and other properties, based on comprehensive testing current products.
 - 1.3.3.5 Research or evaluation reports of the model code organization acceptable to authorities having jurisdiction, that evidence compliance of foam plastic insulations with building code in effect for the project.
- 07 21 00.1.4 Quality assurance for concealed insulation in remodels:
- 1.4.2 Fire-Test-Response Characteristics: Provide insulation and related material with the fire-test-response characteristics indicated on the Drawing or specified elsewhere in this Section as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
 - 1.4.2.1 Surface-Burning Characteristics: ASTM E84
 - 1.4.2.2 Fire-resistance Ratings: ASTM E 119
 - 1.4.2.3 Combustion Characteristics: ASTM E136
- 07 21 00.2.1.3 Glass Fiber Insulation Manufacturers:
- CertainTeed Corporation
 - Knauf Fiber Glass GmbH
 - Owens-Corning Fiberglass Corporation
 - Johns Manville
- 07 21 00.2.1.4 Fiberglass Insulating Materials:
- 2.1.4.1 Faced Mineral-Fiber Blanket Insulation: Thermal insulation combining mineral fibers of type described below with thermosetting resins to comply with ASTM C665, Type III, Class A (blankets with reflective vapor-retarder membrane facing and flame spread of 25 or less).

2.1.4.1.1 Mineral-Fiber Type: Fibers manufactured from glass.

2.1.4.1.2 Flanged Units: Provide blankets fabricated with facing incorporating 5-inch- (127-mm-) wide flanges along edges for attachment to framing members.

2.1.4.2 Sound Attenuation Batt Insulation: Acoustic insulation of preformed glass fiber, friction fit type, unfaced 3 1/2" thick by 16" wide in wall (24" wide above ceiling), standard application where indicated on drawings. Sound attenuation batt insulation shall comply with the property requirements of ASTM C665, Type I and ASTM E136.

2.1.4.2.1 Surface Burning Characteristics: Maximum flame-spread and smoke developed indices shall comply with applicable local building code construction classification requirements as referenced by ASTM E84, NFPA 225 or UL 723.

07 21 00.2.1.5 Vapor Retarders:

2.1.5.1 Polyethylene Vapor Retarder: ASTM D4397, 6 mils (0.15 mm) thick, with maximum permance rating of .013 perm (7.5 ng/Pa x s x sq. m).

2.1.5.2 Reinforced-Polyethylene Vapor Retarders: 2 outer layer of polyethylene film laminated to an inner reinforcing layer consisting of either nylon cord or polyester scrim and weighing not less than 25 lb/1000 sq. ft. (12 kg/100sq. m), with maximum permance rating of 0.0403 perm (2.3 ng/Pa x s x sq. m).

2.1.5.3 Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

2.1.5.4 Products: Subject to compliance with requirements, provide one of the following:

2.1.5.4.1 Reinforce-Polyethylene Vapor Retarders:

DURA-SCRIM 6WB; Raven Industries, Inc.

Griffolyn T-651; Reef Industries, Inc., Griffolyn Div.

07 21 00.2.1.6 Auxiliary Insulation Material: Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.

07 21 00.2.1.7 Insulation Fasteners:

2.1.7.1 Adhesively Attached, Spindle-Type Anchors: Plate welded to projecting spindle; capable of holding insulation, of thickness indicated, securely in position indicated with self-locking washer in place; and complying with the following requirements.

2.1.7.1.1 Plate: Perforated galvanized carbon-steel sheet, 0.030 inch (0.762 mm) thick by 2 inches (50 mm) square.

2.1.7.1.2 Spindle: Copper-coated low carbon steel, fully annealed, 0.105 inches (2.67 mm) in diameter, length to suit depth of insulation indicated.

2.1.7.2 Adhesively Attached, Angle-Shaped Spindle-Type Anchors: Angle welded to projecting spindle, capable of holding insulation securely in position indicated with self-locking washer in place, and complying with the following requirements:

2.1.7.2.1 Angle: Formed from 0.030 inch (0.762 mm) thick, perforated, galvanized carbon-steel sheet with each leg 2 inches (50 mm) square.

2.1.7.2.2 Spindle: Copper-coated low carbon steel, fully annealed 0.105 inches (2.67 mm) in diameter, length to suit depth of insulation indicated.

2.1.7.3 Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch- (0.41-mm-) thick galvanized steel sheet, with beveled edge for increased stiffness, sized as required to hold insulation securely in place, but not less than 1 1/2 inches (38 mm) square or in diameter.

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2.1.7.3.1 Where spindles will be exposed to human contact after installation, protect ends with capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap.

2.1.7.4 Anchor Adhesive: Product with demonstrated capability to bond insulation anchors securely to substrates indicated without damaging insulation, fasteners, and substrates.

2.1.7.5 Products: Subject to compliance with requirements, provide one of the following:

2.1.7.5.1 Adhesively Attached Spindle-Type Anchors:

TACTOO Insul-Hanger; AGM Industries, Inc.

Spindle Type Gemco Hangers; Gemco

2.1.7.5.2 Adhesively Attached, Angle-Shaped, Spindle-Type Anchor:

90 Degree Insulation Hangers; Gemco

2.1.7.5.3 Insulation-Retaining Washers:

RC150; AGM Industries, Inc.

SC150; AGM Industries, Inc.

Dome-Cap; Gemco

R-150; Gemco

S-150; Gemco

2.1.7.5.4 Anchor Adhesives:

TACTOO Adhesive; AGM Industries, Inc.

Tuff Bond Hanger Adhesive; Gemco

07 21 00.3.2.7 Seal joints between closed-cell (non breathing) insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.

07 21 00.3.2.8 Set vapor-retarder-faced units with vapor retarder to warm side of construction, unless otherwise indicated. Do not obstruct ventilation spaces, except for firestopping.

3.2.8.1 Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.

07 21 00.3.2.9 Set reflective, foil-faced units with not less than 0.75-inch (19-mm) air space in front of foil as indicated.

07 21 00.3.2.10 Install mineral-fiber blankets in cavities formed by framing members according to the following requirements:

3.2.10.1 Use blanket widths and lengths that fill cavities formed by framing members. Where more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.

3.2.10.2 Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.

07 21 00.3.2.11 Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors as follows:

3.2.11.1 Fasten insulation anchors to concrete substrates with insulation anchor adhesive according to anchor manufacturer's written instructions. Space anchors according to insulation manufacturer's written instructions for insulation type, thickness, and application indicated.

3.2.11.2 Apply insulation standoffs to each spindle to create cavity width indicated between concrete substrate and insulation.

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3.2.11.3 After adhesive has dried, install board insulation by pressing insulation into position over spindles and securing it tightly in place with insulation-retaining washer, taking care not to compress insulation below indicated thickness.

3.2.11.4 Where insulation will not be covered by other building materials, apply capped washers to tips of spindles.

07 21 00.3.2.12 Install board insulation in curtain wall construction as indicated on Drawings and according to curtain wall manufacturer's written instructions.

3.2.12.1 Retain insulation in place by metal clips and straps or integral pockets within window frames, spaced at intervals recommended by insulation manufacturer to hold insulation securely in place without touching spandrel glass. Maintain cavity width between insulation and glass of dimension indicated.

3.2.12.2 Brace insulation where it contacts safining insulation to prevent insulation from bowing under pressure from safining insulation.

07 21 00.3.3 Installation of Radiant Barriers: Install radiant barriers in locations indicated according to ASTM C1158 and radiant barrier insulation manufacturer's written instructions.

07 21 00.3.4 Installation of Vapor Retarders:

3.4.1 General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

3.4.2 Seal vertical joints in vapor retarders over framing by lapping not less than 2 wall studs. Fasten vapor retarders to framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches (406 mm) o.c.

3.4.3 Seal overlapping joints in vapor retarders with adhesives or vapor-retarder tape according to vapor retarder manufacturer's instructions. Seal butt joints and fastener penetrations with vapor-retarder tape. Locate all joints over framing members or other solid substrates.

3.4.4 Firmly attach vapor retarders to substrates with mechanical fasteners or adhesives as recommended by vapor retarder manufacturer.

3.4.5 Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarder.

3.4.6 Repair any tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarder.

07 21 00.3.5 Protection: General: Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

083800.2.7 Traffic doors in remodels shall be Duralite "Standard" as manufactured by:
Chase Industries Inc. / Chase Door Division, Redmond, No Substitutions
National Account Contact: Cathy Garrison
Office: 800-543-4455 x2984 Fax: 800-245-7045

2.7.1 Door Panel: shall be a monolithic, one piece, hollow shell of high impact, cross-linked polyethylene with minimum wall thickness of 1/8", overall panel thickness of 1-7/8" and textured finish. Bottom, leading and back edges have molded in keyways to accept gaskets.

2.7.2 Door Panel Core: shall be of high density, foamed-in-place, non-CFC

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urethane bonded to interior of the cross linked polyethylene shell providing an insulating R factor of 10.83.

2.7.3 Standard Hinge System: consists of the following components:

2.7.3.1 Upper hinge: self closing "V" cam design; 3/4" low rise, 180° as required to comply with ADA Accessibility Guidelines. The roller assembly design shall allow up and down and back and forth adjustments to the door. Upper hinge seal shall be black PVC with a flexible nylon reinforced vinyl skirt.

2.7.3.2 Lower hinge: shall be pillow block design of ductile iron with UHMW sleeve and ductile iron lower hinge adapter which has provision for mounting an optional spring assist.

2.7.3.3 Hinge Shaft: 1-5/16" (33mm) diameter inserted with screws through tubular steel spine which is foamed -in -place during fabrication and runs full length of door.

2.7.4 Vision Panel: Window glazing shall be 1/8" thick polycarbonate with aluminum frame recessed a minimum of 1/8" from the face of the panel. Minimum height from finish floor to the bottom of the viewing area shall not exceed 48 inches.

Panel Size	Window Size
24"	10 1/2" x 22 1/2"
36, 42, 48"	20 1/2" X 22 1/2"

2.7.5 Gaskets: Gaskets shall be 60 to 80 durometer extruded black santoprene fitted into matching, pre-formed gasket key and held by friction. Gaskets have wings which seal against rounded edges of the door.

2.7.5.1 Partially Gasketed: Leading edge shall be bulb type to provide door opening force as required by ADA Accessibility Guidelines.

2.7.6 Accessories:

2.7.6.1 Polyethylene Spring Bumpers with 3" projection and 24" high. Pre-finished color as indicated on door schedule.

2.7.6.2 Lower hinge guards

08 41 00.1.4.3 Submit manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.

08 41 00.1.5 If requested by the Architect, submit finish sample.

08 41 00.2.1.4 For aluminum storefront finish in remodels, confirm retrofit conditions with architect or as indicated on drawings.

08 41 00.2.4.4.1 Automatic entrance doors finish shall match existing in retrofit.

08 71 00.3.9 Additional Hardware Sets for Remodeled Stores:

3.9.1 Group Z-1:

Pair Exit Doors (Panic Bar, 3'-0" Door Only), with Alarm, Closer (but without hold open because door is B-Label, 20-min., or is a direct exit from Sales Area)

6 each Hinges BB1279 X 4.5 X 4.5 NRP X USP

1 Alarm Exit Device FV40 X EH X 630

0 Cylinder for Alarm (Furnished and Installed by Publix)

1 Closer W/Stop, W/O H.O. 1431 PS TB

2 Door Sweeps Pemko 57AV

1 set Weatherstrip S88D

1 One-Way Viewer 622 CRM

1 Pair Flush Bolts 458B 26D X 12"

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	1 Dustproof Strike	489 X 487B 26D	
3.9.2	Group Z-2: Pair of Doors into Rated Corridor, Electromagnetic Hold-open, Panic Bar on one side for impact resistance, Swing-Clear Hinges		
	6 each Hinges	BB1262 X 4.5 X 26D	
	1 Exit Device W/Lever Out	12-8813 F ETL X 32D	
	1 Exit Device	12-8810 F X 32D	
	2 Closers	1431 UO TB	
	2 Electromagnetic Holders	997 X AL X 24 Volt	
3.9.3	Group Z-3: Pair of Doors, Electromagnetic Hold-open, Panic Bar on one side for impact resistance		
	6 each Hinges	BB1279 X 4.5 X 4.5 X 26D	
	1 Exit Device W/Lever Out	12-8813 ETL X 32D	
	1 Exit Device	12-8819 X 32D	
	2 Closers	1431 40 TB	
	2 Electromagnetic Holders	997 X AL X 24 Volt	
3.9.4	Group Z-4: Pair Exit Doors (Panic Bar, 3'-0" Door Only), w/o Alarm, Closer w/o hold open		
	6 each Hinges	BB1279 X 4.5 X 4.5 NRP X USP	
	1 Exit Device	12-8810 F ETL X 32D	
	0 Cylinder for Alarm	(Furnished and Installed by Publix)	
	1 Closer W/Stop, W/O H.O.	1431 UO TB	
	2 Door Sweeps	Pemko 57AV	
	1 set Weatherstrip	S88D	
	1 One-Way Viewer	622 X 260	
	1 Pair Flush Bolts	458B 26D X 12"	
	1 Dustproof Strike	489 X 487B 26D	
3.9.5	Group Z-5: Lockset, key-operated only: (Single) Equipment Closet Doors where accessed from sales		
	3 each Hinges	1279 X 4.5 X 4.5 X 26D	
	1 Storeroom Lockset	10G04 LL	
	1 Door Stop	409 or 443 as required	
	1 Closer	1431 UO TD	
3.9.6	Group Z-6: Pair of non-locking Storage and Equipment Doors		
	6 each Hinges	1279 X 4.5 X 4.5 X 26D	
	1 Passage Lockset	10G15 LL	
	2 Door Stops	409 or 443 as required	
	1 Pair Flush Bolts	458B 26D X 12"	
	1 Dustproof Strike	489 X 487B 26D	
3.9.7	Group Z-7: Passage Set and Deadlocks: Dutch Door at Pharmacy		
	4 each Hinges	T2714 4.5 X 4.5 US26D McKinney	

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1 each Lockset	10G04 LL	US26D	Sargent
1 each Deadbolt	485	US26D	Sargent
1 each Dutch Door Bolt	630-4	US26D	Rockwood
1 each Door Stops	443 or 409	US26D	Rockwood
4 each Silencers			

3.9.8	Group Z-8: Passage Set: Half Door at Pharmacy		
	2 each Hinges	1279 X 4.5 X 4.5	
	1 each Lockset	10G04 LL	
	1 each Door Stop	409 or 443 as required	
	2 each Silencers		

09 24 00.2.1.5 Casing Bead: Galvanized, depth governed by plaster thickness, maximum possible lengths, expanded metal flanges, with square or bullnosed edges; galvanized.

09 24 00.2.1.6 Corner Bead: Galvanized, depth governed by plaster thickness, maximum possible lengths, expanded metal flanges, with bullnosed edges; galvanized.

09 24 00.2.1.7 Base Screed: Galvanized, depth governed by plaster thickness, maximum possible lengths, expanded metal flanges, with beveled edges; galvanized.

09 24 00.2.1.8 Control and Expansion Joint Accessories: Galvanized accordion profile.

09 24 00.2.6 Casing beads, corner beads, base screeds, control and expansion joint, vent screed, soffit vents and reveal joint accessories to be vinyl for coastal regions (any county that borders on the Gulf or Atlantic coasts.

09 24 00.2.7 Anchorage: Tie wire, nails, and other metal supports of type and size to suit application; to rigidly secure materials in place, galvanized.

09 24 00.2.8 Fasteners: ASTM C1002, self-drilling, self-tapping, corrosion resistant fluorocarbon coated screws.

09 29 00.2.2.9 Glass Mat Gypsum Board:

2.2.9.1 Tile Backer Board (Use instead of MR wall board); Georgia Pacific Dens-Shield Tile backer.

2.2.9.2 Roof Board: Georgia Pacific Dens-Deck Gypsum Roof Board.

2.2.9.3 Moisture-Resistant Exterior Sheathing: Georgia-Pacific Dens-Glass Gold Gypsum Sheathing.

09 29 00.3.6 Tile Backer Board:

3.6.1 In remodels use at locations where wall finish is tile unless otherwise indicated on drawings.

3.6.2 Use behind all refrigerated cases to a height of 4'-0 1/2". Start at 1/2" above finished floor.

3.6.3 Install adjacent to all walk-in coolers and freezers. Height: above the top of the unit.

3.6.4 Use at other locations as required.

09 30 00.2.2.2 Quarry tile shall have LATAPOXY 2000 Industrial Epoxy Grout or equivalent.

09 30 00.2.3 Organic Adhesive:

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- 2.3.1 Provide a prepared organic material ready to use with no further addition of liquid or powder, which cures or sets by evaporation.
- 2.3.2 Comply with ANSI A136.1, using Type I (for exposure to prolonged water presence).
- 09 30 00.2.4 Epoxy Setting and Grouting Compounds:
- 2.4.1 Setting/Grouting Materials;
Master Builders (1-800-226-0700) "Chemset setting compound for setting, "Chemset 1880" for grouting
Termar "Terraset" for setting, "Terragrout" for grouting
Summitville S400
Laticrete "Latapoxy 300" for setting, "Latapoxy SP-100" for grouting
American Olean AO6000
- 09 30 00.3.4 Set and grout all quarry tile floors and base with epoxy. Set and grout in two separate operations, and in accordance with manufacturer's specification and recommendation.
- 09 30 00.3.7 Quarry Tile Sub-Setting Bed: Areas to receive quarry tile shall receive a sub-setting bed, which shall consist of 24 shovels of sand per bag of Portland cement, shall be free of foreign matter, and shall be dried before tile is applied to maximum of 16% moisture content.
- 09 30 00.3.8 At locations without a sub-setting bed, prepare substrate with a trowel grade or self-leveling grade cement-base underlayment, as manufactured by Thoro System Products, Sika, or Architect approved equal. Prepare surface and install material in strict accordance with manufacturer's recommendations.
- 09 30 00.3.9 Quarry Tile and Base and Quarry Tile Decoration Trim: All walls adjoining floor shall receive matching quarry tile base, regardless of type of finish on walls. Align all base joints with floor joints.
- 09 50 00.2.3.3 CS-2A Acoustical Tile shall be one of the following:
Armstrong Fine Fissured, 24" x 48" x 5/8" square-cut edge, color: white. Model 1729. Class A.
Celotex Vantage 10, 24" x 48" x 5/8" square-cut edge, color: white. Model VAN 197. Class A.
U.S.G. Interiors, Inc., Radar *ClimaPlus*, 24" x 48" x 5/8" square-cut edge, color: white. Model 2410. Class A.
- 09 50 00.2.3.4 CS-2B Acoustical Tile shall be one of the following:
Armstrong Fine Fissured, 24" x 24" x 5/8" square-cut edge, color: white. Model 1728. Class A.
Celotex Vantage 10, 24" x 24" x 5/8" square-cut edge, color: white. Model VAN 157. Class A.
U.S.G. Interiors, Inc., Radar *ClimaPlus*, 24" x 24" x 5/8" square-cut edge, color: white. Model 2210. Class A.
- 09 50 00.2.3.5 CS-5A Vinyl-Faced Gypsum Panels 24" x 48" x 1/2" (min), square edge, with 2-mil stipple-pattern embossed white vinyl laminated to one side, surface burning characteristics - non-combustible, as follows:
Armstrong Clean Room FL - Non-perforated, Model #1721 (Class A).
CertainTeed. Vinylrock 'X' Gypsum Ceiling Panels, Model #1140 CRF-1 (UL Label).
Gold Bond Building Products Gridstone Gypsum Ceiling Panels, Model #GB5045 (UL Label).

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U.S.G. Interiors, Inc. Sheetrock Brand Lay-in Ceiling Tile, "*ClimaPlus*", Vinyl, Model #3270 (UL Label).

09 50 00.2.3.6 CS-5B Vinyl-Faced Gypsum Panels 24" x 24" x 1/2" (min), square edge, with 2-mil stipple-pattern embossed white vinyl laminated to one side, surface burning characteristics - non-combustible, as follows:

Armstrong Clean Room FL - Non-perforated, Model #1720 (Class A).

CertainTeed. Vinylrock 'X' Gypsum Ceiling Panels, Model #1142 CRF-1 (UL Label).

Gold Bond Building Products Gridstone Gypsum Ceiling Panels, Model #GB5044 (UL Label).

U.S.G. Interiors, Inc. Sheetrock Brand Lay-in Ceiling Tile, "*ClimaPlus*", Vinyl, Model #3260 (UL Label).

09 50 00.2.3.7 Thermal Insulation: Shall be insulated with R-19 or R-13 faced glass fiber insulation (locations to be as indicated in Room Finish Schedule). Insulation to be roll batt installed perpendicular to long dimension of tile.

09 65 19.3.1.3 Prepare substrate with a trowel grade or self-leveling grade cement-base underlayment, as manufactured by Thoro System Products, Sika, or Architect approved equal. Prepare surface and install material in strict accordance with manufacturer's recommendations.

09 67 23.3.6 Remodel MMA Floors: Standards, job conditions, material testing, quality, products, approved manufacturers, and surface preparation shall be as specified in Section 09 67 23 Resinous Flooring.

3.6.1 Resurface MMA Flake System: Floor shall be professionally cleaned by approved licensed contractor and new MMA flake floor system installed over entire area indicated.

3.6.1.1 The primer shall consist of one coat with an overall coverage rate of 90-110 ft²/gal by brush or roller application.

3.6.1.2 Topping:

3.6.1.2.1 The topping shall be applied with a roller at a rate of 100-110 ft²/ gal.

3.6.1.2.2 Broadcast to rejection 1/4" chips (Publix Blend) on the surface of fresh material at a rate of 0.1 lb/ft².

3.6.1.2.3 After cure remove excess chips by blowing, sweeping and/or vacuuming. Brush floor with medium brush. Do not reuse swept chips.

3.6.1.3 Topcoat:

3.6.1.3.1 The first topcoat shall be applied at the rate of 80-90 ft²/gallon.

3.6.1.3.2 Cure 45-60 minutes between coats.

3.6.1.3.3 The first topcoat will be allowed to cure then sanded with #36 grit paper to give the desired finish texture. Sweep and vacuum floor.

3.6.1.3.4 The second topcoat will be allowed to cure then sanded with #36 grit paper to give the desired finish texture. Sweep and vacuum floor.

3.6.2 Resurface MMA Quartz System: Floor shall be professionally cleaned by approved licensed contractor and new MMA quartz floor system installed over entire area indicated.

3.6.2.1 The primer shall consist of one coat with an overall coverage rate of 90-110ft²/gal by brush or roller application.

3.6.2.2 Topping:

3.6.2.2.1 The topping shall be applied with a roller at a rate of 100-110 ft²/ gal.

3.6.2.2.2 Broadcast to rejection Q11 colored aggregate (Publix Blend) on

the surface of fresh material at a rate of 0.3 - 0.5 lb/ft².

3.6.2.2.3 After cure remove excess chips by blowing, sweeping and/or vacuuming. Brush floor with medium brush. Do not reuse swept chips.

3.6.2.3 Topcoat:

3.6.2.3.1 The first topcoat shall be applied at the rate of 50-70 ft²/gallon.

3.6.2.3.2 Cure 45-60 minutes between coats.

3.6.2.3.3 The first topcoat will be allowed to cure then sanded with #36 grit paper to give the desired finish texture. Sweep and vacuum floor.

3.6.2.3.4 The second topcoat is applied at 90-110 ft²/gallon.

3.6.3 Professionally Clean and Topcoat with Aluminum Oxide: Cleaning of floors to be performed by approved licensed contractor and provide slip resistant topcoat consisting of two coats.

3.6.3.1 The primer shall consist of one coat with an overall coverage rate of 90-110ft²/gal by brush or roller application.

3.6.3.2 The first topcoat shall be applied at the rate of 80 ft²/gallon. Anti-skid aggregate (aluminum oxide, #30 grit) shall be applied at a rate of 2.0 lb/100 ft² into the first topcoat.

3.6.3.3 Do not sand between coats in areas that require anti-slip aggregate.

3.6.3.4 Cure 45-60 minutes between coats.

3.6.3.5 The second topcoat is applied at 90-110 ft²/gallon.

3.6.4 Professionally Clean and Topcoat: Cleaning of floors to be performed by approved licensed contractor and provide topcoat consisting of two coats.

3.6.4.1 The primer shall consist of one coat with an overall coverage rate of 90-110ft²/gal by brush or roller application.

3.6.4.2 The first topcoat shall be applied at the rate of 80 ft²/gallon.

3.6.4.3 The first topcoat will be allowed to cure then sanded with #36 grit paper to give the desired finish texture.

3.6.4.4 Cure 45-60 minutes between coats.

3.6.4.5 The second topcoat is applied at 90-110 ft²/gallon.

09 68 00.3.2.4 Prepare substrate with a trowel grade or self-leveling grade cement-base underlayment, as manufactured by Thoro System Products, Sika, or Architect approved equal. Prepare surface and install material in strict accordance with manufacturer's recommendations.

09 91 00.4.2.4 Exterior Concrete Surfaces (where noted in schedule):

4.2.4.1 Stardek Acrylic Coating:

1st coat - Stardek Concrete Sealer

2nd coat - Acrylic Modified Cement combined with Stardek Resin:

Mixture: One 50 lb bag of Stardek Acrylic Modified Cement to 1 3/4 - 2 gallons of Stardek Resin. For exterior application on hot days, increase (slightly) amount of resin or add Stardek's Hot Weather additive per product guidelines.

Coverage: Approximately 175 square feet per gallon of mixture.

Base color shall be 'Berkley Brown', accent dots shall be 'Colony Buff and Midnight Gray'. Publix Representative shall verify prior to material order. Stardek material to be supplied by Publix and installed by one of the following Approved Installers:

Steve Taylor Concrete Protection Systems
(Telephone:863-688-7666)

Concrete Resurfacing Product, Inc. (Telephone: 770-

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614-5444)

Davis Contracting - Bart Davis - Dade City, FL

Southland Construction Group (Telephone: 941-721-4900 - Terra Ceia, 813-685-8158 - Tampa)

Warranty: 10 year limited warranty; three years free repair on all defects due to workmanship or materials.

- 09 91 00.4.3.17 Interior Concrete Surfaces (where noted in schedule):
- 4.3.17.1 Chemical Hardener: Clear colorless concrete hardener, dustproofer, and densifier containing chemically active magnesium/zinc silicofluoride and wetting agents. Acceptable manufacturers and products are:
- Solidus - Labmert Corporation (Telephone: 407-841-2940)
 - Lapidolith - Sonneborn Corporation (Telephone: 800-433-9517)
 - Pena-lith - W.R. Meadows (Telephone: 800-342-5976)
 - Saniseal 100 - Master Builders (Telephone: 800-628-9990)
- Application: Apply after slabs have cured 28 days. Do not apply to uncured slabs; apply in two or three coats at decreasing dilutions and decreasing coverage rates as specified by manufacturer to achieve maximum hardness.
- 10 21 13.2.3.1 Color: In Customer Toilet Rooms: When all partitions in toilet room are new, color shall be Comtec CL-02 Desert Beige or manufacturer's equal. In Associate Toilet Rooms: When all partitions in toilet room are new, color shall be Comtec CL-00 Grey or manufacturer's equal. If one or more, but not all partitions are new, color shall match existing.
- 10 21 13.2.4.9 Pulls (accessible and ambulatory stalls only): provide pull on both sides of stall door - heavy duty chrome plated zamac.
- 10 28 13.2.1.13 Soap Dispenser: Kimberly Clark Model 91011
- 10 28 13.2.1.14 Trash Receptacle: Rubbermaid product number 3541 with "Slim Jim Top" product number 2673
- 10 28 13.2.1.15 Trash Receptacle: Bobrick Model B-279, surface mounted
- 10 28 13.3.2 Install all accessible toilet accessories in compliance with ADA and all applicable state and local accessibility codes.
- 21 00 00.1.3.8 All removed equipment shall be turned over to the Owner at an area designated by the Owner. All equipment not wanted by the Owner shall be removed from the site and properly disposed of by the contractor.
- 21 00 00.1.2.4 Information was taken from various archive drawings and limited field observation. Field verification of existing conditions and points of connection are required. Provide all demolition, cutting and patching, and excavation required for the project, whether or not shown on the drawings.
- 21 00 00.1.3.9 Renovate complete overhead sprinkler system as shown on the Drawings and described herein. This specification applies only to Publix remodels where no additional tenant spaces are involved.
- 22 40 00.1.1.1.12 All removed equipment shall be turned over to the Owner at an area designated by the Owner. All equipment not wanted by the Owner shall be removed from the site and properly disposed of by the contractor.
- 22 40 00.1.2.5 Information was taken from various archive drawings and limited field observation.

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Field verification of existing conditions and points of connection are required. Provide all demolition, cutting and patching, and excavation required for the project, whether or not shown on the drawings.

22 40 00.2.4.2.3 Annular space between piping and sleeve shall be caulked with oakum; except, use adequate safin insulation where fire rated assemblies are penetrated.

22 40 00.2.4.2.4 Extend gas reliefs and vents to a safe discharge point at least 10 feet above grade, at least 10 feet from any source of ignition.

22 40 00.2.4.2.5 LP gas storage containers shall be secured, protected from damage, and located at least 25 feet from any source of ignition.

23 70 00.1.1.1.10 All removed equipment shall be turned over to the Owner at an area designated by the Owner. All equipment not wanted by the Owner shall be removed from the site and properly disposed of by the contractor.

23 70 00.1.2.6 Information was taken from various archive drawings and limited field observation. Field verification of existing conditions and points of connection are required. Provide all demolition, cutting and patching, and excavation required for the project, whether or not shown on the drawings.

23 70 00.2.12.2 Automatic Extinguishing Systems, in their entirety, will be provided as an integral part of the Grease Hood systems furnished by Publix and installed under the Contract. Owner furnished services includes all set-up of the extinguishing systems.

23 70 00.2.18 Dishwasher Hood:

2.18.1 Full canopy type constructed of Type 304 polished stainless steel, with liquid tight continuous welds.

2.18.2 Submit detailed fabrication shop drawings for review and approval, prior to fabrication.

23 70 00.2.14 Flues and Vents:

2.14.4 Install with minimum of joints. Align accurately at connections, with internal surfaces smooth.

2.14.5 Support in strict accordance with manufacturer's recommendations, industry standard, and SMACNA HVAC Duct Construction Standards - Metal and Flexible, 1995.

2.14.6 Pitch with positive slope up.

2.14.7 Maintain UL listed minimum clearances from combustibles.

2.14.8 Assemble pipe and accessories as required for complete installation.

2.14.9 Install vent dampers, locating close to draft hood collar.

2.14.10 Assemble and install flue and vent sections in accordance with manufacturer's recommendations, industry practices, and in compliance with UL listing.

2.14.11 Level and plumb vertical sections.

2.14.12 Clean flues and vents during installation, removing dust and debris.

2.14.13 At appliances, provide joints permitting removal of appliances without removal or dismantling of flues or vents.

26 00 00.1.4.5.1 For remodels the solid neutral wire shall be tested for thorough grounding at the service entrance and/or separately derived source through the grounding electrode conductor and grounding electrode.

26 00 00.2.2.81 In order to comply with series rating, contractor shall supply and install new panelboards of the same manufacturer as the existing main switchboard/main distribution panel manufacturer. Different panelboard manufacturers shall be allowed if panelboard rating is equal or

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greater than the available fault current indicated on the drawings.

26 00 00.2.4.5.2.1 For remodels the buss shall be aluminum with 100% neutral with an integrated equipment short circuit rating of 100, 000 amps (sym).

26 00 00.2.4.8.1 For remodels the main switch shall be as manufactured by Pringle or Square "D" bolted lock and rated at ampacity shown on the Drawings - no substitutions.

26 00 0002.19.2 Standby Electric-Emergency Generator and Transfer Switch for Remodels (where shown as new on the Drawings).

2.19.2.1 Emergency generator and automatic load transfer switch will be furnished by Publix and shall be set in place and connected by the contractor.

2.19.2.2 Emergency Generator: The system shall be installed according to the manufacturer's instructions.

2.19.2.3 Automatic Load Transfer Switch: The automatic load transfer switch shall be designed for the capabilities of this unit to transfer the load from normal to emergency when any phase of the normal source drops below 70 percent of rated voltage and to automatically restore the load to the normal source when all phases are 90 percent or more of rated voltage and frequency. Unit is to be provided with a contact to actuate the engine starting circuit.

2.19.2.4 The electrical contractor shall provide wiring and conduit to connect the battery charger, generator start circuit and any block heater wiring required.

26 00 00.2.22 Overcurrent Protective Devices:

2.22.1 Enclosed, Molded-Case Circuit Breaker: NEMA AB 1, handle lockable.

2.22.1.1 Characteristics: Frame size, trip rating, number of poles and auxiliary devices as indicated and interrupting capacity rating to meet available fault current.

2.22.1.2 Application Listing: Appropriate for application, including switching fluorescent lighting loads or heating, air-conditioning and refrigerating equipment.

2.22.1.3 Circuit Breakers, 200 A and Larger: Trip units interchangeable within frame size.

2.22.1.4 Circuit Breakers, 400 A and Larger: Field-adjustable short-time and continuous current settings.

2.22.1.5 Current-Limiting Trips: Where indicated, let-through ratings less than NEMA FU 1, Class RK-5.

2.22.1.6 Current Limiters: Where indicated, integral fuse listed for circuit breaker.

2.22.1.7 Lugs: Mechanical lugs and power-distribution connectors for number, size and material of conductors indicated.

2.22.1.8 Shunt Trip: Where indicated.

End of Section 00 00 00

Section 00 21 13

Instructions to Bidders - V05142021

1. General

1.1. The Work: Publix Super Market store building located as indicated on the title block of these Drawings.

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- 1.2. Securing Documents: Invited Bidders may obtain copies of the Proposed Contract Documents as indicated in the Invitation to Bid.
- 1.3. Bid Form: Bids will be received at the time and place indicated in the Invitation to Bid, and shall be on the form provided with the Invitation to Bid.
- 1.4. Bonds
 - 1.4.1 No bid security is required.
 - 1.4.2 A Labor and Materials Payment Bond and a Performance Bond, each in the amount of the Contract Sum, are required as a Deductive Alternate.
- 1.5. Examination of Documents and Site of Work
 - 1.5.1 Bidders Review of Documents: Bidder shall examine entire set of Drawings, all Sections of Specifications, and all Conditions of the Contract.
 - 1.5.2 Note especially Supplemental Drawings and Specifications which integrate the Publix Prototype Design with the Site and all adjacent Shopping Center structures, and which may provide or modify the facade and adjacent structure. These Drawings and Specifications are part of this Contract, and are listed in the Invitation to Bid.
 - 1.5.3 Bidders review of Construction Site: Bidder shall visit Project Site to be acquainted with surrounding territory, means of approach to Site, conditions of actual Job Site, and facilities for delivery, storage, handling and placing of materials and equipment. Bidder shall compare Drawings and Specifications with work in place in order to be fully informed of all conditions affecting execution of work. Failure to visit site or failure to examine any and all Contract Documents will not relieve successful Bidder from necessity of furnishing all materials or equipment, or performing all work, that may be required for completion in accordance with Drawings and Specifications without additional cost to Owner. Neglect of above requirements will not be accepted as reason for delay in Work.
- 1.6. Proof of Competence and Approval of Subcontractors: The successful Bidder will be required to submit to the Owner a list of proposed Subcontractors for principal portions of the Work before execution of the Contract. This list must be approved by the Owner and will become an Amendment to the Contract. The Owner may require evidence that a proposed Subcontractor has sufficient means and experience in the types of work called for to assure completion of the Contract in a satisfactory manner.
- 1.7. Award and Execution of Contract
 - 1.7.1 The Contract, if awarded, will be awarded to the invited Bidder who has proposed the most appropriate price for the proposed scope of Work, subject to the Owner's and Architect's right to reject any and all Bids and to waive informality and irregularity in the Bids and in the Bidding.
 - 1.7.2 The successful bidder will be required to execute an Agreement between the Owner and Contractor with mutually agree upon language. Publix Super Markets, Inc is included in the definition of "Owner" and shall be a required Cosignatory of the Owner-Contractor Agreement.
 - 1.7.3 At or prior to delivery of the Signed Agreement, the Bidder to whom the Contract is awarded shall deliver to the Owner those Certificates of Insurance required by the Contract Documents and such Labor and Materials Payment Bonds and Performance Bonds as may be required by the Owner.
 - 1.7.4 Certificates of Insurance and Bonds shall be approved by the Owner before the Successful Bidder may proceed with the Work. Failure to provide either in a form satisfactory to the Owner shall subject the Contractor to loss of time from the allowable Construction Period equal to the Time of Delay in furnishing the required material.
- 1.8. Construction Time

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- 1.8.1 The Agreement will include a requirement that the Work be completed within a Specified Number of Days following the Date of Commencement. The Specified Number of Days will be agreed upon between the Owner and the Successful Bidder. The Date of Commencement will be defined in the Owner-Contractor Agreement (for the purpose of administration of the Owner-Contractor Agreement only) as the later of either 1) the date of the Owner-Contractor Agreement or 2) the Date of Receipt of the Building Permit.

2. Products

- 2.1. All building construction products/materials used for the Project are to be non- asbestos containing. Asbestos Containing Material (ACM) by Federal EPA and OSHA definition is any material/product that contains greater than (>) 1.0% asbestos. The following six (6) types of natural occurring asbestos mineral fibers are currently regulated under EPA and OSHA; Chrysotile, Amosite, Crocidilite, Tremolite, Anthophyllite and Actinocite asbestos. Publix will require a notarized affidavit from the Project Construction Contractor or their representative stating that they have verified that ACM was Not Used or installed during the construction of the Publix structure.

3. Execution

Not Used

End of Section 00 21 13

Section 00 73 00

Supplementary Conditions

The following supplements modify, change, delete from, or add to the "General Conditions of the Contract for Construction," AIA Document A201, 1987 edition, hereafter referred to as the "General Conditions." Where any article of the General Conditions is modified or any paragraph, subparagraph, or clause thereof is modified or deleted by these supplementary conditions, the unaltered provisions of that article, paragraph, subparagraph, or clause shall remain in effect.

The General Conditions also may be supplemented elsewhere in the Contract Documents by provisions usually but not necessarily located in Division 1 of the Project Manual.

ARTICLE 1; GENERAL PROVISIONS

1.2 Execution, Correlation, and Intent:

1.2.1 At the end of subparagraph 1.2.1 add: All parties defined as Owner shall sign the agreement, including Publix Super Markets, Inc. The only authorized signatures for Publix Super Markets, Inc. shall be either Charles H. Jenkins, Jr. or Dave Duncan.

1.2.3 At the end of Subparagraph 1.2.3 add: In case of inconsistency between Drawings and Project Manual or within either document not clarified by Addendum, the better quality or greater quantity of work shall be provided in accordance with the Architect's interpretation.

ARTICLE 2; OWNER

2.1 Definition:

2.1.1 At the end of Subparagraph 2.1.1 add: Publix Super Markets, Inc., if not the Owner, shall be the Owner's authorized representative for the administration of this

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contract.

This inclusion of Publix Super Markets, Inc. within the definition of "Owner" shall not be conclusive for determining allocation of tax liabilities among the developers, joint venturers, landlord, tenant, or the like. When the term "Publix Super Markets Inc." is used, this shall identify the interest or responsibility of Publix Super Markets, Inc. and not that of any other Owner, Joint Venturor, Landlord, Tenant, or the like.

2.2 Information and services required of the Owner:

2.2.3 At the end of subparagraph 2.2.3 add: Specifically included as the responsibility of the Owner are planning and zoning regulation fees, impact or connection fees due to water and sewer connections, environmental impact fees, and health and environmental permits and fees.

2.2.5 Delete Subparagraph 2.2.5 and substitute the following: The Contractor will be furnished free of charge twenty copies of the Drawings (including the Project Manual) by the Owner. Publix Super Markets, Inc. will deposit reproducible drawings with a reproduction company of its choice, from whom the Owner may purchase aforesaid twenty copies, and from which the Contractor may purchase additional copies. the Developer or Contractor shall pay the reproduction company's usual charge for reproduction and handling.

ARTICLE 3; CONTRACTOR

3.7 Permits, Fees, and Notices:

3.7.1 At the end of Subparagraph 3.7.1 add: These shall include, but not be limited to, plans review fees; building, mechanical, electrical, plumbing, and fire protection permits, licenses, and inspections; and certificates of occupancy and/or use.

ARTICLE 4; ADMINISTRATION OF THE CONTRACT

4.1 Architect:

4.1.1 Delete Subparagraph 4.1.1 and substitute the following: The Architect is Publix Super Markets, Inc.'s Architect or his authorized representative, Publix Super Markets, Inc.'s Director of Construction.

4.1.3 Delete Subparagraph 4.1.3.

4.1.4 Delete Subparagraph 4.1.4.

4.3 Claims and Disputes:

4.3.2 Delete the words "arbitration or" each time the words appear in Subparagraph 4.3.2.

4.3.4 Delete the words "including arbitration" in Subparagraph 4.3.4.

4.4 Resolution of Claims and Disputes: 4.4.4 Delete from Subparagraph 4.4.4 the words "but subject to arbitration".

4.5 Arbitration: Delete Paragraph 4.5 "Arbitration," including Subparagraphs 4.5.1 through 4.5.7, in its entirety and substitute the following:

All claims or disputes between the Contractor and the Owner arising out of, or relating to, the Contract Documents or the breach thereof shall be submitted to mediation before filing suit thereon, or immediately after filing suit thereon, in accordance with the provisions hereinafter set forth, unless the parties mutually agree otherwise. The mediation shall be governed as applicable by the following:

A. Florida Rules of Civil Procedure Rules 1.710, 1.720 and 1.730;

B. Florida Statute 44.1011(2);

C. Mediation shall take place in Polk County, Florida;

D. The mediator as to the mediation shall be a mediator who has been certified by the Supreme Court of Florida and who has registered for appointment in Polk County, Florida, pursuant to Florida Statute 44.102(4); and

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E. The Contract shall be governed by the laws of the State of Florida.

F. Mediation may be commenced by either party within thirty (30) days after the dispute has arisen. If an agreement is reached as a result of mediation, the agreement shall be binding, final and judgment may be entered upon it either in Polk County, Florida, or in any court having jurisdiction of the place where the project is located.

If the parties do not reach an agreement as to any dispute as a result of mediation, then either party shall be entitled to file suit in Polk County, Florida.

The agreement herein as to mediation shall be specifically enforceable in Polk County, Florida.

ARTICLE 5; SUBCONTRACTORS

5.2 Award of Subcontracts and other contracts for portions of the work: Delete Paragraph 5.2, including Subparagraphs 5.2.1, 5.2.2, 5.2.3, and 5.2.4, in its entirety and substitute the following:

The Contractor shall not change a Subcontractor for a principal portion of the Work, as agreed to as an amendment to this Agreement, without written consent of the Owner.

ARTICLE 7; CHANGES IN THE WORK

7.1 Changes:

7.1.2 At the end of Subparagraph 7.1.2 add: Any change in the Work requiring agreement of the Owner shall be signed by all parties defined as Owner, including Publix Super Markets, Inc. The authorized signature for Publix Super Markets, Inc. shall be Bobby Newman, Director of Construction, and such other persons as may be designated in writing by Charles H. Jenkins, Jr.

ARTICLE 8; TIME

8.3 Delays and Extension of Time:

8.3.1 Delete from Subparagraph 8.3.1 the words "or by delay authorized by the Owner pending arbitration".

ARTICLE 9; PAYMENTS AND COMPLETION

9.3 Applications for Payment:

9.3.3 At the end of Subparagraph 9.3.3 add: The General Contractor upon submitting each Application for Payment shall also submit partial Releases of Lien, properly executed on the Owner's form, from all Sub-Contractors and Suppliers doing work or supplying materials to the date of the Payment Request.

9.10 Final Completion and Final Payment:

9.10.2 At the end of Item (1) of Subparagraph 9.10.2 add: Which affidavit shall be in accordance with the "Contractor's Final Affidavit To Owner" provided for in the Mechanic's Lien Statute or Contractor's Lien Statute of the state in which this project is located.

At the beginning of Item (5) of Subparagraph 9.10.2 delete:

"If required by Owner,".

ARTICLE 10; PROTECTION OF PERSONS AND PROPERTY

10.1 Safety Precautions and Programs:

10.1.2 Delete the words "on which arbitration has not been demanded, or by arbitration under Article 4".

10.1.3 Add the following:

No hazardous substances, including but not limited to, asbestos or leads, shall be used in the construction of the Project (“Hazardous Substances” means and includes those elements, compounds and toxic pollutants contained or adopted in the list of Hazardous Substances adopted by the United States Environmental Protection Agency and any other agency, law, or regulation, Federal or State).

ARTICLE 11; INSURANCE AND BONDS

11.1 Contractor’s Liability Insurance:

11.1.1 Delete the semicolon at the end of Clause 11.1.1.1 and add the following:
Including private entities performing work at the Site and exempt from the coverage on account of number of employees or occupation, which entities shall maintain voluntary compensation coverage at the same limits specified for mandatory coverage for the duration of the Project;

At the end of Subparagraph 11.1.1 add the following:

11.1.1.8 The company or companies providing these insurance coverages shall be rated “A VII” or better by A.M. Best Co.

11.1.2 At the end of Subparagraph 11.1.2 Add:

The Insurance required by Subparagraph 11.1.1 shall be written in the forms, and for not less than the limits (unless greater limits are required by law), listed as follows:

A. Commercial General Liability, including: Products/Completed Operations Personal and Advertising Injury Fire Damage, Medical Expense No Exclusion of X, C, or U Coverage

This Commercial General Liability coverage shall be for \$5,000,000 Combined Single Limit, achieved through a combination of Primary and Umbrella form excess liability coverage, on occurrence basis for both Primary and Umbrella form excess liability coverage.

B. Automobile Liability for any auto, including hired autos and non-owned autos:

This Automobile Liability Coverage shall be for \$5,000,000 combined single limit, achieved through a combination of Primary and Umbrella form excess liability coverage.

C. Worker’s Compensation and Employer’s Liability:

(A) State: Statutory

(B) Employer’s Liability: \$1,000,000 per accident, \$1,000,000 Disease Limit, \$1,000,000 disease each employee.

The Certificate of Insurance must state that Employer’s Liability is covered by Umbrella form excess liability if primary limits are less than indicated.

11.1.3 After the first sentence in Subparagraph 11.1.3 add the following:

Certificates of Insurance shall be issued on the appropriate form.

After the second sentence in Subparagraph 11.1.3 add the following: This required written notice shall be delivered by Certified or Registered Mail to all Insureds. Language which in any way qualifies the obligation of the issuing company to provide this written notice is not acceptable.

At the end of Subparagraph 11.1.3 add the following: These Certificates and the Insurance Policies required by this Paragraph 11.1 shall name as Additional Insureds all entities defined herein as Owner, including but not limited to Publix Super Markets, Inc.

11.3 Property Insurance:

11.3.1 Modify the first sentence of Subparagraph 11.3.1 as follows: Delete “unless otherwise provided, the Owner” and substitute “the Contractor”.

Add the following sentences: The Form of policy for this coverage shall be Completed Value. If the Owner is damaged by the failure of the Contractor to maintain such insurance, then the Contractor shall bear all reasonable costs properly

attributable thereto.

11.3.1.2 Delete Clause 11.3.1.2.

11.3.1.3 Delete Clause 11.3.1.3.

11.3.4 Delete Subparagraph 11.3.4.

11.3.6 Delete Subparagraph 11.3.6 and substitute the following:

Before an exposure to loss may occur, the Contractor shall file with the Owner two certified copies of the Policy or Policies providing this Property Insurance coverage, each containing those endorsements specifically related to the Project. Each Policy shall contain a provision that the policy will not be canceled or allowed to expire until at least 30 days prior written notice has been given to the Contractor and all entities defined herein as Owner, including but not limited to Publix Super Markets, Inc.

11.3.7 Modify Subparagraph 11.3.7 by substituting “Contractor” for “Owner” at the end of the first sentence.

11.3.8 Modify Subparagraph 11.3.8 by substituting “Contractor” for “Owner” as fiduciary; except that at the first reference to “Owner” in the first sentence, the word “this” shall be substituted for “Owner’s”.

11.3.9 Modify Subparagraph 11.3.9 by substituting “Contractor” for “Owner” each time the latter word appears.

Delete reference to arbitration from Subparagraph 11.3.9.

11.3.10 Modify Subparagraph 11.3.10 by substituting “Contractor” for “Owner” each time the latter word appears.

Delete reference to arbitration from Subparagraph 11.3.10.

End of Section 00 73 00

Section 01 11 00

Summary of Work V05242022

1. General

- 1.1. Work under this Agreement is the construction of a Publix Super Markets StoreBuilding.
- 1.2. Related work under other contracts
 - 1.2.1 Sitework:
 - Site Grading Site Drainage
 - Site Utilities, Paving
 - Pad Preparation for this building
 - Construction of other buildings within the Project.
 - Other work as required for satisfactory completion of the Project.
 - 1.2.2 On projects for which Publix Super Markets, Inc. is the sole Owner, some or all of the above-listed Site Work may be part of this Contract; See Bid Forms for definitive list.
- 1.3. Standby Generators: When a Publix Super Markets Store Building is designated to receive a standby generator, the General Contractor will be responsible for supplying the crane and operator required to unload and install said generator and related equipment.
- 1.4. The following items will be furnished by Publix Super Markets, Inc. and shall be set in place, installed, and connected by the proper trades under this Contract (except for connection work by Publix as noted). These items may be designated OFCI (Owner Furnished, Contractor Installed) when referenced in the Documents. Items will be delivered to the Site of Construction. Contractor assumes responsibility for delivered

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items at the time of delivery. Coordinate with Publix for delivery method and time.

- 1.4.1 If Additive Alternate for HVAC Equipment is not accepted: Roof-Top HVAC Equipment curbs and support rails, and HVAC Units (except final connection of control wiring by Publix whether Additive Alternate is accepted or not). In any case, where required elsewhere, radiant unit heaters are part of the Contract.
- 1.4.2 Pre-sloped rooftop curbs for HVAC Systems, Mechanical Centers.
- 1.4.3 All Supply and Exhaust Fan curbs, and all Supply and Exhaust Fans.
- 1.4.4 Grease Hoods and Heat Removal Hoods, designated GH- and HR- on Mechanical Drawings.
- 1.4.5 Hot Water Storage and Reclaim Tanks.
- 1.4.6 Energy Management Panels (except final connection to power and control wiring installed by Contractor will be by Publix).
- 1.4.7 All Utility type sinks: stainless steel freestanding one, two, three, and four compartment sinks. Plumbing brass provided by Contractor.
- 1.4.8 Emergency Generator and Transfer Switch with gas regulator and filter.
- 1.4.9 Simplex Armor Bond strip door curtain system.
- 1.5. The following items will be furnished, set in place, installed, and connected by Publix Super Markets, Inc. either under separate contract or by Publix personnel (except for connection work by Contractor as noted in parentheses):
 - 1.5.1 Walk-in coolers and freezers, including installation of refrigerant lines and condensate lines to hub drains (electrical connection by Contractor).
 - 1.5.2 Insulated composite panel ceiling systems.
 - 1.5.3 Refrigerated Cases, including installation of refrigerant lines and condensate lines to hub drains (except electrical connection by Contractor).
 - 1.5.4 Condensers and Compressors for Refrigerated Systems, with weatherproof housings "Weather-Pac's" or roof-top houses where indicated (except connection of power and control wiring; required flashing, pre-manufactured curbs shown, and other water/weatherproofing by Contractor).
 - 1.5.5 Heated food display cases (electrical connection by Contractor).
 - 1.5.6 Bakery Ovens (gas and electrical connection , and flues and vents by Contractor
 - 1.5.7 - Contractor shall receive and store ovens at the site until Publix forces can install them).
 - 1.5.8 Signs on facade and under canopy (electrical connection by Contractor).
 - 1.5.9 Scissor Lifts, Dock Levelers, and Dock Bumpers (except associated concrete work, steel embeds and electrical connection by Contractor).
 - 1.5.10 Trash Compactor (electrical connection by Contractor).
 - 1.5.11 Baler (except electrical connection by Contractor).
 - 1.5.12 Ice Machines with condensate drain connection (water supply connection and electrical connection by Contractor).
 - 1.5.13 Gondolas (electrical wiring by Contractor).
 - 1.5.14 Checkout Stands, including all signal wiring (electrical connection by Contractor).
 - 1.5.15 Not Used
 - 1.5.16 Safes.

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- 1.5.17 Automated Teller Machines (ATM's), communication (electrical connection by Contractor).
- 1.5.18 Unit Insect Control Systems
- 1.5.19 Portable Fire Extinguishers.
- 1.5.20 Towel,
- 1.5.21 Soap, and Toilet Paper Dispensers.
- 1.5.22 Diaper-Changing Stations.
- 1.5.23 Music System
- 1.5.24 Automatic
- 1.5.25 Fire Suppression System (Ansul).
- 1.5.26 Cart Curbs and Interior Flex Post shall be provided and installed by General Contractor. See architectural plans for locations and details.
- 1.6. Area of horizontal runs by Trades
 - 1.6.1 Electrical: Bottom of roof deck to 32 in. below roof deck; where exposed, immediately beneath roof deck, passing between steel joists where possible.
 - 1.6.2 Refrigeration: 32 in. to 36 in. below roof deck; where exposed, immediately below bottom chord of steel joist girders and joists.
 - 1.6.3 Fire Sprinkler: 8 in. above ceiling; where exposed, 8 in. above bottom chord of steel joist girders and joists.
 - 1.6.4 Air Conditioning: 36 in. below roof deck to 10 in. above ceiling; where exposed, hang as close under bottom chord of steel joist girders and joists as possible while leaving room for refrigeration lines.
 - 1.6.5 If deviation from these areas is indicated, such deviation must be agreed upon by the Job Superintendent and/or Public's representative.

2. Products

Not Used

3. Execution

Not Used

End Of Section 01 11 00

Section 01 23 00

Alternates

V06302020

1. General

- 1.1. To enable the Owner to evaluate the cost of alternate methods of construction of the Project, the Alternates described in this Section are required to be stated on the Bid Form submitted by each Bidder.
- 1.2. The cost of Labor and Material Payment Bond and Performance Bond shall be listed as an Add Alternate.

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- 1.3. Underslab Porous Fill - in some locations the building pad or sub-grade will be constructed with material which meets the specified requirements for under-slab porous fill. In such a case the Owner may choose to omit under-slab porous fill from this Contract. State an amount which may be deducted from the Base Bid for the omission of Material, Labor, and Equipment for the installation of under-slab porous fill.

2. Products

Not Used

3. Execution

Not Used

End Of Section 01 23 00

Section 01 25 00

Substitution Procedures

V02212011

1. General

- 1.1. Each Bidder obligates himself to the use of brands, makes and models, materials and apparatus named in this Project Manual and on the accompanying Drawings, unless substitute approval is obtained in the manner described herein.
- 1.2. All items, for which there is a specific product or brand designated, shall be supplied as specified.
- 1.3. After bidding: no substitutions will be considered, except in cases necessitated by strikes, bankruptcy, discontinuation of a product, etc., or where equal performance and significant cost savings will result. Requests shall be in writing and be accompanied by full descriptive data. It is assumed that the reason for substituting materials and methods is based on a cost or time savings, and that Publix will share in these benefits.

2. Products

Not Used

3. Execution

Not Used

End Of Section 01 25 00

Section 01 26 00

Contract Modification Procedures

V02212011

1. General

- 1.1. Definitions: Refer to AIA Document A201.
 - 1.1.1 The Contract for Construction (the Work) is composed of:

Agreement (Form itself, with attachments)

General Conditions

Specifications

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Drawings

Addenda

- 1.1.2 Change Orders modify any or all of the parts of the Contract where a change in Cost or Time is required.
- 1.1.3 Minor changes in the Work shall be as directed by the Owner's Representative.
- 1.1.4 Aligned Contractors shall be bound by provisions of their Cost Plus a Fee Contracts.
- 1.2. Revision Request (This is the term used to describe the process by which Publix identifies items for change):
 - 1.2.1 Where a Revision Request has no associated cost, submit a letter stating this, or include as a no cost line item on a Change Order.
 - 1.2.2 Where a Revision Request requires an adjustment in the Contract Sum, submit within 30 days from distribution date of Revision Request as a Change Order or a line item on a Change Order. If Change Order is not received within 30 days, it will be assumed that the Revision Request is a no cost item.
 - 1.2.3 Where a Revision Request is included as a line item on a Change Order, include the following as back-up, broken out for each Revision Request individually.
 - 1.2.4 Submit on forms supplied or approved by Publix.
 - 1.2.5 Required Information:
 - 1.2.5.1 Labor:
 - Units of labor x actual rate by Categories
 - % of labor burden by Categories
 - Total labor by Categories
 - 1.2.5.2 Material:
 - Units of material x actual unit cost by Categories
 - Subtotal by Categories
 - %Tax
 - 1.2.5.3 Category Total (or Subcontract):
 - Total Labor
 - Total Material
 - Subtotal
 - X 7%
 - Category Cost
 - 1.2.5.4 Recap Categories
 - Category Cost each Category
 - Total Cost of Revision Request or Change Order

2. Products

Not Used

3. Execution

Not Used

End Of Section 01 26 00

Section 01 31 13

Coordination

1. General

- 1.1. Scope: This Section includes contractor's administrative and supervisory requirements necessary for coordinating construction operations including, but not necessarily limited to, the following:
 - 1.1.1 General project coordination procedures.
 - 1.1.2 Conservation.
 - 1.1.3 Coordination Drawings.
 - 1.1.4 Administrative and supervisory personnel.
 - 1.1.5 Cleaning and protection.
- 1.2. Coordination:
 - 1.2.1 Coordinate construction operations included in various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection, and operation.
 - 1.2.1.1 Schedule construction operations in the sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 1.2.1.2 Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.
 - 1.2.1.3 Make provisions to accommodate items scheduled for later installation.
 - 1.2.2 Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
 - 1.2.2.1 Prepare similar memoranda for the Owner and separate contractors where coordination of their work is required.
 - 1.2.3 Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1.2.3.1 Preparation of schedules.
 - 1.2.3.2 Installation and removal of temporary facilities.
 - 1.2.3.3 Delivery and processing of submittals.
 - 1.2.3.4 Progress meetings.
 - 1.2.3.5 Project closeout activities.

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1.2.4 Conservation: Coordinate construction operations to assure that operations are carried out with consideration given to conservation of energy, water, and materials. Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work.

1.3. Submittals:

1.3.1 Coordination Drawings: Prepare coordination drawings where careful coordination is needed for installation of products and materials fabricated by separate entities. Prepare coordination drawings where limited space availability necessitates maximum utilization of space for efficient installation of different components.

1.3.1.1 Show the relationship of components shown on separate Shop Drawings.

1.3.1.2 Indicate required installation sequences.

1.3.1.3 Comply with requirements contained in Section "Submittal Procedures".

1.3.2 Staff Names: Within 15 days of commencement of construction operations, submit a list of the Contractor's principal staff assignments, including the superintendent and other personnel in attendance at the Project Site. Identify individuals and their duties and responsibilities. List their addresses and telephone numbers. Post copies of the list in the Project meeting room, the temporary field office, and each temporary telephone.

2. Products

Not Used

3. Execution

3.1. General Coordination Provisions:

3.1.1 Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

3.1.2 Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

3.2. Cleaning And Protection:

3.2.1 Clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at Substantial Completion.

3.2.2 Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.

3.2.3 Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

3.2.3.1 Excessive static or dynamic loading.

- 3.2.3.2 Excessively high or low temperatures.
- 3.2.3.3 Water.
- 3.2.3.4 Chemicals.
- 3.2.3.5 Soiling, staining, and corrosion.
- 3.2.3.6 Unprotected storage.
- 3.2.3.7 Improper shipping or handling.
- 3.2.3.8 Theft.
- 3.2.3.9 Vandalism.

End of Section 01 31 13

Section 01 33 00

Submittal Procedures

V02022021

1. General

- 1.1. Submit all required Shop Drawings, Product Data, Samples, Concrete Design Mixes, Test Results, etc. to:

Publix Super Markets, Inc.
Attn: Facilities Design
P.O. Box 407 (3300 Publix Corporate Parkway)
Lakeland, FL33802 (33811)

- 1.2. Submittal Types:

- 1.2.1 Letters of Intent (LOI):

1.2.1.1 Use where provided by Publix. LOI's shall be filled out completely, with all options marked, and with all blanks filled in, properly signed by an authorized agent of the company concerned.

1.2.1.2 LOI shall be followed exactly in the field. Provide adequate information at the Job Site for Installers to conform to Manufacturers recommendations.

1.2.1.3 Submit only the original, signed LOI to Publix. Contractor may retain as many copies as he needs.

- 1.2.2 Manufacturer's Literature:

1.2.2.1 Submit where required by applicable Project Manual Section. Submit a minimum three copies for use of Owner and Contractor, additional copies as required.

1.2.2.2 Where more than one option is described, mark to indicate model or type to be used.

- 1.2.3 Shop Drawings

- 1.2.3.1 Submit for the following:

Concrete Reinforcing Steel
Masonry Reinforcement

- Open Web Steel Joists
 - Structural Steel
 - Fire Sprinklers
 - Switch gear / panels
 - Light fixtures and lamps
 - Under floor duct
 - Other items of work as required
- 1.2.3.2 Submit in number prescribed by instruction letter issued at pre-construction meeting or, if not specified in letter or individual sections, submit three sets.
- 1.2.3.3 Materials Lists: Identify all pertinent characteristics (type, model number, etc.) of materials intended for use.
- 1.2.3.4 Fire Sprinkler submittals only: Submit two sets with approval by Factory Mutual and local Authority having Jurisdiction. Submit sets bearing the original signature or initials of the reviewers. Include original letter from Factory Mutual detailing their review comments. These sets will not be returned.
- 1.2.4 Test Reports:
- 1.2.4.1 Where indicated, submit test reports to prove compliance of materials supplied with specification intent.
- 1.2.4.2 Reports Required:
- Concrete
 - Soil and other Geological Tests
 - Steel Inspection Report
 - Electrical megger test report
 - Others as needed
- 1.2.4.3 Note the requirements stated elsewhere for same-day submittal of test reports indicating substandard soil or concrete.
- 1.2.5 Samples:
- 1.2.5.1 Where required for selection of color, texture or other physical characteristics, submit samples of materials intended for use.
- 1.2.5.2 Samples shall be large enough to allow adequate evaluation.
- 1.2.5.3 Submit two samples minimum. One will be retained by Publix, the other will be returned to the General Contractor for use at the Job Site.
- 1.2.6 Sample Panels:
- 1.2.6.1 Where required by Publix Architect, erect on the job site where directed, a Sample Panel of major finish work.
- 1.2.6.2 Sample Panel shall be no larger than 4'-0" x 8'-0", but shall be large enough to indicate joint treatment, corner treatment, range of coloration, and other pertinent characteristics of the installation of materials selected.
- 1.2.6.3 Sample Panel will be used as the Quality Standard for the work represented. Work in place shall conform to the treatments shown by the Sample Panel.

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1.3. Submittal Process

1.3.1 Time

- 1.3.1.1 Letters of Intent: Return to Publix no later than 2 weeks before commencement of work described, and no later than 60 days from project commencement.
- 1.3.1.2 Marginal Soil, Concrete or Other Tests that indicate substandard conditions; submit to Publix immediately.
- 1.3.1.3 All other submittals: Return to Publix no later than 2 weeks before commencement of work described, and no later than 60 days from project commencement.
- 1.3.1.4 Subcontractor prepares submittal
- 1.3.1.5 If LOI is available, send original to General Contractor.
- 1.3.1.6 If LOI is not available, send six copies of submittals to General Contractor.
- 1.3.1.7 Deviations from the specifications will be considered only in the event that those products specified have become unavailable for use. Other products may be submitted only for future consideration.

1.3.2 General Contractor reviews submittal

- 1.3.2.1 If LOI is submitted, record action taken and send on to Publix.
- 1.3.2.2 Approve or annotate the submittals, then send on to Publix.
- 1.3.2.3 If disapproved, notify Subcontractor.

1.3.3 Publix reviews submittal

- 1.3.3.1 If LOI is submitted, record.
- 1.3.3.2 Approve or annotate submittals, keep file copy, return others to General Contractor.
- 1.3.3.3 If disapproved, notify General Contractor.

2. Products

- 2.1. All building construction products/materials used for the Project are to be non-asbestos containing. Asbestos Containing Material (ACM) by Federal EPA and OSHA definition is any material/product that contains greater than (>) 1.0% asbestos. The following six (6) types of natural occurring asbestos mineral fibers are currently regulated under EPA and OSHA; Chrysotile, Amosite, Crocidilite, Tremolite, Anthophyllite and Actinocite asbestos. Publix will require a notarized affidavit from the Project Construction Contractor or their representative stating that they have verified that ACM was not used or installed during the construction of the Publix structure.

3. Execution

Not Used

End Of Section 01 33 00

Section 01 50 00

Temporary Facilities and Controls

V02212011

1. General

1.1. Temporary Requirements:

1.1.1 Furnish two currently accepted type hygienic portable toilet facilities, and maintain same.

1.1.2 Provide temporary water supply (3/4").

1.1.3 Provide temporary electric service for power and lighting (208 volt, 200 amp.)

1.1.4 All temporary facilities shall be removed when their use is no longer required.

1.1.5 General Contractor shall pay operating costs of all temporary services.

1.2. Security: Provide weathertight shed(s) for all materials requiring protection from weather, with raised floors for storage of cement, lime, and similar items.

1.3. Construction Cleaning:

1.3.1 Contractors shall clean construction site daily of all rubbish and trash which might breed mosquitoes and vermin, or which is highly combustible. Trash which cannot be burned because burning is not allowed by local ordinance, or because it is not combustible, shall be removed from the site at least weekly.

1.3.2 The Contractor shall clean sweep the finished floor every day and be sure that the finished floor is undamaged by equipment or materials being stored directly on the floor. A daily check of rolling equipment shall be made for oil or battery acid leaks. The Contractor shall caution all Subcontractors about protecting the finished floor from staining materials such as oil, acid, chewing tobacco, cigarettes, coffee, soft drinks, and tire skid marks from rolling equipment.

1.3.3 Provide final clean-up of entire site and building interior and exterior, including the roof, before requesting Substantial Completion inspection.

1.4. Field Office

1.4.1 Provide weathertight shed or trailer with raised floors with adequate space for Contractor's and architect's needs.

1.4.2 Telephone: Install in field office for duration of construction work. Provide outdoor bell or bells to permit hearing ring from any part of Construction Site.

1.4.3 Contractor shall keep min. of 3 hard hats in field office for use by authorized visitors. These hats shall be kept in a clean and presentable condition.

1.4.4 Contractor shall at all times maintain a complete set of up-to-date Contract Documents in the field office. Documents which have been superseded shall be destroyed or clearly marked.

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2. Products

Not Used

3. Execution

Not Used

End Of Section 01 50 00

Section 01 66 00

Product Storage and Handling Requirements

V03172021

1. General

1.1. Walk-In Coolers and Freezers, and associated Evaporator Coils and Rooftop Refrigeration Equipment:

1.1.1 The General Contractor shall schedule a delivery date for this equipment, which date shall not be changed later than two weeks prior to the scheduled date. The following are prerequisites to delivery:

1.1.1.1 A stabilized roadway must be completed from a public street to and around the Publix building. Roadway and track around building shall accommodate the size and type of crane required to set steel and rooftop equipment.

1.1.1.2 All interior slabs must be poured.

1.1.1.3 All portions of the building must be dried in.

1.1.1.4 The area around the building must be accessible so that a crane will be able to lift the units from the ground to their rooftop locations.

1.1.1.5 On stores which have Rooftop Machine Rooms for housing Refrigeration Equipment, the Contractor must be prepared to make machine rooms weather-proof immediately after the equipment is set in place.

1.1.1.6 If the delivery date must be changed less than two weeks prior to a scheduled delivery date, the Contractor shall bear all costs for storage, demurrage, return and reshipping, etc.

1.2. Refrigerated Cases:

1.2.1 The General Contractor shall schedule a delivery date for this equipment, which date shall not be changed later than two weeks prior to the scheduled date. The following are prerequisites to delivery:

1.2.1.1 A stabilized roadway must be completed to the rear of the Publix building.

1.2.1.2 The cases will be unloaded on the concrete pad at the rear of the store. This pad must have been poured and cured for at least three days prior to delivery of the cases.

1.2.1.3 The building shall be secure. The General Contractor shall sign for receipt of the cases and be responsible for them, except for any damage caused by Publix' installation crew or Refrigeration Contractor.

- 1.2.1.4 The finished floor must be completely finished, cleaned, polished, stains removed, and sealed.
- 1.2.1.5 The interior of the Store Sales Area must be essentially complete, including painting, ceilings, wall coverings, wall tile, canopies, etc.
- 1.2.1.6 The area where cases are to be located must be swept clean.
- 1.2.1.7 Electrical wiring must be pulled and ready for connection.

2. Execution

Not Used

End Of Section 01 66 00

Section 01 73 29

Cutting and Patching

1. General

- 1.1. Scope: This Section includes contractor's administrative and procedural requirements for cutting and patching.
- 1.2. Submittals:
 - 1.2.1 Cutting and Patching Proposal: Submit a proposal describing procedures well in advance of the time cutting and patching will be performed. Request approval to proceed. Include the following information, as applicable, in the proposal:
 - 1.2.1.1 Describe the extent of cutting and patching required. Show how it will be performed.
 - 1.2.1.2 Describe anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components.
 - 1.2.1.3 List products to be used and firms or entities that will perform Work.
 - 1.2.1.4 Indicate dates when cutting and patching will be performed.
 - 1.2.1.5 Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
 - 1.2.1.6 Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with the original structure.
 - 1.2.1.7 Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of unsatisfactory work.
- 1.3. Quality Assurance: Requirements for Structural Work: Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.
 - 1.3.1 Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:
 - 1.3.1.1 Foundation construction.
 - 1.3.1.2 Bearing and retaining walls.

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- 1.3.1.3 Structural concrete.
- 1.3.1.4 Structural steel.
- 1.3.1.5 Lintels.
- 1.3.1.6 Structural decking.
- 1.3.2 Operational Limitations: Do not cut and patch operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut and patch operating elements or related components in a manner that would result in increased maintenance or decreased operational life or safety.
 - 1.3.2.1 Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
 - 1.3.2.1.1 Primary operational systems and equipment.
 - 1.3.2.1.2 Fire protection systems.
 - 1.3.2.1.3 Communication systems.
 - 1.3.2.1.4 Electrical wiring systems.
 - 1.3.3 Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace construction cut and patched in a visually unsatisfactory manner.
- 1.4. Warranty: Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any warranties required or existing.

2. Products

- 2.1. Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible if identical materials are unavailable or cannot be used. Use materials whose installed performance will equal or surpass that of existing materials.
- 2.2. Floor Leveling Compounds: Where indicated on drawings or where required, use the mixed polymer-modified Portland cement mortar product by the following Manufacturer:
 - 2.2.1 Sikatop 122 Plus as manufactured by Sika Corporation.
 - 2.2.2 An approved equal product to match the performance criteria of the above product. Provide documentation to Architect for approval of substitution.

3. Execution

- 3.1. Inspection: Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.
 - 3.1.1 Before proceeding, meet with parties involved. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- 3.2. Preparation:

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- 3.2.1 Temporary Support: Provide temporary support of work to be cut.
- 3.2.2 Protection: Protect existing construction during cutting and patching, and from adverse weather conditions during operations.
- 3.2.3 Avoid interference with use of or passage to adjoining areas.
- 3.2.4 Avoid cutting existing pipe, conduit, or ductwork scheduled to be removed or relocated until provisions have been made to bypass them.
- 3.3. Performance:
 - 3.3.1 General: Employ skilled workmen. Proceed with cutting and patching at the earliest feasible time and complete without delay. Cut construction to install at other components or performance of other construction and subsequent fitting and patching required to restore surfaces to their original condition.
 - 3.3.2 Cutting: Cut using methods least likely to damage elements. Comply with the original Installer's recommendations.
 - 3.3.2.1 Use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 3.3.2.2 To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
 - 3.3.2.3 Cut through concrete and masonry using a cutting machine, such as a Carborundum saw or a diamond-core drill.
 - 3.3.2.4 Comply with requirements of applicable Division 32 Sections where cutting and patching requires excavating and backfilling.
 - 3.3.2.5 Where services are required to be removed, relocated, or abandoned, by-pass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
 - 3.3.3 Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
 - 3.3.3.1 Test patched areas to demonstrate integrity of the installation.
 - 3.3.3.2 Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - 3.3.3.3 Where removing walls or partitions extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - 3.3.3.3.1 Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing the patch after the area has received primer and second coat.
 - 3.3.3.4 Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
 - 3.3.4 Plaster Installation: Comply with manufacturer's instructions.

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- 3.3.4.1 Unless otherwise indicated, provide 3-coat work.
- 3.3.4.2 Finish gypsum plaster to match existing adjacent surfaces.
- 3.3.4.3 Cut, patch, point-up, and repair plaster to accommodate other construction.
- 3.3.5 Polymer-modified Portland cement mortar as leveling compound:
 - 3.3.5.1 Comply with approved product manufacturer's current printed technical data sheet and literature.
 - 3.3.5.2 Surface Preparation: Remove all deteriorated concrete, dirt, oil, grease and all bond-inhibiting materials from surface that shall receive the leveling compound.
 - 3.3.5.3 Prepare and install products per manufacturer's recommendation. Curing is required per ACI recommendation for Portland cement concrete. Protect newly applied materials from direct sunlight, wind, rain and frost.
 - 3.3.5.4 For product application of greater than 1" in depth, add a 3/8" coarse aggregate to extend factory proportioned unit to be 42 lbs. maximum. Aggregate shall conform to ASTM C-33, well graded, SSD, having low absorption and high density.
- 3.3.6 Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

End of Section 01 73 29

Section 01 77 00

Closeout Procedures

V02212011

1. General

- 1.1. Electric Service: Payment for electric service will become the responsibility of Publix Super Markets, Inc. at the earlier of two dates:
 - 1.1.1 The date Publix starts up the refrigeration system permanently.
 - 1.1.1.1 All testing and remediation of the refrigeration system shall be completed before this date.
 - 1.1.1.2 The air conditioning system must also be started by this date; the Contractor may start the air conditioning earlier but Publix will not pay for electric service.
 - 1.1.2 The Date of Substantial Completion as established below.
- 1.2. The following requirements for Substantial Completion supplement those in AIA Document A201 General Conditions of the Contract For Construction, Paragraph 9.8.
 - 1.2.1 When Substantial Completion is near, Publix will at the request of the Contractor prepare a list of items to be completed or corrected. All items on this "Punch List" must be corrected or completed to the satisfaction of Publix' Representative, except those items which Publix may specifically allow to be

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deferred to Final Inspection, before the inspection for Substantial Completion will be scheduled.

- 1.2.2 The following items are among those that must be completed prior to inspection for Substantial Completion:
 - 1.2.2.1 The issuance of a Certificate of Occupancy and/or a Certificate of Use by authorities having jurisdiction.
 - 1.2.2.2 Clean the entire work and site of all trash and used material. All equipment, fixtures, glass, metal, etc. shall be cleaned, ready for use with all shipping labels, manufacturer's removable labels, etc. removed.
 - 1.2.2.3 Make all floors ready for use by cleaning. Posting of all required operating instructions for equipment.
 - 1.2.2.4 Posting of typewritten panel board schedules.
 - 1.2.2.5 Labeling of all lines and controls as required.
 - 1.2.2.6 Sitework (signage, paving, striping, site utilities, landscaping, DOT requirements, and other ancillary work) performed under this Contract or other contracts.
- 1.2.3 After Publix' Representative has approved the disposition of all items on the Punch List, Publix will set a date for inspection for Substantial Completion. Discrepancies noted during this inspection may be cause for withholding issuance of Certificate of Substantial Completion at the discretion of Publix' Representative. Otherwise, a Certificate of Substantial Completion will be issued promptly.
- 1.3. The following requirements for Final Payment supplement those in AIA Document A201 General Conditions of the Contract for Construction, Paragraph 9.10. The Contractor shall notify Publix when all deferred Punch List items have been corrected, at which time Publix will set a date for inspection for Final Payment.
 - 1.3.1 The following items are among those which must be completed prior to the inspection for Final Payment:
 - 1.3.1.1 Receipt by Publix of the Project Record Documents specified in Section 01720.
 - 1.3.1.2 Receipt by Publix of a Closeout Book, which shall contain the following:
 - List of all Sub-Contractors, Sub-Sub-Contractors, And Suppliers.
 - All required Guaranties and Warranties.
 - All Operating Manuals, Service Instructions, and Parts Data.
- 1.4. At a time approximately one year after Substantial Completion Publix will schedule the One-Year Inspection of the Project. The Contractor shall send a representative. The Contractor shall correct any work found not to be in accordance with the requirements of the Contract Documents, as set forth in AIA Document A201 General Conditions of the Contract for Construction, Paragraph 12.2.2.

2. Products

Not Used

3. Execution

Not Used

End Of Section 01 77 00

Section 01 78 39

Project Record Documents (As-Built Drawings)

V01182012

1. General

1.1. Summary:

- 1.1.1 Publix will supply a compact disc with TIFF images of the construction documents prepared by Publix Super Markets, Inc. to the General Contractor upon awarding of Bid. The General Contractor will be responsible for reproduction of hard copies to complete the requirements of this Section regarding the Job Set and Final Record Documents.
- 1.1.2 Throughout progress of the Work, maintain an accurate record of changes in the Contract Documents, and, upon completion of the Work, transfer the recorded changes to a set of "Final Record Documents", as described in article 1.5 below.
- 1.1.3 The purpose of the Final Project Record Documents is to provide accurate information regarding all aspects of the Project, both concealed and visible, so maintenance and future modification of the Work may proceed without extensive investigation of existing conditions.

1.2. Final Project Record Set Approvals:

- 1.2.1 Publix' Representative's approval of the status of the Final Project Record Documents may be a prerequisite to Publix' approval of requests for Progress Payments.
- 1.2.2 Prior to submitting Request for Inspection for Final Payment, submit the Final Project Record Documents to Publix. Final Payment will not be approved until Documents are received by Publix.
- 1.2.3 Deliver the original and two copies of Final Project Record Documents to Publix's representative within 30 days of owner acceptance.

1.3. Quality Assurance: Delegate responsibility for maintenance of Final Project Record Documents to one person on the Contractor's staff as approved by Publix' Representative.

1.4. Maintenance of Job Set

- 1.4.1 Job Set: Designate one of the sets of Contract Document Drawings provided to the Contractor at the start of the Project as the Final Project Record Document Job Set. Immediately identify each sheet of the documents with the title "Record Documents - Job Set."
- 1.4.2 Thoroughly coordinate changes within the Record Documents. Make adequate entries on each sheet of Publix' prototype Project Manual, the supplemental Architectural and Engineering Drawings and Specifications, and the Civil Engineering, Landscaping, and Site Utilities Drawings.
- 1.4.3 Do not use the Job Set for any purpose except entry of new data and for review

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by Publix' Representative, until start of transfer of data to the Final Record Documents.

- 1.4.4 Make entries on the Job Set within 24 hours after receipt of information that a change has occurred.
- 1.4.5 Maintain the Job Set of Final Project Record Documents completely protected from deterioration and from loss or damage until completion of the Work and transfer of all recorded data to the Final Project Record Documents.
- 1.4.6 In the event of loss of recorded data, use means necessary to again secure the data to Publix' Representative's approval. Such means shall include removal and replacement of concealing materials if this is necessary in the opinion of Publix' Representative.
- 1.4.7 Change Data: Make change entries on drawings as follows:
 - 1.4.7.1 Make entries in erasable colored pencil.
 - 1.4.7.2 Call attention to each entry by drawing a "cloud" around each area affected; date all entries.
 - 1.4.7.3 In the event of overlapping changes, use a different color for subsequent changes, so that the final construction is evident.
- 1.4.8 Schematic Conversion Data:
 - 1.4.8.1 Show on the Job Set of Record Drawings, by dimension, accurate to within one inch, the location of each run of underground conduit, pipe, etc. Clearly identify each item by accurate note such as "PVC. drain", "gal. water", and the like. Clearly note the depth of each run beneath the finished floor.
 - 1.4.8.2 Call attention to each entry by drawing a "cloud" around each area affected.
- 1.5. Final Project Record Documents
 - 1.5.1 Obtain base drawings for Final Record Documents: At a time nearing the completion of the Work, secure from the Architect at no charge to the Contractor one complete set of Contract Document Drawings.
 - 1.5.2 Approval of recorded data prior to transfer: Following receipt of the set of base drawings of the Final Record Documents, and prior to the start of transfer of data from the Job Set to the Final Record Documents, secure the review and approval of all recorded data by Publix' Representative. Make all required revisions to the Job Set.
 - 1.5.3 After approval, carefully transfer change data and schematic conversion data shown on the Job Set of Record Drawings to the corresponding sheets, calling attention to each entry by drawing a "cloud" around the affected area. Dates of changes are not required. Use proper media to assure longevity and clear reproduction.

2. Products

Not Used

3. Execution

Not Used

End Of Section 01 78 39

Section 02 41 00

Selective Demolition

1. General

1.1. Scope of Work:

1.1.1 Demolition and removal of selected portions of a building.

1.1.2 Demolition and removal of selected site elements.

1.1.3 Patching and repairs.

1.2. Definitions:

1.2.1 Remove, or Demolish: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.

1.2.2 Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area.

1.2.3 Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.

1.2.4 Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Architect, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

1.3. Materials Ownership:

1.3.1 Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.3.2 Historical items indicated remain the Owner's property. Carefully remove and salvage each item in a manner to prevent damage and deliver promptly to the Owner.

1.3.3 Historical items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to the Owner, which may be encountered during selective demolition, remain the Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to the Owner.

1.4. Submittals:

1.4.1 General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections, for information only, unless otherwise indicated.

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- 1.4.2 Proposed dust-control measures.
- 1.4.3 Proposed noise-control measures.
- 1.4.4 Schedule of selective demolition activities indicating the following:
 - 1.4.4.1 Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
 - 1.4.4.2 Interruption of utility services.
 - 1.4.4.3 Coordination for shutoff, capping, and continuation of utility services.
 - 1.4.4.4 Detailed sequence of selective demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
 - 1.4.4.5 Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
 - 1.4.4.6 Locations of temporary partitions and means of egress.
- 1.4.5 Inventory of items to be removed and salvaged.
- 1.4.6 Inventory of items to be removed by Owner.
- 1.4.7 Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by selective demolition operations.
- 1.4.8 Record drawings at Project closeout according to Division 1 Section "Closeout Procedures". Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.
- 1.4.9 Landfill records indicating receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
- 1.5. Quality Assurance:
 - 1.5.1 Demolition Firm Qualifications: Engage an experienced firm that has successfully completed selective demolition Work similar to that indicated for this Project.
 - 1.5.2 Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
 - 1.5.3 Predemolition Conference: Conduct conference at Project site to comply with preinstallation conference requirements of Division 1 Section 01 31 13 "Coordination".
- 1.6. Project Conditions:
 - 1.6.1 Owner will occupy portions of the building immediately adjacent to selective demolition area. Conduct selective demolition so that Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
 - 1.6.2 Owner assumes no responsibility for actual condition of buildings to be selectively demolished. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
 - 1.6.3 Asbestos: It is not expected that asbestos will be encountered in the Work. If any materials suspected of containing asbestos are encountered, do not disturb the materials. Immediately notify the Architect and the Owner.

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1.6.3.1 Asbestos will be removed by Owner before start of Work.

1.6.4 Storage or sale of removed items or materials on-site will not be permitted.

- 1.7. Scheduling: Arrange selective demolition schedule so as not to interfere with Owner's on-site operations.
- 1.8. Warranty: Existing Special Warranty: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

2. Products

- 2.1. Repair Materials: Use repair materials identical to existing materials.
- 2.1.1 Where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
- 2.1.2 Use materials whose installed performance equals or surpasses that of existing materials.

3. Execution

- 3.1. Examination:
- 3.1.1 Verify that utilities have been disconnected and capped.
- 3.1.2 Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- 3.1.3 Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- 3.1.4 When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Architect.
- 3.1.5 Survey the condition of the building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective demolition.
- 3.1.6 Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
- 3.2. Utility Services:
- 3.2.1 Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to governing authorities.
- 3.2.1.1 Provide not less than 72 hours' notice to Owner if shutdown of service is required during changeover.
- 3.2.2 Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services serving building to be selectively demolished.
- 3.2.2.1 Owner will arrange to shut off indicated utilities when requested by Contractor.

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- 3.2.2.2 Arrange to shut off indicated utilities with utility companies.
- 3.2.2.3 Where utility services are required to be removed, relocated, or abandoned, provide bypass connections to maintain continuity of service to other parts of the building before proceeding with selective demolition.
- 3.2.2.4 Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit after bypassing.
- 3.2.3 Utility Requirements: Refer to Division 22 and 26 Sections for shutting off, disconnecting, removing, and sealing or capping utility services. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.
- 3.3. Preparation:
 - 3.3.1 Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.
 - 3.3.2 Employ a certified, licensed exterminator to treat building and to control rodents and vermin before and during selective demolition operations.
 - 3.3.3 Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 - 3.3.3.1 Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
 - 3.3.4 Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective demolition area.
 - 3.3.4.1 Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 - 3.3.4.2 Protect existing site improvements, appurtenances, and landscaping to remain.
 - 3.3.4.3 Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
 - 3.3.4.4 Provide temporary weather protection, during interval between demolition and removal of existing construction, on exterior surfaces and new construction to ensure that no water leakage or damage occurs to structure or interior areas.
 - 3.3.4.5 Protect walls, ceilings, floors, and other existing finish work that are to remain and are exposed during selective demolition operations.
 - 3.3.4.6 Cover and protect furniture, furnishings, and equipment that have not been removed.
 - 3.3.5 Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
 - 3.3.5.1 Construct dustproof partitions of not less than nominal 4-inch (100-mm) studs, 5/8-inch (16-mm) gypsum wallboard with joints

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- taped on occupied side, and 1/2-inch (13-mm) fire-retardant plywood on the demolition side.
- 3.3.5.2 Insulate partition to provide noise protection to occupied areas.
- 3.3.5.3 Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
- 3.3.5.4 Protect air-handling equipment.
- 3.3.5.5 Weatherstrip openings.
- 3.3.6 Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of building to be selectively demolished. Strengthen or add new supports when required during progress of selective demolition.
- 3.4. Pollution Controls:
 - 3.4.1 Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations.
 - 3.4.1.1 Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
 - 3.4.2 Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level.
 - 3.4.3 Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before start of selective demolition.
- 3.5. Selective Demolition:
 - 3.5.1 Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete Work within limitations of governing regulations and as follows:
 - 3.5.1.1 Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition work above each floor or tier before disturbing supporting members on lower levels.
 - 3.5.1.2 Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 - 3.5.1.3 Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 3.5.1.4 Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 - 3.5.1.5 Maintain adequate ventilation when using cutting torches.
 - 3.5.1.6 Remove decayed, vermin-infested, or otherwise dangerous or

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- unsuitable materials and promptly dispose of off-site.
- 3.5.1.7 Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 - 3.5.1.8 Locate selective demolition equipment throughout the structure and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 3.5.1.9 Dispose of demolished items and materials promptly. On-site storage or sale of removed items is prohibited.
 - 3.5.1.10 Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.
- 3.5.2 Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain, using power-driven masonry saw or hand tools; do not use power-driven impact tools.
 - 3.5.3 Break up and remove concrete slabs on grade, unless otherwise shown to remain.
 - 3.5.4 Remove resilient floor coverings and adhesive according to recommendations of the Resilient Floor Covering Institutes's (RFCI) "Recommended Work Practices for the Removal of Resilient Floor Coverings" and Addendum.
 - 3.5.4.1 Remove residual adhesive and prepare substrate for new floor coverings by one of the methods recommended by RFCI.
 - 3.5.5 Remove no more existing roofing than can be covered in one day by new roofing. See applicable Division 7 Section for new roofing requirements.
 - 3.5.6 Remove air-conditioning equipment without releasing refrigerants.
- 3.6. Patching And Repairs:
 - 3.6.1 Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.
 - 3.6.2 Patching is specified in Division 1 Section "Cutting and Patching".
 - 3.6.3 Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials. Completely fill holes and depressions in existing masonry walls to remain with an approved masonry patching material, applied according to manufacturer's printed recommendations.
 - 3.6.4 Restore exposed finishes of patched areas and extend finish restoration into adjoining construction to remain in a manner that eliminates evidence of patching and refinishing.
 - 3.6.5 Patch and repair floor and wall surfaces in the new space where demolished walls or partitions extend one finished area into another. Provide a flush and even surface of uniform color and appearance.
 - 3.6.5.1 Closely match texture and finish of existing adjacent surface.
 - 3.6.5.2 Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
 - 3.6.5.3 Where patching smooth painted surfaces, extend final paint coat over entire unbroken surface containing the patch after the surface has received primer and second coat.

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- 3.6.5.4 Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
- 3.6.5.5 Inspect and test patched areas to demonstrate integrity of the installation, where feasible.
- 3.6.6 Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
- 3.7. Disposal of Demolished Materials:
 - 3.7.1 General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
 - 3.7.2 Burning: Do not burn demolished materials.
 - 3.7.3 Disposal: Transport demolished materials off Owner's property and legally dispose of them.
- 3.8. Cleaning:
 - 3.8.1 Sweep the building broom clean on completion of selective demolition operation.
 - 3.8.2 Change filters on air-handling equipment on completion of selective demolition operations.
- 3.9. Selected Demolition Schedule: Refer to specific demolition sheets and notes in the construction demolition package.

End of Section 02 41 00

Section 03 30 00

Cast-in-Place Concrete V07222022

1. General

- 1.1. Scope of Work
 - 1.1.1 Furnish all materials, labor, equipment and services necessary and incidental to complete installation of concrete work indicated, implied on contract drawings, or as specified.
 - 1.1.2 The Contractor shall cooperate with other trades regarding installation of embedded items, and shall obtain inserts from related trades, such as plumbing, HVAC, roofing etc., and install under this section.
 - 1.1.3 Grout fill of hollow masonry units and hollow masonry pilasters is specified under masonry.
- 1.2. References: the following specifications, codes and standards of current issue (hereafter referred to by acronym or alpha/numeric designation only) form a part of this specification:
 - 1.2.1 American Concrete Institute
 - 1.2.1.1 ACI 117: Standard Tolerances for Concrete Construction and Materials
 - 1.2.1.2 ACI 211.1: Standard Practice for Selecting Proportions for Normal Weight, Heavy Weight, and Mass Concrete

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- 1.2.1.3 ACI 221: Guide for Use of Normal Weight and Heavy Weight Aggregates in Concrete
- 1.2.1.4 ACI 301: Specification for Concrete Construction
- 1.2.1.5 ACI 302: Guide for Concrete Floor and Slab Construction
- 1.2.1.6 ACI 305: Guide to Hot Weather Concreting
- 1.2.1.7 ACI 306: Guide to Cold Weather Concreting
- 1.2.1.8 ACI 318 Bldg. Code Requirements for Structural Concrete (see other paragraphs of this Section for exceptions)
- 1.2.1.9 ACI 347: Recommended Practice for Concrete Form Work
- 1.2.1.10 MNL-66: ACI Detailing Manual
- 1.2.2 American Society for Testing and Materials
 - 1.2.2.1 ASTM A1064 Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
 - 1.2.2.2 ASTM A 615: Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
 - 1.2.2.3 ASTM C 31: Making and Curing Concrete Test Specimens in the Field
 - 1.2.2.4 ASTM C 33: Specification for Concrete Aggregates
 - 1.2.2.5 ASTM C 39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
 - 1.2.2.6 ASTM C 143: Standard Test Method for Slump of Hydraulic-Cement Concrete
 - 1.2.2.7 ASTM C 150: Specification for Portland Cement
 - 1.2.2.8 ASTM C 260: Specification for Air-Entraining Admixtures for Concrete
 - 1.2.2.9 ASTM E 1745: Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs
 - 1.2.2.10 ASTM E 154: Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs
 - 1.2.2.11 ASTM E 96: Standard Test Methods for Water Vapor Transmission of Materials
 - 1.2.2.12 ASTM 1643: Standard Practice for Selection, Design, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs
- 1.2.3 Concrete Reinforcing Steel Institute: Manual of Standard Practice
- 1.2.4 Applicable Building Code
- 1.3. Submittals:
 - 1.3.1 Submit LOI in accordance with Section 01 33 00 Submittal Procedures.
 - 1.3.2 Design Mixes:
 - 1.3.2.1 Submit written reports to Engineer of each proposed mix for each class of concrete at least 15 days prior to the start of Work. Do not begin concrete production until proposed mix designs have been reviewed by Engineer.
 - 1.3.2.2 Reports shall include material certifications and product data for all materials proposed for use.
 - 1.3.2.3 Separate mix designs shall be required for each admixture or combination of admixtures proposed for each class and strength of concrete reviewed by the Engineer.

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- 1.3.2.4 Reports shall include wet and dry unit weights for each mix design.
- 1.3.3 Shop Drawings: Submit in accordance with Section 01340 Submittals, prepared as described by MNL-66. Show complete plans, scaled sections, and elevations; clearly indicate all openings, ledges, haunches, construction joints required, and other pertinent items. Show size, mark, and location of all reinforcing steel, bar schedules, and bending schedules.
- 1.3.4 Samples of materials shall be submitted if requested by the Engineer.
- 1.3.5 Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials and others if requested by the Engineer.
- 1.3.6 Submit certificate from aggregate supplier, countersigned by concrete supplier verifying that all aggregates furnished for and used in concrete for this project conform to ASTM C 33.
- 1.3.7 Certification of conformance to requirements, and the chloride ion content of the admixture will be required from the admixture manufacturer prior to mix design review by the Engineer.
- 1.4. Quality Assurance - Single-Source Responsibility For Concrete Materials: Obtain concrete ingredients of uniform quality, including color for exposed concrete, from one manufacturer for each cementitious component and from one source and producer for each aggregate.
- 1.5. Field Quality Control
- 1.5.1 Employ a Testing Laboratory experienced in testing of concrete materials to perform material evaluation tests and to submit test reports. The laboratory conducting the testing must comply with the requirements of ASTM C 1077. Publix reserves the right to disallow any Testing Laboratory.
- 1.5.2 Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
- 1.5.3 Slump: ASTM C 143; one test for each concrete load at point of discharge for all normally placed concrete, and point of placement for pumped concrete; and one for each set of compressive strength test specimens.
- 1.5.4 Air Contents: ASTM C 231 Pressure Method For Normal Weight Concrete; Take one air content test for every other concrete load at point of discharge, when the concrete mix design includes an air entraining agent. Air content tests are not required for mixes with entrapped air only.
- 1.5.5 Concrete Temperature: Test hourly when air temperature is 40F (4C) and below, and when 80F (27C) and above; and each time a set of compressive strength specimens is made.
- 1.5.6 Compressive Strength Specimen: ASTM C 31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cure test specimens are required.
- 1.5.7 Compressive Strength Tests: ASTM C 39; one set for each 50 cubic yards or fraction thereof, of each mix design placed in any one day or for each 3,000 square feet of surface area placed; one specimen tested at seven days, two tested at 28 days, and one specimen retained in reserve for later testing if required.
- 1.5.8 Test results shall be reported in writing to Publix Structural Engineer, Publix Construction Department, Ready Mix Producer, and Contractor within 24 hours. Reports of compressive strength test shall contain:

1. The Publix store name and number

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2. Date of concrete placement
 3. Name of concrete testing service
 4. Mix design number and specimen numbers
 5. Design compressive strength at 28 days
 6. Location of concrete batch in structure
 7. Ambient temperature at job site
 8. Slump
 9. Air content, as noted in 1.5.4
 10. Concrete temperature
 11. Time from batching to sampling at site
 12. Any added water at the site (see 2.5.3)
 13. Compressive strength and type of break for each cylinder
 14. Provide reports for 7 day and 28 day breaks.
- 1.5.9 Additional Tests: Coring of concrete anywhere in the structure shall be done only with written approval by Publix Engineer.
- 1.5.10 Publix acceptance of the test reports does not in any way relieve the Contractor of his responsibility to insure the strength, slump, and quality of the in-place concrete meets the requirements of the Contract Documents.
- 1.6. Remediation:
- 1.6.1 Seven (7) day concrete strength shall not be less than 75% of the 28 day strength. Twenty eight (28) day strength shall be not less than 100% of the 28 day design strength. The concrete strength will be determined by the method described in ACI 318 Sections and the corresponding ASTM Designation (C 39).
 - 1.6.2 Where testing reveals defective materials, remove nonconforming concrete and install new concrete in its place.
 - 1.6.3 Perform additional tests required to verify compliance of replacement concrete.
- 1.7. Pre-Slab Conference: At least one week prior to the beginning of the installation of slabs on grade, the Contractor shall hold a meeting with all affected Subcontractors or Suppliers and the Hardener Manufacturer, to review the detailed requirements for the floor methods and procedures, including concrete and reinforcing placement, joint layout, placing techniques, finishing techniques, admixture usage, and curing procedures. At least one person on the finishing crew must be certified as an ACI Flatwork Finisher, or equivalent.
- 1.8. Inspections: Notify Publix Super Market, Inc.'s Representative 48 hours (min.) in advance of all pours so that he may
- 1.8.1 Observe all reinforced concrete placement unless otherwise directed by the Engineer.
 - 1.8.2 Check size, grade, spacing, and clearances of all reinforcing and wire mesh.
 - 1.8.3 Check lap lengths
 - 1.8.4 See that reinforcing is clean.
 - 1.8.5 See that forms are properly cleaned and oiled when required.
 - 1.8.6 See that steel has been properly placed and tied.

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- 1.8.7 See that forms for columns and beams are fully constructed, except that one (1) side of form is removed to allow for visual inspection.
- 1.9. Delivery, Storage, And Handling: Reinforcing steel shall be delivered to the building site, stored, and covered in a manner which will insure that no damage from moisture, dirt, grease, or any other substance will impair bond with concrete.
- 1.10. Existing Conditions:
 - 1.10.1 Inspect and field verify all existing surfaces, structures, and dimensions in or adjacent to where Work is to be installed.
 - 1.10.2 Notify the Engineer in writing, before any work is installed, of any condition in disagreement with the Contract Documents or otherwise requiring correction. Failure to make such a report will be construed as acceptance of the existing conditions and acceptance of the responsibility to provide a proper installation.

2. Materials

- 2.1. General: All materials shall be delivered, stored and handled to prevent inclusion of foreign materials, damage by water, or breakage. Materials shall be stored and delivered in original packages.
- 2.2. Concrete Materials
 - 2.2.1 Aggregates
 - 2.2.1.1 Fine and coarse aggregates shall conform to the requirements of ASTM C 33, ACI 221 and ACI 301.
 - 2.2.1.2 Coarse aggregate shall meet ASTM C 33 Size No. 57 (1" to no. 4) for concrete at foundations, pedestals, slab-on-grade, exterior pads and slabs, stem walls, pedestals, steps, curbs, and cast-in-place walls.
 - 2.2.1.3 Coarse aggregate shall meet ASTM C 33 Size No. 89 (1/2" to no. 50) for concrete at beams and columns that are cast integral with CMU walls, concrete eyebrows associated with concrete beams, concrete topping slabs, metal stair treads and landings, and mezzanine slab.
 - 2.2.1.4 When a pump is used for concrete placement select the pump and line size as required for the aggregate size to be used.
 - 2.2.1.5 All aggregate for this Project shall be from one source and of uniform color throughout.
 - 2.2.1.6 "Opaline Chert" shall not be used.
 - 2.2.1.7 Sand shall be capable of developing 90% of the strength of standard Ottawa sand, and shall not contain more than 3% clay. The size of the sand shall be such that not less than 85% shall pass through a 1/4" sieve, not more than 30% through a 50 mesh sieve, and not more than 5% through a 100 mesh sieve. Test reports shall be furnished with design mixes indicating strength and gradation.
 - 2.2.2 Cement
 - 2.2.2.1 Normal Portland cement shall be type I /IL/II conforming to the requirements of ASTM C 150 and shall be used for all concrete work. All cement for this project shall be from one source and of uniform color throughout unless special colors or finishes are noted.
 - 2.2.2.2 Fly Ash, slag, or silica fume shall not be used.
 - 2.2.3 Water: Water for concrete shall be potable or comply with ASTM C 1602.
 - 2.2.4 Reinforcement
 - 2.2.4.1 Bars: ASTM A 615, Grade 60, unless otherwise shown on Drawings,

using deformed bars for no. 3 and larger.

- 2.2.4.2 Reinforcement Accessories: High chairs, spacers, bolsters, etc. shall meet the requirements of CRSI.
- 2.2.4.3 Welded Steel Wire Fabric Reinforcement: ASTM A 185
- 2.2.4.4 Plate dowels for slab construction joints shall be smooth steel plate bars, ASTM A36 steel. Plate dowels shall be one of the following:
 - “Diamond Dowel System”: 1/4” x 4 1/2” x 4 1/2”, PNA Construction Technologies
 - “EZDowel”: 1/4” x 6 1/2” x 3 1/2”, McTech Group
 - “Speed Plate System”: 1/4” x 4” x 6”, Sika
 - “T28 Superior Plate Dowel”, Dayton Superior
- 2.2.4.5 Synthetic microfiber reinforcement (fibermesh): 100% virgin fibrillated polypropylene fibers complying with ASTM C 1116 for use as secondary reinforcement with a minimum length of 1/2” and maximum length of 3/4”. Application rate for synthetic microfiber reinforcement is 1.5 pounds per cubic yard of concrete. Acceptable manufacturers and products are:
 - “Fibermesh 300”, Propex Concrete Systems
 - “PSI Fiberstrand F”, Euclid Chemical
 - “FIB 300”, FRC Industries
 - “Sika Fibermesh 300”, Sika Corporation
 - “SINTA F19”, GCP Technologies
 - “Genesis XF Fibers”, Fabpro Polymers
 - “MasterFiber F100”, BASF
 - “Durafiber-CFP”, Industrial Systems, Ltd
 - “FiberForce 300”, ABC Polymer Industries
 - “Econo-net”, Forta Concrete Fiber

2.2.5 Admixtures

- 2.2.5.1 No admixtures shall be incorporated in concrete unless written authorization is received from Publix’ Engineer.
- 2.2.5.2 Prohibited Admixtures: Calcium Chloride, Thiocyanates or admixtures containing more than 0.05% chloride ions are not permitted.
- 2.2.5.3 Air Entraining Admixture: ASTM C 260, certified by Manufacturer to be compatible with other required admixtures.
 - 2.2.5.3.1 Manufacturers
 - Euclid Chemical Company
 - Grace Construction Products
 - BASF Chemical Co.
 - RussTech, Inc.
 - Sika Corporation
 - Cemex Admixtures
- 2.2.5.4 Freeze Protection Admixture: Shall conform to ASTM C494 Type C or except as modified herein.
 - 2.2.5.4.1 Admixture shall provide accelerated setting times and increased early and ultimate strengths

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2.2.5.4.2 Admixture shall protect concrete from damage from freezing at concrete temperatures as low as 40 F (4C) and ambient temperatures as low as 20 F (-7C).

2.2.5.4.3 Manufacturers

BASF Chemical Co.
Grace Construction Company
Euclid Chemical Company
RussTech, Inc.
Sika Corporation
Cemex Admixtures

2.2.5.5 Water Reducing Admixture: ASTM C 494, Type A

2.2.5.5.1 Manufacturers

Euclid Chemical Co.
Grace Construction Products
BASF Chemical Co.
RussTech, Inc.
Sika Corporation
Cemex Admixtures

2.3. Related Materials:

2.3.1 Vapor Barrier:

2.3.1.1 Moisture/Vapor Barrier: ASTM E 1745, Class A, 15mil minimum, acceptable manufacturers include:

“Stego 15 mil Vapor Barrier”, STEGO Industries LLC
“VaporBlock 15”, Raven Industries
“Perminator 15mil”, W.R. Meadows
“Husky Yellow Guard - 15mil”, Poly-America
“Viper II - 15mil”, ISI Building Products
“X-treme 15 Mil”, Tex-Trude

2.3.1.2 Tape for Sealing Laps: Use manufacturers’ matching product or approved equal.

2.3.1.3 Mastic for Sealing Penetrations: Use manufacturers’ matching product or approved equal.

2.3.1.4 Expansion Joint-Filler Strips for Joints in Slabs-on-Grade: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

2.3.1.5 Void Caps: PVC joint cap for forming slab joints. Acceptable manufacturers and products include, but are not limited to:

“Snap-Cap”, W.R. Meadows
“Void Cap”, Superior Profiles
“Void Cap”, Preco Concrete Accessories

2.3.2 Emery-Aggregate Dry-Shake Hardener: Blended and packaged, natural gray colored, dry shake hardener containing portland cement, aluminum oxide

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particles, and wetting agents or plasticizers. Acceptable manufacturers and products are:

“Colorbrite”, Natural, Lambert Corporation
“Surflex E”, Natural, Euclid Chemical Company

- 2.3.3 Penetrating Cure and Hardener Agent: When placing over slab with dry shake hardener, verify the compound is compatible. Acceptable manufacturers and products are:

“Gardseal”, Lambert Corporation
“MasterKure HD 200 WB”, BASF Chemical Company
“Ultrasil DC9”, Euclid Chemical Company

- 2.3.4 Absorptive Cover for Curing: Burlap cloth made from Jute or Kenaf, complying with AASHTO M 182 or absorptive Curing Blankets, that provide a water saturated environment for curing (not plastic sheets).

- 2.3.5 Evaporation Retarder/Control Material: Monomolecular film forming compound applied to exposed concrete slab surfaces for temporary protection from rapid moisture loss. Submit manufacturer's certification that the product is compatible with all coverings and surface treatments to be applied. Submit any instructions that must be followed prior to any subsequent surface treatments. Acceptable manufacturers and products are:

"Eucobar"; the Euclid Chemical Company
"Confilm"; BASF Building Systems
"Sure Film (J-74)", Dayton Superior
"SikaFilm", Sika Chemical Co.
“Sealtight Evapre”, W. R. Meadows

- 2.3.6 Curing Compound: Water-based, dissipating, VOC compliant, curing compound conforming with ASTM C309, Type 1, Class A&B or AASHTO M148, Type 1, Class A&B. Acceptable manufacturers and products are:

“1100”, W.R. Meadows, Inc.
“SpecRexz”, SpecChem, LLC
“Kurez DR”, Euclid Chemical
“Clear Resin Cure J11W”, Dayton Superior

2.4. Proportioning and Design of Mixes:

- 2.4.1 Mix designs shall be proportioned in accordance with ACI 301, “Proportioning on the Basis of Field Experience and/or Trial Mixtures”.
- 2.4.2 If trial batches are used, the mix design shall be prepared by an independent testing laboratory, and shall achieve an average compressive strength 1200 psi higher than the specified strength. This over-design shall be increased to 1400psi when concrete strengths over 5000 are used.
- 2.4.3 Design mixes to provide normal weight concrete with the following properties, as indicated on the Drawings and Schedules.
- 2.4.3.1 Maximum W/C Ratios: 0.58 for 3000 psi, 0.44 for 4000 psi. Provide minimum of 500 lbs. portland cement per cubic yard of concrete.
- 2.4.4 Proportion and design mixes to result in concrete slump at point of placement as follows:
- 2.4.4.1 Reinforced Foundation Systems: Not less than 3 inches and not more

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than 5 inches.

2.4.4.2 Concrete containing high-range water-reducing admixture (superplasticizer): Not less than 9 inches and not more than 11 inches.

2.4.4.3 Other concrete: Refer to structural drawings.

2.5. Concrete Mixing

2.5.1 Transit-mixed concrete may be used. It shall be mixed and delivered in accordance with the requirements set forth in the Standard Specifications for Ready Mixed Concretes of the ACI 304, Latest Edition.

2.5.2 Ready Mix Concrete: Comply with requirements of ASTM C 94, and as specified.

2.5.2.1 When temperature is between 85F (30C) and 90F (32C), reduce mixing and delivery time from 90 minutes to 75 minutes, and when air temperature is above 90F (32C) reduce mixing and delivery time to 60 minutes.

2.5.2.2 No concrete shall be placed when internal temperature of the concrete exceeds 90F.

2.5.3 No additional water, except when approved by the concrete ready mix supplier, shall be added to any concrete batch at the job site. Such approved additions, by the ready mix supplier representative, shall be noted on the delivery ticket, as well as on the compressive strength test reports for that specific batch.

2.6. Engineer's review of the design mix does not relieve the Contractor of his responsibility to insure that the strength, slump, and quality of the in-place concrete meets the requirements of the Contract Documents.

3. Part 3 - Execution

3.1. Preparation

3.1.1 Inspect Prepared Pad for suitability to receive concrete slab. Where areas may be deficient, perform tests to determine suitability for concrete placement. Where extensive testing may be required, notify Publix Engineer.

3.1.2 Where concrete is poured in exposed to view locations, examine form work for suitability to produce smooth, even surfaces in finished work.

3.1.3 Ensure that cavity caps are in place to prevent concrete from filling masonry cavities where pours are over masonry walls.

3.2. Reinforcing

3.2.1 Avoid cutting or puncturing vapor retarder during reinforcement placement and supports and as herein specified.

3.2.2 Metal reinforcement, before being positioned, shall be thoroughly cleaned of all mill and rust scale, and of coatings of any character that will destroy or reduce the bond.

3.2.3 All reinforcement shall be carefully bent to the required dimensions and in accordance with the requirements of CRSI.

3.2.4 Shop form all reinforcing to dimensions required. conform to ACI 117 for forming tolerances.

3.2.5 All reinforcement shall be placed accurately in position using particular care to

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place the steel at its proper position in the cross section. Bars shall be held securely in place by ties and bracing in a way that will not allow displacement by tamping of the concrete. Slab reinforcing shall be supported on suitable reinforcing chairs or spacing bars.

3.2.6 Laps:

3.2.6.1 Conform To ACI 318., and as noted on drawings.

3.2.6.2 Avoid lapping bars wherever possible.

3.2.6.3 Wire Mesh: Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

3.2.7 On exterior exposed work, no ties or spacers shall be permitted to remain within 3/4" of the finished surfaces. Place reinforcement to obtain at least minimum coverage for protection. Set wire ties so ends are directed into concrete, not toward surfaces.

3.2.8 Holes for ties and spacers shall be patched with an approved polymer patching mortar immediately after stripping forms.

3.2.9 Install welded wire fabric in longest practicable lengths.

3.2.10 Unless otherwise specified or called for, provide the following minimum reinforcing:

3.2.10.1 1 #3 bar in each concrete stair nosing (except metal pan stairs).

3.3. Forms

3.3.1 Forms shall conform to the shapes, lines, and dimensions of the member as shown in the Drawings, and shall be substantial, mortar tight, free from surface defects, and properly braced and tied together, so as to maintain position and shape. All form-work shall be in accordance with ACI 347.

3.3.2 Forms shall be closely fitted to produce smooth, clean surfaces without fins or offsets.

3.3.3 Plywood shall be oiled or lacquered before reinforcing is placed. Oil shall be non-staining mineral oil.

3.3.4 Column forms shall be secured with external yokes. Banding with steel tape is not permitted.

3.3.5 Provide openings in concrete form-work to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.

3.3.6 Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Re-tighten forms and bracing before concrete placement as required to eliminate mortar leaks and maintain proper alignment.

3.4. Installation of Vapor Barrier:

3.4.1 Level and tamp or roll aggregate, sand or tamped earth base.

3.4.2 Installation of vapor barrier shall be in accordance with manufacturer's instructions and ASTM 1643.

3.4.3 Unroll vapor barrier with the longest dimension parallel with the direction of the pour.

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- 3.4.4 Lap vapor barrier over footings and seal to foundation wall.
- 3.4.5 Overlap joints 6 inches and seal with manufacturer's tape or approved equal.
- 3.4.6 Seal all penetrations (including pipes) per manufacturer's instructions.
- 3.4.7 No penetration of the vapor barrier is allowed except for reinforcing steel and permanent utilities.
- 3.4.8 Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6 inches and taping all sides with manufacturer's tape or approved equal.
- 3.5. Installation of Embedded Items
 - 3.5.1 Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached.
- 3.6. Concrete Placement
 - 3.6.1 Comply with ACI 304 "Guide for Measuring, Mixing, Transporting, and Placing Concrete", and as herein specified.
 - 3.6.2 Cold Weather Placement:
 - 3.6.2.1 Comply with ACI 306R as follows:
 - 3.6.2.1.1 When the air temperature has fallen to or is expected to fall below 40 degrees F, uniformly heat water and aggregates before mixing to obtain a concrete mixture of not less than 50 degrees F. Obtain Public Engineer's approval if an accelerating admixture will be used.
 - 3.6.2.1.2 Do not place concrete on frozen ground, ice or snow.
 - 3.6.2.1.3 Provide means for maintaining concrete temperature above 50 degrees F and in a moist condition for 7 days after placement. If an accelerating mixture is used, maintain the concrete temperature above 50 degrees F and in a moist condition for 4 days. Obtain Public Engineer's approval for the methods proposed for heating materials and protecting concrete. All heaters shall be vented to the outside of the building.
 - 3.6.2.1.4 After the protection period, cooling of the concrete shall be no faster than 1 degree F per hour for the first day, and 2 degrees F per hour thereafter.
 - 3.6.3 Hot Weather Placement:
 - 3.6.3.1 Comply with ACI 305 when mean daily temperatures are expected to exceed 80 F. Concrete shall be delivered to the forms at the coolest practicable temperature. Concrete mixes shall be specifically designed (or re-designed) for hot weather conditions.
 - 3.6.3.2 Concrete placement will not be permitted when, weather conditions would prevent proper placement.
 - 3.6.3.3 During hot weather, all slabs shall be cured by continuous sprinkling for a minimum of 24 hours in addition to other required curing methods.
 - 3.6.3.4 Additional control joints may be required to control shrinkage cracking.
 - 3.6.3.5 Cool ingredients before mixing to maintain concrete temp. at time of placement below 90 F (32 C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated in total amount of mixing water.
 - 3.6.3.6 Do not add water to concrete at Job Site.
 - 3.6.3.7 Cover reinforcing steel with water soaked burlap if it becomes too hot, so that

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- steel temperature will not exceed the ambient air temperature immediately before concrete is placed.
- 3.6.3.8 Fog spray forms, reinforcing steel, and subgrade just before concrete is placed.
 - 3.6.3.9 Use water reducing admixture when required by high temperatures, low humidity, or other adverse placing conditions, when acceptable to Engineer.
- 3.6.4 When concreting operations are inside enclosed space, space shall be adequately ventilated to prevent carbonation of surface of concrete. Ventilation shall be continuous until 24 hours after final pour in area.
- 3.6.5 Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete to avoid segregation at its final location. deposit concrete as near as practicable to its final position. There shall be no free vertical drop greater than 8 feet.
- 3.6.6 Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic, to avoid cold joints.
- 3.6.6.1 Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI309.
 - 3.6.6.2 Do not use vibrators to transport concrete inside forms.
 - 3.6.6.3 Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
- 3.6.7 Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
- 3.6.7.1 Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 3.6.7.2 Bring slab surfaces to correct level with straightedge and strike off. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
 - 3.6.7.3 Maintain reinforcing in proper position during concrete placement operations.
- 3.7. Tolerances and Alignment, General:
- 3.7.1 Conform to ACI 117 "Specifications for Tolerances for Concrete Construction and Materials."
 - 3.7.2 For all formed concrete work exposed to view, provide form and finish tolerances to ACI Class A requirements.
 - 3.7.3 Floor finish tolerances as measured by placing a freestanding (unleveled) 10' straightedge anywhere on the slab and allowing it to rest upon two high spots within 72 hours after slab concrete placement. The gap at any point between the straightedge and the floor (and between the high spots) shall not exceed 3/16" (flat tolerance) but no more than 1/4" in any 20' length unless tighter tolerance is required below.

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3.7.4 Variation of the linear building lines from established position in plan and related position of columns, walls and partitions:

In any bay	1/4"
In any 20' length	1/4"
Maximum for entire length	3/8"

3.7.5 Variation in the sizes and location of sleeves, floor openings, and wall openings: 1/4"

3.7.6 Variation in the thickness of slabs: 1/4"

3.7.7 Variations in footings:

In plan	1"
Eccentric misplacement	2% of width but <2"
Thickness	5% of depth but <2"

3.7.8 Variations in steps:

Flight	Rise	3/8"
	Run	3/8"
Adjacent steps	Rise	3/16"
	Run	3/16"

3.8. Concrete Curing and Protection

3.8.1 General:

- 3.8.1.1 Protect freshly placed concrete from excessive cold or hot temperatures.
- 3.8.1.2 Utilize an evaporation retarder/control material, as needed, to protect concrete from hot, dry, windy conditions or other conditions that result in rapid moisture loss. Apply in accordance with manufacturer's instructions after screeding and bull floating, but before power floating and troweling.
- 3.8.1.3 Final curing of concrete shall commence as soon as free water has disappeared from the concrete surface, after placing and finishing.

3.9. Procedures for curing of concrete surfaces include the following: See floor finishes Sections 3.10 to 3.13 for locations to apply each final curing procedure.

3.9.1 Moisture curing procedures:

- 3.9.1.1 Keep concrete surface continuously moist for no less than 7 days. Temperature of water used in curing shall be within 20 F of the concrete temperature. Approved methods of wet curing include water-fog spray, sprinkling and absorptive curing blankets. No plastic sheets allowed. Place absorptive cover to provide coverage of concrete surfaces and edges, after finishing operations are complete.

3.9.2 Curing and hardening compound procedure:

- 3.9.2.1 Apply specified curing and hardening compound to slab surface as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
- 3.9.2.2 If applicable, verify that the curing compound does not affect bonding properties of surfaces to be covered with finish materials applied directly to concrete.

- 3.9.3 Emery Aggregate Dry Shake Hardener procedure:
 - 3.9.3.1 Refer to the manufacturer's recommendations.
 - 3.9.3.2 Two applications to slab surfaces at a combined rate of 70 lbs. per 100s.f., or per the manufactures recommendations. Acceptable bond and density is achieved through absorption of water from fresh underlying concrete.
 - 3.9.3.3 After bleed water of first floating operation has dissipated from surface of concrete, uniformly distribute approximately two-thirds of the required weight of the Dry-Shake material over the concrete surface. Embed by mechanical floating or by hand floating. Do not trowel first application.
 - 3.9.3.4 Before bleed water dissipates entirely, uniformly apply most of the remaining Dry-Shake material over the concrete surface, using overlapping applications as required to achieve uniform color. Embed by floating and troweling. Minimize hard troweling to avoid burnishing the slab. Retain a small quantity of dry-shake material for touch-up work.
- 3.10. Interior Finished Slabs: All interior floor slabs which are depressed to receive Epoxy Terrazzo or Hard Tile.
 - 3.10.1 Interior Floor Slab to Receive Epoxy Terrazzo.
 - 3.10.1.1 Refer to Specification Section 09 66 23.16 for additional information.
 - 3.10.1.2 Steel trowel slab to a smooth, hard, dense, non-porous surface which is level within a tolerance noted in Specification Section 09 66 23.16-1.5.1.4
 - 3.10.1.3 Cure slabs per one of the following procedures:
 - 3.10.1.3.1 Moist sure slab for 7 days per the moist curing procedures described in Specification Section 03 30 00-3.9.1.
 - 3.10.1.3.2 Apply a water based, dissipating curing compound, per manufacturers recommendations. Allow slab to cure for 7 days before proceeding.
 - 3.10.1.4 Sand blast top of slab and repair any cracks prior to start of flooring installation, refer to Specification Section 09 66 23.16-3.1.3 and 3.1.5.
 - 3.10.2 Interior Floor Slab to Receive Hard Tile
 - 3.10.2.1 Heavy broom finish slabs to a surface which is level within a tolerance as described above.
 - 3.10.2.2 Cure slabs per one of the following procedures:
 - 3.10.2.2.1 Moist sure slab for 7 days per the moist curing procedures described in Specification Section 03 30 00-3.9.1.
 - 3.10.2.2.2 Apply a water based, dissipating curing compound, per manufacturers recommendations. Allow slab to cure for 7 days before proceeding.
 - 3.10.2.2.3 Clean off the curing compound, if used, from the slab surface per the manufacturer's recommendations.
- 3.11. Interior Trowel-Finished Slabs: All interior floor slabs, where the concrete surface is the finished surface. (if using Polished Concrete Floor, see spec 03 31 00 for concrete mix design requirements AND spec 03 54 30 for the polished concrete finish).
 - 3.11.1 Apply Emery-Aggregate Dry-Shake Hardener, per manufacturer's instructions.
 - 3.11.2 Steel trowel slabs to a smooth, hard, dense, non-porous surface which is level within a tolerance as described above. Trowel slab down smooth with the tops of floor drains and even with clean-outs.
- 3.12. Apply Cure and Hardener compound, per manufacturer's instructions. Allow slab to cure for 7 days before proceeding.

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- 3.12.1 Interior Troweled-VCT Finish Slabs: All interior floor slabs, where the concrete surface is covered by vinyl tile.
 - 3.12.1.1 Steel trowel slabs to a smooth, hard, dense, non-porous surface which is level within a tolerance as described above. Trowel slab down 1/8 inch below floor drains where vinyl tile occurs.
 - 3.12.1.2 Cure slabs per one of the following procedures:
 - 3.12.1.2.1 Moist cure slab for 7 days per the moist curing procedures described in Specification Section 03 30 00-3.9.1.
 - 3.12.1.2.2 Apply a water based, dissipating curing compound, per manufacturers recommendations. Allow slab to cure for 7 days before proceeding.
- 3.13. Exterior Slabs:
 - 3.13.1 Concrete sidewalks, ramps, docks, and pads shall have a cure and hardener compound. Slope sidewalks to drain away from building.
 - 3.13.2 Ramps at front of store shall have a heavy broom finish. All other sidewalks and ramps shall have a medium broom finish. Verify sample of "heavy" and "medium" broom finishes with Publix' Representative.
 - 3.13.3 Curbs: Poured concrete 6" x 18" with #4 bar top and bottom. Place tops of curb exactly 8" above parking lot finished pavement. No pre-cast curbs shall be used.
 - 3.13.4 Do not apply compounds to curbs.
- 3.14. Exposed Concrete Formed Surfaces
 - 3.14.1 Imperfect surfaces where strength is not impaired may be patched with the specified polymer patching mortar if approved by the Engineer and rubbed smooth with carborundum brick.
 - 3.14.2 Fins shall be removed and the entire concrete surface shall receive a "smooth rubbed finish" as per ACI 301.
 - 3.14.3 All finishing shall take place immediately upon removal of the forms. Defective appearance caused by a delay in the finishing procedure will not be accepted. Rubbing the surface to cover such imperfections will not be allowed.
 - 3.14.4 Cure formed concrete surfaces, including underside of beams, and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed.
- 3.15. Removal of Forms
 - 3.15.1 Form-work not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 F (10 C) for 24 hours after placing concrete, provided concrete is sufficiently hard that no damage will occur by form removal operations, and provided that curing and protection operations are continued.
 - 3.15.2 Immediately after forms have been removed, all exposed tie wires and stapled ends shall be removed from the concrete surfaces to be exposed; cut ties flush with finished surfaces of all other concrete. rub smooth or cut off fins and rough places; remove all loose concrete and fill honeycombed surfaces; stone pockets; and other irregularities with cement mortar. Do not patch any surfaces until examination has been made by Publix Representative and permission given. Before Publix makes the next inspection for pouring concrete, all previously poured concrete must be pointed up.
- 3.16. Reuse of Forms

- 3.16.1 Clean and repair surfaces of forms to be reused in work. Split, frayed, delaminated, or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new form-work.
- 3.16.2 When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joints to avoid offsets. Do not use "patched" forms for exposed concrete surfaces.

End of Section 03 30 00

Section 03 45 00

Architectural Precast Concrete

1. General

- 1.1. Scope of Work: Precast Concrete Sills and Bullnose Elements.
- 1.2. Submittals
 - 1.2.1 General: Submit the following according to the conditions of the Contract and Division I Specification Sections.
 - 1.2.2 Product data on types, finishes and characteristics.
 - 1.2.3 Provide Shop Drawings indicating material profile, jointing pattern, jointing details, fastening methods and installation details.
 - 1.2.4 Submit sample for material finish and color verification.
- 1.3. Quality Assurance: Manufacturer to submit a list of completed projects with project names and addresses and names and addresses of Architects and Owners.

2. Products

- 2.1. Manufacturers: Manufacturers shall be a producer member of the Architectural Precast Association.
- 2.2. Sills and Bullnose Elements: Provide pieces at locations indicated on drawings. Integral color and finish shall be as selected by Architect.

3. Execution

- 3.1. Examination:
 - 3.1.1 Examine all field conditions prior to fabrication.
 - 3.1.2 Do not proceed until all prepared conditions are satisfactory for installation.
- 3.2. Installation:
 - 3.2.1 Follow Manufacturer's printed instructions for installation.
 - 3.2.2 Install in all locations indicated on drawings.

End of Section 03 45 00

Section 04 20 00

Unit Masonry

V12082021

1. General

- 1.1. Related Documents: Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- 1.2. Summary: This Section includes the following:
 - 1.2.1 Concrete unit masonry.
 - 1.2.2 Related Sections: Section 03 30 00 Cast-in-Place Concrete
- 1.3. Submittals
 - 1.3.1 Submit LOI in accordance with Section 01 33 00 Submittal Procedures.
 - 1.3.2 Material certificates signed by manufacturer certifying that Concrete masonry units comply with UL classification requirements and block strength requirements.
 - 1.3.3 Shop drawings for reinforcing, detailing fabrication, bending, and placement of unit masonry reinforcing bars. Comply with ACI 315 "Details and Detailing of Concrete Reinforcing" showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of masonry reinforcement.
 - 1.3.4 Comply with applicable provisions of Section 03 30 00 Cast-in-Place Concrete for submittals of grout mix design, etc.
- 1.4. Quality Assurance
 - 1.4.1 Unit Masonry Standard: Comply with TMS 402/602 "Building Code Requirements and Specifications for Masonry Structures," except as otherwise indicated.
 - 1.4.2 Single-Source Responsibility for Masonry Units: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually related surfaces.
 - 1.4.3 Single-Source Responsibility for Mortar Materials: Obtain mortar ingredients of uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source and producer for each aggregate.
 - 1.4.4 Insulation: Installation shall be performed by Insulation Manufacturer's authorized Applicator. Certificate of Authorization shall be supplied upon request.
 - 1.4.5 Insulation: Publix may retain the services of a testing organization to perform testing necessary to confirm installation conformance to standards specified.
- 1.5. Delivery, Storage, and Handling
 - 1.5.1 Deliver masonry materials to project in undamaged condition.
 - 1.5.2 Store and handle masonry units off the ground, under cover, and in a dry

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location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes. If units become wet, do not place until units are in an air-dried condition.

- 1.5.3 Store cementitious materials off the ground, under cover, and in dry location.
- 1.5.4 Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- 1.5.5 Store masonry accessories including metal items to prevent corrosion and accumulation of dirt and oil.
- 1.6. Project Conditions
 - 1.6.1 Protection of Masonry: During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1.6.2 Extend cover a minimum of 24 inches down both sides and hold cover securely in place. Where one wythe of multi-wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
 - 1.6.3 Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
 - 1.6.4 Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Remove immediately all grout, mortar, and soil that come in contact with such masonry.
 - 1.6.5 Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface. Protect sills, ledges, and projections from mortar droppings. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes from mortar droppings.
 - 1.6.6 Cold-Weather Construction:
 - 1.6.6.1 Comply with referenced unit masonry standard for cold-weather construction and the following:
 - 1.6.6.2 Do not lay masonry units that are wet or frozen. Remove masonry damaged by freezing conditions.
 - 1.6.7 Hot-Weather Construction: Comply with referenced unit masonry standard.

2. Products

- 2.1. Concrete Masonry Units
 - 2.1.1 General: Comply with requirements indicated below applicable to each form of concrete masonry unit required.
 - 2.1.2 Exterior Exposed Faces: Provide a sand finish suitable for painting. Contractor shall also coordinate with canopy drawings to determine if CMUs are to be painted.
 - 2.1.3 Size: Provide concrete masonry units sized within tolerances specified in the applicable referenced ASTM specification for concrete masonry units.

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- 2.1.3.1 Concrete Masonry Units:
 - Manufactured to specified dimensions of 3/8 inch less than nominal dimensions indicated on drawings.
- 2.1.3.2 Concrete Building Brick: As job conditions require.
- 2.1.4 Hollow Concrete Masonry Units: ASTM C 90, Grade N and as follows:
 - 2.1.4.1 Unit Compressive Strength: Provide units with minimum average net area compressive strength of 2000 psi.
 - 2.1.4.2 Weight Classification: As selected by Contractor unless otherwise indicated.
 - 2.1.4.3 Masonry units must be minimum 2 hour rated, per equivalent thickness method.
- 2.2. Mortar Materials
 - 2.2.1 General: Submit a ready-mixed grout mix that complies with ASTM C 270, Property Specification for job-mixed mortar and ASTM C 1142 for ready-mixed mortar.
 - 2.2.1.1 Limit cementitious materials in mortar to portland cement-lime.
 - 2.2.1.2 Use Type S for all applications
 - 2.2.2 Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color cement as required to produce required mortar color.
 - 2.2.3 Ready-Mixed Mortar: Cementitious materials, water, and aggregate complying with requirements specified in this article, combined with set-controlling admixtures to produce a ready-mixed mortar complying with ASTM C 1142.
 - 2.2.4 Hydrated Lime: ASTM C 207, Type S.
 - 2.2.5 Aggregate for Mortar: ASTM C 144
 - 2.2.6 Water: Clean and potable.
- 2.3. Grout Materials for Reinforced Masonry
 - 2.3.1 Submit a ready-mixed grout mix that complies with ASTM C 476, "Standard Specifications for Grout for Masonry".
 - 2.3.2 Provide coarse grout pump mix for filled cells as follows:
 - 2.3.2.1 28 day design strength: 2000 psi minimum.
 - 2.3.2.2 Water cement ratio: 0.55 minimum.
 - 2.3.2.3 No cement replacement allowed. (No fly ash, slag, silica fume).
 - 2.3.2.4 Aggregate size: 3/8" pea gravel (ASTM C 404 gradation 8 or 89).
 - 2.3.2.5 Slump Limits: 8" to 11" at point of placement.
 - 2.3.2.6 Grout mix must be from a ready-mix supplier, not site mixed.
- 2.4. Reinforcing Steel
 - 2.4.1 General: Provide reinforcing steel complying with requirements of referenced unit masonry standard, Section 03300 Cast-in-Place Concrete, and this article.
 - 2.4.2 Steel Reinforcing Bars: Billet steel complying with ASTM A 615, Grade 60.
 - 2.4.3 Deformed Reinforcing Wire: ASTM A 496.
 - 2.4.4 Plain Welded Wire Fabric: ASTM A 185.
 - 2.4.5 Deformed Welded Wire Fabric: ASTM A 497

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2.5. Joint Reinforcement

- 2.5.1 General: Provide joint reinforcement complying with requirements of referenced unit masonry standard and this article, formed from the following:
- 2.5.2 Galvanized carbon steel wire, coating class as required by referenced unit masonry standard for application indicated.
- 2.5.3 Welded-wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10 feet, with prefabricated corner and tee units, and complying with requirements indicated below:
 - 2.5.3.1 Wire Diameter for Side Rods: 0.1483 inch (9 gage).
 - 2.5.3.2 Wire Diameter for Cross Rods: 0.1483 inch (9 gage).
- 2.5.4 For single-wythe masonry provide continuous ladder type rods spaced not more than 16 inches o.c. and single pair of side rods
- 2.5.5 Use units with adjustable 2-piece rectangular ties where horizontal joints offset wythe do not align with those of backup and where indicated.
- 2.5.6 Manufacturers: Subject to compliance with requirements, provide joint reinforcement by one of the following:

Hohmann & Barnard, Inc.
Wire-Bond (Masonry Reinforcing Corp. of America)

2.6. Ties and Anchors

- 2.6.1 General: Provide ties and anchors specified in subsequent articles that comply with requirements for metal and size of referenced unit masonry standard and of this article.
- 2.6.2 Galvanized Carbon Steel Wire: ASTM A 82, coating class as required by referenced unit masonry standard for application indicated. Wire Diameter: As indicated.
- 2.6.3 Galvanized Steel Sheet: ASTM A 366 (commercial quality) cold-rolled carbon steel sheet hot-dip galvanized after fabrication to comply with ASTM A 153, Class B2 (for unit lengths over 15 inches) and Class B3 (for unit lengths under 15 inches), thickness as indicated.
- 2.6.4 Steel Plates and Bars: ASTM A 36, hot-dip galvanized to comply with ASTM A 123 or ASTM A 153, Class B3, as applicable to size and form indicated.

2.7. Cavity Caps: Plastic or stamped metal, galvanized.

2.8. Embedded Flashing: Provide where indicated.

2.9. Miscellaneous Masonry Accessories:

- 2.9.1 Preformed Control Joint Gaskets: Styrene-Butadiene Rubber Compound, ASTM D 2000, Designation 2AA-805.
- 2.9.2 Bond Breaker Strips: Asphalt-saturated organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- 2.9.3 Geotextile Fabric for Weep Holes: TenCate Mirafi 140N

3. Execution

3.1. Examination

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- 3.1.1 Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other specific conditions, and other conditions affecting performance of unit masonry.
- 3.1.2 Examine rough-in and built-in construction to verify actual locations of piping connections prior to installation.
- 3.1.3 Do not proceed until unsatisfactory conditions have been corrected.
- 3.2. Installation, General
 - 3.2.1 Comply with referenced unit masonry standard and other requirements indicated applicable to each type of installation included in Project.
 - 3.2.2 Thickness: Build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual thickness of the masonry units, using units of nominal thickness indicated.
 - 3.2.3 Build chases and recesses as shown or required to accommodate items specified in this and other Sections of the Specifications. Provide not less than 8 inches of masonry between chase or recess and jamb of openings and between adjacent chases and recesses unless otherwise indicated.
 - 3.2.4 Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry to match construction immediately adjacent to the opening.
 - 3.2.5 Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining construction. Use full-size units without cutting where possible.
 - 3.2.6 Matching Existing Masonry: Match coursing, bonding, color, and texture of new masonry with existing masonry.
- 3.3. Construction Tolerances: Comply with construction tolerances of referenced unit masonry standard.
- 3.4. Laying Masonry Walls
 - 3.4.1 Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and for accurate locating of openings, movement-type joints, returns, and offsets. Avoid the use of less-than-half-size units at corners, jambs, and where possible at other locations.
 - 3.4.2 Lay up walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other construction.
 - 3.4.3 Bond Pattern for Masonry: Lay masonry in running bond pattern with vertical joint in each course centered on units in courses above and below.
 - 3.4.4 Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
 - 3.4.5 Stopping and Resuming Work: In each course, rack back 1/2-unit length. do not tooth. Clean exposed surfaces of set masonry, wet clay masonry units lightly (if required), and remove loose masonry units and mortar prior to laying fresh masonry.
 - 3.4.6 Built-In Work: As construction progresses, build-in items required. Fill in solidly with masonry around built-in items.
 - 3.4.7 Fill space between hollow metal frames and masonry solidly with mortar, unless otherwise indicated.
 - 3.4.8 Where built-in items are to be embedded in cores of hollow masonry units, place a layer of

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metal lath in the joint below and place grout into core.

3.5. Mortar Bedding and Jointing:

3.5.1 Provide full mortar coverage on horizontal and vertical face shells.

3.5.2 Bed webs in mortar in starting course on footings and in all courses of piers, columns, and pilasters, and where adjacent to cells or cavities to be filled with grout. For starting course on footings where cells are not grouted, spread out full mortar bed including areas under cells.

3.5.3 Joints in masonry walls shall be 3/8" (nom.) thick.

3.5.4 As mortar takes its initial set, cut flush and rub smooth.

3.5.5 Tool all joints, both interior and exterior, with 5/8" dia x 24" rod, compacting the mortar tightly against masonry units to produce a waterproof joint smooth and free of voids.

3.5.6 Tool head joints before tooling intersecting horizontal joints.

3.5.7 Intersecting and Abutting Walls: Unless vertical expansion or control joints are shown at juncture, provide same type of bonding specified for structural bonding between wythes.

3.5.8 Keep cavities/air spaces clean of mortar droppings and other materials during construction.

3.5.9 For two wythe work, Tie exterior wythe to backup with continuous horizontal joint reinforcing.

3.6. Horizontal Joint Reinforcement

3.6.1 General: Provide continuous horizontal joint reinforcement as indicated. Install longitudinal side rods in mortar for their entire length with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcing a minimum of 6 inches.

3.6.2 Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.

3.6.3 Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend reinforcement units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.7. Control (Movement) Joints

3.7.1 General: Install control Joints in unit masonry where indicated. Build in related items as the masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.

3.7.2 Build in joint fillers where indicated. Use sash block units at control joint locations.

3.7.3 Seal joints using foam backer rod pressed against joint filler flange, with sealant bead between masonry units. Tool sealant bead concave.

3.8. Lintels:

3.8.1 Provide precast lintels as noted on drawings.

3.8.2 Provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.

3.9. Flashing

3.9.1 General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to the downward flow of water in the wall, and where indicated.

3.9.2 Prepare masonry surfaces so that they are smooth and free from projections that

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could puncture flashing. Place through-wall flashing on sloping bed of mortar and cover with mortar. Seal penetrations in flashing with adhesive/sealant/tape as recommended by flashing manufacturer before covering with mortar.

3.10. Installation of Reinforced Unit Masonry

- 3.10.1 General: Install reinforced unit masonry to comply with requirements of referenced unit masonry standard.
- 3.10.2 Construct formwork to conform to shape, line, and dimensions shown. Make sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
- 3.10.3 Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.
- 3.10.4 Reinforcing Steel:
 - 3.10.4.1 Conform to applicable requirements of Section 03 30 00 Cast-in-Place Concrete.
 - 3.10.4.2 Shop form all reinforcing to fullest extent possible. Where not possible, field form before placement. Conform to requirements of ACI Standard referenced.
- 3.10.5 Grout Placement:
 - 3.10.5.1 Conform to applicable requirements of Section 03 30 00 Cast-in-Place Concrete for field quality control.
 - 3.10.5.2 Place grout (pump mix concrete) as noted on plans.

3.11. Insulation Installation

- 3.11.1 Comply with manufacturer's installation instructions. Fill all cells full height of wall.
- 3.11.2 If required, punch through interior face shell of block to obtain access to cells. Patch holes to match surrounding face of block so that, when painted, the patch is as inconspicuous as possible.
- 3.11.3 Completed installation shall be at least 98% filled.

3.12. Repairing, Pointing, and Cleaning

- 3.12.1 Remove masonry units that are loose, chipped, broken, stained, or otherwise damaged. Install new units to match adjoining units in fresh mortar or grout, pointed to eliminate evidence of replacement.
- 3.12.2 Pointing: During the tooling of joints, enlarge any voids or holes, except weepholes, and completely fill with mortar. Point-up all joints including corners, openings, and adjacent construction to provide a neat, uniform appearance, prepared for application of sealants.
- 3.12.3 Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 3.12.3.1 Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 3.12.3.2 Test cleaning methods on sample wall panel; leave 1/2 panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3.12.3.3 Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
 - 3.12.3.4 Wet wall surfaces with water prior to application of cleaners; remove cleaners

promptly by rinsing thoroughly with clear water.

3.12.3.5 Clean concrete masonry using dilute muriatic acid.

3.12.3.6 Protection: Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure unit masonry is without damage and deterioration at time of Substantial Completion.

End of Section 04 20 00

Section 05 12 00

Structural Steel Framing V12082021

1. General

1.1. Scope of Work:

1.1.1 Furnish all materials, labor, equipment and services necessary and incidental to complete installation of structural steel work indicated, implied on contract drawings, or as specified.

1.1.2 The Contractor shall cooperate with other trades regarding installation of associated work as needed to support HVAC units, fans, and other rooftop equipment, roof penetration frames for plumbing, and other items requiring support from the steel structure.

1.2. Qualifications:

1.2.1 Fabricator: Not less than 5 years experience in fabrication of structural steel for projects of similar scope.

1.2.2 Steel Erector: Not less than 5 years experience in the erection of structural steel structures of similar magnitude of the proposed structure.

1.3. References: The following specifications, codes and standards of current issue (hereafter referred to by acronym or alpha/numeric designation only) form a part of this specification:

1.3.1 The American Institute of Steel Construction:

1.3.1.1 AISC "Specification for Structural Steel Buildings".

1.3.1.2 AISC "Code of Standard Practice for Steel Buildings and Bridges".

1.3.1.3 "Specification for Structural Joints Using High Strength Bolts", approved by the Research Council on Structural Connections.

1.3.2 American Welding Society:

1.3.2.1 AWS, "Structural Welding Code"

1.3.2.2 AWS, "Welding Symbols"

1.3.2.3 AWS, "Gas Metal-Arc Welding with CO2 Shielding"

1.3.2.4 AWS, "Non-Destructive Testing Symbols"

1.3.3 American Society of Testing Materials (ASTM)

1.3.3.1 A6, "General Requirements of Delivery"

1.3.3.2 A325, H.S. Bolts

1.4. Submittals

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- 1.4.1 Provide Submittals in accordance with Section 01 33 00 Submittal Procedures.
- 1.4.2 Shop Drawings and Steel Reports: At least two weeks prior to steel fabrication, submit Shop Drawings, prepared under the supervision of a Professional Engineer, together with copies of the metallurgical test reports (mill reports), purchase orders for all steel, and other data to show compliance with specifications.
- 1.4.3 Indicate all shop erection details, including cuts, copes connections, holes, bolts, welds, and preparation required, such as bevels, testing and backup bars. Indicate all welds, both shop and field, by AWS "Welding Symbols", A2.0, latest edition.

2. Products

2.1. Materials

- 2.1.1 All material shall be new, clean, and free from scale or rust. Conform to applicable ASTM designations as described in the most current AISC specifications.
- 2.1.2 Steel Beams: ASTM A992, $F_y=50$ ksi.
- 2.1.3 Steel Tube Columns: HSS shall be ASTM A500, Grade B, $F_y=46$ ksi.
- 2.1.4 Round Pipe Columns: ASTM A53, Grade B, $F_y=35$ ksi.
- 2.1.5 Steel plates, channels, bars and angles: ASTM A36
- 2.1.6 Bolts
 - 2.1.6.1 Structural Bolts: ASTM A325, Type 1
 - 2.1.6.2 "Twist-Off" Type Tension Control Bolt Assemblies: ASTM F1852 LeJeune Tension Control Bolts.
- 2.1.7 Arc Welding Electrodes: E70 Series.
- 2.1.8 Grout: Non-metallic shrink-resistant, complying with U.S.A. Corps. of Engineers CRD-C-621 and CRD-C-588.
 - NS Grout, Euclid Chemical Company
 - Crystex, L&M Construction Chemicals
 - Masterflow 713, Master Builders
 - Five Star Grout, U.S. Grout Corp.
 - Propak, Protex Industries, Inc.
 - Construction Grout, BASF
 - Vibropruf No. 11, Lambert Corp.
- 2.1.9 Primer: Manufacturer's standard shop primer, unless otherwise noted.

3. Execution

- 3.1. Design and Fabrication of Structural and Miscellaneous Steel
 - 3.1.1 In general, AISC Specification shall be followed.
 - 3.1.2 In general, all shop and field connections shall be bolted in accordance with the specifications of the AISC., unless otherwise indicated.
 - 3.1.3 All connections shall be designed to develop the full strength of the beam section shear. All erection bolts shall be set up-right and left in place. Bolted connections carrying stress shall have washers under all nuts, and full grip with

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nuts torqued tight as required, conforming to “Specification for Structural Joints using ASTM A325 Bolts”.

- 3.1.4 Bolts shall have full shanks extended through connecting members.
- 3.1.5 Shearing and clipping shall be neatly and accurately done. No column splices are permitted. No splices are permitted in beams, except for field connections indicated.
- 3.1.6 All bolt holes are to be accurately drilled or punched perpendicular to metal surface. The pieces forming one built member shall be straight and fit closely together, especially where open to view. In compression joints, depending on contact bearing, the surfaces shall be truly faced, so as to have even bearing after adjoining members are aligned and set up complete. Continuous members shall have positive, full connections.
- 3.1.7 Do not flame-cut or enlarge holes by burning.
- 3.1.8 Fabricate and assemble structural steel in shop to greatest extent possible.
- 3.2. All milled surfaces shall be protected with a coating of heavy oil or grease.
- 3.3. Provide all anchor bolts and plates at all steel columns of a size as shown or detailed on the structural drawings, or as required for maximum load of columns, per AISC.
- 3.4. Welding:
 - 3.4.1 In general, all welding shall conform to the requirements of the Code for Arc and Gas Welding in Building Construction as prescribed by the American Welding Society as amended to date.
 - 3.4.2 Welding shall be performed by welders currently qualified under AWS standard qualification procedures to perform the type of work required. Proof of current AWS certification of personnel shall be available at the fabrication shop and at the job site at all times.
- 3.5. Shop Painting: All steel work shall be thoroughly cleaned of all loose mill scale, rust, and foreign matter as directed in SSPC-SP #3 Specification for Power Tool Cleaning, and given one coat of primer. Primer shall be well worked into all joints. Prime only when surface metal is dry and grease free. Comply with Steel Structures Painting Council (SSPC)-3. Thickness of coatings shall be 2.5 mil.
- 3.6. Miscellaneous Steel
 - 3.6.1 Pipe Railings: 1-1/2” diameter Standard Pipe; all welded connections. All pipe railing shall be galvanized after fabrication.
 - 3.6.2 Furnish and install all hangers and channels for curtain walls.
- 3.7. Furnish the following items for installation by proper trades.
 - Channel door frames;
 - Corner guards;
 - 6” pipe columns for door and downspout guards;
 - Traffic posts.
- 3.8. Installation
 - 3.8.1 Steel Erection General: This shall include the erection of all structural steel, steel joist girders and joists, miscellaneous steel, etc. as called for on the drawings

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and as specified. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges".

- 3.8.2 Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place, unless otherwise indicated.
- 3.8.3 Set structural steel accurately in locations and to elevations indicated and according to AISC specifications referenced in this section.
- 3.8.4 Base and Bearing Plates: Clean concrete and masonry bearing surfaces to remove deleterious materials and roughen surfaces prior to setting base and bearing plates. Clean bottom surface of base and bearing plates.
 - 3.8.4.1 Set base and bearing plates for structural members on wedges, shims, or setting bolts as required.
 - 3.8.4.2 Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
 - 3.8.4.3 Pack grout solidly between bearing surfaces and plates so no voids remain. Finish exposed surfaces. Protect installed materials and allow to cure.
 - 3.8.4.4 Comply with manufacturer's instructions for proprietary grout materials.
- 3.8.5 Align and adjust various members forming part of complete frame or structure before permanently fastening. Before assembly, complete bearing surfaces and other surfaces that will be in permanent contact. Perform necessary adjustments to compensate for discrepancies in elevation and alignment.
- 3.8.6 Level and plumb individual members of structure.
- 3.8.7 Install and tighten high-strength bolts according to RCSC's "Specification for Structural Joints Using High Strength Bolts".
- 3.8.8 Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting weld work.
- 3.8.9 Comply with AISC specifications referenced in this Section for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
- 3.8.10 Touch up weld spots and abrasions after erection with primer specified for shop priming. Surfaces shall be clean and dry before painting.
- 3.9. Field Quality Control
 - 3.9.1 No field cutting or fabrication will be permitted without written approval of Publix' structural engineer.
 - 3.9.2 Testing Agency: Contractor shall engage an independent testing and inspection agency to perform field inspections and tests and to prepare test reports.
 - 3.9.3 Testing Agency will conduct and interpret test and state in each report whether tested work complies with or deviates from the requirements.
- 3.10. Correct deficiencies in or remove and replace structural steel that inspections and test reports indicate do not comply with specified requirements.

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- 3.11. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.
- 3.12. Field bolted connections will be tested and inspected according to RCSC's "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts".
 - 3.12.1 For bolts indicated as "snug tight", inspect to verify that connected elements are in direct contact.
 - 3.12.2 Inspection will be required of a random selection of ten percent of all high strength shop and field bolting. To be acceptable 95 percent of all bolts tested shall meet design tension. If the bolting fails to meet this requirement, bolts shall be reworked by the contractor and additional tests of 50 percent of all bolts shall be made until the above requirements are met.
 - 3.12.3 Field-welded connections will be inspected by a testing laboratory who will perform visual inspections of a minimum of 100 percent of welds.
 - 3.12.4 For field-welded connections that fail visual inspection, field-welded connections will be inspected and tested according to AWS D1.1 and the inspection procedures listed below:
 - 3.12.4.1 Radiographic Inspection: ASTM E 94 and ASTM E 142; minimum quality level; "2-2T".
- 3.13. Contractor shall coordinate erection and inspections to facilitate construction.
- 3.14. Notify Publix three (3) days in advance of time structure will be ready for inspection.

End of Section 05 12 00

Section 05 21 00

Steel Joist Framing V04112022

1. General

- 1.1. Scope of Work:
 - 1.1.1 Steel joists and related accessories for the Publix box shall be engineered and fabricated by Nucor/Vulcraft and will be provided by Publix. Joists provided donot include retail or facade structures, except when facade drawings are on Publix title block.
 - 1.1.2 General Contractor and Steel Fabricator to coordinate with Vulcraft shop drawings for all connections. Shop drawings will be available from Vulcraftafter the store has been awarded.
 - 1.1.3 General Contractor will be responsible for coordinating the joist delivery datewith Vulcraft (contact: see below). General Contractor is also responsible for unloading delivery and covering materials at the job site. The General Contractor is responsible for all materials after delivery to the job site.

Cory Goetzman, National Accounts Representative,
Nucor-Vulcraft Group
2675 Breckinridge Plaza, Suite 150
Duluth, GA 30096
Phone: 678.965.6667
FAX: 770.776.7197
email: cgoetzman@vulcraft-al.com

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- 1.1.4 The joists shall not sit on the site for more than 10 days before erection.
- 1.2. Submittals: Submit shop drawings in accordance with Section 01 33 00 Submittal Procedures. Shop drawings shall show layout, mark, number, type, location, and spacing of joists. Include joining and anchorage details, bracing, bridging, accessories, splice and connection details, and attachments to other units of work.
- 1.3. Quality Assurance
 - 1.3.1 Manufacturer Qualifications: Engage a firm experienced in manufacturing joists similar to those indicated for this Project, and that have a record of successful in-service performance. The joist manufacturer must engage a qualified professional engineer to prepare design calculations, shop drawings and other structural data for steel joists.
 - 1.3.2 SJI Design Standard: Comply with recommendations of SJI's "Standard Specifications Load tables and weight Tables for Steel Joists and Joist Girders", applicable to types of joists indicated.
 - 1.3.3 Welding Standards: Comply with applicable provisions of AWS D1.3 "Structural Welding Code --Sheet Steel". Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.
- 1.4. Delivery, Storage, and Handling
 - 1.4.1 Deliver, store, and handle joists as recommended in SJI's "Specifications".
 - 1.4.2 Protect joists from corrosion, deformation, and other damage during delivery, storage and handling.

2. Products

- 2.1. Materials
 - 2.1.1 Steel: Comply with requirements of SJI's "Specifications" for chord and web section material.
 - 2.1.2 Carbon-Steel Bolts and Threaded Fasteners: ASTM A 307, Grade A (ASTM F568, Property Class 4.6), carbon steel, hex-headed bolts and threaded fasteners; carbon-steel nuts; and flat, unhardened steel washers.
 - 2.1.2.1 Finish: Plain, uncoated
 - 2.1.3 High-Strength Bolts and Nuts: ASTM A 325, Type 1, heavy hex steel structural bolts, heavy hex carbon-steel nuts, and hardened carbon-steel washers.
 - 2.1.3.1 Finish: Plain, uncoated
 - 2.1.4 Welding Electrodes: Comply with AWS standards.
 - 2.1.5 Primer: Manufacturer's standard shop primer unless otherwise indicated.
- 2.2. Steel Joists
 - 2.2.1 Manufacturer joists according to SJI's "Specifications", with steel angle top and bottom chord members, of joist types, end arrangements, and top chord arrangements indicated.
 - 2.2.2 Comply with AWS requirements and procedures for shop welding, appearance, quality welds, and methods used in correcting welding work.
 - 2.2.3 Extend top chord of joists with SJI Type S top chord extensions where indicated, complying with SJI's "Specifications" and load tables.
 - 2.2.4 Extend bearing ends of joists with SJI Type R extended ends where indicated, complying with SJI's "Specifications" and load tables.

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- 2.2.5 Camber K-Series steel joists according to SJI's "Specifications".
- 2.2.6 Equip bearing ends of joists with manufacture's standard beveled ends or slopedshoes when joist slope exceeds 1/4 inch in 12 inches (1:48).
- 2.3. Joist Accessories:
 - 2.3.1 Bridging: Provide bridging anchors and number of rows of horizontal or diagonal bridging of material, size, and type required by SJI's "Specifications" for type of joist, chord size, spacing, and span.
 - 2.3.2 Steel Bearing Plates with integral anchorages are specified in the Structural Section of the Publix Construction Documents.
 - 2.3.3 Supply miscellaneous accessories, including splice plates and bolts required by the joist manufacturer to complete the joist installation.
- 2.4. Shop Painting: Apply one shop coat of primer to joist and joist accessories to be primed to provide a continuous, dry paint film thickness of not less than 1 mil (0.025mm).

3. Execution

- 3.1. Inspection: Examine supporting substrates, embedded bearing plates, and abutting structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of joists. Do not proceed with installation until unsatisfactory conditions have been corrected.
- 3.2. Installation
 - 3.2.1 Do not install joists until supporting construction is in place and secured.
 - 3.2.2 Comply with OSHA requirements for steel joist erection.
 - 3.2.3 Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction according to SJI's "Specifications", joist manufacturer's recommendations, the requirements of this Section, and the Structural Section of Publix Construction Documents".
 - 3.2.3.1 Space, adjust, and align joists accurately in location before permanently fastening.
 - 3.2.3.2 Install temporary bracing and bridging, connections, and anchors to ensure joists are stabilized during construction.
 - 3.2.4 Field weld joists to supporting steel framework and steel bearing plates. Coordinate welding sequence and procedure with placing of joists.
 - 3.2.4.1 Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - 3.2.5 Bolt joists, where indicated, to supporting steel framework using carbon-steel bolts, unless otherwise indicated.
 - 3.2.6 Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords where terminating at walls or beams.
- 3.3. Field Quality Control:
 - 3.3.1 No field cutting or fabrication will be permitted without written approval of Publix' structural engineer.
 - 3.3.2 Testing Agency: A qualified independent testing agency employed and paid by contractor

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shall perform field quality control testing.

- 3.3.3 Testing agency will report test results promptly and in writing to Owner and Engineer.
 - 3.3.4 Testing and verification procedures will be required of high strength bolted connections and fields.
 - 3.3.5 Bolted connections will be visually inspected.
 - 3.3.6 High-strength, field-bolted connections will be tested and verified according to procedures in RCSC's "Specifications for Structural Joints Using ASTM A 325 or ASTM A 490 Bolts".
 - 3.3.7 Field welds will be subject to inspection requirements of Section 05120 "Structural Steel".
- 3.4. Repairs and Protection:
- 3.4.1 Correct deficiencies in work that inspection and test reports have indicated are not in compliance with specified requirements provided that the correction method does not conflict with other provisions of these specifications.
 - 3.4.2 Additional testing will be performed to determine compliance of corrected work with specified requirements.

End of Section 05 21 00

Section 05 30 00

Metal Decking V04112022

1. General

1.1. Scope of Work:

- 1.1.1 Steel deck and related accessories for the Publix box shall be engineered and fabricated by Nucor/Vulcraft and will be provided by Publix. Decking provided does not include retail or facade structures, except when facade drawings are on Publix title block.
- 1.1.2 General Contractor and Steel Fabricator to coordinate with Vulcraft shop drawings which will be available from Vulcraft after the store has been awarded.
- 1.1.3 General Contractor will be responsible for coordinating the deck delivery date with Vulcraft (contact: see below). General Contractor is also responsible for unloading delivery and covering materials at the job site. The General Contractor is responsible for all materials after delivery to the job site.

Cory Goetzman National Accounts Representative,
Nucor-Vulcraft Group
2675 Breckinridge Plaza, Suite 150
Duluth, GA 30096
Phone: 678.965.6667
FAX: 770.776.7197
email: tcgoetzman@vulcraft-al.com

- 1.1.4 The deck shall not sit on the site for more than 10 days before being erected.

1.2. Submittals:

- 1.2.1 Conform to requirements of Section 01 33 00 Submittal Procedures.

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- 1.2.2 Product Data: For each type of decking, accessory and mechanical fasteners (if used), submit manufacturer's specifications and other data needed to demonstrate compliance with the specified requirements.
- 1.2.3 Shop Drawings: Submit detailed drawings showing layout and types of deck panels, anchorage details, and conditions requiring closure panels, supplementary framing, sump pans, cant strips, cut openings, special jointing or other accessories.
- 1.2.4 Installation Instructions: Submit manufacturer's recommended installation procedures which, when approved by the Engineer, shall become the basis for accepting or rejecting actual installation procedures used on the work.
- 1.2.5 When the materials of this section are used as part of an assembly indicated on the drawings in which fire-resistive construction ratings are required, submit evidence of approval by Underwriters' Laboratories, Inc. and the local Authority having jurisdiction.
- 1.2.6 Insurance Certification: Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance.
- 1.3. Quality Assurance Codes and Standards: Comply with provisions of the following codes and standards, except as otherwise shown or specified:
 - 1.3.1 AISC "Specification for the Design of Light Gage Cold-Formed Steel Structural Members".
 - 1.3.2 AWS "Structural Welding Code- Steel", and "Structural Welding Code-Sheetsteel".
 - 1.3.3 SDI "Design Manual for Floor Decks and Roof Decks".
 - 1.3.4 Qualifications of Field Welding: Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure". Also follow requirement of Division 5 Section 3.6 "Welding" of this specification.
 - 1.3.4.1 Welded decking in place is subject to inspection and testing. Expense of removing and replacing portions of decking for testing purposes will be borne by Owner if welds are found to be unsatisfactory. Remove work found to be defective and replace with new acceptable work.
 - 1.3.5 FM Listing: Provide metal roof deck units which have been evaluated by factory mutual system and are listed in "Factory Mutual Approval Guide" for "Class I" fire rated construction.
- 1.4. Manufacturer:
 - 1.4.1 All roof decking shall be the product of a single manufacturer; all floor decking shall be the product of a single manufacturer.
 - 1.4.2 Manufacturer shall be a member of the Steel Deck Institute.

2. Products:

- 2.1. Roof Deck (and rooftop equipment room floor decking):
 - 2.1.1 Provide minimum 22 gauge SDI Type "B" deck (1 1/2 in.), capable of supporting uniformly distributed live and dead load of 50 psf over 6'-0" clearspan, with deflection limited to 1/240 of the span. See design documents for minimum gauge requirements.

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- 2.1.2 Provide galvanized, top and bottom prime painted deck. Prior to painting, the galvanized steel shall be chemically cleaned and pre-treated in accordance with prime-paint manufacturer's recommendations. Prime paint shall be water-borne, rust inhibitive, recommended by manufacturer for use over galvanized steel, compatible with specified field applied finish coats, color: gray..
 - 2.1.2.1 Primer: Manufacturer's standard primer, unless noted otherwise.
 - 2.1.2.2 Steel shall conform to ASTM A653, Structural Quality, G-60.
- 2.2. Floor Deck:
 - 2.2.1 Provide minimum 26 gauge SDI type "C" deck (9/16 inch). See design documents for additional design requirements.
 - 2.2.2 Steel shall conform to ASTM A653, Structural Quality, G-60. Deck shall have overlapped side joints and span at least 3 supports.
 - 2.2.2.1 Florida: In Miami-Dade County and Broward County galvanize 26-gauge deck with minimum G-90 coating.

3. Execution

- 3.1. Inspection: Installer shall examine areas and conditions under which metal decking is to be installed and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.
- 3.2. Installation General: Install deck units and accessories in accordance with Manufacturer's recommendations, current specifications and commentary of SDI, and final Shop Drawings, and as specified herein.
 - 3.2.1 Place deck units on supporting steel framework and adjust to final position with ends accurately aligned and bearing on supporting members before permanently fastened. Do not stretch or contract side lap interlocks.
 - 3.2.2 Place deck units flat and square, secured to adjacent framing without warp or deflection.
 - 3.2.3 Provide additional reinforcement and closure pieces at openings as required for strength, continuity of decking, and support of other work.
 - 3.2.4 Cutting and fitting: Cut and neatly fit deck units and accessories around other work projecting through or adjacent to the decking, as shown.
- 3.3. Fastening Roof Deck Panels:
 - 3.3.1 Fasten roof deck panels to steel supporting members by arc spot (puddle) welds of not less than 5/8" diameter. Use welding washers where recommended by deck manufacturer.
 - 3.3.1.1 Weld Spacing: Space and locate welds as indicated in the Structural section of the Publix Construction Documents.
 - 3.3.1.2 Side Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals indicated in the Structural section of the Publix Construction Documents. Mechanically fasten with self-drilling No. 10 diameter or larger carbon steel screws, unless otherwise indicated in the Publix Construction Documents.
 - 3.3.1.3 End Bearing: Install deck ends over supporting framing with a minimum end bearing of 1-1/2 inches, with end joints lapped 2 inches minimum, or as per SDI.
 - 3.3.2 Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used in correcting

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welding work.

- 3.3.3 Mechanical fasteners may be used in lieu of welding to fasten deck. Install according to deck manufacturer's instructions. Submit fastener data for approval. If approved, Engineer will determine fastener spacing.
- 3.3.4 Miscellaneous Roof Deck Accessories: Install ridge and valley plates, finish strips, cover plates, end closures, and reinforcing channels according to manufacturer's recommendations. Weld to substrate to provide a complete deck installation.
- 3.4. Mechanical Fastening Roof Deck Panels (Alternate to Welding):
 - 3.4.1 Powder driven and Pneumatic Fasteners: Fasteners shall have knurled shank; minimum 1/2" diameter steel washer; electroplated zinc conforming to ASTM B633, Sc.1, Type II; meet SDI design requirements; FM approval.
 - 3.4.1.1 Acceptable Fasteners for Bar Joists (1/8" minimum thickness to 3/8" maximum thickness) include Hilti ENP2K-20-L15, X-EDN19-THQ12 HSN or X-EDNK22 THQ12 HSN
 - 3.4.1.2 Acceptable Fastener for Structural Steel (1/4" thickness and greater) is Hilti ENPH2-21-L15
 - 3.4.2 Use of Powder actuated Tools shall only be by a qualified operator, trained and licensed by the tool manufacturer in accordance with the manufacturer's and OSHA requirements.
 - 3.4.3 Install fasteners to steel members as indicated below:
 - 3.4.3.1 For ENPH2-21-L15 fasteners to secure roof deck to structural steel members using Hilti Powder Actuated tools DX-750 or DXA70R.
 - 3.4.3.2 For ENP2K-20-L15 fasteners to secure roof deck to bar joists using Hilti Powder Actuated tools DX-750
 - 3.4.3.3 For X-EDN19-THQ12 HSN or X-EDNK22 THQ12 HSN fasteners to secure roof deck to bar joists using Hilti Pneumatic Tool R4X12 or the Hilti Powder Actuated tools DX-36M or DX-A41SM.
 - 3.4.3.4 The nailhead stand off shall be according to the manufacturer's recommendations and verified with an inspection gauge. The power level shall be determined by jobsite testing.
 - 3.4.3.5 Installation of fasteners shall be in accordance to design requirements and installed by an operator trained and licensed by the manufacturer.
 - 3.4.3.6 Powder Actuated Tools shall be low velocity, piston principle, adjustable.
- 3.5. Field Quality Control:
 - 3.5.1 Testing Agency
 - 3.5.2 A qualified independent testing agency employed and paid by the contractor will perform field quality-control testing.
 - 3.5.3 Field welds will be subject to inspection requirements of Section 051200, "Structural Steel".
 - 3.5.4 Deck Attachment pattern will be subject to inspection.
 - 3.5.5 Testing agency will report test results promptly and in writing to Owner and Engineer.
 - 3.5.6 Remove and replace work that does not comply with specified requirements.
 - 3.5.7 Additional testing, at Contractor's expense, will be performed to determine

compliance with specified requirements.

3.6. Repairs and Protection:

3.6.1 Touchup Painting: Wire brush, clean and paint scarred areas, welds, and rust spots on both surfaces of installed deck panels.

3.6.2 Provide final protection and maintain conditions to ensure steel decking is without damage or deterioration at time of Substantial Completion.

End of Section 05 30 00

Section 05 40 00

Cold-Formed Metal Framing

1. General

1.1. Related Documents: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2. Summary: This Section includes the following:

1.2.1 Exterior nonload-bearing steel-stud curtainwall.

1.2.2 Exterior sheathing and air-infiltration barriers.

1.2.3 Related Sections: The following Sections contain requirements that relate to this Section:

Division 00 Section "Gypsum Sheathing" for gypsum sheathing applied to exterior steel framing.

Division 5 Section 05 12 00 "Structural Steel Framing" for masonry shelf angles and connections.

Division 9 Section "Gypsum Board" for gypsum board and nonload-bearing metal-stud framing and ceiling-suspension assemblies.

1.3. Performance Requirements: AISI "Specifications": Provide light gage metal components with characteristics of cold-formed metal framing according to AISI's "Specification for the Design of Cold-Formed Steel Structural Members" and the following.

1.4. Submittals:

1.4.1 General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

1.4.2 Product data for each type of cold-formed metal framing, accessory, and product specified.

1.4.3 Shop drawings showing layout, spacings, sizes, thicknesses, and types of cold-formed metal framing, fabrication, fastening and anchorage details, including mechanical fasteners. Show reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachments to other units of Work.

1.4.4 Mill certificates signed by manufacturers of cold-formed metal framing certifying that their products comply with requirements, including uncoated steel

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thickness, yield strength, tensile strength, total elongation, and galvanized-coating thickness.

- 1.4.4.1 In lieu of mill certificates, submit test reports from a qualified independent testing agency evidencing compliance with requirements.
- 1.4.5 Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.
- 1.4.6 Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- 1.4.7 Product test reports from a qualified independent testing agency evidencing compliance with requirements of the following based on comprehensive testing:
 - Expansion anchors
 - Powder-actuated anchors
 - Mechanical fasteners
- 1.4.8 Research reports or evaluation reports of the model code organization acceptable to authorities having jurisdiction that evidence cold-formed metal framing's compliance with building code in effect for Project.
- 1.5. Quality Assurance:
 - 1.5.1 Installer Qualifications: Engage an experienced Installer who has completed cold-formed metal framing similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
 - 1.5.2 Testing Agency Qualifications: To qualify for acceptance, an independent testing agency must demonstrate to Architect's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.
 - 1.5.3 Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code--Steel" and AWS D1.3 "Structural Welding Code--Sheet Steel".
 - 1.5.3.1 Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.
 - 1.5.4 Fire-Test-Response Characteristics: Where fire-resistance-rated assemblies are indicated, provide cold-formed metal framing identical to that tested as part of an assembly for fire resistance per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1.5.4.1 Fire-Resistance Ratings: As indicated by design designations listed in UL "Fire Resistance Directory" or another testing and inspecting agency acceptable to authorities having jurisdiction.
- 1.6. Delivery, Storage, and Handling:
 - 1.6.1 Store cold-formed metal framing, protect with a waterproof covering, and ventilate to avoid condensation.
 - 1.6.2 Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.

2. Products

2.1. Manufacturers:

2.1.1 Manufacturers: Subject to compliance with requirements, provide cold-formed metal framing by one of the following:

Alabama Metal Industries Corp.
American Studco, Inc.
Clark-Cincinnati, Inc.
Consolidated Fabricators Corp.
Consolidated Systems, Inc.
Dale/Incor Industries of Florida
Dale Industries, Inc.
Design Shapes in Steel
Dietrich Industries, Inc.
Incor Plant Dale Industries
Super Stud Building Products, Inc.
Unimast, Inc.
United Construction Supply
United States Steel

2.2. Materials:

2.2.1 Galvanized-Steel Sheet: ASTM A 446 (ASTM A 446M), zinc coated according to ASTM A 525 (ASTM A 525M), and as follows:

Coating Designation: G 90 (Z 275)
Grade: As required by structural performance

2.2.2 Aluminum-Zinc-Alloy-Coated Steel Sheet: ASTM A 792 (ASTM A 792M), aluminum- zinc-alloy-coated, structural quality.

Coating Designation: AZ 60 (AZ 180)
Grade: As required by structural performance

2.3. Wall Framing:

2.3.1 Steel Studs: Manufacturer's standard C-shaped steel studs of web depths indicated, with lipped flanges, and complying with the following:

Web: Punched or unpunched
Flange width: Refer to Construction Drawing

2.3.2 Steel Track: Manufacturer's standard U-shaped steel track, unpunched, of web depths indicated, with straight flanges, and complying with the following:

Design Uncoated-Steel Thickness: Matching steel studs
Flange Width: Manufacturers standard deep flange where indicated, standard flange elsewhere

2.4. Framing Accessories:

2.4.1 Fabricate steel-framing accessories of the same material and finish used for framing members, with a minimum yield strength of 33,000 psi (230 MPa).

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2.4.2 Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:

Supplementary framing,
Bracing, bridging, and solid blocking,
Web stiffeners,
Gusset plates,
Deflection track and vertical slide clips,
Stud kickers and girts,
Joist hangers and end closures,
Reinforcement plates.

2.5. Anchors, Clips, and Fasteners:

2.5.1 Steel Shapes and Clips: ASTM A 36 (ASTM A 36M), zinc coated by the hot-dip process according to ASTM A 123.

2.5.2 Cast-in-Place Anchor Bolts and Studs: ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); carbon-steel hex-head bolts and studs; carbon-steel nuts; and flat, unhardened-steel washers. Zinc coated by the hot-dip process according to ASTM A 153.

2.5.3 Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times the design load, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

2.5.4 Powder-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times the design load, as determined by testing per ASTM E 1190 conducted by a qualified independent testing agency.

2.5.5 Mechanical Fasteners: Corrosion-resistant coated, self-drilling, self-threading steel drill screws.

2.5.5.1 Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.

2.5.6 Welding Electrodes: Comply with AWS standards.

2.6. Miscellaneous Materials:

2.6.1 Galvanizing Repair Paint: SSPC-Paint 20 or DOD-P-21035, with dry film containing a minimum of 94 percent zinc dust by weight.

2.6.2 Cement Grout: Portland cement, ASTM C 150, Type I; and clean, natural sand, ASTM C 404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.

2.6.3 Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, plasticizing and water-reducing agents, complying with ASTM C 1107, with fluid consistency and a 30-minute working time.

2.6.4 Thermal Insulation: ASTM C 665, Type I, unfaced mineral-fiber blankets produced by combining glass or slag fibers with thermosetting resins.

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2.7. Fabrication:

- 2.7.1 Fabricate cold-formed metal framing and accessories plumb, square, true to line, and with connections securely fastened, according to manufacturer's recommendations and the requirements of this Section.
 - 2.7.1.1 Fabricate framing assemblies in jig templates.
 - 2.7.1.2 Cut framing members by sawing or shearing; do not torch cut.
 - 2.7.1.3 Fasten cold-formed metal framing members by welding. Wire tying of framing members is not permitted.
 - 2.7.1.4 Fasten cold-formed metal framing members by welding or screw fastening, as standard with fabricator. Wire tying of framing members is not permitted.
 - 2.7.1.4.1 Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - 2.7.1.4.2 Locate mechanical fasteners and install according to cold-framed metal framing manufacturer's instructions with screw penetrating joined members by not less than 3 exposed screw threads.
 - 2.7.1.5 Fasten other materials to cold-formed metal framing by welding, bolting, or screw fastening, according to manufacturer's recommendations.
- 2.7.2 Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or distortion.
- 2.7.3 Fabrication Tolerances: Fabricate assemblies to a maximum allowable tolerance variation from plumb, level, and true to line of 1/8 inch in 10 feet (1:960) and as follows:
 - 2.7.3.1 Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
 - 2.7.3.2 Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

3. Execution

- 3.1. Examination: Examine supporting substrates and abutting structural framing for compliance with requirements, including installation tolerances and other conditions affecting performance of cold-formed metal framing. Do not proceed with installation until unsatisfactory conditions have been corrected.
- 3.2. Installation, General:
 - 3.2.1 Cold-formed metal framing may be shop or field fabricated for installation, or it may be field assembled.
 - 3.2.2 Install cold-formed metal framing and accessories plumb, square, true to line, and with connections securely fastened, according to manufacturer's recommendations and the requirements of this Section.
 - 3.2.2.1 Cut framing members by sawing or shearing; do not torch cut.

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- 3.2.2.2 Fasten cold-formed metal framing members by welding or screw fastening, as standard with fabricator. Wire tying of framing members is not permitted.
 - 3.2.2.2.1 Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - 3.2.2.2.2 Locate mechanical fasteners and install according to cold-framed metal framing manufacturer's instructions with screw penetrating joined members by not less than 3 exposed screw threads.
- 3.2.3 Install framing members in one-piece lengths, unless splice connections are indicated for track or tension members.
- 3.2.4 Provide temporary bracing and leave in place until framing is permanently stabilized.
- 3.2.5 Do not bridge building expansion and control joints with cold-formed metal framing. Independently frame both sides of joints.
- 3.2.6 Install insulation in built-up exterior framing members, such as headers, sills, boxed joists, and double studs, inaccessible upon completion of framing work.
- 3.2.7 Fasten reinforcement plate over web penetrations that exceed size of manufacturer's standard punched openings.
- 3.2.8 Erection Tolerances: Install cold-formed metal framing to a maximum allowable tolerance variation from plumb, level, and true to line of 1/8 inch in 10 feet (1:960) and as follows:
 - 3.2.8.1 Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
- 3.3. Nonload-Bearing Curtainwall Installation:
 - 3.3.1 Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.
 - 3.3.2 Squarely seat studs against webs of top and bottom tracks. Fasten both flanges of studs to top and bottom track, unless otherwise indicated. Space studs as follows:

Stud Spacing: As indicated on Drawings.
 - 3.3.3 Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.
 - 3.3.4 Isolate steel framing from building structure at locations indicated to prevent transfer of vertical loads while providing lateral support.
 - 3.3.4.1 Install deflection track and anchor to building structure.
 - 3.3.4.2 Connect studs with vertical slide clips to continuous angles or supplementary framing anchored to building structure.
 - 3.3.5 Install horizontal bridging in curtainwall studs, spaced in rows not more than 48 inches apart. Fasten at each stud intersection.
 - 3.3.5.1 Install additional row of horizontal bridging in curtainwall stud beneath deflection track when curtainwall studs are not fastened to an additional top track.

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- 3.3.5.2 Bridging: Cold-rolled steel channel, clip angle fastened to webs of punched studs.
- 3.3.5.3 Bridging: Flat, steel-sheet straps of width and thickness indicated, fastened to stud flanges.
- 3.3.5.4 Bridging: Combination of flat, steel-sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness matching studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
- 3.3.6 Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, fasteners, and stud girts, to provide a complete and stable curtainwall-framing system.
- 3.4. Gypsum Sheathing Installation:
 - 3.4.1 General: Install gypsum sheathing board according to manufacturer's instructions and GA-253 "Application of Gypsum Sheathing".
 - 3.4.2 Install tongue-and-groove gypsum sheathing horizontally with long edges at right angles to studs with V-grooved edge down and tongue edge up. Interlock tongue with groove to bring long edges in contact with edges of adjacent board without forcing. Abut ends of boards over centers of studs and stagger end joints. Fasten gypsum sheathing board to framing with self-drilling, bugle-head screws, as follows.
 - 3.4.3 Install square end and edged sheathing vertically with long edges parallel to, and centered over, studs. Install solid blocking where end joints do not bear against framing sills or track. Fasten gypsum sheathing board to perimeter framing and to each stud with self- drilling, bugle-head screws, located a minimum of 3/8 inch (9.5 mm) from ends and edges of board units, as follows:
 - 3.4.3.1 Space fasteners to comply with manufacturer's recommendations.
 - 3.4.3.2 Space fasteners not more than 8 inches (203 mm) apart around perimeter at edge and end supports and 8 inches (203 mm) apart at intermediate supports.
 - 3.4.3.3 Space fasteners not more than 4 inches (102 mm) apart around perimeter at edge and end supports and 8 inches (203 mm) apart at intermediate supports.
- 3.5. Tape and Sealant Application:
 - 3.5.1 Sheathing Tape: Apply sheathing tape to joints in sheathing; overlap tape by not less than the tape width at joint intersections.
 - 3.5.1.1 For polyethylene tape, apply primer, specified by tape manufacturer, to sheathing surfaces. In addition, apply polyethylene tape, 2 inches (50 mm) square, to completely cover each exposed fastener.
 - 3.5.1.2 For glass-fiber tape, apply approximately a 3/8-inch (9.5-mm) bead of siliconized emulsion sealant to tapes along joints and embed sealant into tapes along their entire surface with a trowel. In addition, apply sealant with a trowel to each exposed fastener so that fasteners are completely covered.
- 3.6. Air-infiltration Barrier Installation:
 - 3.6.1 Cover sheathing with air-infiltration barrier as follows:
 - 3.6.1.1 Apply asphalt-saturated organic felt horizontally with 2-inch (51-mm)

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overlap and 6-inch (152-mm) endlap; fasten to sheathing with corrosion-resistant staples.

3.6.1.2 Apply plastic sheet according to manufacturer's printed recommendations with a 4-inch (102-mm) overlap.

3.6.1.3 Apply woven polyolefin sheet according to manufacturer's printed recommendations with a 4-inch (102-mm) overlap.

3.7. Field Quality Control:

3.7.1 Testing Agency: A qualified independent testing agency employed and paid by Owner will perform field quality-control testing.

3.7.2 Field and shop welds will be subject to inspection and testing.

3.7.3 Testing agency will report test results promptly and in writing to Contractor and Architect.

3.7.4 Remove and replace Work that does not comply with specified requirements.

3.7.5 Additional testing will be performed to determine compliance of corrected Work with specified requirements.

3.8. Repairs and Protection:

3.8.1 Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanizing repair paint according to ASTM A 780 and the manufacturer's instructions.

3.8.2 Touchup Painting: Wire brush, clean, and paint scarred areas, welds, and rust spots on fabricated and installed prime-painted, cold-formed metal framing.

3.8.2.1 Touchup painted surfaces with same type of shop paint used on adjacent surfaces.

3.8.3 Protect gypsum sheathing that will be exposed to weather for more than one month as follows:

3.8.3.1 Protect cutouts, corners, and joints in the sheathing by filling with a flexible sealant or by applying tape recommended by sheathing manufacturer at the time sheathing is applied.

3.8.4 Provide final protection and maintain conditions in a manner acceptable to manufacturer and Installer to ensure that cold-formed metal framing is without damage or deterioration at the time of Substantial Completion.

End of Section 05 40 00

Section 05 52 13

Pipe and Tube Railings

1. General

1.1. Related Documents:

1.1.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

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- 1.2. Summary: This Section includes the following:
 - 1.2.1 Stainless steel pipe and tube handrails and railing systems. Provide galvanized finish for exterior installations where indicated.
- 1.3. Definitions: Definitions in ASTM E 985 for railing-related terms apply to this Section.
- 1.4. Performance Requirements:
 - 1.4.1 General: In engineering handrail and railing systems to withstand structural loads indicated, determine allowable design working stresses of materials based on the following:
 - 1.4.1.1 Stainless Steel: ASCE "Specification for the Design of Cold-Formed Stainless Steel Structural Members".
 - 1.4.2 Structural Performance of Handrails and Railing Systems: Engineer, fabricate, and install handrails and railing systems to comply with requirements of ASTM E 985 for structural performance based on the following:
 - 1.4.2.1 Testing performed according to ASTM E 894 and E 935.
 - 1.4.3 Structural Performance of Handrails and Railing Systems: Engineer, fabricate, and install handrails and railing systems to withstand the following structural loads without exceeding the allowable design working stress of the materials for handrails, railing systems, anchors, and connections. Apply each load to produce the maximum stress in each of the respective components comprising handrails and railing systems.
 - 1.4.3.1 Top Rail of Guardrail Systems: Capable of withstanding the following loads applied as indicated:
 - 1.4.3.1.1 Concentrated load of 200 lbs (890 N) applied at any point and in any direction.
 - 1.4.3.1.2 Uniform load of 50 lbs per linear foot (730 N) applied horizontally and concurrently with uniform load of 100 lbs per linear foot (1460 N) applied vertically downward.
 - 1.4.3.1.3 Concentrated and uniform loads above need to be assumed to act concurrently.
 - 1.4.3.2 Handrails Not Serving as Top Rails: Capable of withstanding the following loads applied as indicated:
 - 1.4.3.2.1 Concentrated load of 200 lbs (890 N) applied at any point and in any direction.
 - 1.4.3.2.2 Uniform load of 50 lbs per linear foot (730 N) applied in any direction.
 - 1.4.3.2.3 Concentrated and uniform loads above need to be assumed to act concurrently.
 - 1.4.3.3 Infill Area of Guardrail Systems: Capable of withstanding a horizontal concentrated load of 200 lbs (890 N) applied to 1 sq. ft. (0.09 sq. m) at any point in the system including panels, intermediate rails, balusters, or other elements composing the infill area.
 - 1.4.3.3.1 Above load need to be assumed to act concurrently with loads on top rails of railing systems in determining stress on guard.

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- 1.4.4 Thermal Movements: Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in engineering, fabricating, and installing handrails and railing systems to prevent buckling, opening of joints, overstressing of components and connections, and other detrimental effects. Base engineering calculation on actual surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.
 - 1.4.4.1 Temperature Change (Range): 140 deg F (67 deg C) ambient 180 deg F (100 deg C) material surfaces.
- 1.4.5 Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
- 1.5. Submittals:
 - 1.5.1 General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
 - 1.5.2 Product data for mechanically connected handrails and railing systems, each kind of fitting, grout, anchoring cement, and paint products.
 - 1.5.3 Shop drawings showing fabrication and installation of handrails and railing systems including plans, elevations, sections, details of components, and attachments to other units of Work.
 - 1.5.3.1 For installed handrails and railing systems indicated to comply with certain design loadings, include structural analysis data sealed and signed by the qualified professional engineer who was responsible for their preparation.
 - 1.5.4 Samples for initial selection in the form of manufacturer's color charts showing the full range of colors available for those units with factory-applied color finishes.
 - 1.5.5 Samples for initial selection in the form of short sections of railing or flat sheet metal samples showing available mechanical finishes.
 - 1.5.6 Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include a list of completed projects with project names, addresses, names of architects and owners, and other information specified.
 - 1.5.7 Product test reports from a qualified independent testing agency evidencing compliance of handrails and railing systems with requirements based on comprehensive testing of current products.
 - 1.5.8 Test reports from an independent testing agency evidencing compliance of handrails and railing systems with ASTM E 985.
- 1.6. Quality Assurance:
 - 1.6.1 Single-Source Responsibility: Obtain handrails and railing systems of each type and material from a single manufacturer.
 - 1.6.2 Engineer Qualifications: Professional engineer legally authorized to practice in the jurisdiction where Project is located and experienced in providing engineering services of the kind indicated for handrails and railing systems similar to this Project in material, design, and extent, and that have a record of successful in-service performance.

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- 1.7. Storage: Store handrails and railing systems inside a well-ventilated area, away from uncured concrete and masonry and protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.
- 1.8. Project Conditions:
 - 1.8.1 Field Measurements: Where handrails and railing systems are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1.8.1.1 Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabricating handrails and railing systems without field measurements. Coordinate other construction to ensure that actual dimensions correspond to guaranteed dimensions.
- 1.9. Sequencing And Scheduling: Sequence and coordinate installation of wall handrails as follows: Mount handrails only on completed walls. Do not support handrails temporarily by any means not satisfying structural performance requirements.

2. Products

- 2.1. Manufacturers: Subject to compliance with requirements, provide handrails and railing systems by one of the following:
 - 2.1.1 Stainless Steel Pipe and Tube Railings:
 - Alumaguard
 - Architectural Art Mfg., Inc.
 - Blum: Julius Blum & Co., Inc.
 - CraneVeyor Corp.
 - KDI Paragon, Inc.
 - Wagner: R & B Wagner, Inc.
 - Madrox
 - 2.2. Metals:
 - 2.2.1 General: Provide metals free from surface blemishes where exposed to view in the finished unit. Exposed-to-view surfaces exhibiting pitting, seam marks, roller marks, stains, discolorations, or other imperfections on finished units are not acceptable.
 - 2.2.2 Stainless Steel: Grade and type designated below for each form required:
 - 2.2.2.1 Tubing: ASTM A 554, grade as follows: Grade MT 304.
 - 2.2.2.2 Pipe: ASTM A 312 (ASTM A 312M), grade as follows: Grade TP 304.
 - 2.2.2.3 Castings: ASTM A 743 (ASTM A 743M), Grade CF 8 or CF 20.
 - 2.2.2.4 Plate: ASTM A 167, type as follows: Type 304.
 - 2.2.3 Brackets, Flanges, and Anchors: Cast or formed metal of the same material and finish as supported rails, unless otherwise indicated.
 - 2.3. Welding Materials, Fasteners, And Anchors:
 - 2.3.1 Welding Electrodes and Filler Metal: Provide type and alloy of filler metal and

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electrodes as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

- 2.3.2 Fasteners for Anchoring Railings to Other Construction: Select fasteners of the type, grade, and class required to produce connections that are suitable for anchoring railings to other types of construction indicated and capable of withstanding design loadings.

2.3.2.1 For stainless steel railings, provide fasteners fabricated from type 304.

- 2.3.3 Fasteners for Interconnecting Railing Components: Use fasteners of same basic metal as the fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.

2.3.3.1 Provide concealed fasteners for interconnecting railing components and their attachment to other work, except where otherwise indicated.

2.3.3.2 Provide Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.

- 2.3.4 Cast-in-Place and Postinstalled Anchors: Anchors of type indicated below, fabricated from corrosion-resistant materials, capable of sustaining, without failure, a load equal to 6 times the load imposed when installed in unit masonry and equal to 4 times the load imposed when installed in concrete, as determined by testing per ASTM E 488, conducted by a qualified, independent testing agency.

2.3.4.1 Cast-in-place anchors.

- 2.4. Grout And Anchoring Cement:

- 2.4.1 Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

- 2.4.2 Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without need for protection by a sealer or waterproof coating and is recommended for exterior use by manufacturer.

- 2.4.3 Products: Subject to compliance with requirements provide one of the following:

2.4.3.1 Nonshrink, Nonmetallic Grouts:

B-6 Construction Grout; W.R. Bonsal Co.

Diamond-Crete Grout; Concrete Service Materials Co.

Supreme; Cormix Construction Chemicals

Sure-grip High Performance Grout; Dayton Superior Corp.

Euco N-S Grout; Euclid Chemical Co.

Five Star Grout; Five Star Products

Vibropruf #11; Lambert Corp.

Crystex; L & M Construction Chemicals, Inc.

Masterflow 928 and 713; Master Builders Technologies, Inc.

Sealtight 588 Grout; W.R. Meadows, Inc.

SonogROUT 14; Sonneborn Building Products--ChemRex, Inc.

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Kemset; The Spray-Cure Company

2.4.3.2 Erosion-Resistant Anchoring Cement:

Bonsal Anchor Cement; W.R. Bonsal Co.

Super Por-Rok; Minwax Construction Products Division

Thorogrip; Thoro Systems Products

2.4.3.3 Shop Primer for Galvanized Steel: Zinc-dust, zinc-oxide primer formulated for priming zinc-coated steel and for compatibility with finish paint system indicated, and complying with SSPC-Paint 5.

2.5. Fabrication:

2.5.1 General: Fabricate handrails and railing systems to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of hollow members, post spacings, and anchorage, but not less than those required to support structural loads.

2.5.2 Assemble handrails and railing systems in the shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

2.5.3 Form changes in direction of members as follows:

2.5.3.1 As detailed.

2.5.3.2 By radius bends of radius indicated.

2.5.3.3 By flush radius bends.

2.5.3.4 By bending.

2.5.3.5 By mitering at elbow bends.

2.5.3.6 By insertion of prefabricated flush elbow fittings.

2.5.3.7 By any method indicated above, applicable to change of direction involved.

2.5.4 Form simple and compound curves by bending pipe in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of pipe throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of pipe.

2.5.5 Welded Connections: Fabricate handrails and railing systems for connection of members by welding. For connections made during fabrication, weld corners and seams continuously to comply with the following:

2.5.5.1 Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2.5.5.2 Obtain fusion without undercut or overlap.

2.5.5.3 Remove welding flux immediately.

2.5.5.4 At tee and cross intersections, cope ends of intersecting members to fit contour of pipe or tube to which end is joined, and weld all around.

2.5.5.5 At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

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- 2.5.6 Nonwelded Connections: Fabricate handrails and railing systems by connecting members with railing manufacturer's standard concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
 - 2.5.6.1 Fabricate splice joints for field connection using epoxy structural adhesive where this represents manufacturer's standard splicing method.
- 2.5.7 Brackets, Flanges, Fittings, and Anchors: Provide manufacturer's standard wall brackets, flanges, miscellaneous fittings, and anchors to interconnect handrail and railing system members to other construction.
- 2.5.8 Provide inserts and other anchorage devices to connect handrails and railing systems to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by handrails and railing systems. Coordinate anchorage devices with supporting structure.
- 2.5.9 For railing posts set in concrete, provide preset sleeves of steel, not less than 6 inches (150 mm) long with inside dimensions not less than 1/2 inch (12 mm) greater than outside dimensions of post, and steel plate forming bottom closure.
- 2.5.10 For removable railing posts, fabricate slip-fit sockets from steel pipe whose inside diameter is sized for a close fit with posts and to limit deflection of post without lateral load, measured at top, to not more than 1/12 of post height. Provide socket covers designed and fabricated to resist accidental dislodgement.
 - 2.5.10.1 Provide chain with eye, snap hook, staple across gaps formed by removable railing sections at locations indicated. Fabricate from same metal as railings.
- 2.5.11 Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.
- 2.5.12 Ease exposed edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Form bent-metal corners to the smallest radius possible without causing grain separation or otherwise impairing work.
- 2.5.13 Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.
- 2.5.14 Provide weepholes, or another means to evacuate entrapped water, in hollow sections of railing members that are exposed to exterior or to moisture from condensation or other sources.
- 2.5.15 Fabricate joints that will be exposed to weather in a manner to exclude water.
- 2.5.16 Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated.
- 2.5.17 Toe Boards: Where indicated, provide toe boards at railings around openings and at the edge of open-sided floors and platforms. Fabricate to dimensions and details indicated.
- 2.5.18 Fillers: Provide steel sheet or plate fillers, of thickness and size indicated or required to support structural loads of handrails, where needed to transfer wall bracket loads through wall finishes to structural supports. Size fillers to suit wall finish thicknesses to produce adequate bearing to prevent bracket rotation and overstressing substrate.

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2.6. Finishes, General:

- 2.6.1 Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designating finishes.
- 2.6.2 Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering prior to shipment.
- 2.6.3 Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one half of the range of approved samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved samples and they are assembled or installed to minimize contrast.
- 2.6.4 Provide exposed fasteners with finish matching appearance, including color and texture, of handrails and railing systems.

2.7. Stainless Steel Finishes:

- 2.7.1 Remove or blend tool and die marks and stretch lines into finish.
- 2.7.2 Grind and polish surfaces to produce uniform directional textured polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
- 2.7.3 320-Grit Polished Finish: Oil-ground, uniform, smooth finish.
- 2.7.4 Bright, Directional Polish: Match AISI No. 4 finish.
- 2.7.5 When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

2.8. Galvanized Steel Finishes:

- 2.8.1 Galvanized Handrails and Railings: Hot-dip galvanize exterior steel and iron handrails and railings to comply with ASTM A 123. Hot-dip galvanize hardware for exterior steel and iron handrails and railings to comply with ASTM A 153/A 153M.
- 2.8.2 Fill vent and drain holes that will be exposed in finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- 2.8.3 For galvanized handrails and railings, provide galvanized fittings, brackets, fasteners, sleeves and other ferrous components.
- 2.8.4 Preparation for Shop Priming: After galvanizing, thoroughly clean handrails and railings of grease, dirt, oil, flux and other foreign matter. Treat with metallic-phosphate process.
 - 2.8.5.1 Do not apply primer to galvanized surfaces.
- 2.8.5 Apply shop primer to prepared surfaces of handrail and railing components, unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Paint Application Specification No. 1," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
- 2.8.6 Galvanized Surfaces: Clean field welds, bolted connections and abraded areas and repair galvanizing to comply with ASTM A 780.

3. Execution

- 3.1. Preparation: Coordinate setting drawings, diagrams, templates, instructions, and

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directions for installing anchorages, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors, that are to be embedded in concrete as masonry construction. Coordinate delivery of such items to Project site.

3.2. Installation, General:

3.2.1 Fit exposed connections accurately together to form tight, hairline joints.

3.2.2 Cutting, Fitting, and Placement: Perform cutting, drilling, fitting required for installing handrails and railing systems. Set handrails and railing systems accurately in location, alignment, elevation, measured from established lines and levels and free from rack.

3.2.2.1 Do not weld, cut, or abrade surfaces of handrails and railing components that have been coated or finished after fabrication and are intended for field connection by mechanical or other means without further cutting or fitting.

3.2.2.2 Set posts plumb within a tolerance of 1/4 inch in 12 feet (2 mm in 1 m).

3.2.2.3 Align rails so that variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (2 mm in 1 m).

3.2.3 Field Welding: Comply with the following requirements:

3.2.3.1 Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

3.2.3.2 Obtain fusion without undercut or overlap.

3.2.3.3 Remove welding flux immediately.

3.2.3.4 At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and welded surface matches contours of adjoining surfaces.

3.2.4 Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

3.2.5 Adjust handrails and railing systems prior to anchoring to ensure matching alignment at abutting joints. Space posts at interval indicated but not less than that required by design loadings.

3.2.6 Fastening to In-Place Construction: Provide anchoring devices and fasteners where necessary for securing handrails and railing systems and for properly transferring loads to in-place construction.

3.3. Railing Connections:

3.3.1 Nonwelded Connections: Use mechanical joints for permanently connecting railing components. Locate exposed fasteners in least conspicuous locations. Seal recessed holes of exposed locking screws with plastic filler, cement colored to match finish of handrails and railing systems.

3.3.2 Welded Connections: Use fully welded joints for permanently connecting railing components by welding. Cope or butt components to provide 100 percent contact, or use fittings designed for this purpose.

3.3.3 Expansion Joints: Install expansion joints at locations indicated but not further apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches (50 mm) beyond joint on either side; fasten

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internal sleeve securely to one side; locate joint within 6 inches (150 mm) of post.

3.4. Anchoring Posts:

- 3.4.1 Anchor posts in concrete with pipe sleeves preset and anchored into concrete. After posts have been inserted into sleeves, solidly fill annular space between post and sleeve with the following anchoring material, mixed and placed to comply with anchoring material manufacturer's directions.
- 3.4.2 Anchor posts in concrete by forming or core-drilling holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) greater than outside diameter of post. Clean holes of all loose material, insert posts, and fill annular space between post and concrete with the following anchoring material, mixed and placed to comply with anchoring material manufacturer's directions.
 - 3.4.2.1 Nonshrink, nonmetallic grout.
 - 3.4.2.2 Nonshrink, nonmetallic grout or anchoring cement.
- 3.4.3 Cover anchorage joint with a round steel flange attached to post as follows:
 - 3.4.3.1 Welded to post after placement of anchoring material.
 - 3.4.3.2 By set screws.
- 3.4.4 Leave anchorage joint exposed, wipe off surplus anchoring material, and leave 1/8-inch (3-mm) buildup, sloped away from post.
- 3.4.5 Install removable railing sections where indicated in slip-fit metal sockets cast into concrete. Accurately locate sockets to match post spacing.

3.5. Anchoring Rail Ends:

- 3.5.1 Anchor rail ends into concrete and masonry with round flanges connected to rail ends and anchored into wall construction with postinstalled anchors and bolts.
- 3.5.2 Anchor rail ends to metal surfaces with oval or round flanges.
 - 3.5.2.1 Weld flanges to rail ends.

3.6. Attaching Handrails To Walls:

- 3.6.1 Attach handrails to wall with wall brackets and end fittings. Provide bracket with 1-1/2-inch (38- mm) clearance from inside face of handrail to finished wall surface.
- 3.6.2 Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- 3.6.3 Secure wall brackets and wall return fittings to building construction as follows:
 - 3.6.3.1 Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.
 - 3.6.3.2 Use type of bracket with predrilled hole for exposed bolt anchorage.
 - 3.6.3.3 For concrete and solid masonry anchorage, use drilled-in expansion shield and either concealed hanger bolt or exposed lag bolt, as applicable.
 - 3.6.3.4 For hollow masonry anchorage, use toggle bolts with square heads.
 - 3.6.3.5 For wood stud partitions, use lag bolts set into wood backing between studs. Coordinate with stud installation to accurately locate backing

members.

3.6.3.6 For steel-framed gypsum board assemblies, fasten brackets directly to steel framing or concealed anchors using self-tapping screws of size and type required to support structural loads.

3.7. Adjusting And Cleaning: Clean the following metals by washing thoroughly with clean water and soap, followed by rinsing with clean water.

3.7.1 Stainless steel.

3.8. Protection:

3.8.1 Protect finishes of handrails and railing systems from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

3.8.2 Restore finishes damaged during installation and construction period so that no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

End of Section 05 52 13

Section 06 00 00

Woods, Plastics and Composites

V10232018

1. General

1.1. Submit LOI in accordance with Section 01 33 00 Submittal Procedures.

1.2. Scope of Work: See drawings including plans, room schedules and details for materials, attachment methods, etc. Frame for all concrete beams, slabs, etc. Provide all wood furring, blocking, and trim required.

2. Products

2.1. General:

2.1.1 Blocking: Provide all wood blocking and backing as required for the proper installation of plumbing and fixtures, cabinets, miscellaneous accessories, etc. Block between studs at joints butting two pieces of plywood or other material.

2.1.2 Interior partitions: Steel studs. See Section 09 29 00 Gypsum Board.

2.2. Wood species, grading:

2.2.1 Wood for thermal breaks in slabs: #2 Southern Pine, KD19, moisture resistant pressure treated as described below.

2.2.2 Interior Exposed Wood Trim: C-Select grade SPF-S. Base shall be 1 x 4 (nom.) with 45 degree sanitary cut top.

2.2.3 Other lumber: Where appearance is not a factor, Construction Grade SPF-S, KD19.

2.3. Plywood: Except as otherwise specified or provided, shall conform to requirements of

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American Plywood Association, Exterior Grades Group 1, Fir AC. Sheathing Grade Plywood shall be Fir or Pine, 4 ply, Exterior Glue.

2.4. Pressure Treated Wood:

2.4.1 Wood in contact with concrete or masonry, in the roofing system, as blocking for storefront openings or at other locations where necessary shall be pressure treated.

2.4.2 Provide wood pressure treated for above-ground use per AWWA Standards P5 and C2 or C9, Chromated Copper Arsenate type C ("Wolmanized", Osmose "CCA-C", Hoover "CCA", etc.), 0.25 pcf.

2.4.3 Salts retention:

2.4.3.1 Wood for thermal breaks in slabs: 0.60 lb/cuft minimum, AWWA C22.

2.4.3.2 All other locations: 0.40 lb/cuft minimum, AWWA C2.

2.5. Fire Retardant Wood Treatment:

2.5.1 All wood material shall be fire retardant treated.

2.5.2 Pressure treat wood with fire retardant material which has been tested and proven to meet AWWA Standards C20 and C27 for Type A use.

2.5.3 Treated product shall be low hygroscopic, and shall bear the UL stamp.

2.5.4 Kiln dry to moisture of 19% or less for lumber and 15% or less for plywood.

2.5.5 Interior exposed plywood: Treated and labeled to meet ASTM E84 Standards for Class C interior finish, kiln dried after treatment.

2.5.6 Use galvanized fasteners for fire retardant treated wood.

2.5.7 Approved treatment:

Chemical Specialties, Inc. - "D-Blaze"

Hickson Corporation - Dri-Con"

Hoover Treated Wood Products, Inc. - "Pyro-Guard"

2.6. Wood Cased Openings: Frame with nominal 2 x 4 frame, species, grade as above. Wrap with stainless steel.

2.7. Acrylic/Polyester Resin solid surfacing material:

2.7.1 Provide material and manufacturer's standard seamless joint kit. Color: Manufacturer's standard color to match Corian "Dusk."

2.7.2 Acceptable products:

Dupont "Corian"

International Paper, Nevamar Division "Fountainhead"

Ralph Wilson Plastics Co. "Gibraltar"

Formica Corporation "Surell"

2.7.3 Restroom lavatories:

Dupont "Corian" - Model 810 Bowl with Integrated Sink top. See Finish Schedule for color.

2.8. Acrovyn Wall Protection:

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- 2.8.1 Furnish and install Acrovyn Corner Guard Systems in models, sizes and quantities as detailed on the drawings, and as manufactured by and per the National Purchasing Agreement between Grand Entrance a member of C/S Group of Companies, Gaithersburg Md. and Publix Supermarkets Inc. Contact Sandra Gergely of Grand Entrance at (888-424-6287).
- 2.8.2 “0.40” High Impact Sheeting:
 - 2.8.2.1 Acrovyn high impact sheeting shall be 0.40” thick rigid vinyl/acrylic.
 - 2.8.2.2 Provide in sheets 3’x 10’ or 3’ x 8’ with “pebblette” texture.
 - 2.8.2.3 Patterns and colors are listed on drawings.
- 2.8.3 SCR-50 Crash Rail:
 - 2.8.3.1 Acrovyn surface mounted SCR-50 crash rail consisting of continuous aluminum retainer including an integral shock absorbing cushion with a snap on Acrovyn cover.
 - 2.8.3.2 Acrovyn material shall be high impact acrylic/vinyl with “pebblette” texture finish.
 - 2.8.3.3 Acrovyn cover to flex upon impact for shock absorption.
 - 2.8.3.4 Crash rail to be 5” high with 1-1/16” nominal depth.
 - 2.8.3.5 Provide color matched endcaps, outside corners and attachment hardware.
 - 2.8.3.6 Color and pattern to be listed on drawings.
 - 2.8.3.7 Follow all manufacturer’s instructions regarding the installation of Acrovyn Protective Sheets and Crash Rails.
- 2.9. Stainless Steel:
 - 2.9.1 Covers for columns as indicated, covers for head and jamb of doors and cased openings as scheduled and detailed, and wall finish at all grease hoods, as indicated and a minimum of floor-to-ceiling, behind and 18 in. on either side of hoods.
 - 2.9.2 Stainless Steel: 18 gauge, type 304 with number three polish.
- 2.10. Cooler Armor: Where indicated, provide cooler armor formed as shown from 14 gauge (minimum) steel sheet, forming steel Type B, ASTM A653, coating designation G90 (normal spangle), not chemically treated, oiled.
- 2.11. Fiberglass Reinforced Polyester Panels: As scheduled and as indicated on drawings.
 - 2.11.1 Panels 3/32” thick, 48” wide, extending full room height (no horizontal joints will be accepted) or, where indicated on drawings, use 48 in. coil for installation as a wainscot.
 - 2.11.2 Provide materials bearing U.L. label indicating compliance with ASTM E84 Standards for Class A Interior Finish.
 - 2.11.3 Provide junction molding for all inside and outside corners as required. Layout installation so a minimum of 16” panel width is maintained.
 - 2.11.4 Acceptable Product:
 - “StructoGlas FRFR”, Sequentia (Crane Composites)
 - “Standard FRP”, Marlite

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“Fire-X Glasbord (FX)”, Kemlite (Crane Composites)
“GlasLiner FRP”, Glasteel
“Panolam FRP”, Panolam Industries

2.11.5 Adhesive: Use a non-shrinking, waterproof mastic adhesive.

2.11.5.1 Acceptable Products:

Titebond, “Solvent-Based FRP Adhesive”
TACC, “T216 Panel Adhesive”
Chem Link, “DuraTex”
3M, “Scotch-Grip Construction Mastic 4323”

2.12. Rough Hardware: Nails, case hardened nails, spikes, screws, bolts, and similar items shall be of sizes and types to rigidly secure members in place. Use galvanized nails throughout the job, except in formwork that will be removed.

3. Execution

3.1. General:

3.1.1 Carefully lay out, cut, fit and securely erect all framing and all other items of carpentry. Adequate and substantial furring, blocking, grounds, and supports properly anchored, shall be provided for all paneling, trim etc.

3.1.2 At all plywood edges, there shall be either a vertical stud or horizontal backing to nail into.

3.2. Anchorage: All wood framing members in contact with steel, concrete or masonry shall be securely anchored at not over 48” intervals or as shown on the drawings. Provide anchors, bolts, and other items necessary for attaching miscellaneous equipment, all to be installed as the work progresses.

3.3. Grounds and nailing strips: Furnish and set dressed wood grounds for all trim. Check for perfect alignment with long straight edge.

3.4. All walls shall be finished before any ceiling work is done. Walls shall be installed as soon as the cooler and freezer are installed.

3.5. Fiberglass-Reinforced Polyester Panels: Install panels vertically with “T” mold between sheets and inside and outside corners as required. Install adhesive by either trowel or caulk gun.

3.6. Stainless Steel:

3.6.1 Sheet: Install with approved non-water-based contact cement. Cutting of all holes in steel covered panels for electrical and plumbing outlets shall be by appropriate trades, neatly and accurately to produce high quality appearance.

3.6.2 Cladding for cased openings, impact door frames, etc.: Install with appropriately sized compatible stainless steel screws using torque limiting screwdriver. Do not over-tighten.

3.7. Cooler Armor: Apply shop formed galvanized sheet steel armor where indicated on the Drawings, using sex bolts as shown, spaced 1’-0” o.c., top and bottom. Apply sealant top and bottom.

3.8. Solid Surfacing Material: Work material to produce lines and forms as shown. Where horizontal surfaces abut, weld sheets to form seamless joints, invisible as defined by

manufacturer of sheet material, impervious to penetration and stains.

- 3.9. Protection: Paneling, woodwork, trim, doors, hardware, etc., shall be protected after delivery to job and after installation.

End of Section 06 00 00

Section 06 10 00

Rough Carpentry

1. General

1.1. Related Documents:

- 1.1.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2. Summary: This Section includes the following:

- 1.2.1 Rooftop equipment bases and support curbs
1.2.2 Wood furring, grounds, nailers, and blocking
1.2.3 Sheathing.

1.3. Definitions:

- 1.3.1 Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise specified.
1.3.2 Exposed Framing: Dimension lumber not concealed by other construction and indicated to receive a stained or natural finish.

1.4. Submittals:

- 1.4.1 General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

1.4.2 Product Data for the following products:

Engineered wood products
Underlayment
Insulating sheathing
Air-infiltration barriers
Metal framing anchors
Construction adhesives

- 1.4.3 Material certificates for dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the American Lumber Standards Committee's (ALSC) Board of Review.

1.4.4 Wood treatment data as follows, including chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated materials:

- 1.4.4.1 For each type of preservative-treated wood product, include certification by treating plant stating type of preservative solution and

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pressure process used, net amount of preservative retained, and compliance with applicable standards.

- 1.4.4.2 For waterborne-treated products, include statement that moisture content of treated materials was reduced to levels indicated before shipment to Project site.
- 1.4.4.3 For fire-retardant-treated wood products, include certification by treating plant that treated materials comply with specified standard and other requirements as well as data relative to bending strength, stiffness, and fastener-holding capacities of treated materials.
- 1.4.5 Material test reports from a qualified independent testing agency indicating and interpreting test results relative to compliance of fire-retardant-treated wood products with requirements indicated.
- 1.4.6 Warranty of chemical treatment manufacturer for each type of treatment.
- 1.4.7 Research or evaluation reports of the model code organization acceptable to authorities having jurisdiction that evidence the following products' compliance with building code in effect for Project.
 - 1.4.7.1 Engineered wood products.
 - 1.4.7.2 Foam-plastic sheathing.
 - 1.4.7.3 Air-infiltration barriers.
 - 1.4.7.4 Metal framing anchors.
 - 1.4.7.5 Power-driven fasteners.
 - 1.4.7.6 Fire-retardant-treated wood.
- 1.5. Quality Assurance:
 - 1.5.1 Testing Agency Qualifications: To qualify for approval, an independent testing agency must demonstrate to Architect's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.
 - 1.5.2 Single-Source Responsibility for Engineered Wood Products: Obtain each type of engineered wood product from one source and by a single manufacturer.
 - 1.5.3 Single-Source Responsibility for Fire-Retardant-Treated Wood: Obtain each type of fire-retardant-treated wood product from one source and by a single producer.
- 1.6. Delivery, Storage, And Handling: Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.
 - 1.6.1 For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

2. Products

- 2.1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 2.1.1 Wood-Preservative-Treated Materials:

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Baxter: J. H. Baxter Co.
Chemical Specialties, Inc.
Continental Wood Preservers, Inc.
Hickson Corp.
Hoover Treated Wood Products, Inc.
Osmose Wood Preserving, Inc.

2.1.2 Fire-Retardant-Treated Materials, Interior Type A:

Baxter: J. H. Baxter Co.
Chemical Specialties, Inc.
Continental Wood Preservers, Inc.
Hickson Corp.
Hoover Treated Wood Products, Inc.

2.1.3 Fire-Retardant-Treated Materials, Exterior Type:

American Wood Treaters, Inc.
Hoover Treated Wood Products, Inc.

2.1.4 Gypsum Sheathing Board:

Domtar Gypsum
Georgia-Pacific Corp.
National Gypsum Co.; Gold Bond Building Products Division
United States Gypsum Co.

2.1.5 Glass-Fiber-Surfaced Gypsum Sheathing Board:

Georgia-Pacific Corp.
United States Gypsum Co.

2.1.6 Extruded Cellular Polystyrene Sheathing:

Amoco Foam Products Co.
Dow Chemical Company (The)
UC Industries, Inc.

2.1.7 Polyisocyanurate Foam Sheathing:

Celotex Corporation (The); Building Products Division
NRG Barriers, Inc.
Rmax, Inc.

2.1.8 Air-Infiltration Barriers:

Amoco Foam Products Co.
Anthony Industries, Inc.; Simplex Products Division
Celotex Corporation (The); Building Products Division
DuPont Company; Fibers Department.
Parsec, Inc.
Raven Industries, Inc.
Reemay, Inc.
Sto-Cote Products, Inc.

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2.1.9 Metal Framing Anchors:

Cleveland Steel Specialty Co.
Harlen Metal Products, Inc.
Silver Metal Products, Inc.
Simpson Strong-Tie Company, Inc.
Southeastern Metals Manufacturing Co., Inc.

2.2. Lumber, General:

2.2.1 Lumber Standards: Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.

2.2.2 Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:

NELMA - Northeastern Lumber Manufacturers Association
NLGA - National Lumber Grades Authority (Canadian)
SPIB - Southern Pine Inspection Bureau
RIS - Redwood Inspection Service
WCLIB - West Coast Lumber Inspection Bureau
WWPA - Western Wood Products Association

2.2.3 Grade Stamps: Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.

2.2.3.1 For exposed lumber, furnish pieces with grade stamps applied to ends or back of each piece, or omit grade stamps and provide grade-compliance certificates issued by inspection agency.

2.2.4 Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.

2.2.4.1 Provide dressed lumber, S4S, unless otherwise indicated.

2.2.4.2 Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal (38-mm actual) thickness or less, unless otherwise indicated.

2.3. Wood-preservative-treated Materials:

2.3.1 General: Where lumber or plywood is indicated as preservative treated or is specified to be treated, comply with applicable requirements of AWWA C2 (lumber) and AWWA C9 (plywood). Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.

2.3.1.1 Do not use chemicals containing chromium or arsenic.

2.3.1.2 For exposed items indicated to receive stained finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes.

2.3.2 Pressure treat above ground items with waterborne preservatives to a minimum retention of 0.25 lb/cu. ft. (4.0 kg/cu. m). After treatment, kiln-dry lumber and

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plywood to a maximum moisture content of 19 and 15 percent, respectively.
Treat indicated items and the following:

- 2.3.2.1 Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2.3.2.2 Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 - 2.3.3 Pressure treat wood members in contact with ground or freshwater with waterborne preservatives to a minimum retention of 0.40 lb/cu. ft. (6.4 kg/cu. m).
 - 2.3.4 Complete fabrication of treated items before treatment, where possible. If cut after treatment, apply field treatment complying with AWWA M4 to cut surfaces. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.
- 2.4. Fire-retardant-treated Materials:
- 2.4.1 General: Where fire-retardant-treated wood is indicated, comply with applicable requirements of AWWA C20 (lumber) and AWWA C27 (plywood). Identify fire-retardant-treated wood with appropriate classification marking of UL; U.S. Testing; Timber Products Inspection, Inc.; or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 2.4.1.1 Research or Evaluation Reports: Provide fire-retardant-treated wood acceptable to authorities having jurisdiction and for which a current model code research or evaluation report exists that evidences compliance of fire-retardant-treated wood for application indicated.
 - 2.4.2 Interior Type A: For interior locations, use chemical formulation that produces treated lumber and plywood with the following properties under conditions present after installation:
 - 2.4.2.1 Bending strength, stiffness, and fastener-holding capacities are not reduced below values published by manufacturer of chemical formulation under elevated temperature and humidity conditions simulating installed conditions when tested by a qualified independent testing agency.
 - 2.4.2.2 No form of degradation occurs due to acid hydrolysis or other causes related to treatment.
 - 2.4.2.3 Contact with treated wood does not promote corrosion of metal fasteners.
 - 2.4.3 Exterior Type: Use for exterior locations and where indicated.
 - 2.4.4 Inspect each piece of treated lumber or plywood after drying and discard damaged or defective pieces.
- 2.5. Dimension Lumber:
- 2.5.1 General: Provide dimension lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.
 - 2.5.2 Provide the following grades and species:
 - Grade: Select Structural
 - Grade: No. 1

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Species: Hem-fir north; NLGA

Species: Southern pine; SPIB

Species: Douglas fir-larch; WCLIB or WWPA

Species: Hem-fir; WCLIB or WWPA

Species: Douglas fir south; WWPA

Species and Grade: Any species of machine stress-rated (MSR) dimension lumber with a grade of 1800f-1.6E

Species and Grade: Any species and grade with a modulus of elasticity of at least 1,300,000 psi (8950 MPa) and an extreme fiber stress in bending of at least 850 psi (5.9 MPa) for 2-inch nominal (38 mm-actual) thickness and 12-inch nominal (286-mm actual) width for single member use.

2.6. Boards: Concealed Boards: Where boards will be concealed by other work, provide lumber with 19 percent maximum moisture content and of following species and grade:

2.6.1 Species and Grade: Eastern softwoods, No. 3 Common per NELMA rules.

2.6.2 Species and Grade: Northern species, No. 3 Common or Standard per NLGA rules.

2.6.3 Species and Grade: Mixed southern pine, No. 2 per SPIB rules.

2.6.4 Species and Grade: Hem-fir, Standard per WCLIB rules or No. 3 Common per WWPA rules.

2.6.5 Species and Grade: Spruce-pine-fir, Standard per WCLIB rules or No. 3 Common per WWPA rules.

2.6.6 Species and Grade: Western woods, Standard per WCLIB rules or No. 3 Common per WWPA rules.

2.6.7 Species and Grade: Any species above.

2.7. Miscellaneous Lumber:

2.7.1 General: Provide lumber for support or attachment of other construction, including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.

2.7.2 Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.

2.7.3 Moisture Content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.

2.7.4 Grade: For dimension lumber sizes, provide No. 3 or Standard grade lumber per ALSC's NGRs of any species. For board-size lumber, provide No. 3 Common grade per NELMA, NLGA, or WWPA; No. 2 grade per SPIB; or Standard grade per NLGA, WCLIB or WWPA of any species.

2.8. Wood-based Structural-use Panels, General:

2.8.1 Structural-Use Panel Standards: Provide either all-veneer, mat-formed, or composite panels complying with DOC PS 2, "Performance Standard for Wood-Based Structural-Use Panels," unless otherwise indicated. Provide plywood panels complying with DOC PS 1, "U.S. Product Standard for Construction and Industrial Plywood," where plywood is indicated.

2.8.2 Structural-Use Panel Standard: Provide plywood panels complying with DOC PS 1, "U.S. Product Standard for Construction and Industrial Plywood".

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- 2.8.3 Trademark: Factory mark structural-use panels with APA trademark evidencing compliance with grade requirements.
- 2.9. Structural-use Panels for Backing: Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire-retardant- treated plywood panels with grade, C-D Plugged Exposure 1, in thickness indicated or, if not otherwise indicated, not less than 15/32 inch (11.9 mm) thick.
- 2.10. Gypsum Sheathing:
 - 2.10.1 Gypsum Sheathing Board: Water-resistant-core gypsum sheathing board complying with ASTM C 79 with long edges surfaced with water-repellent paper and as follows:
 - 2.10.1.1 Type: Regular.
 - 2.10.1.2 Type: X.
 - 2.10.1.3 Edge Configuration: V-shaped tongue-and-groove long edges, for horizontal application.
 - 2.10.1.4 Edge Configuration: Square, for vertical application.
 - 2.10.1.5 Thickness: 1/2 inch (12.7 mm). See plans for location.
 - 2.10.1.6 Thickness: 5/8 inch (15.9 mm). See plans for location.
 - 2.10.2 Glass-Fiber-Surfaced Gypsum Sheathing Board: Gypsum sheathing board consisting of noncombustible gypsum core incorporating a water-resistant material, surfaced on face and back with glass-fiber mats with alkali-resistant coating, and with unsurfaced square edges; complying with ASTM C 79, and requirements indicated below:
 - 2.10.2.1 Type: Regular.
 - 2.10.2.2 Type: X.
 - 2.10.2.3 Thickness: 1/2 inch (12.7 mm). See plans for location.
 - 2.10.2.4 Thickness: 5/8 inch (15.9 mm). See plans for location.
- 2.11. Air-Infiltration Barrier: Air retarder complying with ASTM E 1677; made from polyolefins; either cross-laminated films, woven strands, or spunbonded fibers; coated or uncoated; with or without perforations to transmit water vapor but not liquid water; and as follows:
 - 2.11.1 Minimum Thickness: 3 mils (0.08 mm).
 - 2.11.2 Minimum Water-Vapor Transmission: 10 perms (575 ng/Pa x s x sq. m) when tested according to ASTM E 96, Procedure A.
 - 2.11.3 Maximum Flame Spread: 25 per ASTM E 84.
 - 2.11.4 Minimum Allowable Exposure Time: 3 months.
- 2.12. Fasteners:
 - 2.12.1 General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 2.12.1.1 Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.
 - 2.12.2 Nails, Wire, Brads, and Staples: FS FF-N-105.

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- 2.12.3 Power-Driven Fasteners: CABO NER-272.
- 2.12.4 Wood Screws: ASME B18.6.1.
- 2.12.5 Lag Bolts: ASME B18.2.1. (ASME B18.2.3.8M)
- 2.12.6 Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.
- 2.13. Miscellaneous Materials:
 - 2.13.1 Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch (25-mm) nominal thickness, compressible to 1/32 inch (0.8 mm); selected from manufacturer's standard widths to suit width of sill members indicated.
 - 2.13.2 Adhesives for Field Gluing Panels to Framing: Formulation complying with APA AFG-01 that is approved for use with type of construction panel indicated by both adhesive and panel manufacturers.
 - 2.13.3 Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbonate (IPBC) as its active ingredient.

3. Execution

- 3.1. Installation, General:
 - 3.1.1 Discard units of material with defects that impair quality of rough carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.
 - 3.1.2 Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.
 - 3.1.3 Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
 - 3.1.4 Apply field treatment complying with AWWPA M4 to cut surfaces of preservative-treated lumber and plywood.
 - 3.1.5 Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 3.1.5.1 CABO NER-272 for power-driven staples, P-nails, and allied fasteners.
 - 3.1.5.2 Published requirements of metal framing anchor manufacturer.
 - 3.1.5.3 "Recommended Nailing Schedule" of referenced framing standard and with AFPA's "National Design Specifications for Wood Construction".
 - 3.1.5.4 "Table 23-I-Q--Nailing Schedule" of the Uniform Building Code.
 - 3.1.5.5 "Table 2305.2--Fastening Schedule" of the BOCA National Building Code.
 - 3.1.5.6 "Table 2306.1--Fastening Schedule," of the Florida Building Code.
 - 3.1.6 Use common wire nails, unless otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill

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as required.

- 3.1.7 Use hot-dip galvanized or stainless-steel nails where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity.
- 3.1.8 Countersink nail heads on exposed carpentry work and fill holes with wood filler.
- 3.2. Wood Grounds, Nailers, Blocking, And Sleepers:
 - 3.2.1 Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attaching other work. Form to shapes shown and cut as required for true line and level of attached work. Coordinate locations with other work involved.
 - 3.2.2 Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
 - 3.2.3 Install permanent grounds of dressed, preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.
- 3.3. Gypsum Sheathing:
 - 3.3.1 General: Fasten gypsum sheathing to supports with galvanized roofing nails or divergent point galvanized staples. Nail or staple to comply with manufacturer's recommended spacing and referenced fastening schedule. Keep perimeter fasteners 3/8 inch (10 mm) from edges and ends of units. Fit units tightly against each other and around openings.
 - 3.3.2 Install 24-by-96-inch (609-by-2438-mm) sheathing horizontally with long edges at right angles to studs with V-grooved edge down and tongue edge up. Interlock tongue with groove to bring long edges in contact with edges of adjacent board without forcing. Abut ends of boards over centers of studs and stagger end joints of adjacent boards not less than 1 stud spacing, 2 where possible.
 - 3.3.3 Install 48-by-96-inch (1219-by-2438-mm) or longer sheathing vertically with long edges parallel to, and centered over, studs. Install solid wood blocking where end joints do not occur over framing.
- 3.4. Fiberboard Sheathing:
 - 3.4.1 Fasten fiberboard sheathing panels to intermediate supports and then at edges and ends. Use galvanized roofing nails or galvanized staples. Nail or staple to comply with manufacturer's recommended spacing and referenced fastening schedule. Drive fasteners flush with surface of sheathing and locate perimeter fasteners at least 3/8 inch (10 mm) from edges and ends.
 - 3.4.2 Install 48-by-96-inch (1219-by-2438-mm) or longer sheathing vertically with long edges parallel to, and centered over, studs. Install solid wood blocking where end joints do not occur over framing. Allow 1/8-inch (3-mm) open space between edges and ends of adjacent units. Stagger horizontal joints, if any.
 - 3.4.3 Apply air-infiltration barrier over sheathing as soon as practical after installation to prevent deterioration from wetting.
- 3.5. Infiltration Barrier:

3.5.1 Cover sheathing with air-infiltration barrier as follows:

3.5.1.1 Apply air retarder to comply with manufacturer's written instructions.

3.5.1.2 Apply air-infiltration barrier to cover upstanding flashing with 4-inch (100-mm) overlap.

End of Section 06 10 00

Section 06 60 00

Plastic Fabrications

1. General

- 1.1. Description: Columns shall be Melton Classics FRP Classic™ fiberglass column covers, or architect approved equal. Columns shall be straight shaft, smooth finish, with ship-lap joint.
- 1.2. Submittals:
 - 1.2.1 Submit manufacturer's literature and shop drawings clearly marked to show column requirements.
 - 1.2.2 Submit sample of column shaft.
 - 1.2.3 Field samples shall be capable of being incorporated into the actual construction.
- 1.3. Warranty: The columns shall be guaranteed in writing against defects of materials or workmanship for a period of one (1) year from date of Substantial Completion of the project. Provide manufacturer's written warranty for labor and materials on finished components.
- 1.4. Verification of Design:
 - 1.4.1 The components indicated on the drawings show dimensions established to accomplish the Architect's intended visual result and to conform to the building's configuration. The contractor shall verify that all components that will actually be provided for the work of this section will fit the building's structural elements and conform to the visual design criteria indicated on the drawings without materially altering profiles and alignments.
 - 1.4.2 Any additional support or backing components shall be provided by the installing contractor as part of the work of this section.

2. Products

2.1. Acceptable Manufacturers:

Melton Classics Incorporated
P.O. Box 465020
Lawrenceville, GA 30042-5060
800-963-3060 * Fax 770-962-6988

Edon Corporation
1160 Easton Road
Horsham, PA 19044

800-523-2539

2.2. Fiberglass and Resin Materials:

- 2.2.1 Glass cloth, matt and “chop” shall be equal to the products of PPG-Owens Corning.
- 2.2.2 Polyester resins shall be Class A. The resin will be flame retardant promoted thixotropic polyester resin designed for use in hand lay-up and spray-up processes. This resin is specifically formulated for use in applications that require an ASTM-84, Class 1 flame spread rating, without the use of fillers or antimony trioxide, with an ASTM-84 flame spread rating of 10 unfilled.
- 2.2.3 Gel Coat shall be part of system specified at a .015” to .025” thickness.
- 2.2.4 All exposed surfaces shall be finished with gel coat with UV inhibitor.
- 2.2.5 Final ratio of materials shall be 25% fiber 75% resin for the body of components.
- 2.2.6 Shaft thickness shall be 1/8” to 1/4” depending on size.
- 2.2.7 Allowable Tolerances:
 - 2.2.7.1 Wind Load Resistance:
 - 2.2.7.1.1 FRP Components, when installed, shall resist all wind loading.
 - 2.2.7.1.2 Minimum wind loading requirements as per Florida Building Code.
 - 2.2.7.2 Dimensional Tolerances of Finished Units:
 - 2.2.7.2.1 Dimensions 10’ or under: +/- 1/4”.
 - 2.2.7.2.2 Dimensions 10’ to 20’: +/- 3/8”.
 - 2.2.7.2.3 Out of square: 1/8” per 6’.
 - 2.2.7.2.4 Warpage or bowing: +/- 1/16” per ft.

3. Material Properties

- 3.1. Physical Properties (1/8” Glass Mat Laminate).

End of Section 06 60 00

Section 07 19 00

Water Repellent Treatment

1. General

- 1.1. Work Included: Clear, penetrating liquid-applied water repellent treatment of exposed, above-grade concrete masonry exterior walls.
- 1.2. Related Work Specified Elsewhere: Paints: Section 09 91 00.
- 1.3. Quality Assurance:

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- 1.3.1 Application Qualifications: Approved in writing by the manufacturer of the liquid water repellent materials.
- 1.3.2 Material qualifications: Tested in accord with NCHRP Report 244 Series II or Equivalent tests.
 - 1.3.2.1 Reduction in water absorption: Not less than 80%.
 - 1.3.2.2 Water vapor transmission: Not less than 100%.
- 1.3.3 Reference specifications and standards: NCHRP: 244 Concrete Sealers for Protection of Bridge Structures.
- 1.4. Submittals:
 - 1.4.1 Procedures: Submit in accord with Section 01 33 00.
 - 1.4.2 Product listing: List of specific types (i.e. manufacturer's product names, concentrations, and similar identifiers) to be applied to concrete masonry exterior walls.
 - 1.4.3 Samples: Submit each type water repellent treatment on one half of exposed face of 12 in. Square samples representative of concrete masonry units to be used on the project.
 - 1.4.4 Product data: Indicate quantity of separate application treatment and material application rates required for complete saturation for each type of water repellent material and substrate.
- 1.5. Product Handling:
 - 1.5.1 Procedures: In accord with Section 01 66 00.
 - 1.5.2 Store material in original, unopened containers in compliance with manufacturer's printed instructions.
- 1.6. Project Conditions: Observe manufacturers recommendations for temperature and relative humidity conditions for a period before, during and after application.
 - 1.6.1 If rain occurs, allow surfaces to dry as recommended by manufacturer, but not less than 5 days.
- 1.7. Warranty: Provide manufacturer's 5 year material and labor warranty against water/moisture penetration of treated substrates.

2. Products

2.1. Acceptable Manufacturers:

Hydrozo Inc.
1001 "Y" Street, Lincoln, Nebraska 68501

Lambert Corporation
20 N. Coburn Avenue, Orlando, Florida 32805

Okon Inc.
6000 West 13th Avenue, Lakewood, Colorado 80214

Pecora Corporation

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165 Wambold Road, Harleysville, Pennsylvania 19438

Symons Corporation
200 E. Touhy Avenue, Des Plaines, Illinois 60017

Tamms Industries Co.
1222 Ardmore Avenue, Itasca, Illinois 60143

2.2. Material:

- 2.2.1 Silane or siloxane-based, clear, non-staining, penetrating, vapor-permeable, water repellent treatment materials at concentrations consistent with porosity, density and similar physical characteristics of the specific type of substrate to be treated and as recommended by manufacturer's testing of specific type of substrate to provide resistance to water/moisture penetration; provide water-based formulations in lieu of solvent-based types wherever possible.
- 2.2.2 Unless specifically otherwise approved by owner, treatment materials that alter the physical appearance (i.e., gloss/sheen, texture and similar characteristics) When viewed at a distance of 5 feet, are not acceptable.
- 2.2.3 Film-forming, high-build or vapor barrier type coating materials are not acceptable.

3. Execution

3.1. Condition of Surfaces:

- 3.1.1 Examine surfaces scheduled to receive liquid water repellent treatment for conditions that will adversely affect execution, permanence and quality of work.
- 3.1.2 Allow surfaces to cure as recommended by manufacturer, but not less than 10 days before application.
- 3.1.3 Arrange for the pointing of cracks other than hairline cracks.
- 3.1.4 Correct unsatisfactory conditions before proceeding with this work.

3.2. Preparation:

- 3.2.1 Clean surfaces prior to application of liquid water repellent treatment. Remove dust, dirt, efflorescence, oil or other deleterious materials.
- 3.2.2 Protect adjacent finished materials from overspray.

3.3. Application:

- 3.3.1 Apply water repellent as follows unless otherwise recommended by manufacturer.
- 3.3.2 Apply water repellent with low pressure airless spray equipment.
 - 3.3.2.1 Tip size: As recommended by waterproofing manufacturer but not smaller than .035.
 - 3.3.2.2 Do not use conventional pressure pot painting equipment.
 - 3.3.2.3 Coat surfaces with a fog pass to wet the surface and break the surface tension, follow immediately with a flood coat to complete saturation, allowing the material to run down the walls 8 in. To 10 in.

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- 3.3.2.4 Hold spray gun back 12 in. To 14 in. Using wide pattern and trigger gun at end of each pass to avoid excessive runs, laps and pile up of material.
- 3.3.3 Start application at top of wall and work down surface, keeping a wet edge at all times. Avoid letting liquid dry between passes.
- 3.3.4 Total rate of application at top of wall and work down surface, keeping a wet edge at all times. Avoid letting liquid dry between passes.
- 3.4. Adjust and Clean: Clean spillage and overspray from adjacent surfaces as recommended by liquid water repellent manufacturer.
- 3.5. Field Quality Control: Spray test: After water repellent treatment has dried, test an area, as selected by Owner, as Follows:
 - 3.5.1 Using a garden hose-type spray nozzle and normal water pressure, spray test area from a distance of not more than 10 feet and at an angle of incidence not less than 45 degrees, for not less than 2 hours.
 - 3.5.2 Examine surfaces of test area for any evidence of water/moisture penetration or absorption.
- 3.6. Recoat surfaces that show water penetration or absorption.

End of Section 07 19 00

Section 07 21 00

Thermal Insulation V08252022

1. General

- 1.1. This Section includes the following:
 - Concealed building insulation (refrigerated case walls)
 - Underslab insulation (freezers)
 - Foundation perimeter insulation (under slab-on-grade)
- 1.2. Related Sections include the following:
 - 1.2.1 Section 04 20 00 Unit Masonry for insulation installed as part of unit masonry construction.
 - 1.2.2 Section 07 51 00 Built-Up Bituminous Roofing for insulation installed as part of roofing construction.
- 1.3. Submittals:
 - 1.3.1 Submit LOI in accordance with Section 01 33 00 Submittal Procedures.
 - 1.3.2 No product submittals are needed.
- 1.4. Quality Assurance
 - 1.4.1 Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.
- 1.5. Delivery, Storage and Handling:
 - 1.5.1 Protect insulation materials from physical damage and from deterioration by

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moisture, soiling and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing and protecting during installation.

1.5.2 Protect plastic insulation as follows:

- 1.5.2.1 Do not expose to sunlight, except to extent necessary for period of installation and concealment.
- 1.5.2.2 Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
- 1.5.2.3 Complete installation and concealment as rapidly as possible in each area of construction.

2. Products

2.1. Extruded-Polystyrene Board Insulation:

2.1.1 Refrigerated Case Wall Insulation: 1 1/2" thick.

2.1.1.1 Products:

- "StyrofoamWallmate XPS Insulation", DuPont
- "Foamular 250", Owens Corning
- "InsulPink Z", Owens Corning
- "GreenGuard Scoreboard Insulation Board", Pactiv

2.1.2 Freezer Sub-Slabs: 2" thick, 24" wide by 96" long.

2.1.2.1 Products:

- "STYROFOAM FREEZERMATE", DuPont
- "GreenGuard CM Insulation Board", Pactiv
- "Foamular 250", Owens Corning

2.1.3 Foamed-in-Place Insulation Material:

2.1.3.1 Provide assembly R=20.

2.1.3.2 Compliant with VOC regulations.

2.1.3.3 Formaldehyde out-gassing less than 0.01 milligram per cubic meter when measured 28 days or more after installation.

2.1.3.4 Self extinguishing or non-combustible.

2.1.3.5 Products:

- "Core-Fill-500", Tailored Foam, Inc.
- "R-501", PolyMaster, Inc.
- "Thermco", Thermal Corporation of America
- "Core-Foam", CfiFoam, Inc.

2.1.4 Board Insulation Material Under Slab-On-Grade (For Stores Outside of Florida):

2.1.4.1 Minimum R value = 8.8.

2.1.4.2 Minimum 2 ft x 2 ft x 2" thick board insulation, compliant with ASTM C578-19: Rigid, Cellular Polystyrene Thermal Insulation, Type IV.

2.1.4.3 Minimum compressive strength 25 psi, tested per ASTM D1621.

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- 2.1.4.4 Maximum water absorption % by volume 0.3, tested per ASTM C272.
- 2.1.4.5 Maximum Water Vapor Permeance 1.5 perm tested per ASTM E96.
- 2.1.4.6 Adhesive per manufacturers recommendations.
- 2.1.4.7 Acceptable Products include, but are not limited to:
 - “Foamular or Formular NGX”, Owens Corning.
 - “Stryrofoam Brand Scoreboard XPS”, Dupont.
 - “GreenGuard Type IV XPS Insulation Board”, Kingspan.

3. Execution

- 3.1. Preparation: Examine all substrates, with Installer present, for condition compliance prior to installation. Correct all unsatisfactory conditions before proceeding.
- 3.2. Installation:
 - 3.2.1 Comply with insulation manufacturer’s written instructions applicable to products and application indicated.
 - 3.2.2 Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections and fill voids with insulation. Remove projections that interfere with placement.
 - 3.2.3 Add single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.
 - 3.2.4 On horizontal surfaces, loosely lay insulation units according to manufacturer’s written instructions. Stagger end joints and tightly abut insulation units.
 - 3.2.5 Apply insulation units to substrates by method indicated, complying with manufacturer’s written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
 - 3.2.6 Perimeter Insulation In Contact with Soil:
 - 3.2.6.1 Vertical insulation:
 - Fill joints of insulation with same material used for bonding.
 - Bond polystyrene board to surfaces with adhesive as required.
 - 3.2.6.2 Horizontal insulation under concrete floor slab:
 - Lay insulation boards horizontally on level, compacted and drained fill.
 - Extend insulation from exterior foundation walls towards center of building for a minimum distance of 2’-0”.

End of Section 07 21 00

Section 07 32 00

Roof Tiles

1. General

- 1.1. Section Includes: Spanish Mission s-design concrete tile units.
- 1.2. Related Sections:
 - 1.2.1 Division 6 Section "Rough Carpentry" for sheathing; roof deck; and wood

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battens, nailing strips and framing.

- 1.2.2 Division 7 Section "Flashing and Sheet Metal" for gutters, downspouts, flashing and other sheet metal work not included in this Section.
- 1.3. Submittals:
 - 1.3.1 Product Data: For each type of product specified. Include details of construction relative to materials, dimensions of individual components, profiles, textures and colors.
 - 1.3.2 Samples for Verification: Full-size units of each type of roof tile indicated; in sets for each color, texture and pattern specified, showing the full range of variations expected in these characteristics.
- 1.4. Delivery, Storage and Handling:
 - 1.4.1 Deliver materials to Project site in manufacturer's unopened bundles or containers with labels intact.
 - 1.4.2 Handle and store materials at Project site to prevent water damage, staining, or other physical damage. Store roll goods on end. Comply with manufacturer's written instructions for Project site storage, handling and protection.
- 1.5. Project Conditions: Weather Limitations: Proceed with roof tile Work only when existing and forecasted weather conditions permit Work to be installed according to manufacturer's written instructions and when substrate is completely dry.
- 1.6. Warranty:
 - 1.6.1 General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
 - 1.6.2 Special Warranty: Submit a written warranty, executed by manufacturer, agreeing to repair or replace roof tiles that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, deformation or deterioration of roof tiles beyond normal weathering.
 - 1.6.3 Warranty Period: 50 years from date of Substantial Completion.
- 1.7. Extra Materials:
 - 1.7.1 Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
 - 1.7.2 Roof Tile Units: Full-size units equal to 5 percent of amount installed for each size, shape and color indicated, but not less than 1 square (10 sq. m).

2. Products

- 2.1. Manufacturers: Subject to compliance with requirements, provide products by:
 - 2.1.0.1 Concrete Tile: Monier Lifetile Corporation
 - 2.1.0.2 Tile Fasteners:
Newport Fastener Company, Inc.
Wire Works, Inc. (The)

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2.2. Roof Tiles:

- 2.2.1 Concrete Tile: Molded- or extruded-concrete roof tile units of shape and configuration indicated, with integral color, and free from surface imperfections. Include specially shaped, color-matched units as indicated or required for eaves, rakes, ridges, hips, valleys and other conditions. Provide with fastening holes predrilled when manufactured.
- 2.2.2 Colors, Blends and Patterns: Where manufacturer's standard products are indicated, provide roof tiles with the following requirements: Match colors, blends and patterns indicated by referencing manufacturer's standard designations for these characteristics.

2.3. Underlayment:

- 2.3.1 Felt Underlayment: No. 30, unperforated organic felt, complying with ASTM D 226, Type II, 36 inches (900 mm) wide. Provide multiple layers as recommended by roof tile manufacturer for application required.
- 2.3.2 Perimeter Underlayment: Polyethylene-sheet-backed, self-adhering, polymer-modified, bituminous sheet underlayment; complying with ASTM D 1970; minimum 40 mils (1 mm) thick. Provide primer when recommended by underlayment manufacturer.

2.3.2.1 Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

2.3.2.2 Products: Subject to compliance with requirements, provide one of the following:

WinterGuard; CertainTeed Corporation
Bituthene Ice and Water Shield; W.R. Grace & Co.
Nordshield Ice and Water Gard; Nord Bitumi U.S., Inc.
F210; Northern Elastomeric, Inc.
Polyguard Deck Guard; Polyguard Products, Inc.
Polyken 640 Underlayment Membrane; Polyken Technologies
QSC-707; Quaker Construction Products, Inc.
Moisture Guard; Tamko Asphalt Products, Inc.
Weather Watch; GAF Building Materials Corp.
Jiffy Seal Ice and Water Guard; Protecto Wrap Co.
Ice Guard Membrane No. 108-AG; Royston Laboratories, Inc.

2.4. Sheet Metal Flashing:

- 2.4.1 Metals: Provide flashing fabricated from the following materials:
 - 2.4.1.1 Galvanized Steel Sheet: ASTM A653, G90 (ASTM A 653M, Z275) coating designation; commercial or lock-forming quality; 0.028 inch (0.7 mm) thick, unless otherwise indicated.
- 2.4.2 Fabricate sheet metal flashing to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metals and other characteristics of item indicated.

2.5. Fasteners:

- 2.5.1 Direct-to-Deck Screw System: Mechanically fasten 2 #8 stainless steel screws

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per tile directly to decking.

- 2.5.2 Galvanized Steel Hurricane Clips: Strap-type, 0.04-by-1/2-inch (1.0-by-13-mm) galvanized steel retainer clip designed to secure side edge of tile. Provide with 2 nailing holes in base flange.
- 2.5.3 Tile Vents and Eave Closures: Manufacturer's recommended noncorroding screen vents and solid eave closures as required for application.
- 2.6. Accessories: Asphalt Plastic Cement: Nonasbestos-fibrated asphalt cement complying with ASTM D 4586, designed for trowel application.
- 2.7. Mortar: Materials for mortar preparation are as follows:
 - 2.7.1 Portland Cement: ASTM C 150, Type I.
 - 2.7.2 Masonry Cement: ASTM C 91, Type N.
 - 2.7.3 Aggregate: ASTM C 144.
 - 2.7.4 Mortar Pigment: Natural and synthetic iron oxides and chromium oxides.
 - 2.7.5 Water: Potable.
 - 2.7.6 Mix according to ASTM C 270, proportions for Type M mortar. Include colored pigment to produce mortar matching the color of tile selected.

3. Execution

- 3.1. Examination: Examine substrates for compliance with requirements for substrates, installation tolerances and other conditions affecting performance of Work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.
- 3.2. Preparation:
 - 3.2.1 Clean substrates of projections and substances detrimental to application. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with noncorrosive roofing nails.
 - 3.2.2 Coordinate installation with flashing, gutters and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roof have been installed and are securely fastened against movement.
- 3.3. Installation:
 - 3.3.1 Comply with manufacturer's written installation instructions and recommendations, but not less than those recommended by NRCA's "The NRCA Roofing and Waterproofing Manual": Section "The NRCA Steep Roofing Manual".
 - 3.3.2 Felt Underlayment: apply 1 layer of felt underlayment horizontally over entire surface to receive roof tile, lapping succeeding courses a minimum of 3 inches, ends a minimum of 6 inches, and hips and valleys a minimum of 6 inches. Fasten felt with a sufficient number of roofing nails or noncorrosive staples to hold underlayment in place until roof tiles are applied.
 - 3.3.2.1 Provide additional layer of felt underlayment when recommended by roof tile manufacturer for slope or application.
 - 3.3.3 Roof Tile Installation: Beginning at eaves, install roof tiles according to

manufacturer's written instructions and with details and recommendations of NRCA's "The NRCA Roofing and Waterproofing Manual": Section "The NRCA Steep Roofing Manual". Unless otherwise indicated, provide minimum 3 inch (75 mm) lap between succeeding courses of tile. Install screws to clear the tile so the tile hangs from the screw and is not drawn up.

- 3.3.3.1 Install with color blend approved by Architect. Install matching, specially shaped units at ridges, rakes and hips.
- 3.3.3.2 Set ridge and hip tile in a full bed of mortar and strike mortar flush with face of ridge or hip cover tile.
- 3.3.4 Installation of Accessories: Install eave closures, wind locks, hurricane clips, tile closures and other accessories with roof tile installation and according to manufacturer's written installation instructions and specified requirements.
- 3.3.5 Flashing: Install metal flashing as indicated and according to details and specified requirements.
 - 3.3.5.1 Where flashings occur perpendicular to slope, return sheet metal at least 3 inches (75 mm) under tile and turn metal up at least 2 inches (50 mm).
- 3.4. Adjusting: Replace damaged materials specified in this Section with new materials that meet requirements.

End of Section 07 32 00

Section 07 40 00

Standing Seam Metal Roofing & Exterior Metal Wall Panels

1. General

- 1.1. Section Includes:
 - 1.1.1 Metal Roofing Systems, including metal interior decorative roofs, as indicated on the Drawings.
 - 1.1.2 Associated Flashings.
 - 1.1.3 Underlayment.
- 1.2. Related Sections: Section 05 12 00 - Structural Steel Framing: For structural frame to receive standing seam roof at roof hatches.
- 1.3. References:
 - 1.3.1 ASTM B209 - Standard Specification for Aluminum and Alloy Sheet and Plate.
 - 1.3.2 ASTM E283 - Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors.
 - 1.3.3 ASTM D4214 - Method for Evaluating Degree of Chalking of Exterior Paints.
 - 1.3.4 SMACNA (Sheet Metal and Air Conditioning Contractors National Association) - Architectural Sheet Metal Manual.
 - 1.3.5 FM - Roof Assembly Classification.
- 1.4. System Performance Requirements:

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- 1.4.1 Provide certified test results by a recognized testing laboratory or agency in accordance with specified test methods for each system.
- 1.4.2 Air Infiltration: When tested in accordance with ASTM E283, provide roof panel system with maximum 0.005 cfm per sq. ft. air leakage at pressure differentials up to 1.57 psf or maximum 0.01 cfm/sq. ft. with 6.24 psf air pressure differential when in accordance with ASTM E283.
- 1.4.3 Water Penetration: Provide panel systems with no water penetration as defined in the test method when tested in accordance with ASTM E331 at an inward static air pressure differential of not less than 6.24 psf and not more than 12.0 psf or provide panel system with no uncontrolled water penetration, other than condensation when exposed to dynamic rain and 70 mph wind velocities for not less than five minutes duration, when tested in accordance with AAMA 501.1.
- 1.4.4 Submit technical data sufficient to demonstrate compliance with specified requirements. Note in particular the requirement for FM Class I-90 and I-120 (see Section 07 51 00 for clarification of locations which require FM I-120) wind uplift resistance for attachment to metal deck, rather than standard attachment to purlins or joists.
- 1.4.5 Submit certified mill reports indicating that metal used conforms to specified gauge, coating type(s) and thickness(s), and treatment.
- 1.4.6 All finish metal roofing materials to be galvalume or stainless steel for coastal regions.
- 1.5. Submittals for Review:
 - 1.5.1 Section 01 33 00 - Submittal Procedures: Submittal Process.
 - 1.5.2 Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, weather proofing and installation details.
 - 1.5.3 Product Data: Provide data on metal types, finishes and characteristics.
 - 1.5.4 Submit four samples 15 x 24 inch in size illustrating metal roofing illustrating typical seam material and finish.
 - 1.5.5 Submit four samples minimum 4 x 6 inch in size illustrating metal finish color.
- 1.6. Quality Assurance: Installer Qualifications Company specializing in sheet metal roof installations with minimum five years documented experience.
- 1.7. Pre-Installation Meeting:
 - 1.7.1 Section 01 31 13 - Coordination: Pre-installation meeting.
 - 1.7.2 Convene one week before starting work of this Section.
- 1.8. Delivery, Storage, and Protection:
 - 1.8.1 See "3. Execution" for additional information.
 - 1.8.2 Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
 - 1.8.3 Prevent contact with materials which may cause discoloration or staining.
- 1.9. Warranty:

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- 1.9.1 Section 01 77 00 - Closeout Procedures.
- 1.9.2 Correct defective work within a two year period after Final Payment. Defective work includes degradation of metal finish, failure of watertightness and integrity of seals.
- 1.9.3 Finish Warranty: Furnish panel manufacturer's written warranty covering failure of the factory-applied exterior finish on metal panels within the warranty period. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.
 - 1.9.3.1 Warranty period for factory-applied exterior finishes on panels is 20 years after the date of Final Payment.

2. Products

2.1. Acceptable Systems:

- Alumax 16" Stand-N-Seam Galvalume;
- Berridge Cee-Lock;
- O'Brien Arch/Tec Metal Seam;
- Steelex CF;
- Ultraseam Us-A2 16" Galvalume;
- Others upon prior written approval by Architect.

2.1.1 Corrugated Metal Siding Panel:

- Berridge B-6 Panel;
- BHP Steel Building Products - HR-36 Panels;
- Centria-TR4-36.

2.2. Sheet Materials:

- 2.2.1 Aluminum Sheet: ASTM B209, 3003 or 3105 alloy, H-14 temper; 0.032 inch thick; mill finish; plain smooth finish.
- 2.2.2 Standing seam roof system, concealed fastener clips, sidelaps mechanically seamed with continuous sealant, two-inch high standing seam, seams 16" on center, panel length as required for full run of roof (max. req'd 30 ft.).

2.3. Panels:

- 2.3.1 Panels shall be 24-gauge Bethlehem Galvalume or Armco Aluminized Type 2 Steel.
- 2.3.2 Standing Seam Panels: Manufacturer's standard factory-formed standing-seam panel system designed for mechanical attachment of panels using a concealed clip. Form panels from aluminum sheet, 18 inches wide.
 - 2.3.2.1 Clips: Provide panel clips designed to meet negative load requirements.

2.4. Accessories:

- 2.4.1 Provide components required for a complete roof panel system, including trim, ridge closures, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match materials and finishes of panels.
 - 2.4.1.1 Closure Strips: Closed-cell, self-extinguishing, expanded cellular rubber or cross-linked polyolefin foam flexible closure strips. Cut or

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- pre-mold to match configuration of panels. Provide closure strips where indicated or necessary to ensure weathertight construction.
- 2.4.1.2 Sealing Tape: Pressure-sensitive 100 percent solids polyisobutylene compound sealing tape with release paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining type.
 - 2.4.1.3 Joint Sealant: One-part elastomeric polyurethane, polysulfide, or silicone rubber sealant as recommended by the building panel manufacturer.
 - 2.4.1.4 Fastener: Series 300 stainless steel screws, No. 14 diameter self-tapping type.
- 2.4.2 Fasteners: Same material and finish as roofing metal.
- 2.4.3 Miscellaneous Pre-Finished Sheet Metal: Pre-finished sheet metal for coping, fascia, flashing, counterflashing, closures, gutters, downspouts, and other locations exposed to view shall be furnished by the preformed metal roof panel manufacturer, 24 ga. minimum.
- 2.4.3.1 Upper Fascia and Gutter, Lower Fascia and Gutter, and Copings: As specified per drawings.
- 2.5. Interior Decorative Roofs: 1" standing seam w/snap-on seam cover, prefinished (color as indicated on drawings or selected by Architect), Berridge Tee-Panel, O'Brien Arch/Tec or approved equal 12 3/4" panels.
- Color Coating: Fluoropon or other Fluoropolymer Coating as approved by the Architect.
Color: Sherwin Williams #SW1741 "Zuni Turquoise" (verify with Architect).
- 2.6. This requirement for gypsum board over the deck applies only in High Velocity Hurricane Zones.
- 2.7. Panel Fabrication:
- 2.7.1 Fabricate and finish panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as required to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and dimensional requirements and with structural requirements.
 - 2.7.2 Fabricate panel joints with captive gaskets or separator strips, which provide a tight seal and prevent metal-to-metal contact in a manner that will minimize noise from movements within panel system.
- 2.8. Fabrication:
- 2.8.1 Form sections true to shape, accurate in size, square, and free from distortion and defects.
 - 2.8.2 Fabricate cleats of same material as sheet, interlockable with sheet.
 - 2.8.3 Form pieces in single length sheets.
- 2.9. Factory Finishing:
- 2.9.1 Apply coatings either before or after forming and fabricating panels, as required by coating process and as required for maximum coating performance capability. Protect coating either by application of strippable film or by packing

plastic film or other suitable material between panels in a manner to properly protect the finish. Furnish air-drying spray finish in matching color for touch-up.

- 2.9.1.1 Provide fluoropolymer coating on face of panels and trim member. Backside to be furnished.
- 2.9.2 Fluoropolymer Coating: Manufacturer's standard two-coat, thermo-cured, full-strength 70 percent "Kynar 500" or "Hylar 5000" coating consisting of a primer and a minimum 0.75 mil dry film thickness with a total minimum dry film thickness of 0.9 mil and 30 percent reflective gloss when tested in accordance with ASTM D523.
 - 2.9.2.1 Durability: Provide coating that has been field tested under normal range of weathering conditions for minimum of 20 years without significant peel, blister, flake, chip, crack, or check in finish; without chalking in excess of No. 8 in accordance with ASTM D4214; and without fading in excess of 5 NBS units.
 - 2.9.2.2 Color: Color selected from manufacturer's standard color selection.
- 2.9.3 Panels shall be prefinished with Kynar 500 Paint System equal to Glidden Nubelar, top side dry film thickness of 0.70 to 0.90 mil over 0.25 to 0.31 mil prime coat, bottom side primer dry film thickness of 0.25 mil. Prefinished panels shall be warranted by Manufacturer for 20 years against ultraviolet deterioration, excessive color change, and chalking. Colors as per color elevations.

3. Execution

- 3.1. Examination:
 - 3.1.1 Inspect roof deck to verify deck is clean and smooth, free of depressions, waves and projections.
 - 3.1.2 Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, reglets are in place, and nailing strips located.
 - 3.1.3 Verify roofing termination and base flashings are in place, sealed, and secure.
- 3.2. Installation - Roofing:
 - 3.2.1 Comply with manufacturer's instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the work securely in place, with provisions for thermal and structural movement.
 - 3.2.1.1 Field cutting of exterior panels by torch is not permitted.
 - 3.2.1.2 Install panels with concealed fasteners.
 - 3.2.2 Accessories: Install components required for a complete panel system, including trim, ridge closures, clips, seam covers, flashings, sealants, gaskets.
 - 3.2.3 Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of panel systems. Provide types of gaskets, sealants, and fillers recommended by panel manufacturer.
 - 3.2.3.1 Provide weatherseal under ridge cap. Flash and seal roof panels at eave and rake with rubber, neoprene, or other closures to exclude weather.
 - 3.2.4 Standing Seam Roof Panel System: Fasten panels to supports with concealed clip in accordance with the manufacturer's instructions.

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- 3.2.4.1 Install clips with self-drilling/self-tapping fasteners. Provide clip spacing to conform to FM 1 120 requirements.
- 3.2.4.2 At end laps of panels, install tape caulk between panels.
- 3.2.4.3 Install factory-caulked cleats at standing-seam joints.
- 3.2.4.4 Seaming: Complete seaming of panel joints by operation of portable power-driven equipment of type recommended by panel manufacturer to provide a weathertight joint.
- 3.2.5 Installation Tolerances: Shim and align panel units within installed tolerance of 1/4 inch in 20 feet on level/plumb/slope and location/line as indicated and within 1/8 inch offset of adjoining faces and of alignment of matching profiles.
- 3.3. Cleaning and Protection:
 - 3.3.1 Damaged Units: Replace panels and other components of the work that have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.
 - 3.3.2 Cleaning: Remove temporary protective coverings and strippable films (if any) as soon as each panel is installed. Upon completion of panel installation, clean finished surfaces as recommended by panel manufacturer, and maintain in a clean condition during construction.

End of Section 07 40 00

Section 07 43 00

Aluminum Siding, Composite Roof and Ceiling Panels

1. General

- 1.1. Submittals: Submit Shop Drawings as described in Section 01 33 00.

2. Products

- 2.1. Machine Room Skins:
 - 2.1.1 Aluminum Wall Panels: 0.032" thick 2" x 13" wide "W" panels.
 - 2.1.2 Aluminum Roof Panels: 0.032" Gemini Panel 3 1/4" deep x 10" wide with 2" styrene foam, 1.0 density per cubic ft., 3.9 R rating at 75 degrees fahrenheit with flame spread less than 25. inserted under a white 024" aluminum cover plate made from one of the following: 3004-h154 or h174 or 3105-h14 or h15. Wall panels shall be inserted into 2" extruded header channel under roof (6063-T5 or T6). Openings framed with H channel, wall panels, white, roof panels, white. Fascia supplied on 3 sides of roof, gutter on 1 side. Each machine room shall have downspouts as shown on plans.
 - 2.1.3 Fasteners: All fasteners shall be no. 14 type 305, stainless steel, hex-head, self-tapping screws. fasteners to structural supports shall be spaced a maximum of 8" on center.
 - 2.1.4 Side Lap Fasteners (if required) shall be spaced no more than 12" on center. All fasteners shall be applied as recommended by the manufacturer and shall be designed to prevent water leakage through the fastener hole.

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- 2.1.4.1 Flashing shall be the same gauge, finish and embossing as the exterior panels, unless otherwise specified.
- 2.1.4.2 Panel sealing gaskets shall be applied to the interlocking joints of the interior panel. Gaskets are required for single skin walls.
- 2.2. Insulated Ceiling System (Meat and Seafood Preparation Areas):
 - 2.2.1 Install complete suspended insulated composite panel ceiling system (material furnished by Publix, except hanger rods).
 - 2.2.2 Panels: 26 gauge galvanized steel with USDA approved finish of baked-on white siliconized polyester enamel or 70% Kynar; insulating core of minimum 2 in. foamed-in-place urethane insulation of 2.0-2.4 lbs. per cu. ft. density; panel size 40-46 in. wide, length approx. 10 ft.(varies); tongue-in-groove joint.
 - 2.2.3 Support panels with perimeter aluminum angle; provide intermediate supports so that panels spans are approx. 10 ft. Intermediate supports shall be flat pressure treated 2x6 wood blocking suspended from structure w/ 5/8 in. rod at 5 ft. o.c. Cover flat 2x6 with 26 gauge sheet metal matching panel finish.
 - 2.2.4 Approved Manufacturers:
 - Aluma Shield Industries, Daytona Beach, FL;
 - Metl-Span Corp., Lewisville, TX;
 - Others as approved by Architect.

3. Execution

- 3.1. Install in accordance with manufacturer's recommendations.

End of Section 07 43 00

Section 07 51 00

Bituminous Built-Up Roofing V04292022

1. General

- 1.1. This Section includes the following:
 - Built-Up Roofing
 - Roofing Insulation
- 1.2. Related Sections include the following:
 - 1.2.1 Section 07 60 00 Flashing and Sheet Metal.
 - 1.2.2 Section 07 72 33 Roof Hatches.
- 1.3. System Description:
 - 1.3.1 Wind Resistance:
 - 1.3.1.1 Comply with the requirements of the Authority Having Jurisdiction.
 - 1.3.1.2 Publix's Minimum Requirement: Factory Mutual "Class 1-90" wind resistance.

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- 1.3.1.3 Comply with all of the requirements for a Factory Mutual approved installation, including but not limited to all Loss Prevention data sheets for roofing and/or the wind uplift pressures as calculated per ASCE 7-10 which ever is the more stringent.
- 1.3.2 Fire Performance:
 - 1.3.2.1 Minimum Requirement: Underwriters Laboratories “Class C”.
 - 1.3.2.2 For stores located in a Fire District provide Underwriters Laboratories “Class A”.
- 1.3.3 Materials used shall be listed in the latest edition of the Factory Mutual Approval Guide. Categories are:
 - Membrane Materials
 - Insulation
 - Insulation Fasteners
 - Stress Plates
 - Steel Deck
 - Other materials where applicable
- 1.4. Submittals:
 - 1.4.1 Submit LOI in accordance with Section 01 33 00 Submittal Procedures. This is to indicate Installer’s understanding of the specified roofing systems, and the qualifications required of the Roofer.
 - 1.4.2 Materials on Site: Provide documents stating that materials comply with requirements, including certificates and delivery logs for bulk materials, and record on field testing for softening point, flash point, etc, and other quality control testing as required.
- 1.5. Quality Assurance
 - 1.5.1 Installer (Roofer):
 - 1.5.1.1 A single Installer (Roofer) shall perform the work of this Section, the extent of which is described above. Roofer shall be a Firm specializing in Built-Up Roofing System work for at least 5 years, and be capable of showing successful installations similar to the work required for this project.
 - 1.5.1.2 The Installer shall be one who is approved by GAF/U.S. Intec as an Installer qualified to perform work eligible for the Manufacturer’s Fifteen Year No Dollar Limit Warranty.
 - 1.5.1.3 The Installer shall be one of the Roofing Contractors approved by the Publix roofing steering team at the time of bidding. Contact the regional Publix construction manager for the current approved list.
 - 1.5.1.4 Provide primary products, including each type of Roofing Sheet (Felt), Bitumen, Insulation, and Vapor Flow Retarder (if any) produced or privately labeled by the same single Manufacturer.
 - 1.5.1.5 Provide secondary products which are acceptable to Manufacturer of primary products.
 - 1.5.2 Inspections:

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- 1.5.2.1 Publix Construction Field Supervisors will visit the Site periodically.
- 1.5.2.2 Notify ASR Associates ten days before anticipated roof start.
- 1.5.2.3 ASR's inspectors shall make a minimum of three inspections per job. ASR's representative has full authority to stop roofing work if conditions are not in conformance with manufacturer's requirements.
- 1.5.3 Warranty:
 - 1.5.3.1 All work shall be accomplished in a manner to be eligible for Manufacturer's Fifteen Year No-Dollar-Limit Warranty coverage.
 - 1.5.3.2 While Manufacturer's Twenty Year-No-Dollar Limit Warranty is not usually required, it may be for some projects. The owner/developer must express their intent to obtain the roof warranty prior to the pre-roofing conference.
- 1.6. Product Handling
 - 1.6.1 General: Handle and store roofing system products in a manner which will ensure no possibility of significant moisture pick-up. Store in a dry, well ventilated, water-proof place. Do not leave unprotected materials on roof overnight. Store rolls of felt and other sheet goods on end.
 - 1.6.2 When materials are stored outside, they shall be placed on platforms that are raised off the ground or roof deck, and they shall be covered with waterproof coverings. Coverings that are "breathable" (such as canvas) are preferred.
 - 1.6.3 Roofing materials shall be delivered to the Job Site just prior to roof installation when possible or stored in closed vans.
 - 1.6.4 Roofing bitumen may be stored unprotected on the ground. However, moisture and dirt shall be removed from roofing bitumen before heating.
 - 1.6.5 Roof Loading: Do not store materials on roof decks, nor position roofing installation equipment on roof decks, in concentrations exceeding design live loading.
- 1.7. Job Conditions:
 - 1.7.1 Pre-Roofing Conference:
 - 1.7.1.1 Approximately five working days prior to installation of Roofing System, meet at Project Site with Installer (Roofer), installers of substrate construction (decks) and other work adjoining roof system including penetrating work and roof-top units and representatives of other trades directly concerned with performance of roofing system, including Publix Representative.
 - 1.7.1.2 Review requirements (Contract Documents), Submittals, status of coordinating work, availability of materials and installation facilities, proposed installation schedule, requirements for inspections and testing or certifications, proposed installation procedures. record discussion including agreement or disagreement on matters of significance.
 - 1.7.1.3 Discuss roofing system protection requirements for construction period extending beyond roofing installation.
 - 1.7.1.4 Furnish minutes of meeting to each participant.
 - 1.7.2 Weather Conditions: Proceed with roofing system installation only when existing and forecasted weather conditions are favorable and will allow work to proceed in accordance with requirements and recommendations of manufacturers of primary roofing system materials.
- 1.8. Testing By Publix Representative

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- 1.8.1 After Substantial Completion, the Publix Consultant will conduct testing to determine watertightness of all roofing assemblies. If, in the opinion of the Consultant, the moisture content of an assembly is too high, the Contractor shall remove and replace all affected materials, and take all steps necessary to make the assembly watertight.
- 1.8.2 Test when ambient humidity is less than 90%. Assembly shall contain less than 8% moisture by weight.

2. Products

- 2.1. Roof Insulation: Main Roof: Insulation shall be 4" Energy Guard Polyisocyanurate roof insulation (2 layers, staggered pattern). Exception: Stores in Climate Zone 2 and Higher shall receive minimum 5" Energy Guard polyisocyanurate roof insulation (up to 6" roof insulation may be required due to building's orientation and/or climate zone).
- 2.2. Roof insulation fasteners shall be Drill-Tec #14 pre-assembled fasteners with 3" metal stress plates. Length must be sufficient to penetrate top flute of metal deck by 3/4".
- 2.3. Built-Up Roof Membrane materials
 - 2.3.1 Roof membrane (over steel deck): The following are the approved roofing membranes - Eliminator, 3 Ply, Type IV (ASTM D-2178) felts, white/light gray mineral-surfaced Polyester reinforced SBS modified bitumen Cap Sheet fully mopped with steep asphalt.

GAF/U.S. Intec Spec #PRF - PP5TP - RI or, for locations requiring a fire rated cap sheet, #190 FR - PP5TP - RI.
 - 2.3.2 For non-coastal areas outside Florida roof membrane (over steel deck): The following are the approved roofing membranes - Eliminator, 1 Ply, ASTM D6163, Type I, Grade S SBS Modified Base Sheet, white/light gray mineral-surfaced Polyester reinforced SBS modified bitumen Cap Sheet fully mopped with steep asphalt.

GAF Spec #I-1-1-20/PRF or, for locations requiring a fire rated capsheet, #I-1-1-20/MGFR
 - 2.3.3 There are no exceptions or substitutions for approved membrane or specifications.
 - 2.3.4 Bitumen: Steep asphalt complying with ASTM D-312-78, Type IV.
 - 2.3.5 Base Flashing Adhesive: Matrix 201.
 - 2.3.6 Base Flashing (Granular-Surfaced Modified Bitumen): Specified Cap Sheet
 - 2.3.7 Asphaltic Concrete Primer: Comply with ASTM D-41-78 on all exposed masonry surfaces above roof line.
 - 2.3.8 Preformed Edge Strips: Rigid asphalt impregnated organic fiber insulation or molded perlite insulation, molded to form 3 1/2" x 3 1/2" x 45 degree polyisocyanurate cant strips and tapered edge strips as shown to receive roofing ply-sheet courses and lift edges above main roofing surface.
 - 2.3.9 Lead Flashing: 2 1/2 lb. to 4 lb. sheet of common pig lead.
 - 2.3.10 Sealants: One part gun grade urethane sealant, ASTM C920, Type S, Grade NS, Class 25, Use A:

Bostik "Chem-Calk" 900

Pecora "Dynatrol I"
Sonolastic NP-1

2.3.11 Liquid Membrane Flashing System: GAF Major Seal

3. Execution

3.1. Inspection of Substrate:

3.1.1 Examine substrate surfaces to receive built-up roofing system and associated work and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to Roofer.

3.1.2 Verify that flatness and fastening of metal roof decks comply with the following:

3.1.2.1 Deck fastening in strict adherence to fastening patterns indicated in the Contract Documents.

3.1.2.2 Top Flanges: No concavity or convexity in excess of 1/16" across any 3 adjacent flanges.

3.1.2.3 Side Laps: Properly nested and mechanically fastened.

3.1.2.4 End Laps: Minimum 2" laps located over and fastened to supports.

3.2. General Installation Requirements:

3.2.1 Sequencing of work:

3.2.1.1 Coordinate the installation of all blocking and grounds required for installation of roofing system. Insure that proper thickness of solid material is in place for use.

3.2.1.2 Where wall finishes are to be installed after the installation of roofing or sheet metal materials, insure that proper measures are taken to provide solid support at all edges. (Example: when plaster or EIFS finish is to be applied after installation of coping cap.)

3.2.1.3 Install insulation layers when steel deck installation has progressed to a point which will allow uninterrupted roofing operations.

3.2.1.4 Dry-in the building with ply-sheet assembly using temporary water cut-offs as necessary. Provide temporary details at curbs, in-place penetrations, parapets, roof edges, and other locations where water intrusion may be expected.

3.2.1.5 Install all sheet metal edge trim, flashings, copings, etc. before installation of cap sheet. Strip in immediately.

3.2.1.6 Repair damage to in-place ply-sheet assembly as necessary as soon after installation of sheet metal work as possible. Clean thoroughly. Notify manufacturer for pre-cap sheet inspection.

3.2.1.7 Install cap sheet over repaired ply-sheet assembly as soon as possible. Use torches or other means of assuring totally dry surface at time of application.

3.2.1.8 Maximum elapsed time of bare ply-sheet assembly exposure allowed is 30 days. Where it is anticipated that cap-sheet installation will be delayed more than 30 days, apply glaze coat.

3.2.1.9 All modified bitumen flashing shall be terminated with its associated two piece counter flashing immediately after installation.

3.2.2 Cooperate with inspection and test agencies engaged or required to perform services in connection with built-up roofing system installation.

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- 3.2.3 Protect other work from spillage of built-up roofing materials, and prevent liquid materials from entering or clogging drains and conductors. Replace/restore other work damaged by installation of built-up roofing system work.
- 3.2.4 Insurance/Code Compliance:
 - 3.2.4.1 Install built-up roofing system for (and test where required to show) compliance with governing regulations and with the requirements of Part 1 of this Section.
 - 3.2.4.2 Provide all connectors, fasteners, anchor straps, and other items required to conform to insurance requirements of wind-load zone where project is located.
 - 3.2.4.3 Secure curbs and other owner supplied items which penetrate the roof membrane to the structure to resist forces required of the rest of the system.
- 3.2.5 Coordinate the installation of insulation, roofing sheets, flashings, stripping, coatings and surfacing, so that insulation and felts are not exposed to precipitation nor exposed overnight.
- 3.2.6 Provide cut-offs at end of each day's work, to cover exposed felts and insulation with a course of coated felt with joints and edges sealed with roofing cement. Remove cut-offs immediately before resuming work.
- 3.2.7 Asphalt Bitumen Heating: Heat and apply bitumen in accordance with Equiviscous Temperature Method ("EVT Method") as recommended by NRCA. Do not raise temperature above minimum normal fluid-holding temperature necessary to attain EVT (+25 f or +14 c, at point of application) more than one hour prior to time of application. Discard bitumen which has been held at temperature exceeding Finished Blowing Temperature (FBT) for a period exceeding 3 hours. Determine flash point, finished blowing temperature and EVT of bitumen, either by information from bitumen producer or by suitable tests, and determine maximum fire-safe handling temperature and do not exceed that temperature in heating bitumen; but in no case heat bitumen to a temperature higher than 25 f (14 c) below flash point.
 - 3.2.7.1 Bitumen Mopping Weights: For interply mopping, and for other mopping except as otherwise indicated, apply bitumen at an average rate of not less than 20 lbs. (+25% on a total job average basis) per roof square.
 - 3.2.7.2 Glaze Coat (When required for delayed cap-sheet installation longer than 30 days): Over ply-sheet assembly, apply glaze coat at a rate of 10-12 lbs. per roof square.
 - 3.2.7.3 Substrate Joint Penetrations: Do not allow bitumen to penetrate substrate joints and enter building or damage insulation.
 - 3.2.7.4 At end of each days roofing installation, protect exposed edge of incomplete work, including ply sheets and insulation.
- 3.3. Insulation Installation:
 - 3.3.1 General: Comply with insulation manufacturers' instructions and recommendations for the handling, installation, and bonding to substrate of insulation.
 - 3.3.2 Do not apply hot materials to, or rest hot containers on insulation at temperatures above those recommended by insulation manufacturers.
 - 3.3.3 Cut to fit tightly and neatly around all obstructions and roof penetrations.
 - 3.3.4 Lay no more insulation in one day than can be covered with roofing that same day.
 - 3.3.5 Use tapered insulation to provide crickets on the up-roof side of all curbs over 2'-0" wide.
 - 3.3.6 FM 1-90 Assemblies: The foam insulation panels shall be mechanically attached to metal deck, through the gypsum board (if present), with Factory Mutual and U.L. approved

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fasteners, with its joints staggered. Subsequent layer(s), if required, shall be fully set, with their joints staggered, in hot asphalt at a nominal rate of no less than 30 lbs. per 100 sq ft. unless governing codes or regulations require total mechanical attachment. Attachment shall be in accordance with U.L., FM., and manufacturers recommendations.

- 3.3.7 FM 1-120 and higher Assemblies: The foam insulation panels and the subsequent layer(s) shall be mechanically attached to metal deck, through the gypsum board (if present), with specified fasteners. Apply all layers with joints staggered over layer below. Attachment shall be in accordance with U.L., FM., and manufacturers recommendations.

3.4. Roof Membrane Installation:

- 3.4.1 Shingling of Plies: Except as otherwise indicated, install membrane with ply sheets shingled uniformly to achieve required number of plies of membrane throughout. Shingle in proper direction to shed water on each area of roofing.
- 3.4.2 Broom in each ply as directed by manufacturer. Use broom approved by manufacturer.
- 3.4.3 Cant Strips/Tapered Edge Strips: Except as otherwise shown, install preformed 45 deg. insulation cant strips at junctures of BUR membrane with vertical surface. Provide preformed tapered edge strips at areas shown on drawings as needed to divert water.
- 3.4.4 Inter-Ply Sheets: Provide the number and type(s) of ply sheets (felts) indicated, lapped (shingled) amount as required to form a continuous, uniform membrane with bitumen moppings between sheets so that ply sheet does not touch ply sheet. Extend built-up roofing membrane to 2" (nominal) above top edge of cantstrip and terminate.
- 3.4.5 All edge metal shall be installed before installation of Cap Sheet. Backwater laps are not allowed.
- 3.4.6 Install cap sheet in strict compliance with manufacturer's instructions.
- 3.4.6.1 At head laps, cut tee joints 45 degrees. Round exposed corners.
- 3.4.6.2 Provide additional layer of cap sheet at doors of mechanical equipment rooms and at roof hatches.
- 3.4.7 Membrane Flashings:
- 3.4.7.1 Provide 2 ply base flashing at all angle changes consisting of 1 ply of ASTM D-2178 Type IV glass felt set in hot mopping of Type IV asphalt followed by 1 ply of SBS cap sheet (same material as roofing cap sheet) set in a continuous troweling of Matrix 201. Similar to U.S. Intec detail SBS5. Corners are to be flashed per details SBS 11 and SBS 12 (formerly Flex3).
- 3.4.7.2 At horizontal metal flanges, i.e. Gravel Guard MB, electrical and mechanical metal flanges, metal is to be primed with a D-41 primer and set in a full bed of Matrix 201. Metal flanges are to be flashed the same day they are installed with 1 ply of Intec/Flex Smooth, 6" wider than the flange being flashed, set in a continuous troweling of Matrix 201.
- 3.4.8 At all locations where "bleed-out" of asphalt is present, apply mineral granules which match the granules of the cap sheet to achieve 100% hiding of the asphalt. Apply granules while asphalt is warm enough to allow solid imbedment.
- 3.4.9 Allow for expansion of running metal flashing and edge trim which adjoins roofing.
- 3.4.10 Counter Flashings: Counter flashings, cap flashings, expansion joints and similar work shall be coordinated with built-up roofing work.
- 3.4.11 Seams: Rivet and solder all joints in gutters. Other joints shall be formed for back splice plates as required. Seal with urethane sealant.

3.5. Protection of Roofing:

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- 3.5.1 Upon completion of roofing work (including associated work) Installer shall advise Contractor of recommended procedures for surveillance and protection of roofing during remainder of construction period.
- 3.5.2 Installer shall repair or replace (as required) deteriorated or defective work found at time of Final Inspection. Installer shall be engaged by Contractor to repair damages to roofing which occurred subsequent to roofing installation and prior to Final Inspection. Repair or replace the roofing and associated work to a condition free of damage and deterioration at time of Substantial Completion.
- 3.6. Cleaning:
 - 3.6.1 Remove bituminous markings from finished surfaces in areas where finished surfaces are soiled by bitumen or any other source of soiling caused by work of this Section. Consult Manufacturer for recommended cleaning methods and materials and conform to their advice.
 - 3.6.2 Remove finished materials which cannot successfully be cleaned, and replace with new materials at no expense to owner.

End of Section 07 51 00

Section 07 60 00

Flashing and Sheet Metal V02212011

1. General

- 1.1. Scope: This Section includes all Sheet Metal Work, e.g. overflow scuppers, gutter, downspouts, gravel stop, parapet coping cap and counter flashing.
- 1.2. Related Sections include the following:
 - 1.2.1 Section 07 51 00 Bituminous Built-Up Roofing.
 - 1.2.2 Section 07 72 33 Roof Hatches.
- 1.3. All penetration seals are part of the Work of this Section with the following exceptions:
 - 1.3.1 All air conditioning and ventilation ducts, hood and duct covers is work of other Sections; flashing and penetration waterproofing is work of this Section.
 - 1.3.2 All flashings for penetrations through roof membrane, insulation, flashing or other items making up the roof assembly are work of this Section.
 - 1.3.3 All curbs for HVAC equipment, fans, vents, and fresh air intakes will be furnished by Publix and installed by the contractor installing this equipment.
 - 1.3.4 Install all lead flashing under this Section. Supply lead flashing under this Section or other Section as appropriate for job conditions. Cooperate with all trades.
 - 1.3.5 Equipment Houses located on the roof: All curbs and structural connections will be provided and set with the houses. Houses will be equipped with receivers for roofing work. Provide flashing and other measures to render the installations watertight.
- 1.4. Painting: All PVC vent penetrations will require painting for UV protection.

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1.5. Submittals:

- 1.5.1 Letter of Intent (LOI): Information for this Section will be submitted as part of the LOI for Section 07 51 00 Bituminous Built-Up Roofing.
- 1.5.2 Shop drawings of flashing details will accompany the submittal package for Section 07 51 00 Bituminous Built-Up Roofing.
- 1.5.3 Materials on Site: Provide documents stating that materials comply with requirements, including certificates and delivery logs for bulk materials, and record on field testing for softening point, flash point, evt, and other quality control testing as required.

1.6. Quality Assurance:

1.6.1 Installer (Roofer):

- 1.6.1.1 All Work of this Section shall be by the approved Installer of Section 07 51 00 Bituminous Built-Up Roofing.
- 1.6.1.2 Provide products which are acceptable to Manufacturer of primary products.

1.7. Product Handling:

- 1.7.1 When materials are stored outside, they shall be placed on platforms that are raised off the ground or roof deck, and they shall be covered with waterproof coverings. Coverings that are “breathable” (such as canvas) are preferred.
- 1.7.2 Roofing materials shall be delivered to the Job Site just prior to roof installation when possible or stored in closed vans.
- 1.7.3 Roof Loading: Do not store materials on roof decks, nor position roofing installation equipment on roof decks, in concentrations exceeding design live loading.

2. Products

2.1. Sheet Metal:

- 2.1.1 In general, all sheet metal items shall be fabricated from stainless steel. Use prefinished sheet metal only where required to match other work (facade) in the Center.
- 2.1.2 Stainless Steel:
 - 2.1.2.1 Fabricate from stainless steel sheet conforming to ASTM A666, Type 302 or 304; annealed, 1/16 hard, or 1/8 hard.
 - 2.1.2.2 Use gauge indicated below or as permitted by SMACNA gauge recommendations.
 - 2.1.2.3 Finish: No. 2B ‘bright’ cold rolled finish.
- 2.1.3 Sheet Metal Accessory Materials:
 - 2.1.3.1 Where available, use pre-assembled, pre-flashed accessories for all roof penetrations, gravel stops, gutters, and support assemblies.
 - 2.1.3.2 Acceptable manufacturer:
M-Weld Division of GAF/U.S. Intec.

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2.1.3.3 Accessories

- 2.1.3.3.1 Edge Metal: Gravelguard MB with preformed outside and inside corners.
- 2.1.3.3.2 VTR flashing, Antenna Support flashing: 6” adjustable M-Vent with stainless steel draw-band.
- 2.1.3.3.3 Flues: Manufacturer’s UL compliant insulated double wall flue flashing.
- 2.1.3.3.4 Penetration Seals: Chemlink “Chemcurb” polyester with 1 part pourable sealer.

2.1.4 Aluminum Wall Panels:

- 2.1.4.1 Provide prefinished 9/16” thick .021 ga. “Fabrib” Aluminum wall panel as manufactured by Fabral.
- 2.1.4.2 Fasten Aluminum wall panels to 18 ga. 7/8” hat channels w/ #12 screws @ 8” o.c. horizontal and 24” o.c. vertical.

2.1.5 Solder for Sheet Metal: Except as otherwise indicated or recommended by metal Manufacturer, provide -50/50 tin/lead type (ASTM-B32) for tinning and soldering joints.

2.1.6 Fasteners: Same metal as flashing/sheet metal or other non-corrosive metal as recommended by Manufacturer.

2.1.7 Minimum Stainless Steel sheet thickness:

Downspouts	24 Ga.
Guttering	20 Ga.
FM Roll Over Hangers	10 Ga.
Gutter Space Brackets	14 Ga.
Gravel Stop	24 Ga.
Counter Flashing	24 Ga.
Rain collars	24 Ga.
Parapet Copings (<16” girth	24 Ga.
Parapet Copings (16” girth and above)	22 Ga.
Other Sheet metal items: Comply with SMACNA recommendations.	

2.2. Fabrication of Sheet Metal Accessories:

- 2.2.1 SMACNA and NRCA Details: Conform work with details shown and with “Architectural Sheet Metal Manual” by SMACNA. Comply with installation details of “Roofing and Waterproofing Manual” by NRCA.
- 2.2.2 Prefabricated units as indicated or provide standard manufactured units complying with requirements; fabricate from sheet metal indicated.
- 2.2.3 Provide 4” wide flanges for setting on built-up roofing membrane with concealment by composition stripping.
- 2.2.4 Guttering and downspouts on exterior sized as shown on drawings. Support gutters at maximum 36” o.c. and downspouts at five (5) feet on center. All joints, end caps and/or miters shall be riveted and soldered. NO CAULKING PERMITTED.

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- 2.2.5 Penetration seals for refrigeration penetrations per detail. Verify pipe sizes prior to fabrication. Penetration seals for electrical penetrations shall have conduit soldered to base of pan. Use water-tight couplings.
- 2.3. Paint: The following paints will be needed for all PVC penetrations.
 - 2.3.1 Primer: Sherwin Williams PrepRite ProBlock Latex Sealer.
 - 2.3.2 Finish: Sherwin Williams SuperPaint Exterior Latex Satin (white).

3. Execution

- 3.1. General Installation Requirements:
 - 3.1.1 Sequencing of work: Install all sheet metal edge trim, flashings, copings, etc. before installation of cap sheet. Strip in immediately.
 - 3.1.2 Coordinate the installation of insulation, roofing sheets, flashings, stripping, coatings and surfacing, so that insulation and felts are not exposed to precipitation nor exposed overnight.
 - 3.1.3 Provide rain collars at all pitch pans, where round stock is used as roof penetration, and other locations where needed. Use stainless draw bands to form mechanical seal with collar and pipe.
- 3.2. Painting: Paint all exposed PVC vents (after flashing and boots are in place) with one coat of specified sealer and two coats of specified finish.
- 3.3. Cleaning:
 - 3.3.1 Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
 - 3.3.2 Clean and neutralize flux materials. Clean off excess solder and sealants.
 - 3.3.3 Remove temporary protective coverings and strippable films, if any, as sheet metal flashing and trim are installed. Upon completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet seams and pieces of flashing. Maintain in a clean condition during construction.
 - 3.3.4 Replace sheet metal flashing and trim that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

End of Section 07 60 00

Section 07 72 00

Roof Accessories

1. General

- 1.1. Summary: This Section includes prefabricated curb and equipment support units.
- 1.2. Submittals:
 - 1.2.1 General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.
 - 1.2.2 Product data for each type of product specified. Submit manufacturer's detailed

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technical product data, installation instructions and recommendations, including details of construction relative to materials, dimensions of individual components, profiles, and finishes.

- 1.2.3 Shop drawings showing fabrication and installation of each roof accessory specified including fully dimensioned plans, elevations, sections, details of components, and attachments to other units of Work. Also show layout, anchorage details, rough-in requirements, and conditions on the roof or for other accessories.
 - 1.2.4 Samples for initial selection purposes in the form of manufacturer's color charts showing full range of colors, textures, shapes, and sizes available for each type of roof accessory indicated.
 - 1.2.5 Samples for verification purposes in full-size units or representative section of each type of roof accessory indicated for each color, texture, shape, and sizes specified.
 - 1.2.6 Coordination Drawings: Submit coordination drawings for items interfacing with or supporting mechanical or electrical equipment, ductwork, piping, or conduit. Indicate dimensions and locations of items provided under this Section, together with relationships and methods of attachment to adjacent construction and to mechanical or electrical items.
- 1.3. Quality Assurance:
- 1.3.1 Heat-and-Smoke Vent Compliance: Provide units that have been tested, listed, or approved as follows:
 - 1.3.1.1 Construction/Operation: UL-listed.
 - 1.3.1.2 Construction/Operation: FM-approved.
 - 1.3.1.3 Fire Resistance of Lids: UL Class A rating.
 - 1.3.2 Standards: Comply with the following:
 - 1.3.2.1 SMACNA "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap-flashing to coordinate with type of roofing indicated.
 - 1.3.2.2 NRCA "Roofing and Waterproofing Manual" details for installation of units.
 - 1.3.2.3 NFPA 204M for smoke-and-heat vent design constraints, operation, and location.

2. Products

- 2.1. Manufacturers: Manufactured and prefabricated by equipment supplier.
- 2.2. Materials, General:
 - 2.2.1 Aluminum Sheets: ASTM B 209 (ASTM B 209M) for Alclad alloy 3005H25 or alloy and temper required to suit forming operations with mill finish, unless indicated otherwise.
 - 2.2.2 Extruded Aluminum: ASTM B 221 (ASTM B 221M) alloy 6063-T52 or alloy and temper required to suit structural and finish requirements. Mill finish, unless indicated otherwise.
 - 2.2.3 Structural-Quality Galvanized Steel Sheet: ASTM A 446 (ASTM A 446M) with

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- G90 (Z275) coating complying with ASTM A 525 (ASTM A 525M), Grade C, or to suit manufacturer's standards.
- 2.2.4 Commercial-Quality Galvanized Steel Sheet: ASTM A 526 (ASTM A 526M) with G90 (Z275) coating complying with ASTM A 525 (ASTM A 525M).
- 2.2.5 Stainless Steel - Use at coastal regions:
- 2.2.5.1 Fabricate from stainless steel sheet conforming to ASTM A666, Type 302 or 304; annealed, 1/16 hard, or 1/8 hard.
- 2.2.5.2 Use gauge indicated below or as permitted by SMACNA gauge recommendations.
- 2.2.5.3 Finish: No. 2D dull cold rolled finish.
- 2.2.6 Insulation: Manufacturer's standard rigid or semirigid glass-fiber board or thickness indicated.
- 2.2.7 Wood Nailers: Softwood lumber, pressure treated with water-borne preservatives for above-ground use, complying with AWWA C2; note less than 1-1/2 inch (38 mm) thick.
- 2.2.8 Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal as recommended by manufacturer. Match finish of exposed fasteners with finish of material being fastened.
- 2.2.8.1 Where removal of exterior exposed fasteners affords access to building, provide nonremovable fastener heads.
- 2.2.9 Gaskets: Manufacturer's standard tubular or fingered design of neoprene or polyvinyl chloride, or block design of sponge neoprene.
- 2.2.10 Bituminous Coating: SSPC-Paint 12, solvent-type bituminous mastic, nominally free of sulfur and containing no asbestos fibers, compounded for 15-mil (0.4 mm) dry film thickness per coating.
- 2.2.11 Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealants.
- 2.2.12 Elastomeric Sealant: Generic type recommended by unit manufacturer that is compatible with joint surfaces; ASTM C 920, Type S, Grade NS, Class 25, and Uses NT, G, and A.
- 2.2.13 Roofing Cement: ASTM D 4586, nonasbestos, fibrated asphalt cement designed for trowel application or other adhesive compatible with roofing system.
- 2.3. Finishes:
- 2.3.1 General: Comply with NAAMM "Metal Finishes Manual" for recommendations on applying and designating finishes.
- 2.3.2 Finish designations prefixed by AA conform to the system for designating aluminum finishes established by the Aluminum Association.
- 2.3.3 Class I, Clear-Anodized Finish: AA-C22A41 (Chemical Finish: etched, medium matte; Anodic Coating: Class I Architectural, clear film thicker than 0.7 mil (0.02 mm)) complying with AAMA 607.1.

3. Execution

- 3.1. Installation:

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- 3.1.1 General: Comply with manufacturer's instructions and recommendations. Coordinate with installation of roof deck and other substrates to receive accessory units, vapor barriers, roof insulation, roofing and flashing, as required, to ensure that each element of the Work performs properly and that combined elements are waterproof and weathertight. Anchor units securely to supporting structural substrates, adequate to withstand lateral and thermal stresses, as well as inward and outward loading pressures.
 - 3.1.1.1 Except as otherwise indicated, install roof accessory items according to construction details of NRCA "Roofing and Waterproofing Manual".
- 3.1.2 Isolation: Where metal surfaces of units are to be installed in contact with incompatible metal or corrosive substrates, including wood, apply bituminous coating on concealed metal surfaces, or provide other permanent separation.
- 3.1.3 Flange Seals: Unless otherwise indicated, set flanges of accessory units in a thick bed of roofing cement to form a seal.
- 3.1.4 Cap Flashing: Where cap flashing is required as component of accessory, install to provide adequate waterproof overlap with roofing or roof flashing (as counterflashing). Seal with thick bead of mastic sealant, except where overlap is indicated to be left open for ventilation.
- 3.1.5 Operational Units: Test operate units with operable components. Clean and lubricate joints and hardware. Adjust for proper operation.
- 3.2. Cleaning And Protection: Clean exposed metal and plastic surfaces according to manufacturer's instructions. Touch up damaged metal coatings.

End of Section 07 72 00

Section 07 84 00

Firestopping

1. General

- 1.1. Section Includes: Fireproof firestopping materials and accessories.
- 1.2. References:
 - 1.2.1 ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
 - 1.2.2 ASTM E119 - Method for Fire Tests of Building Construction and Materials.
 - 1.2.3 ASTM E814 - Test Method of Fire Tests of Through Penetration Firestops.
 - 1.2.4 FM (Factory Mutual) - Fire Hazard Classifications.
 - 1.2.5 UL - Fire Hazard Classifications.
 - 1.2.6 UL 263 - Fire Tests of Building Construction and Materials.
 - 1.2.7 UL 723 - Test for Surface Burning Characteristics of Building Materials.
 - 1.2.8 UL 1479 - Fire Tests of Through-Penetration Firestops.
 - 1.2.9 WH (Warnock Hersey) - Certification Listings.

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- 1.3. Definition: Firestopping: A sealing material or assembly placed in spaces between building materials to arrest the movement of smoke, heat, gases, and fire through wall or floor openings.
- 1.4. System Description:
 - 1.4.1 Firestopping Materials: ASTM E119, ASTM E814 and UL 1479 to achieve a fire rating the same as the system being presented.
 - 1.4.2 Surface Burning: ASTM E84 with a flame spread / smoke developed rating of 25/450.
 - 1.4.3 Firestop all interruptions to fire rated assemblies, materials, and components.
- 1.5. Submittals for Review:
 - 1.5.1 Section 01 33 00 - Shop Drawings, Samples and Manufacturer's Literature: Submittal Procedures.
 - 1.5.2 Manufacturer's Literature: Provide data on product characteristics, performance and limitation criteria.
 - 1.5.3 Manufacturer's Installation Instructions: Indicate preparation and installation instructions.
- 1.6. Submittals for Information:
 - 1.6.1 Section 01 33 00 - Shop Drawings, Samples and Manufacturer's Literature: Submittal Procedures.
 - 1.6.2 Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- 1.7. Qualifications: Applicator: Company specializing in performing the work of this Section with minimum five years experience.
- 1.8. Regulatory Requirements:
 - 1.8.1 Conform to applicable code and FM, UL or WH for fire resistance ratings and surface burning characteristics.
 - 1.8.2 Provide certificate of compliance from authority having jurisdiction indicating approval of materials used.
- 1.9. Environmental Requirements:
 - 1.9.1 Do not apply materials when temperature of substrate material and ambient air is below 60 degrees F.
 - 1.9.2 Maintain this minimum temperature before, during, and for 3 days after installation of materials.
 - 1.9.3 Provide ventilation in areas to receive solvent cured materials.

2. Products

- 2.1. Silicone Elastomeric Compound: Manufacturers:
 - 2.1.1 Latex Sealant: (Type FS-1)
 - Frye-Shield, Tremco, Inc.
 - Fire Dam 150, 3M Fire Protection Products

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- 2.1.2 Intumescent Latex Sealant: (Type FS-2)
 - Metacaulk 950, the RectorSeal Corporation
 - Fire Barrier CP 25WB Caulk, 3M Fire Protection Products
 - TremStop WBM, Tremco Inc.
- 2.1.3 Intumescent Wrap Strips: (Type FS-3)
 - MetaWrap, The RectoSeal Corp.
 - Fire Barrier FS-195 Wrap/Strip, 3M Fire Protection Products
 - TremStop WS, Tremco, Inc.
- 2.1.4 Silicone Sealants: (Type FS-4)
 - Metacaulk 835, The RectorSeal Corporation
 - Metacaulk 880, The RectorSeal Corporation
 - Fyre-Sil, Tremco Inc.
 - Fyre-Sil S/L, Tremco Inc.
- 2.1.5 Pillows/Bags: (Type FS-5)
 - M835, The RectoSeal Corp.
 - TremStop PS, Tremco Inc.
- 2.1.6 Substitution: Refer to Section 01 25 00 - Substitution Procedures.

2.2. Accessories:

- 2.2.1 Primer: Type recommended by firestopping manufacturer for specific substrate surfaces.
- 2.2.2 Dam Material, (permanent):
 - 2.2.2.1 Mineral fiberboard.
 - 2.2.2.2 Mineral fiber matting.
- 2.2.3 Installation Accessories: Clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

3. Execution

- 3.1. Examination: Verify openings are ready to receive the work of this Section.
- 3.2. Preparation:
 - 3.2.1 Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter which may affect bond of firestopping material.
 - 3.2.2 Remove incompatible materials which may affect bond.
 - 3.2.3 Install damming materials to arrest liquid material leakage.
- 3.3. Application:
 - 3.3.1 Install material at walls or partition openings which contain penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping.
 - 3.3.2 Apply primer and materials in accordance with manufacturer's instructions.
 - 3.3.3 Apply firestopping material in sufficient thickness to achieve rating of system being penetrated; to uniform density and texture.

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- 3.3.4 Place foamed material in layers to ensure homogenous density, filling cavities and spaces. Place sealant to completely seal junctions with adjacent dissimilar materials.
- 3.3.5 Dam material to remain.
- 3.4. Field Quality Control:
 - 3.4.1 Inspecting agency employed and paid by Publix will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.
 - 3.4.2 Inspecting agency will report observations promptly and in writing to Contractor.
 - 3.4.3 Do not proceed to enclose firestopping with other construction until reports of examinations are issued.
 - 3.4.4 Where deficiencies are found, repair or replace firestopping so that it complies with requirements.
- 3.5. Cleaning: Clean adjacent surfaces of firestopping materials.
- 3.6. Protection of Finished Work: Protect adjacent surfaces from damage by material installation.

End of Section 07 84 00

Section 07 92 00

Joint Sealants V12012020

1. General

- 1.1. Scope: This Section covers sealants for use in all locations except glazing.
- 1.2. Submit LOI in accordance with Section 01 33 00 Submittal Procedures.
- 1.3. Quality Assurance - Sealant Compatibility and Adhesion Testing: Use sealant manufacturer's standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

2. Products

- 2.1. Materials, General
 - 2.1.1 Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 - 2.1.2 Colors of Exposed Joint Sealants: Match color of materials being joined if possible. Where not possible, use color selected to provide an unobtrusive finished surface.
- 2.2. Elastomeric Joint Sealants
 - 2.2.1 Use single-component urethane sealants. If unusual conditions or type of work

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to be accomplished makes the use of multi-component sealants desirable, contact Publix Architect.

2.2.2 Elastomeric Sealants, General: ASTM C 920.

2.2.3 Sealants for Contact with Food: Comply with 21 CFR 177.2600.

2.2.4 Single-Component Nonsag Urethane Sealant (gun-grade):

2.2.4.1 Products:

Bostik Inc.; Chem-Calk 500

Tremco; Dymonic FC

Pecora Corporation; Dynatrol I

Polymeric Systems, Inc.; PSI-901

Sherwin-Williams; LOXON H1 Sealant

2.2.4.2 Type and Grade: S (single component) and NS (nonsag).

2.2.4.3 Class: 25.

2.2.4.4 Exposure: Use T (traffic) or NT (nontraffic).

2.2.4.5 Substrates: Uses M, A, and, as applicable to joint substrates indicated, O.

2.2.5 Single-Component Pourable Urethane Sealant:

2.2.5.1 Products:

Bostik Inc.; Chem-Calk 950.

Mameco International; Vulkem 455 SL.

Pecora Corporation; NR-201.

Polymeric Systems, Inc.; Flexiprene PSI-951.

Sherwin-Williams; LOXON SL1 Sealant

2.2.5.2 Type and Grade: S (single component) and P (pourable).

2.2.5.3 Class: 25.

2.2.5.4 Exposure: Use T (traffic) and NT (nontraffic).

2.2.5.5 Substrates: Uses M, A, and, as applicable to joint substrates indicated, O.

2.3. Latex Joint Sealants: ASTM C 834. Use where sealant will be painted, and only where joint movement cannot occur.

2.3.1 Products:

Bostik Inc.; Chem-Calk 600

Pecora Corporation; AC-20

Polymeric Systems, Inc.; PSI-701

Sherwin-Williams; Powerhouse 1100A Sealant

2.4. Joint-Sealant Backing

2.4.1 General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

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- 2.4.2 Cylindrical Sealant Backings: ASTM C 1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance. Type: O (open-cell material), or B (bicellular material with a surface skin).
- 2.4.3 Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26F (minus 32C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.
- 2.4.4 Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.
- 2.5. Miscellaneous Materials
 - 2.5.1 Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
 - 2.5.2 Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.
 - 2.5.3 Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

3. Execution

- 3.1. Installation
 - 3.1.1 Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.
 - 3.1.1.1 Remove foreign material from joint substrates that could interfere with adhesion of joint sealant.
 - 3.1.1.2 Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
 - 3.1.1.3 Remove laitance and form-release agents from concrete.
 - 3.1.1.4 Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues could interfere with adhesion of joint sealants.
 - 3.1.2 Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
 - 3.1.3 Masking Tape: Use masking tape where required to prevent contact of sealant

with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

- 3.1.4 Sealant Installation: Comply with recommendation in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- 3.1.5 Install sealant backings to support sealants during application and at position required to produce optimum sealant movement capability.
 - 3.1.5.1 Do not leave gaps between ends of sealant backings.
 - 3.1.5.2 Do not stretch, twist, puncture, or tear sealant backings.
 - 3.1.5.3 Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- 3.1.6 Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- 3.1.7 Place sealants so they directly contact and fully wet joint substrates.
 - 3.1.7.1 Completely fill recesses provided for each joint configuration.
 - 3.1.7.2 Produce uniform, cross-sectional shapes and depths that allow optimum sealant movement capability.
- 3.1.8 Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads, to eliminate air pockets, and to ensure contact and adhesion of sealant with side of joint.
 - 3.1.8.1 Remove excess sealants from surfaces adjacent to joint.
 - 3.1.8.2 Use tooling agents that are approved by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3.1.8.3 Joint Configuration: Concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

End of Section 07 92 00

Section 08 11 00

**Metal Doors and Frames
V12202016**

1. General

- 1.1. Description of the Work: This Section covers all Steel Doors and Frames, including fabrication and erection.
- 1.2. Submittal: Completed LOI, list of materials proposed for use, manufacturer's specifications, shop drawings as required to describe intended assemblies, and other pertinent details of proposed installation. Where required in Florida, submit appropriate Miami-Dade County Notice of Approval (NOA).
- 1.3. Quality Assurance: Provide products of one manufacturer throughout the Project. Comply with ANSI/SDI 100 for manufacture and installation. Comply with NFPA 80 for manufacture and installation of fire rated assemblies.
- 1.4. Manufacturer's recommendations for storage, handling, and protection shall be followed exactly. Do not remove sill spreaders on welded frames until frames are

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installed.

1.5. NO SUBSTITUTIONS WILL BE ALLOWED.

2. Products

2.1. Steel Doors and Frames:

2.1.1 Typical Doors: Provide doors having 18 ga. steel face sheets for interior applications, 16 or 14 ga. galvanized for exterior applications. Prime paint all surfaces.

2.1.2 Exterior applications must have a Polyurethane Core Insulation with a minimum R factor of 4.75.

2.1.3 Metal Frames:

2.1.3.1 Provide 16 ga. frames in sizes and styles shown on the drawings, all welded, galvanized for exterior applications, with minimum three anchors per jamb of the type required for wall construction. Prime paint all surfaces.

2.1.3.2 Prepare frames to receive hardware as described by ANSI/SDI 100. Reinforce hinge, latch, and deadbolt locations as required.

2.1.3.3 Provide for deadbolt installation at jamb for upper leaf of dutch door at Pharmacy.

2.2. Labeled Assemblies:

2.2.1 Fire Doors: Comply with requirements above. Additionally, use tested and approved fire resistant core. Attach a permanent label showing compliance with the required label.

2.2.2 Frames: Comply with requirements above.

2.3. Accessories: Provide three silencers per door; at masonry walls, provide 26 ga. mortar boxes to protect hardware cutouts. Louvers shall be sight-proof type, 14 ga. steel, prime painted, galvanized at exterior. Glazing stops shall be 20 ga. flush type, prime painted, galvanized at exterior.

2.4. Manufacturers:

Ceco

Curries

3. Execution

3.1. Frame Installation: Set frames plumb, level and true. Use wall anchors appropriate for each type of enclosing wall.

3.2. Door Installation: Hang doors to provide smooth operation with tight closure. Install glazing and silencers after doors and frames receive final paint application.

3.3. Fire Rated Assemblies: Set frames and hang doors in compliance with NFPA 80.

End of Section 08 11 00

Section 08 14 00

Wood Doors V03172017

1. General

- 1.1. Description of the Work: This Section covers all wood doors and wood doors with plastic laminate faces, including fabrication and erection.
- 1.2. Submittals: Completed LOI, list of materials proposed for use, manufacturer's specifications, shop drawings as required to describe intended assemblies, and other pertinent details of proposed installation
- 1.3. Quality Assurance: Provide products of one manufacturer throughout the project. Comply with AW1 1300 for manufacturer and installation.
- 1.4. Manufacturer's recommendations for storage, handling, and protection shall be followed exactly.
- 1.5. NO SUBSTITUTIONS WILL BE ALLOWED.

2. Products

- 2.1. Wood Doors: Provide wood doors with particle board core complying with ANSI A208.ILD2, paint grade.
- 2.2. Factory prep all doors to receive hardware specified.
- 2.3. Viewlites: All viewlites shall be clear, 1/4" tempered glass, unless otherwise specified. measuring 6" x 30" or 18" x 58" (See door elevations).
- 2.4. Veneer: Provide all interior wood doors with .125 inch thick decorative high-pressure laminate both sides. See door schedule for laminate colors.
- 2.5. Accessories: Provide three silencers per door. Louvers shall be sight-proof type fabricated from 14 ga. steel, prime painted. Glazing stops and frames shall be 20 ga. steel, prime painted.
- 2.6. Manufacturers:
 - VT Industries
 - Doormerica
 - Marshfield

3. Execution

- 3.1. Door Installation: Hang doors to provide smooth operation with tight closure. Install glazing and silencers after doors and frames receive final paint application.

End of Section 08 14 00

Section 08 17 05

Side Folding Grilles V03262020

1. General

- 1.1. Summary:

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- 1.1.1 Section Includes: Manual side-folding aluminum security grilles with storage pocket.
- 1.2. Submittals:
 - 1.2.1 Reference Section 01 33 00 Submittal Procedures; submit following items:
 - 1.2.1.1 Product Data: Include published data and specific data prepared for this project.
 - 1.2.1.2 Shop Drawings: Include detailed plans, elevations, required clearances and accessories.
 - 1.2.1.3 Installation instructions.
 - 1.2.1.4 Quality Assurance Requirements:
 - 1.2.1.4.1 Manufacturer qualifications.
 - 1.2.1.4.2 Installer qualifications.
 - 1.2.1.4.3 Certificates.
- 1.3. Quality Assurance:
 - 1.3.1 Manufacturer Qualifications: Minimum of three years experience in the fabrication and installation of Side Folding Security Grilles.
 - 1.3.2 Installer Qualifications: Authorized representative of the manufacturer.
 - 1.3.3 Certificate stating that materials and finishes comply with specifications.
 - 1.3.4 Single Source Responsibility: Provide Grilles, storage pocket, track and related primary components from one manufacturer for each type of Grille. Provide secondary components from source acceptable to manufacturer of primary components.
 - 1.3.5 Pre-Installation Conference: Schedule and convene a pre-installation conference just prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.
- 1.4. Delivery, Storage and Handling
 - 1.4.1 Reference Section 01 66 00 Product Storage and Handling Requirements.
 - 1.4.2 Deliver materials in labeled protective packages. Store and handle in compliance with manufacturer's instructions.

2. Products

- 2.1. Manufacturers:
 - Dynamic Closures
Telephone: 1-800-663-4599; Fax: 1-800-205-6665
E-mail: info@DynamicClosures.com
- 2.2. Models and Materials:
 - 2.2.1 Models: EZ Paravent (Dynamic Closures).
 - 2.2.2 Curtain:

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- 2.2.2.1 Panels: 4.25 inches (108mm) wide with 2 inch (51mm) high bottom and top plates, truss-like aluminum, with full height aluminum panels perforated with .1875 inch (5mm) holes spaced .25 inches (6mm) on center; 51 percent viewable area. Panels connected with single-piece vertical .6125 x .5 inch (16mm) x (13mm) aluminum hinges. Curtain secured to pocket, no end post required..
- 2.2.2.2 Curtain shall be fully assembled and installed in pocket by respective manufacturer.
- 2.2.3 Curtain height: Reference Drawings.
- 2.2.4 Finish-Exposed Aluminum Parts Clear Anodized;
- 2.2.5 Locking Posts: Reference Manufacturer's installation drawing. Maximum straight line spacing of dropbolts is 10 feet (3048mm) on full height doors, 6ft (1829mm) on counter doors and 1 per curve. All lock mechanisms shall face to the outside of the pharmacy.
- 2.2.6 Locks: The lock type on gate shall be SFIC (Small Format Interchangeable Core) for all locking post.
- 2.2.7 Locks shall be positioned no be higher than 74" from the Finished Floor (not counter).
- 2.2.8 Locks shall be bi-parting with cylinder lock and shootbolt. see manufacturer for details
- 2.2.9 Overhead Track: Extruded aluminum, of size specified by manufacturer, with continuous extruded profile seamed together by alignment bars and track pins. Track to be secured to a header that will carry weight of complete curtain. The wall channel shall be fastened to the opposite wall properly block and constructed by others. Header that supports the track is constructed by others.
- 2.2.10 Pocket: Welded 1/2" tubular steel frame that is 6" exterior suitable for commercial construction of 6" stud walls. Interior clear opening width of 5" by height of curtain required. Pocket is adjustable to be raised or lowered up to an inch. Front corner angles flaps to cover pocket opening with Piano Hinges. Angles also accept 1/2" or 5/8" sheetrock.
- 2.2.11 Operation:
 - 2.2.11.1 Manual pull operation.
 - 2.2.11.2 Provide attached pull straps on grilles over 9'0" (2745 mm) in height and all counter height grilles.

3. Execution

- 3.1. Examination:
 - 3.1.1 Examine supports and other conditions under which Grilles are to be installed.
 - 3.1.2 Coordinate with responsible entity to correct unsatisfactory conditions and do not proceed with installation until conditions are corrected.
- 3.2. Installation:
 - 3.2.1 Follow manufacturer's installation instructions and approved shop drawings.
- 3.3. Adjusting and Cleaning:

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- 3.3.1 Test operation of Grille and adjust as necessary to provide smooth and proper operation.
- 3.3.2 Clean exposed surfaces using manufacturers recommended cleanser.
- 3.4. Demonstration:
 - 3.4.1 Instruct Owner's personnel in proper operating and maintenance procedures.

End of Section 08 17 05

Section 08 31 13

Access Doors

1. General

- 1.1. Summary: This Section includes ceiling access doors.
- 1.2. Submittals:
 - 1.2.1 General: Submit each item in this Article according to the Conditions of Contract and Division 1 Specification Sections.
 - 1.2.2 Product data for each type of access door assembly specified, including details of construction relative to materials, individual components, profiles, finishes, and fire-protection ratings (if required).

2. Products

- 2.1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - J.L. Industries
 - Karp Associates, Inc.
 - Larsen's Manufacturing Co.
 - Milcor, Inc.
 - The Williams Bros. Corporation of America
- 2.2. Materials: Steel Sheet: ASTM A 366 (ASTM A 366M) commercial-quality, cold-rolled steel sheet with baked-on, rust-inhibitive primer.
- 2.3. Access Doors: Flush Access Doors with Exposed Trim: Units consisting of frame with exposed trim, door, hardware, and complying with the following requirements:
 - Frame: 0.0598 inch (1.52mm) thick steel sheet.
 - Door: 0.0747 inch (1.90mm) thick steel sheet.
 - Trim: Flange integral with frame, 3/4 inch (19mm) wide, overlapping surrounding finished surface.
 - Hinge: Continuous type.
 - Locks: Flush, screwdriver-operated cam.

3. Execution

- 3.1. Preparation: Advise Installers of other work about specific requirements relating to access door installation, including sizes of openings to receive access door and frame, as well as locations of supports, inserts, and anchoring devices. Furnish inserts and

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anchoring devices for access doors that must be built into other construction.
Coordinate delivery with other work to avoid delay.

3.2. Installation:

3.2.1 Comply with manufacturer's instructions for installing access doors.

3.2.2 Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finished surfaces.

End of Section 08 31 13

Section 08 33 00

Rolling Security Shutters V02072022

1. General

1.1. Summary:

1.1.1 Section includes:

- 1.1.1.1 Main customer exterior automated entry/exit doors overhead Roll-Up security shutters (cylinder lock outside and thumb turn lock inside).
- 1.1.1.2 If prototype is based on a C20 variation and the pharmacy has roll down shutters – then also applies to the pharmacy.

1.2. Submittals:

- 1.2.0.1 Product data: submit manufacturer's product data for all specified components, including specifications, finish information and installation instructions.
- 1.2.0.2 Shop drawings: submit scaled shop drawings showing layout, sizes and types, product materials, components and accessories, fabrication data, wiring diagrams for motor driven operators, finishes, rough-in dimensions, anchorage with installation requirements and location details.
- 1.2.0.3 Samples: manufacturer's standard array of colors for selection by architect.

1.2.1 Quality Assurance Submittals:

- 1.2.1.1 Test Reports: Engineer raised seal test reports showing compliance with specified requirements.
- 1.2.1.2 Certificates: Engineering certification that design criteria meets specified requirements.
- 1.2.1.3 Operating and Maintenance Instructions: Submit detailed maintenance requirements and operating instructions.
- 1.2.1.4 Warranty: Submit specified warranty documents.

1.3. Quality Assurance:

1.3.1 Manufacturer Qualifications: Obtain rolling shutters through one source from a single manufacturer with a minimum of 20 years' experience in manufacturing products comparable to those specified in this section.

1.3.2 Installer Qualifications:

- 1.3.2.1 Use only manufacturer's factory trained installers or qualified installers approved by shutter manufacturer.
- 1.3.2.2 Regulatory requirements: Comply with all local and governing code requirements.
- 1.3.2.3 Pre-Installation Conference: Conduct a pre-installation meeting to verify

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project installation and coordination requirements, and field conditions. Tele-conference is acceptable.

- 1.3.2.4 Electrical Certification: ANSI approved and labeled UL325 as a complete shutter system. Individual testing of components will not be acceptable in lieu of system testing.

1.4. Deliver, Storage and Handling:

- 1.4.1 Deliver components in manufacturer's original, unopened, undamaged containers with identification labels intact. Store components protected from harmful weather conditions and damage from other construction activity.

1.5. Project Conditions:

- 1.5.1 Field Measurements: Record actual measurements of openings before fabrication. Show recorded measurements on As-Built drawings.

1.6. Warranty:

- 1.6.1 Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by an authorized company official.
 - 1.6.1.1 Warranty period: one year parts and labor, not including scaffolding, lifts, or other means to reach the inaccessible areas.
 - 1.6.1.2 Motors and motor control systems: Manufacturer's standard non-depreciating five-year warranty.

2. Products

2.1. Manufacturer:

2.1.1 QMI Security Solutions:

Contact: QMI National Accounts for all inclusive quote – (800) 446-2500 / ProjectSupport@qmiusa.com

Contact: Julie Perez, National Account Sales Director–jperez@qmiusa.com / (630)-945-8907

1661 Glenlake Avenue
Itasca, Illinois 60143 USA

- 2.1.2 Roll up security shutters are to be furnished and installed by QMI Security Solutions. General Contractor to contact QMI for National Account pricing: (800) 446-2500 / ProjectSupport@qmiusa.com or jperez@qmiusa.com

2.2. Other Acceptable Manufacturers:

- 2.2.1 Substitutions: Not permitted.
- 2.2.2 Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.3. Materials:

2.3.1 Shutter Components:

- 2.3.1.1 Slat Type: Aluminum Single Wall Slats: Extruded aluminum, 6063-T5 alloy. Solid slats with non-slip hinge. Slip hinges with slotted light slits shall not be permitted due to strength compromise.

- 2.3.1.1.1 Aluminum single wall slats: extruded aluminum, 6063-T5 alloy. Solid slats with non-slip hinge. Slip hinges with slotted light slits shall not be permitted due to strength compromise.

- 2.3.1.1.2 End retention: both ends of each slat to contain #8-18 thread 410 stainless steel, Dacromet 320 coated, screws with a 3/16" shoulder bushing and

- 1/2" diameter head.
- 2.3.1.1.3 Finger pull slat model AL-FP-A-1 integrated with curtain at 32" AFF (with push up/pull down operation only).
- 2.3.1.1.4.Slat perforations for vision P51).
- 2.3.1.2 Bottom Base or Locking Slat: Extruded aluminum, 6063-T6 alloy. Lock bar operation into mortised side rails at bottom of each side rail. Polypropylene felt or rubber gasket at underside of bottom lock slat.
 - 2.3.1.2.1 Key lock (lock Publix compatible-Medeco) base slat with key engaging steel slides. Key lock on side as listed below:
 - Pharmacy locations - store sales side
 - Store main entry/exit locations – exterior side
 - 2.3.1.2.2 Thumb turn lock as listed below:
 - Pharmacy locations – None
 - Store main entry/exit locations – interior store side
 - Front facade windows when present – interior store side
 - 2.3.1.2.3 Cylinder lock heavy duty base slat (with or without) thumb turn opposite key (centered at sliding double doors or off-center at double swing style doors) engaging steel slides.
- 2.3.1.3 Operation: Manual
 - 2.3.1.3.1 Manual operator type: Manual push up/pull down operation with internal drive tube torsion spring lift-assist manufactured to have maximum 35 lbs raise or lower effort.
 - 2.3.1.3.2 48 inch stainless steel pull pole, one per shutter.
 - 2.3.1.3.3 Pair of L-shape 6" close assist push handles on bottom bar on the store sales side.
 - 2.3.1.3.4 Pharmacy (when applicable) L-shape push handles to have a hole to receive the pull pole from the sales floor side.
 - 2.3.1.3.5 End Caps: Die-cast Aluminum square profile. Color to match slats.
 - 2.3.1.3.6 Box Cover (hood): Roll formed aluminum; 036 inch thickness, 3105-H14 alloy. Two-piece assembly-profile to match end caps. Color to match slats.
 - Shape: shall be (square).
 - Size: all shutters for project shall be contained in an (6", 6.5", 7", 8", 10" or 12") sized box housing.
 - 2.3.1.3.7 Track Guides/Side Rails: AL7, Aluminum extrusion, 6063-T5, lined with insulation woven polypropylene runners. Color to match slats. Provide manufacturer's standard Security 3-3/8" x 1" retained and spring stop rail for manual push up/pull down.
 - 2.3.1.3.8 Mounting: Surface/Face
 - A. Face mount QMI track section to QMI 2"x3" minimum tubes, to sides of opening into building structure. No shutter shall be mounted to window or door frames.
 - B Drive tube: manufacturer selected based on shutter specific load calculations from either 60mm octagon steel, 70mm octagon steel, 4" aluminum round, or 5" aluminum round.

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C. Build-out required at door openings (site specific) to clear door hardware.

D. Build-out required and mounted to building structure at trapped openings (site specific) for jamb mount. No build-out shall be attached to window frames.

- 2.4. Shop Finish:
 - 2.4.1 Side Frames and Track: Clear anodized finish
 - 2.4.2 Color: Clear anodized finish
 - 2.4.3 Anodized finish: 201-R1 Clear Acid Etch (15 min Velo).
- 2.5. 2.05 Application & Design:
 - 2.5.1 Codes: Installed shutters shall meet the required building compliance and documentation per section 1.02 Submittals.
 - 2.5.1.1 International Building Code (IBC) compliant

3. Execution

- 3.1. Examination: Verify conditions of substrates to determine if acceptable for shutter installation in accordance with manufacturer's instructions. Correct all unsatisfactory conditions prior to commencing shutter installations.
- 3.2. Installation:
 - 3.2.1 Install track and all shutter components to comply with project shop drawings and manufacturer's installation product approvals.
 - 3.2.2 After installation, lubricate, test and adjust shutters to operate properly and free from distortion.
- 3.3. Cleaning:
 - 3.3.1 Clean installed components in accordance with manufacturer's instructions prior to Owner's acceptance. Properly remove from the site all debris remaining from this installation.
 - 3.3.2 Inadequate surface cleaning will result in corrosion formation & potential structural damage.
- 3.4. Protection: Comply with manufacturer recommendations and protect completed shutter installations from damage during remaining construction so as not to void warranty.

End Of Section 08 33 00

Section 08 33 23

Overhead Coiling Doors V07212017

1. General

- 1.1. Summary: The basis of the coiling doors specification will be as manufactured by the Cookson Company, Phoenix, Arizona. Alternate manufacturers will be accepted as listed below.
- 1.2. This Section includes information normally found in Section 08 33 13 Coiling Counter Doors.

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- 1.3. Quality Assurance: Exterior coiling insulated service doors shall be designed to withstand at least a (20) twenty pounds per square foot wind load. Windlocks shall be installed on every slat of doors over 14'-1" wide. Doors must comply with local wind load requirements.
- 1.4. Submittals.
 - 1.4.1 Submit LOI in accordance with Section 01 33 00 Submittal Procedures
 - 1.4.2 List of materials proposed for use.
 - 1.4.3 Manufacturer's specifications.
 - 1.4.4 Miami-Dade County Notice of Acceptance (NOA) letter as required.
 - 1.4.5 Shop drawings as required to describe intended assemblies, door schedule, and other pertinent details of proposed installation.

2. Products

- 2.1. Overhead Coiling Doors:
 - 2.1.1 The door curtain shall be constructed of interconnected strip steel slats conforming to ASTM A-653. The slats shall be a minimum of 22 gauge exterior and interior and will be separated by 13/16" rigid insulation. Insulation shall not produce a flame spread greater than 25 and smoke generation greater than 50. Insulation will provide no less than a R-value of 6.0.
 - 2.1.1.1 The finish of the door curtain shall consist of the following:
 - 2.1.1.1.1 Hot dipped galvanized G-90 coating consistent with ASTM A-525.
 - 2.1.1.1.2 Bonderized coating for prime coat adhesion.
 - 2.1.1.1.3 Corrosion inhibiting primer- 2 mils per side.
 - 2.1.1.1.4 Thermo- setting polyester top coat with a minimum thickness of .6 mils each side.
 - 2.1.1.1.5 Special Requirement - Coastal Areas: Where exterior mounted coiling doors are required at the automatic entrance doors, paint all exposed metal surfaces, matching the primary facade color. See Section 09 91 00 - Paints regarding requirements for painting exposed exterior metal surfaces.
 - 2.1.1.2 The bottom bar shall consist of two 1/8" angles mechanically joined together with a 1" diameter vinyl covered foam edge astragal continuous along the bottom. The finish on the bottom bar shall be one coat of rust inhibiting prime paint.
 - 2.1.1.3 Guides shall consist of steel angles bolted together to form a channel for the curtain to travel. Vinyl snap-on weatherstripping shall be furnished continuously along the exterior leg of each guide. Guide angles shall be coated with one coat of rust inhibiting prime paint.
 - 2.1.1.4 The brackets shall be of steel not less than 1/4" thick and finished with one coat of rust inhibiting prime paint.
 - 2.1.1.5 The hood shall be fabricated from 24 gauge galvanized steel and shall be formed to fit the curvature of the brackets. The hood shall be

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corrugated every 1" along the curvature for the entire length of the hood. The hood shall contain a waterproof canvas baffle to control air infiltration and shall be gasket-ed at the wall to prevent pest infiltration.

2.1.1.5.1 Special Requirement - Coastal Areas: Where exterior mounted coiling doors are required at the automatic entrance doors, the hood will be rectangular in form. Hood must also be fabricated to enclose all gears and mechanisms.

2.1.1.5.2 Special Requirement - Coastal Areas: Where exterior mounted coiling doors are required at the automatic entrance doors, The rolling door shall be made of 22 gauge interlocking slats, Non-Insulated. The door must be operated by a Removable Hand Crank. NO CHAIN OPERATION is allowed.

2.1.2 Manufacturers:

Cookson, Model FCWI
Cornell Iron Works
Overhead Door Corporation, Model 625
Raynor DuraCoil STANDARD
South Florida Rolling Doors, Inc., Model 903

2.2. Push-Up Counter Doors (Remodels only):

2.2.1 The door curtain shall be constructed of interconnected .040 or .050 extruded aluminum No. 8 (1- 5/16" high by 3/8" deep) slats. The curtain shall receive a clear anodized finish.

2.2.1.1 The bottom bar shall be constructed of tubular extruded aluminum measuring 1- 5/16" deep by 2- 1/4" high with a double vinyl astragal on the bottom edge. The bottom bar shall receive a clear anodized finish.

2.2.1.2 The guides shall be constructed of extruded aluminum and measure 1- 3/4" square. Each side of the channel portion capturing the curtain shall contain wool pile weatherstripping. The guides shall receive a clear anodized finish.

2.2.1.3 The brackets shall be constructed of 3/16" thick die cast aluminum.

2.2.1.4 The barrel shall be steel tubing of not less than 4" in diameter. Oil tempered torsion springs shall be capable of correctly counter balancing the width of the curtain. The barrel shall be designed to limit the maximum deflection to .03" per foot of opening width. The barrel shall receive one(1) coat of bronze rust inhibiting prime paint.

2.2.1.5 The hood shall be fabricated from .040 aluminum and shall be formed to fit the square brackets. The hood shall receive a clear anodized finish.

2.2.2 Manufacturers:

Cookson, Model CD8-1
Cornell Iron Works
Overhead Door Corporation, Model 652
Raynor, DuraShutter SELECT
Metro Door, Metro-Guard

Dynamic Enclosures, Model Lift-Ready Rolling Grilles “Ventana”

2.2.3 Operation:

2.2.3.1 Chain operated Overhead Coiling doors shall open and close with a maximum of 30 pounds of effort utilizing an endless chain and cast iron reduction gears.

2.2.3.2 Push-up operated doors shall open and close with a maximum of 30 pounds of effort utilizing finger lifts in the bottom bar.

2.2.4 Locking mechanism:

2.2.4.1 The Overhead Coiling door chain shall be secured by means of a chain lock.

2.2.4.2 Special Requirement - Coastal Areas: Hand crank operated doors shall have standard slide bolt locking mechanisms on coil side of door that can be secured by padlocks.

2.2.4.3 The push-up door shall be secured by means of a concealed sliding bolt deadlock in the bottom bar operated by a cylinder lock. Cylinder lock must be re-keyable.

2.2.5 Vision Panel: In doors not required to meet missile impact resistance, provide vision slats 12”wide x 6 slats high. Bottom of vision panel should start at approximately 5’ a.f.f.

3. Execution

3.1. Installation: All Coiling Insulated and Push-up Counter doors shall be installed by a manufacturer’s authorized installer and will be in accordance with manufacturer’s instructions and standards.

3.2. Warranty: All Coiling Insulated and Push-up Counter doors shall be warranted against defects in workmanship and materials for a period of one year from the time of installation.

End Of Section 08 33 23

Section 08 38 00

Traffic Doors V03262020

1. General

1.1. Description of Work: This section covers all Traffic Doors, including fabrication and erection.

1.2. Manufacturer’s recommendations for storage, handling and protection shall be followed exactly.

1.3. Warranty

1.3.1 Provide Manufacturer’s standard 1 year limited warranty for Traffic Doors and all related parts.

1.3.2 All other warranties and bonds are to be in accordance with Section 01 77 00 Closeout Procedures.

2. Products

2.1. Acceptable Manufacturers

2.1.1 Traffic Door Manufacturers: Subject to compliance with requirements, provide products of the following:

Chase Industries Inc./Seneca Holdings
National Account Contact: Kay Blair
Email:kblair@seneca.com
Office (269) 492-3934
Fax (800) 245-7045
National Sales Rep: Chris Jacobs
Office:(770) 773-0313

2.2. Traffic Doors

2.2.1 Doors shall be Durulite "Standard" traffic doors constructed with the outer skin of monolithically formed, rotationally molded, cross linked high density 1/8" polyethylene and a textured finish. Door panel thickness shall be 1 7/8".

2.2.2 Dock doors shall be Durulite "Industrial" traffic doors 90x180 with heavy duty hinges SAE J429 G8 1/4-20 bolt. Constructed with the outer skin of monolithically formed, rotationally molded, cross linked high density 1/4" polyethylene and a textured finish

2.2.3 Insulation core material shall be a high density, foamed-in-place, rigid CFC-Free urethane insulation. Material shall be foamed-in-place and provide an R-value of 10.83.

2.2.4 Polyethylene tear drop bumpers shall be 36 inches high and factory installed on both sides of each leaf using stainless steel panel inserts and fasteners. Color: Black.

2.2.5 Provide 11" industrial lower hinge guards.

2.3. Traffic Door Hardware

2.3.1 Provide Manufacturer's standard gravity return V-Cam system consisting of a ductile iron V-Cam with a UHMW sleeve and cast aluminum cam follower housing with a needle bearing roller. The roller assembly shall be securely clamped onto the shaft to allow horizontal and vertical adjustment of the door.

2.3.2 At locations indicated on drawings, provide low-rise V-Cam and bulb leading edge gasket to comply with the ADA Accessibility Guidelines.

2.4. Traffic Door Seals

2.4.1 Doors shall be fully gasketed with all gaskets factory applied without the use of metal strips or fasteners of any type.

2.5. Traffic Door Vision Panels

2.5.1 Window glazing shall be 1/8" polycarbonate. All windows shall be factory installed and sealed. The exposed surface of the window shall be recessed a minimum of 1/8" from the face of the door to protect the surface from abrasion from passing loads.

2.5.2 ADA window size shall be 24" x 30"

2.5.3 Maximum height from finish floor to the bottom of the viewing area shall not exceed 48 inches.

2.6. Traffic Door Finish/Color

2.6.1 Pre-finished Color: See door schedule for color selection.

3. Execution

3.1. Install special doors complete with necessary hardware and accessories in accordance with final shop drawings, Manufacturer's instructions and as specified herein.

3.2. All assemblies must be installed plumb, level and properly aligned.

3.3. Upon completion of installation, lubricate, test and adjust doors to operate easily, free from warp, twist or distortion.

3.4. All doors shall be ADA compliant and be adjusted to ensure the door closing sweep period and door opening force as outlined in the most current edition of the ADA Accessibility Guidelines and the FACBC.

End of Section 08 38 00

Section 08 42 29

Automatic Entrances V06022021

1. General

1.1. This Section contains information normally found in Section 08 81 00 Glass Glazing.

1.2. Wind loading: Conform to the requirements of the local authority having jurisdiction.

1.3. Warranties:

1.3.1 Insulating Glass Panels: Manufacturer's standard ten year warranty against all defects.

1.3.2 Automatic Entrances: Two years manufacturer's warranty on parts and labor from the installation date.

1.4. Submittals

1.4.1 Submit LOI in accordance with Section 01 33 00 Submittal Procedures.

1.4.2 Shop Drawings:

1.4.2.1 Submit Shop Drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the Work adjacent.

1.4.2.2 In Jurisdictions where Notice of Acceptance (NOA) is required (as described in section 2.1.2): Submit Shop Drawings signed and sealed by an Engineer registered in the State of Florida certifying that all requirements of county regulations are met by design proposed.

1.4.2.3 All Automatic Door entrances must be compliant with ANSI/BHMA 156.10 Accessibility Standards.

2. Products

2.1. Automatic Entrance Doors:

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- 2.1.1 Standard package: Besam (Assa Abloy) SL 500 Series auto-slide automatic sliding entrances. Where Applicable, Interior Door Package shall include Transom w/ 1/4" tempered glass.
- 2.1.2 Exterior package: Besam (Assa Abloy) SL 500 Resilience R104 "Hurricane" with lockguard for exterior applications ONLY. This condition is applicable to all Publix store locations.
 - 2.1.2.1 Florida: Entire state. Must meet assembly requirements as stated in approved Miami-Dade County Notice of Acceptance (NOA) and Florida Product Approval.
 - 2.1.2.2 Georgia: 10 miles within the coast line
 - 2.1.2.3 South Carolina: 10 miles within the coast line
 - 2.1.2.4 Alabama: 10 miles within the coast line
 - 2.1.2.5 North Carolina: 10 miles within the coast line
 - 2.1.2.6 Virginia: 10 miles within the coast line
- 2.1.3 Slide Action: Provide Bi-Parting, Bi-Passing, or Telescoping action as shown on the Drawings.
- 2.1.4 Finish: Clear anodized aluminum.
- 2.1.5 Coordinate glazing, electrical, control wiring, etc. with other trades as required.
- 2.1.6 Glazing for automatic doors and sidelights:
 - 2.1.6.1 In areas listed as High Velocity Wind Zones, provide laminated glass complying with ASTM C-1172, Kind LA, when store is located in one of the zones listed in section 2.1.2
 - 2.1.6.1.1 Provide evidence of project jurisdiction product approval.
 - 2.1.6.1.2 Glass: 7/16" or 9/16" Laminated Impact glass, outer lites 1/4" annealed float glass, quality Q3, laminated on both sides of inner plastic layer, in sizes as required.
 - 2.1.6.2 When the store is not located in a High Velocity Wind Zone, as outlined in section 2.1.2, use 1/4" clear tempered float glass, ASTM C-1036, quality Q3.
 - 2.1.6.3 Transom panels shall be of the same type of glazing as used in the automatic doors.
 - 2.1.6.4 Interior Glazing: 1/4" clear tempered float glass, ASTM C-1036, quality Q3.
- 2.2. Sealants for Glazing:
 - 2.2.1 Where sealants are used in conjunction with glazing systems, use only those recommended by the manufacturer of the glazing system.
 - 2.2.2 Under no circumstances shall wet sealants be introduced into glazing systems to provide primary weatherproofing or waterproofing.
 - 2.2.3 Where sealants for perimeters of glazing systems abut other materials, use sealants as described in Section 07 92 00 Joint Sealants.

3. Execution

- 3.1. Examine the areas and conditions under which work of this Section will be performed.

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Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

- 3.2. Coordinate as required with other trades to assure proper provision in the work of those trades for interface with the work of this Section.
- 3.3. All tracks for the interior entrance doors must be installed to the concrete slab prior to the beginning of terrazzo installation. Use adequate shimming to ensure top of track is at finish floor level (slab is depressed approximately 5/8").
- 3.4. Make measurements as required in the field to assure proper fit.
- 3.5. All aluminum sash shall be cut to fit, filed and installed to provide hairline fit at joints, with smooth continuity of line and accurate relation of planes and angles. Exposed caulking shall not be used.
- 3.6. Prepare for, receive, and install the finish hardware furnished under Section 08 71 00 Door Hardware.
- 3.7. Glazing and Setting
 - 3.7.1 Sash shall be clean and dry before glazing. Do not glaze in damp or dusty weather or when temperature is lower than 40 degrees Fahrenheit.
 - 3.7.2 Improperly set glass or glass which does not fully meet requirements of its grade will not be accepted and must be replaced to satisfaction of Architect without cost to Owner.
- 3.8. Cleaning and acceptance: upon completion of project: Replace all cracked, stained or broken glass at no cost to Owner. Remove all traces of paint and etc., and thoroughly clean all sash before final acceptance of Project.

End of Section 08 42 29

Section 08 43 13

Aluminum-Framed Storefronts V04182018

1. General

- 1.1. This Section contains information normally found in Section 08 81 00 Glass Glazing.
- 1.2. Wind loading: Conform to the requirements of the local authority having jurisdiction,
- 1.3. Warranties: Insulating Glass Panels: Manufacturer's standard ten year warranty against all defects.
- 1.4. Submittal:
 - 1.4.1 Submit LOI in accordance with Section 01 33 00 Submittal Procedures.
 - 1.4.2 Shop Drawings: Submit Shop Drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the Work adjacent.

2. Products

- 2.1. Aluminum Framing:
 - 2.1.1 Sizes and designs as shown on Drawings. Include all sash, corner caps, and

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covers, wind reinforcement, and all other components required for a secure, watertight installation.

2.1.2 Interior and Exterior finish shall be clear anodized aluminum, AA-M12-C12-A31.

2.1.3 Approved Manufacturers:

Kawneer
Vistawall
U.S. Aluminum
Trulite
PPG
Tubelite
YKK
American Products, Inc (API)

2.2. Manufacturer's labels, showing strength and quality, are required on all glass, and are not to be removed until inspected and approved by Publix' Representative. All glass shall conform to Fed Spec DD-6-451A. Tempered glass shall be so marked, permanently, in an inconspicuous location on the panel.

2.3. Exterior Glazing:

2.3.1 Laminated glazing: 9/16" missile impact to be used for shell glazing and Publix-designed facade glazing (developer-designed facade glazing exempt) in the following locations or as required in the drawings:

2.3.1.1 Florida: Entire state. Must meet assembly requirements as stated in approved Miami-Dade Notice of Acceptance (NOA) and Florida Product Approval.

2.3.1.2 Georgia: 10 miles within the coast line

2.3.1.3 South Carolina: 10 miles within the coast line

2.3.1.4 Alabama: 10 miles within the coast line

2.3.1.5 North Carolina: 10 miles within the coast line

2.3.1.6 Virginia: 10 miles within the coast line

2.3.2 Approved Products:

Safety Plus-II, Glasslam NGI
Saf-Glas, Impact Security Products, Inc.
StormGard, Viracon
StormGlass, Oldcastle
PPG

2.3.3 Elsewhere, provide sealed insulating panels composed of two lites 1/4" clear tempered float glass, in sizes as described on Drawings and verified in field.

2.3.3.1 Glass: ASTM C-1036, quality Q3.

2.3.3.2 Sealed Panels: ASTM E-774, Class B.

2.3.4 Exterior Storefront Door (where applicable). The Following items are to be Included with the door and provided by the Store front door provider:

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- 1 ea. Door Closer
- 1 ea. Door Pull
- 1 ea. Push Bar
- 1 ea. Thumb Turn

- 2.4. Interior Glazing: 1/4" clear tempered float glass, ASTM C-1036, quality Q3, in sizes as required.
- 2.5. Sealants for Glazing:
 - 2.5.1 Where sealants are used in conjunction with glazing systems, use only those recommended by the manufacturer of the glazing system.
 - 2.5.2 Under no circumstances shall wet sealants be introduced into glazing systems to provide primary weatherproofing or waterproofing.
 - 2.5.3 Where sealants for perimeters of glazing systems abut other materials, use sealants as described in Section 07 92 00 Joint Sealants.

3. Execution

- 3.1. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- 3.2. Coordinate as required with other trades to assure proper provision in the work of those trades for interface with the work of this Section.
- 3.3. Make measurements as required in the field to assure proper fit.
- 3.4. All aluminum sash shall be cut to fit, filed and installed to provide hairline fit at joints, with smooth continuity of line and accurate relation of planes and angles. Exposed caulking shall not be used.
- 3.5. Glazing and Setting:
 - 3.5.1 Sash shall be clean and dry before glazing. Do not glaze in damp or dusty weather or when temperature is lower than 40 degrees Fahrenheit.
 - 3.5.2 Coordinate with others to see that sufficient blocking is rigidly in place and that finish material will fit sill covers, jambs, etc. Install store front sash securely and neatly and caulk fully to produce watertight area. Anchor division bars to stool framing and wood ground above.
 - 3.5.3 Improperly set glass or glass which does not fully meet requirements of its grade will not be accepted and must be replaced to satisfaction of Architect without cost to Owner.
- 3.6. Cleaning and acceptance: upon completion of project: Replace all cracked, stained or broken glass at no cost to Owner. Remove all traces of paint and etc., and thoroughly clean all sash before final acceptance of Project.

End of Section 08 43 13

Section 08 71 00

Door Hardware

V05142021

1. General

1.1. Submittals:

1.1.1 Hardware Schedule: Submit a complete Schedule of hardware using the format of this Specification, indicating type, number, location and finish of each item. Include Manufacturer's name and model description, fastening devices and complete keying schedule. Reference Architect's door designation.

1.1.2 Provide a cross-reference between door numbers and hardware headings.

1.1.3 Templates: Furnish templates and approved schedule to each related manufacturer of equipment which require same for the fabrication of their material.

1.1.4 NO SUBSTITUTIONS WILL BE ALLOWED.

1.2. Quality Assurance

1.2.1 Provide hardware in compliance with the local building code requirements. Also comply with NFPA101 Life Safety Code and ANSI A117.1 where applicable.

1.2.2 Provide hardware for fire rated openings in accordance with NFPA 80, (Fire Doors and Windows) and NFPA 105 (Smoke And Draft Control Door Assemblies).

1.3. Delivery Storage and Handling

1.3.1 Deliver hardware to Project Site in manufacturer's protective packaging, all items are to be marked to indicate door opening number, hardware schedule number or other identifying marks.

1.3.2 Store hardware in secure lock-up area, dry and lighted.

1.4. Warranty

1.4.1 Warrant door closers against failure due to defective materials and workmanship for a period of five (5) years beginning at date of Substantial Completion. Closers judged defective during this period shall be replaced or repaired at no cost to the Owner.

1.4.2 Warrant exit devices against failure due to defects in material or workmanship for a period of three (3) years.

1.4.3 All other warranties and bonds are to be in accordance with Section 01700 - Contract Close-Out.

2. Products

2.1. Finish:

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- 2.1.1 Finish, unless otherwise indicated, shall be US26D. (Brushed Chrome)
- 2.1.2 Door closers shall be spray-painted for finish to match adjacent hardware.
- 2.2. Cylinders: Acceptable Manufacturer: Sargent or Schlage
- 2.3. Lock Company.
 - 2.3.1 REMODEL ONLY: Any replacement cylinders should be of the same manufacturer of the predominant existing cylinders that are in the store. The general contractor or subcontractor must verify this information with the Publix Facilities Construction Representative.
 - 2.3.2 Cylinders shall be keyed alike. No master keying or construction master keying is required.
 - 2.3.3 Provide six keys.
- 2.4. Hinges:
 - 2.4.1 Acceptable Manufacturers:
 - McKinney
 - Hager
 - Double-acting spring hinges: Bommer Industries, Inc.
 - 2.4.2 Hinges shall be the types, materials, sizes, and finishes indicated in finish hardware schedule.
- 2.5. Locksets, Passage Sets, Cylinders:
 - 2.5.1 Acceptable Manufacturer: Sargent Lock Co.
 - 2.5.2 Lockset and passage set series and design shall be "D" Series (Heavy Duty), Rhodes Lever Design.
 - 2.5.3 Cylinders shall be mortise or rim, six pin type complete with cam and/or tail piece for exit devices.
- 2.6. Exit Devices with Alarm Kits:
 - 2.6.1 Acceptable Manufacturer: Detex.
 - 2.6.2 Acceptable Manufacturer (non-alarmed): Sargent.
 - 2.6.3 Exit devices shall be listed by Underwriter's Laboratories, Inc. for accident hazard. Exit devices for use on fire-rated opening shall bear factory installed UL markings that indicate a three (3) hour fire rating.
 - 2.6.4 All exit devices shall be non-handed. Touch pad shall extend a minimum of 3/4 of the door width and shall be a minimum of 2-1/16" in height. Latchbolts shall have a self-lubricating coating to reduce wear. Plated or plastic coated latchbolts are not acceptable.
- 2.7. Surface Mounted Door Closers:
 - 2.7.1 Acceptable Manufacturers and Products:
 - Sargent: 1431
 - 2.7.2 All surface closers shall be of one manufacturer. The closers shall be non-

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handed and non-sized, hydraulically controlled with full rack and pinion operation. They shall have adjustments for backcheck, general speed, and latch speed. Closers shall meet an opening force below 5 lbs. to meet barrier free requirements.

- 2.7.3 Where a closer requires a 'PS' (stop arm) label, the door will be limited to 90° opening at interior doors and 100° at exterior doors.
- 2.7.4 Provide mounting plates as required, sex nuts and bolts for application to hollow metal doors, and thru bolts for application to wood doors.
- 2.8. Stops, Holders, Bolts, Viewers, and Miscellaneous:
 - 2.8.1 Acceptable Manufacturers:
 - Sargent
 - McKinney
 - Rockwood
 - 2.8.2 Types as indicated in Hardware Schedule.
 - 2.8.3 Flush bolts shall be 1" x 6-3/4" brass, rectangular front, lengths indicated, with 3/4" throw. Furnish bottom strike and top strike plates.
 - 2.8.4 Bolts and accessories for use on fire-rated doors shall be Underwriters' Laboratories listed.
- 2.9. Flat Goods:
 - 2.9.1 Acceptable Manufacturers:
 - Rockwood
 - Don-Jo (latch protectors only)
- 2.10. Thresholds, Sweeps and Weather-Strip
 - 2.10.1 Provide extra heavy duty vermin strip, 3" height, with stainless steel or aluminum receiver for neoprene sweep.
 - 2.10.2 Acceptable Manufacturers:
 - Pemko
 - McKinney
- 2.11. Any products that do not have a manufacturer listing are non-proprietary.

3. Execution

- 3.1. Preliminary
 - 3.1.1 Store in temporary bins. Tag, index, and file all keys temporarily during construction.
 - 3.1.2 Check all hardware upon arrival on Job Site against approved Finish Hardware Schedule. Check function of hardware for job use under site conditions and interferences. Notify Architect if discrepancies occur.
- 3.2. Installation
 - 3.2.1 Install hardware to doors as listed in the door schedule. Comply with "Recommended

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Locations for Builders Hardware for Custom Steel Doors and Frames” as published by the Door and Hardware Institute. Application shall be by skilled workmen, who work with proper equipment, and shall be in accord

- 3.2.2 with the manufacturer’s instructions, fit to work of others accurately, applied securely, and adjusted properly. Hardware let into work of others shall be neatly done from template and shall fit perfectly. Exercise care not to damage work of others.
 - 3.2.3 Install finish hardware to template. Cut and fit substrate to avoid substrate damage or weakening. Cover cut-outs with hardware item. Mortise work to correct location and size without gouging, splintering, or causing irregularities in exposed finished work.
 - 3.2.4 Where cutting and fitting is required on substrates to be painted or similarly finished, install, fit, and adjust hardware prior to finishing, and then remove and place in original packaging. Reinstall hardware after finishing operation is completed.
 - 3.2.5 Attach thresholds with flathead screws into embedded receivers, symmetrical with the center of door opening. On case thresholds where cast-on anchors are used, apply utilizing an epoxy grout mixture.
 - 3.2.6 Attach door closers to door whether wood or metal, with sex nut and bolt assemblies. Where closers have stop function, install closer to stop the door before striking obstructions..
- 3.3. Finishing: All latch protectors to be painted with same paint as exterior doors.
- 3.4. Cleaning and Adjusting
- 3.4.1 At the time of hardware installation, adjust each hardware item to perform function intended. Lubricate moving parts with lubricant acceptable to hardware manufacturer to remove dust and stains.
 - 3.4.2 Prior to Substantial Completion, readjust and re-lubricate hardware. Repair or replace defective materials. Clean hardware as recommended by manufacturer to remove dust and stains.
- 3.5. Fastenings
- 3.5.1 All exposed screws shall be Phillips head, finished to match item and sized to suit job requirements.
 - 3.5.2 Surface applied items such as closers and overhead holders shall be applied with sex nut and bolt assemblies.
- 3.6. Operation and Adjustment
- 3.6.1 Adjust all installed items for proper operation without binding or excessive play.
 - 3.6.2 Closers and other door operating hardware shall be adjusted to comply with requirements of local codes and in accordance with performance requirements of ADA and other handicap regulations.
- 3.7. Completion
- 3.7.1 After installation, all templates, installation instructions, as-builts and other pertinent information shall be placed in a properly identified binder. This binder and all special tools are to be turned over to the Owner’s Representative at final acceptance of the Project.
 - 3.7.2 After final acceptance, the hardware supplier shall instruct the Owner’s designated personnel in the proper operation, adjustment and maintenance of hardware and finishes.

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3.8. Hardware Schedule

3.8.1 All door-specific options are noted in the door schedule.

3.8.2 Group A -1A

Exit (Panic Bar, Exit Only), with Alarm, Closer W/H.O.; Doors from Stock Rooms and Elec. Equip. Rooms to Exterior (Except labeled doors; see B-1)

3 ea. Hinges	BB1279 or TA2714 4.5 X 4.5 NRP X USP
1 ea. Alarmed Exit Device	FV40 EA 628
0 Cylinder for Alarm	(Furnished and Installed By Publix)
1 ea. Latch Protector	MLP 211 SL
1 ea. Closer W/Stop, H.O.	1431 PS TB
1 ea. One Way Viewer	622 X CRM
1 ea. Threshold	2005 AV
1 Set Weather-Strip	S88D
1 ea. Door Sweep	Pemko 57AV
1 ea. Rainguard	346C (for Raiser Room)

3.8.3 Group A-1B

Double Door Exit (Panic Bar, Exit Only), with Alarm, Closer W/H.O.; Doors from Stock Rooms to Exterior

8 ea. Hinges	Hager BB1191 4.5 X 4.5 NRP US32D
2 ea. Surface Bolts	Sargent # 988
1 ea. Surface Vertical Rod Device	Sargent HC4-8710 (No Trim, Exit Only)
1 ea. Closer	Norton 7500H on Pull side of Active Door
1 ea. Bottom Latch Guard	Rockwood BFLG12
1 ea. Rod Guard	Rockwood BFRC24
1 ea. One Way Viewer	Rockwood # 622
1 ea. Saddle Threshold	Pemko 271A-72"
2 ea. Door Sweep	Pemko 57AV-36"
1 ea. Perimeter Gasket	Pemko S88D
1 Set Astragal W/S	Pemko 303AS-96"
1 Detex Wall Mounter Alarm with door Contacts	EAX-2500SK

3.8.4 Group B-1A

Exit Door (Panic Bar, Exit Only), with Alarm, Closer (but without H.O. because door is B-Label, 60-min., or is a direct exit from Sales Area)

3 ea. Hinges	BB1279 or TA2714 4.5 X 4.5 NRP X USP
1 ea. Alarmed Exit Device	FV40 EA 628
0 Cylinder for Alarm	(Furnished and Installed by Publix)
1 ea. Closer W/Stop, W/O H.O.	1431 PS TB
1 ea. Latch Protector	MLP 211 SL
1 ea. Locking Astragal	Pemko 3572SS
1 ea. Door Sweep	Pemko 57AV
1 ea. Threshold	2005 AV
1 Set Weather-Strip	S88D
1 ea. One Way Viewer	622 X CRM

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3.8.5 Group B-1B

Double Door Exit (Panic Bar, Exit Only), with Alarm, Closer (but without H.O. because door is B-Label, 60-min., or is a direct exit from Sales Area)

6 ea. Hinges	BB1279 4.5 x 4.5 NRP USP
1 ea. Mullion	Yale M200FWS 7'
2 ea. Alarmed Exit Device	FV40 EA 628
2 ea. Closer	1431 PS En
1 ea. Threshold	Pemko 2005AV x 72"
2 ea. Door Sweep	Pemko 57AV x 36"
2 ea. W/S Gasket	Pemko S88D x 17'
1set – Astragal Weather strip	Pemko 303AS x 84"
1 ea. Door Viewer	Rockwood #622 US26D

3.8.6 Group B-2

Exit Access Door (Panic Bar), no Alarm, into Rated Corridor, W/Closer

3 ea. Hinges	BB1279 X 4.5 X 4.5
1 ea. Exit Device W/Lever Out	12-8813 F ETL X 32D
1 ea. Closer	1431 UO TB
1 ea. Smoke Seal	S88D
1 ea. Door Stop	409 or 443 as required

3.8.7 Group B-3

Doors into Rated Corridor, Electromagnetic Hold-open, Panic Bar on one side for impact resistance, Swing-Clear Hinges

3 ea. Hinges	BB1262 X 4.5 (Swing Clear)
1 ea. Exit Device W/Lever Out	AL-12-8813 F ETL X 32D
1 ea. Closer	1431 UO TB
1 ea. Electromagnetic Holder	997 X AL X 24 VOLT

3.8.8 Group C-1

Exit Door (Panic Bar), no Alarm, from Rated Enclosure which has no other traffic, W/Closer (occurs only in Remodels and New Stores which require an added rated Exit Corridor due to adjacent buildings)

3 ea. Hinges	TA2714 4.5 X 4.5 NRP X USP
1 ea. Exit Device	12-8813 F X 32D
1 ea. Closer, W/Stop, W/O H.O.	1431 PS TB
1 ea. Door Sweep	Pemko 57AV
1 ea. Threshold	2005 AV
1 Set Weather-Strip	S88D

3.8.9 Group C-2

Exit Access Door (Panic Bar), with Alarm, into Rated Enclosure which has no other traffic, W/B-Label & Closer (Occurs only in Remodels and New Stores which require an added rated Exit Corridor due to adjacent buildings)

3 ea. Hinges	BB1279 X 4.5 X 4.5
1 ea. Exit Device W/Lever Out	FV40 EA 628

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0 Cylinder for Alarm	(Furnished & Installed by Publix)
1 ea. Latch Protector	MLP 211 SL
1 ea. Closer, W/O Stop, W/O H.O.	1431 UO TB
1 ea. Door Stop	409 or 443 as required

3.8.10 Group D

Lockset, can be disabled from inside: Offices, Bookkeeping Conference/
Training Rooms, Storage Rooms:

3 ea. Hinges	1279 X 4.5 X 4.5
1 ea. Entrance Lockset	28 10G05 LL
1 ea. Door Stop	409 or 443 as required
3 ea. Silencers	608

3.8.11 Group D- 1

Lockset, can be disabled from inside: Single toilets:

3 ea. Hinges	BB1279 X 4.5 X 4.5
1 ea. Deadbolt	B571 626
1 ea. Passage Set	10U15
1 ea. Door Stop	409 or 443 as required
1 ea. Closer	1431 UO TB
3 ea. Silencers	608

3.8.12 Group E

Lockset, can be disabled from inside, with Closer: Doors from Sales Area to
Customer Service and Office Area and Door(s) from Elec. Equip. Room to
Interior, Single Toilet Restrooms

3 ea. Hinges	BB1279 X 4.5 X 4.5 X US26D
1 ea. Entrance Lockset	10G05 LL
1 ea. Closer	1431 UO TB
1 ea. Door Stop	409 or 443 as required
3 ea. Silencers	608

3.8.13 Group F-1

Lockset, key-operated only: (Single) Equipment Closet Doors

3 ea. Hinges	1279 X 4.5 X 4.5
1 ea. Storeroom Lockset	10G04 LL
1 ea. Door Stop	409 or 443 as required
3 ea. Silencers	608

3.8.14 Group F-2

Lockset, key-operated only: Pairs of Equipment Closet Doors

6 ea. Hinges	1279 X 4.5 X 4.5
1 ea. Storeroom Lockset	10G04 LL
2 ea. Door Stops	409 or 443 as required
1 pair Flush Bolts	555 X 12"
1 ea. Dust Proof Strike	570
2 ea. Silencers	608

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3.8.15 Group G

Lockset, key-operated only, with Closer: Cash Room

3 ea. Hinges	BB1279 X 4.5 X 4.5
1 ea. Storeroom Lockset	10G04 LL
1 ea. Closer	1431 UO TB
1 ea. Door Stop	409 or 443 as required
1 ea. Large Door Viewer	DS2000 by Door Scope, Silver Finish
3 ea. Silencers	608

3.8.16 Group H

Office Set: Half Door at Pharmacy

3 ea. Hinges	1279 X 4.5 X 4.5
1 ea. Lockset	10G04 LL
2 ea. Folding Brackets	EB-303/EP TB (Sugatsune America)
1 ea. Door Stop	409 or 443 as required
2 ea. Silencers	608

3.8.17 Group H-1

Office Set: Full Size Dutch Door at Pharmacy

4 ea. Hinges	TA2714 4.5 X 4.5 US26D
1 ea. Surface Bolt	630-4 US26D
1 ea. Storeroom/Closet Lockset	28 10G04 LL US26D
1 ea. Deadbolt	28 485 US26D
1 ea. Door Stop	443 US26D
2 ea. Silencers	608
2 ea. Folding Brackets	EB-303/EP TB

3.8.18 Group J

Passage Set: Non-Locking Storage & Equipment, Passage Doors

3 ea. Hinges	1279 X 4.5 X 4.5 X 26D
1 ea. Passage Set	10U15
1 ea. Door Stop	409 or 443 as required
3 ea. Silencers	608

3.8.19 Group K

Restrooms, Passage Door in Office Area

3 ea. Hinges	BB1279 X 4.5 X 4.5
1 ea. Push Plate	70 C 4 X 16 X 32D
1 ea. Door Pull	107X 70 C 4 X 16 X 32D
1 ea. Closer	1431 UO TB
1 ea. Kick Plate	K1062 8 X 34, US32D
1 ea. Door Stop	409 or 443 as required
3 ea. Silencers	608

3.8.20 Group L-1

Vertical Lift Dock Doors

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2 ea. Padlocks (1 Daylock, 1 Nightlock)758C-4

3.8.21 Group L-2

Roof Hatch, Equipment Cages, Trash Compactor

1 ea. Padlock 758C-4

3.8.22 Group L-3

Vertical Lift DSD Doors**

2 ea. Padlocks (1 Daylock, 1 Nightlock)758C-4

* In Florida provide the following for exterior mounted DSD door: cylinder lock at bottom rail of both jambs – operable from interior and exterior side of door.

3.8.23 Group M

Roof Top Equipment Rooms

3 ea. Hinges 1270 X 4.5 X 4.5 X USP X NRP

1 ea. Deadlock 484 X 26

1 ea. Doorpull 8102-6S 32D

1 ea. Stop & H.O. GJ9OM X 26D

3.8.24 Group N

Front Doors, Exterior Cafe Doors (Storefront)

Use standard mortise or rim set cylinders supplied with store front doors as construction temporaries. Permanent cylinders furnished & installed by Publix. All other hardware by door manufacturer.

3.8.25 Group P

Pharmacy Rolling Grille

Prepare for Schlage Mortise Cylinder, Cylinder furnished and installed by Publix.

3.8.26 Group Q

Return Air Chase Access Doors by Milcor or Nystrom

Prepare for Schlage Mortise Cylinder, Cylinder furnished and installed by Publix.

3.8.27 Group R

Exterior Storage or Mechanical Rooms

6 ea. Hinges BB 1191 or TA2314 4.5 x 4.5 NRP x USP

1 ea. Lockset 10G04 LL *

1 ea. Surface Bolts 988

2 ea. Overhead Holder 598H

1 set Weatherstrip S88D LAR

1 ea. Threshold 2005 AS LAR

2 ea. Meeting Stile Astragal 303 AS

* In Florida provide the following: 1 EA Storeroom Deadbolt Lock 8251 LNP

3.8.28 Group S

Lockset, can be disabled from inside, with Closer: Doors from Clinical Room or

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Office to Interior of Pharmacy

3 ea. Hinges	BB1279 X 4.5 X 4.5
1 ea. Entrance Lockset	Simplex L1000 Pushbutton Model L102X
1 ea. Closer	1431 UO TB
1 ea. Door Stop	409 or 443 as required
3 ea. Silencers	608

3.8.29 Group T

Restrooms with Wall Partitions (where applicable)

3 ea. Hinges	TA2714 4.5 X 4.5 NRP X USP
1 ea. Deadbolt	B571 626
2 ea. Push Plate	70A CFTT 5 ½ CTC US32D
1 ea. Closer	1431 UO TB (ADA Stall Only)
1 ea. Back to Back Door Pull	105BTB5-RKW Back to Back Mtg US32D
1 ea. Door Stop	1513 CP

3.8.30 Group U

Store front Door to the Exterior.

The Following items are to be included with the door and provided by the Store front door provider:

1 ea. Door Closer	
1 ea. Push Bar	
1 ea. Paddle Opener	4590-02-01-628
1 ea. Lock Assembly	MS +1891-3015-628

3.8.31 Group V

Exit Access Door (Panic Bar), with Alarm and Closer Electrical room to the Exterior.

4 each Hinges	T4A3386 (5" x 4 ½") 32D x NRP
1 each Alarmed Exit Device	FV40 EA 628
1 each Closer	1431 CPS TB EN
1 each Gasketing	S88D
1 each Threshold	2005AT x LAR AL

End of Section 08 71 00

Section 08 80 00

Glazing

1. General

- 1.1. Related Documents: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- 1.2. Summary:

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- 1.2.1 This Section includes glazing for the following products, including those specified in other Sections where glazing requirements are specified by reference to this Section:
 - 1.2.1.1 Entrances and other doors.
 - 1.2.1.2 Storefront construction.
- 1.2.2 Related Sections: The following sections contain requirements that relate to this Section. Division 8 Section "Mirrored Glass" for mirrored glass and glazing requirements.
- 1.3. Definitions:
 - 1.3.1 Manufacturer is used in this Section to refer to a firm that produces primary glass or fabricated glass as defined in the referenced glazing standard.
 - 1.3.2 Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's directions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.
- 1.4. System Performance Requirements:
 - 1.4.1 General: Provide glazing systems that are produced, fabricated, and installed to withstand normal thermal movement, wind loading, and impact loading (where applicable), without failure including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; and other defects in construction.
 - 1.4.2 Glass Design: Glass thicknesses indicated on Drawings are for detailing only. Confirm glass thicknesses by analyzing Project wind loads and in-service conditions. Provide glass lites for the various size openings in the thicknesses and strengths (annealed or heat-treated) to meet or exceed the following criteria:
 - 1.4.2.1 Minimum glass thickness, nominally, of lites in exterior walls is 1/4".
 - 1.4.2.2 Tinted and heat-absorbing glass thicknesses for each tint indicated are the same throughout Project.
 - 1.4.2.3 Air Infiltration: Completed storefront systems shall have 0.02 CFM maximum allowable infiltration when tested in accordance with ASTM E 283 at differential static pressure of 6.24 psf (50 mph).
 - 1.4.2.4 Water Infiltration: No uncontrolled water other than condensation on indoor face of any component when tested in accordance with ASTM E 331 at test pressure differential of 10 psf. Water test to be performed immediately after design pressure test.
 - 1.4.2.5 Wind Loads: completed storefront system withstand wind pressure loads normal to exterior wall plane indicated:
 - 1.4.2.5.1 Positive Pressure: 68 psf, or as required per region for building construction.
 - 1.4.2.5.2 Negative Pressure: 86 psf, or as required per region for building construction.
 - 1.4.3 Deflection: Maximum allowable deflection in any member when tested in accordance with ASTM E 330 with allowable stress in accordance with AA

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Specifications for Aluminum Structures. Deflection for load carrying members not to exceed L/180.

- 1.4.4 Thermal Movement: Provide for thermal movement caused by 180 degrees F (82.2 degrees C) surface temperature, without causing loads on fasteners, reduction of performance, or detrimental effects.

1.5. Submittals:

- 1.5.1 Product data for each glass product and glazing material indicated.
- 1.5.2 Samples for verification purposes of 12-inch (300 mm) square samples of each type of glass indicated except for clear monolithic glass products, and 12-inch (300 mm) long samples of each color required (except black) for each type of sealant or gasket exposed to view. Install sealant or gasket sample between two strips of material representative in color of the adjoining framing system.
- 1.5.3 Product certificates signed by glazing materials manufacturers certifying that their products comply with specified requirements. Separate certifications are not required for glazing materials bearing manufacturer's permanent labels designating type and thickness of glass, provided labels represent a quality control program of a recognized certification agency or independent testing agency acceptable to authorities having jurisdiction.
- 1.5.4 Compatibility and adhesion test reports from sealant manufacturer indicating that glazing materials were tested for compatibility and adhesion with glazing sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed for adhesion.
- 1.5.5 Product test reports for each type of glazing sealant and gasket indicated, evidencing compliance with requirements specified.
- 1.5.6 Maintenance data for glass and other glazing materials to include in Operating and Maintenance Manual specified in Division 1.

1.6. Quality Assurance:

- 1.6.1 Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, except where more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - 1.6.1.1 FGMA Publications: "FGMA Glazing Manual"
 - 1.6.1.2 LSGA Publications: "LSGA Design Guide"
 - 1.6.1.3 SIGMA Publications: TM-3000 "Vertical Glazing Guidelines"
- 1.6.2 Safety Glass: Products complying with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for Category II materials. Subject to compliance with requirements, provide safety glass permanently marked with certification label of Safety Glazing Certification Council (SGCC) or other certification agency acceptable to authorities having jurisdiction.
- 1.6.3 Glazier Qualifications: Engage an experienced glazier who has completed glazing similar in material, design, and extent to that indicated for Project with a record of successful in-service performance.
- 1.6.4 Single-Source Responsibility for Glass: Obtain glass from one source for each product indicated below:

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- 1.6.4.1 Primary glass of each (ASTM C 1036) type and class indicated.
- 1.6.4.2 Heat-treated glass of each (ASTM C 1048) condition indicated.
- 1.6.5 Single-Source Responsibility for Glazing Accessories: Obtain glazing accessories from one source for each product and installation method indicated.
- 1.6.6 Preconstruction Compatibility and Adhesion Testing: Submit to sealant manufacturers, samples of each glass, gasket, glazing accessory, and glass-framing member that will contact or affect glazing sealants for compatibility and adhesion testing as indicated below:
 - 1.6.6.1 Use test methods standard with sealant manufacturer to determine if priming and other specific preparation techniques are required for rapid, optimum glazing sealants adhesion to glass and glazing channel substrates.
- 1.7. Delivery, Storage, And Handling: Protect glazing materials to comply with manufacturer's directions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
 - 1.7.1 Where insulating glass units will be exposed to substantial altitude changes, comply with insulating glass fabricator's recommendations for venting and sealing to avoid hermetic seal ruptures.
- 1.8. Project Environmental Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing materials manufacturer or when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 - 1.8.1 Install liquid sealants at ambient and substrate temperatures above 40 deg F (4 deg C).
- 1.9. Warranty:
 - 1.9.1 General: Warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.
 - 1.9.2 Manufacturer's Warranty on Laminated Glass: Submit written warranty signed by insulating glass manufacturer agreeing to furnish replacements for those laminated glass units that deteriorate as defined in the "Definitions" article, f.o.b. point of manufacture, freight allowed Project site, within specified warranty period indicated below. Warranty covers only deterioration due to normal conditions of use and not to handling, installing, and cleaning practices contrary to glass manufacturer's published instructions.
 - 1.9.2.1 Warranty Period: Manufacturer's standard but not less than 5 years after date of Substantial Completion.

2. Products

- 2.1. Manufacturers: Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the products specified in Product Data Sheets at end of this Section.
- 2.2. Elastomeric Glazing Sealants:
 - 2.2.1 General: Provide products of type indicated, complying with the following requirements:

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- 2.2.1.1 Compatibility: Select glazing sealants and tapes of proven compatibility with other materials they will contact, including glass products, seals of insulating glass units, and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.
- 2.2.1.2 Suitability: Comply with sealant and glass manufacturer's recommendations for selecting glazing sealants and tapes that are suitable for applications indicated and conditions existing at time of installation.
- 2.2.1.3 Colors: Provide color of exposed joint sealants to comply with the following: Provide selections made by Architect from manufacturer's full range of standard colors for products of type indicated.
- 2.2.2 Elastomeric Glazing Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with ASTM C 920 requirements indicated on each Elastomeric Glazing Sealant Product Data Sheet at the end of this Section, including those referencing ASTM classifications for Type, Grade, Class and Uses.
 - 2.2.2.1 Additional Movement Capability: Where additional movement capability is specified in Elastomeric Glazing Sealant Product Data Sheet, provide products, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, with the capability to withstand the specified percentage change in the joint width existing at time of installation and remain in compliance with other requirements of ASTM C 920 for uses indicated.
- 2.3. Glazing Gaskets:
 - 2.3.1 Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames with molded corner units and zipper lock strips, complying with ASTM C 542, black.
 - 2.3.2 Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:
 - Neoprene, ASTM C 864,
 - EPDM, ASTM C 864,
 - Silicone, ASTM C 1115,
 - Thermoplastic polyolefin rubber, ASTM C 1115,
 - Any material indicated above.
 - 2.3.3 Soft Compression Gaskets: Extruded or molded closed-cell, integral-skinned gaskets of material indicated below, complying with ASTM C 509, Type II, black, and of profile and hardness required to maintain watertight seal:
 - Neoprene,
 - EPDM,
 - Silicone,
 - Thermoplastic polyolefin rubber,
 - Any material indicated above.
 - 2.3.4 Manufacturers: Subject to compliance with requirements, provide products by one of the following companies.

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- 2.3.4.1 Lock-Strip Gaskets:
 - Stanlock Div., Griffith Rubber Mills.
- 2.3.4.2 Preformed Gaskets:
 - Advanced Elastomer Systems, L.P.
 - Schnee-Morehead, Inc.
 - Tremco, Inc.
- 2.4. Miscellaneous Glazing Materials:
 - 2.4.1 General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials involved for glazing application indicated, and with a proven record of compatibility with surfaces contacted in installation.
 - 2.4.2 Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
 - 2.4.3 Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85 plus or minus 5.
 - 2.4.4 Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
 - 2.4.5 Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side- walking).
 - 2.4.6 Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonstaining, nonextruding, nonoutgassing, strips of closed-cell plastic foam of density, size, and shape to control sealant depth and otherwise contribute to produce optimum sealant performance.
 - 2.4.7 Perimeter Insulation for Fire-Resistive Glazing: Identical to product used in test assembly to obtain fire-resistive rating.
- 2.5. Fabrication of Glass and Other Glazing Products:
 - 2.5.1 Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.
 - 2.5.2 Clean cut or flat grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with indoor and outdoor faces.
- 3. Execution**
 - 3.1. Examination:
 - 3.1.1 Examine glass framing, with glazier present, for compliance with the following:
 - 3.1.1.1 Manufacturing and installation tolerances, including those for size, squareness, offsets at corners.
 - 3.1.1.2 Presence and functioning of weep system.
 - 3.1.1.3 Minimum required face or edge clearances.

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- 3.1.1.4 Effective sealing between joints of glass-framing members.
- 3.1.2 Do not proceed with glazing until unsatisfactory conditions have been corrected.
- 3.2. Preparation: Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that are not firmly bonded to substrates.
- 3.3. Glazing, General:
 - 3.3.1 Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, except where more stringent requirements are indicated, including those in referenced glazing publications.
 - 3.3.2 Glazing channel dimensions as indicated on Drawings provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
 - 3.3.3 Protect glass from edge damage during handling and installation as follows:
 - 3.3.3.1 Use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass lites with flares or bevels on bottom horizontal edges so edges are located at top of opening, unless otherwise indicated by manufacturer's label.
 - 3.3.3.2 Remove damaged glass from Project site and legally dispose of off site. Damaged glass is glass with edge damage or other imperfections that, when installed, weaken glass and impair performance and appearance.
 - 3.3.4 Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
 - 3.3.5 Install elastomeric setting blocks in sill rabbets, sized and located to comply with referenced glazing standard, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
 - 3.3.6 Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
 - 3.3.7 Provide spacers for glass sizes larger than 50 united inches (1250 mm) (length plus height) as follows:
 - 3.3.7.1 Locate spacers inside, outside, and directly opposite each other. Install correct size and spacing to preserve required face clearances, except where gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and comply with system performance requirements.
 - 3.3.7.2 Provide 1/8-inch (3 mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
 - 3.3.8 Provide edge blocking to comply with requirements of referenced glazing publications, unless otherwise required by glass manufacturer.
 - 3.3.9 Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
 - 3.3.10 Where wedge-shaped gaskets are driven into one side of channel to pressurize

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sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

- 3.3.11 Square cut wedge-shaped gaskets at corners and install gaskets in manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4. Tape Glazing:

- 3.4.1 Position tapes on fixed stops so that when compressed by glass their exposed edges are flush with or protrude slightly above sightline of stops.
- 3.4.2 Install tapes continuously but not in one continuous length. Do not stretch tapes to make them fit opening.
- 3.4.3 Where framing joints are vertical, cover these joints by applying tapes to heads and sills first and then to jambs. Where framing joints are horizontal, cover these joints by applying tapes to jambs and then to heads and sills.
- 3.4.4 Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- 3.4.5 Do not remove release paper from tape until just before each lite is installed.
- 3.4.6 Apply heel bead of elastomeric sealant.
- 3.4.7 Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- 3.4.8 Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5. Gasket Glazing (Dry):

- 3.5.1 Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with stretch allowance during installation.
- 3.5.2 Secure compression gaskets in place with joints located at corners to compress gaskets producing a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- 3.5.3 Install gaskets so they protrude past face of glazing stops.

3.6. Sealant Glazing (Wet):

- 3.6.1 Install continuous spacers between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel weep systems until sealants cure. Secure spacers in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- 3.6.2 Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- 3.6.3 Tool exposed surfaces of sealants to provide a substantial wash away from glass. Install pressurized gaskets to protrude slightly out of channel to eliminate dirt and moisture pockets.

3.7. Lock-strip Gasket Glazing: Comply with ASTM C 716 and gasket manufacturer's

printed recommendations. Provide supplementary wet seal and weep system unless otherwise indicated.

3.8. Protection and Cleaning:

- 3.8.1 Protect exterior glass from breakage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
- 3.8.2 Protect glass from contact with contaminating substances resulting from construction operations including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.
- 3.8.3 Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scum, alkali deposits, or stains, and remove as recommended by glass manufacturer.
- 3.8.4 Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents and vandalism, during construction period.
- 3.8.5 Wash glass on both faces in each area of Project not more than 4 days prior to date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

End of Section 08 80 00

Section 09 24 00

**Portland Cement Plastering
V01062015**

1. General

- 1.1. Submittals: Submit LOI in accordance with Section 01 33 00 Submittal Procedures.

2. Products

2.1. Metal Lath and Accessories:

- 2.1.1 Lath: Self furring, expanded diamond mesh copper alloy steel, at 3.4 pounds per square yard, galvanized.
- 2.1.2 Channels: Cold rolled steel 1/2", 3/4" and 1-1/2" channels.
- 2.1.3 Expansion Joints: No. 15 expansion joints, zinc plated steel with 5/8" grounds.
- 2.1.4 Hanging Wires: Minimum #8 gauge for 1 1/2" channels and #16 gauge for tying 3/4" channels, all galvanized, annealed steel wire. However, when suspending more than four (4) foot drop, use 3/16" pencil rods for hanging. hangers at maximum 4'0" o.c. for hanging 1 1/2" channels.

- 2.2. Vent Screed: Aluminum or zinc plated steel, factory fabricated to lines and radius required, with 7/8" grounds.

2.3. Plastering Materials:

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- 2.3.1 Portland Cement: ASTM C-150, Type I, produced by approved manufacturer.
- 2.3.2 Lime: ASTM C206, Type S, pressure hydrated dolomitic lime, not less than 92% hydration.
- 2.3.3 Aggregate: ASTM C35 plastering sand.
- 2.3.4 Water: Clean, fresh, potable.
- 2.4. Sealer: Bonsal sealer or other as approved by Publix Architect.
- 2.5. Finish Coat: Use plaster designed to receive exterior latex paint. Texture as indicated by the facade elevations.
 - 2.5.1 Approved Manufacturers:
 - Dryvit
 - Sto
 - Finestone

3. Execution

- 3.1. Types of Applications:
 - 3.1.1 PC Plaster on exterior masonry shall be two coat work, thickness as shown on drawings, or if not shown, finish to 1/2" thickness, consisting of a combination scratch and brown coat, and a finish coat.
 - 3.1.2 PC Plaster on metal lath shall be three coat work, thickness as shown on drawings, or if not shown 7/8" thickness, scratch coat, brown coat, and finish coat.
- 3.2. Mixing and Proportions (Parts by Volume):
 - 3.2.1 Scratch Coat:
 - One part portland cement
 - Three parts sand
 - One fourth part lime
 - 3.2.2 Brown Coat:
 - One part portland cement
 - Three parts sand
 - One fourth part lime
 - 3.2.3 Finish Coat: Manufacturer's recommended proportions
- 3.3. Application:
 - 3.3.1 Protect all finished surfaces from damage and droppings, thoroughly clean all items so damaged, and leave premises free from dirt and debris caused by the work.
 - 3.3.2 Cooperate with work of other trades. Reinforce hangers for light fixture installation.
 - 3.3.3 Install expansion joints in sidewalk ceiling at each column line. Install no corner beads on exterior.

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- 3.3.4 Where PC Plaster is applied over concrete masonry, clean surfaces before application.
- 3.3.5 Use grounds and temporary screeds to form clean straight lines with even thickness. Apply metal lath with long dimension across supports, rib lath with projections against supports.
- 3.3.6 Where PC Plaster abuts other materials, score PC Plaster to V-joint.
- 3.3.7 Sealer: use in accordance with manufacturer's directions on all exterior portland cement plaster brown coat.
- 3.4. Finish:
 - 3.4.1 Apply and cure finish coat to produce a smooth, level, sand finish, in accordance with manufacturer's recommendations.
 - 3.4.2 Tolerance: Finish within 1/8" tolerance in 10 feet.
 - 3.4.3 Cure finished plaster in accordance with manufacturer's instructions.

End of Section 09 24 00

Section 09 29 00

Gypsum Board V06302020

1. General

- 1.1. Submit LOIs in accordance with Section 01 33 00 Submittal Procedures.

2. Products

- 2.1. Manufacturer: All materials shall be products of one manufacturer, excluding cementitious backer board when necessary.
- 2.2. Materials:
 - 2.2.1 All board types shall be 5/8" thickness, unless indicated otherwise.
 - 2.2.2 Coordinate placement of gypsum board types with room finish schedule and wall type designations.
 - 2.2.3 Drywall:
 - 2.2.3.1 Fire Retardant Drywall: ASTM C36, Type X.
 - 2.2.3.2 Moisture resistant dry wall ASTM D 3273. Below 4'-0" in sales floor area, behind refrigerated cases behind FRP (Fiber Reinforced panels).
 - 2.2.3.3 Manufacturers:
 - Georgia-Pacific Corp.
 - National Gypsum Co.
 - Temple-Inland Forest Products Corp.
 - US Gypsum Co.
 - 2.2.4 Cementitious Tile Backer Board: ASTM C 1178. Use in all areas that receive wall tile.
 - 2.2.5 Manufacturers:

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US Gypsum Co., DUROCK Cement Board
James Hardie Co., HARDIBACKER 500
Custom Building Products, Wonderboard
National Gypsum Co., PermaBase Cement Board

2.2.6 Accessories:

2.2.6.1 Joint Reinforcing Tape shall be perforated or sparked. Joint compound shall be ready mixed.

2.2.6.2 Corner Beads, Casing Beads and Trim shall be galvanized steel.

2.2.7 Drywall Ceiling Suspension System: Provide pre-engineered system consisting of cold-rolled steel members conforming to ASTM C635. Provide fire-rated assemblies when applicable.

2.2.7.1 Products:

“Drywall Suspension System”, USG

“Drywall Grid System”, Armstrong

“Drywall Grid System 640/660”, Chicago Metallic

2.2.8 Steel Studs:

2.2.8.1 Galvanized screwable channel type studs of specified size, complying with ASTM C645, 20 gauge minimum (33 mil), at all interior locations.

2.2.8.2 Manufacturer:

Marino\Ware-Div.Ware Industries

Dietrich Industries

Clark Steel Framing Systems

Telling Industries

Allsteel & Gypsum Products

Steel Con

2.2.8.3 Form from steel ASTM A653, Grade A, with a minimum yield of 33,000 psi.

2.2.9 Drywall Screws: ASTM C645.

2.3. Backing for drywall at outside curve applications: A-C INT-APA with exterior glue, 1/8” thickness.

3. Execution

3.1. Ceiling

3.1.1 Install wall track level at specified ceiling height around entire perimeter.

3.1.2 Furring runners shall be directly suspended and leveled on 48” centers by not less than 12 gauge galvanized steel wire spaced not more than 48” on center along the main runner. (for special module sizes follow same procedures with on center spacing of runners adjusted to tee width.)

3.1.3 Furring tees shall be spaced 16” on center along the main runners.

3.1.4 Fit furring runner and tee ends into the wall track at all perimeters.

3.1.5 Drywall panels shall be screw attached at 8” intervals to all furring runners, tees,

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and wall track with the long dimension paralleling the furring runners in all possible instances. Deflection of components not to exceed 1/360 of the span.

- 3.1.6 In areas where fixtures or other accessories are placed in or on the grid components, 12 gauge hanger wires are to be suspended at each corner of the fixture or accessory to distribute the load evenly.

3.2. Walls

- 3.2.1 Steel Studs: 16" on center.
- 3.2.2 Panels shall be screwed to steel studs with bugle head dry wall screws of length as recommended by manufacturer.
- 3.2.3 Where applicable, insulate walls around Meat Cutting, Packaging Room, Employee Lounge, Manager's Office, Rest Rooms and as indicated on Drawings with 3 1-2" batt insulation.
- 3.2.4 Axially loaded studs shall be installed in a manner which will assure that ends of the studs are positioned against the inside track web, prior to stud and track attachment.
- 3.2.5 Studs shall be plumbed, aligned and securely attached to the flanges or webs of both upper and lower tracks.
- 3.2.6 Jack studs or cripples shall be installed above window and door heads, at free standing stair rails, and elsewhere to furnish support, and shall be securely attached to supporting members.
- 3.2.7 Wall stud bridging shall be attached in a manner to prevent stud rotation. Bridging rows shall be spaced according to the following schedule: walls up to 10' 0" height: one row at mid-height; walls exceeding 10'-0": bridging rows spaced not to exceed 5'-0" on-center.
- 3.2.8 Provide 7/8" 20 gauge galvanized steel drywall furring channels vertically at 16" o.c. for all paneled walls on masonry and others as required.
- 3.2.9 For all walls that surround floors that will receive portland cement terrazzo, leave out the first 4 feet of gypsum board (from finish floor) until terrazzo installation is complete.

3.3. Walls and Ceilings

- 3.3.1 Steel stud framing components may be pre-assembled into panels prior to erecting. Prefabricated panels shall be square with components attached in a manner as to prevent racking.
- 3.3.2 All framing components shall be set squarely for attachment to perpendicular members, or as required for an angular fit against abutting members. Members shall be held positively in place until properly fastened.
- 3.3.3 A uniformly thin layer of joint compound shall be applied over joints to a width of approximately 4" wide. Center tape over joint and imbed into compound leaving sufficient joint compound under tape to provide proper bond. Ceiling and wall angles and inside corner angles shall be reinforced with tape folded to conform to the angle and imbedded in the compound.
- 3.3.4 Sand between coats.
- 3.3.5 After compound is thoroughly dry, the tape shall be covered with another coat of joint compound spread over the tape and 3" each side of tape, and feathered out

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at edge. After thoroughly dry, apply another coat with slight, uniform crown over the joint. this coat shall be smooth with edges feathered approximately 3" beyond preceding coat.

- 3.3.6 Coat corners, and nail or screw heads additionally as per manufacturers specifications.
- 3.3.7 Install J-mold at ceiling and wall juncture where required.
- 3.3.8 Entire areas shall be installed neatly and ready to receive finish as scheduled. All studs shall have drywall to the top of the plate for fire and rodent protection.
- 3.3.9 Prior to installation, provide representative sample of "Knock-down" finish to the Publix Construction Representative.
- 3.3.10 Control Joints: In ceiling, install expandable control joints as recommended by manufacturer, at maximum 40' on center.
- 3.4. Moisture Resistant Gypsum Board:
 - 3.4.1 Use at locations indicated in the room finish schedule.
 - 3.4.2 Use behind all refrigerated cases to a height of 4'-01/2". start at 1/2" above finished floor.
 - 3.4.3 Install adjacent to all walk-in coolers and freezers. Height: above the top of the unit.
 - 3.4.4 Use at other locations as required.
- 3.5. Curved Suspended Walls:
 - 3.5.1 Outside curves 10'-0" radius or less: Form curve with metal studs 8" oc beginning 2'-0" into straight portion of wall. Thoroughly soak and apply two layers 1/8" plywood to metal studs allowing first layer to dry before application of second. Apply 1/4" drywall to plywood substrate with drywall adhesive, long dimension horizontal. Wet drywall as necessary to obtain smooth curve with no flats.
 - 3.5.2 Outside curves radius greater than 10'-0": Form curve with metal studs 8" oc beginning 2'-0" into straight portion of wall. Apply 1/2" drywall to metal studs with drywall adhesive, long dimension horizontal. Wet drywall as necessary to obtain smooth curve with no flats.
 - 3.5.3 Inside curves radius greater than 10'-0": Form curve with metal studs 1'-0" oc beginning 2'-0" into straight portion of wall. Apply 1/2" drywall to metal studs with drywall adhesive, long dimension horizontal. Wet drywall as necessary to obtain smooth curve with no flats.

End of Section 09 29 00

Section 09 30 00

Tiling V12012020

1. General

- 1.1. This Section also contains information normally found in Section 04 40 00 Stone Assemblies pertaining to marble and granite sills.

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- 1.2. Submittals:
 - 1.2.1 Submit LOI in accordance with Section 01 33 00 Submittal Procedures.
 - 1.2.2 Product Literature for all items selected in LOI are required with Submission.
- 1.3. Warranties: All tile work shall be guaranteed for workmanship for a period of two (2) years. Any work found to be defective during that time shall be replaced at no cost to the Owner.

2. Products

- 2.1. Ceramic Tile Walls and Wainscots: Manufacturer, series, finish, color, and size as indicated on interior finish elevations.
 - 2.1.1 For Sienna environmental package **ONLY**: Supplemental tile patterns are available at <http://corporate.publix.com/business/design-and-construction>
 - 2.1.2 For Evergreen environmental package; Tile patterns are within the construction drawings.
 - 2.1.3 Ceramic Tile Setting and Grouting Compounds: Select either Laticrete or Mapei or Custom Products for all applications (use of the three approved products as a combination is not allowed)
 - 2.1.4 Laticrete Products:
 - 2.1.4.1 Laticrete 4XLT Mortar (Adhesive for Wall larger tile)
 - 2.1.4.2 Laticrete 252 Silver Thinset (Adhesive for Wall nominal tile)
 - 2.1.4.3 Laticrete Permacolor Series Grout (Walls)
 - 2.1.5 Mapei Products
 - 2.1.5.1 Ultraflex LFT Adhesive (for all walls tiles)
 - 2.1.5.2 Ultracolor Plus FA (Walls)
 - 2.1.6 Custom Products
 - 2.1.6.1 VersaBond Thinset Adhesive (Quarry Tile Floors)
 - 2.1.6.2 CEG-IG Grout (Quarry Tile Floors) **NO SUBSTITUTIONS**
 - 2.1.6.2.1 Custom products representative shall be present during installation and submit an observation report to Publix
 - 2.1.6.3 ProLite LFT Adhesive (for all wall tiles)
 - 2.1.6.4 Prisma Ultimate Performance Grout (Walls)
 - 2.1.7 Grout Colors: See Tile Pattern Book.
- 2.2. Grout Release Agent: Aqua Mix Grout Release, Aqua Mix
- 2.3. Sealants: One or two part urethane. Use type designed for application intended, color as selected by Architect.
- 2.4. Where the floor slab is elevated above ground select from the following waterproof membrane products:
 - 2.4.1 Laticrete Product:
 - 2.4.1.1 Laticrete Hydro Barrier

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2.4.2 Mapei Products:

2.4.2.1 Mapelastic Aquadefense

2.4.2.2 Mapelastic 315

2.4.3 Custom Product:

2.4.3.1 RedGard Waterproofing Membrane

2.5. Mop Sink Grout:

2.5.1 Key Resin Company

2.5.1.1 Novolac Key Resin #630

3. Execution

- 3.1. General: All applicators and field personnel shall be fully trained and familiar with manufacturers' application procedures.
- 3.2. After installation of all the application below the contractor shall clean all surfaces with STONETECH KLENZALL by Laticrete or ULTRA CARE by Mapei, Aqua Mix CONCENTRATED STONE and TILE CLEANER by Custom Building Products Apply Heavy Duty application and follow all manufacturer's instruction.
- 3.3. Quarry Tile and Base:
 - 3.3.1 Lay tile in a straight joint pattern, each direction, with a 1/4" joint. Align floor and base joints. See room finish schedule and finish elevations for locations of quarry tile base.
 - 3.3.2 Apply grout release agent per manufacturer's instructions prior to installing grout.
 - 3.3.3 Grout shall be level with the surface of the tile, with no sharp edges of the tile showing.
 - 3.3.4 Cut quarry tile as required to provide a 1/4" control joint directly above slab construction joints. Prime sides of joint width. Seal control joint with polyurethane sealant to 1/4" depth, backed with closed-cell foam.
 - 3.3.5 Slope all tile to drains, as shown on Drawings. Set all tile flush with tops of floor drains and adjacent finished floors.
 - 3.3.6 Tile should be Water-Tested and approved by Publix for positive drainage after installation.
 - 3.3.7 Ensure that base has a solid grout bed where it makes contact with the wall, and that there are no void areas behind tile and at transition with floor.
- 3.4. Marble or Granite Sills
 - 3.4.1 Set by experienced granite craftsmen who have a minimum of three (3) years experience in the trade, and in accordance with the Marble Institute of America (M.I.A.) Installation Procedures Manual.
 - 3.4.2 Seal Joints with appropriate sealant.
 - 3.4.3 Coordinate and cooperate with store front sash installer.
- 3.5. Ceramic Wall Tile on Masonry Substrate
 - 3.5.1 Thin-set with mortar and un-sanded grout, both in accordance with

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manufacturer's specifications and recommendations.

- 3.5.2 Set flush with adjacent base; lay in a straight joint pattern each direction, with a joint width of 1/16" or as established by manufacturer's sheet.
- 3.5.3 Grout shall be level with the surface of the tile, with no sharp edges of the tile showing.
- 3.6. Ceramic Tile on Backer Board
 - 3.6.1 Set tile on backer board with mortar, grout with unsanded cement grout, both in accordance with manufacturer's specifications and recommendations.
 - 3.6.2 For backer board, refer to gypsum board specifications 09 29 00.
 - 3.6.3 Set flush with adjacent base; lay in a straight joint pattern each direction, with a joint width of 1/16" or as established by manufacturer's tile sheet.
 - 3.6.4 Grout shall be level with the surface of the tile, with no sharp edges of the tile showing.
- 3.7. Exterior Ceramic Tile: If this project is to receive exterior tile set on a vertical surface (see Contract Documents by others for store Facade), the tile, setting method, pattern, and grout shall be approved in writing by Publix' Architect.

End Of Section 09 30 00

Section 09 50 00

Ceilings V05142021

1. General

- 1.1. Submit LOI in accordance with Section 01 33 00 Submittal Procedures. No product samples or cut sheets will be required.
- 1.2. Custom Colors: Where custom colors of ceiling panels are specified, it is assumed that the quantity required for use will exceed the amount of material needed for a stock run by panel manufacturer. If this condition is not met, and there is an up-charge for custom colors, notify Publix Architect.

2. Products

- 2.1. Suspension Systems:
 - 2.1.1 Where ceiling panels are used: 15/16" exposed double-web tee conforming to ASTM C635 Intermediate-Duty classification standards. Cross-tees shall also comply with Intermediate-Duty (12 lb/lf) standards, and shall have stab-type stepped (i.e. overriding) ends.
 - 2.1.2 Wall molding shall be angle with 7/8" legs. System color shall be flat white.
 - 2.1.3 Acceptable Systems:
 - Armstrong Prelude 15/16" exposed tee system, stab-end cross tees.
 - Chicago Metallic Corp. "1260 Aluminum cap 15/16" stab-end cross tees.
 - USG Interiors, Inc. Donn DXLA aluminum stab-end cross tees.

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2.2. Grid System: Ceiling tile/open-cell sub-system (REMODELS ONLY):

- 2.2.1 Sub-system description: 6' x 6' composed of main tees and cross tees described above.
- 2.2.2 All subsystem components are a part of the Contract with the exception of the drop-on T-rail which supports the perimeter of each 6' x 6' sub-system.
- 2.2.3 Tee Grid for ceiling tiles and mesh panels within 6'x6' panels: As above, Color: White.
- 2.2.4 Ceiling tiles: Vinyl faced gypsum panels as described below.
- 2.2.5 Edge Trim: 8" high x 9/16" legs, with connectors for grid system capable of receiving intersecting tees at any angle, and splice plates to form flush butt joints where edge trim ends meet. Splice plates shall provide tight friction fit or be secured with set screws. Paint all surfaces custom color as selected by Publix Architect.
- 2.2.6 Acceptable Systems:
 - Compasso System, USG Interiors
 - Axiom Classic System, Armstrong
 - Suspended Perimeter Trim System, Chicago Metallic
 - Contura, Gordon Architectural Aluminum Specialties, Inc.

2.3. Acoustical Tile

- 2.3.1 Acoustical Tile (Sales Area) shall be either 24" x 24" x 5/8" or 24" x 48" x 5/8" (per drawings), square cut edge, white color in one of the following products:
 - Armstrong Fine Fissured RH90
 - Certainteed Hytone Vantage 10
 - U.S.G.Interiors, Inc. Radar
- 2.3.2 Vinyl-Faced Gypsum Panels (Food Preparation Areas - Bakery, Deli, and Meat including associated storage and sculleries) 24"x 24"x 1/2" or 24"x 48"x 1/2" (per drawings) with 2-mil stipple-pattern embossed white vinyl laminated to one side, surface burning characteristics - Class A, as follows:
 - Armstrong Clean Room VL
 - Capaul Corp. Vinylrock Gypsum Ceiling Panels
 - Certainteed Vinyltone Gypsum Protectone
 - Gold Bond Building Products Gridstone
 - USG Sheetrock® Lay-In Gypsum Ceiling Panel with ClimaPlus™

2.4. Acoustic Insulation: The entire area above the ceiling in the Manager's Office, and the public and employees' Rest Rooms shall be insulated with 6" glass fiber insulation.

2.5. Openwork Systems, Utility Grid, and Finishing:

- 2.5.1 Shop Fabrication, General:
 - 2.5.1.1 Perform shop fabrication to the greatest extent possible.
 - 2.5.1.2 Design of systems shall allow all welding operations to be completed in the fabrication shop.
 - 2.5.1.3 Design of systems shall allow installation of utility runs in a manner which provides a neat, finished appearance.
- 2.5.2 Shop Painting:

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- 2.5.2.1 Apply manufacturer's standard baked-on enamel to all surfaces, custom color as selected by Publix Architect.
- 2.5.2.2 Coat all accessories such as splice plates, etc. to match edge trim color.
- 2.5.2.3 Wrap or pack all painted items to protect them from scratching or other damage during shipment. Provide temporary protection for painted surfaces (i.e. peel-off film) to be removed only after all work adjacent to trim is in place.

3. Execution

3.1. Suspension System

- 3.1.1 The exposed grid system shall be installed in accordance with ASTM C636. Deflection of any component shall not exceed 1/360 of the span. Suspension systems shall be installed level and square by methods according to manufacturer's specification and firmly braced to hold position and to carry weight of fixtures. Refer to Drawings.
- 3.1.2 Perimeter angle molding shall be installed at the specified ceiling height at the intersection of the suspended ceiling and all vertical surfaces.
- 3.1.3 Cooperate with other trades as required for fixture installation to see that proper support and spacing is obtained.
- 3.1.4 Provide two #10 safety wires per metal halide, fluorescent fixture and LEDs, attached to joists at proper location as coordinated with electrical contractor. (Electrical Contractor shall attach to fixture.)

3.2. Lay-In Panels

- 3.2.1 Acoustical tile shall be installed under temperature and humidity conditions closely approximating those which will exist when the building is occupied.
- 3.2.2 Application shall not begin until all roofing work has been completed and building completely enclosed.
- 3.2.3 All windows and doors shall be in place and glazed. Plastering and concrete work shall be completed and allowed to dry before the installation of acoustical tile.
- 3.2.4 Board shall be carefully fitted around diffusers and other ceiling outlets and fixtures. Cooperate with sprinkler, mechanical and electrical contractors to coordinate work.

3.3. Field Painting

- 3.3.1 Above the Openwork Grid, where color of panels is other than white, spray paint grid to match panel color before panels are installed. Use line of edge trim of the Openwork System to determine limits of painting.
- 3.3.2 In the area where white panels straddle the line of the Openwork System, paint area of panel inside the Openwork System to match factory-colored panels.

End of Section 09 50 00

Section 09 65 19

**Resilient Tile Flooring
V03172022**

1. General:

- 1.1. This Section also contains information normally found in Section 09 65 13 Resilient Base & Accessories.
- 1.2. Delivery, storage, and handling
 - 1.2.1 Store products in manufacturer's unopened packaging until ready for installation.
 - 1.2.2 Flooring material and adhesive shall be acclimated to the installation area for a minimum of 48 hours prior to installation.
 - 1.2.3 Store cartons of tile products flat and squarely on top of one another, not on edge.
- 1.3. Submittals: Submit LOI in accordance with Section 01 33 00 Submittal Procedures.

2. Products:

- 2.1. Luxury Vinyl Tile (LVT): Acceptable manufacturer Design flooring, which is located at: 1100 Pontiac Ct.; Export, PA 15632; ASD Toll Free Tel: 888-266-4343; Fax: 800-887-7043; Email: info@karndean.com; Web: www.karndean.com Manufacturer, series, and color as indicated on Drawings.
 - 2.1.1 Thickness: 3/32 inches (2.5 mm).
 - 2.1.2 Wear Layer: 20 mil (0.5 mm).
 - 2.1.3 Beveled Edge: Micro bevel.
 - 2.1.4 Compliance: ASTM F 1700.
 - 2.1.5 Classification: ASTM F 1700: Class 3 Type B.
 - 2.1.6 Reaction to Fire:
 - 2.1.6.1 ASTM E 648-06: Class 1.
 - 2.1.6.2 ASTM E 662-15a: Pass.
 - 2.1.7 Staining Resistance: ASTM F 925: Pass.
 - 2.1.8 Light Fastness: ASTM F 1515: Less than 8.
 - 2.1.9 Abrasion Resistance: ASTM 3884: Pass.
 - 2.1.10 Dimensional Stability: ASTM F 2199: Pass.
 - 2.1.11 Indentation, Residual: ASTM F 1914: Pass.
 - 2.1.12 Castor Chair Continuous Use: ASTM D 3884: Pass.
 - 2.1.12.1 ****NOTE TO SPECIFIER**** Suitable for underfloor heating.
 - 2.1.13 Thermal Conductivity: ISO 8302, 0.0120 m²K/W.
 - 2.1.14 Slip Resistance: ASTM D 2047: Pass (Dry 0.89).
 - 2.1.15 Item Number, Name: WP417 SYLVA.
- 2.2. Vinyl Treads and Risers: Roppe Tile. See drawings for color and series.

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2.3. Vinyl Base:

2.3.1 Walls: Provide 6" x 1/8" gauge, long toe wall base, with all outside corners preformed. Long toe should be at least 1".

2.3.2 Cabinet Base: Provide 4" x 1/8" gauge coved base, with all outside corners preformed.

2.3.3 Adhesive: manufacturer's wall base adhesive.

2.3.4 Acceptable Manufacturers:

Armstrong

Johnsonite

Roppe

2.4. Reducer strips: 4" vinyl straight base, color to match primary color of adjacent VCT.

2.5. Epoxy Adhesive: Armstrong S-230 two-part epoxy or equal as recommended by tile manufacturer and approved by Publix.

2.6. All other applications: Mapei G19 Low VOC Urethane or equal as recommended by tile manufacturer and approved by Publix.

2.7. Accessories and miscellaneous items: Provide all accessory items required for a complete installation.

3. Execution:

3.1. Pre-Installation:

3.1.1 Inspect substrate and environmental requirements/conditions in accordance with Manufacturers recommendations to determine satisfactory conditions. A satisfactory substrate surface is defined as one that is smooth and free from cracks, holes, ridges, coatings preventing adhesive bond, and other defects impairing performance or appearance.

3.1.2 Concrete substrates must be tested in accordance with ASTM F 2170 or ASTM F 1869. If the results exceed limits of the product or adhesive to be used a moisture mitigation system or damp-proof membrane must be installed to bring moisture levels within specifications.

3.1.3 Concrete substrates: The Contractor shall verify to Publix and installer a minimum of 30 days prior to the scheduled resilient flooring installation the following substrate conditions. All substrate testing shall be documented and submitted to the Architect and Owner before commencement of the flooring installation.

3.1.3.1 Verify that substrates are dry, free of debris, and that all surfaces have properly cured.

3.1.3.2 Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents..

3.1.3.3 Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.

3.1.3.4 Moisture Testing: Perform ASTM 1869 Calcium Chloride or ASTM 2170 In-Situ RH test and record results. Choose proper adhesive or moisture mitigation systems to meet manufacturers' specifications for moisture content. Proceed with installation only after substrates meet specifications.

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- 3.1.4 Do not proceed with resilient flooring work until substrate surfaces are satisfactory.
 - 3.1.5 All products shall be allowed to acclimate at least 24 hours before installation. This means product shall be placed in the same room as the install that is taking place and removed from its factory packaging
 - 3.1.6 Material shall be visually inspected prior to installation.
 - 3.1.7 Ensure that all recommendations for sub-floor and jobsite conditions are met prior to beginning the installation. Once the installation is started, Contractor and installer have accepted those conditions.
 - 3.1.8 Install in accordance with manufacturer's installation instructions for each product type and application specified
- 3.2. Layout and Installation
- 3.2.1 Position planks so the end seams are no closer than the width of the plank being installed. Maintain this approach to staggering the planks throughout the entire installation while keeping a random appearance.
 - 3.2.2 Center tiles or planks in rooms and hallways so borders are not less than half a tile or plank when possible.
 - 3.2.3 Cut edges shall always be installed against a wall.
 - 3.2.4 Install using tile and plank installation techniques recommended by manufacturer.
 - 3.2.5 Install tiles, planks, borders and design strips in locations and configurations indicated on the Drawings
- 3.3. Product Application
- 3.3.1 Install in accordance with adhesive recommendations on label or data sheet.
 - 3.3.2 Refer to manufacturer's literature for selection criteria for applicator, type.
 - 3.3.3 Apply adhesive in accordance with label on adhesive.
- 3.4. Cleaning
- 3.4.1 Wipe off any adhesive on floor as installation proceeds. Wait 48 hours before applying the cleaning and maintenance products.
 - 3.4.2 Prior to installation of permanent fixtures or furniture, remove all dirt, debris, or residual adhesive and clean the floor. If desired, a protective covering may be applied at this time. Specific products and instructions are available from the manufacturer.
- 3.5. Protection
- 3.5.1 General Contractor to protect installed products until completion of project.
 - 3.5.2 Touch-up, repair or replace damaged products before Substantial Completion.
- 3.6. Luxury Vinyl Tile: set with epoxy adhesive in restrooms (and where occurs in remodels, within 4'-0" of all refrigerated cases and coolers). Elsewhere use non-epoxy adhesive as specified. Alternate tile pattern direction.
- 3.7. Vinyl Base: Vinyl base in sales area is required only on exposed walls, i.e. on walls which do not have cases in front of them. Extend base one foot behind cases. Wall shelving requires base behind for full length. Use manufacturer's recommended adhesive.

End of Section 09 65 19

Section 09 66 13

**Portland Cement Terrazzo Flooring
V12202016**

1. General

- 1.1. Portland Cement Terrazzo shall be Priced as an assigned allowance. Please contact the project assigned Construction Manager to find the current allowance.
- 1.2. Applicators: Applications will be assigned by Publix Construction and shall be a certified member of the National Terrazzo and Mosaic Association.
- 1.3. Applicators: Applicator shall be a certified member of the National Terrazzo and Mosaic Association.
- 1.4. Job Conditions:
 - 1.4.1 Do not begin application until roofing operations have been completed.
 - 1.4.2 Substrate: Applicator shall verify slab meets standards of slab quality as specified; if it does not then he shall notify Publix Construction Representative before work is started.
 - 1.4.3 Application of terrazzo shall constitute evidence of acceptance of slab by applicator.
 - 1.4.4 Power to support Terrazzo operations will not be available on site. Applicator must provide necessary generator support to enable terrazzo operations.
 - 1.4.5 General Contractor shall provide sufficient water, temporary heat and light, to facilitate terrazzo installation. Ambient temperatures in the area to receive terrazzo at less than 50 degree Fahrenheit.
 - 1.4.6 Protection of installed work shall begin immediately upon completion of each part. Do not allow materials which can mar or stain to come into contact with floor. Protect floor from wheeled traffic and other activities which might cause permanent damage. General Contractor shall not permit the changing of equipment batteries on the finished floor and all lifts must have proper “diapers” and the tires and tires must be inspected daily to ensure they remain free of dirt and/or debris or other abrasive materials such as screws, nails, etc.
 - 1.4.7 CLEAN FLOOR DAILY. After terrazzo installation is complete, floors shall be cleaned daily with automatic cleaning machine that causes no abrasion or scratches.
- 1.5. Submittals: Submit an LOI and manufacturer’s literature in accordance with Section 01 33 00 Submittal Procedures.
- 1.6. Ordering:
 - 1.6.1 The divider and expansion strips specified are special-order items and require a 4-6 week lead time. Alternate cold-formed rolled strips will not be accepted due to poor schedule management.
 - 1.6.2 The Terrazzo Sealer and Terrazzo Finish products will be ordered directly from Diversey Inc.
- 1.7. Warranty: All terrazzo work shall be guaranteed against defects in material and

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workmanship for a period of two years. Work found to be defective during that time will be replaced at no cost to the Owner. A written warranty shall be provided.

2. Products

2.1. Materials:

2.1.1 Portland Cement: ASTM C 150 Color: White

2.1.2 Strips:

2.1.2.1 Divider Strips: Extruded 5/8" x 5/8" x 1/8" OR 1/4" zinc "L" strips.
See floor finish plan for location of shapes.

2.1.2.1.1 Model #TLZ5818P (1/8")

2.1.2.1.2 Model #TLZ5814P (1/4")

National Metal Shapes

Russell Day, National Sales Manager (800) 837-9559

2.1.2.2 Setting Agent: Laticrete #211 w/ #4237 Additive, or Laticrete #254 (no additive needed)

2.1.3 Marble Chip Matrix: Comply with NTMA's "Terrazzo Specifications and Design Guide" and manufacturer's written instructions for matrix and aggregate proportions and mixing.

2.1.3.1 Choose from the following matrices according to availability:

100% Wild Rose

90% New White Rose, 10% Georgia White

100% White Rose

100% Confederate Rose

KCI/CC-PB3

2.1.3.2 All chips are to be 50% #1 and 50% #2 sizing.

2.1.3.3 Abrasion and impact resistance when testing in accordance with ASTM C 131-89 shall not exceed 40% loss.

2.1.3.4 Twenty-four hour absorption rate shall not exceed 0.75%.

2.1.3.5 Chips shall not contain deleterious or foreign matter.

2.1.3.6 Dust content shall be less than 1% by weight.

2.1.4 Floor Sealer: See Article 1.4 of this Section for ordering instructions. "Plaza TM/MC, by Diversey

2.1.5 Floor Cleaner: "Prominence", by Diversey

3. Execution

3.1. Inspection:

3.1.1 Examine areas to receive terrazzo for defects that would affect proper execution of terrazzo work.

3.1.2 Route out any stress cracks discovered in slab and fill with roadwares concrete Mender or equivalent polymer concrete product submitted and approved by Publix. Concrete slab shall be level with a maximum variation from level of 1/4"

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in 10 feet.

3.2. Installation:

- 3.2.1 Terrazzo shall not begin until concrete sub-floor has cured for a minimum of 28 days and all defects have been corrected by others.
 - 3.2.2 Protection must be provided for all metal framing, wall tracks, pre-fabricated cooler panels, installed drywall and all adjacent flooring and wall surfaces.
 - 3.2.3 All Terrazzo shall be mixed at a ratio of two bags of marble chips (200 lbs.) to one 94 lb. bag of white cement with sufficient potable water to produce a workable mix.
 - 3.2.4 Follow manufacturer's mixing instructions for the setting agent product. **DO NOT DILUTE THE PRODUCT AFTER MIXING.**
 - 3.2.5 Strips:
 - 3.2.5.1 All saw cuts and construction joints shall be filled with setting agent prior to strip installation.
 - 3.2.5.2 Set in a full bed of setting agent. **NO MECHANICAL FASTENING, HOT GLUES OR CONSTRUCTION ADHESIVES SHALL BE USED TO ADHERE STRIPS TO SLAB.**
 - 3.2.5.2.1 Cover exposed horizontal flange surface as well with setting agent. Setting agent shall be screeded so that at least 1/2" thickness of terrazzo will be maintained.
 - 3.2.5.2.2 While agent is still in plastic state, sprinkle with fine marble chips.
 - 3.2.5.3 Set strips as indicated on finish plan. All strips in a section must be placed prior to pouring of terrazzo.
 - 3.2.5.4 All intersections of strips must be mitered. See construction drawings for detail.
 - 3.2.5.5 The filling of the construction joint divider strips with flexible epoxy filler is not included in the scope of the work.
 - 3.2.5.6 Contractor shall examine strips to ensure proper strips are being used. Any damaged or loose strips will be replaced.
 - 3.2.6 Saturate concrete sub-floor with water.
 - 3.2.7 Prime sub-floor with pure white neat cement and pour topping over wet primer.
 - 3.2.8 Pour terrazzo topping to a minimum 5/8" coating insuring all mix is above the terrazzo strip level.
 - 3.2.9 Seed surface with a blend of #1 and #2 chips only of same color and percentages as in base coat. (Use of white chips and base coat with coloring achieved in finished coat will not be accepted.)
 - 3.2.10 Compact wet topping with terrazzo rollers per NTMA specifications until excess cement and water has been extracted.
 - 3.2.11 Trowel to a uniform surface to expose lines of dividing strips.
- ### 3.3. Curing:
- 3.3.1 Keep terrazzo continuously moist and free of traffic during the curing period.

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Cure by covering with water, wet sand or polyethylene sheeting (6 mil).

3.3.2 Cure for either for 96 hours or until topping develops sufficient strength to prevent lifting or pulling of terrazzo chips during grinding, whichever is longer.

3.4. Finishing:

3.4.1 Grind with 30 grit Diamond until all strips and marble chips are uniformly exposed. Follow with 80 grit grinding.

3.4.2 After rough grinding, clean and rinse floor with potable water. After excess water is removed, grout floor with identical Portland cement as in the matrix to fill voids. After the grout has attained its initial set, the surface shall be cured for a minimum of 72 hours or until other heavy traffic work on the Project has been completed. All slurry generated by terrazzo operations shall be properly disposed off-site by applicator.

3.4.3 Continue grinding process with 100 grit resin diamond pad. Flood mop and wet vacuum all slurry from surface, between these grinds, ensuring all previous grit latency and particulate matter is removed. Continue grinding in successive stages until 400 grit finish is obtained on all terrazzo surfaces.

3.4.4 Grout voids with Laticrete #211 or "Atlas" Rezlab A-3000

3.4.5 Optional as required apply 200 Grit Grind Silicate Densifier per manufacturer's Instructions after 200 Grit Grind:

"H&C" Clear Liquid Hardener & Densifier

"Ameripolish 3D HSL" Densifier

"Consolideck LS/CS" Blended Silicate/Hardener & Densifier

3.4.6 Inspect entire surface for consistent appearance with no abrasion scratches from previous grits. Readdress any areas not matching 400 grit finish before continuing.

3.4.7 Terrazzo finish shall show a minimum of 70% marble aggregate finish, and be consistent with marble chip throughout the entire surface area, even under cases, carpeting and against walls.

3.4.8 Floor mop and wet vacuum to ensure no presence of particulate matter or other trades' dirt or oils.

3.4.9 Final polish surface with white polishing pad.

3.4.10 Thoroughly scrub and agitate entire surface with appropriate cleaning agent. Wet vacuum scrub surface to ensure complete removal of all chemicals.

3.4.11 Once entire surface is dry (24 hours minimum), and prior to installation of refrigerated cases, apply a minimum two coats of Terrazzo Sealer per manufacturer's instructions.

3.4.12 Publix' representative must perform a final inspection and accept the work as complete after permanent lighting has been installed and is operational.

3.4.13 Allow a minimum of 24 hours before use or open traffic and 48 hours to heavy traffic.

3.4.14 Two more coats of Terrazzo Finish will be applied by Publix's Floor Care Contractor just prior to the Project's Grand Opening.

3.5. Maintenance:

- 3.5.1 General Contractor shall limit number of entrance ways into the store sales floor and all access points shall have 10 foot walk off mats and all exposed terrazzo not planned to be covered with refrigerated cases, Gondolas or shall be covered and fully protected until substantial completion.
- 3.5.2 Contractor is responsible to protect terrazzo floor from damage and to ensure floor is cleaned daily up until completion. No food or drinks (other than water), tobacco shall be allowed in store after terrazzo is installed and general contractor shall not allow material which can mar or stain to come into contact with floor.

End of Section 09 66 13

Section 09 66 23.16

**Epoxy-Resin Terrazzo Flooring
V03042021**

1. General

- 1.1. Section includes: Thin-set epoxy-resin terrazzo flooring, including preparation of substrates.
- 1.2. Related sections: Section 03 30 00 Cast-in-Place Concrete.
- 1.3. Quality Assurance:
 - 1.3.1 Installer Qualifications:
 - 1.3.1.1 Installer shall be a contractor member of the NTMA and perform all work in accordance with NTMA standards.
 - 1.3.1.2 Installer shall have at least five (5) years of satisfactory experience in installation of epoxy-resin terrazzo. Installer must be able to provide evidence of experience during the last five (5) years of at least five (5) projects comparable in scope and complexity to at least 50% of the total square footage of the Work for this Project.
 - 1.3.2 Pre-Installation Conference: Conduct conference at Project site between General Contractor, Publix construction representative and installer. Review methods and procedures related to terrazzo, including, but not limited to, the following:
 - 1.3.2.1 Inspect and discuss installation procedures, joint details, jobsite conditions, substrate specification, vapor barrier details and coordination with other trades.
 - 1.3.2.2 Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
 - 1.3.2.3 Review dust control procedures.
 - 1.3.2.4 Review plans for concrete curing and site drying to enable timely achievement of suitable slab moisture conditions.
 - 1.3.2.5 Review moisture testing and slab cracks to determine if isolation and moisture treatment shall be required and installed to the manufacturers recommended installation procedure. Publix representative must approve the isolation moisture treatment scope of work.
 - 1.3.3 Standards: Comply with NTMA's "Terrazzo Specifications and Design Guide" and with written recommendations for epoxy-resin terrazzo unless more stringent requirements are specified in this Section.

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1.4. Submittals:

- 1.4.1 Letter of Intent (LOI): Submit LOI indicating system to be used for the Work described in this Section. All information must be indicated completely and accurately.
- 1.4.2 Certifications: Installer shall submit proof of Contractor membership in NTMA.
- 1.4.3 Samples: Provide 12x12 sample of each matrix blend.

1.5. Project Slab conditions:

- 1.5.1 Maintain ambient room and floor temperature at 60 degrees Fahrenheit or above for a period extending 72 hours before, during and after floor installation.
- 1.5.2 Concrete to receive epoxy-resin terrazzo shall have cured for at least 28 days and be free of all curing compounds (unless moisture vapor primer incorporated into the system).
- 1.5.3 An efficient vapor barrier (15 mil minimum, with no recycled material included) must be provided under the slab. Vapor barrier shall NOT be punctured. See Section 2.3.1 Vapor Barrier.
- 1.5.4 Concrete subfloor shall be level with a maximum variation from level to 1/4" in 10 feet. Any irregularity of the surface requiring patching and/or leveling shall be done using material approved by the manufacturer.
- 1.5.5 Prior to and during each day of installation, the terrazzo contractor shall verify that the dew point is at least 5 degrees Fahrenheit less than the slab and air temperature.
- 1.5.6 No curing agents are to be used in areas to receive terrazzo.
- 1.5.7 Concrete floor shall receive a light steel trowel finish.
- 1.5.8 No pressure washing slab prior to installation of epoxy terrazzo.
- 1.5.9 Mechanical abrasion: shot blast floor prior to installation.

1.6. Delivery, Storage and Handling:

- 1.6.1 All materials shall be delivered to the site of the Project in original manufacturer's sealed containers including type of material, batch numbers, date of manufacture and pertinent labels intact and legible.
- 1.6.2 Store materials in a dry, protected area at a temperature between 60 and 80 degrees Fahrenheit.
- 1.6.3 Follow all manufacturer's specific instructions and prudent safety practices for storage handling.

2. Products

- 2.1. Manufacturers: Select from one of the following epoxy-resin terrazzo systems for installation.

Key Epoxy Terrazzo", Key Resin Company with moisture primer and 40 mils full coverage flexible epoxy membrane.

Terroxy Resin Systems Epoxy Matrix", T&M Supply with moisture primer and 40 mils full coverage flexible epoxy membrane

Morricite by Master Terrazzo with moisture primer and 40 mils full coverage flexible membrane

* Provide deduct alternate for up to 5% fiberglass reinforced 40 mil flexible epoxy membrane over cracks only in lieu of full coverage. Related Terrazzo Materials:

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- 2.2. Related Terrazzo Materials Mix: Comply with NTMA's "Terrazzo Specifications and Design Guide" and manufacturer's written instructions for matrix and aggregate proportions and mixing.
 - 2.2.1 Formulas for projects containing two mixes. See construction drawings for placement.
 - 2.2.1.1 Formula for 28, 39, 45, 54 based projects
 - 2.2.1.1.1 Epoxy-resin: White
 - 2.2.1.1.2 Aggregates: Choose from one of the following combinations, according to availability.
 - 100% Wild Rose
 - 90% New White Rose, 10% Georgia White
 - 100% White Rose
 - 100% Confederate Rose
 - 2.2.1.2 Formulas for 49 and 56 based projects contain two mixes. See construction drawings for placement.
 - 2.2.1.2.1 Epoxy-resin: 100% color to match #Sherwin Williams 6116 Tatami Tan
 - 2.2.1.2.2 Aggregates: KciCC San Saba Red Blend
 - 60% Oxblood Red #0-1-2
 - 30% Rosado #0-1-2
 - 10% Rebel Grey #0-1-2
 - 2.2.1.2.3 Epoxy-resin: 100% color to match Sherwin Williams 6119 Antique White
 - 2.2.1.2.4 Aggregates: White Rose Blend
 - 15% White Rose #0
 - 35% White Rose #2
 - 50% White Rose #1
 - 2.2.1.2.5 Epoxy-resin: 100% color to match #Sherwin Williams 7029 Agreeable Gray
 - 2.2.1.2.6 Aggregates: Georgia White
 - 25% Georgia White #0
 - 25% Georgia White #2
 - 50% Georgia White #1
 - 2.2.1.2.7 Epoxy-resin: 100% color to match Sherwin Williams 7019 Gauntlet Gray
 - 2.2.1.2.8 Aggregates: Georgia White
 - 25% Georgia White #0
 - 25% Georgia White #2
 - 50% Georgia White #1
 - 2.2.2 All chips are to be 50% #1 and 50% #2 sizing.
 - 2.2.3 Abrasion and impact resistance when testing in accordance with ASTM C 131-89 shall not exceed 40% loss.
 - 2.2.4 Twenty-four hour absorption rate shall not exceed 0.75%.

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- 2.2.5 Chips shall not contain deleterious or foreign matter.
- 2.2.6 Dust content shall be less than 1% by weight.
- 2.3. Strip Materials:
 - 2.3.1 Divider Strips: Extruded 3/8" x 1/8" zinc "L" strips.
Model #TLZ3818, National Metal Shapes
Russell Day, National Sales Manager
(800) 837-9559
 - 2.3.2 Construction Joint Strips: Same material as divider strips; separate strips positioned back to back with minimum 1/8"-1/4" width between. Fill gap between strips with elastomeric joint filler. Match color to divider strips.
 - 2.3.3 Setting Agent: Use 100% solids epoxy resin adhesive.
- 2.4. The divider and expansion strips specified are special-order items and require a 4-6 week lead time. Alternate cold-formed rolled strips will not be accepted due to poor schedule management.
- 2.5. Flexible Reinforcing Membrane: Use products recommended by manufacturer of selected resin-epoxy terrazzo system.
- 2.6. Cleaning Agent:
 - 2.6.1 Neutral cleaner with pH factor between 7 and 10.
 - 2.6.2 Use manufacturer's recommended cleaner whenever possible.
- 2.7. Patching and Fill Material: Use products recommended by manufacturer of selected resin-epoxy terrazzo system.
 - 2.7.1 The use of silicate-based densifiers is NOT permitted.

3. Execution

- 3.1. Concrete Slab Preparations: The General Contractor, with terrazzo installer present, must inspect the concrete slab receiving terrazzo for defects and deviations beyond allowable tolerances before beginning terrazzo installation. Proceed with installation only after all unsatisfactory conditions have been corrected.
 - 3.1.1 The slab must be free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil and other contaminants incompatible with epoxy-resin terrazzo.
 - 3.1.2 Verify concrete slab is visibly dry and free of moisture in accordance with ASTM F2170.
 - 3.1.3 Prepare concrete slab mechanically by vacuum shot blasting. Surface preparation results should achieve a CSP3-CSP-5 profile according to International Concrete Repair Institute Guideline No. 03732.
 - 3.1.4 Apply manufacturer moisture vapor treatment (full coverage) in compliance with specified coverage rates, allow to cure for the manufacturer specified time. Then apply manufacturer specific primer and allow to cure for the manufacturerspecified time.
 - 3.1.5 Repair cracks in concrete after shot blasting by filling with hard epoxy resinflush with the concrete (fill multiple times if required to fill flush with the concrete)
 - 3.1.6 Apply 40 mil of flexible epoxy membrane 16" wide and a minimum of 8" on each side of

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the crack. After the flexible membrane has set apply a minimum 9" wide fiberglass mesh by the resin manufacturer ON TOP of the cured flex membrane and hold in place with a coat of hard epoxy. Flexible membrane shall also be provided as full coverage.

- 3.2. Provide permanent lighting or, if permanent lighting is not available, simulate permanent lighting conditions during installation.
- 3.3. Protect other work from dust generated by grinding operations. Control dust to prevent air pollution and comply with environmental protection regulations.
- 3.4. Erect and maintain temporary enclosures and other suitable methods to limit dust migration and to ensure adequate ambient temperatures and ventilation conditions during installation.
- 3.5. Epoxy Terrazzo Installation:
 - 3.5.1 Thickness: 3/8".
 - 3.5.2 Primer: Apply according to system manufacturer's instructions.
 - 3.5.3 Adhere divider strips and construction joint strips according to layout provided by Publix Super Markets. Use an approved 100% solids epoxy adhesive. Make sure horizontal strip "legs" do not overlap. Miter "legs" as needed to prevent the overlap. At concrete joint intersections any strip with horizontal "legs" the entire strip should be cut in both directions.
 - 3.5.4 Mix epoxy matrix with chips and fillers in ratios directed by system manufacturer.
 - 3.5.5 Trowel apply terrazzo mixture over epoxy primer to provide a dense flat surface to top of divider strips. Allow to cure per system manufacturer's recommendations before rough grinding.
 - 3.5.6 Grind with 60 grit or finer metal bond Reliable diamond Tooling until all divider strips and marble chips are uniformly exposed. A minimum of 70% aggregate exposure. Make a final pass with the grinding machine with the weights on the handle.
 - 3.5.7 Grind with 150 grit metal bond reliable diamond Tool diamonds until all 60 grit scratch pattern has been removed. Make a final pass with the grinding machine with the weights on the handle.
 - 3.5.8 Continue honing with 100 grit Boride Ceramic dry diamonds until all 150 grit scratch pattern has been removed. Make a final pass with the grinding machine with the weights on the handle.
 - 3.5.9 Final hone with 200 grit Boride Ceramic dry diamonds until all 150 grit scratch pattern has been removed. Make a final pass with the grinding machine with the weights on the handle.
 - 3.5.10 Vacuum clean all topical dust and dust entrapped in micro pours.
 - 3.5.11 Clean surface with an auto-scrubber to remove any remaining latencies with specified cleaner. Dry mop surface water.
 - 3.5.12 Once surface has air dried, use a leaf blower (minimum 900 cfm) over the entire terrazzo surface to force any remaining water from the micro-pours. Dry mop water blown from micropores. Allow to dry overnight.
 - 3.5.13 Grout surface of the terrazzo with the specified color matrix resin with a flex steel trowel pulled tight and slowly. Apply filler material (with white matrix's use filler from the pour mix and with colored matrix's use a mixture of roughly 50% matrix filler and the dry dust from the grinding operation) immediately with the resin is still wet over the surface spread with a squeegee or push broom filler material to distribute filler over the entire area

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to be grouted.

- 3.5.14 Once the filler dust has been placed but before the grout resin sets up, run a terrazzo grinder equipped with stainless steel grout bars by Reliable DiamondCo. over the filler material to force the grout material into the micro pours.
 - 3.5.15 Allow a minimum of 36 hours for grout material to cure.
 - 3.5.16 Once grout has cured, sweep up any loose surface filler and then remove grout surface film with 200 grit Boride Ceramic diamonds until all grout material has been removed from the surface. Make a final pass with the weights on the handle of the grinding machine.
 - 3.5.17 Final polish using 400 grit resinous bond polishing pads on the terrazzo machine with the weights on the handle on ALL passes.
- 3.6. Cleaning and protection:
- 3.6.1 Remove grinding dust from installation and wash all surfaces with approved cleaning agent.
 - 3.6.2 Thoroughly scrub and agitate entire surface with appropriate cleaning agent. Wet vac scrub surface to ensure complete removal of all chemicals.
 - 3.6.3 Once entire surface is dry (24 hours minimum), apply a minimum 4 coats of Terrazzo Sealer per manufacturer's instructions. Once dry, burnish using a highspeed propane buffer with a white or red pad to burnish and harden the sealer.
 - 3.6.4 Publix Representative must perform a final inspection and accept the work as complete.
 - 3.6.5 Allow a minimum of 24 hours prior to use or opening to traffic.
 - 3.6.6 Two more coats of Terrazzo Finish will be applied by Publix's Floor Care Contractor just prior to the Project's Grand Opening.
 - 3.6.7 The Terrazzo Sealer and Terrazzo Finish products will be ordered directly from Diversey Inc.

Contact: Marta Scolaro Marta.Scolaro@Sealedair.com

Diversey, Inc. Office: (904) 834-3430 Mobile: (262) 488-4888

- 3.7. Warranty: All terrazzo work shall be guaranteed against defects in material and workmanship for a period of two years. Work found to be defective during that time will be replaced at no cost to the Owner. A written warranty shall be provided.
- 3.8. Upon completion, the Work shall be ready for final inspection and acceptance by the Publix Super Markets Construction Representative. Provide final protection and maintain conditions, in a manner acceptable to the Terrazzo Contractor, that will ensure terrazzo is without damage or deterioration.

End of Section 09 66 23.16

Section 09 67 23

Resinous Flooring

1. General

1.1. Scope:

- 1.1.1 The work shall consist of the substrate, the furnishing and the application of a Methyl Methacrylate (MMA) based self-leveling seamless flooring system with

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decorative chips. This system shall include a 6 inch cove and non-skid aggregate in specified areas.

1.1.2 Provide system in compliance with requirements of United States Department of Agriculture (USDA), Food and Drug Administration (FDA), and local Health Department.

1.1.3 The system shall have the color, texture and thickness specified by the Owner. It shall be applied to the prepared area(s) as defined in the plans strictly in accordance with the Manufacturer's recommendations.

1.2. Job Conditions:

1.2.1 Do not begin application until roofing operations have been completed, ceiling and ducts painted and FRP panels and wall tile installed.

1.2.2 Floor drains are to be set 3/16 inch above finish concrete slab elevation.

1.2.3 Application may proceed when substrate temperatures are between 40° F and 95° F, providing the substrate temperature is above the dew point. Outside of this range, the Manufacturer shall be consulted. Application will proceed when the vapor/moisture emission rate from the slab is less than and not higher than 316/1000 ft² over 24 hours. The test method is ASTM E 1869-98 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride."

1.2.4 The Applicator shall ensure that adequate ventilation for the work area. This shall include the use of fans and smooth bore tubing and closure of the work area. The ventilation is to be installed as to create a negative pressure in the work area, defined as removing air from the area and not blowing air into the area.

1.2.5 The Applicator shall be supplied with adequate lighting equal to the final lighting level during the preparation and installation of the system.

1.2.6 All open flames and spark-producing equipment shall be removed from the work area prior to commencement of application.

1.2.7 "No Smoking" signs shall be posted at the entrances to the work area.

1.2.8 Protection of installed work shall begin immediately upon completion of each part. Do not allow material which can mar or stain to come into contact with the floor. Protect floor from wheeled traffic and other activities which might cause permanent damage.

1.2.9 Clean floor daily.

1.2.10 The Applicator shall be provided with adequate disposal facilities for non-hazardous waste generated during installation of the system.

1.2.11 In Remodels, work shall not begin before removal of all end-caps and kick plates in area of work.

1.2.12 In Remodels, remove and replace gondolas in area of work.

1.2.13 In Remodels, the applicator shall be responsible to provide auxiliary power necessary for ventilation system, cleaning equipment and the mechanical preparation and installation equipment.

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- 1.3. Tests: Perform flooring manufacturer's standard bond test.
- 1.4. Quality:
 - 1.4.1 Manufacturer:
 - 1.4.1.1 Submit LOI in accordance with Section 01 33 00 Submittal Procedures.
 - 1.4.1.2 The Manufacturer shall have a minimum of 10 years experience in the production, sales and technical support of industrial flooring and related materials.
 - 1.4.1.3 Material Manufacturer shall be approved by Publix.
 - 1.4.1.4 A qualified material manufacturer representative shall be present during installation of system.
 - 1.4.2 Applicator:
 - 1.4.2.1 The applicator shall be approved by Publix Architect and the flooring manufacturer.
 - 1.4.2.2 The Applicator shall have been trained by the flooring system Manufacturer in all phases of surface preparation and application of the product specified.
 - 1.4.2.3 Applicator shall have 5 years experience in use of required equipment and application of specified flooring system. Submit proof of experience in work of similar scope.
 - 1.4.2.4 Publix reserves the right to refuse any applicator with or without cause.
 - 1.4.2.5 Approved MMA applicators:
 - Balmar Corp., Conyers, GA
 - Dura Bond Company, Miami, FL
 - Federal Technical Services, Marietta, GA
 - Nightengale Resurfacing, Palm Beach Garden, FL
 - Piedmont Industrial Coatings, Piedmont, SC
 - Surface Systems, Greer, SC
 - Fluid Floors, Inc., Marietta, GA
 - 1.4.3 Personnel:
 - 1.4.3.1 Employ an experienced superintendent trained by the system manufacturer to oversee all operation.
 - 1.4.3.2 Work shall not proceed without adequate supervision present at all times.
 - 1.4.3.3 Utilize workers with skills in proportion to complexity of tasks required.
 - 1.4.3.4 Publix reserves the right to reject personnel with or without cause.
 - 1.4.4 Quality Standards:
 - 1.4.4.1 Work will be judged by Publix in comparison to work of similar types.
 - 1.4.4.2 Substandard construction as judged by Publix Representative or Flooring System Manufacturer's Representative will not be accepted.
 - 1.4.4.3 Comply with Manufacturer's installation guidelines for Publix.

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- 1.4.4.4 Neatness Counts. Make all joints with proper care to insure that tight connections are made without excess material, well bonded to substrate.
- 1.4.4.5 Publix reserves the right to refuse any applicator with or without cause.
- 1.4.5 Warranty: All seamless MMA flooring and wall base work against defects in material and workmanship for a period of two years. Work found to be defective during that time shall be replaced at no cost to the Owner. A written warranty shall be provided.

2. Products

2.1. Approved Manufacturers:

2.1.1 Duraflex, Inc.

95 Goodwin Street Phone: (860) 528-9838
East Hartford, CT 06108 Fax: (860) 528-2802

2.1.2 Specialty Resin Systems

Waterbury, CT

2.1.3 Res-Tek, Inc.

2000-F Cobb International Blvd. Phone: (770) 427-4034
Kennesaw, GA 30152 Fax: (770) 427-4037

2.2. Materials: Methyl Methacrylate (MMA) Acrylic Reactive Resin System components.

- 2.2.1 The primer shall be 100% reactive, MMA-based, two-component resin capable of full cure in 45 minutes at 68° F and equal to Dur-A-Flex, Inc. Cryl-A-Prime P-101.
- 2.2.2 The bodycoat or topping shall consist of 100% reactive, acrylic-based, two-component resin capable of full cure in less than one hour at 68° F and equal to Dur-A-Flex, Inc. Cryl-A-Glaze G-201.
- 2.2.3 A filler component consisting of graded silica sands and other inert fillers equal to Dur-A-Flex, Inc. SL Filler Blend.
- 2.2.4 The topcoat shall be a 100% reactive, MMA-based, two-component resin capable of full cure in less than one hour at 68° F and equal to Dur-A-Flex, Inc. Cryl-A-Top T-301.
- 2.2.5 The non-moving control joints shall be filled with a 100% reactive MMA-based, two-component resin mixed with approved clean, dry aggregate blend capable of full cure in less than one hour at 68° F and equal to Dur-A-Flex, Inc. Cryl-A-Glaze G-202 and SL Filler Blend.
- 2.2.6 The cove shall be a 100% reactive MMA-based, two-component resin mix with approved clean, dry aggregate capable of full cure in less than one hour at 68° F and equal to Dur-A-Flex, Inc. Cryl-A-Cove.
- 2.2.7 The decorative chips shall be of the 1/4 inch size and be composed of the Publix Special Blend Color and equal to Dur-A-Flex, Inc. 1/4 inch Decorative Chips.
- 2.2.8 Flake broadcast system - "Publix Gray" system:

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Self-leveling topping, color white.

- 18% Eggshell White
- 3.5% Silver Grey
- 54% Khaki
- 3.5% Grey
- 3.5% Light Grey
- 3.5% Winter Grey
- 14% Battleship Grey

2.2.9 Flake broadcast system - “Publix Beige” system:

Self-leveling topping, color white.

- 20% Fawn Beige
- 14% Eggshell White
- 3% Silver Grey
- 43% Khaki
- 3% Grey
- 3% Light Grey
- 3% Winter Grey
- 11% Battleship Grey

2.2.10 The anti-slip aggregate shall be size #30 white aluminum oxide.

2.3. Delivery and Storage:

- 2.3.1 All components of the system shall be delivered to the site in the Manufacturer’s packaging, clearly identified with the product type and batch number.
- 2.3.2 The Applicator shall provide a storage area for all components. The area shall be cool, dry, out of direct sunlight and in accordance with the Manufacturer’s recommendations and relevant health and safety regulations.
- 2.3.3 Copies of Material Safety Data Sheets (MSDS) for all components shall be kept on site for review by the Engineer or other personnel.

3. Execution

- 3.1. The Applicator and General Contractor shall agree upon a schedule for coordination between trades working in the area which is to receive the system.
- 3.2. Preparation:
 - 3.2.1 Protect all work in place by draping or masking as required. Provide protection for all adjacent surfaces.
 - 3.2.2 New concrete shall have cured a minimum of 28 days in accordance with ACI-308.
 - 3.2.3 Sealing and curing agents are not to be used.
 - 3.2.4 New and existing concrete surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt and bituminous products.
 - 3.2.5 The substrate shall be sounded and all spalls repaired prior to placement of the

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prime coat. Spalls shall be repaired with compatible rapid cure concrete patch materials (Cryl-A-Tex or equal) per the Architect's and Manufacturer's recommendations.

- 3.2.6 Cracks that appear as a result of concrete shrinkage are to be repaired in one of the following methods dependent on the width of the crack.
 - 3.2.6.1 Hairline cracks, equal to or less than 1/16 inch in width: Vacuum cracks, as they must be clean, dry and free of dust and dirt. Pour properly mixed MMA primer, such as Cryl-A-Prime P-10 or equal, into crack and keep applying until crack is totally filled. This may require 2 or 3 applications.
 - 3.2.6.2 Cracks greater than 1/16 inch are to be routed out to a width of 1/4 inch using a proper crack chasing tool and vacuum to remove all dust. Prime the crack with MMA primer. The crack is to be filled with a 100% reactive MMA-based, two-component resin mixed with approved clean, dry aggregate blend capable of a full cure in less than one hour at 68° F and equal to Dur-A-Flex, Inc. Cryl-A-Glaze G-202 and SL Filler Blend.
- 3.2.7 There shall be no visible moisture present on the surface at the time of application of the system. Compressed, oil-free air and/or a light passing of a propane torch may be used to dry the substrate.
- 3.2.8 When the perimeter of the substrate to be coated is not adjacent to a wall or curb, a minimum 1/4 inch key cut shall be made to properly seat the system, providing a smooth transition between areas. This detail cut shall also apply to drain perimeters and expansion joint edges.
- 3.2.9 Concrete surfaces on grade shall be constructed with a vapor barrier to protect against the effects of vapor transmission and possible delamination of the system.
- 3.3. Mechanical surface preparation:
 - 3.3.1 Shot blast all surfaces to receive a flooring system with a mobile steelshot, dust recycling machine (Blastrac or equal).
 - 3.3.2 Surfaces inaccessible to the mobile shot blast machines shall be mechanically abraded to the same degree of cleanliness, soundness and profile using diamond grinders, needle guns, bush hammers or other suitable equipment.
 - 3.3.3 All surface and embedded accumulations of paint, toppings, hardened concrete layers, laitance, power trowel finishes, and other similar surface characteristics shall be completely removed leaving a bare concrete surface having a profile similar to 40 grit sandpaper and exposing the upper fascia of concrete aggregate.
 - 3.3.4 Random tests for adequate bond strength shall be conducted on the substrate, in accordance with the Manufacturer's recommendations, at a minimum frequency of three tests per 10,000 ft². Smaller areas shall receive a minimum of three tests.
 - 3.3.5 Based on the test results, additional substrate preparation may be required before proceeding with the installation of the system.
- 3.4. Air Flow / Air Quality:
 - 3.4.1 Flooring contractor must establish a negative air system in the areas of the store being refinished during application of MMA materials. Installation of this

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system begins in the back areas while store is in operation. Upon closing of the store the system is implemented on the sales floor and all areas where work is taking place for that particular evening. This systems should remain in place and running until immediately before the opening of the store the next morning.

- 3.4.2 The negative air system shall consist of 30" Coenco (or equivalent) explosion proof fans capable of producing 13,000 CFM. Provide number of fans as required for (1) fan to cover 10,000 - 12,000 sq.ft. of store floor area.
- 3.4.3 During the application of materials, air quality testing should be performed at regular intervals to determine the level of Methly Methacrylate (MMA) in the air. This insures that the negative air system is working properly and providing a constant, steady airflow of fresh air into the building.
- 3.4.4 The measurements during the testing should meet the OSHA (PEL-TWA) acceptable level of 100ppm. A desired air quality of 20-30 ppm should be maintained throughout the installation period if possible.
- 3.5. Preparation of existing MMA floor surface:
 - 3.5.1 The existing MMA floor is to be thoroughly cleaned with a high speed cleaner and scrubbed with an aggressive pad. Clean under all removed end caps and kick plates an under gondolas. Cleaner should be allowed to lay on floor for 20 minutes to penetrate divots / pinholes. Rinse floor thoroughly with water.
 - 3.5.2 Repair all scratches and patch where necessary.
 - 3.5.3 For a clean termination edge, areas that are exposed to view (not covered by gondolas or fixed refrigeration base plates) contractor shall saw cut and install zinc transition strips. This provides a clean transition between the flooring system applications that are installed on consecutive nights, and reduces the appearances of any sight variation in the flake pattern.
 - 3.5.4 Grind around all clean-outs, electrical outlets, drains, etc. to provide a smooth transition at these termination points.
 - 3.5.5 Sand and/or buff floor to smooth out imperfections in existing MMA floor.
 - 3.5.6 Vacuum area thoroughly to remove all residual dust.
 - 3.5.7 Using blue painter's tape mask entire perimeter of area to receive coating.
- 3.6. Application of New Resinous Flooring:
 - 3.6.1 The system shall be applied in six distinct steps as listed below:
 - Substrate preparation
 - Priming
 - Filling of control joints
 - Cove installation
 - Topping/overlay application with decorative chips
 - Topcoat application and anti-slip aggregate where applicable
 - 3.6.2 Immediately prior to the application of any component of the system, the surface shall be dry and any remaining dust or loose particles shall be removed using a vacuum or clean, dry, oil-free air.
 - 3.6.3 The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results in accordance with the Manufacturer's recommendations.

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- 3.6.4 The primer shall consist of one coat with an overall coverage rate of 80-110 ft²/gal by brush or roller application. Porous concrete may require a second coat of primer should the first coat be absorbed.
 - 3.6.5 Control Joints: The properly mixed material is to be poured into the control joint and finished off flush with the adjacent floor.
 - 3.6.6 Cove:
 - 3.6.6.1 A 3/16 inch zinc-coated metal cove strip is to be used as the top termination strip.
 - 3.6.6.2 The cove is to be applied using a proper radius cove tool.
 - 3.6.6.3 After the cove has cured, a pigmented coat of Cryl-A-Glaze G-201 or equal shall be brushed or rolled onto the cove and broadcast to excess with decorative chips.
 - 3.6.6.4 After the cove has fully cured, coat with two coats of topcoat, making sure to apply over the top of the zinc strip to completely seal the back of the strip.
 - 3.6.6.5 Backerboard (1/4 inch plexiglass or 1/2 inch cement board) may be required with non-compatible materials for proper bond. The top of the backerboard shall be cut at an 45° angle to create a beveled edge for the cove base. Grind back cove surface to ensure proper bonding.
 - 3.6.7 Topping:
 - 3.6.7.1 The topping shall be applied as a self-leveling system as specified by the Architect. The topping shall be applied in one lift with a nominal thickness of 1/8 inch.
 - 3.6.7.2 The topping shall be comprised of two components: 1) a resin and filler; 2) a hardener powder that is to be added in accordance with the Manufacturer's recommendations.
 - 3.6.7.3 Immediately upon raking and/or troweling into place, the topping shall be degassed with a porcupine roller. Broadcast the 1/4 inch Chips (Publix Blend) on the surface of fresh material at a rate of 0.1 lb/ft². After cure, remove excess chips by blowing, sweeping and/or vacuuming. Brush floor with specified brush. Do not reuse swept chips.
 - 3.6.8 Topcoat: The topcoat shall consist of two coats.
 - 3.6.8.1 The first topcoat shall be applied at the rate of 80 ft²/gallon. Where required, the anti-skid aggregate (aluminum oxide, #30 grit) shall be applied at a rate of 2.0 lb/100 ft² into the first topcoat.
 - 3.6.8.2 The first topcoat will be allowed to cure then sanded with #36 grit paper to give the desired finish texture. This is not done in areas that require anti-slip aggregate.
 - 3.6.8.3 Cure 45-60 minutes between coats.
 - 3.6.8.4 The second topcoat is applied at 90-110 ft²/gallon.
 - 3.6.9 Thickness: Total system thickness shall equal approximately 3/16 inch.
 - 3.6.10 Cleaning and Protection: Take necessary steps to keep work in place clean and free from damage by ongoing construction activity. Repair defects as required, using flooring system manufacturer's recommended procedures.
- 3.7. Application of Resurfaced MMA Flake System:
- 3.7.1 The resurfaced flake system shall be applied in six distinct steps:

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- 3.7.1.1 Apply the primer/sealer.
- 3.7.1.2 Apply coving (if required).
- 3.7.1.3 Perform patching and sloping with resin/filler mixture.
- 3.7.1.4 Re-prime areas patched with resin/filler material.
- 3.7.1.5 Apply body coat consisting of resin and decorative flakes.
- 3.7.1.6 Apply the (2) topcoats (add anti-slip aggregate to second topcoat in work areas). Time for curing (45 - 60 minutes) shall be allowed between each coat. Thicknesses are specified below.
- 3.7.2 Open only the containers of component materials to be used in each specific application as needed. Refer to Manufacturer's data sheets for pot-life/temperature relationship to determine size of batches to mix and mix ratios for each respective coat of the system.
- 3.7.3 Measure, add, and mix the initiator (Res-Tek Powder Hardener) into the respective resin components in the proportions recommended by the Material Manufacturer. Pot life is short, so mix only as much material at a time as can be easily and efficiently applied.
- 3.7.4 Prime Coat:
 - 3.7.4.1 Prepare prime coat components in the proportions recommended by the Material Manufacturer.
 - 3.7.4.2 Pour the mixture batches onto the floor surface and use a 9" or 18" wide, 1/2" - 3/8" thick-napped, solvent-resistant paint roller to roll out the material at a rate of 110-120 sq. ft./gal. (Res-Tek) or 90-110 sq. ft./gal. (Duraflex) to form a uniform, continuous film, ensuring that all crevices, cracks, other surface discontinuities have been saturated and coated. Use a paint brush to reach areas inaccessible to the roller. Work quickly and deliberately; the pot life is short (10-15 minutes). Do not leave any "puddles"; roll out any such accumulations.
 - 3.7.4.3 Remove tape around perimeter and allow the primer/sealer coat to cure.
- 3.7.5 Patching/Sloping (If Required):
 - 3.7.5.1 Prepare Resin, Filler, and necessary aggregate (if required) in the proportions recommended by the Material Manufacturer.
 - 3.7.5.2 Use mixture to repair damaged concrete, or to slope floor areas following manufacturer's recommendations.
 - 3.7.5.3 Once cured, material must be re-primed before topping system is applied.
- 3.7.6 Body Coat or Bond Coat:
 - 3.7.6.1 Re-tape entire perimeter area using blue painter's tape.
 - 3.7.6.2 Apply Resin (pigmented white) with clean rollers at a rate of 60 to 65 sq. ft./gal. (Res-Tek) or 100-110 sq. ft./gal (Duraflex) same way as the Primer/Sealer was applied as described in Paragraph 3.7.4.
 - 3.7.6.3 Remove tape around perimeter area.
 - 3.7.6.4 Immediately and uniformly broadcast to rejection colored flakes into the wet material at a rate of 0.1 lb/sq.ft. Even broadcasting is best achieved by throwing handfuls of the broadcast material towards the ceiling and allowing it to "rain" down.
 - 3.7.6.5 Allow coat to cure 45-60 minutes.
 - 3.7.6.6 To remove loose flake, use slow speed floor buffers and buff floor using black stripping pads, carefully vacuum area thoroughly to remove all residual dust.
- 3.7.7 First Topcoat:
 - 3.7.7.1 Re-tape entire perimeter area using blue painter's tape.
 - 3.7.7.2 Apply topcoat with clean rollers at a rate of 90-100 sq.ft./gal. (Res-Tek) or 80-

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- 90 sq.ft./gal. (Duraflex) in the same way as the Primer/Sealer was applied as described in Paragraph 3.7.4.
- 3.7.7.3 Remove tape around perimeter and allow the topcoat to cure 45-60 minutes.
- 3.7.8 Second Topcoat:
- 3.7.8.1 Sand floor using buffers with 36 grit open face sandpaper.
- 3.7.8.2 Vacuum floor thoroughly, re-tape entire perimeter area using blue painter's tape.
- 3.7.8.3 Apply topcoat with clean rollers at a rate of 100-110 sq.ft./gal. (Res-Tek) or 90-110 sq.ft./gal. (Duraflex) in the same way as the Primer/Sealer was applied as described in Paragraph 3.7.4.
- 3.7.8.4 Remove tape around perimeter and allow the topcoat to cure 45-60 minutes.
- 3.7.9 Optional Third Topcoat:
- 3.7.9.1 Sand floor using buffers with 80 grit sandpaper.
- 3.7.9.2 Vacuum floor thoroughly, re-tape entire perimeter area using blue painter's tape.
- 3.7.9.3 Apply topcoat with clean rollers at a rate of 100-110 sq.ft./gal. (Res-Tek) in the same way as the Primer/Sealer was applied as described in Paragraph 3.7.4.
- 3.7.9.4 Remove tape around perimeter and allow the topcoat to cure 45-60 minutes.
- 3.7.10 For Work Areas Requiring Aluminum Oxide:
- 3.7.10.1 Using blue painter's tape mask entire perimeter of area to receive coating.
- 3.7.10.2 First topcoat applied at approximately 90-100 sq.ft./gal. (Res-Tek) or 80-90 sq.ft./gal. (Duraflex) to achieve full saturation of flake. Remove perimeter tape.
- 3.7.10.3 Re-tape perimeter area and apply second coat of colorless topcoat resin at approximately 100-110 sq.ft./gal. Broadcast #30 bleached aluminum oxide at a rate of 1.5-2 lbs. per 100 sq. ft. into the second topcoat.
- 3.7.10.4 Allow topcoat to dry completely, approximately 45-60 minutes.
- 3.7.10.5 (OPTIONAL) Re-tape and apply third topcoat at a rate of 115-125 sq. ft./gal. (Res-Tek).
- 3.7.11 Field Quality Control/Inspection:
- 3.7.11.1 Applicator shall request acceptance of surface preparation from the Engineer before application of the prime/seal coat.
- 3.7.11.2 Applicator shall request acceptance of the prime/seal coat from the Engineer before application of subsequent specified materials.
- 3.7.11.3 All work not acceptable to the Architect, Engineer, or Owner must be corrected before consideration of final acceptance.
- 3.7.12 Cleaning:
- 3.7.12.1 Applicator shall remove any material spatters. Remove masking and covers taking care not to contaminate surrounding area.
- 3.7.12.2 Applicator shall repair any damage that should arise from either the application or clean-up effort.
- 3.8. Application of Resurfaced MMA Quartz System:
- 3.8.1 General:
- 3.8.1.1 The system shall be applied in six distinct steps as listed below.
- Substrate preparation, Bond Tests
- Priming

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- First bond coat application with first aggregate broadcast
- Second bond coat with second aggregate broadcast
- Topcoat application, sand floor (if required)
- Second topcoat application
- 3.8.1.2 Immediately prior to the application of any component of the system, the surface shall be dry and any remaining dust or loose particles shall be removed using a vacuum or clean, dry, oil-free compressed air.
- 3.8.1.3 The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results in accordance with the Manufacturer's recommendations.
- 3.8.1.4 The system shall follow the contour of the substrate unless pitching or other leveling work has been specified by the Architect.
- 3.8.1.5 A neat finish with well-defined boundaries and straight edges shall be provided by the Applicator.
- 3.8.2 Primer:
 - 3.8.2.1 The primer shall consist of one roller applied coat with a coverage rate of 90-110 sq. ft./gal. (Duraflex).
 - 3.8.2.2 All components shall be measured and mixed in accordance with the Manufacturer's recommendations.
 - 3.8.2.3 The primer shall cure tack-free before application of the floor topping.
 - 3.8.2.4 Porous concrete may require a second coat of primer should the first coat be absorbed.
- 3.8.3 Bond Coat:
 - 3.8.3.1 The first bond coat shall be applied with a roller at a rate of 100-110 sq. ft./gal. (Duraflex) and broadcast to excess, 0.3-0.5 lbs/sf with the quartz aggregate, Q-11 (Publix Blend).
 - 3.8.3.2 The second bond shall be applied at 50-70 sq. ft./gal. and broadcast to excess, 0.3-0.5 lbs/sf with the quartz aggregate.
 - 3.8.3.3 Allow material to fully cure 45-60 minutes. Vacuum, sweep, and/or blow to remove all loose aggregate. Brush floor with medium brush. Do not reuse swept aggregate.
- 3.8.4 Topcoat:
 - 3.8.4.1 The first roller applied topcoat shall have a coverage rate of 50-70 sf/gal. (Duraflex).
 - 3.8.4.2 The first topcoat coat will be allowed to cure 45-60 minutes, then can be sanded or scraped to give desired finish texture.
 - 3.8.4.3 The second topcoat is applied at a coverage rate of 90-110 sf/gal. (Duraflex).
 - 3.8.4.4 The finish floor will have a nominal thickness of 3/16 inch.
- 3.8.5 Field Quality Control: Tests, Inspection:
 - 3.8.5.1 The following tests shall be conducted by the Applicator:
 - Temperature: Air, substrate temperatures and, if applicable, dew point.
 - Bond Test of the primer to the substrate shall be checked as per Clause 3.3.4.
 - Coverage Rates: Rates for all layers shall be monitored by checking quantity of material used against the area covered.
- 3.8.6 Cleaning and Protection:

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- 3.8.6.1 Cure flooring material in compliance with manufacturer's directions, taking care to prevent their contamination during stages of application and prior to completion of the curing process.
 - 3.8.6.2 Remove masking. Perform detail cleaning at floor termination, to leave cleanable surface for subsequent work of other sections.
 - 3.8.7 For Deli Floors That Have Existing MMA Flooring in Front of Deli Fryers: Place "Quartz" MMA flooring on top of the existing MMA flooring. Trowel on the new Quartz MMA flooring to a depth of 1/4". Refer to the drawings for the extent of the new Quartz MMA flooring. The purpose is to cover all potential hot grease "splatter zones". Follow remodel plans for floor finish outside the fryer "splatter zone". Refer to Section 3.5 for substrate preparation instructions.
- 3.9. Application of Topcoat to Existing MMA Floor:
- 3.9.1 Application of Topcoat System consists of two distinct steps:
 - Apply the first topcoat.
 - Apply second topcoat (and anti-slip aggregate in work areas).
 - Time for curing (45-60) minutes shall be allowed between each coat.
 - Thicknesses are specified below.
 - 3.9.2 Open only the containers of component materials to be used in each specific application as needed. Refer to Manufacturer's data sheets for pot-life/temperature relationship to determine size of batches to mix and mix ratios for each respective coat of the system.
 - 3.9.3 Measure, add, and mix the initiator (Res-Tek Powder Hardener) into the respective resin components in the proportions recommended by the Material Manufacturer. Pot life is short, so mix only as much material at a time as can be easily and efficiently applied.
 - 3.9.4 First Topcoat:
 - 3.9.4.1 Pour the mixture batches onto the floor surface and use a 9" or 18" wide, 1/2" - 3/8" thick-napped, solvent-resistant paint roller to roll out the topcoat at a rate of 100-101 sq. ft./gal. (Res-Tek) or 80 sq. ft./gal. (Duraflex) to form a uniform, continuous film, ensuring that all surface discontinuities have been saturated and coated. Use a paint brush to reach areas inaccessible to the roller. Work quickly and deliberately; the pot life is short (10-15 minutes). Do not leave any "puddles"; roll out any such accumulations.
 - 3.9.4.2 Remove tape around perimeter and allow the topcoat coat to cure 45-60 minutes.
 - 3.9.5 Second Topcoat:
 - 3.9.5.1 Re-tape entire perimeter area using blue painter's tap.
 - 3.9.5.2 Apply topcoat with clean rollers at a rate of 100-110 sq.ft./gal. (Res-Tek) or 90-110 sq.ft./gal. (Duraflex) in the same way as the first topcoat was applied as described in Paragraph 3.9.2.
 - 3.9.5.3 Remove tape around perimeter and allow the topcoat to cure 45-60 minutes.
 - 3.9.6 Optional Third Topcoat:
 - 3.9.6.1 Apply topcoat with clean rollers at a rate of 100-110 sq.ft./gal. (Res-Tek) in the same way as the first topcoat was applied as described in Paragraph 3.9.4.
 - 3.9.6.2 Remove tape around perimeter and allow the topcoat to cure 45-60 minutes.
 - 3.9.7 For Work Areas Requiring Aluminum Oxide:
 - 3.9.7.1 Using blue painter's tape mask entire perimeter of area to receive coating.
 - 3.9.7.2 First topcoat applied at approximately 100-110 sq.ft./gal. (Res-Tek) or 80-90 sq.ft./gal. (Duraflex). Remove perimeter tape.

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- 3.9.7.3 Re-tape perimeter area and apply second topcoat at approximately 100-110 sq.ft./gal (Res-Tek) or 90-110 sq.ft./gal. (Duraflex). Broadcast #30 bleached aluminum oxide at a rate of 1.5-2 lbs. per 100 sq. ft. into the second topcoat.
- 3.9.7.4 Allow topcoat to dry completely, approximately 45-60 minutes.
- 3.9.7.5 (OPTIONAL) Re-tape and apply third topcoat at a rate of 115-125 sq. ft./gal. (Res-Tek).
- 3.9.8 Field Quality Control/Inspection:
 - 3.9.8.1 Applicator shall request acceptance of surface preparation from the Engineer before application of the prime/seal coat.
 - 3.9.8.2 Applicator shall request acceptance of the prime/seal coat from the Engineer before application of subsequent specified materials.
 - 3.9.8.3 All work not acceptable to the Architect, Engineer, or Owner must be corrected before consideration of final acceptance.
- 3.9.9 Cleaning:
 - 3.9.9.1 Applicator shall remove any material spatters. Remove masking and covers taking care not to contaminate surrounding area.
 - 3.9.9.2 Applicator shall repair any damage that should arise from either the application or clean-up effort.
- 3.10. Final Cleaning: The retail area is to be scrubbed and rinsed as close as possible (night before) to the store opening. The work is to be done with automatic scrubbers such as Tennant walk behind automatic scrubber.
 - 3.10.1 A sodium hydroxide base cleaner mixed at a ratio of 10 parts clean water to 1 part soap is to be used. Have clean brushes and pads installed. At a slow speed dispense soap onto floor with the vacuum squeegee feature not operating.
 - 3.10.2 Allow soap solution to sit for 20 minutes. Re-scrub and vacuum.
 - 3.10.3 Rinse with a second machine and a solution of 30 parts water to 1 part vinegar. Dispense rinsing solution and vacuum immediately.
 - 3.10.4 Polish area with high speed buffer and pads.

End of Section 09 67 23

Section 09 68 00

Carpet V09112020

1. General

- 1.1. Submit LOI in accordance with Section 01 33 00 Submittal Procedures.
- 1.2. Warranties:
 - 1.2.1 Carpet Type I: Manufacturer's standard 3 year pro-rated warranty.
 - 1.2.2 Carpet Type II: Manufacturer's standard wear/colorfastness 10 year warranty.
 - 1.2.3 Carpet Type III: Manufacturer's standard 3 year pro-rated warranty.
 - 1.2.4 Installation: 1 year labor and material against all defects.

2. Products

2.1. Carpet Type I:

Manufacturer/Distributor: Interface
Contact: Jennifer Kunz
Phone: (407) 495-9932
Email: Jennifer.kunz@interface.com
Series: Express Grey Color: 185507

2.2. Carpet Type II - Not Used.

2.3. Carpet Type III:

Manufacturer/Distributor: Charles van Gelder
Contact: Greg Griffin
Phone: (864) 527-3148 or (864) 430-3997
Series: Dominator Color: Mid-Grey
Back: Moisture dissipating secondary back, with anti-microbial agent:
lifetime application

2.4. Transition Strips (use over existing vinyl tile, terrazzo, or concrete, and where carpet is used over new terrazzo):

2.4.1 Aluminum Base: Extrusion designed to be fastened to floor with a channel to receive transition strip.

2.4.2 Transition Strip: Use at pharmacy where carpet tile transitions to terrazzo.

Manufacturer: Roppe (Available through Charles Van Gelder)
Series: 174-V1P100

3. Execution

3.1. General: All applicators and field personnel shall be fully trained and familiar with manufacturers' application procedures.

3.2. Tile Installation

3.2.1 Design layout of tiles so that the edges abutting walls, equipment, etc. are formed with pieces large enough to prevent them being easily dislodged. At transition strips, provide first course of whole tiles abutting strip.

3.2.2 Install tile in a "diamond pattern".

3.2.3 Fit around all cases and other permanently installed fixtures. Trim tiles for tight installation.

3.3. Roll Goods

3.3.1 Design layout to minimize seams; where spaces are less than the width of the roll, provide seamless installation.

3.3.2 Glue down directly to slab, following carpet manufacturer's recommendations.

End of Section 09 68 00

Section 09 91 00

**Paints
V03092020**

1. General

- 1.1. Submit LOI in accordance with Section 01 33 00 Submittal Procedures. No samples or product cut sheets will be required prior to pre-painting conference (see Article 4.1 below).
- 1.2. Factory and shop applied painting: Apply as specified in sections governing the item required.
- 1.3. Field Painting:
 - 1.3.1 Generally, paint all visible surfaces of all items both interior and exterior, and where needed for protection of materials from moisture damage.
 - 1.3.2 Apply single coat of primer or wall paint on surfaces subject to accumulation of dust and dirt; that is, door tops and other places where appearance is not critical.
 - 1.3.3 Where there is no indication for specific selections, match color and gloss of adjacent finishes, using coatings of the type recommended by the coating manufacturer in writing and approved by the owner
 - 1.3.4 Interior and exterior materials:
 - Concrete
 - Portland cement plaster
 - Masonry
 - Woodwork (includes back-priming all wood siding, and interiors of millwork)
 - Gypsum wallboard
 - Steel and other ferrous metals including galvanized steel.
 - 1.3.5 Specifically excluded from field painting:
 - Where concealed by ceiling: Structural steel, steel joist girders and joists, metal roof deck, and interior electrical and mechanical work
 - Concrete walks; if remodeling work requires reconditioning of previously painted walks notify Architect.
 - 1.3.6 Materials and equipment not to be painted.
 - Items of equipment furnished with complete factory finish, except for items specified to be given a finish coat under this Section
 - Non-ferrous metals, except for items specified and/or indicated to be painted
 - Prefinished sheet metal
 - Finished hardware, excepting hardware that is factory primed
 - Electrical panels
 - 1.3.7 Surfaces not to be painted shall be left completely free of droppings, overspray and other accidentally applied materials resulting from painting work.

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1.4. Paint Materials:

- 1.4.1 Deliver all paint, varnishes, enamels, lacquers, stains and similar materials in the original containers with the seals unbroken and labels intact and with the manufacturer's instructions printed thereon.
- 1.4.2 Paint shall arrive on the job color-mixed except for tinting of undercoats and thinning. All thinning and tinting materials shall be as recommended by the manufacturer for the particular material to be thinned or tinted.
- 1.4.3 All mixed colors shall match the color selection made by the Architect. Verify prior to application of the coating.

1.5. Storage of Materials:

- 1.5.1 Store all materials used on the job in a single place designated by the General Superintendent or Architect.
- 1.5.2 Keep storage areas clean and free of debris. Take special care to remove all items which present danger of fire daily.
- 1.5.3 Do not store materials in walk-in coolers and freezers.

1.6. Inspection of Surfaces:

- 1.6.1 Examine surfaces carefully before starting. Note defects which are not reparable by ordinary means and notify Architect and General Contractor in writing. Work shall not proceed until such damages are corrected.
- 1.6.2 Commencement of work in a specific area will be construed as acceptance of the substrate.

1.7. Job Conditions:

- 1.7.1 Before painting is started in any area, broom clean and remove dust.
- 1.7.2 Until paint is fully dry, broom cleaning will not be allowed; use commercial vacuum cleaning equipment.
- 1.7.3 Provide adequate illumination for judging colors and finish quality in areas where painting operations are proceeding.

1.8. Cooperation with other trades: Schedule painting work with other trades. Do not proceed until all affected work is in place, and, where required, protected from painting operations.

2. Products

2.1. Manufacturer:

- 2.1.1 Only Sherwin Williams products will be accepted. If a product is needed which is not produced by Sherwin Williams, notify Publix Architect.
- 2.1.2 SW will be used to designate Sherwin Williams throughout this Section.
- 2.1.3 Publix's intent is to utilize products that are low in Volatile Organic Compounds (VOC). Where possible, product selection has been made to achieve this. Substitution of older type materials which contain solvents will not be allowed unless specifically directed by Publix's Architect.

3. Execution

3.1. Workmanship, General:

- 3.1.1 Only skilled mechanics shall be employed. Apply by brush and roller and/or spray. Spray painting will be back rolled.
- 3.1.2 Protect work in place at all times, and protect all adjacent work and materials by suitable means.
- 3.1.3 In remodeling operations, where electrical panels were previously painted, paint to match surrounding wall.
- 3.1.4 All materials shall be applied under adequate illumination. Evenly spread and smoothly flow on to avoid runs, sags, holidays, brush marks, air bubbles and excessive roller stipple.
- 3.1.5 Provide complete coverage and hide. Where color, stain, or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, color, appearance and coverage.
- 3.1.6 All coats shall be adequately dry in compliance with manufacturer's recommendations before applying succeeding coats.
- 3.1.7 Wood surfaces to be stained shall appear uniform in shading with color variations caused only by the natural wood grain.

3.2. Preparation of Surfaces:

- 3.2.1 Surfaces shall be clean, dry and adequately protected from dampness.
- 3.2.2 Surface shall be free of foreign materials which will adversely affect adhesion or appearance of applied coating.
- 3.2.3 Mildew shall be removed and the surface treated in accordance with the coating manufacturers recommendations.
- 3.2.4 Wood:
 - 3.2.4.1 Sand to smooth and even surface, then dust off.
 - 3.2.4.2 Apply pigmented shellac to all knots, pitch and resinous sapwood prior to application of specified primer coats.
 - 3.2.4.3 After priming coat has dried, putty or spackle all nail holes, cracks, open joints and other defects. Putty shall be colored to match primer, if putty is not compatible with finish, spot prime puttied areas.
- 3.2.5 Drywall: Fill all minor irregularities with spackling paste and sand to a smooth level surface. Exercise care to avoid raising nap of paper.
- 3.2.6 Concrete, Masonry and Stucco
 - 3.2.6.1 Patch large openings and holes and finish flush with adjacent surface. After priming, fill remaining small holes with prepared patching material.
 - 3.2.6.2 Remove form oil from poured-in-place concrete with form oil solvent, or other operations as required for complete removal.
 - 3.2.6.3 Do not paint until surfaces have cured for 28 days and are dry.
- 3.2.7 Ferrous metal surfaces

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- 3.2.7.1 Remove dirt, dust and surface contaminants. Clean per SSPC-1 and use Simple Green and water solution, wipe dry with clean cloths.
- 3.2.7.2 Remove rust, mill scale and defective paint down to sound surfaces or bare metal using scraper, sandpaper or wire brush as necessary.
- 3.2.7.3 Touch up all bare metal and damaged shop coats with specified shop coat primer.
- 3.2.8 Galvanized metal surfaces: Remove dirt and grease with non-hydrocarbon cleaner (e.g. "Simple Green" reduced to no more than 30:1 with water, 4 oz. Simple Green to 1 gallon water.) Use a low pressure sprayer to apply cleaning solution, wait a few minutes (not more than 20) before rinsing, if rinsing is not practical, then wipe with a damp cloth followed by wiping with a clean dry cloth. (If time allows, air dry may be substituted.)
- 3.2.9 Aluminum Hill House (Only when required by jurisdiction to be painted):
 - 3.2.9.1 Primer B66A00050-DTM Bonding primer Off White
 - 3.2.9.2 Two (2) Coats: B66W00351-Sher-Cryl HPA High Performance Acrylic Semi-Gloss Coating
- 3.2.10 Existing surfaces to be repainted (when and where applicable)
 - 3.2.10.1 Where existing work is cut, patched, or added to, all new surfaces shall be painted or touched up to match existing work as closely as possible.
 - 3.2.10.2 Existing work, where scheduled for repainting or where damaged by work of this Contract, shall be repaired and scraped or sanded to provide good adhesion for paint. Paint to match similar new work or existing work as appropriate.
 - 3.2.10.3 Fiberglass Reinforced Paneling (FRP) (Remodels only):
 - 3.2.10.3.1 Sand with 80-100 grit sandpaper.
 - 3.2.10.3.2 Clean with Formula 409 All-Purpose Cleaner
 - 3.2.10.4 Ceramic Tile in Walls (Remodels Only)
Epoxy System (water base)
High Gloss Finish:
Primer: SW Extreme Bond Primer, B51W1150
1st Coat: Pro Industrial Water Based Epoxy Gloss, B73-300/B73V300
2nd Coat Pro Industrial Water Based Epoxy Gloss, B73-300/B73V300
(5.0-19.0 mils Wet, 2.0-4.0 mils Dry)
- 3.3. Workmanship for Exterior Painting
 - 3.3.1 Follow manufacturer's recommendations for job conditions and surface preparation.
 - 3.3.2 Do not proceed with painting work when the surface temperature is below 50 degrees F (unless low temperature paint is being used. See 4.2.1.1), while the surface is damp, or during rainy or frosty weather. Avoid painting surfaces while they are exposed to hot sun.
 - 3.3.3 Exterior doors shall have tops, bottoms, and side edges finished the same as the exterior faces of these doors.
- 3.4. Workmanship for Interior Painting

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- 3.4.1 Enamel or varnish finish applied to wood or metal shall be sanded with fine sandpaper and then cleaned between coats to produce an even surface.
- 3.4.2 Interior doors shall be sealed on the tops and bottoms with the prime coat only. Side edges of interior doors shall be finished as faces of these doors.
- 3.4.3 All closet interiors shall be finished the same as adjoining rooms, unless otherwise specified.
- 3.5. Testing:
 - 3.5.1 Perform all tests in inconspicuous locations.
 - 3.5.2 Submit all test results to Publix representative and Sherwin Williams representative.
 - 3.5.3 Adhesion Testing:
 - 3.5.3.1 If testing waterborne acrylics, building must be conditioned prior to performing the test.
 - 3.5.3.2 Perform ASTM D3359 Standard Test Methods for Measuring Adhesion by Tape Test.
 - 3.5.3.2.1 Test Method A should be used.
 - 3.5.3.2.2 Results should be 3A or better.
 - 3.5.4 Mil testing:
 - 3.5.4.1 Drywall and block walls: Use wet film thickness gauge.
 - 3.5.4.2 Any other substrates: Dry film thickness gauge.
- 3.6. Caulking
 - 3.6.1 Caulk between exposed masonry and steel frames. Caulk as required to close all mortar joints.
 - 3.6.2 Joints and spaces to be caulked shall be clean and dry. Leave surfaces neat and clean. Caulk before final painting.
- 3.7. Clean-Up:
 - 3.7.1 Upon completion of the work, remove all paint and varnish spots from floors, glass and other surfaces.
 - 3.7.2 Remove from the premises all rubbish and accumulated debris.
 - 3.7.3 Leave work in clean, orderly and acceptable condition.

4. Schedules

- 4.1. Pre-painting Conference
 - 4.1.1 Five business days prior to start of ceiling painting meet at project site with Representative from General Contractor, Painting Contractor, SW and Publix Supermarkets.
 - 4.1.2 Review requirements (contract documents), submittals, status of coordinating work, availability of materials, proposed schedule, requirements for inspections, proposed application procedures, surface preparation, record discussion, including agreement or disagreement on matters of significance.

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4.1.3 Furnish minutes of meeting to each participant.

4.2. Exterior Paint Schedule

4.2.1 Concrete Masonry (CMU) - Cinder or Concrete Block (For all Publix standardized facades and all Publix exposed exterior block walls)

1st Coat - SW Loxon Block Surfacer - Waterborne - LX01W200

16mils wet,8 mils dry

2nd and 3rd Coats - SW Loxon XP Waterproofing System-LX11W50 Series 14-18 mils wet; 6.4-8.3 mils dry per coat.

4.2.1.1 Color: Outside color as selected by Shopping Center Architect and approved by Publix' Architect.

4.2.1.2 Where store receives rear or side exterior portland cement plaster: See Section 09220 - Lath and Portland Cement Plaster, color as selected by Shopping Center Architect and approved by Publix' Architect.

4.2.2 Exterior Ferrous Metal (not aluminum or shop painted):

1st Coat - Pro-Cryl Universal Water Based Primer B66-1300 Series

5-10 mils wet, 2-4 mils dry

2nd and 3rd Coats - SW Pro Industrial DTM Semi-gloss - Waterborne - B66W1150 Series

Color as indicated, or if not indicated, as selected by Publix Architect.

4.2.3 Exterior Doors and Jambs

1st Coat - Pro-Cryl Universal Water Based Primer B66-1300 Series

5-10 mils wet, 2-4 mils dry

2nd and 3rd Coats - SW Pro Industrial DTM Semi-gloss - Waterborne - B66W1150 Series 6.0-10.0 mils Wet, 2.5-4.0 mils Dry

Outside color as selected by Shopping Center Architect and approved by Publix' Architect; inside color as specified in interior paint paragraphs.

4.3. Interior Paint Schedule

4.3.1 Publix pantone custom color paint to be provided as shown and noted on plans and finish schedule. Type of paint follows interior paint schedule for types of surfaces applied to. The color format is as follows;

Publix Green Flat	PMS 363C Match	ProMar 400 Zero VOC FLAT B30W4653-16	Single Gallon Formula	
Colorant- CCE	Oz	32	64	128
R4 New Red	-	6	-	-
L1 Blue	2	48	-	-
Y1 Yellow	8	20	-	-

Publix Green Flat	PMS 363C Match	ProMar 400 Zero VOC FLAT B30W4653-20	Five Gallon Formula	
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Colorant- CCE	Oz	32	64	128
R4 New Red	-	30	-	-
L1 Blue	16	48	-	-
Y1 Yellow	42	36	-	-

Publix Green Semi-Gloss	PMS363C Match	ProMar 400 Zero VOC FLAT B31W4653-16	Single Gallon Formula	
Colorant- CCE	Oz	32	64	128
B1 Black	-	11	-	1
L1 Blue	2	49	-	1
Y1 Yellow	8	3	1	-

4.3.2 Concrete-Poured in Place, Pre-Cast (Ceiling)

Primer-SW Loxon Block Surfacer-Waterborne- LX01W200

16 mils wet, 8 mils dry

2nd and 3rd Coats- SW Waterbone Acrylic Dry Fall Flat B42T1

7.0-11.0 mils wet dry

4.3.3 Pre-Cast Concrete Double “T” Structural Roof/Ceiling Assembly & Galvanized Metal Brackets (for stores that are designated as “Uniques” ONLY)

1st Coat: Pro Industrial Waterborne Acrylic Dryfall, Eg-Shel, B42W82

2nd Coat: Pro Industrial Waterborne Acrylic Dryfall Eg-Shel, B42W82 Series

4.3.4 Concrete Masonry (Back Rooms and Stair Wells)

1st Coat - SW Loxon Block Surfacer - Waterborne - LX01W200

16 mils wet, 8 mils dry

2nd and 3rd Coats - SW ProMar 400 Zero VOC Interior Latex Semi-Gloss, B31-4600 Series 4 mils wet, 1.3 mils dry per coat

4.3.5 Concrete Masonry (Sales Area)

1st Coat - SW Loxon Block Surfacer - Waterborne - LX01W200

16 mils wet, 8 mils dry

2nd and 3rd Coats - SW ProMar 400 Zero VOC Flat, B30W4600 Series 4 mils wet, 1.2 mils dry per coat

(Provide Semi-gloss finish from finished floor to 8’ A.F.F. at all walls facing the sales area.).

4.3.6 Concrete Masonry with Epoxy where indicated

1st Coat - Loxon Block Surfacer - Waterborne - LX01W200

16 mils wet, 8 mils dry

2nd and 3rd Coats - Pro Industrial Water based Epoxy Gloss, B73-300/ B73V300 (5.0-10.0 mis Wet, 2.0-4.0 mils Dry)

Gypsum Wallboard (Sales Area):

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1st Coat - SW ProMar 200 Zero VOC Interior Latex Primer, B28W02600 4 mils wet, 1.1 mils dry
2nd and 3rd Coats - SW ProMar Zero VOC Interior Latex Flat, B30-4600 Series 4 mils wet, 1.2 mils dry per coat
(Provide Semi-gloss finish from finished floor to 8' A.F.F. at all walls facing the sales area.).

4.3.7 Gypsum Wallboard in Back-rooms:

1st Coat - SW ProMar 200 Latex primer, B28W2600
4 mils wet, 1.1 mils dry
2nd and 3rd Coats: SW ProMar 400 Semi-Gloss, B31W4600 Series
mils 4 mils wet, 1.1 mils dry per coat

4.3.8 Customer Service, Front Offices, Cash Room, General Office and Manager's Offices, Restroom Ceilings (where indicated as painted):

1st Coat - SW ProMar 200 Latex Primer, B28W2600
4 mils wet, 1.1 mils dry
2nd and 3rd Coats - 2nd and 3rd Coats - SW ProMar 400 Zero VOC Interior Latex Semi-Gloss, B31-4600 Series
4 mils wet, 1.3 mils dry per coat

4.3.9 Gypsum Wallboard behind Refrigerated Cases

One Coat - SW ProMar 200 Latex Primer, B28W2600
4 mils wet, 1.3 mils dry

4.3.10 Plywood, Wood Shelving, Wood Base (Wainscot in back rooms):

1st Coat - Multi-Purpose Primer B51-450
4 mils wet, 1.4 mils dry
2nd and 3rd Coats - SW ProMar 400 Zero VOC Interior Latex Semi-Gloss, B31-4600 Series
4 mils wet, 1.3 mils dry per coat

4.3.11 FRP (Remodels only)

1st Coat - SW Extreme Bond Primer, B51W1150
4 mils wet, 2 mils dry
2nd & 3rd Coats - SW Pro Industrial Water based Epoxy Gloss, B73-300/B73V300
(5.0-10.0 mils Wet, 2.0-4.0 mils dry)

4.3.12 Plenum Areas (In Bakery, around hoods, oven & supply or exhaust curtain walls where other finish is not indicated.)

1st Coat - ProMar 200 Latex Primer, B28W2600
4 mils wet, 1.1 mils dry
2nd and 3rd Coats - SW ProMar 400 Zero VOC Interior Latex Semi-Gloss, B31-4600 Series
4 mils wet, 1.3 mils dry per coat

4.3.13 Interior Exposed Metal (Brush application - all metals except as allowed in

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spray applications listed below.):

1st Coat - Kem Kromik Universal Metal Primer - Solvent based - B50WZ1.

6.0-8.0 mils wet, 3.0-4.0 mils dry

2nd and 3rd Coats - SW SuperPaint Interior Latex Semi-Gloss - A88 series 4.0 mils wet, 1.6 mils dry per coat

Color: To match adjacent wall.

4.3.14 Interior Exposed Metal: Structural steel and primed metal deck; electrical work; fittings, and other work; fire sprinkler piping; plumbing and gas piping; hangers, and other supports; other exposed items which are not factory finished):

Step 1. Spot Prime for Rusted Areas: To be used on weld joints and rust areas: SW Kem Kromik Universal Metal Primer, B50 Series (use as needed)

1st Coat: SW Super Save Lite Dry Fall, B48W61 Flat (tint up to 2 oz of B1 Black colorant per gallon (Primer Shade P2)

(6-6.5 mils wet, 3-3.5 mils dry)

2nd and 3rd Coats: SW Waterbone Acrylic Dry Fall B42T1 Clear Tint Base (flat) (See plans for colors)

(7-11 mils wet, 3-4.5 mils dry)

4.3.15 Interior Galvanized Metal: Ductwork, adjacent hangers and supports, refrigeration pans and misc. galvanized metal. (Spray application allowed over 13 ft. AFF only: Protect galvanized surfaces from alkyd coatings. See previous section for method of cleaning galvanized surfaces.):

1st Coat - SW DTM Acrylic Primer Finish B66W1

5-10 mils wet, 2.5- 5 mils dry

2nd and 3rd Coats- SW ProMar 200 Zero VOC Interior Latex Semi-Gloss, B31-2600 Series

4 mils wet, 1.5 mils dry per coat

See drawings for color selection.

--- OR / ALSO REMODELS ---

4.3.16 Interior Exposed Metal: Structural steel and primed metal deck; electrical work; fittings, and other work; fire sprinkler piping; plumbing and gas piping; hangers, and other supports; other exposed items which are not factory finished):

Spot Prime (all unprimed ferrous metal, field welds and rusted areas) - SW Pro Industrial Pro-Cryl Metal Primer B66-1300 Series

5-10 mils wet, 1.9-3.8 mils dry

1st and 2nd Coats - SW Pro Industrial Multi-Surface Acrylic Eg-Shel, B66-1560 Series

3.75-5.0 mils wet, 1.5-2.0 mils dry per coat

4.3.17 Interior Galvanized Metal: Ductwork, adjacent hangers and supports, refrigeration pans and misc. galvanized metal. (Spray application allowed over 13 ft. AFF only: Protect galvanized surfaces from alkyd coatings. See previous section for method of cleaning galvanized surfaces.):

1st Coat - SW Pro Industrial Multi-Surface Acrylic Eg-Shel, B66-1560

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Series

3.75-5.0 mils wet, 1.5-2.0 mils dry per coat

2nd Coat- SW Pro Industrial Multi-Surface Acrylic Eg-Shel, B66-1560 Series

3.75-5.0 mils wet, 1.5-2.0 mils dry per coat

4.3.18 Refrigeration Pipe Insulation

1st Coat - SW Pro Industrial DTM Semi Gloss- Waterborne- B66W1150 Series, 6.0-10.0 mils Wet, 2.5-4.0 mils dry

2nd Coat - SW Pro Industrial DTM Semi Gloss- Waterborne- B66W1150 Series, 6.0-10.0 mils Wet, 2.5-4.0 mils dry

4.3.19 Glycol Refrigeration Piping (light colored final coat)

1st Coat - Tint to P1 SW Extreme Bond Primer, B51W1150
6.5 mils wet, 1 mils dry

2nd Coat - SW Pro Industrial DTM Semi Gloss- Waterborne- B66W1150 Series, 6.0-10.0 mils Wet, 2.5-4.0 mils dry

4.3.20 Glycol Refrigeration Piping (dark colored final coat)

1st Coat - Tint to P3 SW Extreme Bond Primer, B51W1150
6.5 mils wet, 1 mils dry

2nd Coat - SW Pro Industrial DTM Semi Gloss- Waterborne- B66W1150 Series, 6.0-10.0 mils Wet, 2.5-4.0 mils dry

4.3.21 Fillers

Paintable caulking - SW Loxon S1 Smooth Polyurethane Sealant

Spackling compound - SW C-50.

All caulking and spackling shall be done after prime coat is applied.

4.3.22 Putty

DAP "33" Glazing Compound

End of Section 09 91 00

Section 10 21 13

Toilet Compartments

V01282021

1. General

1.1. Submittals:

1.1.1 Submit LOI in accordance with Section 01 33 00 Submittal Procedures.

1.1.2 Shop drawings showing plans, elevations, and attachment and hardware details.

2. Products

2.1. Manufacturers:

Scranton Products, Scranton, PA

ASI Global Partitions, Eastanollee, GA

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Ampco Products LLC, Miami, FL

- 2.2. Construction: Partitions shall be 1" thick, high density polyethylene (HDPE); all edges shall be machined to a radius of 0.250" and all sharp corners removed. All dividing panels and doors shall be 55" high mounted 14" A.F.F., or 58" high mounted 12" A.F.F.
- 2.3. Color: See finish legend in construction documents for partition color.
- 2.4. Hardware: Finishes will be either bright anodized or satin finish aluminum unless noted otherwise.
 - 2.4.1 Wall Brackets: Continuous full-panel-length extruded.
 - 2.4.2 Head Rails: Extruded.
 - 2.4.3 Pilaster Shoes: 20 ga. stainless steel.
 - 2.4.4 Hinges: Must be designed to allow emergency access.
 - 2.4.4.1 Hinges must be self-closing 8 inch Aluminum
 - 2.4.5 Latches: Must be designed to allow emergency access.
 - 2.4.5.1 Aluminum, brite anodized.
 - 2.4.6 Handles: Provide handle on both sides of door.
 - 2.4.7 Strikes: Must be designed to allow for emergency access.
 - 2.4.8 Bumper/Hooks: Heavy chrome plated zamac.
 - 2.4.9 Pull (accessible stall and ambulatory stalls only): Provide pulls on both sides of stall door - heavy duty chrome plated zamac.

3. Execution

- 3.1. Installation: Installation shall be in accordance with approved drawings and manufacturer's standard recommendations.

End of Section 10 21 13

Section 10 22 13

Wire Mesh Partitions

V02212011

1. General

(Not used)

2. Products

- 2.1. Chain Link Fence:
 - 2.1.1 Provide galvanized chain link fencing where shown or scheduled.
 - 2.1.2 2" mesh wire #9 W & M gauge with 3"d corner post max. and 2" top and bottom rails, and 1-5/8" horizontal intermediate rail and 2 1/2" line posts, 8' -0" o.c. outer gate frame 1-5/8", inner frame 1-3/8"; gate 3'-0" x 7'-0". All parts galvanized. Generator fence shall have a chain link top.
 - 2.1.3 Provide fence around and over generator. Coordinate with size of generator with

minimums as follows:

- Width - 10'-0"
- Side at building exterior wall - vandal proof
- Minimum clearance at one side - 3'-0"
- Minimum clearance at end - 3'-0"
- Sides - 7'-0" height
- Top - full coverage

2.1.4 Verify if fence is required around transformer vault and provide per power company specifications.

3. Execution

(Not Used)

End of Section 10 22 13

Section 10 26 23

Protective Wall Coverings

1. General

- 1.1. This Section includes the following types of Wall Coverings: High Impact Sheeting
- 1.2. Scope of Work: All High Impact Sheeting shall be furnished per architectural drawings, plans and details and shall include all material as set forth in the drawings and specifications.
- 1.3. Quality Assurance: All High Impact Sheeting shall be furnished and installed in cooperation with other trades. The General Contractor is to coordinate field measurements and shop drawings with fabrication and shop assembly.
- 1.4. Delivery, Storage and Handling: The delivery, storage and handling of High Impact Sheeting shall be according to the instructions per the manufacturer. Sheeting shall be stored flat, in original packaging, in a cool, dry place out of direct exposure to sunlight. Materials must be acclimated in an environment of 65-75 degrees F for at least 24 hours prior to installation.
- 1.5. Warranty: Provide manufacturer's standard product warranty in addition to installer's warranty covering installation.
- 1.6. Submittals: Submit manufacturer's descriptive literature, specifications, installation instructions and limited warranty.
- 1.7. Installer Qualifications: Engage an installer who has not less than 3 years experience in installation of wall coverings/wall panels similar in complexity to those required for this project.

2. Products

- 2.1. Physical Properties:
 - 2.1.1 Density: High Impact Sheeting shall be 0.040 thick rigid vinyl/acrylic supplied in 4' x 8' sheet sizes in standard Pebblette texture.
 - 2.1.2 Chemical and Stain Resistance: Provide High Impact Sheeting that is chemical

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and stain resistant in Accordance with ASTM D-1308.

- 2.1.3 Fire Rating: Provide High Impact Sheeting with a UL label indicating that they are identical to those tested in accordance with UL-723 (ASTM-E84-98A) for Class I characteristics listed below:
 - 2.1.3.1 Flame spread 20 or less.
 - 2.1.3.2 Smoke developed: 400 or less.
- 2.1.4 Color Match: Provide sheeting that is color matched in accordance with the following: Delta E difference of no greater than 1.0 using the Hunter (Lab) Scale.
- 2.2. Acceptable Manufacturers: Subject to compliance with requirements. Provide High Impact Sheeting by the following:
 - C/S Acrovyn High Impact Wall Coverings,
Manufactured by Construction Specialties, Inc.
Acrovyn Supplier: Grand Entrance
 - 7620 J-Rickenbacker Drive
 - Gaithersburg, MD 20879
 - Contact: Colleen Casto (888) 424-6287

3. Execution

- 3.1. Examination: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
- 3.2. Preparation: Prior to installation, clean substrate to remove dirt, debris and loose particles. Perform additional preparation procedures as required by manufacturer's instructions.
- 3.3. Installation: In general, High Impact Sheeting shall be handled and installed with water based, non-hazardous primer and adhesive. Primer and adhesive shall be provided with sheeting as complete packaged system, manufactured by the same company, for single source responsibility. Sheeting shall not be exposed to direct sunlight during installation or within 48 hours after installation.
- 3.4. Cleaning: Immediately upon completion of installation, clean wall covering accessories in accordance with manufacturer's recommended cleaning method.
- 3.5. Protection: Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

End of Section 10 26 23

Section 10 28 13

Toilet Accessories V01122021

1. General

- 1.1. Submittals:
 - 1.1.1 Submit LOI and manufacturer's literature in accordance with Section 01 33 00 Submittal Procedures. Provide item count for each supplied accessory.

2. Products

- 2.1. Toilet Accessories: Model numbers listed are for Bradley accessories. Equivalent model numbers are listed in the LOI.
 - 2.1.1 Mirror (MR1): 1/4" float glass, quality Q3 or better mirror with galvanized steel back, stainless steel frame and with theft proof mounting, 16"x 36". Bradley, ASI or Bobrick. (Model B-165-1636)
 - 2.1.2 Mirror (MR2): Illuminated mirror specifications INT2-48"x36"-L7CS-30K (Integrity Lighted Mirror by Electric Mirror)
 - 2.1.3 Mirror (MR3): 1/4" float glass, quality Q3 or better mirror with galvanized steel back, stainless steel frame and theft proof mounting, 48"x36". Bradley, ASI or Bobrick.(Model B-165-4836)
 - 2.1.4 Mirror (MR4): Illuminated mirror specifications INT2-60"x36"-L7CS-30K (Integrity Lighted Mirror by Electric Mirror)
 - 2.1.5 Grab Bars: 1 1/2" diameter satin finish stainless steel; one 36 inch at the rear and one 42 inch to the side of each handicapped toilet. Where ANSI 117.1 is applicable add one 24" Vertical Bar (Check Plans for locations). Bradley, ASI or Bobrick (Bradex 812)
 - 2.1.6 Coat Hook: Bradley 233, ASI or Bobrick. (Model 917)
 - 2.1.7 Baby Changing Station: Safe Strap Co. "Diaper-Depot Changing station," Model # 4304 - White. Furnished and installed by Publix.
 - 2.1.8 Paper Towel Dispenser: Kimberly Clark Model 09302. Furnished and installed by Publix.
 - 2.1.9 Seat Cover Dispenser: Kimberly Clark Model 09526. Furnished and installed by Publix.
 - 2.1.10 Sanitary Napkin Receptacle: Rubbermaid Model 6140-00; in women's or family restrooms only. Furnished and installed by Publix.
 - 2.1.11 Toilet Tissue Dispenser: Kimberly Clark Model 09566. Furnished and installed by Publix.
 - 2.1.12 Trash Receptacle: "Slim Jim Top", Furnished by Publix.
 - 2.1.13 Electric Hand Dryer-ASI Model 0160-Std. White. (Alternate for remodels only)
- 2.2. See mechanical drawings for Water Closet, Flush Valve Assembly, Urinal, and Lavatory specifications.

3. Execution

- 3.1. Installation: Install all toilet accessories securely to walls indicated. Provide and install all required wall reinforcements and blocking as necessary to install accessories. Grab bars shall be mounted to reinforced walls to withstand a point load of 350 pounds at any point.

End of Section 10 28 13

Section 10 44 00

Fire Protection Specialties

1. General

1.1. Related Documents: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2. Summary:

1.2.1 This Section includes the following:

1.2.1.1 Fire extinguishers.

1.2.1.2 Fire extinguisher mounting brackets.

1.2.2 Related Sections: The following Sections contain requirements that relate to this Section:

1.2.2.1 Section 22 40 00 "Plumbing" for fire protection standpipe and hose systems.

1.2.2.2 Section 26 00 00 "Electrical" for fire extinguisher location lights.

1.3. Submittals:

1.3.1 General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

1.3.2 Product data for mounting brackets, details showing mounting methods, relationships of brackets to surrounding construction.

1.3.3 Samples for initial selection purposes in the form of manufacturer's color charts consisting of actual units or sections of units showing full range of colors, textures, and patterns available for each type of bracket finish indicated or exposed to view.

1.3.4 Samples for verification purposes in full-size units of each type of bracket finish indicated, and in sets for each color, texture, and pattern specified, showing the full range of variations.

1.4. Quality Assurance:

1.4.1 Single-Source Responsibility: Obtain extinguishers and brackets from one source from a single manufacturer.

1.4.2 Coordination: Verify that brackets are sized to accommodate type and capacity of extinguishers indicated and provided by Owner under separate Contract.

1.4.3 UL-Listed Products: Fire extinguishers shall be UL listed with UL listing mark for type, rating, and classification of extinguisher.

1.4.4 FM-Listed Products: Fire extinguishers approved by Factory Mutual Research Corporation for type, rating, and classification of extinguisher with FM marking.

2. Products

2.1. Manufacturers: Subject to compliance with requirements, provide products by one of

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the following:

Ansul Fire Protection
Badger-Powhatan
American Specialties Inc.
Bobrick Washroom Equipment, Inc.
Crocker Div., Fire-End and Crocker Corp.
Filtrine Manufacturing
Lyon Metal Products
J.L. Industries
Larsen's Manufacturing Co.
Modern Metal Products by Muckle
Potter-Roemer, Inc.
Samson Metal Products, Inc.

2.2. Fire Extinguishers:

2.2.1 General: Provide fire extinguishers for each cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard, that comply with authorities having jurisdiction.

2.2.2 Provide A, B, C, Type 2A-10B:C, 5 lb nominal capacity in a polyester and epoxy paint container with pressure gauge.

2.2.3 Provide 10 lb, Class 60-B:C fire extinguisher, DC series, Dy chemical for use in electrical and grease fires, provided in a polyester and epoxy container with pressure gauge.

2.3. Mounting Brackets: Designed to prevent accidentally dislodging extinguisher, of sizes required for type and capacity of extinguisher indicated, in plated finish.

2.3.1 Provide brackets for extinguishers not located in cabinets.

3. Execution

3.1. Examination:

3.1.1 Examine walls and partitions for thickness and support framing for bracket to verify cabinet depth and mounting prior to cabinet installation.

3.1.2 Do not proceed until unsatisfactory conditions have been corrected.

3.2. Installation: Follow manufacturer's printed instructions for installation.

3.2.1 Install in locations and at mounting heights indicated or, if not indicated, at heights to comply with applicable regulations of governing authorities.

3.2.1.1 Fasten mounting brackets and cabinets to structure, square and plumb.

End of Section 10 44 00

Section 11 13 00

Loading Dock Equipment

1. General

(Not Used)

2. Products

2.1. Dock Seals:

2.1.1 Provide dock seals at all docks that utilize an exterior door for direct access into trucks.

2.1.2 Seals shall be Chalfont, Series 100, Model 130, 40 oz. black vinyl with full-length yellow guide stripe.

3. Execution

3.1. Installation: Furnished and installed by Owner.

End of Section 11 13 00

Section 21 00 00

**Fire Suppression
V04162013**

1. General

1.1. Submit LOIs in accordance with Section 01 33 00 Submittal Procedures.

1.2. System Description:

1.2.1 Construction Documents indicate the Design of a Fire Sprinkler System that complies with the intent of Publix. Information contained in these Documents shall be the only basis for Bid.

1.2.2 Publix is the approver of all systems.

1.2.3 Design Changes:

1.2.3.1 It is recognized that there are several ways to obtain the protection intended by Publix Super Markets. If changes can be made to the Design to achieve cost or time savings, these shall be submitted to Publix Super Markets for approval before requesting approval by the Authority Having Jurisdiction.

1.2.3.2 Work shall not begin on the assumption of approvability of changes to the Design.

1.2.3.3 If Publix approves design changes, submit Change Order request for inclusion in Contract.

1.3. Scope of Work:

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- 1.3.1 Provide complete overhead sprinkler system as shown on the Drawings and described herein.
- 1.3.2 Make connection to the underground supply at the "Point of Service" as shown on the Drawings.
- 1.3.3 Provide back flow preventer and OS&Y Valve assembly at location shown in the Site Documents.
- 1.3.4 Locate Fire Department Connection as directed by the Authority Having Jurisdiction.
- 1.3.5 Provide Dry Pipe System for exterior heads at locations north of Florida State Highway 60, with under-canopy heads as indicated, and concealed heads as required.
- 1.3.6 Provide interconnections to systems provided under separate contract or by Owner.
- 1.3.7 Provide other systems and apparatus as needed for security of components, ease of access by Fire Fighters and Officials, and as required for a complete, integrated system.
- 1.4. Related Work by Others:
 - 1.4.1 Connection to mains:
 - 1.4.1.1 Underground fire sprinkler water supply system shall be as approved by the Publix Super Markets Engineer and the Authority Having Jurisdiction, including an acceptable outlet at a "Point of Connection" within 5 ft. of the building, lateral from the fire main or backflow preventer, furnished and installed by outside utility Subcontractor.
 - 1.4.1.2 All such Fire Sprinkler work shall be accomplished by a Fire Sprinkler Contractor duly registered in the state of the work, and qualified by experience in work of similar scope to that indicated in the Contract Documents. Such work shall include, but not be limited to, connections to mains, underground supplies, backflow preventers, valves, fittings and other appurtenances required to connect the water supply to the fire sprinkler system.
 - 1.4.2 Central station alarm system, complete as shown on Drawings, furnished and installed under separate contract.
- 1.5. Design Requirements:
 - 1.5.1 Minimum requirements for the design, manufacture, testing and methods of installing all materials, apparatus, and equipment shall conform to the requirements of NFPA Standards 24 and 13 and, in some cases, that of FM Global.
 - 1.5.2 Conform to the requirements of the local building code and the Authority Having Jurisdiction. If conflicts occur between the requirements of the above mentioned codes and authorities, the most stringent shall govern.
 - 1.5.3 Obtain a hydrant flow test, performed within the previous 6 month time period, and ensure its acceptability by all Authorities Having Jurisdiction prior to basing calculations and proposal on the results of the test.
 - 1.5.4 Provide inspector's test connection at most remote point from riser. Provide

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minimum 1 per riser.

- 1.5.5 Spacing of sprinklers shall not exceed 130 sq. ft. per sprinkler, without written permission from Publix.
- 1.5.6 Sprinkler location: All sprinklers shall be located as shown on Engineer's Drawings, and as required by codes, including vestibules and canopy attic areas.
- 1.5.7 Storage Areas; Ordinary Hazard Group II: Provide a hydraulically designed wet system to provide 0.30 gpm/sq. ft. including the most remote 2000 sq. ft. Spacing of sprinklers shall not exceed 100 sq. ft. per sprinkler.
- 1.5.8 Sales Areas, Work Areas; Ordinary Hazard Group II: Provide a hydraulically designed wet system to provide 0.18 gpm/sqft for all areas including the most remote 2500 sq. ft.
- 1.5.9 Hydraulic calculations shall include a total allowance of 250 gpm for outside and inside hose streams.
- 1.6. Shop Drawings, Calculations and Approvals:
 - 1.6.1 Do not begin work until the shop drawings and calculations have been approved by Publix Super Markets and by the Authority Having Jurisdiction.
 - 1.6.2 Any proposed value engineering changes must be submitted to the Publix Engineer prior to submitting any shop drawing and calculations.
 - 1.6.3 Submit shop drawings and calculations simultaneously to the Publix Super Markets Engineer and the Authority Having Jurisdiction for approval, and to Marsh Consulting for review.
 - 1.6.4 Upon receiving approval of the Authority Having Jurisdiction, submit evidence of this approval to the Publix Super Markets Engineer.
- 1.7. Quality:
 - 1.7.1 Subcontractor:
 - 1.7.1.1 The Fire Sprinkler Subcontractor shall be a reputable firm regularly engaged in this type of work, employing skilled workmen, and with proper equipment. Work shall be performed by a firm licensed as a Class I or II Fire Sprinkler Contractor.
 - 1.7.1.2 Upon request, Subcontractor shall show evidence of at least two similar jobs, of comparable size and character, installed and operating within the two years prior to bid opening.
 - 1.7.1.3 Publix reserves the right to refuse any Subcontractor with or without disclosing cause.
 - 1.7.2 Personnel:
 - 1.7.2.1 Employ an experienced Superintendent to oversee all operation.
 - 1.7.2.2 Work shall not proceed without adequate supervision present at all times. Foreman shall be a Journeyman Sprinkler Fitter.
 - 1.7.2.3 Work shall be performed by workers certified in their trade as journeymen, and apprentices in accordance with regulations of the governing authority or customary practice. Utilize workers with skills in proportion to complexity of tasks required.

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1.7.2.4 Publix reserves the right to refuse assignment of workers to Publix work with or without disclosing cause.

1.7.3 Quality Standards:

1.7.3.1 Work shall be accomplished to ensure leak-proof installation.

1.7.3.2 Work will be judged by Publix in comparison to work of similar types. Substandard construction as judged by Publix Representative will not be accepted.

1.7.3.3 Neatness counts. Make all joints, connections, unions, etc. with proper care to insure that tight connections are made without excess material, well secured to supports.

1.7.3.4 Install piping with runs straight, accurately formed radii at bends, and adequate supports.

1.8. Pressure Test:

1.8.1 Perform testing as required by NFPA 13 and Authorities Having Jurisdiction. Test results shall be certified by these agencies.

1.8.2 As a minimum, test all piping and equipment under hydrostatic pressure of 200 pounds per square inch for a 2 hour continuous period.

1.8.3 Correct all defects revealed by test.

1.8.4 Retest as required until system is leak free under test conditions.

2. Products

2.1. Heads:

2.1.1 All sprinkler heads shall be UL listed, Factory Mutual approved, and the product of one manufacturer.

2.1.2 Approved manufacturer's:

Viking
Victualic
Tyco
Reliable
Globe

2.1.3 Sprinkler heads shall be **standard response** thermosensitive glass bulb style, standard pressure rated to 175 PSI.

2.1.4 Sprinklers with 1/2" orifices shall have 1/2" NPT connections, 17/32" orifices shall have 3/4" NPT connections, dry pendant heads shall have 1" NPT connections.

2.1.5 Areas with suspended ceilings: Use chrome recessed or semi-recessed type sprinklers rated at 155 degrees F. unless otherwise noted on the plan.

2.1.6 In areas with exposed structure:

2.1.6.1 Sales/Customer Areas: Use brass upright type sprinklers rated at 155 degrees F. Where suspended ceiling occurs use chrome pendant type sprinklers rated at 155 degrees F. Provide chrome two-piece

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escutcheons.

2.1.6.2 Storage, and other areas not used by customers: Use brass upright type, rated at 155 degrees F.

2.1.7 Cooler/Freezer Areas: Provide 175 degree F dry pendant sprinklers. Seal pipe penetration and insulate pipe to 1'-0" above top of cooler/freezer insulation panel. Minimum barrel length shall be 18".

2.1.7.1 Approved Manufacturers: Viking & Reliable

- 2.2. Provide spare sprinkler heads and wrenches. Provide number of cabinets, spare sprinkler heads in locations required by NFPA 13. Minimum cabinet size shall be for 12 heads.
- 2.3. Dry Systems: Where required by local authorities, the system shall be controlled by a separate wall or post indicator valve and dry pipe valve. Valves are to be equipped with an air compressor, low air trouble alarm, and supervisory switches. Control valves for either shall be located 4'-6" above finished floor.
 - 2.3.1 Air compressors for dry systems will be direct drive, electric motor driven, air cooled, with thermal overload protection. Units shall be fully automatic, with a UL listed pressure switch, check valve and safety valve, oil-less piston compressor, and permanently lubricated bearings. Include air filters and riser mounting kits. See construction drawings for power requirements.
 - 2.3.1.1 Approved manufacturer: General Air Products.
- 2.4. Back Flow Devices: Provide a Factory Mutual approved back flow device where required by local codes. At stores located north of Florida Route 60, set assembly in insulated below-ground concrete vault or provide means of freeze protection.
- 2.5. Inspector's test connection shall be piped to floor level on the inside of the building, then stubbed through the wall and piped to grade. Conform to requirements of NFPA 13 and Factory Mutual.
- 2.6. Riser assembly shall include alarm valve with DPDT water flow switch, water motor alarm, electrically supervised gate valve, main drain and pressure gauges. Water flow switch and tamper switch. Riser assembly shall be located in rear of store. All risers shall be interior risers. System control valve shall be a wall or post indicator type.
- 2.7. Provide pipe sleeves for all pipes passing through concrete floors and for all pipes passing through concrete and masonry walls.
- 2.8. Provide escutcheons for all exposed pipes passing through floors and walls. Escutcheons shall be chrome plated steel or stainless steel, two-piece hinged, fastened with set screw, size to suit. Where subject to corrosion (outside) use stainless steel only.
- 2.9. Tamper Switches: Provide Systems Sensor Supervisory switch OSY2 for outside screw and yoke gate valves, or PIBV2 for post indicator gate valves, to be wired by others.
- 2.10. All fittings shall be U.L. and Factory Mutual approved and stamped and shall conform to the requirements of NFPA. #13 and the Factory Mutual Approval Guide, except that no "slip" type fittings are to be used.
- 2.11. Piping:
 - 2.11.1 Piping shall conform to the requirements of NFPA. #13 and the Factory Mutual Approval Guide. Piping may be grooved, threaded and/or welded if all

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components and methods are Factory Mutual approved.

2.11.2 Underground Service Piping:

2.11.2.1 Pipe: AWWA C900, PVC, AWWA C151, Ductile Iron Pipe

2.11.2.2 Fittings and Joints: AWWA C110 & C115, Ductile Iron Pipe ANSI B16.1 Cast Iron Pipe, for sizes 3"-48".

2.11.3 Above ground Service Piping:

2.11.3.1 Sprinkler Piping: ASTM-A795 and ASTM A35 for black and hot dipped, zinc coated (galvanized) welded and seamless steel pipe. ASTM A135 for electric resistance welded steel pipe.

2.11.3.1.1 Exterior Wet/Dry Sprinkler Piping & Fittings: Galvanized steel

2.11.3.1.2 Interior Wet Sprinkler Piping & Fittings: Black steel

2.11.3.1.3 Interior Dry Sprinkler Piping & Fittings: Galvanized steel

2.11.3.2 Pipe sizes 1"-2" shall be Schedule 40.

2.11.3.3 Pipe sizes 2 1/2" - 6" shall be Schedule 10.

2.11.4 Fire Department Connection Piping:

2.11.4.1 Interior: Same as Interior Sprinkler Piping above.

2.11.4.2 Exterior: Same as Exterior Service Piping above. Where stubbed-up for connections above grade, use standard weight galvanized steel pipe with galvanized malleable iron screw fittings.

2.11.5 Drain Piping: Schedule 40 galvanized steel screwed pipe with cast iron drainage pattern screw fittings.

2.12. Valves:

2.12.1 Drain valves, test valves, and control valves shall be fitted with FM approved enameled signs indicating their use.

2.12.2 Gate Valves:

2.12.2.1 Non Rising Stem: 4" - 12", iron body, 175 lb. service rating, flanged connections. UL listed, Factory Mutual approved. Bolted bonnet indicator, bolt patten, solid bronze or resilient wedge.

Nibco F609

2.12.2.2 Outside Screw and Yoke: 4" - 12" iron body 200 lb. service rating, flanged connections. UL listed, Factory Mutual approved. Epoxy coated interior/exterior. Pregrooved stem for supervisory switch, resilient wedge.

Nibco F607RW

2.12.2.3 Other approved manufacturer's:

Mueller

Kennedy

Stockham

Watts

2.12.3 Alarm Check Valves: 3" - 8" iron body, 175 lb. service rating, flanged or

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grooved connection. UL listed, Factory Mutual approved. Vertical mounted with complete trim for variable pressure. Bolted hand hole cover. EPDM rubber clapper seal.

2.12.3.1 Wet Alarm Check Valves:

Central Model F or G
Viking Model J-1
Reliable Model E

2.12.3.2 Retard Chambers:

Central Model F
Viking C-1
Reliable Model E-1

2.12.3.3 Dry Alarm Check Valves:

Central Model C
Viking F-1
Victualic Series 756 Firelock

2.12.3.4 Accelerators and Exhausters:

Central Model A
Viking Model E-1
Victualic Series 746

2.12.4 Double Check Detector Assembly: Iron body, 175 lb. service rating. UL listed Factory Mutual approved. Epoxy coated interior/exterior. Ductile iron or stainless steel clapper, EPDM rubber seal. Resilient wedge outside screw and yoke gate valves.

FEBCO 856, Watts 757DCDA - OSY or equal as approved by Publix Engineer.

2.12.5 Indicator Posts: Iron body. UL listed, factory Mutual approved for use with non-rising stem gate valves:

NIBCO NIP1AJ upright post or NIP2AJ wall post
Grinnell
Kennedy
Mueller
Stockham

2.12.6 Drain Valves: Angle or globe type as required.

Jenkins 108-A angle or 106A globe or equal as approved by Publix Engineer.

2.12.7 Check Valves: Factory Mutual approved swing check valves installed horizontally, iron body, bronze mounted, 175 pound service rating.

2.13. Riser and Fire Department Connection:

2.13.1 Riser: Provide riser where indicated on the drawings. Riser shall have alarm valve, complete with valve trimmings, gauges, and all required accessory

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equipment. Provide approved electric flow switch where indicated on the drawings.

2.13.2 Inspector's Test Connection: 1" inspectors test valve, drain valve and pipe extending to drain indicated on drawings. System shall also be connected into the central fire alarm system.

2.13.3 Fire Department Connections: Factory Mutual approved flush type Fire Department connections 4" F.I.P.T. outlet and two 2-1/2" NSHT inlets with lettered nameplate. All exposed parts shall be rough brass and polished trim; plate shall be lettered "Automatic Sprinkler", "Fire Department Connections".

2.14. Gauges:

2.14.1 Pressure gauges shall be installed as required by code, Factory Mutual approved 4-1/2" dial type, and shall have a maximum limit of not less than twice the normal working pressure at the point where installed.

2.14.2 Control valves, drain valves, check valves, identification tags and drain piping shall be approved for fire service and shall conform to the requirements set forth in NFPA. #13.

3. Execution

3.1. General

3.1.1 Architectural and Structural Drawings shall be used for building construction, dimensions and specific locations.

3.1.2 Perform all cutting and fitting required for work of this Section in rough construction of the building, and in areas of existing buildings and structures as required by alterations and connections to existing.

3.1.3 All patching of finished construction of new and existing buildings shall be by the General Contractor under the Sections of Specifications covering those materials.

3.1.4 Subcontractor shall perform all excavation and backfill required for services, inside and outside the building. Cutting of curbs, walks, concrete and paving required by the excavation shall be done by Subcontractor. Any rock shall be excavated 3 inches below the laying depth, and the trench shall be backfilled with sand 3 inches deep. Over excavation shall be added in 12 inch layers and mechanically compacted. Flooding or puddling not permitted. All piping which will be under walks, planters, arcades, parking lots, concrete or asphalt shall be mechanically compacted in 12 inch layers. Pipe under driveways shall have a minimum cover of 3 ft.

3.1.5 Verify all field dimensions and locations of equipment and fixtures within the layout as established by the General Contractor to insure close, neat fit, with other trades work.

3.1.6 No underground piping shall be covered until inspected by Publix' Representative and Authority Having Jurisdiction.

3.1.7 Where the work is dependent upon work of other trades or work already in place for its proper installation, examine such other work and see that is in the proper condition and state of completion before continuing the installation.

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- 3.1.8 Include the services of an experienced Superintendent, who shall be constantly in charge of the work, together with qualified journeymen required to properly unload, install, connect, adjust, start and operate and test the work involved, including equipment and materials furnished by others and by Owner. All work shall be executed in a first class workmanlike manner. Workmanship that, in the opinion of Publix, is substandard or shoddy, shall be removed and replaced with acceptable work at no cost to Publix.
- 3.1.9 Follow Drawings in laying out work and check Drawings of other trades to verify spaces in which work will be installed. Coordinate work with other trades. Maintain maximum headroom and space conditions at all points. Where headroom or space conditions appear inadequate, notify Architect before proceeding with installation.
- 3.2. Area of horizontal runs by trades: See Section 01 11 00 Summary of Work.
- 3.3. Conceal all piping above suspended ceiling where practical.
- 3.4. If directed by Architect, the Subcontractor shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades or for proper execution of the work.
- 3.5. Provide qualified installers. Install materials, apparatus and equipment in neat, workmanlike manner.
- 3.6. Cooperate with the work of other trades to prevent conflict or interference and to aid rapid completion of the overall project.
- 3.7. Protect materials, apparatus and equipment from damage, moisture, dirt, debris and work of other trades. Do not install damaged materials and equipment; remove them from the site.
- 3.8. Install drops for sprinkler heads in areas with finished ceiling. Sprinkler heads in tile ceilings shall be located within 1 1/2" of the center of tile. Coordinate the exact location of the ceiling grid with the ceiling contractor.
- 3.9. Examine all work of others. If any conditions exist which will prevent satisfactory installation of materials or equipment the Architect shall be notified in writing. Starting of work without notification indicates acceptance, and any or all changes required will be at Contractor's expense.
- 3.10. Keep the job site free from accumulations of waste materials and rubbish. Leave the job site and work in clean, orderly and acceptable condition. Clean all materials and equipment of dirt, dust, paint, spots and stains, soil marks and other foreign matter.
- 3.11. The inside sprinkler piping shall be installed in such a manner that there will be no leakage.
- 3.12. There shall be no on site welding of sprinkler piping.
- 3.13. Install, test and flush the fire protection underground from the "Point of Service" to the building in accordance with NFPA 24.
- 3.14. Requirements for Final Acceptance and Payment:
 - 3.14.1 The entire system shall be tested under hydrostatic pressure. This pressure shall be 50 psi greater than pressure in the main, but in no case less than 200 psi. The test pressure shall be maintained for two (2) hours. Properly executed test certificate shall be sent to Factory Mutual Engineering Association and Publix'

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Representative upon Completion.

- 3.14.2 Furnish Publix' Representative with a complete set of all manufacturer's warranties and instructions, and with two sets of as-built drawings.
 - 3.14.3 Obtain Final Inspection and test required by the authorities having jurisdiction for their acceptance of the system; provide adequate advance notice to Publix' representative of such inspection and test; furnish Publix' Representative with evidence of acceptance of the system by the local authority having jurisdiction.
 - 3.14.4 Contractor's Material and Test Certificates for Underground Piping/ Aboveground Piping shall be completed on the appropriate NFPA 13 form and submitted to the Owner and the Authority Having Jurisdiction.
 - 3.14.5 The system, upon completion and testing, shall be inspected and accepted by the Owner and the Authority Having Jurisdiction.
- 3.15. Guarantee:
- 3.15.1 All equipment shall be tested, adjusted and placed in proper operating condition by the subcontractor. Both the Contractor and the Engineer shall advise the Architect in writing that the systems are installed according to the Specifications and Drawings and are operating satisfactorily. The Owner shall receive written warranty covering all defects in workmanship and material for a period of one (1) year from the date of Final Acceptance.
 - 3.15.2 All defects within this period shall be repaired without cost to the Owner. This shall include adjustments, and all regular and preventative maintenance.
 - 3.15.3 The Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding the Contractor's warranty.
- 3.16. Final Inspection: All of the following items shall be completed prior to final inspections. No exceptions will be made and no final payment will be made until all items are completed.
- 3.17. Cleaning Equipment and Premises:
- 3.17.1 Thoroughly clean all exposed parts of the apparatus and equipment. Exposed parts which are to be painted shall be thoroughly cleaned of cement, plaster, and other material and all oil and grease spots shall be removed. Repaint or touch up as required to make look like new. Such surfaces shall be carefully wiped and all cracks and corners scraped out.
 - 3.17.2 Exposed metal work shall be carefully brushed down with steel brushes to remove rust and other spots and touched up with primer.
- 3.18. Identification, Operating Instructions and Service Manual:
- 3.18.1 Provide a permanent non-corrosive metallic placard indicating hydraulic design and demand information, securely affixed to riser, one required each riser.
 - 3.18.2 Manual:
 - 3.18.2.1 Provide two (2) neatly bound copies of maintenance and instructions book, parts lists pertaining to all equipment furnished. Submit to the Architect for approval.
 - 3.18.2.2 Each section shall be indexed and include parts lists, instruction books, suppliers' phone numbers and addresses, and individual equipment

guarantees all in separate sections.

End of Section 21 00 00

Section 22 40 00

**Plumbing
V01022020**

1. General

1.1. Summary

- 1.1.1 Provide all materials and equipment and perform all labor required to install plumbing complete as indicated, as required by code, and as specified herein. All sizes, etc. are Publix minimum and if local code requirements are higher, the work shall be bid and installed accordingly.
 - 1.1.1.1 Obtain and pay for all permits, bonds, inspection.
 - 1.1.1.2 Provide 2-1/2" water service line, with water meter and 2-1/2" backflow preventer.
 - 1.1.1.3 Provide hot and cold water mains and distribution piping, all overhead and concealed except main water supply into building and where indicated on the Drawings. No PVC pipe allowed above floor slab, (except plumbing waste piping, unless not code approved).
 - 1.1.1.4 Provide a system of soil and waste drains, vents, and connections to all sewer, and water mains and all fixtures.
 - 1.1.1.5 Plumbing Fixtures: Provide and adjust, except as herein specified.
 - 1.1.1.6 Provide Grease Interceptors as specified and as required by local codes.
 - 1.1.1.7 Provide all piping hanging and hangers.
 - 1.1.1.8 Provide gas piping and all indirect drains required for equipment furnished in other sections, and by Owner, except provide indicated drains (floor drains, hub drains, floor sinks, etc.) for refrigerated cases, walk-in coolers, and freezers.
 - 1.1.1.9 Provide rough-in plumbing for fixtures indicated as furnished by Publix or others, and make required connections. Include uncrating equipment, moving into place, and installing complete.
 - 1.1.1.10 Coordinate plumbing work with all other trades including Refrigeration Contractor's work.
 - 1.1.1.11 Provide all other materials and services required for a complete working installation described in Contract Documents.
- 1.1.2 All apparatus shall be installed at exact height and locations as shown on the Architectural Drawings, or if not shown, at heights and locations determined by applicable codes and laws.
- 1.1.3 Perform all excavation and backfill required for services, and for all plumbing and work inside and outside the building. Cutting of curbs, walks, concrete and paving required for excavation shall be done by appropriate trade.
- 1.1.4 All store cases, coolers, and freezers will be furnished and set in place by Publix. The Refrigeration Contractor shall make all condensate waste connections required to Plumbing Contractors stub ups. Check equipment drawings against Drawings in order to verify exact locations. Provide gas piping as indicated.

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1.2. Definitions: Explanation and Precedence of Documents:

- 1.2.1 For purposes of clarity and legibility, Plumbing Drawings are essentially diagrammatic and, although size and location of equipment are drawn to scale wherever possible, Contractor shall make use of all Contract Documents.
- 1.2.2 The Drawings indicate size, connection points and routes of pipe. It is not intended, however, that all offsets, rises and drops are shown. Install piping as required to fit structure, avoid obstructions, and retain clearance, headroom, openings and passageways.
- 1.2.3 Carefully examine all existing conditions, existing piping and premises and compare the Drawings with the existing conditions. Submittal of bid indicates that the Contractor has examined the site and Drawings and has included all required work in his bid. No allowances will be made for any error resulting from Contractor's failure to visit Job Sites and to review Drawings.
- 1.2.4 Conflicts, discrepancies, interferences and omissions in documents shall be brought to the attention of the Publix Engineer for clarification prior to commencement of work.

1.3. Submittals:

- 1.3.1 Submit LOI in accordance with Section 01 33 00 Submittal Procedures.
- 1.3.2 Within 30 days of Contract Commencement (Authorization to Proceed), submit for Publix' Architect's approval:

Fixtures and trim with cuts including rough-in dimensions.

Equipment (water heaters, expansion tanks, other items)

Drains and cleanouts (floor and wall)

Valves, stops, hose bibbs

Miscellaneous

Roof flashing

Hangers and Seismic Bracing

Piping, piping diagrams

Other items required to complete the Work

- 1.3.3 Submit PDFs online through Publix Landmark.
- 1.3.4 All cuts for the above shall have rough-in dimensions, connection sizes, and any special installation requirements. In addition, furnish motor horsepower voltage and phase for all equipment.
- 1.3.5 Project Record Drawings: Comply with Section 01 78 39.
- 1.3.6 Do not order materials or proceed with work until all submittals have been reviewed, and approved.
- 1.3.7 Confirm electrical and other requirements with other contractors.

1.4. Quality:

1.4.1 Subcontractor:

- 1.4.1.1 The Plumbing Subcontractor shall be a reputable firm regularly engaged in this type of work, employing skilled workmen, and with proper equipment.

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- 1.4.1.2 Upon request Subcontractor shall show evidence of at least two similar jobs, of comparable size and character, installed and operating within the previous two years prior to bid opening.
- 1.4.1.3 Publix reserves the right to refuse any Subcontractor with or without disclosing cause.
- 1.4.2 Personnel:
 - 1.4.2.1 Employ an experienced Superintendent to oversee all operation.
 - 1.4.2.2 Work shall not proceed without adequate supervision present at all times.
 - 1.4.2.3 Work shall be accomplished by workers certified in their trade as masters, journeymen, and apprentices in accordance with regulations of the governing authority or customary practice. Utilize workers with skills in proportion to complexity of tasks required.
 - 1.4.2.4 Publix reserves the right to refuse assignment of workers to Publix work with or without disclosing cause.
- 1.4.3 Quality Standards
 - 1.4.3.1 Work shall be accomplished to ensure leak-proof installation.
 - 1.4.3.2 Work will be judged by Publix in comparison to work of similar types. Substandard construction as judged by Publix Representative will not be accepted.
 - 1.4.3.3 Neatness counts. Make all joints, connections, unions, etc. with proper care to insure that tight connections are made without excess material, well secured to supports.
 - 1.4.3.4 Install piping with runs straight, accurately formed radiuses at bends, and adequate supports.
- 1.4.4 Regulations: Comply with applicable provisions of the following codes (latest version adopted by governing agencies):
 - State Sanitary Code
 - Local Building Code
 - ASME Code for Unfired Pressure Vessels
 - International Plumbing & Gas Code
 - Florida State Plumbing & Gas Code
 - Georgia State Plumbing & Gas Code
 - North Carolina State Plumbing & Gas Code
 - OSHA - for construction
 - Other applicable laws and regulations.
- 1.4.5 Coordination: Work shall be accomplished along with the work of other trades. Cooperate with others to benefit the job as a whole.
- 1.4.6 Participate in the Pre-Construction Conference.
- 1.5. Sequencing:
 - 1.5.1 Notify General Contractor, or any others, of all required chases, sleeves and openings required so that the work can be accomplished without delay. Provide necessary sleeves, etc., to be installed. Otherwise, Plumber shall pay for appropriate trades to perform cutting and patching.

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- 1.5.2 Joists, girders, beams, columns or reinforcing steel shall not be cut.
- 1.5.3 Where construction necessitates the routing of piping through structural members, framing or under footings, permission to make such installation shall first be obtained from the Publix Field Representative
- 1.6. Temporary Operation:
 - 1.6.1 The Owner may require operation of parts or all of the installation prior to Final Acceptance.
 - 1.6.2 Cost of utilities for such operation shall be paid by the Contractor. This operation does not constitute acceptance of the Contractor's work.
 - 1.6.3 All gas and water used for construction shall be paid for by the General Contractor. Furnish and install all temporary water piping required for construction purposes and remove piping when use is no longer required. Restore site and piping to original conditions.
- 1.7. The Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding the Contractor's guarantee nor relieving the Contractor of his responsibilities during the guarantee period.
- 1.8. Operating Instructions and Service Manual:
 - 1.8.1 Provide two (2) neatly bound copies of maintenance and instructions book, parts lists pertaining to all equipment furnished.
 - 1.8.2 Each section shall be indexed and include parts lists, instruction books, suppliers' phone numbers and addresses, and individual equipment guarantees all in separate sections.
 - 1.8.3 Representatives of the Owner shall be instructed by the Contractor as to complete care and operation of the plumbing system. Inform the Architect in writing as to the persons who received the instructions and the date that this was done.
- 1.9. Polypropylene Piping and Products Warranty:
 - 1.9.1 Manufacturer shall warranty pipe and fittings for 10 years to be free of defects in materials or workmanship.
 - 1.9.2 Warranty shall cover labor and material costs of repairing and/or replacing defective materials and repairing any incidental damage caused by failure of the piping system due to defects in materials or workmanship.
- 2. Products:**
 - 2.1. Materials:
 - 2.1.1 All materials shall be new, full weight, of the best quality with the same brand or manufacturer used for each class of materials or equipment. All similar materials such as valves, pumps, boilers, fixtures, shall be of the same type and manufacturer unless otherwise designated.
 - 2.1.2 All plumbing fixtures shall be "first quality" as defined and set forth in Commercial Standard CS 20-36 As Promulgated By The U.S. Department of Commerce.
 - 2.2. Fixtures

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- 2.2.1 Provide vitreous white china fixtures (unless otherwise noted).
- 2.2.2 Support wall-mounted fixtures w/ manufacturer approved carriers.
- 2.2.3 American Standard product designations have been used for consistency. Equivalent fixtures by Crane, Kohler, Zurn, Sloan, or Toto may be accepted.
- 2.2.4 Install all owner furnished fixtures as listed in the plumbing fixture schedule. provide all the necessary components as required for a complete Installation.
- 2.3. Equipment
 - 2.3.1 Grease Interceptor: Rectangular, pre-cast concrete, all in accordance with state and local codes. Two cast iron traffic tops with traffic cast iron clean-outs are required. Tanks and lids shall be designed for an H-20 traffic load. Tanks shall be reinforced with welded wire mesh and steel bars. Compressive strength of concrete shall be a minimum of 5500 PSI at 28 days. Provide additives or coatings to protect tank interiors to minimum PH of 3.
 - 2.3.2 Drains, Clean-outs: As scheduled. Approved manufacturers:
 - JR Smith
 - Zurn
- 2.4. Pipe and Fittings:
 - 2.4.1 Hot and cold water piping:
 - 2.4.1.1 ASTM B88 type "L" seamless copper tubing. Main service type "K" with red lion seal cote coating, or approved equal.
 - 2.4.1.2 Fittings: Wrought copper solder fittings, solder with silvaloy, streamline 122, phos-copper or approved equal no-lead solder.
 - 2.4.1.3 Approved piping and fittings manufacturers:
 - Mueller Streamline
 - Cambridge-Lee
 - Nibco
 - 2.4.1.4 Alternate: Copper press fittings shall conform to the material and sizing requirements of ASME B16.18 or ASME B16.22. O-rings for copper press fittings shall be EPDM. Approved Manufacturers: Viega
 - 2.4.2 Gas Piping: Shall be schedule 40-A-120 black steel pipe with black banded malleable iron fittings, pipe shall be welded. Grounding by Electrical Contractor.
 - 2.4.2.1 Indoors: ASTM A53 steel pipe, schedule 40, black forged steel weld fittings.
 - 2.4.2.2 Outdoors: ASTM A53 steel pipe, schedule 40, mill galvanized, fittings as required. Approved Manufacturers: Wheatland Tube
 - 2.4.3 Plastic Gas Piping: Used underground only. Shall conform to the requirements of ASTM D2513 for medium-density polyethylene pipe and tubing. Fittings shall comply with the requirements of ASTM D2683 for socket type, ASTM D3261 for butt fusion and ASTM F1055 for electrofusion. Pipe shall be yellow and marked in accordance with ASTM D2513.
 - 2.4.4 Soil, Waste, Vent Pipe:
 - 2.4.4.1 PVC DWV pipe (where allowed by codes): PVC schedule 40 solid wall

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pipe and PVC DWV fittings used in sanitary drain, waste, and vent (DWV) and storm drainage applications. Pipe shall be IPS conforming to ASTM D1785 and ASTM D2665. Fittings shall conform to ASTM D2665. Solvent cement shall conform to ASTM D2564.

2.4.4.2 ABS DWV pipe (where allowed by codes): Unplasticized, ASTM D2661, Type I, Grade 1, solvent cement joints, DWV fittings. schedule 40 unless indicated otherwise on the Drawings, all elbows shall be long sweep type. Use only where indicated on the drawings.

2.4.4.3 Cast Iron Pipe: Coated service weight cast iron soil pipe using coated service weight cast iron fittings.

2.4.4.4 Vent Piping Option: All vent piping above grade may be copper DWV, with copper drainage fittings, solder as for hot and cold water.
Approved Piping & Fitting Manufacturers:

Charlotte Pipe

Nibco

2.4.5 Provide field fabricated DWV copper or cast brass traps with an integral clean out at bottom of traps for stainless steel utility sinks, except those which discharge to a floor sink.

2.5. Valves, Stops, Specialties

2.5.1 Materials: Valves 3" and smaller shall be bronze with threaded or soldered ends. Furnish unions adjacent to all screwed central valves and at all connections to equipment. Valves shall be made in the USA. All water service valves, stops and specialties shall be lead free.

2.5.2 Approved Manufacturers:

Apollo

Hammond/Milwaukee

Mueller

Nibco

Watts

Wilkins

2.5.3 Gate Valves: 1/4"-3", bronze body, solid bronze wedge, rising stem, union bonnet, 300 psi non-shock CWP, MSS-80.

2.5.3.1 Basis of design: Nibco T/S-111-LF

2.5.4 Check Valves:

2.5.4.1 Swing Check Valves: 1/4"-2", bronze body, horizontal swing, Y-pattern renewable seat and PTFE disc, 200 psi non-shock CWP, MSS-SP-80.

2.5.4.1.1 Basis of design: Nibco T/S-413-Y-LF

2.5.4.2 Lift Check Valves: 1/2"-2", bronze body, inline lift, PTFE discs, stainless steel spring, MSS-SP-80.

2.5.4.2.1 Basis of design: Nibco T/S-480-Y-LF

2.5.5 Ball Valves: 1/4"-2", two piece bronze body, full port, bronze trim, chrome plated brass ball, blow out proof stem, 600 psi non-shock CWP, MSS-SP-110.

2.5.5.1 Basis of design: Nibco T/S-585-66-LF

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2.5.6 Gas Valves: 1/4"-3", two piece bronze body, full port, bronze trim, chrome plated brass ball, blow out proof stem, 250 psi non-shock LP Gas, MSS-SP-110, ASME B16.33.

2.5.6.1 Basis of design: Nibco T-585-70-UL (1/4"-1")

2.5.6.2 T-580-70-UL (1-1/4"-3")

2.5.7 Mechanical Gas Valve with Remote Pull: ASCO Automatic Switch Co., Model as indicated on Drawings.

2.5.8 Mixing Valves: Anti-scald, thermostatic point of use. Bronze body, locking control, integral check valves, ASSE 1070 approved.

2.5.8.1 Approved Manufacturers:

Apollo

Bradley

Lawler

Powers

Watts

Wilkins

Zurn

2.5.9 Interior Hose Bibbs and Stops

2.5.9.1 Stops: Quarter turn, angle ball stop valve, all brass construction. Brasscraft, McGuire, Eastman

2.5.9.2 Interior Hose Bibbs:

Chicago #387 Brass 3/4" R.C.P W/Watts No. 8BC Vacuum Breaker, or T&S Brass B-0737-POL

2.5.10 Exterior Hose Bibbs and Hydrants:

2.5.10.1 Description: All shall have integral vacuum breakers and an integral stop valve. If an integral stop valve is not available, provide an in-line gate valve.

2.5.10.2 Approved Manufacturers:

Acorn

J.R. Smith

Zurn.

2.5.11 Flush Valves:

2.5.11.1 Description: Cast brass or bronze body with corrosion-resistant internal components; non-hold open, control stop with check valve; vacuum breaker and copper or brass tubing; polished, chrome-plated finish on exterior parts; vandal-resistant stop cap; ADA compliant handle.

2.5.11.2 Manufacturers:

Toto

Sloan - Sloan

Zurn - Z6000AV

2.5.12 Faucets:

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2.5.12.1 Description: Cast brass body with corrosion-resistant internal components; polished, chrome-plated finish.

2.5.12.2 Manufacturers:

Chicago Faucet

T & S Brass

Sloan-Basys EPX-250-500 (lavatories only)

2.5.13 Drain Valves: Description: Cast brass body stainless steel ball dual teflon seals, vandal resistant stainless steel strainer. 1/4" turn lever handle.

2.5.13.1 Manufacturers: Drain King

2.5.14 Hand Sinks:

2.5.14.1 Description: Wall hanging; 18 gauge, 304 stainless steel, polished finish, basin with radius corners; back for faucet; integral side support panels, approximate size - 17"x16"x5" with 2-3/16" drain outlet.

2.5.14.2 Manufacturers:

Elkay

Just

Amtekco

2.5.15 Storage Water Heaters:

2.5.15.1 Electric: Where indicated to be contractor provided tanks shall be glass-lined steel, 2" foam insulation and enamel finish on metal outer jacket. Electric heating elements shall be low or medium density, screw in type, ceramic terminal blocks, heavy duty contactors and internal power circuit fusing. Element operation shall be linear sequencing. Corrosion resistant drain valve, replaceable anode rod.

2.5.15.2 Gas: Where indicated to the contractor provided tanks shall be glass-lined steel, 2" foam insulation and enamel finish on metal outer jacket. Sealed combustion chamber with helical heat exchanger, integral intelligent control panel. Corrosion resistant drain valve, replaceable anode rod.

2.5.15.3 Approved Manufacturers:

AO Smith/State

Rheem/Ruud

2.6. Miscellaneous:

2.6.1 Faucet (Janitor Room): Sink faucet with top brace, 9" - 10" rigid spout with bucket hook vacuum breaker and integral stops; at 36" above floor.

T&S Brass

Chicago Faucet

2.6.2 Vacuum Breakers, Backflow Preventers, Dual Check Valves: Bronze body, lead free threaded connections for 2" NPS and smaller. Shall be installed on all fixtures where required.

Apollo

Watts

Wilkins

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- 2.6.3 Unions: Malleable iron ground joint equivalent and similar to Crane 519, up to and including 2 inch. Over 2 inch shall be cast iron flanged with a Garlock 7022 Gasket.
- 2.6.4 Reducing and Regulation: Water, air, gas; Watts or approved equal, model as indicated on the Drawings.
- 2.6.5 A shut off valve shall be placed near the building on the water main. It shall be placed in a box or tile pipe and have a removable plate cover of cast iron, equal to Mckinley Iron Works, Fort Worth, Texas; Type MB14, for 8000# loading.
- 2.7. Pipe Insulation
 - 2.7.1 Rigid fiberglass pipe insulation:
 - 2.7.1.1 Heavy density molded insulation from inorganic glass fibers bonded with a thermosetting resin; jacketed with a reinforced, wrinkle-resistant, all-service vapor retarder facing and a factory-applied longitudinal double-pressure adhesive closure system. Use factory butt strips to complete joints. Thermal conductivity [‘K’ Factor (BTU-inch/ft²-hr-°F) at 75°F mean] shall be 0.23 maximum.
 - 2.7.1.2 Manufacturers:
 - Owens-Corning
 - Johns Manville
 - CertainTeed
 - 2.7.2 Flexible polyethylene/polyolefin pipe insulation:
 - 2.7.2.1 Unicellular polyethylene thermal plastic, preformed pipe insulation; white color, 25/50 rated, pre-slit with factory-applied adhesive on both surfaces. Use factory adhesive for gluing butt joints. Thermal conductivity [‘K’ Factor (BTU-inch/ft²-hr-°F) at 75°F mean] shall be 0.27 maximum.
 - 2.7.2.2 Manufacturers:
 - Armacell
 - Nomaco
 - 2.7.3 Insulation thickness:
 - 2.7.3.1 For domestic hot water:

Diameter ⁶	Thickness
<= 1”	0.5”
>= 1 1/4”	1.0”
- 2.8. Pipe Hangers and Supports:
 - 2.8.1 Piping shall be held firmly in place by adjustable galvanized carbon steel band or clevis hangers which comply with MSS-SP-69. Hangers shall be located adjacent to fittings, at each offset or change of direction, at ends of branches over 5 feet long, at riser pipes, and along piping where necessary to prevent sags, bends or vibrations.
 - 2.8.2 Band Hangers: Steel and PVC piping equal to Empire fig. 310G. Copper and PPR piping equal to Empire fig. 310CTI.
 - 2.8.3 Clevis Hangers: Steel and PVC piping equal to Empire fig. 110EG. Copper and PPR piping equal to Empire fig. 110CTI.

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- 2.8.4 Beam Clamps: Carbon steel C-clamp with locknut equal to empire Fig.61.
- 2.8.5 Stainless steel pipe straps and hangers shall be used for all exposed piping and underslab piping where structural slabs are provided.
- 2.8.6 Pipe straps shall be heavy gauge galvanized iron factory fabricated to fit against supporting surface when installed. Makeshift devices are not acceptable. No plumbing tape is allowed. Use insulation shields at each pipe hanger and support.
- 2.8.7 The maximum spacing between hangers or supports measured along the piping shall be as listed below:

	Steel		Copper		PVC/ Polypropylene	
	H	V	H	V	H	V
1/2" and 3/4"	12 ft.	15 ft.	6 ft.	10 ft.	4.0 ft.	10 ft.
1" and 1-1/4"	12 ft.	15 ft.	6ft.	10 ft.	4.0 ft.	10 ft.
1-1/2", 2" & 2-1/2"	12 ft.	15 ft.	10 ft.	10 ft.	4.0 ft.	10 ft.
3"	12 ft.	15 ft.	10 ft.	10 ft.	4.0 ft.	10 ft.
4"	12 ft.	15 ft.	10 ft.	10 ft.	4.0 ft.	10 ft.
6"	12 ft.	15 ft.	10 ft.	10 ft.	4.0 ft.	10 ft.

- 2.8.8 Acceptable manufacturers:

Anvil
Eaton -B-Line
Tolco

- 2.9. Roof flashings: All vent and roof drains shall be flashed by Roofing Contractor with lead flashing furnished by the Plumbing Contractor. Flashing shall turn down 2" into vent pipes.
- 2.10. Isolating Couplings: Provide dielectric protection for gas and water main risers inside building. Isolate connections of copper and steel pipe with cathodic isolating unions. Acceptable Manufacturers:

EPCO
W & K Dielectric
F.H. Maloney

3. Execution

- 3.1. Examination:

- 3.1.1 Verify all field dimensions and locations of equipment and fixtures within the layout as established by the General Contractor to insure close, neat fit, with other trades work.
- 3.1.2 Examine all work of others. Notify Architect in writing if any conditions exist which will prevent satisfactory installation of materials or equipment. Start of work without notification indicates acceptance of work in place.

- 3.2. Excavation:

- 3.2.1 Perform excavation for trenches under slab and outside building lines as required for installation. Excavate true to lines and grades shown to achieve

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adequate fall on drain lines and as needed for refrigeration drainage.

- 3.2.2 Bell holes shall be dug to allow soil pipe to lie fully supported.
- 3.2.3 Rock shall be excavated 3 inches below the laying depth, and the trench shall be backfilled with sand 3 inches deep.
- 3.2.4 Over-excavation shall be added in 12 inch lifts (max) and mechanically compacted. Flooding or puddling not permitted.
- 3.2.5 All piping which will be under walks, planters, arcades, parking lots, concrete or asphalt shall be mechanically compacted in 12 inch lifts (max).
- 3.3. Interface with Site Utilities:
 - 3.3.1 Coordinate with other work. Connect to site supplies and storm drain at 5'-0" demising line.
 - 3.3.2 Provide waste connection to site sewer at 5'-0" demising line. Provide grease-bearing waste connection to grease trap and from grease trap to waste line located as shown on the Drawings or otherwise indicated.
- 3.4. Pipe Installation:
 - 3.4.1 Install horizontal sanitary and drain piping, to a uniform grade of not less than 1/8" per foot, unless otherwise noted.
 - 3.4.2 Openings in pipes, drains, fitting, apparatus and equipment shall be kept covered or plugged to prevent accumulating obstructions in the piping.
 - 3.4.3 Run piping free of traps, sags, bends or other defects. grade and valve for complete drainage and control of the system.
 - 3.4.4 All waste, vent and water lines shall be concealed, and all water lines shall be overhead.
 - 3.4.5 Maintain headroom and keep passageways clean. offset to maintain the required clearance and conform with architectural and structural features of building. Run parallel and straight with adjacent walls or ceilings to present a uniform appearance. Group long runs together. Run concealed in finished rooms.
 - 3.4.6 All rough-ins shall be set exactly to measurements furnished by manufacturer. Batteries of fixtures shall have rough outlets set in straight lines at equal spacing.
 - 3.4.7 Flush out all lines to insure that they are clear of obstructions prior to the setting of refrigerated cases. If lines are not clear and a case is set, the Plumbing Contractor shall be responsible for the removal and re-set cost.
 - 3.4.8 Water piping shall not be embedded in concrete nor concealed within the floor slab within the building, unless shown on drawings). Isolate copper piping from concrete with tar paper or PVC sleeve.
 - 3.4.9 All piping shall be installed to prevent unusual noise from the flow of water under normal conditions. Install pipe isolators at ring hangers consisting of a metal sheath with end flanges assuring positive retention in the ring hangers. Separate cold lines from hot lines by 6".
 - 3.4.10 Provide dirt pockets on low point of vertical gas piping. Install full pipe size drip pockets at low point in change of grade.
 - 3.4.11 For refrigeration case drains, stub up a 3" line 1" above floor; no hub required.

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- 3.5. Pipe, joints, fittings, and connection-installation:
- 3.5.1 Cast Iron Soil Pipe: Pack tight with first quality oakum to within 1 inch of end hub. Fill remaining space with one pouring of molten lead and caulk tight; or make-up with neoprene gaskets.
 - 3.5.2 Screwed Piping: Make up with pipe dope, applied only to male thread. Remake leaky joints with new material without use of thread cement or caulking. Paint exposed threads of all pipe with asphaltic paint.
 - 3.5.3 Copper Tubing:
 - 3.5.3.1 Solder with 95-5 (no-lead solder) and a noncorrosive flux. Thoroughly clean inside and outside surfaces with sandpaper or wire brush before assembly. Defective joints shall be dismantled, cleaned, and resoldered. Do not use acid Solder.
 - 3.5.3.2 Press Connections: Copper press fittings shall be made in accordance with the manufacturer's installation instructions. The tubing shall be fully inserted into the fitting and the tubing marked at the shoulder of the fitting. The fitting alignment shall be checked against the mark on the tubing to assure that the tubing is fully engaged (inserted) in the fitting. The joints shall be pressed using the tool approved by the manufacturer.
 - 3.5.4 Copper, brass pipe and chromed, polished or painted connections from fixtures shall show no tool marks.
 - 3.5.5 PVC Joints: Clean socket and pipe ends with cleaner recommended by cement manufacturer. Liberally apply solvent cement to both socket and pipe ends. Make up joint firmly.
 - 3.5.6 Gas Piping:
 - 3.5.6.1 Black iron schedule 40, welded except at equipment connections. Certified welding is required.
 - 3.5.6.2 At each piece of equipment, provide shut-off valve, union, drip leg (minimum 4 times pipe diameter, capped) and flexible pipe connection.
 - 3.5.7 Springing, bending or forcing of pipe will not be allowed. Use fittings for all offsets or changes in alignment of piping. Center hubs so cast iron will lay straight without pinched joints.
 - 3.5.8 Street elbows, bushings, and long screw fittings will not be allowed on metal pipe.
 - 3.5.9 Cleanly cut pipe and tubing and remove burrs to full diameter of pipe. Excessive reaming will not be permitted. Remove metal particles from ends of pipe and clear each section of foreign material before assembling.
 - 3.5.10 Cut pipe threads to full depth of die and screw up tight to fully engage thread in fitting. Threads to comply with ASA No B 2.1, and be cut with clean sharp dies.
 - 3.5.11 Clean outs: Clean outs shall be placed as shown on Drawings, or max. 50' o.c., at bases of stacks, at major changes in direction, and at the ends of all lines that have 2 or more openings going into that line, or as required by code. Clean outs shall be as indicated on Drawings. If PVC. is used include hub adapter.
 - 3.5.12 Provide shut-off valves in access panels to allow shut down of area of fixtures where indicated on Drawings.

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- 3.5.13 Provide shock absorbers with isolating gate or ball valves as indicated on the Drawings. Mount in the vertical position as recommended by the manufacturer.
- 3.5.14 The inside of all pipes shall be clean, reamed smooth with no burrs, fins or other obstructions. All drains including trap under utility sinks shall be copper with soldered joints. No pipe shall be run exposed, unless approved by Publix Representative.
- 3.6. Pipe Insulation
 - 3.6.1 Sealed at all joints and seams with adhesive in accordance with insulation manufacturer's recommendations. Pipe supports shall be on the outside of the insulation with 6" minimum length saddles of galvanized sheet metal.
 - 3.6.2 Fiberglass seams shall be sealed with factory furnished self sealing lap and butt joints in accordance with manufacturer's recommendation.
 - 3.6.3 Polyolefin seams shall be sealed with factory-furnished, self-adhering, pressure sensitive seams. Butt joints shall also be glued with factory-furnished adhesive.
- 3.7. Fixture Installation
 - 3.7.1 Stub out to the exact location of the fixtures. All stubs shall be set symmetrically with fixture.
 - 3.7.2 Install fixtures and trim supplied by Publix or others. Connect to plumbing as required. Finish out and trim fixtures as needed for complete installation.
 - 3.7.3 Caulking: All plumbing fixtures shall be bedded and caulked along joint at walls, and other intersecting surfaces with butyl caulking compound, counter tops and brass shall be caulked with "plumbers putty".
 - 3.7.4 Backing shall be of 2 x 6 pressure treated wood flush with stud face and extending to next stud beyond fixture on each side. Secure as required.
- 3.8. Inspection:
 - 3.8.1 The Work shall be installed under the inspection and with the approval of Publix' Authorized Representative.
 - 3.8.2 Notify the Publix' Representative two days in advance of backfilling, enclosing, or covering all plumbing lines so that he may inspect installation.
 - 3.8.3 Do not cover or enclose plumbing until inspection is made and installation is acceptable. Correct deficiencies in installation as directed by Publix' Representative.
- 3.9. Tests and Adjustments
 - 3.9.1 All soil, waste, and vent piping shall be filled with water to the highest point in each system with all air removed. The lines shall be flushed by removing the test plug. Piping may be tested in sections providing that all portions to be concealed shall be subjected to not less than a 10 ft. head for 24 hours with no leaks. Standpipe installed for head test shall be 2 in. minimum diameter.
 - 3.9.2 Sewer piping shall be filled with water to it's highest point.
 - 3.9.3 Verify that all drain lines have been flushed and are clear of debris prior to completion of Work.
 - 3.9.4 Water piping shall be flushed out, tested at 100 psi and shall be left under pressure of supply main for the balance of the construction period.

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- 3.9.5 Plumbing fixtures shall be filled with water and checked for leaks or retarded flow.
- 3.9.6 All flush valves, loose key stops, valves and similar equipment shall be adjusted and balanced to provide for the proper operation of the various systems.
- 3.9.7 Each piece of plumbing equipment and the entire plumbing system shall be adjusted and readjusted as required to insure proper functioning and shall be left in first class operating condition.
- 3.9.8 Gas piping, shall be tested at 15 psi air pressure for 24 hours, in excess of the requirements of NFPA 54.
- 3.10. Disinfection:
 - 3.10.1 Purge system of all deleterious material before proceeding with disinfection.
 - 3.10.2 Comply with local health department regulations.
 - 3.10.3 Flush with clean, potable water until water runs clear.
 - 3.10.4 Fill system with chlorine solution containing at least 50 ppm of chlorine. Allow to stand for at least 24 hours.
 - 3.10.5 Purge system of chlorine solution before putting into service.
- 3.11. Inspection
 - 3.11.1 Notify Inspector as required by local authority when all work is completely installed and tested leak-tight.
 - 3.11.2 Do not conceal piping or fixtures until approval has been obtained from inspector.
- 3.12. Cleaning Equipment and Premises:
 - 3.12.1 Thoroughly clean all parts of fixtures and equipment. exposed parts which are to be painted shall be thoroughly cleaned of foreign matter with grease, oil, soldering flux, etc. removed.
 - 3.12.2 Exposed metal work shall be carefully brushed down with steel brushes to remove rust and other spots and touched up with primer.

End of Section 22 40 00

Section 23 05 93

**Testing, Adjusting and Balancing
of Mechanical Systems**

V01032020

1. General

1.1. Summary

- 1.1.1 All work done under this section shall adhere to the concept of total system balance defined in ASHRAE. This concept states that one source shall be responsible for the complete testing, adjusting and balancing of all applicable HVAC systems, such that repeatable results are obtained, and the design intent of the engineer and the functional requirements of the owner are met.

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- 1.1.2 The independent testing and balancing agency shall, to the extent made possible by the installation and performance constraints of the project specific HVAC systems, systematically test the performance of all HVAC equipment under field conditions to verify conformance to project specifications, drawings and documents. The testing, adjusting and balancing process shall include: (1) the testing & balancing of all HVAC air and water distribution systems; (2) the adjustment of total systems to attempt and provide specified design quantities; (3) electrical measurement; (4) establishing the quantitative performance of all HVAC equipment; (5) verifying that HVAC system automatic controls are functional.
- 1.1.3 For purposes of consistency and clarification for all parties involved with HVAC testing, adjusting and balancing, the following designations and abbreviations will be used throughout these specifications.
 - 1.1.3.0.1 AABC = Associated Air Balance Council
 - 1.1.3.0.2 ASHRAE = American Society of Heating, Refrigerating, and Air Conditioning Engineers
 - 1.1.3.0.3 BAS = Building Automation Systems
 - 1.1.3.0.4 CM = Construction Manager, general contractor or prime contractor
 - 1.1.3.0.5 DALT = Duct Air Leakage Tests
 - 1.1.3.0.6 DP = Design Professional
 - 1.1.3.0.7 EC = Electrical Contractor
 - 1.1.3.0.8 ES = Equipment Supplier
 - 1.1.3.0.9 MC = Mechanical Contractor
 - 1.1.3.0.10 NEBB = National Environmental Balancing Bureau
 - 1.1.3.0.11 Owner = Owner or owner's designated representative
 - 1.1.3.0.12 SMACNA = Sheet Metal and Air Conditioning Contractors' National Association
 - 1.1.3.0.13 TAB = Testing and Balancing, or independent testing and balancing agency
 - 1.1.3.0.14 TBE = AABC or NEBB certified Test and Balance Engineer
- 1.2. General Requirements
 - 1.2.1 The TAB contract shall be procured and administered directly by the owner with Test and Balance Contractor.
 - 1.2.2 The owner or his designated representative shall be copied directly on all TAB agency generated deficiency lists and HVAC equipment/system test results. No statements or verbiage found elsewhere in the Division 23 mechanical specifications, or in the project general conditions, shall be construed as preventing the owner from receiving a direct copy of any TAB agency generated deficiency list or test result.
 - 1.2.3 The HVAC System Testing, Adjusting and Balancing section of the Division 23 mechanical specifications, Section 23 05 93, has been provided to other contractors primarily for information, reference and coordination. Other

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contractors are to take note of their responsibilities summarized in Section 23 05 93, and to be prepared to comply with the applicable requirements noted therein.

- 1.2.4 Responsibilities of other contractors which are delineated herein include, but are not necessarily limited to the following:
 - 1.2.4.1 Responding in a timely manner to submitted TAB agency deficiency lists.
 - 1.2.4.2 Changing applicable fan/motor sheaves and belts per TAB agency recommendations.
 - 1.2.4.3 Identifying manual volume damper (MVD) locations, maintaining access and verifying proper vapor barrier tight insulation to all MVD quadrant handles.
 - 1.2.4.4 Ensuring that all applicable control interlocks are in place and functional.
- 1.2.5 Total System Balance shall be performed by a TAB agency certified by the Associated Air Balance Council (AABC) or National Environmental Balancing Bureau (NEBB) and approved by the owner. All work performed by this shall be done by qualified technicians under the direct supervision of an AABC certified TBE, and under the project supervision of a registered professional engineer, permanently employed and registered in the state work is performed by the TAB agency. All manpower will be permanently employed by the TAB firm and NO subcontractors to the TAB agency will be allowed.

1.3. Scopes

- 1.3.1 Work and services to be provided by the TAB agency shall include furnishing all technical support personnel and all materials, test equipment, man-access equipment, and field labor required to completely test, adjust and balance all air, fluid, mechanical, electrical and BAS controls (local controls and instruments only) associated with all heating, ventilating, air conditioning and building process exhaust systems.
- 1.3.2 The following specific services are included in the Work & Services described in paragraph 1.3.1 above:
 - 1.3.2.1 Air System Balance
 - 1.3.2.1.1 Outside Air Systems
 - 1.3.2.1.2 Supply Air Systems
 - 1.3.2.1.3 Return Air Systems
 - 1.3.2.1.4 Exhaust Air Systems
 - 1.3.2.2 Hydronic System Balance (where applicable)
 - 1.3.2.2.1 Chilled Water Systems
 - 1.3.2.2.2 Condenser Water Systems
 - 1.3.2.2.3 Heating Hot Water Systems
 - 1.3.2.2.4 Glycol-Water Systems (Heat Reclaim)
 - 1.3.2.3 Control Systems Verification
 - 1.3.2.4 Special Systems

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- 1.3.2.4.1 Kitchen Hood Testing
 - 1.3.2.5 System Performance Verification
 - 1.3.2.6 Renovation Projects - Preconstruction airflow and water flow (heat reclaim) measurements and appropriate testing of existing HVAC systems where indicated in the design documents.
- 1.4. References
 - 1.4.1 AABC
 - 1.4.1.1 2016 NATIONAL STANDARDS FOR TESTING AND BALANCING HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS, 7th edition.
 - 1.4.1.2 AABC TEST AND BALANCE PROCEDURES
 - 1.4.2 NEBB
 - 1.4.2.1 Procedural Standard for Testing Adjusting and Balancing of Environment Systems 2019, 9th edition
 - 1.4.3 2019 ASHRAE HANDBOOK, HVAC APPLICATIONS, Testing, Adjusting and Balancing
 - 1.4.4 SMACNA, HVAC AIR DUCT LEAKAGE TEST MANUAL, 2012, 2nd edition
- 1.5. Quality Assurance
 - 1.5.1 Regulatory Requirements
 - 1.5.1.1 Workmanship, materials and installation shall comply with all state and local codes including, but not limited to the following:
 - 1.5.1.1.1 Applicable State Building Code
 - 1.5.1.1.2 ASHRAE Standard 62.1 - Latest Edition: Ventilation for Acceptable Indoor Air Quality
 - 1.5.1.1.3 ANSI/ASHRAE 111- Latest Edition Testing, Adjusting, and Balancing of Building HVAC Systems.
 - 1.5.1.1.4 National Electrical Code - Latest Edition
 - 1.5.1.1.5 National Fire Codes (NFPA) - Latest Edition
 - 1.5.1.1.6 OSHA General Industry Standards
 - 1.5.1.2 Nothing in the contract documents shall be construed to permit work not conforming to these codes or ordinances. Should conflicts arise between standards, the more stringent standard shall apply.
 - 1.5.2 All testing, adjusting and balancing procedures shall be in strict accordance with the following reference standards:
 - 1.5.3 AABC
 - 1.5.3.1 2016 NATIONAL STANDARDS FOR TESTING AND BALANCING HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS, 7th edition.
 - 1.5.3.2 AABC TEST AND BALANCE PROCEDURES
 - 1.5.4 NEBB

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1.5.4.1 Procedural standard for testing adjusting and balancing of environment systems 2019, 9th edition

1.6. Tab Agency Qualifications

1.6.1 The TAB agency shall be an AABC or a NEBB member in good standing.

1.6.2 All work shall be performed in accordance with the AABC procedures and standards itemized in paragraph 1.05B, and under the project supervision of a registered professional engineer permanently employed by the TAB agency. An AABC or NEBB certified TBE shall be responsible for all field supervision and certification of the total work of this section.

1.6.3 All Technicians shall have received training by the equipment manufacturers in the operations and procedure for testing and balancing the equipment.

1.7. Contract Documents

1.7.1 The owner or owner's designated representative shall furnish the TAB agency with plans, specifications and submittals as soon after the project contract award date as possible. These documents will be reviewed by the TAB agency for discrepancies or irregularities that would hinder TAB services or jeopardize optimum system performance.

1.7.2 The owner or his designated representative shall execute a test and balance agreement as soon as possible after the construction contract has been awarded to allow the TAB agency ample time to schedule this work in cooperation with other trades involved and to comply with the contract completion date.

1.8. Notification And Scheduling

1.8.1 The schedule for testing and balancing the HVAC systems shall be established by the Owner, or his designated representative, in coordination with the TAB agency on a critical path network.

1.8.2 The TAB agency is responsible for initiating this continuing coordination to determine schedule for final TAB services.

1.8.3 It will be necessary for the TAB agency to perform its services in close coordination with the CM, MC, EC, and BAS contractor, with all scheduling and deficiencies reported through the Owner, or his designated representative.

1.8.4 Before testing and balancing commences, the TAB agency shall receive notification in writing from the refrigeration coordinator that the systems are operational, complete and ready for balancing. Included with this notification shall be completed and signed HVAC equipment start-up check lists.

1.8.5 A completed system means more than just the physical installation. The CM, MC, EC, and BAS contractor shall certify that all prime movers, fans, pumps, dampers, refrigeration machines, boilers, etc., are installed in good working order, and that full load performance has been preliminarily tested.

1.8.6 The CM, MC, and BAS Contractor shall certify to the refrigeration coordinator in writing that all equipment has been checked, started and adjusted by the manufacturer and operated for the specified period of time.

1.9. Coordination With Other Trades

1.9.1 As a minimum to bring the HVAC systems into a state of readiness for testing, adjusting and balancing, the Mechanical Contractor (MC) shall perform the following:

1.9.1.1 Air Distribution Systems

1.9.1.1.1 All required DALT procedures on all applicable duct systems have been performed, all duct work sealed as required and applicable retesting completed.

1.9.1.1.2 Ensure that all splitters (only to be used for Gross distribution of flow, not balancing), volume, smoke and fire dampers are properly located and functional. Dampers serving requirements of smoke, minimum and maximum outside, return, relief and exhaust air shall provide tight closure and full opening, with a smooth and free operation.

1.9.1.1.3 Verify that all supply, return, exhaust and transfer grilles, registers, diffusers and high pressure terminal units are installed and operational.

1.9.1.1.4 All manual volume dampers (MVDs) are in the open position and readily accessible.

1.9.1.1.5 The MVD handles must be supplied with a stand-off bracket and locking quadrant.

1.9.1.1.6 Ensure that air handling systems, units and associated apparatus, such as heating and cooling coils, filter sections, access doors, etc. are blanked-off and/or sealed to eliminate excessive bypass or leakage of air.

1.9.1.1.7 Ensure that all fans (supply, return, relief and exhaust) are operating and free of vibration. All fans and drives shall be checked for proper fan rotation and belt tension. Overload protection shall be of proper size and rating. A record of motor current and voltage shall be made to verify that the motors do not exceed nameplate rating.

1.9.1.1.8 Make any necessary changes to the sheaves, belts and dampers, as required by the TAB agency, at no additional cost to Owner.

1.9.1.1.9 Install clean filters prior to testing.

1.9.1.2 Water Circulating Systems (where applicable)

1.9.1.2.1 Check all pumps to verify pump alignment and rotation.

1.9.1.2.2 Ensure that systems are clean, with the proper strainer screens installed for normal operation.

1.9.1.2.3 Check all pump motors for current and voltage, to ensure that motors do not exceed nameplate rating.

1.9.1.2.4 Provide overload protection of proper size and rating.

1.9.1.2.5 Ensure that all water circulating systems shall be clean, full of water and free of air, that expansion tanks are set for proper water level, and that all air vents are installed at high points of systems and are operating.

1.9.1.2.6 Check and set operating temperature of heat exchangers to design requirements.

- 1.9.2 The BAS contractor shall perform the following minimum pre-TAB items:
 - 1.9.2.1 Verify that all control components are installed in accordance with project requirements and are functional, including all electrical interlocks, damper sequences, air and water resets and fire and freeze stat resets.
 - 1.9.2.2 Verify that all controlling instruments are calibrated and set for design operating conditions.
 - 1.9.2.3 Calibrate room thermostats/ temperature probes and dew point sensors after installation and before the thermostat control verification tests are performed.
 - 1.9.2.4 The BAS contractor shall allow sufficient time in the project to provide assistance and instruction to the TAB agency in the proper use and setting of control components such as, but not limited to, computers, static pressure controllers, or any other device that may need set points changed so that the testing and balancing work can be performed.
 - 1.9.2.5 The TAB agency will then verify by-pass operation and field set all boxes by comparing actual tested airflow and correcting the minimum and maximum settings.
- 1.9.3 The Owner, or his designated representative, the CM, the MC, the BAS contractor and the equipment suppliers of the HVAC equipment shall all cooperate with the TAB agency to provide all necessary data on the design and proper application of the system components. In addition, they shall furnish all labor and materials required to eliminate any system deficiencies and shall be on site during the Test and Balance process.

2. Products

2.1. General

- 2.1.1 The TAB agency shall be responsible for providing all instrumentation, ductwork test ports and plugs, testing equipment and all other accessories and man access equipment necessary for accomplishing total system balance of all systems.
- 2.1.2 Service tools or special devices required to manipulate HVAC system control devices or control modes shall be loaned to the TAB agency by the BAS contractor until testing of all HVAC controls has been completed.
- 2.1.3 The accurate calibration of all field instrumentation to be used by the TAB agency is extremely important. Instrumentation shall be of first quality and accurately calibrated within (12 months prior to start of total system balance).
- 2.1.4 Whenever possible, the same instrument should be used for the entire job. If more than one instrument is used, a check shall be made to verify that the variation in instrument readings does not exceed +/- 0.5%.

3. Execution

3.1. Procedures

- 3.1.1 Please note that the TAB Agency is contracted to perform a once through test and balance (TAB) (i.e. in a single mobilization). If deficiencies are identified that prohibit the TAB Agency from completing TAB, then the deficiencies will be noted within the final report and submitted to the owner. It will be the financial responsibility of the offending contractor to resolve any outstanding

deficiencies and the cost of any TAB retesting will be back charged by Publix to the General Contractor. It is the intent of Publix to resolve all outstanding deficiencies prior to releasing final payment. Please note that a deficiency which impacts the operation of the HVAC equipment or overall store comfort will require a retest. Non-impacting deficiencies may be resolved via photo and/or written documentation.

3.1.2 Preconstruction Design Documents Check & Review

- 3.1.2.1 Review the project documents and contractor submittals for their effect on the test and balance process and overall performance of the HVAC systems.
- 3.1.2.2 Review building pressurization to verify that make-up air and exhaust air quantities balance out in conformance with specified design facility pressurization requirements.
- 3.1.2.3 Review location and type of manual volume dampers (MVD) in the air distribution system, and verify that all MVDs are accessible.
- 3.1.2.4 Review inlet conditions to air terminals, air valves and HVAC equipment.
- 3.1.2.5 Review location of pressure sensors in the air and water distribution systems.
- 3.1.2.6 Review automatic control systems as they affect the test and balance procedure.

3.1.3 Air System Test & Balance Procedures:

- 3.1.3.1 FAN SPEEDS - test and adjust fan RPM to achieve design CFM requirements. 0% to +5%
- 3.1.3.2 CURRENT & VOLTAGE - measure and record motor current and voltage.
- 3.1.3.3 PITOT TUBE TRAVERSE - perform a Pitot tube traverse of main supply and return ducts to obtain total CFM. If a Pitot tube traverse is not practical, the summation of the outlets or inlets may be used. An explanation of why a traverse was not made must appear on the appropriate data sheet.
- 3.1.3.4 OUTSIDE AIR - test and adjust system minimum outside air by Pitot tube traverse. If a Pitot tube traverse is not practical, the percentage of outside air may be determined by calculations from the return air, outside air and mixed air temperature. Make allowances for heat of compression and motor heat where applicable.
- 3.1.3.5 STATIC PRESSURE - test and record system static pressures, including suction and discharge static pressure profile of each fan. For Main HVAC units, traverse all cooling coils (note wet or dry) and record static pressures.
- 3.1.3.6 AIR TEMPERATURE - take wet bulb and dry bulb air temperatures on the entering and leaving side of each cooling coil. Dry bulb temperatures shall be taken on the entering and leaving side of each heating coil and re-heat coil.
- 3.1.3.7 At least one zone balancing damper shall be completely open.
- 3.1.3.8 MAIN DUCTS - adjust main ducts to within design CFM requirements. Multi-diffuser branch ducts shall have at least one outlet or inlet volume damper completely open.

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- 3.1.3.9 BRANCH DUCTS - adjust branch ducts to within design CFM requirements. Multi-diffuser branch ducts shall have at least one outlet or inlet volume damper completely open.
- 3.1.3.10 TOLERANCE - test and balance each diffuser, grille and register to within +/- 10% of design requirement on ceilings above 15 feet and +/- 5% for ceilings below 15ft.
- 3.1.3.11 IDENTIFICATION - identify the location and area of each grille, diffuser, register and terminal box. This information shall be recorded on air outlet data sheets.
- 3.1.3.12 DESCRIPTION - record the size and type of each diffuser, grille and register on air outlet data sheets.
- 3.1.3.13 VARIABLE AIR VOLUME SYSTEMS - shall be field set and balanced according to the specific type of VAV system supplied and method of controlling air flow. The following requirements shall be met:
 - 3.1.3.13.1 Verify that inlet ducts have sufficient straight runs as indicated in the details before VAV boxes or that straighteners have been provided and the VAV box manufacturer's control system is compatible with the building control system.
 - 3.1.3.13.2 Determine the maximum and minimum CFM for the boxes used and verify that the operating conditions fall within the design operating range.
 - 3.1.3.13.3 Check static pressures and volume flows and adjust to proper values as necessary. Test and report total airflow under maximum and minimum settings.
 - 3.1.3.13.4 Set outlets to design flow with VAV box on maximum setting and then set minimum set point
- 3.1.3.14 TERMINAL BOXES - field set volume regulators on all terminal boxes to meet design maximum and minimum CFM requirements. All associated temperature controls shall be checked for proper operation and calibration.
- 3.1.3.15 MINIMIZING DRAFTS - adjust all diffusers, grilles and registers to minimize drafts in all areas.
- 3.1.3.16 EXHAUST FANS - measure exhaust fan static pressure, total CFM, make-up air and fan RPM. Measure motor operating voltage and amperage.
 - 3.1.3.16.1 Verify exhaust fan static pressures, total CFM, make-up air and fan RPM. Verify exhaust fan total air flow via Pitot tube traverse wherever possible.
 - 3.1.3.16.2 Measure motor operating voltage and amperage.
 - 3.1.3.16.3 Balance of kitchen hoods. The airflow shall be set to deliver design average velocity x hood area. After flows are set, measure hood face velocities with a Shortridge Velgrid per manufactures recommendations.
 - 3.1.3.16.4 Record the specified against the actual supplied horsepower and electrical characteristics of all motors.
- 3.1.4 Hydronic System Test and Balance Procedures (where applicable):

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- 3.1.4.1 WATER TREATMENT - examine the water in the system to determine if the water has been treated and cleaned. If it has not, request that the mechanical contractor clean and treat the water.
- 3.1.4.2 AIR VENTS - check all air vents at the high points of the water system and determine if they are installed and operating.
- 3.1.4.3 VALVES - set all balancing valves and automatic temperature control valves to the full open position for balancing. Three-way valves; the rated pressure drop shall first be adjusted with the three-way set so that all water flows through the coil. The bypass shall then be adjusted to equal the drop of each coil until equal pressure drop between supply and return connections is obtained, with the three-way valve set to bypass the coil.
- 3.1.4.4 PUMPS - adjust chilled water, hot water and condenser water pump to meet design GPM requirements. Check pumps for proper operation. Pumps shall be free of vibration and cavitations. Measure and record operating pressure (PSI). Plot shut-off head and operating head on field generated pump performance curve.
- 3.1.4.5 CENTRAL PLANT - adjust water flow from the central plant if applicable.
- 3.1.4.6 TOLERANCES - proceed to balance all chilled water and hot water coils to within +/- 5% of design GPM requirements.
- 3.1.4.7 MARKING - mark all settings and record all data after completing the flow readings and coil adjustments.
- 3.1.4.8 PRIMARY/SECONDARY PUMPING SYSTEM - if a primary-secondary pumping system is employed, the TAB agency shall ensure that a proper balance is obtained between primary and secondary loops and that sufficient flow is maintained in the secondary loop at all times.
- 3.1.5 Control Systems Verification
 - 3.1.5.1 Verify that all control devices are properly connected.
 - 3.1.5.2 Verify that all dampers, valves and other controlled devices are operated by the intended controller.
 - 3.1.5.3 Verify that all dampers and valves are in the position indicated by the controller (open, closed, or modulating).
 - 3.1.5.4 Verify the integrity of valves and dampers in terms of tightness of close-off and full-open positions.
 - 3.1.5.5 Check that all valves are properly installed in the piping system in relation to direction of flow and location.
 - 3.1.5.6 Check the calibration of all controllers.
 - 3.1.5.7 Verify the proper application of all normally open and normally closed valves.
 - 3.1.5.8 Check the location of all thermostats/temperature sensors and humidity/dew point sensors for potential erratic operation from outside influences such as sunlight, drafts or cold walls.
 - 3.1.5.9 Check the locations of all sensors to determine whether their position will allow them to sense only the intended temperatures or pressures of the media. Control contractor will relocate as deemed necessary by the TAB agency.
 - 3.1.5.10 Check the sequence of operation that any control mode is in accordance

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with approved shop drawings. Verify that only minimum simultaneous heating and cooling occurs. Observe that heating cannot take place until the cooling zone of valve is completely closed.

3.1.5.11 Verify that all controller set points meet the design intent.

3.1.5.12 Check all dampers for free travel.

3.1.5.13 Verify the operation of all interlock systems.

3.1.5.14 Perform all system verification to assure the safety of the system and its components.

3.1.6 Cooler Tower/Fluid Cooler Testing (if applicable)

3.1.6.1 Test temperature of cold water leaving the cooling tower (LWT).

3.1.6.2 Test temperature of hot water entering cooling tower (EWT).

3.1.6.3 Test wet bulb temperature of air entering the cooling tower (EWB).

3.1.6.4 Test dry bulb temperature of air entering the cooling tower (EDB).

3.1.6.5 Test temperature of the make-up water entering the tower (Tmu).

3.1.6.6 Test flow rate of the make-up water entering the tower (GPMct).

3.1.6.7 Test flow rate of water recirculating through the cooling tower (GPMct).

3.1.6.8 Test flow rate of the blowdown (bleed) discharged from the tower (GPMb).

3.1.6.9 Test power input to the fan motor(s) (kw).

3.1.6.10 Test P-trap discharge pressure (P).

3.1.7 System Performance Verification

3.1.7.1 Publix' Commissioning Authority will verify the repeatability of the TAB report. If random tests indicate a measured flow deviation of 10% or more from that recorded in the Certified TAB Report listings at 10% or more of the selected recheck stations, the report will be rejected. All systems shall then be readjusted and tested, new data recorded, new Certified Report submitted, and new inspection tests made, all at no additional cost to Owner.

3.2. Record & Report Data

3.2.1 The TAB report shall be complete with logs, data and records as required herein. All logs, data and records shall be typed on white bond paper and bound. The report shall be certified accurate and complete by the TAB agency's certified TBE, and signed by the TAB agency's registered professional engineer.

3.2.2 One (1) hardcopy and one (1) electronic .PDF version of the TAB report are required and shall be submitted to the Owner or the Owner's designated representative.

3.2.3 The report shall contain the following general data in a format selected by the TAB agency.

3.2.3.1 Project number

3.2.3.2 Contract Number

3.2.3.3 Project title

3.2.3.4 Project location

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- 3.2.3.5 Project architect
- 3.2.3.6 Project mechanical engineer
- 3.2.3.7 Test and balance agency
- 3.2.3.8 Test and Balance Engineer
- 3.2.3.9 General Contractor
- 3.2.3.10 Mechanical subcontractor
- 3.2.3.11 Date tests were performed
- 3.2.3.12 Certification
- 3.2.4 The TAB report shall be recorded on report forms conforming to the recommended forms in AABC National Standards. At a minimum, the report shall include:
 - 3.2.4.1 Preface: any abnormalities and problems encountered, and any remaining outstanding deficiencies.
 - 3.2.4.2 Instrumentation List: the list of instruments including type, model, manufacturer, serial number.
 - 3.2.4.3 List of formulas used on test form
 - 3.2.4.4 System Identification: in each report, the VAV boxes, zones, supply, return, and exhaust openings, and traverse points shall be numbered and/or lettered to correspond to the numbers and letters used on the report data sheets.
 - 3.2.4.5 Store pressurization summary sheet indicating design versus final CFMs
 - 3.2.4.6 Measured supply air summary sheet indicating total CFMs of each AHU and AC, equate and document total tested tonnage of installed HVAC equipment
 - 3.2.4.7 Air Handling Equipment
 - 3.2.4.7.1 Manufacturer, model number and serial number.
 - 3.2.4.7.2 All design data.
 - 3.2.4.7.3 Total actual CFM by traverse if practical, if not practical, the sum of the outlets may be used, or a combination of each of these procedures. For specific systems, such as ones with diversity, see the AABC
 - 3.2.4.7.4 Complete Static Pressure Profile across all filter and coils
 - 3.2.4.7.5 Return air, bypass air, and outside air minimum and maximum specified CFM.
 - 3.2.4.7.6 Actual operating current, voltage and brake horsepower of each fan motor.
 - 3.2.4.7.7 Final RPM of each fan (High Speed & Low Speed).
 - 3.2.4.7.8 Fan and motor sheave manufacturer, model, size, number of grooves and center distance. Belt size and quantity.
 - 3.2.4.7.9 For direct drive fans note VFD cycles and RPM for the maximum and minimum CFM settings.

- 3.2.4.7.10 Static pressure controls' final operating set points.
- 3.2.4.7.11 Entering air temperature (EAT) / Leaving air temperature (LAT) (DB & WB) °F
- 3.2.4.7.12 Cooling coil temperature test
- 3.2.4.7.13 Heating coil temperature test for gas heat / amps & voltage for electric heat
- 3.2.4.7.14 Heat reclaim coil test (where applicable) GPM, EWT, LWT
- 3.2.4.7.15 Actual Ambient Data at the time of testing
- 3.2.4.7.16 Room DB/WB (°F)
- 3.2.4.7.17 Entering and leaving enthalpy (BTU/#)
- 3.2.4.7.18 Total enthalpy (BTU/#)
- 3.2.4.7.19 Total BTUH
- 3.2.4.7.20 Duct traverse sheet
- 3.2.4.8 Supply / Return / Exhaust Air Distribution for each system
 - 3.2.4.8.1 Area served
 - 3.2.4.8.2 Specified grille (i.e. neck size, run-out, Ak)
 - 3.2.4.8.3 Specified design (Velocity and CFM)
 - 3.2.4.8.4 Preliminary field test (Velocity and CFM)
 - 3.2.4.8.5 Final field test (Velocity and CFM)
 - 3.2.4.8.6 % of design
- 3.2.4.9 Mini Split Air Conditioning Systems
 - 3.2.4.9.1 Manufacturer, model number and serial number.
 - 3.2.4.9.2 All design data
 - 3.2.4.9.3 Heating Volts/phase
 - 3.2.4.9.4 Heating Amps
 - 3.2.4.9.5 Cooling and Heating field performance data
- 3.2.4.10 Kitchen Hoods
 - 3.2.4.10.1 Manufacturer, model number and serial number.
 - 3.2.4.10.2 All design data.
 - 3.2.4.10.3 Area and equipment served
 - 3.2.4.10.4 Exhaust
 - i Filter size
 - ii Average velocity (FPM)
 - iii Conversion factor
 - iv Calculated CFM
 - v Total Airflow & calculated % of design
 - 3.2.4.10.5 Supply

- i Test face velocities and balance accordingly
 - ii Total airflow & calculated % of design
- 3.2.4.10.6 Verify and mark the outside air damper actuator's maximum setting & performance verify the minimum settings for AC unit(s) dampers that are associated with the hood system.
- 3.2.4.11 Exhaust and Make-up Air fans
 - 3.2.4.11.1 Manufacturer, model number and serial number.
 - 3.2.4.11.2 All design data
 - 3.2.4.11.3 Area and equipment served
 - 3.2.4.11.4 Static Pressure (Design and tested)
 - 3.2.4.11.5 Fan RPM (Design and tested)
 - 3.2.4.11.6 Tested amperage
 - 3.2.4.11.7 Tested Voltage
 - 3.2.4.11.8 Heater size, rating, setting
 - 3.2.4.11.9 Fan and motor sheave manufacturer, model, size, number of grooves and center distance
 - 3.2.4.11.10 Belt size and quantity
 - 3.2.4.11.11 Final tested CFM
 - 3.2.4.11.12 Maximum & minimum VFD frequency, if applicable
- 3.2.4.12 VAVs
 - 3.2.4.12.1 Manufacturer, model number
 - 3.2.4.12.2 All design data
 - 3.2.4.12.3 Area and equipment served
 - 3.2.4.12.4 Field test minimum CFM
 - 3.2.4.12.5 Field test maximum CFM
- 3.2.4.13 ERVs (Supply and Exhaust)
 - 3.2.4.13.1 Manufacturer, model number and serial number
 - 3.2.4.13.2 All design data
 - 3.2.4.13.3 Area and equipment served
 - 3.2.4.13.4 Test amperage
 - 3.2.4.13.5 Test voltage and phase
 - 3.2.4.13.6 Heater data, size, rating, setting
 - 3.2.4.13.7 Static Pressure entering the wheel (in wg)
 - 3.2.4.13.8 Fan Suction (in wg)
 - 3.2.4.13.9 Pressure drop across the filter and the wheel (in wg)
- 3.2.4.14 Cooling Tower/Fluid Cooler (If Applicable)

- 3.2.4.14.1 A copy of the cooling tower data summary sheet.
- 3.2.4.14.2 A sketch of the cooling tower installation showing tower orientation, principal dimensions, location of temperature and flow rate measurement points, and notation of any building obstructions, or other equipment in the immediate vicinity of the tower.
- 3.2.4.14.3 Copies of completed test data sheets.
- 3.2.4.14.4 A copy of test calculations, including performance curves and cross plots.
- 3.2.4.14.5 Observations on compliance with Test Code limitations and uniformity of test conditions. Include comments on any suggested changes to the tower such conditions. Include comments on any suggested changes to the tower such as increasing fan speed or blade pitch to obtain rated brake horsepower.

End of Section 23 05 93

Section 23 70 00

**Central HVAC Equipment
V01032020**

1. General

1.1. Summary

- 1.1.1 Provide all materials and equipment and perform all labor required to install HVAC systems complete as indicated, as required by code, and as specified herein. All sizes, etc. are Publix minimum and if local code requirements are higher, the work shall be bid and installed accordingly.
 - 1.1.1.1 Obtain and pay for all permits, bonds, inspection.
 - 1.1.1.2 Provide roof top and split HVAC systems or install systems provided by Publix as described below.
 - 1.1.1.3 All A/C curb installation roof repair and “drying in” shall be by the roofing contractor.
 - 1.1.1.4 All roof mounted fans will be furnished by Publix and installed by HVAC Contractor. Curbs will be furnished by Publix for installation by Roofer.
 - 1.1.1.5 Provide hurricane brackets and other supports required to secure units to structure for wind and seismic conditions.
 - Seismic: Seismic hazard level as designated by Authority Having Jurisdiction.
 - Hurricane: FM 1-90 or higher if designated by Authority Having Jurisdiction.
 - 1.1.1.6 Provide sheet metal duct systems as indicated on Drawings and described in Specifications.
 - 1.1.1.7 Provide exhaust ducts between the cooking hoods and the roof mounted exhaust fans.

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- 1.1.1.8 Provide double-wall metal gas vents.
- 1.1.1.9 Provide all other materials and services required for installation described in Contract Documents.
- 1.1.2 HVAC Equipment:
 - 1.1.2.1 Publix will provide equipment delivered to the site of Construction. Coordinate delivery schedule with construction progress. Provide all labor, equipment, materials, and services required for installation and satisfactory completion of HVAC work.
 - 1.1.2.2 In addition to above, provide equipment, delivery, required staging and storage, and all other services required to complete the Work.
- 1.1.3 Coordinate work with work of others. Notify concerned parties before proceeding with work that will affect them.
- 1.2. Definitions: Explanation and precedence of Documents:
 - 1.2.1 For purposes of clarity and legibility, HVAC drawings are essentially diagrammatic and, although size and location of equipment are drawn to scale wherever possible, Contractor shall make use of all Contract Documents.
 - 1.2.2 Although the locations of the equipment and ductwork may be shown on the Drawings in certain positions, the Contractor shall be guided by the architectural details and conditions existing at the job, correlating this work with that of others.
 - 1.2.3 The Drawings indicate size, connection points and routes of ducts and equipment. It is not intended, however, that all offsets, rises and drops are shown. Install all items as required to fit structure, avoid obstructions, and retain clearance, headroom, openings and passageways.
 - 1.2.4 Remodels: Carefully examine all existing conditions, existing work in place and premises and compare the Drawings with the existing conditions. Submittal of bid indicates that the Contractor has examined the Site and Drawings and has included all required work in his bid. No allowances will be made for error resulting from Contractor's failure to visit job sites and to review Drawings.
 - 1.2.5 Conflicts, discrepancies, interferences and omissions in Documents shall be brought to the attention of the Publix Engineer for clarification prior to commencement of work.
- 1.3. Submittals:
 - 1.3.1 Submit LOIs in accordance with Section 01 33 00 Submittal Procedures.
 - 1.3.2 Within 30 days of Contract Commencement (Authorization to Proceed), submit the following shop drawings and cut sheets for Publix Engineer's approval:
 - Cooling Equipment
 - Air Handling Equipment
 - Heating Equipment
 - Air Distribution
 - Valves, Gauges, Specialties, Thermometers, Misc.
 - Insulation
 - Round and Oval Duct - submittals and shop drawings

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Hangers & Seismic Bracing

All submittal data shall have rough-in dimensions, connection sizes, any special installation requirements, certified performance data and horsepower, voltage and phase for all equipment.

Equipment, fixtures and trim with cuts including rough-in dimensions.

Other items required to complete the work

- 1.3.3 Submit PDFs online through Publix Landmark.
- 1.3.4 Literature for the above shall have rough-in dimensions, connection sizes, and special installation requirements.
- 1.3.5 Project Record Drawings: Comply with Section 01 78 39.
- 1.3.6 Do not order materials or proceed with work until all submittals have been reviewed, and approved.
- 1.3.7 Confirm electrical and other requirements with other contractors.
- 1.4. Quality:
 - 1.4.1 Subcontractor:
 - 1.4.1.1 The HVAC Subcontractor shall be a reputable firm regularly engaged in this type of work, employing skilled workmen, and with proper equipment.
 - 1.4.1.2 Upon request Subcontractor shall show evidence of at least two similar jobs, of comparable size and character, installed and operating within the previous two years prior to Bid Opening.
 - 1.4.1.3 Publix reserves the right to refuse any Subcontractor with or without cause.
 - 1.4.2 Personnel:
 - 1.4.2.1 Employ an experienced Superintendent to oversee all operation.
 - 1.4.2.2 Work shall not proceed without adequate supervision present at all times.
 - 1.4.2.3 Work shall be accomplished by workers certified in their trade as masters, journeymen, and apprentices in accordance with regulations of the governing authority or customary practice. Utilize workers with skills in proportion to complexity of tasks required.
 - 1.4.2.4 Publix reserves the right to reject personnel with or without cause.
 - 1.4.3 Quality standards: Work will be judged in comparison to work of similar types. Substandard construction as judged by Publix Representative will not be accepted.
 - 1.4.4 Regulations: Comply with applicable provisions of the following codes (latest version adopted by governing agencies):
 - Local Building Code
 - ASME Code for Unfired Pressure Vessels
 - International Mechanical & Energy Codes
 - Florida State Mechanical & Energy Codes
 - Georgia State Mechanical & Energy Codes

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North Carolina State Mechanical & Energy Codes

OSHA - for construction

- 1.4.5 Coordination: Work shall be accomplished along with the work of other trades. Corporate with others to benefit the job as a whole.
- 1.4.6 Participate in the pre-construction conference.
- 1.5. Sequencing:
 - 1.5.1 Notify General Contractor, or any others, of all chases, sleeves and openings required so that the work can be accomplished without delay. Provide necessary sleeves, etc., to be installed. Otherwise, HVAC Sub-Contractor shall pay for appropriate trades to perform cutting and patching.
 - 1.5.2 Joists, girders, beams, columns or reinforcing steel shall not be cut.
 - 1.5.3 Where construction necessitates the routing of ducts or piping through structural members, or framing, permission to make such installation shall first be obtained from the Publix Field Representative.
- 1.6. Temporary Operation: The Owner may require operation of part or all of the installation prior to Final Acceptance.
- 1.7. After acceptance of the Work, the Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding the Contractor's guarantee nor relieving the Contractor of his responsibilities during the guarantee period.
- 1.8. Operating Instructions and Service Manual:
 - 1.8.1 Provide two (2) neatly bound copies of maintenance and instructions book, parts lists pertaining to all equipment furnished.
 - 1.8.2 Each section shall be indexed and include parts lists, instruction books, suppliers' phone numbers and addresses, and individual equipment guarantees all in separate sections.
 - 1.8.3 Representatives of the Owner shall be instructed by the Contractor as to complete care and operation of the HVAC system. Inform the Architect in writing as to the persons who received the instructions and the date that this was done.
- 1.9. Warranty:
 - 1.9.1 Units shall have a manufacturer's standard one-year warranty against all defects.
 - 1.9.2 Provide industry standard five-year compressor replacement warranty.

2. Products

- 2.1. General: All equipment and materials shall be furnished in strict accordance with the equipment schedule and specifications requirements. See Section 01 11 00 - Summary of Work to determine responsibilities regarding supplying and installing of equipment.
- 2.2. Nameplates
 - 2.2.1 Nameplates shall not be painted.
 - 2.2.2 All switches, starters, and major pieces of equipment shall be identified with black plastic nameplates with engraved white letters.

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- 2.3. Packaged Rooftop Air Conditioners: Self-contained, factory assembled and wired unit. Consists of cabinet compressor(s), evaporator fan, evaporator coil(s), air filters, air cooled condenser, fully charged with refrigerant and oil, and controls. Owner furnished, contractor installed unless noted otherwise.
- 2.4. Power Ventilators: Direct or belt-drive centrifugal fans consisting of housing, wheel, fan, shaft, bearings, motor and disconnect switch drive assembly, curb base and accessories. Owner furnished, contractor installed unless noted otherwise.
- 2.5. Controls:
 - 2.5.1 An Environmental Control Panel will be furnished and installed by Publix to control all AC units. Conduit, line voltage circuits, interlocks, etc., shall be furnished and installed by the Contractor, as shown on drawings.
- 2.6. Filter Media: Full two inch thick dual density polyester material.
- 2.7. Air Distribution
 - 2.7.1 General:
 - 2.7.1.1 All air distribution shall be supplied by manufacturers whose testing procedures are in accordance with ASHRAE Standard 70.
 - 2.7.1.2 Furnish and install, unless otherwise noted, all grilles, registers, and outlets at the location and of the type and size shown on the Drawings. Install foam rubber gaskets behind flanges of all grilles and registers to prevent leakage and streaking. Adjust air volumes and set deflection in accordance with Drawings.
 - 2.7.1.3 Approved manufacturers:
 - Airguide
 - Anemostat
 - Bailey and Tuttle
 - Lindab
 - Krueger
 - Metal Industries
 - Nailor Industries
 - Price
 - Titus
 - Other manufacturers as approved by Publix Engineer.
 - 2.7.2 Return Air Grilles and Registers:
 - 2.7.2.1 Return air grilles, outlets, registers and door grilles shall be of etched aluminum with acrylic finish and as indicated.
 - 2.7.2.2 All grilles shall be suitable for smooth surface mounting, Coordinate installation door grilles with door installation.
 - 2.7.2.3 Where indicated, provide opposed blade dampers.
 - 2.7.3 Supply Registers and Diffusers:
 - 2.7.3.1 All supply outlets shall be aluminum (or aluminized steel where required when part of rated roof-ceiling assembly) and products of a single manufacturer.

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- 2.7.3.2 Provide steel grilles and fire dampers, radiation dampers as indicated on the Drawings and in accordance with U.L. roof-ceiling assembly design where indicated.
- 2.7.3.3 Where indicated, provide opposed blade dampers.
- 2.7.4 Louvers: Aluminum, drainable with bird screen, AMCA certified.
 - Greenheck ESD-403
 - Ruskin #ELF-375D
 - Louvers and Dampers Inc. 1EL-4-104, ALL Series
 - Pottorff
- 2.8. Bypass Terminal Units: 22 gage galvanized steel construction, 1/2" thick 1.5 lb/ft³ density coated fibrous glass insulation, complying with NFPA 90A and UL-181. Steel damper and actuator shaft with self-lubricating bearings. Field adjusted minimum air volume stop and 24V AC actuator.
 - 2.8.1 Approved Manufacturers:
 - Metal Industries
 - Price
 - Titus
- 2.9. Sheet Metal Ductwork:
 - 2.9.1 Galvanized Ductwork: All duct and fittings shall be manufactured from galvanized steel of lock forming quality per ASTM A653. The zinc coating shall be minimum G90 (1.25 oz. 1 sq. ft.) per ASTM A924. Seams on fittings shall be welded or tacked & sealed. Individual fittings are required, manifolding is not permitted. Comply with SMACNA requirements for duct construction for ventilation and air conditioning systems.
 - 2.9.2 Stainless steel ductwork: ASTM A480, Type 316 sheet-form with #4 finish for surfaces exposed to view; Type 304 sheet-form, with #1 finish for concealed ducts.
 - 2.9.3 Rectangular Duct Work:
 - 2.9.3.1 Panels shall be cross broken. (Beaded duct not acceptable)
 - 2.9.3.2 Longitudinal standing seams may be used
 - 2.9.3.3 Corner closures are not required
 - 2.9.3.4 Hangers shall be galvanized steel strapping and galvanized rods.
 - 2.9.3.5 Elbows shall be as drawn.
 - 2.9.3.6 Where indicated vaned elbows shall be double vaned.
 - 2.9.3.7 Connections shall be either 90 degree straight with Titus Model AG-45 control grid or radius tap-in.
 - 2.9.3.8 Inspection plates and test holes are not required.
 - 2.9.3.9 Fresh air intake shall be square or rectangular standard.
 - 2.9.3.10 Access doors shall be insulated and removable.
 - 2.9.3.11 Sealer on all joints: Sealants shall have a Flamespread Rating of 25 or less, Smoke Developed Rating of less than 50 to comply with NFPA

90A.

Hardcast Iron Grip Water-Based Duct Sealant 601
 United McGill, United Duct Sealer
 Precision Adhesives PA-2084A Duct Sealant
 Fosters 32-19

2.9.4 Round and Flat Oval Duct:

- 2.9.4.1 All exposed ductwork shall be spiral lockseam construction standard SMACNA gauges tested to + 10WG. Longitudinal seam duct is prohibited. Comply fully with SMACNA recommendations.
- 2.9.4.2 Where ductwork is exposed to view, provide G90 galvanized metal suitable for painting.
- 2.9.4.3 Field Joints in Exposed Ductwork: Lindab Inc. SPIRO safe duct system, or Ductmate industries Spiralmate Round Duct Connector and "Ovalmate Flat Oval Duct Connector" or approved equals.
- 2.9.4.4 Substitution of sizes by cross section area or equivalent round formula must have written prior approval.
- 2.9.4.5 Ductwork assemblies shall be the type tested to 10" WG (min.) by UL 181.
- 2.9.4.6 Approved Duct Manufacturers:
 - Eastern Sheet Metal
 - Linx Industries
 - Semco
 - United McGill Corp.
 - Crown Products Company
 - Hamlin Sheet metal
- 2.9.4.7 Gauges (Single Wall Ductwork):

Round Duct		
Diameter	Spiral	Fitting
3" - 18"	26 Ga.	26 Ga.
19" - 24"	26 Ga.	24 Ga.
25" - 42"	24 Ga.	22 Ga.
43" - 60"	22 Ga.	20 Ga.
61" - 66"	22 Ga.	18 Ga.
67" - 84"	20 Ga.	18 Ga.
Oval Duct		
Major Axis	Spiral	Fitting
3" - 24"	24 Ga.	24 Ga.
25" - 26"	22 Ga.	24 Ga.
27" - 42"	22 Ga.	22 Ga.
43" - 48"	22 Ga.	20 Ga.
49" - 60"	20 Ga.	20 Ga.
61" - 70"	20 Ga.	18 Ga.

71” – 84” 18 Ga. 18 Ga.

2.9.4.8 Doublewall Ductwork

2.9.4.8.1 Double wall duct and fittings shall consist of a perforated inner liner, a 1 inch, 1.50 lb./ft³ (unless otherwise specified) layer of fiber glass insulation and a solid outer pressure shell. A retaining fabric shall be wrapped between the perforated inner duct and the fiber glass insulation.

2.9.4.8.2 All fitting ends from 5” to 24” O.D. shall have rolled edges for added strength and rigidity during installation and shipping.

2.9.4.8.3 Double wall to single wall transitions shall be provided where insulated duct connects to non-insulated, single wall duct. Transitions also act as insulation ends reducing the double wall outer shell diameter to the inner shell diameter.

2.9.4.8.4 Gauges (Double Wall Ductwork):

Round Duct

Diameter	Spiral	Fitting
3” - 18”	26 Ga.	26 Ga.
19” - 24”	26 Ga.	24 Ga.
25” - 42”	24 Ga.	22 Ga.
43” - 60”	22 Ga.	20 Ga.
61” – 66”	22 Ga.	18 Ga.
67” – 84”	20 Ga.	18 Ga.

Oval Duct

Diameter	Spiral	Fitting
3” - 22”	24 Ga.	20 Ga.
23” - 34”	22 Ga.	20 Ga.
35” - 46”	22 Ga.	18 Ga.
47” - 58”	20 Ga.	18 Ga.
59” – 60”	20 Ga.	16 Ga.
61” - 68”	20 Ga.	16 Ga.
69” – 84”	18 Ga.	16 Ga.

2.9.4.9 Duct Hangers - 8’ 0” C/C max distance.

2.10. Flexible Duct:

2.10.1 Factory insulated on aluminum liner, UL listed Class 1 Air Duct, STD. 181 and NFPA Bulletin 90A, with F/S kraft metallized mylar vapor barrier jacket. Flamespread rating less than 25, and smoke developed 50 or less.

2.10.2 Minimum working pressure 6” w.g.

2.10.3 Maximum length-10 feet.

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- 2.10.4 Supports shall be spaced maximum 3 feet, support band min. 2 in. wide: Use Wiremold duct collars and galvanized strap clamps or equal as approved by Engineer.
- 2.10.5 Spin in fittings shall be Metal Masters Model MS1-6G or equal as approved by Engineer.
- 2.10.6 Approved products:
 - Flexmaster TL-M
 - Insulated Metalflex V-250-UL
 - Thermo-Fin Type A-300
- 2.11. Duct Leakage Loss:
 - 2.11.1 Each system shall meet SMACNA and ASHRAE leakage class 3. This leakage will be determined by the test and balance consultant.
 - 2.11.2 Loss exceeding leakage class 3 requirements shall be corrected by the HVAC Contractor prior to acceptance by Publix.
- 2.12. Duct Hangers:
 - 2.12.1 Duct hangers shall be threaded rods or metal straps with metal bands or angles see details in the mechanical drawings.
 - 2.12.2 Preferred Method for Exposed Ductwork system: Load-rated cable suspension system. The system shall have a specified manufacturer's safe working load (SWL) and supplementary safety factor of at least five times the SWL. The system shall be verified by SMACNA Testing & Research and shall be in compliance with SMACNA Duct Construction Standards guidelines.
 - 2.12.3 Approved System: Gripple Hang-Fast.
 - 2.12.4 Seismic bracing and design to comply with local conditions.
- 2.13. Grease Hoods: Owner furnished, contractor installed.
 - 2.13.1 Install UL classified range hoods as indicated on the Drawings and in accordance with NFPA 96. Hoods shall be 18 gage (stainless steel to be specified on drawings), liquid tight welds, grease extractors, vapor proof lights and factory pre-piped fire suppression system.
 - 2.13.2 Grade of stainless steel to be listed in the mechanical drawings.
- 2.14. Fire Suppression
 - 2.14.1 Provide fire protection system (specified Section 15355-Automatic Fire Suppression System) for all grease-laden air removal hoods (Designated GH-). Shall conform to NFPA 17.
 - 2.14.2 Fire dampers shall be at the supply air inlets.
- 2.15. Grease Hood Exhaust Duct
 - 2.15.1 Fabricate kitchen hood ducts from 16 ga. galvanized steel sheets, 18 ga. stainless steel where exposed. Conform to NFPA 96. All joints and seams shall be welded liquid tight. Provide a flange for duct at top of exhaust fan curb.
 - 2.15.2 Access doors shall be U.L. listed.

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Ductmate, F2
Flame Gard
Acudor Products Inc.
Access Armor

2.16. Prefabricated Oven, Grease and Engine Exhaust Venting

2.16.1 Approved Manufacturers

Metal- Fab
Selkirk
Captive Aire

2.16.2 Type B Venting

2.16.2.1 Provide a complete insulated double wall gas venting system (U.L. Listed #103), 1400 degrees F. rating and draft hood for the gas fired equipment and bakery ovens where indicated.

2.16.2.2 Thimbles, flashing, rain cap as required.

2.16.2.3 Air Intake: Single wall construction.

2.16.3 Grease Duct

2.16.3.1 Provide complete doublewall, fiber insulated exhaust system as listed and compliant with NFPA 96

2.16.3.2 Use manufacturers sealants and support system and components for a complete system.

2.16.3.3 Exhaust piping shall terminate per local code or as required by NFPA 96.

2.16.3.4 Minimum 10 year warranty

2.16.4 Engine Exhaust

2.16.4.1 Provide complete double wall fiber insulated exhaust system with insulation thickness as listed on the project plans

2.16.4.2 Use manufacturers sealants and support system and components for a complete system.

2.16.4.3 Exhaust piping shall terminate per local code or as required by NFPA 37.

2.16.4.4 Minimum 10 year Warranty.

2.17. Devices and other miscellaneous items:

2.17.1 Dampers: Opposed blade, butterfly type, or splitter, all factory made as indicated. Each shall have a locking quadrant accessible for adjustment, with extension sleeve for duct wrap insulation.

2.17.2 Air Turning Device for Registers: Titus model AG-45 or similar device as approved by Architect.

2.17.3 Radiation Dampers: UL listed and installed where indicated

2.17.4 Piping System for Condensate: Schedule 40 PVC.

2.18. Insulation:

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2.18.1 Concealed HVAC Ductwork:

2.18.1.1 Insulate externally with foil scrim kraft (FSK) fiberglass blanket type insulation, ASTM C1136, thickness and R value as indicated on the Drawings.

2.18.1.2 Comply with ASHRAE 90.1 and energy code requirements of the AHJ.

2.18.1.3 Materials shall have flamespread less than 25, and smoke developed less than 50.

2.18.1.4 Approved manufacturers:

Johns Manville
CetainTeed
Owens Corning
Knauf

2.18.1.5 Neatly cut and fit insulation to the duct surface with all duct joints overlapped 2" minimum, secured with outward-clinch staples 4" on center each way.

2.18.1.6 On ducts 24" or greater in width the insulation on the underside of the duct shall be secured to the sheet metal surface with Foster'S #85-20, or equal, adhesive, and secured mechanically with sheet metal screws and caps, or mechanical fasteners adhered to the duct on not more than 18" centers each way.

2.18.1.7 All transverse and longitudinal seams, and penetrations of the vapor barrier facing shall be covered with SMACNA rated foil backed tape applied in and sealed with Foster's #30-80 or #30-65, or equal, vapor barrier mastic.

2.18.2 Where indicated, exposed double wall HVAC duct work shall be internally insulated with fiberglass.

2.18.2.1 Insulate internally with fiberglass rigid board type insulation and retaining fabric, ASTM C1136, thickness and R value as indicated on the Drawings.

2.18.2.2 Materials shall have flamespread less than 25, and smoke developed less than 50.

2.18.2.3 Approved manufacturers:

Johns Manville
CetainTeed
Owens Corning
Knauf

2.18.3 Where indicated, exposed rectangular ductwork shall be internally lined.

2.18.3.1 Flexible duct liner shall be glass fibers bonded with a thermo-setting resin.

2.18.3.2 Airstream surface shall be protected by a flexible glass mat coating.

2.18.3.3 Edges, joints and seams shall be sealed using manufacturer's approved coating/sealer.

2.18.4 Fire-resistant Grease Duct Wrap

2.18.4.1 Alternative to 1 and 2 hour fire resistant rated gypsum shaft enclosures. Product shall be a flexible, 0" clearance, non-asbestos system,

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encapsulated with a scrim re-enforced foil. no flame, no smoke characteristics for the foil blanket. Install per manufacturer's guidelines.

2.18.4.2 Follow the manufacturer's guidelines for securing duct wrap, welded stickpins only, banding and sealers.

2.18.4.3 Approved Manufacturers:

FireWrap Elite, Unifrax

Fire Barrier Ductwrap 15A, 3M

FastWrap+, Thermal Ceramics FireMaster

2.19. Ductwork accessories:

2.19.1 Control Dampers

2.19.1.1 Provide dampers with parallel blades for 2 position control, or opposed blades for modulating control.

2.19.1.2 All metal parts galvanized steel, Blades: 16ga., bearings: Heavy duty molded nylon, axles: 1/2" dia. steel, 9" OC.

2.19.1.3 Steel Frames:

2.19.1.3.1 Up to 25 sq. ft.: 2"X1/2"X1/8"

2.19.1.3.2 Over 25 sq. ft.: 4"X1 1/4"X16ga.

2.19.1.4 Acceptable Manufacturers:

Greenheck

Ruskin

2.19.2 Fire Dampers:

2.19.2.1 Fire dampers shall be rated where indicated and shall be UL 555 listed.

2.19.2.2 All metal parts galvanized steel, dynamically tested, casings: 20 ga., blades: 24 ga., fusible Link: 160 - 165 deg. F.

2.19.2.3 Damper: Positive lock type with curtain type blade, positive lock in closed position, with curtain 100% out of airstream.

2.19.2.4 Steel Frames:

2.19.2.4.1 Up to 25 sq. ft.: 2"X1/2"X1/8"

2.19.2.4.2 Over 25 sq. ft.: 4"X1 1/4"X16ga

2.19.2.5 Acceptable Manufacturers:

Greenheck

Ruskin

2.19.3 Duct access doors:

2.19.3.1 Construct of same gauge or heavier as ductwork served. Provide insulated doors for insulated ductwork. Provide flush frames for un-insulated ductwork, extended frames for externally insulated ductwork. Provide one side hinged, other side with one handle type cam latch for all doors. If space is limited for a hinged door swing, then provide a two handle type cam latch door.

2.19.3.2 Door sizes shall accommodate to allow fire dampers and other devices to be accessed for repair or reset to normal position after being

activated.

Largest Dimension of Duct	Access Door Nom. Dimension
Up to 10"	6"X6"
10" to 16"	8"X8"
17" to 24"	12"X12"
25" to 36"	16"X16"
37" and larger	24"X16"

2.19.3.3 Acceptable manufacturers:

Greenheck
Ruskin

3. Execution:

3.1. General

- 3.1.1 Neatness counts. Make all joints, connections, unions, etc. with proper care to insure that tight connections are made without excess material, well secured to supports.
- 3.1.2 Install duct with runs straight, shop formed radiuses at bends, and adequate supports.
- 3.1.3 Verify all field dimensions and locations of equipment and fixtures within the layout to ensure close, neat fit, with other trades work.

3.2. Installation:

- 3.2.1 All equipment shall be protected from dust, moisture and odors by sealing all openings with plastic sheeting before and during installation.
- 3.2.2 Installation of rooftop A.C. units:
 - 3.2.2.1 Publix will furnish factory fabricated steel roof curbs complete with wood nailer strips. Curbs are shipped fully assembled and tapered to fit roof slope.
 - 3.2.2.2 Provide materials and coordination with other trades required to ensure that curbs are installed properly and level. Use gasket material provided by curb manufacturer for sealing A/C equipment to roof curbs.
 - 3.2.2.3 Attach units to curbs as indicated on the Drawings.
 - 3.2.2.4 Lift all A/C units with spreader bars to prevent cable damage to cabinets and components.
 - 3.2.2.5 Publix will accept only those units which are in new condition without dents or other damage. Scratches or paint damage are to be re-painted with manufacturer's paint.
 - 3.2.2.6 In the event that field repair involves the refrigeration circuit of any unit, such repair is to be made by the unit manufacturer or their representative.
 - 3.2.2.7 Provide each unit with a PVC condensate drain trap in accordance with Drawings and unit manufacturer's recommendation.
 - 3.2.2.8 Piping of unit mounted heat reclaim coil(s) will be by the refrigeration contractor.

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3.2.3 Installation of rooftop fans:

- 3.2.3.1 Publix will furnish factory fabricated steel roof curbs complete with wood nailer strips. Curbs are shipped fully assembled and pre-sloped. Additional slope accommodation is through steel frame provided under other sections.
- 3.2.3.2 Provide materials and coordination with other trades required to ensure that curbs are installed properly and level.
- 3.2.3.3 Attach fans to curbs as indicated on the Drawings.

3.2.4 Installation of Ductwork:

- 3.2.4.1 Comply: with SMACNA Duct Cleanliness for New Construction Guidelines Intermediate Level. Protect ductwork during shipment, delivery to the jobsite and storage on site. Sections to be clear of debris before installing. Protect risers from entry of the debris and moisture into the duct.
- 3.2.4.2 Run straight and level or slope with roof as indicated in Construction Drawings.
- 3.2.4.3 Hanger for ductwork shall attach to the top chord of the bar joist.
- 3.2.4.4 Install seismic bracing as required to comply with local conditions.

3.3. Equipment Start-Up:

- 3.3.1 All rooftop A.C. units shall be started and adjusted for proper operation by the manufacturer or his representative. No equipment shall be run prior to this start-up. All units shall be made ready for start-up at the same time.
- 3.3.2 Contractor shall have qualified personnel in attendance to coordinate ductwork and electrical aspects of the start-up.
- 3.3.3 While in operation during construction, all returns in areas under construction shall be closed off or have filters installed over openings or grilles to minimize contamination.
- 3.3.4 Prior to test and balance, contractor is to replace all air filters.

3.4. Substantial Completion Inspection

- 3.4.1 All of the following items must be completed prior to Substantial Completion Inspections. No exceptions will be made and no payment will be made until all items are completed.
- 3.4.2 Cleaning Equipment and Premises:
 - 3.4.2.1 Thoroughly clean all parts of the apparatus and equipment. Exposed parts which are to be painted shall be thoroughly cleaned of cement, plaster, and other material and all oil and grease spots shall be removed. Repaint or touch up as required to make look like new. Surfaces shall be carefully wiped and all cracks and corners scraped out.
 - 3.4.2.2 Exposed metal work shall be carefully brushed down with steel brushes to remove rust and other spots and touched up with primer.
- 3.4.3 Testing and Balancing Systems
 - 3.4.3.1 Publix will provide a test and balance contractor. This service will be done in the presence of the HVAC Sub- Contractor, so that deficiencies

can be noted.

- 3.4.3.2 Comply with “Standards for Field Measurement and Instrumentations” Form No. 81266 Volume One. as published by the Associated Air Balance Council and or dealt with at that time.
 - 3.4.3.3 Submit three (3) copies of the complete test reports to the Publix Refrigeration Department prior to Final Acceptance of the Project.
 - 3.4.3.4 Provide sufficient time before the completion date so that testing and balancing can be accomplished, and remediation made.
 - 3.4.3.5 Put all HVAC Equipment into full operation and continue operation during each working day of testing and balancing.
 - 3.4.3.6 All dampers shall be in wide open or neutral position prior to test and balance of the system.
 - 3.4.3.7 Implement changes recommended by the testing and balancing contractor, including pulley changes, balancing dampers and other items as required to obtain proper system balance as judged by the testing and balancing contractor and the Publix Engineer.
 - 3.4.3.8 Maintain operation of the system for a minimum of 24 hours after balance has been obtained. Notify Publix Architect so that he may inspect the system under operating conditions.
- 3.5. Prior to requesting a Final Inspection, submit a typed schedule or a marked up set of Drawings indicating the observed velocity of each grille, register or outlet. These test data shall be final readings after balancing the system.
- 3.6. Dust streaking on exposed duct systems: After 6 months, examine all exposed ductwork for dust streaking. Where streaking has occurred, the causes of the streaking shall be determined and repaired. Streaked surfaces shall be cleaned and touched up to match the original finish.

End of Section 23 70 00

Section 26 00 00

**Electrical
V04012021**

1. General

1.1. Summary

- 1.1.1 Comply with requirements of Sections 01 11 00, 01 33 00, 01 50 00, 01 77 00, 01 78 39.
- 1.1.2 Provide all materials and equipment and perform all labor required to install electrical systems complete as indicated, as required by code, and as specified herein.
- 1.1.3 Obtain and pay for all permits, bonds, inspection. Coordinate inspections with work as it progresses.
 - 1.1.3.1 Provide services necessary to coordinate work with work of others. Notify concerned parties before proceeding with work that will affect them.
 - 1.1.3.2 Provide electric service to connect with site utilities at a point outside

- the building as shown on the Drawings.
- 1.1.3.3 Coordinate with Utilities all requirements for utility transformer and Metering. Furnish and install all utility requirements for electrical service (ie. transformer pad, CT compartment, meter base and pedestal)
 - 1.1.3.4 Furnish and install all panel-boards, and contactors at the locations shown on the Drawings and specified herein.
 - 1.1.3.5 All spare, empty conduit and junction boxes to have pull string.
 - 1.1.3.6 Furnish and install all conduit and conductors between the load side of the feeder breakers to the branch panels.
 - 1.1.3.7 Furnish and install all branch circuits between the panel-boards and the final terminal as shown on the Drawings and specified herein.
 - 1.1.3.8 Furnish and install all secondary service between the power company transformer to the main switch as indicated on the Drawings.
 - 1.1.3.9 Receive, install and make final electrical connections to all lighting fixtures as shown on the Drawings and specified herein.
 - 1.1.3.10 Furnish and install conduit and boxes only for the public address system and telephone outlets.
 - 1.1.3.11 Make electrical connections to the electric door operators as shown on the Drawings and specified herein.
 - 1.1.3.12 Make all electrical connections to equipment supplied by Publix. Electrical Contractor to verify all manufacturer equipment requirements prior to connection. Any conflicts or deviation in design to be brought to the attention of the Engineer.
 - 1.1.3.13 Make all electrical connections to refrigerated display cases and walk-in boxes as shown on the Drawings and specified herein.
 - 1.1.3.14 Make all electrical connections between the main switchboard and the refrigeration compressors and condensing equipment as shown on the Drawings and specified herein.
 - 1.1.3.15 Furnish and install all motor starters, disconnect devices, conduit and conductors for control and power wiring.
 - 1.1.3.16 Make all electrical connections between the main switchboard and the air conditioning compressors, air handling units, package units and strip heaters as shown on the Drawings and specified herein.
 - 1.1.3.17 Make all electrical connections between the machine rooms mounted refrigeration equipment and the refrigerated display cases, walk-in freezers and coolers as shown on the Drawings and specified herein.
 - 1.1.3.18 Furnish and install all conduit and conductors to totally electrically connect all controls as specified herein.
 - 1.1.3.19 Furnish and install all electrical work required for the dry chemical fire extinguisher system in the grease exhaust hoods. in compliance with NFPA Bulletins #17, #96, and with local codes.
 - 1.1.3.20 Furnish and install all electrical wiring devices as shown on the Drawings and specified herein.
 - 1.1.3.21 Furnish and install all conduit, conductors, disconnect devices and flexible metal conduit to completely wire all supply and exhaust fans as shown on the Drawings and specified herein.

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- 1.1.3.22 The Electrical Contractor is fully responsible and liable for damaged and lost materials furnished by Publix. It shall be required that the sign for the materials supplied by Publix.
- 1.1.3.23 Panels for A/C and refrigeration mechanical systems, as furnished pre-wired internally by others, shall be mounted and connected by the Electrical Contractor. Refer to Drawings and Specifications for air conditioning.
- 1.1.3.24 Furnish and install all electrical service and controls for fans installed by others.
- 1.1.3.25 Furnish and install power wiring to each HVAC unit including the safety disconnect switch and other required electrical devices to make the unit operational as shown on the Drawings and specified herein.
- 1.1.3.26 Install Optional Standby generator and Nexgear transfer switch complete, as furnished by Publix.
- 1.1.3.27 Install conduit/boxes with pull string for fire alarm and burglar alarm system, as furnished by Publix per note on Electrical Drawings.
- 1.1.3.28 Install and connect air conditioning control panel, energy management system, supplied by Publix.
- 1.1.3.29 Install conduit, conductors and make connections to "Publix" sign, and all other facade signs and under-canopy signs (signs supplied and installed by Sign Contractor).
- 1.1.3.30 Security and fire alarm systems or combined system: the Electrical Contractor shall supply and install conduit, boxes, and pull strings as shown on Drawings. Power supply, station controls and complete final hook-up by Fire Alarm Contractor/Security Alarm Contractor as noted on Drawings (as hired as sub-contractor to the Electrical Contractor). The Electrical Contractor may or may not be the Fire Alarm Contractor/Security Alarm Contractor based on their licensure.
- 1.1.3.31 Install emergency generator and automatic transfer switches complete as furnished by Publix
- 1.1.3.32 Furnish and install all light fixtures and lamps as shown on the drawings and specified herein.
- 1.1.4 Related Work by Other Contractors:
 - 1.1.4.1 Setting and roofing in of all curbs and pitch pockets by Roofing Contractor. (setting of A/C curb only shall be by A/C Contractor)
 - 1.1.4.2 Setting of water heaters, ovens, kitchen equipment, gondolas, cash equipment, facade signs and other miscellaneous equipment by others. Final electrical connection by Electrical Contractor.
 - 1.1.4.3 Kitchen Hood Fire Protection System by Others.
- 1.1.5 Publix reserves the right to furnish some items of electrical equipment to the Electrical Contractor. If this is done the Electrical Contractor shall install the equipment and deduct the cost of the equipment from his contract. Cost adjustment will be made by Change Order.
- 1.1.6 All apparatus shall be installed at exact height and locations as shown on the Drawings, or if not shown, at heights and locations determined by applicable codes and laws.
- 1.1.7 Perform all excavation and backfill required for services, and for all conduit and

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work inside and outside the building. Cutting of curbs, walks, concrete and paving required for excavation shall be done by appropriate trade.

- 1.1.8 All store cases, coolers, and freezers will be furnished and set in place by Publix. Check Equipment Drawings against Drawings in order to verify exact locations.

1.2. Definitions: Explanation and Precedence of Documents:

- 1.2.1 For purposes of clarity and legibility, Electrical Drawings are essentially diagrammatic and, although size and location of equipment are drawn to scale wherever possible, Electrical Contractor shall make use of all Contract Documents.
- 1.2.2 The Drawings indicate size, connection points and routes of conduit and equipment. It is not intended, however, that all offsets, rises and drops are shown. Install all items as required to fit structure, avoid obstructions, and retain clearance, headroom, openings and passageways.
- 1.2.3 Remodels: Carefully examine all existing conditions, existing work in place and premises and compare the drawings with the existing conditions. Submittal of bid indicates that the Electrical Contractor has examined the Site and Drawings and has included all required work in his bid. No allowances will be made for any error resulting from Contractor's failure to visit Job Sites and to review Drawings/Documents.
- 1.2.4 Conflicts, discrepancies, interferences and omissions in Documents shall be brought to the attention of the Engineer for clarification prior to commencement of Work.

1.3. Submittals:

- 1.3.1 Submit LOI in accordance with Section 01 33 00 Submittal Procedures.
- 1.3.2 Within 30 days of Contract Commencement (Authorization to Proceed), submit for Publix Engineer's approval:
 - 1.3.2.1 List of materials intended for use in the Project.
 - 1.3.2.2 Manufacturer's catalogue cuts of materials intended for use in the Project. LOI's not acceptable.
 - 1.3.2.3 Submittals to include: Switchgear, breakers, panel boards, starters, disconnects, relays, walkerdect, wire channel system, conduit, wire, boxes, wiring devices, receptacles, switches and light fixtures
 - 1.3.2.4 Copies of licenses of key personnel if requested by Publix.
 - 1.3.2.5 Samples of materials if requested by Publix.
 - 1.3.2.6 Other items required to complete the Work
- 1.3.3 Submit three identical bound copies of all items. Arrange categories in order listed above.
- 1.3.4 All cuts for the above shall have rough-in dimensions, connection sizes, and any special installation requirements. In addition, furnish motor horsepower voltage and phase for all equipment.
- 1.3.5 Close Out Documents:
 - 1.3.5.1 Comply with applicable provisions of Section 01 78 39 Project Record

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Documents.

1.3.5.2 Provide a complete set of manufacturer's warranties and warranty certificates.

1.3.5.3 A copy of the final approval from the local building department.

1.4. Quality:

1.4.1 Subcontractor:

1.4.1.1 The Electrical Subcontractor shall be a reputable firm regularly engaged in this type of work, employing skilled workmen, and with proper equipment.

1.4.1.2 Upon request Subcontractor shall show evidence of at least two similar jobs, of comparable size and character, installed and operating within the previous two years prior to bid opening.

1.4.1.3 Publix reserves the right to refuse any Subcontractor with or without cause.

1.4.2 Personnel:

1.4.2.1 Employ an experienced superintendent to oversee all operation.

1.4.2.2 Work shall not proceed without adequate supervision present at all times.

1.4.2.3 Work shall be accomplished by workers certified in their trade as masters, journeymen, and apprentices in accordance with regulations of the governing authority or customary practice. Utilize workers with skills in proportion to complexity of tasks required.

1.4.2.4 Publix reserves the right to reject personnel with or without cause.

1.4.3 Quality Standards

1.4.3.1 Work shall be accomplished to ensure safety to all personnel during installation and after occupancy.

1.4.3.2 Work will be judged by Publix in comparison to work of similar types. Substandard construction as judged by Publix Representative will not be accepted.

1.4.3.3 Neatness counts. Make all joints, connections, unions, etc. with proper care to insure that tight connections are made without excess material, well secured to supports.

1.4.3.4 Install conduit with runs straight, accurately formed radiuses at bends, and adequate supports.

1.4.4 Regulations: Comply with applicable provisions of the following codes (latest version adopted by governing agencies):

National Fire Protection Association (NFPA)

National Electrical Code

Local Utility Code

Local Building Code

Safety Code for Mechanical Refrigeration

Conform to governing codes, ordinances and regulations of city, county and state having jurisdiction. Where local codes are not

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applicable, conform to National Electric Code/State Electric Code where Project is located.

OSHA - for construction

- 1.4.5 Test the entire system. The solid neutral wire shall be tested for thorough grounding and all hot wiring shall be tested for shorts and grounding.
- 1.4.6 Participate in the Pre-Construction Conference.
- 1.4.7 Substitutions: Comply with Section 01 25 00 Product Options and Substitutions. In general, substitutions are not allowed.
- 1.5. Sequencing:
 - 1.5.1 Notify General Contractor, or any others, of all required chases, sleeves and openings required so that the work can be accomplished without delay. Provide necessary sleeves, etc., to be installed. Otherwise, Electrical Sub-Contractor shall pay for appropriate trades to perform cutting and patching.
 - 1.5.2 Joists, girders, beams, columns or reinforcing steel shall not be cut.
 - 1.5.3 Where construction necessitates the routing of conduit through structural members, framing or under or through footings, permission to make such installation shall first be obtained from the Structural Engineer.
- 1.6. Temporary Operation:
 - 1.6.1 The Owner may require operation of parts or all of the installation prior to Final Acceptance.
 - 1.6.2 Cost of utilities for such operation shall be paid by the Contractor. This operation does not constitute acceptance of the Contractor's Work.
 - 1.6.3 All electricity used for construction shall be paid for by the General Contractor. Furnish and install temporary electrical connection and meter for construction purposes. Remove temporary service when use is no longer required. Clean up and landscape as required.
- 1.7. Emergency Repairs: The Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding the Contractor's guarantee nor relieving the Contractor of his responsibilities during the guarantee period.
- 1.8. Operating Instructions and Service Manual:
 - 1.8.1 Provide two (2) neatly bound copies of maintenance and instructions book, parts lists pertaining to all equipment furnished.
 - 1.8.2 Each section shall be indexed and include parts lists, instruction books, suppliers' phone numbers and addresses, and individual equipment guarantees all in separate sections.
 - 1.8.3 Representatives of the Owner shall be instructed by the Contractor as to complete care and operation of the electrical system. Inform the Engineer in writing as to the persons who received the instructions and the date that this was done.

2. Products:

- 2.1. Materials:

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- 2.1.1 All materials shall be new, of the best quality.
 - 2.1.2 All similar materials such as switches, panelboards, starters, contactors, fuses, circuit breakers, junction boxes, and other classes of equipment shall be of the same type and manufacturer.
 - 2.1.3 All equipment and materials shall be furnished in strict accordance with the equipment schedule and Specification requirements.
- 2.2. Panelboards
- 2.2.1 The panelboards shall be dead-front, totally enclosed, with locking doors, with quick-lab ambient corrected bolt-in type circuit breakers in one, two or three pole common trip units as noted on the Drawings, UL approved. The panelboards shall be 3 phase, 4 wire, solid neutral, ground buss, voltage and number of poles as noted on the Drawings. Panelboards shall have copper bussing. The circuits shall be connected to individual poles of the panel exactly as shown on the Drawings, and the panel shall be provided with a typewritten directory.
 - 2.2.2 All panels shall be factory assembled.
 - 2.2.3 Ground fault circuit interrupters shall be provided on each circuit as required by the NEC or where specified on the Drawings.
 - 2.2.4 Provide all panels sized as noted on the Drawings or as required.
 - 2.2.5 Circuit breakers supplying High Intensity Discharge (HID) shall be equipped with HID compensated breakers.
 - 2.2.6 Equipment ground bus and neutral bus to be copper with screw type lugs.
 - 2.2.7 All panels noted on drawings with isolated ground circuits shall have a copper isolated ground bus in addition to equipment ground bus.
 - 2.2.8 Acceptable Manufacturers:
 - G.E
 - Square - D
 - ITE. Div. of Siemens-Allis
- 2.3. Service and Switchboard
- 2.3.1 Secondary service entrance shall be as indicated on the Drawings. and shall be:
 - 2.3.1.1 Pad mounted transformer
 - 2.3.1.2 Coordinate Publix drawings with site electrical drawings. Conflicts are to be brought to the Engineer for clarification/resolution.
 - 2.3.2 Verify method of service with local utility company and obtain written approval from Publix Representative before commencement of work.
 - 2.3.3 Obtain all utility requirements for commercial service installation. Electrical Contractor must provide all requirements of the utility for a complete and operational system.
 - 2.3.4 System shall be grounded in conformance with NEC. and as shown on Drawings.

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2.3.5 All switchgear and panels shall be sized as noted on the Drawings or as required.

G.E.

Square - D

ITE Div. of Siemens-Allis,

2.4. Main Switchboard

2.4.1 General: Furnish and install the service entrance distribution switchboard as herein specified and shown on the Drawings.

2.4.2 The switchboard shall meet Underwriters' Laboratories enclosure requirements and be furnished with an Underwriters' Laboratories label

2.4.3 Construction: Square D Busstack construction or approved equal.

2.4.4 Enclosure Construction

2.4.4.1 The switchboard framework shall consist of steel channels welded or bolted to the frame to rigidly support the entire shipping section for moving on rollers and floor mounting. The framework is to be formed, code gauge steel, rigidly welded and bolted together to support all cover plates, bussing and component devices during shipment and installation.

2.4.4.2 Each switchboard section shall have an open bottom and individual removable top plate for installation and termination of conduit. top and bottom Conduit areas are to be clearly shown and dimensioned on the Shop Drawings. Switchboards are to be front access only. The wireway front covers are to be hinged to permit access to the branch switch load side terminals without removing the covers. All enclosure plates shall be screw removable and small enough for easy handling by one man. The paint finish shall be gray enamel over a rust-inhibiting phosphate primer.

2.4.5 Bussing:

2.4.5.1 The switchboard bussing shall be plated and of sufficient cross-sectional area to continuously conduct amperage as indicated on Drawings with a maximum average temperature rise of 50 degrees c. above an ambient temperature of 25 degrees c.

2.4.5.2 The buss shall be aluminum with 100% neutral with an integrated equipment rating of 100,000 amps (sym) A.I.C. at 240V, 65,000 amps (sym) A.I.C. at 480V.

2.4.5.3 The buss shall extend the full length of the available feeder area.

2.4.6 Withstand Rating:

2.4.6.1 The switchboard, as a complete unit, shall be given a single withstand short circuit current rating by the manufacturer. The withstand short circuit current rating shall certify that all equipment is capable of withstanding the stress of a fault equal to the interrupting rating of the least overcurrent protective device contained therein. Such rating shall be established by actual tests by the manufacturer on equipment constructed similarly to the subject switchboard This test data shall be available and shall be furnished to the Engineer, if requested, with or before the submittal of Approval Drawings.

2.4.6.2 The complete unit shall have interrupting rating of not less than

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100,000 amps rms symmetrical at 240 volts, 65000 amps RMS symmetrical at 480V.

- 2.4.6.3 All devices in the switchboard to be fully rated. Series rating is unacceptable.
- 2.4.7 Main Switch (Two-step stored energy electronic trip molded case circuit breaker):
 - 2.4.7.1 Individually fixed mounted through contact type, equipped with an electric trip device for remote shunt trip operation.
 - 2.4.7.2 Circuit breakers shall have power terminals to accommodate either cable or bolted buss connections.
 - 2.4.7.3 Circuit protective devices shall be two-step stored energy type circuit breaker, UL listed for 100% continuous current when applied in QED switchboards. Sensor ampere ratings shall be as shown on the drawings or as otherwise indicated.
 - 2.4.7.4 Provide a fixed instantaneous (High Level Selective Override) circuit on breaker(s). The circuit shall have a defeatable instantaneous adjustment to allow the breaker to remain closed for up to 30 cycles during overcurrents below the rms symmetrical short in withstand ratings. The circuit shall trip instantaneously when current levels exceed applicable withstand ratings.
 - 2.4.7.5 Circuit breakers shall be factory sealed and shall have a date code on its face. Poles shall be labeled with respective phase designs.
 - 2.4.7.6 Breaker faceplate shall indicate rated ampacity. Breaker faceplate shall indicate UL and IEC certification standards with applicable voltage systems and corresponding AIC ratings.
 - 2.4.7.7 Each circuit breaker shall be equipped with a push-to-trip button to operate the trip mechanism mechanically.
 - 2.4.7.8 Provide local control push buttons to OPEN and CLOSE circuit breaker. Color coded visual indication of contact position (OPEN or CLOSED) shall be provided on the front of the breaker. Provide for local manual charging following CLOSE operation, with color coded visual indicating of charging status. Visual indicator shall indicate CHARGED only when closing springs are completely charged.
- 2.4.8 The main switch shall be as manufactured by Square "D" or equal as approved by Publix Engineer 100% rated at specified amps - no substitutes.
- 2.4.9 Bus Duct: (When Used)
 - 2.4.9.1 Service entrance bus duct shall be amps as shown on Drawings, 3 phase, full neutral, suitable for 120/208 volts service, inside-outside location.
 - 2.4.9.2 The bus duct shall be complete with all necessary elbows, transformer taps, fire stops, wall flange for fittings and supports to provide a satisfactory installation as indicated on the Drawings.
 - 2.4.9.3 The bus duct shall be of the same manufacturer as the main switchboard.
 - 2.4.9.4 The bus duct shall have the same interrupting rating as the main switchboard.
 - 2.4.9.5 Support for bus duct by General Contractor.

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2.4.10 Fusible Switches:

- 2.4.10.1 The fusible switches shall be quick-make, quick-break and suitable for use on the services described by the size shown on the associated Drawings. The units shall be listed and approved by Underwriters' Laboratories for heavy duty entrance use and where applicable, shall be dual horsepower rated for both standard one-time or dual-element fuses. The fusible switches shall be group mounted in panel-type construction. Each switch shall be equipped with Class 'R' rejection type fuse clips per Bussman or Littlefuse KTN-R, Class "R" type.
- 2.4.10.2 Each switch is to be enclosed in a separate steel enclosure. The enclosure shall employ a hinged cover for access to the fuses which shall be interlocked with the operating handle to prevent opening the cover when the switch is in the on position. This interlock shall be constructed so that it can be released with a standard electrician's tool for testing fuses without interrupting service. The units shall have padlocking provisions in the off position and the operating handle position shall give positive switch position indication, i.e. horizontal off, diagonal on. Switches shall pass industry standard I2T with standability tests and fuse race tests as described elsewhere in the Specifications.
- 2.4.10.3 All fusing as manufactured by Bussman or Littlefuse; dual-element and current limiting as shown on the Drawings.

2.5. Contactors

- 2.5.1 Contactors shall be manufactured by Square 'D', Siemens, or General Electric; or others as approved by Publix in writing specifically for this project.
- 2.5.2 Contactors shall be designed to carry the full rated current on a continuous basis.
- 2.5.3 Contactors shall be electrically operated, mechanically held, and suitable for remote operation. The mechanically held contactors shall be supplied with coil clearing contacts which disconnect the magnet coil when operated to eliminate any AC magnetic hum.
- 2.5.4 Contactors shall be as sized as shown on the Drawings and be installed in a NEMA 1 enclosure.

2.6. Wire and Cable

- 2.6.1 All wires shall be THHN/THWN copper unless otherwise noted. No wire shall be smaller than #12 AWG. except control wire. No aluminum wire will be permitted, unless otherwise noted.
- 2.6.2 Except as noted, no conductors smaller than #12 AWG shall be used. #10 AWG shall be used on runs of over 100 ft unless otherwise noted.
- 2.6.3 In no case shall the number of conductors installed in conduits exceed the maximum fill allowed by the NEC. Should this occur on the Drawings, the Electrical Contractor shall inform the Engineer before installation. Conductors shall not be installed beneath the heating equipment foundations.
- 2.6.4 Control wire for the air conditioning and refrigeration equipment shall be type THHN stranded and no smaller than #14 or where indicated on Drawings.
- 2.6.5 Pull boxes are allowed only when required by code. Wire must be in one unspliced run to all secondary panel feeders, and in one unspliced run to all air

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conditioning and refrigeration units.

- 2.6.6 Install all phase conductors, neutral conductor, and ground conductor from panel board to the equipment connection junction box. If the neutral conductor is not needed it shall be taped and identified in the J.B. for future use.

2.7. Conduits and Raceways

- 2.7.1 PVC: Schedule 40 conduit may be used under floor slab. Riser shall be heavy wall hot dipped galvanized steel.

2.7.2 No PVC shall be installed above floor slab.

2.7.3 GRC 90's shall be used on all runs over 50'.

2.7.4 Underfloor Duct:

2.7.4.1 Shall be "Walkerduct" (no substitutes) as manufactured by Walker/ Textron Company, Parkersburg, West Virginia. Install complete service fittings, blanking plates, junction boxes, covers, etc., with threaded fittings. Use standard No. 2 and No. 4 duct with #2-24 x 2 x 2 or #2-12 x 2 x 2 inserts as shown on Drawings; adaptors #1126a-3/4", for cable. Install Walker Duct junction boxes with brass tops recessed to receive terrazzo/methyl methacrylate. Verify locations of duct with Drawings.

2.7.4.2 Top of cut insert shall be 3/4" below finish floor line.

2.7.5 Raceways concealed in wall or ceiling spaces shall be standard weight hot dipped galvanized EMT with compression couplings or as specified below.

2.7.6 All "L'S" used to turn up through concrete slabs shall be thick wall galvanized conduit & couplings.

2.8. Time Switches

2.8.1 Provide time switches as manufactured by Intermatic (no substitutes)

2.8.2 Time switches shall be DPST, 40 amperes, 120 volt, AC motor and astronomic dial, spring-wound carry-over.

2.8.3 Time clocks shall be labeled.

2.9. Outlet Boxes, Fittings, and Connectors

2.9.1 Unless hereinafter specifically noted or shown on the Drawings, the minimum size of branch circuit outlet boxes for concealed work shall be 4"x4"x1 1/2" for square boxes and 4"x1 1/2" for octagon boxes.

2.9.2 Boxes shall be provided with plaster covers of sufficient depth to bring the face of the outlet substantially flush with the finished wall or ceiling. The box shall not project beyond the finished wall or ceiling line.

2.9.3 Outlets in concrete block, or other hollow masonry walls:

2.9.3.1 Openings in concrete block walls for outlets shall be cut to exact size with a masonry saw.

2.9.3.2 Switch and receptacle mounting heights, as specified or noted may be adjusted so that the bottom of the outlet box may rest on the top of the wall block at the nearest mortar joint

2.9.3.3 All unused outlets shall be provided with blank covers.

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- 2.9.4 Where conduits 1" or larger enter outlet boxes, the boxes shall be 4 11/16"x4 - 11/16"x2 1/4" minimum. Boxes shall be of ample size to provide conductor spaces as required by the National Electric Code.
- 2.9.5 "Handy" utility or sectional boxes will not be permitted in masonry walls.
- 2.9.6 When more than one switch or device is shown ganged at any location a one-piece box of suitable size shall be installed.
- 2.9.7 Outlet boxes intended for the installation of lighting fixtures shall be equipped with 3/8" "No-Bolt" or equal fixture studs.
- 2.9.8 Unless otherwise noted, all switches, receptacles and devices shown on the exterior of building walls shall be installed in flush mounted boxes provided with weatherproof gaskets.
- 2.9.9 All conduit fittings (condulets) shall be of the cast metal threaded hub type, Crouse-Hinds, or Appleton.
- 2.9.10 All rigid conduits entering panels, cabinets, outlet boxes, etc., shall be provided with locknuts on both sides of such devices driven tight so as to maintain positive electrical and mechanical continuity throughout the conduit system. Insulated bushings shall be installed on the inside of the termination
- 2.9.11 Threadless couplings shall not be used for rigid conduit.
- 2.9.12 All EMT couplings and box connectors shall be of the set screw or compression type. Compression type shall be used in all coolers/freezers, or in outdoor applications. Cast connectors or couplings will be allowed.
- 2.9.13 All flex conduit shall be steel w/steel fittings, and shall extend a maximum of 10 ft. unless approved by Publix.
- 2.9.14 All receptacles labeled GFI on drawings to be supplied as GFI receptacles. Feed through series GFI circuit is unacceptable.
- 2.9.15 All receptacles labeled IG (isolated ground) shall be IG listed and shall get a separate (from other equipment ground) green with yellow stripe isolated ground conductor. All isolated ground circuits to include equipment ground conductor.
- 2.9.16 All conduits to have an equipment ground conductor in addition to conductors shown on drawings.
- 2.10. Junction Boxes: Wiring shall be neatly arranged, bundled and laced in proper groups.
- 2.11. Pull Boxes
 - 2.11.1 Pull boxes shall be installed in conduit system where needed whether or not they are shown on the Drawings.
 - 2.11.2 Boxes shall be constructed of code gauge galvanized steel with screw covers.
- 2.12. Safety Switches
 - 2.12.1 The basis of design and quality standards is Square - D.
 - 2.12.2 All units shall be of the same manufacturer.
 - 2.12.3 Safety switches shall be fusible, solid neutral, 277 volt, quick-make and quick-break with visible blades, single throw, general duty, of size and fusing as

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shown on the Drawings, or required for application. switches mounted out of doors shall be weatherproof, heavy duty type with protective barrier over hot lugs.

2.12.4 Exterior units shall be in rain tight enclosure. (NEMA 3R)

2.13. Wall Switches

2.13.1 Switches shall be flush mounted, quiet tumbler type, 250 volts, 20 amp. rated.

2.13.2 Wall plates shall be smooth, 302 stainless steel, one piece as indicated on the Drawings.

2.13.3 Switches shall be installed on the "strike" side of the door swing.

2.13.4 Switches shown near doors shall be not less than two inches and not more than twelve (12) inches from the trim.

2.14. Receptacles

2.14.1 All units shall be totally enclosed composition with side and rear connections. All units shall be equipped with ears and have a rating as listed below. All devices shall be Hubbel, Pass and Seymour or Leviton. See symbol schedule on construction drawings.

2.14.2 Duplex convenience outlets with ground shall be 20 amp, 125 volt parallel slot, "U"-shaped ground, heavy duty "T" rated.

2.14.3 120/208 volt, 3 wire receptacles with ground shall be single 3 wire polarized receptacles with grounding terminal.

2.14.4 Weatherproof receptacles shall be duplex, 20 amp, 125 volt parallel slot receptacle with "U" shaped grounding slot in flush, weatherproof box with gasketed cover and self closing, spring door.

2.14.5 Floor outlets shall be 20 amp, 125 volts single or duplex parallel slot receptacles with "U" shaped grounding slot as called for, located as shown on the Drawings. Provide slotted brass flush cap for sealing when not in use.

2.14.6 All device cover plates shall be smooth 302 stainless steel, one piece.

2.15. Lighting Fixtures

2.15.1 All lighting fixtures shall be furnished by the electrical contractor and installed by appropriate trade. In-line fuses shall be included with all fluorescent, LED fixtures.

2.15.2 In areas of suspended ceilings two safety wires per fixture will be supplied and hung by the suspended ceiling Subcontractor; the Electrical Subcontractor shall tie fixtures in areas of suspended ceilings with two (2) #10 wire up to the roof joists per fixture.

2.16. Electric Door Openers: Electric door openers shall be furnished and installed by others but wired with two (2) 115 volt, 20 amp, 3 wire circuits to control box at the top of the door.

2.17. Intercom/Music/Paging System

2.17.1 The Contractor shall supply and install sound outlets, conduit and junction boxes with equipment as shown on the Drawings (including architectural ceiling grid

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plan).

2.17.2 The outlet boxes shall be standard boxes provided with blank covers.

2.17.3 The conduit shall be not less than 1/2".

2.18. Telephone Outlets:

2.18.1 Provide outlets as located on Drawings,

2.18.2 See Drawings for location and size of conduit runs,

2.18.3 Provide stainless steel outlet boxes and cover plates.

2.18.4 Locate telephone control box inside telephone equipment room.

2.18.5 Provide outlets for wall phones at indicated locations.

2.19. Standby Electric-Emergency Generator and Transfer Switch

2.19.1 Emergency generator and automatic load transfer switch will be furnished by Publix and shall be set in place and connected by the contractor.

2.20. Grounding

2.20.1 All wiring system shall be grounded in accordance with article 250 of the NEC. All items of electrical equipment not connected directly and mechanically to the conduit system shall be connected thereto with a jumper of suitable size. All breaks in the continuity of the conduit system shall be bridged with a jumper of the proper size between the next adjacent outlet or junction boxes regardless of the information on the drawings.

2.20.2 All conduit runs shall include an equipment ground conductor appropriately sized for the associated circuits.

2.20.3 Due care must be taken as not to interchange circuit neutrals, as over heating of the panel board may occur.

2.20.4 A green THHN/THWN insulated stranded 12 AWG conductor shall run unbroken from the system ground through the conduit system to the ground connections at all receptacles, switches and lights. Appliance outlets shall be in accordance with NEC. Table 250-95.

2.20.5 Isolated ground, as required in the drawings, shall be a green THHN/THWN insulated stranded 12 AWG (min.) with yellow tracer line along the entire length.

2.21. Tests

2.21.1 The Electrical Contractor shall test all wiring and equipment for grounds, continuity and proper operation.

2.21.2 The Electrical Contractor shall demonstrate by use of a 500 volt megger, the insulation resistance of any circuit or group of circuits as noted in the plans. Parallel conductor uniformity of resistance shall also be verified.

2.21.3 Where such tests indicate the possibility of faulty insulation, the Electrical Contractor shall locate the point or points of such faulty insulation and shall pull out the faulty conductor or conductors, replace same with new and demonstrate the elimination of faults.

2.21.4 Cables shall be considered defective if they do not pass test and inspections and shall be replaced at no cost to the Owner.

3. Execution

3.1. General:

3.1.1 Temporary Electric Service: Install and maintain 120/240 volt, 1 phase, 3 wire, 200 amp temporary service. power Consumption cost only paid by Contractor. Installation shall comply with OSHA; NEC; and all local requirements.

3.1.2 The locations of the outlets, switches and convenience outlets shall be approximately as shown on the drawings and as specified, but exact locations shall be as directed by Publix Field Representative. The running of all circuits, switch legs and conduits is purely diagrammatic. Do not scale from Drawings.

3.1.3 Rigging and hoisting that is incidental to the electrical portion of the Work shall be performed by the Electrical Contractor. This shall include the hoisting of equipment supplied by both the Electrical Contractor and Publix that are installed by the Electrical Contractor.

3.1.4 Coordinate this work with other trades so that interference between the trades can be avoided.

3.1.5 All channels, angles and other members for the installation and support of the electrical equipment shall be furnished and installed by the Electrical Contractor.

3.1.6 The attachment of boxes, conduit, hangers, etc. shall be by machine screws or through bolts on steel, expansion bolts in concrete and masonry, and wood screws in wood. Wood composition plugs shall not be used.

3.1.7 Panelboards shall not be used as raceway or have splicing performed therein.

3.2. Excavation and Backfilling:

3.2.1 Do all excavating required to install any underground conduit and after the same are in place and tested and approved, Thoroughly tamp earth around conduits and remove earth from premises as directed.

3.2.2 Underground conduit must be covered by a minimum of three (3) inches of underslab fill.

3.3. Conduit, Raceways, Etc.

3.3.1 All metallic non-current carrying components and enclosures of the electrical wiring system are to be bonded and grounded.

3.3.2 Furnish all necessary fittings and supports to make the raceways or busways fit the building structure and equipment. Raceway size shown or called for are minimum. The Electrical Contractor shall verify all raceway sizes with the dimensions of the particular cable to be installed.

3.3.3 All exposed raceways and conduit shall be neatly installed perpendicular or parallel to walls and floors. No exposed conduit is allowed in sales area or work rooms (except where required in exposed structure areas of stores without ceilings.)

3.3.4 All raceways shall be supported by approved types of galvanized wall brackets, ceiling trapeze hangers, pipe hangers or pipe straps. Perforated metal strap or tie

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wire shall not be used for any conduit or raceway.

- 3.3.5 All conduit located above ceilings shall be EMT or ERC, and must be installed within the area provided for on Drawings.
- 3.3.6 Areas for work of various trades: Conform to locations as defined in Section 01 11 00 Summary of Work.
- 3.3.7 All conduit located underground may be PVC Schedule 40, except service entrance which may be concrete encased PVC schedule 40 or heavy wall rigid conduit, or weather proof buss duct as shown. Underground conduit lengths greater than 50' shall include GRC 90.
- 3.3.8 All job cut threads shall be given a coat of rust-inhibitive paint.
- 3.3.9 Caulk where conduit passes through walls, providing approved fire-stopping system where required. Caulk where conduit passes through walk-in freezers and coolers. All cutting in block work must be done with carborundum saw; no chisel or hammer work will be accepted.
- 3.4. Circuit Identification: Label all panels by approved means to identify circuits. Install equipment in cans, as per Drawings. Mark all panels, time clocks, starters, contactors, disconnect devices and main panels on the outside with riveted or approved attached plastic laminated labels 1" minimum high w/ 3/4" minimum letters of contrasting colors. All circuits shall be identified by typed lettering of contrasting color to tags & covered w/approved plastic cover.
 - 3.4.1 All receptacles shall be labeled with panel and circuit information by approved means.
- 3.5. All panelboards shall include a typed directory of all associated loads. Refrigeration circuits shall be labeled with associated refrigeration system number.
- 3.6. Installation of Items Supplied by Others:
 - 3.6.1 All store fixtures and equipment, including shelf gondolas and check out stands, will be furnished and set in place by Publix, or others, and this Contractor shall make all required electrical connections. Verify items and their locations with Publix's Representative.
 - 3.6.2 Meat and Deli Department equipment will all be with plug-in connectors. Do not wire direct. (unless directed by Publix's Representative).
 - 3.6.3 All wiring and mounting shall be in cooperation with and under the direction of the Publix's Representative.
 - 3.6.4 Make connection to electric water heaters as furnished by Publix.
- 3.7. Control of Outlets:
 - 3.7.1 Branch lighting circuits controlled at panels by a switch shall be located at the Manager's Office, unless indicated otherwise.
 - 3.7.2 Convenience outlets shall have no intermediate control between panels and outlets unless noted on the drawings.
- 3.8. Connection of Conductors: All joints between conductors shall be connected with approved pressure type, connectors and insulated with scotch 33 tape and friction tape, if insulation is not provided in pressure type connector used.

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- 3.9. Sleeves at Fire Retardant Lumber: If fire treated lumber is required by local codes and ordinances, the Electrical Contractor shall provide PVC fitting boxes and piping that penetrate the fire resistant lumber. If the PVC components are not approved by local code, other approved methods must be used to protect against the salt in the fire resistant lumber.
- 3.10. Final Inspection: All of the following items must be completed prior to final inspection. No exceptions will be made and no final payment will be made until all items are completed.
 - 3.10.1 Thoroughly clean all parts of the apparatus and equipment. Exposed parts which are to be painted shall be thoroughly cleaned of cement, plaster, and other material and all oil and grease spots shall be removed repaint or touch up as required to make look like new. Such surfaces shall be carefully wiped and all cracks and corners scraped out.
 - 3.10.2 Exposed metal work shall be carefully brushed down with steel brushes to remove rust and other spots and touched up with primer.

End of Section 26 00 00

Section 31 20 00

Earth Moving V02022015

1. General

- 1.1. Prepared Pad (Not In Contract)
 - 1.1.1 Pad preparation and Field Density Testing of the Pad are not part of the Work of this Contract.
 - 1.1.2 On projects for which Publix Super Markets, Inc. is the sole Owner, part or all of the Site Work may be part of this Contract; see Bid Forms and Contract for definitive list.
 - 1.1.3 The slab sub-grade material will be based on the geotechnical engineer's recommendation for this site. Any changes from the original geotech report must be submitted, in writing, from the geotechnical engineer to the Publix structural engineer, for approval. The geotechnical recommendation is noted on the Publix foundation plan, for reference only.
 - 1.1.3.1 Where the recommended slab sub-grade is native soils or compacted fill, the pad preparation will be brought up to an elevation of four and five eighths (4-5/8") inches below finished floor by the work of another contract.
 - 1.1.3.2 Where the recommended slab sub-grade is a porous fill, the pad preparation will be brought up to an elevation of eight and five eighths (8-5/8") inches below finished floor by the work of another contract.
 - 1.1.3.3 Porous fill shall be clean sand, stone, gravel, or crushed rock. Porous fill under slabs shall have a maximum aggregate size of 1 1/2 inches.
- 1.2. Field Density Tests and Samples
 - 1.2.1 The Contractor shall employ a testing laboratory acceptable to the Owner for testing of footing and foundation excavations, for testing of other areas where the prepared pad is disturbed by the Work of this Contract, and for testing of the

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underslab porous fill where said porous fill is part of the Work of this Contract.

- 1.2.2 Sample specimens shall be recovered by the “Shelby Tube” or the “Sand Cone” method, or as otherwise directed by Engineer.
 - 1.2.3 Density Tests shall be secured at 50 ft. intervals in linear footing excavations, and at every spread footing.
 - 1.2.4 Density Tests shall be secured in areas of backfill and recompaction at vertical intervals not exceeding 12 in. and at a horizontal frequency of one per 4000 sq. ft. Also, density tests are required every 50 linear feet in utility trenches at vertical intervals not exceeding 12 in. Areas requiring compacted fill that support small independent slabs shall have density tests at vertical intervals of 18” in the event this is a separate compaction procedure.
 - 1.2.5 Densities shall conform to those specified in the Pad Preparation Contract, based on a Geotechnical Report and Publix’ design criteria of 2000 psf minimum soil bearing capacity.
- 1.3. Testing and Remediation:
- 1.3.1 Any test result which does not conform to the requirements of the Contract shall be furnished verbally to both Engineer and Contractor within 24 hours after sampling. Written test results shall be distributed as specified in Section 01340 - Submittals, and shall include horizontal and vertical location, test number, dry density, moisture content, percent compaction and Proctor Compaction Curve to which each test is referenced. The Testing Laboratory shall also call attention, by a separate symbol, to those tests which do not conform with these Specifications.
 - 1.3.2 Field Density Tests and Samples: In the event of Test Results not in conformance with the Contract Requirements, Publix will obtain a Soils Engineer’s recommendation for remedial measures. Remedial measures will be part of the Work of this Contract if they are required by activities of the Contractor after his receipt of a properly prepared pad. Remedial measures required by pre-existing conditions will be part of the Work of this Contract only by Change Order.
- 1.4. Termite Treatment
- 1.4.1 This Section contains information normally found in Section 31 31 16 Termite Control.
 - 1.4.2 Submit LOI in accordance with Section 01 33 00 Submittal Procedures.
 - 1.4.3 Guarantee of Treatment: Upon completion of the Soil Treatment and as a condition for its Final Acceptance, the Contractor shall furnish to the Owner a written Guarantee stating that the Applicator guarantees the effectiveness of the soil treatment against termite infestation for a period of not less than five years from date of treatment. Any evidence of re-infestation within the Guarantee Period will require treatment without cost to the Owner.

2. Products

- 2.1. Termite Treatment: Provide pesticides approved for use by Federal and local authorities:

ProBuild TC

Premise
Dragnet
Bifen I/T (Alabama ONLY)

3. Execution

3.1. Excavation

- 3.1.1 Perform all excavation and cutting necessary to accommodate the work shown on the plan. Forms may be omitted if soil is suitable to provide accurate and stable trenches for concrete pours.
- 3.1.2 Bottom of excavations shall be true and level to provide level bearing.
- 3.1.3 Notify Publix' Representative should debris or deleterious materials be encountered during excavations. Publix will obtain a Soils Engineer's recommendation for remedial measures which will be part of the work of this Contract by appropriate Change Order if desired by Publix.
- 3.1.4 Backfill under concrete floor slabs, walks, ramps, etc., where required by disturbance of the prepared pad shall be deposited in lifts not exceeding twelve (12) inches with each layer thoroughly compacted. Tamping and puddling shall be done at least 24 hours before concrete is laid. Re-compaction shall reach the compaction specified in the separate Contract which covers Pad Preparation, or the compaction actually achieved for the prepared pad, whichever is greater.
- 3.1.5 Additional requirements for excavation and backfilling for underground utilities may be found in other sections.

3.2. Termite Treatment:

- 3.2.1 Mixing and application: Adhere strictly to manufacturer's written instructions for concentrations and application rates, and for methods of application.
- 3.2.2 Treat on top of pad under the slabs over the entire area of Publix store including loading docks, and along both sides of foundation walls, along interior foundations, and around plumbing and electrical penetrations, and under sidewalks and all other paved areas within five feet of the building.

End of Section 31 20 00

Section 31 31 16

Termite Control

1. General

- 1.1. Summary: This Section includes soil treatment for termite control. Treat on top of base under new slabs, and additionally along interior foundations, and around plumbing, and under sidewalks and all other new paved areas within five feet of the building.
- 1.2. Submittals:
 - 1.2.1 General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.
 - 1.2.2 Product data and application instructions.

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- 1.2.3 Certification that products used comply with U.S. Environmental Protection Agency (EPA) regulations for termiticides.
- 1.3. Quality Assurance:
 - 1.3.1 In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for preparing substrate and application.
 - 1.3.2 Engage a professional pest control operator who is licensed according to regulations of governing authorities to apply soil treatment solution.
 - 1.3.3 Use only termiticides that bear a federal registration number of the EPA and are approved by local authorities having jurisdiction.
- 1.4. Job Conditions:
 - 1.4.1 Restrictions: Do not apply soil treatment solution until excavating, filling, and grading operations are completed, except as otherwise required in construction operations.
 - 1.4.2 To ensure penetration, do not apply soil treatment to excessively wet soils or during inclement weather. Comply with handling and application instructions of the soil toxicant manufacturer.
- 1.5. Guarantee:
 - 1.5.1 Guarantee of Treatment: Upon completion of the Soil Treatment and as a condition for its Final Acceptance, the Contractor shall furnish to the Owner a written Guarantee stating that the Applicator guarantees the effectiveness of the soil treatment against termite infestation for a period of not less than five years from date of treatment. Any evidence of re-infestation within the Guarantee Period will require treatment without cost to the Owner.
 - 1.5.2 The guarantee shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

2. Products

- 2.1. Soil Treatment Solution:
 - 2.1.1 General: Use an emulsible, concentrated termiticide that dilutes with water, specially formulated to prevent termites infestation. Fuel oil will not be permitted as a diluent. Provide a solution consisting of one of following chemical elements.
 - 2.1.2 Products: Provide pesticides approved for use by Federal and local authorities:
 - Demon TC
 - Premise
 - Dragnet
 - Dursban TC
 - Other material as provided by local termite control.
 - Applicator subject to guarantee above.
 - 2.1.3 Dilute with water to concentration level recommended by manufacturer.
 - 2.1.4 Other solutions may be used as recommended by Applicator if approved for

intended application by local authorities having jurisdiction. Use only soil treatment solutions that are not harmful to plants.

3. Execution

3.1. Application:

- 3.1.1 Surface Preparation: Remove foreign matter that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated, except previously compacted areas under slabs and foundations. Toxicants may be applied before placing compacted fill under slabs if recommended by toxicant manufacturer.
- 3.1.2 Mixing and application: Adhere strictly to manufacturer's written instructions for concentrations and application rates, and for methods of application.
- 3.1.3 Treat on top of pad under the slabs over the entire area of Publix store including loading docks, and along both sides of foundation walls, along interior foundations, and around plumbing and electrical penetrations, and under sidewalks and all other paved areas within five feet of the building.
- 3.1.4 Post signs in areas of application to warn workers that soil termiticide treatment has been applied. Remove signs after areas are covered by other construction.
- 3.1.5 Reapply soil treatment solution to areas disturbed by subsequent excavation, landscape grading, or other construction activities following application.

End of Section 31 31 16

Section 32 01 01

Restoration of Roadways, Driveways, Walks and Curbs

1. General

1.1. Related Sections:

- 1.1.1 Drawings and General Provisions of the Contract, including, General and Supplementary. Conditions and Division 1 Specification Sections, apply to this section.
- 1.1.2 Division 32 Section 32 17 23 – Pavement Markings.
- 1.1.3 Division 32 Section 32 12 16 - Asphalt Paving.

1.2. Work Included:

- 1.2.1 The Contractor, under Section 32 01 01, shall furnish all materials, tools, machinery, labor and supervision for the complete reconstruction and restoration of roadways, driveways, walks and curbs, as indicated on the Contract Drawings, or as required for the proper completion of the project.
- 1.2.2 Generally, this section includes miscellaneous roadway restoration, parking area, walk and curb restoration, including any and all additional roadway or pavement areas disturbed by new construction.
- 1.2.3 The cost for restoring roadways, driveways, walks, and curbing shall be included in the prices stipulated for the various items of the proposals, and shall

be in full compensation for the furnishing of all materials and properly restoring those areas disturbed during construction including all subbase and base materials, gravel, macadam (a pavement of layers of compacted broken stone, usually bound with tar or asphalt), asphalt, concrete, brick, curbs, gutters, underdrains and the furnishing of all labor, materials, tools, and appliances necessary to restore roadways, driveways, walks and curbing to its original or better condition, as specified, shown on the Contract Drawings, or as required for the proper completion of the work of these Contracts.

- 1.2.4 It is the intent of this section that the installation will be complete in all respects and ready for use and operation. The Contractor will be responsible for all incidental details and for any special construction necessary to complete the work in an acceptable manner.
- 1.2.5 In order to minimize erosion and sediment runoff, roadways shall be paved or otherwise stabilized as soon as possible. Any damaged areas, prior to acceptance, are to be restored including clean-up, all at no additional cost to the Owner.

2. Products

2.1. Workmanship and Materials:

- 2.1.1 All materials furnished under this Contract shall be new, suitable for the conditions of the service to which they will be subject, and equal to the best of their respective classes. Grade and quality shall meet the applicable sited specifications and standards and that of the applicable permitting agency.
- 2.1.2 Workmanship shall be of the highest quality and shall be carried out by competent and experienced workmen.

2.2. Samples: Samples and data shall be submitted and approved as required by the Owner in the General Conditions.

2.3. Materials:

- 2.3.1 Materials used shall conform to the following sections of the Florida Department of Transportation (FDOT) Specifications for Road and Bridge Construction, Latest Edition.

Stabilization	Sec. 160 & Sec. 914
Limerock Base	Sec. 200 & Sec. 911
Soil Cement Base	Sec. 270 & Sec. 921
Prime and Tack Coats	Sec. 300 & Sec. 916
Type S-1 Asphaltic Concrete	Sec. 311
	Sec. 901 & Sec. 902
	Sec. 916 & Sec. 917
Pavement Traffic Stripes	Sec. 710 & Sec. 971

- 2.3.2 Insofar as possible, undamaged materials removed from the excavation and stored for such purposes as provided under specifications for excavation shall be used. Any deficiency or any loss or destruction of such materials shall be replaced by the Contractor at his own expense, and all new materials shall match the existing and adjoining work in composition and quality.

3. Execution

3.1. Roadway Restoration:

- 3.1.1 The work to be performed under this section shall be done in strict accordance as directed by the Owner's Representative.
- 3.1.2 The Contractor will be responsible for restoring the pavement of the exact type encountered to original condition, or as field directed. The Contractor should verify the pavement type to his satisfaction before entering his bid.
- 3.1.3 All pavements and walks disturbed by the Contractor's operations shall be relaid to the thickness of the adjoining pavement. In all cases, the restoring of pavements shall apply both to foundation courses and to the wearing surface.
- 3.1.4 Flexible pavements (asphalt, bituminous macadam or water bound macadam) shall be saw cut and removed to the extent necessary to secure twelve (12) inches or firm bearing on undisturbed original subgrade.
- 3.1.5 Loose pavements (cinder, slag or gravel) shall be replaced where removed or damaged as indicated by cracks and settlements in adjoining pavement, with a minimum of twelve (12) inches of firm bearing.
- 3.1.6 Curbing shall be replaced to match existing where removed or damaged.
- 3.1.7 Roadway markings shall be restored using thermoplastic striping in accordance with the State of Florida Department of Transportation (FDOT) Construction and Material Specifications, Latest Edition, Section 711.
- 3.1.8 Any damage or failure of restored roadways or driveways, during the twelve (12) month guarantee period, due to settlement or improper workmanship or materials, must be satisfactorily replaced or repaired at the Contractor's expense.
- 3.1.9 The demolition, excavation and removal of existing pavements and bases is to be done as described under Section 31 20 00, Earth Moving, and as herein specified.
- 3.1.10 All pavements, bases, and surfaces are to be finished to same elevation as the existing adjacent surface. The transverse and all other slopes of pavements shall be restored. All existing joints for concrete pavements and bases are to be restored in the same location and manner as existing joints where possible.
- 3.1.11 All pavements and pavement bases shall be cut prior to excavation by sawing, and extreme care must be exercised so that no damage is done to the undisturbed adjoining pavement or to the edges of the trench. The sawed or cut edge shall be smooth and straight. The existing pavement and appurtenances shall be cut and removed.
- 3.1.12 Bedding materials are to be placed and compacted in the trench excavation from one (1) foot above the pipe and around structures to the existing roadway, driveway, parking lot, sidewalk, or pavement grade. The bedding material shall be brought up to or slightly above the existing pavement grade and shall be maintained as a traveled surface until repaving is completed unless otherwise permitted. Before beginning the repaving the restoring of the existing pavement or surface, the final layer of bedding material shall receive, if required, a final compaction operation. The bedding material shall be removed and compacted by rolling or tamping to the subgrade elevation that will coincide with the proposed pavement or surface thickness plus base or subbase when the repaving is permitted to commence by the Owner's Representative.

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- 3.1.13 Should cracks or settlements appear in adjoining pavements, the paving shall be removed to the extent necessary to secure firm and undisturbed bearing and shall be replaced in a satisfactory manner.
- 3.1.14 Temporary restoration of street and paved surfaces shall be made promptly on completion of the work with bedding materials or as directed. Settlements occurring in or adjacent to the trench shall be immediately refilled to proper grade.
- 3.1.15 Where the pavement cracks and settles outside the limits shown or specified after the Contractor has opened up the trench, such cracks and settlements will be attributed to the Contractor's work, and the additional area shall be taken care of in the same manner as repaving over the trench.
- 3.1.16 Where pavement is to be replaced beyond the trench limits, the existing subgrade shall be shaped, compacted, and excavated to the required elevation to receive the pavement restoration.
- 3.2. Driveway and Parking Area Restoration:
 - 3.2.1 Driveways and driveway approaches of aprons and parking areas shall be restored to the same width, dimensions, size, shape, location, grade and condition as the existing pavement or surface.
 - 3.2.2 Existing ash, slag, cinder, crushed stone, aggregate and earth driveways or parking areas shall be restored with stabilized crushed aggregate as directed by the Owner's Representative.
 - 3.2.3 Existing bituminous driveways or parking areas on an aggregate base shall be restored with one and one-half (1-1/2) inches of Type S-1 asphaltic concrete surface course on an eight (8) inch limerock base. Existing bituminous driveways or parking areas on rigid bases shall be restored with asphaltic concrete surface course as above on a six (6) inch Portland cement concrete base.
 - 3.2.4 For driveways and driveway approaches abutting street curbing, if the existing curb or curb and gutter is concrete, it shall be removed by saw cutting to the first joint each side of the driveway and replaced. The underdrain, if present, shall be examined to see if it is in good condition. If not, it shall be relaid with the necessary new pipe and to the proper grade, backfilled, and properly compacted.
 - 3.2.5 Portland cement concrete driveways and approaches shall be "cut" longitudinally down the center with a contraction joint. The remainder of the drive shall be "cut" with transverse contraction joints so that "blocks" of about thirty-six (36) square feet are made or as directed. Concrete driveways shall have a 1/2 inch preformed joint filler and 1/2 inch sealer placed between the driveway and sidewalk, concrete driveway approaches and aprons shall have a 1/2 inch preformed expansion joint filler with sealer between the approach and the walk.
 - 3.2.6 Restoration of driveways and parking areas shall be done in full rectangular blocks or as directed by the Owner's Representative and patching or piecing will not be permitted. Any existing parking lot or driveway lane markings shall be restored using paint which conforms to color of that removed and is in compliance with FDOT standards.
- 3.3. Casting Adjustment: Manhole, valve boxes, inlet basin, catch basin, and other castings that are located in existing or proposed roadways shall be adjusted to new roadway

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pavement grades as required. The work shall consist of carefully removing and cleaning the existing casting frame, adjusting the height of supporting walls with brick masonry as shown for new manholes, and resetting the existing frame in a bed of mortar or concrete.

- 3.4. Curbing: Curbing includes the furnishing and construction of new cast-in-place concrete curbing in conformity with the existing curbing prior to its removal, in accordance with FDOT Section 520. All curbing to be removed shall be cut by sawing.
- 3.5. Sidewalks and Curb Ramps:
 - 3.5.1 Existing cinder, crushed stone, or slag sidewalks shall be replaced to a six (6) inch compacted depth, or equal width, location, and grade as the old walk with crushed aggregate screenings.
 - 3.5.2 Existing sidewalks and curb ramps shall be replaced with new concrete sidewalks as noted within Construction Documents. All existing walks shall be cut by sawing when required for excavation. Concrete sidewalks indicated to be replaced shall be done so for their full width regardless of the extent of damage. The sidewalks shall be restored in full rectangular blocks longitudinally either for the full width of the existing walk or to the nearest longitudinal joint for unusually wide walks. No patching or piecing of blocks will be permitted.
 - 3.5.3 New concrete sidewalk at driveways shall be not less than six (6) inches in thickness laid upon a four (4) inch layer of fine sand. All other new concrete sidewalk shall be not less than four (4) inches in thickness laid upon a six (6) inch layer of fine sand.
 - 3.5.4 The new concrete sidewalk shall be the same width and grade and be built at the same location as the existing walks.
- 3.6. Completion of Restoration: All restoration of roadways, driveways, walks and curbs shall be complete within four working days of installation, testing and acceptance of the utility crossing.

End of Section 32 01 01

Section 32 12 16

Asphalt Paving (Traffic Coating Preparation)

1. General

- 1.1. Summary: This Section includes refined coal tar emulsion slurry coat over new or existing asphaltic concrete pavement.
- 1.2. Related Sections:
 - 1.2.1 Drawings and General Provisions of the Contract, including, General and Supplementary. Conditions and Division 1 Specification Sections, apply to this section.
 - 1.2.2 Division 32 Section 32 01 01 – Restoration of Roadways, Driveways, Walks and Curbs.
 - 1.2.3 Division 32 Section 32 17 23 – Pavement Markings.
- 1.3. References:

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- 1.3.1 ASTM C136 – Method of Sieve Analysis of Fine Coarse Aggregates.
- 1.3.2 ASTM D160 – Practice of Sampling Bituminous Materials.
- 1.3.3 ASTM D490 – Standard Specifications for road Tar.
- 1.3.4 ASTM D2939- Standard Test Methods for Emulsified Bitumen Used as Protective Coatings.
- 1.3.5 ASTM D3320 –Standard Specification for Emulsified Coal-Tar Pitch (Mineral Colloid Type).
- 1.3.6 ASTM D4866 –Standard Performance Specification for Coal Tar Pitch Emulsion Pavement sealer Mix Formulations Containing Mineral Aggregates and Optional Polymeric Admixtures.
- 1.3.7 Federal Specification RP-355.
- 1.4. Submittals Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
- 1.5. Quality Assurance:
 - 1.5.1 Manufacturer shall be a paving-mix manufacturer registered with and approved by authorities having jurisdiction or the DOT of the state in which product is used.
 - 1.5.2 Applicator shall be experienced in installing work similar in material, design and extent, and shall be approved by product manufacturer.
 - 1.5.3 Conduct conference at Project Site to comply with requirements of Section 01 31 13 ‘Coordination’.

2. Products

- 2.1. Materials:
 - 2.1.1 Refined Coal Tar Emulsion: A refined coal tar emulsion prepared from a high temperature refined coal tar conforming to the requirements of ASTM specification D490 for RT12. The use of oil and water gas tar is not allowed. Base refined coal tar emulsion it must conform to all requirements of Federal Specification RP-355.
 - 2.1.2 Aggregate: Use washed dry silica sand or boiler slag free of dust, trash, clay, organic materials or other contaminants.
 - 2.1.3 Water: Use water for mixing that is potable and free of harmful soluble salts.
 - 2.1.4 Crack Sealant: Must be certified for compatibility with the refined coal tar emulsion by the emulsion manufacturer, and approved by the Architect.
 - 2.1.5 Oil Spot Primer: Must be certified for compatibility with the refined coal tar emulsion by the emulsion manufacturer, and approved by the Architect.
 - 2.1.6 Pavement Primer: Must be certified for compatibility with the refined coal tar emulsion by the emulsion manufacturer, and approved by the Architect.
- 2.2. Applied Mixture: The refined coal tar emulsion supplier is to give written approval of the aggregate used in the mix design.
- 2.3. Application Rate: Application rates are not to exceed 0.17 gallons per square yard, and at no time are total coats to exceed 0.51 gallons per square yard.

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2.4. Manufacturers:

Gem Seal, Inc.; Product – Poly Tar Heavy Duty Pavement Sealer
Sealmaster; Product – Sealmaster Coal Tar Sealer
As approved by Architect, subject to compliance with requirements.

3. Execution

3.1. Examination:

3.1.1 Verify that sub-grade is dry and in suitable condition to support application.

3.1.2 Proceed with application only after unsatisfactory conditions have been corrected. Use hot-applied joint sealant to seal cracks and joints more than ¼ inch wide. Fill flush with surface of existing pavement and remove excess.

3.2. Surface Preparation:

3.2.1 General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared sub-grade is ready to receive application.

3.2.2 Remove oil or grease that has not penetrated the asphalt pavement by scraping or by scrubbing with a detergent, then wash thoroughly with clean water.

3.2.3 To insure adhesion to sound but oxidized pavements, mix and apply a prime coat of a type and at a rate recommended by the coal tar emulsion manufacturer, after all the loose aggregate is removed.

3.2.4 Existing pavement marking shall be removed prior to application of new emulsion system by pressure wash. Adequate care shall be taken to collect and dispose of loosened paint. Heat applied pavement marking shall be removed by reheating the paint surface with a torch and scraping the application free, if the marking strip cannot otherwise be removed without damaging the asphalt surface beneath.

3.3. Application:

3.3.1 The coal tar emulsion mixture must produce a smooth homogeneous mixture of uniform consistency.

3.3.2 Continue to agitate the seal coating mixture at all times prior to and during application so that a consistent mix is available for application.

3.3.3 Small increments of water may be needed to provide a workable consistency, but in no case is the water content to exceed the specified amount.

3.3.4 Prime Coat: See 3.2.3.

3.3.5 First coat: Apply the mixture uniformly to obtain the coverage rate of between 0.12 and 0.17 gallons of mix per square yard.

3.3.6 Seal Coat: Repeated as per first coat application.

3.3.7 The Final Coat finished surface must present a uniform texture.

3.3.8 The Final Coat must be allowed to dry a minimum of eight hours of good daylight drying conditions before opening to traffic, and initially cure enough to drive over without damage to seal coat.

3.3.9 If marginal weather conditions exist during this eight hour drying time,

additional time will be required. In some cases, this could exceed 24 hours.
Check the surface after this for suitability before opening to vehicle traffic.

4. Project Conditions

- 4.1. Sealer should not be applied unless pavement temperature is at least 50 degrees F. and the air temperature is 50 degrees F. and rising.
- 4.2. Sealer should not be applied during rainy or wet weather, or when rain is anticipated within eight hours after application is completed.
- 4.3. Sealer should not be applied to hot surfaces under the summer sun (over 90 degrees F. ambient) without first cooling the surface with clean water. Water should dampen the temperature without leaving puddles.
- 4.4. Since an emulsion may be damaged by freezing, it should be protected at all times when the temperature drops below 40 degrees F.

5. Warranty

- 5.1. General Warranty: Special warranty specified in this Article shall not deprive the Owner of other rights the owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- 5.2. All work in this section shall be guaranteed in writing to the Owner for a period of one year from the date of final acceptance.

End of Section 32 12 16

Section 32 17 23

Pavement Markings

1. General

- 1.1. Description:
 - 1.1.1 Pavement markings and concrete bumpers.
 - 1.1.2 Related Work Described Elsewhere:
 - 1.1.2.1 Shop Drawings, Working Drawings, and Samples: Section 01 33 00.
 - 1.1.2.2 Drawings and General Provisions of the Contract, including, General and Supplementary. Conditions and Division 1 Specification Sections, apply to this section.
 - 1.1.2.3 Division 32 Section 32 01 01 – Restoration of Roadways, Driveways, Walks and Curbs.
 - 1.1.2.4 Division 32 Section 32 12 16 - Asphalt Paving.
- 1.2. Submittals:
 - 1.2.1 Procedure: Submit in accord with Section 01 33 00.
 - 1.2.2 Product Data: Submit manufacturer's detailed literature.

2. Products

2.1. Materials:

2.1.1 Pavement marking paint:

Tnemec's Traffic Paint
Glidden-Durkee's Romark Traffic
PPG's Traffic and Zone Marking
Or Equal

2.1.2 Paint colors shall be as indicated on drawings.

2.1.3 Wheel Stops: Provide wheel stops as indicated on drawings. Color shall be natural concrete.

3. Execution

3.1. Paint Marking Application:

3.1.1 Obtain approval of marking layouts prior to paint application.

3.1.2 Traffic line markings: 4-inch wide unless otherwise indicated.

3.1.3 Machine apply in strict accord with recommendations of paint manufacturer.

3.2. Apply two coats or more as required for complete opacity. Apply second or final coat prior to completion of project.

3.3. Paint directional lettering, arrows and other markings by similar methods with same paint. Use stencils and masking tape as required to achieve required designs.

3.4. Securely attach wheel stops into pavement with not less than two galvanized steel dowels embedded in holes cast into wheel stops. Firmly bond each dowel to wheel stop and to pavement. Extend upper portion of dowel 5 inches (125 mm) into wheel stop and lower portion a minimum of 5 inches (125 mm) into pavement.

End of Section 32 17 23