“Fresh Brew & Flavors”
Design Images

April 2013
Construction Specifications

Project Location
10646 Chapman Highway
Seymour, Tennessee 37865

Note: All Divisions may not apply to this location

Revised 11-21-17
DUNKIN’ BRANDS CONSTRUCTION SPECIFICATIONS
April 2013

NOTE: GENERAL INFORMATION, CONDITIONS OF CONTRACT AND SUPPLEMENTAL CONTRACT CONDITIONS ARE LOCATED IN CONTRACT DOCUMENTS SECTION

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33 4000  Storm Utility Water Drainage

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PART 1  GENERAL

1.1  SUMMARY

A.  Section Includes:
   1.  Demolition of designated structures.
   2.  Demolition of foundations and slabs on grade as required.
   3.  Disconnection and capping or removal of utilities.
   4.  Demolition of walks, paving, curbs, gutters, and site improvements.
   5.  Removal of materials from site.

B.  Related Sections:
   1.  Section 31 2300- Excavation and Fill.

PART 2  PRODUCTS

NOT APPLICABLE

PART 3  EXECUTION

3.1  PREPARATION

A.  Prior to beginning demolition, verify that:
   1.  Structures are unoccupied and removed from service.
   2.  Temporary controls and devices are in place and operational.
   3.  Utilities are temporarily or permanently disconnected or relocated as required.
   4.  Items salvaged for Owner are removed and stored in designated area.

3.2  DEMOLITION

A.  Demolish structures in accordance with demolition procedures approved by Architect.

B.  Sprinkle debris, and use temporary closures as necessary to limit dust to lowest practical level.

C.  Do not use water to extent causing flooding, contaminated runoff, or icing.

D.  Begin demolition at top of building and proceed to lowest level, not using explosives.

E.  Demolish structure above each floor level before damaging supporting members on lower levels.

F.  Remove slabs and foundations to depth indicated.

3.3  MATERIAL DISPOSAL

A.  Salvage: Remove, protect, and relocate materials designated to remain property of Owner.

B.  Disposal:
   1.  Materials, equipment, and debris resulting from demolition operations becomes property of Contractor. Remove debris as soon as practical.
   2.  Cover debris in trucks to prevent spillage during transportation.
   3.  Do not store or burn materials on site.
   4.  Transport debris to off-site disposal area and legally dispose of.

END OF SECTION
PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   2. Equipment pads.

1.2 REFERENCES

A. American Concrete Institute (ACI):
   1. 301 - Structural Concrete for Buildings.
   2. 318 - Building Code Requirements for Structural Concrete.

B. ASTM International (ASTM):

PART 2 PRODUCTS

2.1 MANUFACTURERS

NOT APPLICABLE

2.2 MATERIALS

A. Portland Cement: ASTM C150, Type I or III, gray color.

B. Aggregates:
   1. Fine: ASTM C33, clean, hard, durable, uncoated natural sand, free from silt, loam, and clay.

C. Fly Ash: ASTM C618, maximum 2 percent loss on ignition.

2.3 ACCESSORIES

A. Water: Clean and potable.

B. Admixtures:
   1. Water reducing or water reducing/set retarding: ASTM C494, Type A or D.

C. Expansion Joint Filler: ASTM D1752, non-asphaltic type.

D. Bonding Agent: Two component modified epoxy resin.

2.4 MIXES

A. Proportions: In accordance with ACI 301.

B. Design concrete to yield characteristics indicated on Drawings.

C. Air Entrained Concrete: Provide air entraining admixture to produce 4 to 6 percent air by volume of concrete.
D. Use accelerating admixture in cold weather only when approved by Architect. Use of admixtures will not reduce cold weather placement requirements.

E. Fly Ash Content: Minimum percent by weight of cementitious material in mix as shown on drawings.

F. The material(s) in the product(s) supplied should have a recycled content such that the sum of the post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 20% of the total value of the material in the project.

PART 3 EXECUTION

3.1 PREPARATION

A. Notify Testing Laboratory minimum 24 hours prior to placing concrete.

B. Accurately position anchor bolts, sleeves, conduit, inserts, and accessories. Do not cut reinforcing steel to facilitate installation of inserts or accessories.

C. Remove water and debris from forms and excavations.

D. Close openings left in forms for cleaning and inspection.

3.2 PLACEMENT OF CONCRETE

A. Place concrete in accordance with ACI 301 and ACI 318.

B. Ensure reinforcement, inserts, and embedded parts are not disturbed during concrete placement.

C. Deposit concrete as nearly as possible in its final position to minimize handling and flowing.

D. Place concrete continuously between predetermined expansion, control, and construction joints.

E. Do not place partially hardened, contaminated, or re-tempered concrete.

F. Do not allow concrete to free fall over 8 feet; provide tremies, chutes, or other means of conveyance.

G. Consolidate concrete with mechanical vibrating equipment. Hand compact in corners and angles of forms.

H. Screed slabs level, to flatness tolerance of 1/8 inch in 10 feet.

3.3 PLACEMENT OF GROUT

A. Remove loose and foreign matter from concrete; lightly roughen bonding surface.

B. Just prior to grouting, thoroughly wet concrete surfaces; remove excess water.

C. Mix grout in accordance with manufacturer's instructions. Do not re-temper.

D. Place grout continuously, by most practical means; avoid entrapped air. Do not vibrate grout.

3.4 PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Provide artificial heat to maintain temperature of concrete above minimum specified temperature for duration of curing period.
D. Keep forms sufficiently wet to prevent cracking of concrete or loosening of form joints.

3.5 CURING

A. Cure concrete in accordance with ACI 308:
   1. Horizontal surfaces:
      a. Surfaces to receive additional toppings or setting beds: Use curing paper method.
      b. Other surfaces: Use either curing paper or curing compound method.
   2. Vertical surfaces: Use either wet curing or curing compound method.

B. Curing Compound Method:
   1. Spray compound on surfaces in two coats, applying second at right angle to first, at minimum rate recommended by manufacturer.
   2. Restrict traffic on surfaces during curing.

C. Curing Paper Method:
   1. Spread curing paper over surfaces, lapping ends and sides minimum 4 inches; maintain in place by use of weights.
   2. Remove paper after curing.

D. Wet Curing Method: Spray water over surfaces and maintain wet for 7 days.

3.6 CLEANING

A. Remove efflorescence, stains, oil, grease, and foreign materials from exposed surfaces.

3.7 FIELD QUALITY CONTROL

A. Testing and Inspection Services:
   1. Certify each delivery ticket.
   2. Record time at which concrete was discharged from truck.
   3. Monitor and record amount of water and water reducing admixture added to concrete at project site.
   4. Determine ambient temperature and temperature of concrete sample for each set of test cylinders.
   5. Test cylinders:
      a. Make test cylinders in accordance with ASTM C172; one set of 3 cylinders for each 100 cubic yards or fraction thereof placed in any one day, for each different class of concrete.
      b. Mold and cure cylinders in accordance with ASTM C31; test cylinders in accordance with ASTM C39; one at 7 days and two at 28 days.
   6. Slump tests: Make slump tests at beginning of each day's placement and for each set of test cylinders in accordance with ASTM C143.
   7. Air content: Determine total air content of air entrained concrete for each strength test in accordance with ASTM C231.

END OF SECTION
PART 1  GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Concrete unit masonry.

B. Related Sections:
   1. Section 07 9200 - Joint Sealers.

1.2 REFERENCES

A. ASTM International (ASTM):
   1. C90 - Standard Specification for Hollow Loadbearing Concrete Masonry Units.

B. The Masonry Society (TMS):

PART 2  PRODUCTS

2.1 MATERIALS

A. Concrete Masonry Units:
   1. ASTM C90, hollow load bearing type, normal weight.
   2. Size: Nominally 8 inches high x 16 inches long x thickness indicated on drawings.

2.2 ACCESSORIES

A. Single Wythe Joint Reinforcement:
   1. Truss type; ASTM A951, hot-dip galvanized steel wire, 9 gage side rods with 9 gage cross ties.
   2. Width: Nominal wall thickness less 1-1/2 inches.
   3. Corner and tee fittings: Type to match reinforcement.
   4. Recycled content: Minimum percent recycled steel, with minimum percent classified as post-consumer – as indicated on drawings.

B. Reinforcing Bars:
   1. ASTM A615/A615M, deformed billet steel, Grade 60.
   2. Recycled content: Minimum 75 percent recycled steel, with minimum 40 percent classified as post-consumer.

C. Joint Sealer: Specified in Section 07 9200.

PART 3  EXECUTION

3.1 PREPARATION

A. Remove dirt, loose rust, and other foreign matter from reinforcement and anchors.

3.2 INSTALLATION

A. Establish lines, levels and courses indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimensions. Form horizontal and vertical joints of uniform thickness.
C. Lay concrete masonry in running bond. Course one masonry unit and one mortar joint to equal 8 inches.

D. Lay masonry plumb and level. Do not adjust masonry units after mortar has set.

E. Do not butter corners or excessively furrow joints.

F. Machine cut masonry with straight cuts and clean edges; prevent oversized or undersized joints. Discard damaged units. Do not expose cut cells.

G. Isolate masonry from structural members with compressible filler.

H. When joining fresh masonry to partially set masonry, remove loose masonry and mortar; clean and lightly wet exposed surface of set masonry.

I. Stop horizontal runs by racking back normal bond unit in each course. Tooothing not permitted.

J. Control and Expansion Joints:
   1. Do not continue horizontal joint reinforcement through joints.
   2. Keep joints free from mortar and grout.
   3. Install joint backing and joint sealer at control joints in accordance with Section 07 9200.
   4. Form expansion joint as indicated on Drawings.

END OF SECTION
SECTION 05 1200
STRUCTURAL STEEL FRAMING

PART 1  GENERAL

1.1 SUMMARY
A. Section Includes:
   1. Structural steel framing members.
   2. Grouting base plates.

1.2 REFERENCES
A. American Institute of Steel Construction (AISC) - Specifications for Structural Steel Buildings.
B. ASTM International (ASTM):

1.3 SUBMITTALS
A. Sustainable Design Submittals:
   1. Regional Materials.
   2. Recycled Content:
      I. Indicate recycled content; indicate percentage of pre-consumer and postconsumer recycled content per unit of product.
      II. Indicate relative dollar value of recycled content product to total dollar value of product included in project.
      III. If recycled content product is part of an assembly, indicate the percentage of recycled content product in the assembly by weight.
      IV. If recycled content product is part of an assembly, indicate relative dollar value of recycled content product to total dollar value of assembly.

PART 1  PRODUCTS

1.1 MATERIALS
A. Steel:
   2. Pipe: ASTM A53/A53M, Grade B.

1.2 FABRICATION
A. Fabricate structural steel in accordance with AISC Manual.

PART 2  EXECUTION

2.1 ERECTION OF STEEL FRAMING
A. Erect structural steel in accordance with AISC Specifications.
B. Accurately assemble to lines and elevations indicated, within specified erection tolerances.
C. Align bearing plates with leveling plates.
D. Clean bearing surfaces and surfaces that will be in permanent contact before members are assembled.
E. Locate splices only where indicated.
F. Installation Tolerances:
1. Maximum variation from level: 1/4 inch in 10 feet, noncumulative.
2. Maximum offset from alignment of adjacent members: 1/4 inch.

END OF SECTION
PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Ladders.
   2. Bollards.

1.2 REFERENCES

A. ASTM International (ASTM):
   2. A53 / A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

1.3 SUBMITTALS

A. Sustainable Design Submittals:
   1. Regional Materials.
   2. Recycled Content
      1. Product Data for Credit: Indicating percentages by weight of postconsumer and pre consumer recycled content for products having recycled content.

PART 1 PRODUCTS

1.1 MATERIALS - STEEL

A. Shapes: ASTM A36/A36M.
B. Pipe Bollards: ASTM A53.
   1.4" Diameter thickness, .432 weight per foot, 28.57 lbs., A.S.A. Schedule 80.
C. Bars: ASTM A108.
D. Recycled Content: Postconsumer recycled content plus one-half of pre consumer recycled content not less than [20] percent.

1.1 FABRICATION

A. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
B. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
C. Conceal fastenings where possible.

1.2 FINISHES

A. Exterior Ferrous Metal: Galvanized; ASTM A123/A123M, to 1.3 ounces per square foot.

PART 2 EXECUTION

2.1 INSTALLATION

A. Install components plumb, level, and rigid.
2.2 SCHEDULE

A. Ladders:
   I. Side rails: Continuous steel flat bars, 1/2 x 2-1/2 inches, eased edges, spaced 18 inches apart.
   II. Rungs: Round steel bars, 3/4 inch diameter, spaced 12 inches on center. Fit rungs in centerline of side rails and plug weld on outer rail face.
   III. Support ladders at top, bottom, and at intermediate points spaced maximum 5'-0" on center with steel brackets, bolted to supports.

B. Bollards:
   I. Fabricate from steel pipe of sizes indicated.
   II. Set into concrete footing.
   III. Fill pipe with concrete; rod to consolidate. Dome top to shed water.
   IV. Pipe to be filled with concrete to a 1.5 inch dome top ground smooth. Concrete to provide a minimum of 3000 P.S.I. compressive strength.
   V. Pipe to be primed with one coat of metal primer iron clad galvanized and provided with a plastic sleeve – see National Accounts.
   VI. All pipe bollards should be placed a minimum of 18" below finish grade, have a minimum height of 36" inches above finished grade and spaced as shown on Site Drawings.

END OF SECTION
PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Roof and wall framing.
   2. Roof and wall sheathing.
   3. Wood blocking and furring.

B. Related Sections:
   1. Division 06 4600 Wood Trim.

1.2 REFERENCES

A. Engineered Wood Association (APA) PRP-108 - Performance Standards and Qualification Policy for Structural-Use Panels.

B. Northeastern Lumber Manufacturers Association (NELMA) - Standard Grading Rules for Northeastern Lumber.

C. Southern Pine Inspection Bureau (SPIB) - Standard Grading Rules for Southern Pine Lumber.

D. Western Wood Products Association (WWPA) G-5 - Western Lumber Grading Rules.

1.3 SUBMITTALS

A. Sustainable Design Submittals:
   1. Materials Reuse.
   2. Recycled Content.
   3. Regional Materials.
   4. Rapidly Renewable Materials.
   5. Low-Emitting Materials.
   6. Certified Wood.

1.4 QUALITY ASSURANCE

A. Lumber Grading Agency: Certified to NIST PS 20.

B. Identify lumber and sheet products by official grade mark.

1.5 DELIVERY, STORAGE AND HANDLING

A. Store materials minimum 6 inches above ground on framework or blocking and cover with protective waterproof covering providing for adequate air circulation.

B. Do not store seasoned or treated materials in damp location.

C. Protect edges and corners of sheet materials from damage.

PART 2 PRODUCTS

2.1 MATERIALS

A. Dimension Lumber:
   1. Grading rules: NELMA, SPIB or WWPA.
   2. Grade: #2 or Select Structural.
   3. Surfacing: Surfaced four sides (S4S).
   4. Maximum moisture content: 19 percent.
5. Finger jointed, manufactured using low-emitting, urea formaldehyde-free binders.
6. Certified to FSC STD-04-004.

B. Laminated Veneer Lumber:
1. Fabricated by laminating wood veneers under pressure using exterior type adhesive with grain of veneers parallel with length.
2. Veneer: Douglas Fir or Southern Pine.
3. Manufactured using low-emitting, urea formaldehyde-free binders.
4. Certified to FSC STD-04-004.

C. Sheet Products:
1. Type: APA Plywood or Oriented Strand Board.
2. Panel grade:
   a. Wall and roof sheathing: APA Rated Sheathing.
3. Exposure:
   b. Interior applications: Interior.
4. Rapidly renewable product made from chopped straw, manufactured using low-emitting, urea formaldehyde-free binders.
5. Certified to FSC STD-04-004.

PART 3 EXECUTION

3.1 INSTALLATION

A. Set members level, plumb, and rigid.

B. Make provisions for erection loads, and for temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing.

C. Place beams, joists, and rafters with crown edge up.

D. Construct load bearing framing members full length without splices.

E. Stud Framing:
1. Provide single bottom plate and double top plates for load bearing partitions.
2. Provide single bottom and top plates for non-load bearing partitions.
3. Anchor bottom plates to concrete structure with anchor bolts.
4. Triple studs at corners and partition intersections.
5. Frame openings with double studs and headers. Space short studs over and under opening to stud spacing.

F. Provide blocking, nailers, grounds, furring, and other similar items required to receive and support work.

G. Provide adequate blocking for all wall-mounted units in accordance with plans.

3.2 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

END OF SECTION
PART 1  GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Special fabricated cabinet units.
   2. Plastic laminate countertops.

1.2 REFERENCES

A. Architectural Woodwork Institute/Architectural Woodwork Manufacturers of Canada/Woodwork Institute (AWI/AWMAC/WI) - Architectural Woodwork Standards.

1.3 SUBMITTALS

A. Sustainable Design Submittals:
   1. Materials Reuse.
   2. Recycled Content.
   3. Regional Materials.
   4. Rapidly Renewable Materials.
   5. Low-Emitting Materials.
   6. Certified Wood.

PART 2  PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers - Plastic Laminate:
   1. Formica Corp. (www.formica.com)
   2. Wilsonart International, Inc. (www.wilsonart.com)

B. Substitutions: Not permitted.

2.2 MATERIALS

A. Lumber:
   1. Graded in accordance with AWI/AWMAC/WI Architectural Woodwork Standards, Section 3 requirements for quality grade specified, average moisture content of 6 percent.
   2. Exposed and semi-exposed locations: Closed grain hardwood, of quality suitable for opaque finish.

   1. High pressure decorative laminate:
      a. Horizontal surfaces:
      b. Vertical surfaces:
         1) Backing sheet: 25/32 inch exterior grade plywood.
   2. Colors
      a. Formica #459-58 “Bright White” Matte Finish
      b. Formica #909-58 “Black” Matte Finish
      c. Wilsonart #7560K-18 “Studio Teak” Linearity Finish

2.3 ACCESSORIES

A. Fasteners: Type and size as required by conditions of use.

B. Adhesives:
1. Waterproof, water based type, compatible with backing and laminate materials.
2. Maximum volatile organic compound (VOC) content: 70 grams per liter.

C. Finish Hardware: As scheduled at end of Section.

2.4 FABRICATION

A. Plastic Laminate Countertops:
   2. Fabricate from sheet product with lumber fronts.
   3. Provide holes and cutouts for mounting of accessories.

B. Shop assemble for delivery to project site in units easily handled.

C. Prior to fabrication, field verify dimensions to ensure correct fit.

D. Apply plastic laminate in full uninterrupted sheets; fit corners and joints to hairline. Slightly bevel arises. Apply laminate backing sheet to reverse side of laminate faced surfaces.

E. Where field fitting is required, provide ample allowance for cutting. Provide trim for scribing and site conditions.

F. Provide cutouts and reinforcement for plumbing, electrical, appliances, and accessories. Prime paint surfaces of cut edges.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with AWI/AWMAC/WI Architectural Woodwork Standards.

B. Set plumb, rigid and level.

C. Scribe to adjacent construction with maximum 1/8 inch gaps.

D. Fill joints between tops and adjacent construction with joint sealer as specified in Section 07 9200; finish flush.

3.2 FINISH HARDWARE SCHEDULE

A. Shelves shall be installed on heavy duty, adjustable knife brackets, Knape & Vogt No. 180-12, and Knape & Vogt No. 80 standards, as noted on Drawings. Standards and brackets to be steel with anochrome finish. Isolated, individual shelves shall be mounted directly to the wall with Knape & Vogt No. 204 steel brackets, anochrome finish, and length as shown on the Drawings.

END OF SECTION
PART 1  GENERAL

1.1  SUMMARY
A.  Section Includes:
   1.  Interior wood trim.

1.2  SUBMITTALS
A.  Sustainable Design Submittals:
   1.  Materials Reuse.
   2.  Regional Materials.

1.3  DELIVERY, STORAGE AND HANDLING
A.  Do not deliver materials until proper protection can be provided, and until needed for installation.

1.4  PROJECT CONDITIONS
A.  Environmental Requirements: Maintain following conditions in building for minimum 7 days prior to, during, and after installation of interior trim:
   1.  Temperature: 60 to 80 degrees F.
   2.  Humidity: 43 to 70 percent.

PART 2  PRODUCTS

2.1  MATERIALS
A.  Interior Trim:
   1.  Graded in accordance with AWI/AWMAC/WI Architectural Woodwork Standards, Section 3 requirements for quality grade specified, average moisture content of 6 percent.
   2.  Maple species, No. 1 Select, of quality suitable for opaque and transparent finishes.

2.2  ACCESSORIES
A.  Fasteners: Type and size as required by conditions of use; plain steel for interior use; hot dip galvanized steel for exterior use.
B.  Adhesives:
   1.  Waterproof, water based type, compatible with trim and substrate materials.
   2.  Maximum volatile organic compound (VOC) content: 30 grams per liter.

2.3  FINISHES
A.  Factory Finishing:
   1.  Paint or stain as indicated on drawings.

PART 3  EXECUTION

3.1  PREPARATION
A.  Prior to installation, condition wood to average humidity that will prevail after installation.
3.2 INSTALLATION

A. Install in accordance with AWI/AWMAC/WI Architectural Woodwork Standards.

B. Install in longest practical lengths.

C. Set plumb and level.

D. Miter ends, corners, and intersections.

E. Scribe to adjacent construction with maximum 1/8 inch gaps.

F. Fasten or adhere to supporting construction.

END OF SECTION
SECTION 07 2115
BATT INSULATION

PART 1  GENERAL

1.1 SUMMARY
   A. Section Includes:
      1. Batt insulation in exterior wall and roof assemblies.

1.2 REFERENCES
   A. ASTM International (ASTM):

1.3 SUBMITTALS
   A. Sustainable Design Submittals:
      1. Recycled Content.
      2. Regional Materials.
      4. Recycled Content
         i) For products having recycled content, documentation indicating percentages by weight of postconsumer and pre consumer recycled content. Include statement indicating costs for each product having recycled content.

1.4 PROJECT CONDITIONS
   A. Do not install until insulation until building is substantially water and weather tight.

PART 2  PRODUCTS

2.1 MATERIALS
   A. Thermal Batt Insulation:
      1. Type: ASTM C665, glass fiber composition.
      2. Facing: Reinforced Kraft paper vapor barrier on one side with stapling flanges or aluminum foil/scrims/Kraft paper vapor barrier on one side with stapling flanges.
      3. Free from urea-formaldehyde resins.
         i) Insulation manufactured with 100 percent acrylic binders and no formaldehyde.
      4. Thermal resistance:
         a. 3-1/2 inches thick: R-value of 11.00.
         b. 3-5/8 inches thick: R-value of 13.00.
         c. 6-1/4 inches thick: R-value of 19.00.
         d. 6-1/2 inches thick: R-value of 22.0.
         e. 8-1/2 inches thick: R-value of 25.0.
         f. 9 inches thick: R-value of 26.0.
         g. 10 inches thick: R-value of 30.00.
         h. 12 inches thick: R-value of 38.00.

PART 3  EXECUTION

3.1 INSTALLATION
   A. Staple or nail in place at maximum 12 inches on center.
   B. Butt insulation to adjacent construction. Butt ends and edges.
   C. Carry insulation around pipes, wiring, boxes, and other components.
D. Ensure complete enclosure of spaces without voids.

E. Apply with vapor barrier facing towards exterior or interior of structure based on local climate design requirements.

F. Tape seal lapped flanges, butt ends, and tears and holes in facings.

END OF SECTION
SECTION 07 2400

EXTERIOR INSULATION AND FINISH SYSTEM

PART 1  GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Moisture barrier.
   2. Composite wall cladding of rigid insulation and applied coating.
   3. Trim and accessories.

1.2 REFERENCES


B. ASTM International (ASTM):

C. EIFS Industry Manufacturers Association (EIMA) - Classification Paper.

1.3 SYSTEM DESCRIPTION

A. System Classification: EIMA Class PB, Standard and High impact resistance.

B. Fire Hazard Classification: Maximum flame spread/smoke developed rating of 25/450, tested to ASTM E84.

1.4 SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Indicate joint layout and dimensions, system penetration details, and termination details.
   2. Product Data: Include primary and secondary product descriptions, application instructions, performance criteria, and list of sealants approved for use with system.
   3. Samples:
      a. 3 x 3 inch finish coat samples for all applicable colors shown on drawings.

B. Quality Control Submittals:
   1. Certificates of Compliance:
      a. Manufacturer’s certification that installed system complies with requirements of Contract Documents.
      b. Certificate of approval by Code authorities having jurisdiction over Project.
      c. Certification from an independent testing laboratory that system meets fire hazard classification requirements.

1.5 QUALITY ASSURANCE

A. Furnish EIFS system components from single manufacturer.
B. Installer Qualifications: Minimum 5 years documented experience in work of this Section.

1.6 DELIVERY, STORAGE AND HANDLING

A. Store adhesives and coatings in protected, dry area until used, at temperature per the Manufacturer’s product specifications.
1.7 PROJECT CONDITIONS

A. Do not apply adhesives and coatings if:
   1. Ambient temperature is below 40 degrees F, or is expected to fall below that temperature within 24 hours after application.
   2. Relative humidity is above 85 percent and surface temperature is lower than 5 degrees F below dew point.
   3. Wind velocity is over 20 MPH.

1.8 WARRANTIES

A. Furnish manufacturer’s and applicator’s separate standard warranty providing coverage against air and water leakage through EIFS system.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Dryvit System, Inc. (www.dryvit.com)

B. Substitutions: Allowed upon approval of client or design professional.

2.2 MATERIALS

A. Moisture Barrier: Fluid-applied type; system manufacturer’s standard product.

B. Adhesive: Acrylic based; type recommended by system manufacturer.

C. Finish Coat: EIMA Class PB; polymer base, medium texture, colors as shown on drawings.

D. Rigid Insulation:
   1. ASTM C578, Type VI, closed cell extruded polystyrene, slotted on back side for drainage.
   2. Edges: Square.

E. Reinforcing: Glass fiber mesh, balanced open weave, alkaline resistant, treated for improved bond with coating, tested to ASTM E2098 and classified to EIMA impact classification.
   1. Standard impact mesh: Minimum 4.5 ounces per square yard.
   2. High impact mesh: Minimum 14.0 ounces per square yard.
   3. Corner mesh: Minimum 20.0 ounces per square yard.

2.3 ACCESSORIES

A. Trim:
   1. Extruded PVC, perforated attachment flanges, of longest practical length.
   2. Corner bead: Beaded edge, size and profile to suit application.
   3. Casing bead: Thickness governed by system thickness, square edge.
   4. Drainage casing: Thickness governed by system thickness, square edge, perforated for drainage.
   5. Control joint:Accordion profile with minimum 2 inch flanges each side, with attachment flanges.

B. Insulation Fasteners: Hot-dip galvanized or fluropolymer coated steel with minimum 1 inch diameter washers, minimum 5/8 inch penetration into framing, of type recommended by system manufacturer.

C. Trim Fasteners: Hot-dip galvanized or fluropolymer coated steel, type recommended by system manufacturer.

D. Water: Clean and potable.

2.4 MIXES
A. Base and Finish Coat: In accordance with manufacturer's instructions.

PART 3 EXECUTION

3.1 APPLICATION OF MOISTURE BARRIER

A. Apply moisture barrier in accordance with manufacturer's instructions.

B. Apply moisture barrier by roller to continuous and uniform coverage with minimum mil thickness as recommended by manufacturer.

C. Completely joint compound applied at cracks, joints, perimeter, and penetrations with moisture barrier.

D. Install heavy mesh up to 8 feet above grade or paving.

E. Install corner mesh for minimum 12 inches on both sides of external corners.

F. Install drainage casing at wall base and over openings in walls. Seal corners and intersections.

3.2 APPLICATION OF INSULATION AND REINFORCING

A. Install system in accordance with ANSI/EIMA 99A and manufacturer's instructions.

B. Adhere insulation to substrate with full adhesive bed applied using notched trowel, with drainage channels running vertically.
   1. Install insulation in most economical manner, with joints offset joints from those in substrate.
   2. Stagger end joints in adjacent rows minimum 12 inches.
   3. Cut panels to fit at perimeter and around penetrations.
   4. Press to full contact with adhesive without restricting drainage behind panels.

C. Apply minimum 1/16 inch layer of adhesive over insulation board.

D. Fully embed reinforcement in adhesive, wrinkle free.

E. Lap ends and edges 2 inches minimum.

F. Wrap reinforcement and adhesive around insulation edge at reveals, control joints and where system abuts dissimilar materials or stops with edge exposed except at bottom edges.

3.3 APPLICATION OF FINISH COAT

A. Apply in accordance with manufacturer's instructions.

B. Work in continuous operation in each panel formed by trim and intersections to ensure even texture.

C. Cut edges in clean and sharp where work joins other materials.

D. Apply to uniform texture and color without streaks, laps, heavy buildups, and missed areas.

E. Ensure consistent application and uniform appearance.

3.4 ADJUSTING

A. Touch up finish coat as required to obtain uniform texture.

END OF SECTION
SECTION 07 4646
MINERAL-FIBER CEMENT SIDING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Mineral-fiber cement siding and trim.
   2. Trim, anchorage, and accessories.

B. Related Sections:
   1. Section 07 6200 - Sheet Metal Flashing and Trim.
   2. Section 07 9200 - Joint Sealers.

1.2 REFERENCES

A. ASTM International (ASTM):

1.3 SUBMITTALS

A. Submittals for Review:
   1. Product Data: Indicate profiles, sizes, fastening methods, surface texture, and finish.
   2. Warranty: Sample warranty form.

B. Sustainable Design Submittals:
   1. Regional Materials.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 3 years documented experience in work of this Section.

1.5 WARRANTIES

A. Furnish manufacturer’s warranty, made out in Owner’s name with copy to Owner, providing coverage against cracking, rotting, or delamination of siding.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. James Hardie Building Products Inc. www.jameshardie.com
   2. Approved Equal – to be considered and approved by Architect.

2.2 MATERIALS

A. Mineral-Fiber Cement Siding:
   1. ASTM C1186, Grade II, Type A; formulated from portland cement, ground sand, cellulose fibers, additives, and water; formed under pressure to required profile.
   3. Fire hazard classification: Class A, tested to ASTM E84.
   4. Lap siding:
      a. Size: 12 inch high (10 inch exposure) x 12 feet long (see drawings).
      b. Thickness: 5/16 inch.
      c. Surface texture: Smooth.
   5. Trim:
      a. Size: 3 inches wide x maximum practical length.
      b. Thickness: 7/16 inch.
      c. Surface texture: Smooth.
2.3 ACCESSORIES

A. Fasteners: Type recommended by siding manufacturer.
B. Sheet Metal Flashings and Trim: Specified in Section 07 6200.
C. Joint Sealers: Specified in Section 07 9200.

PART 3 EXECUTION

3.1 INSTALLATION - LAP SIDING

A. Install in accordance with manufacturer's instructions.
B. Install siding with 10 inch exposure (see drawings).
C. Lap siding for natural water shed.
D. Butt joints tight.
E. Set plumb and level.
F. Cut siding to fit at perimeter and around penetrations with maximum 1/4 inch gaps. Smooth cut edges.
G. Position cut ends over bearing surfaces.
H. Install corner strips, closures, and trim as shown on drawings.
I. Fasten at maximum 12 inches on center. Blind nail except trim.
J. Install metal flashings at sills and heads of wall openings. Fasten at 12 inches on center maximum.
K. Apply joint sealer between siding and trim and adjacent surfaces as specified in Section 07 9200. Ensure watertight condition.

3.2 INSTALLATION - TRIM

A. Install in accordance with manufacturer's instructions.
B. Butt joints tight.
C. Set plumb and level.
D. Cut to fit at perimeter and around penetrations with maximum 1/4 inch gaps. Smooth cut edges.
E. Fasten at maximum 16 inches on center.

END OF SECTION
1.1 roof system summary

1. Membrane: Thermoplastic membrane mechanically fastened to roof deck or induction welded to welding plates.
2. Roof Insulation: Polyisocyanurate insulation mechanically attached to roof deck.
3. Structural Deck: Steel or Wood.

1.2 Related Sections:

A. Division 05 Section "Steel Decking" for furnishing acoustical deck rib insulation.
B. Division 06 Section "Miscellaneous Rough Carpentry" for wood nailers, cants, curbs, blocking and for wood-based, structural-use roof deck panels.
C. Division 07 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
D. Division 22 Section "Storm Drainage Piping Specialties" for roof drains.

1.3 REFERENCES

A. Roofing Terminology: Refer to the following publications for definitions of roofing work related terms used in this Section:
   1. ASTM D 1079 “Terminology Relating to Roofing and Waterproofing.”
   3. Roof Consultants Institute “Glossary of Roofing Terms.”

1.4 DESIGN CRITERIA

A. General: Installed roofing membrane systems shall remain watertight; and resist specified wind uplift pressures, thermally induced movement, and exposure to weather without failure.
B. Material Compatibility: Roofing materials shall be compatible with one another under conditions of service and application required, as demonstrated by roofing system manufacturer based on testing and field experience.
C. Wind Uplift Performance: Roofing system shall be identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist wind uplift pressure calculated in accordance with ASCE 7.

1.5 SUBMITTALS

A. Product Data: Manufacturer’s product data sheets for each product to be provided.
B. Detail Drawings: Provide roofing system plans, elevations, sections, details, and details of attachment to other Work, including:
1. Base flashings and membrane terminations.
2. Tapered insulation, including slopes.
3. Crickets, saddles, and tapered edge strips, including slopes.
4. Insulation fastening patterns.

C. Verification Samples: Provide for each product specified.

D. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.


F. Sustainable Design Submittals:
   1. Recycled Content
   2. Solar Reflectance Index.
   3. Regional Materials.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and is eligible to receive the specified manufacturer's guarantee.

B. Manufacturer Qualifications: Qualified manufacturer that has UL listing for roofing system identical to that used for this Project.

C. Testing Agency Qualifications: Independent testing agency with the experience and capability to conduct the testing indicated, as documented in accordance with ASTM E329.

D. Test Reports:
   1. Core cut (if requested).
   2. Roof deck fastener pullout test.

E. Source Limitations: Obtain all components from the single source roofing system manufacturer guaranteeing the roofing system. All products used in the system shall be labeled by the single source roofing system manufacturer issuing the guarantee.

F. Fire-Test-Response Characteristics: Roofing materials shall comply with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
   1. Exterior Fire-Test Exposure: Class: To meet applicable code; ASTM E 108, for application and roof slopes indicated.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when current and forecasted weather conditions permit roofing system to be installed in accordance with manufacturer's written instructions and guarantee requirements.

1.9 guarantees

A. Provide manufacturer's system guarantee equal to Johns Manville's Peak Advantage No Dollar Limit Roofing System Guarantee.
   1. Single-Source special guarantee includes roofing membrane, base flashings, roofing membrane accessories, roof insulation, fasteners, walkway products, and other single-source components of roofing system marketed by the manufacturer.
   2. Guarantee Period: Fifteen years from date of Substantial Completion.

B. Installer's Guarantee: Submit roofing Installer's guarantee signed by Installer, covering Work of this Section, including all components of roofing system, for the following guarantee period:
   1. Guarantee Period: Two Years from date of Substantial Completion.

C. Existing Guarantees: Guarantees on existing building elements should not be affected by scope of work.
   1. Installer is responsible for coordinating with building owner's representative to verify compliance.

PART 2 - PRODUCTS

2.1 thermoplastic Roofing Membrane manufacturers

   1. Basis of Design Product:
      a. Johns Manville PVC SD Plus or comparable product by one of the following:
      b. Durolast.
   2. Thickness: 50 mils, nominal.
   3. Exposed Face Color: White

   1. Basis of Design Product:
      a. Johns Manville TPO or comparable product by one of the following:
      b. Firestone.
   2. Thickness: 60 mils, nominal.
   3. Exposed Face Color: White
2.2 AUXILIARY Roofing Materials – Single Ply

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.

B. Sheet Flashing: Manufacturer’s internally reinforced or scrim reinforced, smooth backed membrane with same thickness and color as sheet membrane.

C. Bonding Adhesive: Manufacturer’s standard solvent-based bonding adhesive for membrane, and solvent-based bonding adhesive for base flashings.

D. Slip Sheet: Minimum 9.0 oz/yd² needle punched, UV-resistant polyester fabric slip sheet, as required for application.

E. Metal Termination Bars: Manufacturer’s standard predrilled stainless-steel or aluminum bars, with anchors.

F. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

G. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, cover strips, sealants, and other accessories.

H. Metal Flashing Sheet: Metal flashing sheet is specified in Division 07 Section “Sheet Metal Flashing and Trim.”

2.3 WALKWAYS and safety strips

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads sourced from membrane roofing system manufacturer.

2.4 ROOF INSULATION

A. General: Preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer’s standard sizes and of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1 or 2, Grade 2 (20 psi).

1. Provide insulation package with minimum R Value: 20 or minimum required by applicable code.
2. Provide insulation package in multiple layers.
3. Provide fire resistant insulation as required to meet applicable code.
4. Minimum Long-Term Thermal Resistance (LTTR): 5.7 per inch.
   a. Determined in accordance with CAN/ULC S770 at 75°F (24°C)

2.5 Tapered insulation

A. Tapered Insulation: ASTM C 1289, Type II, Class 1, Grade 2 (20 psi), provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches (1:48), unless otherwise indicated.
2.6 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

B. Provide factory preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

C. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and furnished by roofing system manufacturer.

D. Wood Nailer Strips: Comply with requirements in Division 06 Section "Miscellaneous Rough Carpentry."

E. Adhesives: Maximum Volatile Organic Compound (VOC) content of 250 grams per liter.

F.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions for compliance with the requirements affecting performance of roofing system.

1. General:
   a. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
   b. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

2. Steel Decks:
   a. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Division 05 Section "Steel Decking."

3. Ensure general rigidity and proper slope for drainage.

4. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch (1.6 mm) out of plane relative to adjoining deck.

B. Unacceptable panels should be brought to the attention of the General Contractor and Project Owner's Representative and must be corrected prior to installation of roofing system.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean and remove from substrate sharp projections, dust, debris, moisture, and other substances detrimental to roofing installation in accordance with roofing system manufacturer's written instructions.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction.

C. Proceed with installation only after unsatisfactory conditions have been corrected.
3.3 Re-roof Preparation – as applicable

A. Remove all roofing membrane, surfacing, coverboards, insulation, fasteners, asphalt, pitch, adhesives, etc.
   1. Remove an area no larger than can be re-roofed in one day.

B. Tear out all base flashings, counterflashings, pitch pans, pipe flashings, vents and like components necessary for application of new membrane.

C. Remove abandoned equipment curbs, skylights, smoke hatches, and penetrations.
   1. Install decking to match existing as directed by Owner's Representative.

D. Raise (disconnect by licensed craftsmen, if necessary) all HVAC units and other equipment supported by curbs to conform with the following:
   1. Modify curbs as required to provide a minimum 8" base flashing height measured from the surface of the new membrane to the top of the flashing membrane.
   2. Secure top of flashing and install new metal counterflashing prior to re-installation of unit.
   3. Perimeter nailers must be elevated to match elevation of new roof insulation.

E. Immediately remove all debris from roof surface. Demolished roof system may not be stored on the roof surface.

F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.4 INSULATION INSTALLATION

A. Coordinate installation of roof system components so insulation and cover board is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with roofing system manufacturer's written instructions for installation of roof insulation and cover board.

C. Install tapered insulation under area of roofing to conform to slopes indicated.

D. Install insulation boards with long joints in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with like material.

E. Install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.

F. Trim surface of insulation boards where necessary at roof drains so completed surface is flush and does not restrict flow of water.

G. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

H. Loose Laid Insulation with Top Insulation Layer Mechanically Fastened: Loose lay insulation with staggered joints and secure top layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type to deck type.
   1. Fasten top layer to resist uplift pressure at corners, perimeter, and field of roof.

I. Proceed with installation only after unsatisfactory conditions have been corrected.
3.5 ROOFING MEMBRANE INSTALLATION, GENERAL

A. Install roofing membrane in accordance with roofing system manufacturer's written instructions, applicable recommendations of the roofing manufacturer and requirements in this Section.

B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.

C. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.

D. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is imminent.

   1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation with joints and edges sealed.
   2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
   3. Remove and discard temporary seals before beginning work on adjoining roofing.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.6 MECHANICALLY FASTENED ROOFING MEMBRANE INSTALLATION

A. Install roofing membrane over area to receive roofing in accordance with roofing system manufacturer's written instructions.

   1. Unroll roofing membrane and allow to relax before installing.
   2. Install sheet in accordance with roofing system manufacturer's written instructions.

B. Accurately align roofing membranes and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

C. Mechanically fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.

D. Always install membrane laps perpendicular to the steel deck flutes. “Picture Frame” installation method is not permitted.

E. Apply roofing membrane with side laps shingled with slope of roof deck where possible.

F. Seams: Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.

   1. Test lap edges with probe to verify seam weld continuity.
   2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.

      a. Remove and repair any unsatisfactory sections before proceeding with Work.

   3. Repair tears, voids, and lapped seams in roofing membrane that do not meet requirements.

G. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.

H. In-Splice Attachment: Secure one edge of roofing membrane using fastening plates or metal battens centered within membrane splice and mechanically fasten roofing membrane to roof deck. Field-splice seam.

I. Install roofing membrane and auxiliary materials to tie in to existing roofing.

J. Proceed with installation only after unsatisfactory conditions have been corrected.
3.7 alternate approved installation method - InduCtion Welded ROOFING MEMBRANE INSTALLATION

A. Install roofing membrane over area to receive roofing according to roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.

B. Accurately align roofing membranes and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

C. Apply roofing membrane with side laps shingled with slope of roof deck where possible.

D. Seams: Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane.
2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
   a. Remove and repair any unsatisfactory sections before proceeding with Work.
3. Repair tears, voids, and lapped seams in roofing membrane that do not meet requirements.

E. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.

F. Induction Welding Installation:

1. Perform calibration and set-up as detailed by the Induction Welder Owner's Manual
2. Center the Induction Welder over the first plate in pattern and activate the weld.
   a. Induction Welder must be centered over the plate to create a 100% bond.
   b. If an error occurs during activation, refer to the induction welder owner's manual for corrective action.
3. Prior to every use, clean face of Heat Sink Magnet.
4. Place Heat Sink Magnet over the welded plate.
   a. Keep Heat Sink Magnet in place at least 45 seconds while the assembly cools.
5. Repeat process for each plate.

G. Proceed with installation only after unsatisfactory conditions have been corrected.

3.8 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates in accordance with membrane roofing system manufacturer's written instructions.

B. Apply solvent-based bonding adhesive at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners per manufacturer's installation instructions.

D. Clean seam areas and overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

F. Proceed with installation only after unsatisfactory conditions have been corrected.
3.9 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated. Heat-weld walkway products to substrate according to roofing system manufacturer's written instructions.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.10 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's Registered Roof Observer (RRO) to inspect roofing installation on completion and submit report to Architect.

1. Notify Architect or Owner 48 hours in advance of date and time of inspection.

B. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

C. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.11 PROTECTION AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period.

B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075400
PART 4 - GENERAL

4.1 SECTION INCLUDES

A. PVC Mechanically fastened membrane roofing system.
B. Roof insulation.

4.2 Related Sections:

A. Division 06 Section "Miscellaneous Rough Carpentry" for wood nailers, cants, curbs, and blocking [and for wood-based, structural-use roof deck panels].
B. Division 07 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
C. Division 22 Section "Storm Drainage Piping Specialties" for roof drains.

4.3 REFERENCES

A. Roofing Terminology: Refer to the following publications for definitions of roofing work related terms used in this Section:
   1. ASTM D 1079 "Terminology Relating to Roofing and Waterproofing."
   3. Roof Consultants Institute "Glossary of Roofing Terms."


4.4 DESIGN CRITERIA

A. General: Installed roofing membrane systems shall remain watertight; and resist specified wind uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Roofing materials shall be compatible with one another under conditions of service and application required, as demonstrated by roofing system manufacturer based on testing and field experience.

C. Wind Uplift Performance: Roofing system shall be identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist wind uplift pressure calculated in accordance with ASCE 7.

   1. Field-of-Roof Uplift Pressure: <Insert number> lbf/sq. ft. (kN/sq. m).
   2. Perimeter Uplift Pressure: <Insert number> lbf/sq. ft. (kN/sq. m).
   3. Corner Uplift Pressure: <Insert number> lbf/sq. ft. (kN/sq. m).
4.5 SUBMITTALS

A. Product Data: Manufacturer’s product data sheets for each product to be provided.

B. Detail Drawings: Provide roofing system plans, elevations, sections, details, and details of attachment to other Work, including:
   1. Base flashings, cants, and membrane terminations.
   2. Tapered insulation, including slopes.
   3. Crickets, saddles, and tapered edge strips, including slopes.
   4. Insulation fastening patterns.

C. Verification Samples: Provide for each product specified.

D. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

E. Maintenance Data: Refer to Johns Manville’s latest published documents on www.JM.com.

F. Guarantees: Provide manufacturer’s current guarantee specimen.

4.6 QUALITY ASSURANCE

A. Installer Qualifications: Qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and is eligible to receive the specified manufacturer's guarantee.

B. Manufacturer Qualifications: Qualified manufacturer that has UL listing for roofing system identical to that used for this Project.

C. Testing Agency Qualifications: Independent testing agency with the experience and capability to conduct the testing indicated, as documented in accordance with ASTM E329.

D. Test Reports:
   1. Roof drain and leader test or submit plumber's verification.
   2. Core cut (if requested).
   3. Roof deck fastener pullout test.

E. Source Limitations: Obtain all components from the single source roofing system manufacturer guaranteeing the roofing system. All products used in the system shall be labeled by the single source roofing system manufacturer issuing the guarantee.

F. Fire-Test-Response Characteristics: Roofing materials shall comply with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
   1. Exterior Fire-Test Exposure: Class [A] [B] [C]; ASTM E 108, for application and roof slopes indicated.
   2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.
4.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

4.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when current and forecasted weather conditions permit roofing system to be installed in accordance with manufacturer's written instructions and guarantee requirements.

4.9 guaranteeS

A. Provide manufacturer's system guarantee equal to Johns Manville's Peak Advantage No Dollar Limit Roofing System Guarantee.

1. Single-Source special guarantee includes roofing membrane, base flashings, roofing membrane accessories, roof insulation, fasteners, walkway products, and other single-source components of roofing system marketed by the manufacturer.

2. Guarantee Period: 15 years from date of Substantial Completion.

B. Installer’s Guarantee: Submit roofing Installer's guarantee signed by Installer, covering Work of this Section, including all components of roofing system, for the following guarantee period:

1. Guarantee Period: Two Years from date of Substantial Completion.

C. Existing Guarantees: Guarantees on existing building elements should not be affected by scope of work.

1. Installer is responsible for coordinating with building owner’s representative to verify compliance.

PART 5 - PRODUCTS

5.1 Polyvinyl-Chloride Roofing Membrane - PVC

A. PVC Sheet: ASTM D 4434, Type III, fabric reinforced that contains KEE (Elvaloy) to reduce plasticizer migration. Basis of Design: JM PVC

1. Certification, by letter, stating that the formulation has a minimum 20 years of performance history in North America.
2. Thickness: 50 mils (1.27 mm), nominal
3. Exposed Face Color: White
5.2 AUXILIARY Roofing Materials – Single Ply

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.

B. Sheet Flashing: Manufacturer's internally reinforced or scrim reinforced, smooth backed membrane with same thickness and color as sheet membrane. Basis of Design: JM PVC

C. Bonding Adhesive: Manufacturer's standard solvent-based bonding adhesive for membrane, and solvent-based bonding adhesive for base flashings. Basis of Design: JM PVC Membrane Adhesive (Low VOC)

D. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, with anchors. Basis of Design: JM Termination Systems

E. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer. Basis of Design: High Load Fasteners and Plates

F. Induction Welding Plate: A round specially coated Galvalume® plate with a recessed center and raised flat bonding surface specifically designed for induction welding application. Basis of Design: JM PVC RhinoPlate

G. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, cover strips, sealants, and other accessories. Basis of Design: JM PVC Pourable Sealer, JM PVC Pipe Boots, PVC Split Pipe Boot, PVC Square Pipe Boot, JM PVC Penetration Pan, JM PVC Universal Corners, JM PVC T-Joint Patch, JM PVC Membrane Cleaner (Low VOC), JM PVC-Coated Metal, JM PVC Edge Sealant, JM PVC Profile, JM PVC Detail Strip, JM PVC Detail Membrane and JM Single Ply Caulk

5.3 AUXILIARY ROOFING System Components

A. Expansion Joints: Provide factory fabricated weatherproof, exterior covers for expansion joint openings consisting of flexible rubber membrane, supported by a closed cell foam to form flexible bellows, with two metal flanges, adhesively and mechanically combined to the bellows by a bifurcation process. Provide product manufactured and marketed by single-source membrane supplier that is included in the No Dollar Limit guarantee. Basis of Design: Expand-O-Flash [Expand-O-Gard]

B. Coping System: Manufacturer’s factory fabricated coping consisting of a base piece and a snap-on cap. Provide product manufactured and marketed by single-source membrane supplier that is included in the No Dollar Limit guarantee. Basis of Design: Presto-Lock Coping

C. Fascia System: Manufacturer’s factory fabricated fascia consisting of a base piece and a snap-on cover. Provide product manufactured and marketed by single-source membrane supplier that is included in the No Dollar Limit guarantee. Basis of Design: Presto Lock Fascia [Presto-Tite Fascia]

D. Metal Edge System: Manufacturer’s factory fabricated metal edge system used to terminate the roof at the perimeter of the structure. Provide product manufactured and marketed by single-source membrane supplier that is included in the No Dollar Limit guarantee. Basis of Design: Presto Stop Gravel Stop

E. Metal Flashing Sheet: Metal flashing sheet is specified in Division 07 Section "Sheet Metal Flashing and Trim."
5.4 WALKWAYS and safety strips


B. Safety Strips: Manufacturer's minimum 45 mils, reinforced, UV-resistant PVC (polyvinyl chloride) with Elvaloy KEE (ketone ethylene ester) safety warning line for roof perimeters. Basis of Design: JM PVC Safety Strip

1. Exposed Face Color: Yellow

5.5 ROOF INSULATION

A. General: Preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1 Grade 2 (20 psi), Basis of Design: ENRGY 3

1. Provide insulation package with minimum R Value: (minimum required by applicable code).
2. Provide insulation package in multiple layers.
3. Minimum Long-Term Thermal Resistance (LTTR): 5.7 per inch.
   a. Determined in accordance with CAN/ULC S770 at 75°F (24°C)

5.6 Tapered insulation

A. Tapered Insulation: ASTM C 1289, Type II, Class 1 Grade 2 (20 psi), provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches (1:48), unless otherwise indicated. Basis of Design: Tapered ENRGY 3

5.7 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and furnished by roofing system manufacturer. Basis of Design: UltraFast Fasteners and Plates

C. Wood Nailer Strips: Comply with requirements in Division 06 Section "Miscellaneous Rough Carpentry."

PART 6 - EXECUTION

6.1 EXAMINATION

A. Examine substrates, areas, and conditions for compliance with the requirements affecting performance of roofing system.

1. General:
   a. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
b. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

2. Ensure general rigidity and proper slope for drainage.
3. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch (1.6 mm) out of plane relative to adjoining deck.

B. Unacceptable panels should be brought to the attention of the General Contractor and Project Owner’s Representative and must be corrected prior to installation of roofing system.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

6.2 PREPARATION

A. Clean and remove from substrate sharp projections, dust, debris, moisture, and other substances detrimental to roofing installation in accordance with roofing system manufacturer's written instructions.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

6.3 INSULATION INSTALLATION

A. Coordinate installation of roof system components so insulation and cover board is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with roofing system manufacturer's written instructions for installation of roof insulation and cover board.

C. Install tapered insulation under area of roofing to conform to slopes indicated.

D. Install insulation boards with long joints in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with like material.

E. Install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.

F. Trim surface of insulation boards where necessary at roof drains so completed surface is flush and does not restrict flow of water.

G. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

H. Preliminarily Fastened Insulation for Mechanically Fastened Systems: Install insulation with fasteners at rate required by roofing system manufacturer or applicable authority, whichever is more stringent.

1. Fasten top layer to resist uplift pressure at corners, perimeter, and field of roof.

I. Loose Laid Insulation with Top Insulation Layer Mechanically Fastened: Loose lay insulation with staggered joints and secure top layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type to deck type.

1. Fasten top layer to resist uplift pressure at corners, perimeter, and field of roof.

J. Proceed with installation only after unsatisfactory conditions have been corrected.
6.4 ROOFING MEMBRANE INSTALLATION, GENERAL

A. Install roofing membrane in accordance with roofing system manufacturer's written instructions, applicable recommendations of the roofing manufacturer and requirements in this Section.

B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.

C. Where roof slope exceeds 1/2 inch per 12 inches (1:24), contact the membrane manufacturer for installation instructions regarding installation direction and backnailing.

D. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.

E. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is imminent.
   1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation with joints and edges sealed.
   2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
   3. Remove and discard temporary seals before beginning work on adjoining roofing.

F. Proceed with installation only after unsatisfactory conditions have been corrected.

6.5 MECHANICALLY FASTENED ROOFING MEMBRANE INSTALLATION

A. Install roofing membrane over area to receive roofing in accordance with roofing system manufacturer's written instructions.
   1. Unroll roofing membrane and allow to relax before installing.
   2. Install sheet in accordance with roofing system manufacturer's written instructions.

B. Accurately align roofing membranes and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

C. Mechanically fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.

D. "Picture Frame" installation method is not permitted.

E. Apply roofing membrane with side laps shingled with slope of roof deck where possible.

F. Seams: Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.
   1. Test lap edges with probe to verify seam weld continuity.
   2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
      a. Remove and repair any unsatisfactory sections before proceeding with Work.
   3. Repair tears, voids, and lapped seams in roofing membrane that do not meet requirements.

G. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.
H. In-Splice Attachment: Secure one edge of roofing membrane using fastening plates or metal battens centered within membrane splice and mechanically fasten roofing membrane to roof deck. Field-splice seam.

I. Install roofing membrane and auxiliary materials to tie in to existing roofing.

J. Proceed with installation only after unsatisfactory conditions have been corrected.

6.6 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates in accordance with membrane roofing system manufacturer's written instructions.

B. Apply solvent-based bonding adhesive at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners per manufacturer’s installation instructions.

D. Clean seam areas and overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

F. Proceed with installation only after unsatisfactory conditions have been corrected.

6.7 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated. Heat-weld walkway products to substrate according to roofing system manufacturer's written instructions.

B. Roof-Paver Walkways: Install walkway roof pavers according to manufacturer's written instructions in locations indicated, to form walkways. Leave 3 inches (75 mm) of space between adjacent roof pavers.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

6.8 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.

B. Final Roof Inspection: Arrange for roofing system manufacturer's Registered Roof Observer (RRO) to inspect roofing installation on completion and submit report to Architect.

1. Notify Architect or Owner 48 hours in advance of date and time of inspection.

C. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
6.9 PROTECTION AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period.

B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075419
SECTION 07 6200

SHEET METAL FLASHING AND TRIM

PART 1  GENERAL

1.1  SUMMARY

A. Section Includes:
   1. Copings.
   2. Edge flashings.
   3. Scuppers, conductor heads and downspouts.
   5. Counterflashings at roof mounted equipment and utility penetrations.

B. Related Sections:
   1. Section 07 5400 - Thermoplastic Membrane Roofing
   2. Section 07 9200 - Joint Sealers.

1.2  REFERENCES

A. American Architectural Manufacturers Association (AAMA):
   1. 611 - Voluntary Specification for Anodized Architectural Aluminum.

B. ASTM International (ASTM):

1.3  SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Show locations, types and thicknesses of metal, profiles, dimensions, fastening methods, provisions for expansion and contraction, and joint details.

B. Sustainable Design Submittals:
   1. Recycled Content.
   2. Regional Materials.

1.4  QUALITY ASSURANCE

A. Design, fabricate, and install metal copings in accordance with ANSI/SPRI ES-1.

PART 2  PRODUCTS

2.1  MATERIALS

A. Aluminum Sheet:
   1. ASTM B209, alloy 3003, temper H14, 0.032 inch thick.
   2. Finish: Natural.

2.2  FABRICATION

A. Fabricate components in accordance with [SMACNA Manual.] [CDA Handbook.]

B. Fabricate corners in single units with minimum 18 inch long legs.

C. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

D. Form sections accurate to size and shape, square and free from distortion and defects.

E. Provide for thermal expansion and contraction in sheet metal:
   1. Other sheet metal:
a. Provide expansion joints in sheet metal exceeding 15 feet in running length.
b. Place expansion joints at 10 feet on center maximum and maximum 2 feet from corners and intersections.

2. Joint width: Consistent with types and sizes of materials, minimum width 1/4 inch.

F. Fabricate expansion joints in metal copings with backing and cover plates formed to flashing profile, minimum 8 inches long.

G. Unless otherwise indicated, provide minimum 3/4 inch wide flat lock seams; lap in direction of water flow.

H. Fabricate cleats and starter strips of same material as sheet metal.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install cleats and starter strips before starting installation of sheet metal. Fasten at 6 inches on center maximum.

B. Expansion Joints in Metal Copings:
   1. Center backing plate between flashing pieces at end joints.
   2. Apply two continuous beads of joint sealer between backing plate and flashing sections at each end.
   3. Install flashing pieces with 1/2 inch expansion space at abutting ends; apply sealer to expansion space.
   4. Apply two continuous beads of joint sealer between cover plate and flashing sections at each end.

C. Secure flashings with concealed fasteners where possible.

D. Apply plastic cement between metal and bituminous flashings.

E. Fit flashings tight, with square corners and surfaces true and straight.

F. Seam and seal field joints.

G. Separate dissimilar metals with bituminous coating or non-absorptive gaskets.

H. Downspouts:
   1. Secure with straps spaced maximum 8 feet on center and within 2 feet of ends and elbows.
   2. Flash downspouts into conductor heads and fasten.
   3. Flash upper sections into lower sections minimum 2 inches at joints; fasten sections together.

I. Apply joint sealers as specified in Section 07 9200.

3.2 CLEANING

A. Clean sheet metal; remove slag, flux, stains, spots, and minor abrasions without etching surfaces.

END OF SECTION
PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Joint backup materials.
   2. Joint sealers.

1.2 REFERENCES

A. ASTM International (ASTM):

1.3 SUBMITTALS

A. Submittals for Review:
   1. Product Data: Indicate sealers, primers, backup materials, bond breakers, and accessories proposed for use.

B. Sustainable Design Submittals:
   1. Regional Materials.
   2. Low-Emitting Materials.

1.4 QUALITY ASSURANCE

A. Maximum Volatile Organic Compound (VOC) Content; interior sealers and accessories:
   1. Sealants: 250 grams per liter.
   2. Primers for non-porous substrates: 250 grams per liter.
   3. Primers for porous substrates: 775 grams per liter.

1.5 PROJECT CONDITIONS

A. Do not apply sealers at temperatures below 40 degrees F unless approved by sealer manufacturer.

PART 2 PRODUCTS

2.1 MATERIALS

A. Joint Sealer Type 1:
   1. ASTM C920, Grade NS, single component butyl rubber type, non sag.
   2. Movement capability: Plus or minus 12-1/2 percent.
   3. Color: To be selected from manufacturer's full color range, match adjacent finish.

B. Joint Sealer Type 2:
   1. ASTM C920, Grade NS, single component silicone, non sag, mildew resistant.
   3. Color: To be selected from manufacturer's full color range, match adjacent finish.

2.2 ACCESSORIES

A. Primers, Bondbreakers, and Solvents: As recommended by sealer manufacturer.

B. Joint Backing:
1. ASTM C1330, closed cell polyethylene foam, preformed round joint filler, non absorbing, non staining, resilient, compatible with sealer and primer, recommended by sealer manufacturer for each sealer type.

2. Size: Minimum 1.25 times joint width.

PART 3 EXECUTION

3.1 PREPARATION

A. Remove loose and foreign matter that could impair adhesion. If surface has been subject to chemical contamination, contact sealer manufacturer for recommendation.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Protect adjacent surfaces with masking tape or protective coverings.

D. Sealer Dimensions:
   1. Minimum joint size: 1/4 x 1/4 inch.
   2. Joints 1/4 to 1/2 inch wide: Depth equal to width.
   3. Joints over 1/2 inch wide: Depth equal to one half of width.

3.2 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Install sealers and accessories in accordance with ASTM C1193.

C. Install joint backing to maintain required sealer dimensions. Compress backing approximately 25 percent without puncturing skin. Do not twist or stretch.

D. Use bondbreaker tape where joint backing is not installed.

E. Fill joints full without air pockets, embedded materials, ridges, and sags.

F. Tool sealer to smooth profile.

G. Apply sealer within manufacturer’s recommended temperature range.

3.3 CLEANING

A. Clean adjacent surfaces.

END OF SECTION
SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES

PART 1  GENERAL

1.1  SUMMARY

A.  Section Includes:
   1.  Hollow steel doors and frames.

B.  Related Sections:
   1.  Section 08 7100 - Door Hardware.
   2.  Section 08 8000 - Glazing.

1.2  SUBMITTALS

A.  Sustainable Design Submittals:
   1.  Recycled Content.
   2.  Regional Materials.

1.3  QUALITY ASSURANCE

   1.  Grade: II - Heavy Duty – 16 gage
   3.  Exterior doors: Maximum thermal transmittance U-value of 0.50, tested to ASTM C518.

B.  Frames: ANSI/SDI A250.8, Grade II - Heavy Duty – 16 gage.

1.4  DELIVERY, STORAGE AND HANDLING

A.  Ship door frames with removable angle spreader; do not remove until frame is installed.

B.  Store doors upright in protected, dry area, off ground or floor, with at least 1/4 inch space between individual units.

PART 2  PRODUCTS

2.1  MANUFACTURERS

A.  Acceptable Manufacturers:
   1.  Steelcraft.  (www.steelcraft.com)

2.2  MATERIALS

A.  Steel Sheet:
   1.  ASTM A1008/1008M, cold rolled.
   2.  Recycled content: Minimum percent, with minimum percent classified as post-consumer as shown on drawings

B.  Door Core:

2.3  FABRICATION

A.  Fabricate doors and frames in accordance with ANSI/SDI A250.8.

B.  Fabricate exterior doors and frames from galvanized steel sheet.
C. Doors:
   1. Fabricate from minimum 16 gage sheets.
   2. Close top and bottom edges of doors with steel channel, minimum 16, gage, extending full width of door, and spot welded to both faces, with top channel flush and bottom channel recessed.

D. Frames:
   1. Fabricate from minimum 16 gage sheets.
   2. Provide self-aligning tabs and slots to hold corners in alignment.
   3. Anchors:
      a. Provide one anchor at each jamb for each 30 inches of door height.
      b. Provide one floor anchor welded to each jamb.

E. Accurately form to required sizes and profiles.

F. Do not use metallic filler to conceal manufacturing defects.

G. Fabricate with internal reinforcement for hardware specified in Section 08 7100; weld in place.

H. Design Clearances:
   1. Between door and frame: Maximum 1/8 inch.
   2. Undercut:
      b. Between face of door and stop: 1/16 to 3/32 inch.

I. Manufacturing Tolerances: In accordance with SDI-117.

2.4 FINISHES

   A. Dress tool marks and surface imperfections to smooth surfaces.
   B. Clean and chemically treat steel surfaces.
   C. Touch up damaged metallic coatings.
   D. Apply manufacturer's standard rust inhibiting primer paint, air-dried or baked on, meeting requirements of ANSI/SDI A25010.

PART 3 EXECUTION

3.1 INSTALLATION

   A. Install doors and frames in accordance with ANSI/SDI A250.11.
   B. Set plumb and level.
   C. Secure to adjacent construction using fastener type best suited to application.

3.2 ADJUSTING

   A. Touch up minor scratches and abrasions in primer paint to match factory finish.

END OF SECTION
PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Wood veneer faced flush doors.

B. Related Sections:
   1. Section 08 7100 - Door Hardware.

1.2 REFERENCES

A. Window and Door Manufacturers Association (WDMA) - I.S.1A - Industry Standard for Architectural Flush Wood Doors.

1.3 SUBMITTALS

A. Sustainable Design Submittals:
   1. Recycled Content.
   2. Regional Materials.

1.4 DELIVERY, STORAGE AND HANDLING

A. Package doors in heavy plastic with identifying marks; slit plastic wrap on site to permit ventilation, but do not remove from plastic until ready to install.

B. Do not deliver doors until building is substantially water and weather tight.

C. Store doors flat and level, with spacers between doors to allow for air circulation, in protected, dry area.

D. Environmental Requirements: Maintain following conditions in building for minimum 7 days prior to, during, and after installation of doors:
   1. Temperature: 60 to 80 degrees F.
   2. Humidity: 25 to 55 percent.

PART 2 PRODUCTS

2.1 MATERIALS

A. Flush Wood Doors:
   1. WDMA I.S.1A.
   2. Core type:
      a. Solid, non-rated: Type PC - Particleboard Core, bonded,
   3. Wood veneer faces:
      a. Closed grain hardwood, of quality suitable for opaque finish.
      b. Certified to FSC STD-04-004.

2.2 FABRICATION

A. Fabricate doors in accordance with WDMA I.S.1A.
   1. Performance duty level: Heavy Duty.
   2. Number of plies: 5.
   3. Veneer matching:
PART 3 EXECUTION

3.1 PREPARATION

A. Condition doors to average humidity that will be encountered after installation.

3.2 INSTALLATION

A. Install doors in accordance with WDMA I.S.1A.

B. Install doors plumb and level.

C. Field Fitting to Frames:
   1. Non-rated doors:
      a. Width: Cut hinge and lock edges equally.
      b. Height: Cut bottom edge only; maximum 3/4 inch.
   2. Edge clearances:
      a. Jambs and head: 1/8 inch maximum between door and frame.
      b. Sills without thresholds: 1/8 inch maximum between door and top of finish floor.
   3. Lock edge: Bevel 1/8 inch in 2 inches.
   4. Do not cut doors down to opening sizes smaller than those for which they were manufactured.

D. Installation Tolerances:
   1. Warp: Maximum 1/4 inch in any 3'-0" x 7'-0" portion of door, measured with taut string or straight edge on concave face of door.

END OF SECTION
SECTION 08 2113
PLASTIC FACED SOLID CORE METAL CLAD DOOR

PART 2 GENERAL

3.3 SUMMARY

A. Related Sections:
   1. Section 08 7100 - Door Hardware.

3.4 SUBMITTALS

A. Sustainable Design Submittals:
   1. Recycled Content.
   2. Regional Materials.

PART 4 PRODUCTS

4.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Eliason Corporation, Kalamazoo, MI

4.2 MATERIALS

A. Door Body
   1. .063” thick tempered aluminum alloy with delta formed vertical edges.
   2. Recycled content: Minimum percent, with minimum percent classified as post-consumer as shown on drawings

4.3 FINISHES

A. Door to have Wilsonart 7960K-18 Studio Teak laminate on both sides, linearity finish.
B. Stainless steel base plate on both sides
C. “Wheelchair” clear acrylic safety window set in black rubber, 9 inches by 30 inches.

PART 5 EXECUTION

5.1 INSTALLATION

A. Install doors and frames in accordance with manufacturer’s specifications and as shown on the Drawings.

END OF SECTION
1.1 SUMMARY

A. Section Includes:
   1. Aluminum entrance doors and frames.
   2. Aluminum framed glazed storefronts.
   3. Glass infill panels.
   4. Door hardware.

B. Related Sections:
   1. Section 07 9200 - Joint Sealers.
   2. Section 08 7100 - Door Hardware.
   3. Section 08 8000 - Glazing.

1.2 REFERENCES

A. American Architectural Manufacturers Association (AAMA):
   1. 611 - Voluntary Specification for Anodized Architectural Aluminum.

B. ASTM International (ASTM):

1.3 SYSTEM DESCRIPTION

A. Design Requirements: Design exterior systems to withstand:
   1. Design wind pressure in accordance with ASCE 7, Building Code, tested in accordance with ASTM E330.
   2. Movement caused by an ambient temperature range of 120 degrees F and a surface temperature range of 160 degrees F.

B. Performance Requirements:
   1. Air infiltration, tested to ASTM E283.
      a. Entrances:
         1) Single door: Maximum 0.5 CFM per minute per linear foot of perimeter crack, at static pressure differential of 6.24 PSF.
         b. Storefront: 0.06 CFM per square foot of fixed area at static pressure differential of 6.24 PSF.
   2. Water infiltration: No uncontrolled water leakage, tested to ASTM E331 at minimum test pressure of 6.24 PSF for inswing doors and 8.0 PSF for outswing doors and storefront.
   3. Uniform structural loading: No glass breakage or permanent damage to fasteners or system components, tested to ASTM E330 at 1.5 times design pressure.
   4. Thermal transmittance due to conduction (Uc): Maximum 0.60, tested to AAMA 1503 on two 6'-0" x 6'-0" units with 1 inch clear insulating glass.

1.4 SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, trim, sealers, hardware, and accessories.

B. Sustainable Design Submittals:
1. Recycled Content.
2. Regional Materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS
A. Acceptable Manufacturers:
   1. United States Aluminum
   2. YKK AP America, Inc. (www.ykkap.com)

2.2 MATERIALS
A. Aluminum:
   1. Extrusions: ASTM B221, 6063-T5 alloy and temper.
   2. Sheet: ASTM B209, alloy and temper best suited to application.
   3. Recycled content: Minimum percent, with minimum percent classified as post-consumer as shown on drawings.

2.3 COMPONENTS
A. Entrances Doors: Narrow stile configuration with nominal 2 inch vertical stiles and top rail and 10 inch bottom rail.
B. Storefront: Flush glazing system designed to receive 1 inch glass by means of elastomeric gaskets; 2 inch face width x 4-1/2 inch depth, center glass application, thermally broken.
C. Door Hardware: Specified in Section 08 7100.

2.4 ACCESSORIES
A. Fasteners:
   1. Series 300 stainless steel for wet locations and exposed fasteners.
   2. Stainless or fluoropolymer coated steel for other locations.
B. Joint Sealers: Specified in Section 07 9200.
C. Glass and Glazing Accessories: Specified in Section 08 8000.
D. Weatherstripping: Replaceable, nonporous synthetic wool pile type.

2.5 FABRICATION
A. Fabricate with minimal clearances and shim spaces around perimeter.
B. Accurately fit and secure joints and intersections. Make joints flush, hairline, and weathertight.
C. Fabricate in largest practical units.
D. Conceal fasteners and attachments from view.
E. Fabricate aluminum components with integral low conductance thermal barrier located between exterior and interior exposed components that eliminates metal-to-metal contact.
F. Doors:
   1. Mechanically fastened and welded corner construction.
   2. Fabricate stiles and rails of minimum 0.188 inch thick extrusions and glass stops from minimum 0.050 inch thick extrusions.
   3. Provide weatherstripping at door head, jambs, meeting stiles, and sills.
   4. Prepare with internal reinforcements for door hardware.
2.6 FINISHES

A. Aluminum: AAMA 611, Architectural Class I anodized to 0.0007 inch minimum thickness, Dark Bronze Anodized.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved Shop Drawings.

B. Install components plumb and level, in proper plane, free from warp and twist.

C. Anchor to supporting construction.

D. Set thresholds and sill members exposed to weather in mastic and secure.

E. Install hardware using templates provided by manufacturer.

F. Install glass and accessories in accordance with Section 08 8000.

G. Installation Tolerances:
   1. Maximum variation from plumb or level: 1/8 inch in 3 feet or 1/4 inch in any 10 feet, whichever is less.
   2. Maximum misalignment of members abutting end to end: 1/32 inch.
   3. Sealant space between framing members and adjacent construction: 1/2 inch plus or minus 1/8 inch.

3.2 ADJUSTING

A. Adjust hardware for smooth operation.

B. Adjust doors to operate with maximum opening forces in accordance with applicable accessibility code.

C. Touch up minor scratches and abrasions to match original finish.

D. Adjust weatherstripping to contact appropriate surfaces and form weather seal.

END OF SECTION
SECTION 08 5619
DRIVE-THRU WINDOW

PART 1 GENERAL

1.1 WORK INCLUDED

A. Furnish all labor, material, service and equipment necessary to complete the installation of the Drive-Thru window as detailed on the Drawings and specified in this Section.

B. Related work specified elsewhere

1. Section 16 7600 Approved Drive-Thru Speaker System
2. Section 07 9200 Caulking
3. Section 04 4118 Aluminum Storefront
4. Section 08 8000 Glazing

PART 2 - PRODUCTS

2.1 DRIVE-THRU WINDOW

A. Shall be as manufactured by Ready-Access of West Chicago, Illinois or Quickserve of Houston, TX - See National Account Source Information for ordering information.

C. Ready-Access Bump-Out 10, shall meet the following criteria:

1. Total overall dimension 53-1/2 in. wide by 48-3/4 in. high.
2. Window opening size 18 in. wide by 23 in. high, adjustable to 12 in. wide x 23 in. high.
4. Continuous extruded head section concealing operating mechanism, track and wheels.
5. Sliding panel supported by high quality ground ball bearing wheels rolling on a replaceable nylon covered support track.
6. Anti-derailing feature being a continuous extrusion extended full length of window travel.
7. Adjustable astragal with double Mohair weather strip provided on strike rail of sliding panel.
8. Vertical and horizontal rails have Mohair weather stripping.
9. 7 in. smooth sill.
10. Sliding window automatically opens horizontally when the server steps into the range of the window scan control Window remains open as long as server stays in scan beam. Window closes once server steps away from window scan beam.
11. Window can be opened manually if power goes off.
12. Operator is furnished with a maximum-security bolt lock.
13. Glass shall be 1/4 in. tempered glass as specified in Section 08800.
14. System can include an Autolock and a partial open cutoff switch (for limiting slide opening) (optional).
15. Installation by local Ready-Access Distributor (optional).
16. One (1) year warranty on parts and labor.
17. Prepaid freight to job site.
18. Color to match storefront

D. Optional models #131-6 (flush mount, bi-parting) and #275 (flush mount, single parting) also available for situations where bump out model cannot be used. See National Account Source Information for complete specifications.

E. Optional Quickserve model are available – see National Accounts

PART 3 - EXECUTION

3.1 INSTALLATION OF DRIVE-THRU WINDOW

A. Aluminum placed in contact with dissimilar material, including steel, concrete, cinder block, tile or other masonry material shall be back-painted with an approved bituminous paint.
B. All joints between metal and masonry shall be fully caulked in order to secure a watertight job with Dymeric 511 (multi-component chemically cured polyurethane) as manufactured by Tremco Manufacturing Company, Beechwood, Ohio. Apply in strict accordance with manufacturer’s directions. Joints shall be neatly pointed and excess shall be removed. Set filler plates in caulking.

3.2 PROTECTION AND CLEANING

A. Drive-Thru Window shall be protected during construction and after installation to prevent injury and/or staining. All aluminum work shall be thoroughly cleaned upon completion of the work. Do not use abrasive cleaning agents.

END OF SECTION
PART 1  GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Hardware for steel, wood, and aluminum doors.
   2. Weatherstripping and thresholds.
   3. Hardware for other sections referencing this section.

1.2 REFERENCES

A. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI/BHMA):
   1. A156.1 - Butts and Hinges.
   2. A156.2 - Bored and Preassembled Locks and Latches.
   3. A156.3 - Exit Devices.
   4. A156.4 - Door Controls - Closers.
   5. A156.13 - Mortise Locks and Latches.
   6. A156.18 - Materials and Finishes.

PART 2  PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers - Butt Hinges:
   1. Hager Companies. (www.hagerco.com)

B. Acceptable Manufacturers - Locksets, Latchsets, Deadbolts, and Cylinders:
   1. Hager Companies. (www.hagerco.com)

C. Acceptable Manufacturers - Closers:
   1. Hager Companies. (www.hagerco.com)

D. Acceptable Manufacturers - Door Seals:
   1. Hager Companies. (www.hagerco.com)

2.2 MANUFACTURED UNITS

A. Butt Hinges:
   1. Description: ANSI/BHMA A156.1, full mortise type, five knuckle, non-rising pin, hole in bottom tip for pin removal.
   2. Exterior outswinging doors: Provide set screw in barrel making hinge non-removable when door is closed.
   4. Bearing type: Ball bearing
   5. Size: 4-1/2 x 4-1/2 inches.

B. Locksets, Latchsets, Deadbolts, and Cylinders:
   1. Locksets and latchsets:
      a. Type: ANSI/BHMA A156.2, Grade 1, cylindrical, key-in-lever handles.
   2. Deadbolts:
      a. Type: ANSI/BHMA A156.5, cylindrical type with 1 inch bolt throw.
      b. Functions: As scheduled.
   3. Strike plates: Curved lip, minimum lip projection necessary to protect door frame and trim and to conceal edges of strike cutout.
   4. Strike boxes: Steel.
   5. Cylinders: Six pin, solid brass.
   7. Keying:
a. Construction key locks.
b. Key alike, cross key, or otherwise key as directed by Owner.
c. Provide four keys for each lock.
d. Inscribe keys with lock manufacturer.

C. Closers:
   1. Description: ANSI/BHMA A156.4, overhead exposed, field adjustable to door conditions.
   2. Construction: Cast aluminum body, rack and pinion operation with compression spring, fully hydraulic.
   3. Closing and latching speeds and backcheck: Controlled by independently adjustable concealed valves.
   4. Mounting: Surface mounted, non-handed with universal regular or parallel arm. Suitable for mounting on 1-3/4 inch minimum door top rail or transom bar without drop plate.
   5. Adjustable opening force and delayed closing in accordance with applicable accessibility code.

D. Door Stops: Floor mounted, aluminum housing with resilient bumper.

E. Kick Plates:
   1. Type: .125 inch plastic laminate, beveled edges, secured with flathead countersunk screws.
   2. Size: 8 inches high x door width less 2 inches.

F. Flush Bolts: Manual type, 12 inches long, with dustproof strike.

2.3 FINISHES
A. Finishes: To ANSI/BHMA A156.18.
B. Door Closers: Finish No. 689, silver enamel.
C. Thresholds and Door Seal Housings: Clear anodized.
D. Other: Finish No. 626, satin chrome plated.

PART 3 EXECUTION
3.1 INSTALLATION
A. Install hardware in accordance with approved hardware schedule and manufacturer's instructions.
B. Install mortise items flush with adjacent surfaces.
C. Install locksets, closers, and trim after finish painting.
D. Set thresholds in mastic and secure.
E. Mount closers so that closers and closer arms are not visible on corridor or public side of doors or on exterior of building.
F. Mounting Heights – see Drawings.

3.2 PROTECTION
A. Remove or protect hardware until painting is completed.

3.3 ADJUSTING
A. Test and adjust hardware for quiet, smooth operation, free from binding and rattling.
B. Adjust doors to operate with maximum opening forces in accordance with applicable accessibility code.

3.4 SCHEDULE
A. Set No. 1 - Door from Sales Area to Exterior. (See door schedule and floor plan for quantity, size and direction of swing.)
   1. Temporary cylinder, Hager 3901 or 3902 as required.
   2. Hager 5200 MLT 1-6 DLY ALM (Handicap Access) door closers
   3. Offset pivots
   4. Adams Rite MS 1850A deadlock
   5. Manufacturer's standard push/pull hardware. Refer to drawings for doors which are to be prepared for custom “D” handles. Refer to National Accounts for ordering and installation information.
   6. Hager 404S MIL ¼” x 4” threshold

B. Set No. 2 - Doors from Toilets to Hall. (See door schedule and floor plan for quantity, size and direction of swing.)
   1. 1-1/2 pair butts, Hager, BB-1279 26D
   2. 1 lockset, Hager 3440 WTN US26D
   3. 1 floor stop, Hager 241F US26D
   4. 1 kick plate, Hager 214S Black 10” x 2” L.W.O.D. Local barrier free code may require larger kick plates – verify before ordering.
   5. 1 closer, Hager 5200 MLT 1-6 ALM

C. Set No. 3 - Door from Storage to Exterior. Metal door and frame. (See door schedule and floor plan for quantity, size and direction of swing.)
   1. 3 ea. hinges, Hager BB1191 32D
   2. 1 lockset, Hager 3495 WTN US26D
   3. 1 closer, Hager 5100 PA 1-6 HDHOS ALM
   4. 1 threshold, Hager 413S MIL
   5. 1 sweep, Hager 802S B Mil
   6. 1 holder/stop, Hager 268S US26D
   7. 1 set w/stripping, Hager 800S B MIL
   8. 1 lock guard, Hager 341D 32D
   9. 1 door viewer, Hager 1756 US26D
   10. Alternate door viewer: Model #L-VGLF-WD, 9” x 5”, National Guard Products

END OF SECTION
PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Glass for other sections referencing this Section.

1.2 REFERENCES


B. ASTM International (ASTM):

C. National Fenestration Rating Council (NFRC):
   1. 100 - Procedure for Determining Fenestration Product Thermal Properties.

1.3 SUBMITTALS

A. Sustainable Design Submittals:
   1. Recycled Content.
   2. Regional Materials.

1.4 PROJECT CONDITIONS

A. Perform glazing when ambient temperature is above 40 degrees F.

B. Perform glazing on dry surfaces.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers - Glass:
   1. PPG Industries, Inc. (www.ppgglazing.com).
   2. Pilkington Architectural. (www.pilkington.com)

2.2 MATERIALS - GLASS

A. Clear Glass: ASTM C1036, Type 1 transparent flat, Class 1 clear, Quality q3 glazing select.

B. Clear Tempered Glass: ASTM C1048, Type 1 transparent flat, Class 1 clear, Quality q3 glazing select, Kind FT fully tempered.

C. Recycled Content: Minimum percent recycled glass content, classified as post-industrial as shown on drawings.

2.3 ACCESSORIES
A. Setting Blocks: ASTM C864, neoprene or EPDM, or ASTM C1115, silicone; 80 to 90 Shore A durometer hardness.

B. Spacers: ASTM C864, neoprene or EPDM, or ASTM C1115, silicone; 50 to 60 Shore A durometer hardness.

C. Glazing Gaskets:
   1. Dense compression gaskets: ASTM C864, neoprene or EPDM, or ASTM C1115, silicone or thermoplastic polyolefin rubber, molded or extruded shape to fit glazing channel retaining slot; black color.
   2. Soft compression gaskets: ASTM C509, Type II, black, molded or extruded, neoprene, EPDM, silicone or thermoplastic polyolefin rubber, of profile and hardness required to maintain watertight seal; black color.

2.4 FABRICATION

A. Tempered Glass:
   2. Process in horizontal position so that inherent roller distortion will run parallel to building floor lines after installation.

B. Sealed Insulating Glass:
   2. Fabricate spacer bar frame of tubular aluminum filled with desiccant.
   3. Bond spacer bar frame to glass panes with twin primary seals.
   4. Fill space outside frame to glass edge with elastomeric sealant.

C. Laminated Glass:
   2. Laminate glass with laminating film by manufacturer's standard heat and pressure process.
   3. Cut glass to required size at factory.
   4. Discard glass with voids, delamination, or entrapped dirt or foreign matter.

D. Low-E Coated Glass: Apply low-emissivity coating to scheduled glass surface.

PART 3 EXECUTION

3.1 PREPARATION

A. Clean glazing rabbets; remove loose and foreign matter.

B. Remove protective coatings on metal surfaces.

C. Clean glass just prior to installation.

3.2 INSTALLATION - GENERAL

A. Install glass in accordance with glass manufacturer's instructions.

B. Maintain manufacturer's recommended edge and face clearances between glass and frame members.

3.3 INSTALLATION - GASKET GLAZING METHOD

A. Fabricate gaskets to fit openings; allow for stretching of gaskets during installation.

B. Set soft compression gasket against fixed stop or frame with bonded miter cut joints at corners.

C. Set glass centered in openings on setting blocks.
D. Install removable stops and insert dense compression gaskets at corners, working toward centers of glass, compressing glass against soft compression gaskets to produce weathertight seal.

E. Seal joints in gaskets.

F. Allow gaskets to protrude past face of glazing stops.

3.4 PROTECTION

A. After installation, mark glass with an ‘X’ using removable plastic tape.

3.5 SCHEDULE

A. All Sales Area Primary Glass - 1 in. insulating glass, 1/2 in. air space with 1/4 in. clear polished plate for outdoor and indoor lights.
B. All Drive-Thru Glazing – ¼ in. Low-E Glass, ½ in. air space with ¼ in. clear float glass for outboard light.
C. Entrance Doors - 1 in. insulated and tempered glass.
D. Provide tempered or safety glass for indoor and outdoor glass areas where required by building codes.
E. Insulating glass units shall provide a min. U-value of .49 winter and .56 summer and shall comply with all requirements of the local governing energy code.

END OF SECTION
SECTION 09 2900

GYPSUM BOARD

PART 1   GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Gypsum board.
   2. Cementitious panels.
   3. Taping and bedding of gypsum board.

B. Related Sections:
   1. Section 07 9200 - Joint Sealers.

1.2 REFERENCES

A. ASTM International (ASTM):

B. Gypsum Association (GA):
   2. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board.

1.3 SUBMITTALS

A. Sustainable Design Submittals:
   1. Recycled Content.
   2. Regional Materials.

1.4 PROJECT CONDITIONS

A. Do not install gypsum board until building is substantially weathertight.

B. Maintain temperature in spaces in which work is being performed above 50 degrees F during and after installation.

PART 2   PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers - Gypsum Panels:
   1. CertainTeed Gypsum, Inc. (www.certainteed.com)
   2. GP Gypsum Corporation. (www.gp.com)
   4. Temple-Inland. (www.templeinland.com)
   5. USG Corporation. (www.usg.com)

B. Acceptable Manufacturers - Cementitious Panels:
2.2 MATERIALS - GYPSUM PANELS

A. Regular Gypsum Board: ASTM C1396; 48 inches wide x thickness indicated, maximum practical length, tapered edge.

B. Fire Resistant Gypsum Board: ASTM C1396, Type X; 48 inches wide x thickness indicated, maximum practical length, tapered edge; apply to fire rated assemblies.

C. Water Resistant Gypsum Board: ASTM C1396; 48 inches wide x thickness indicated, maximum practical length, water resistant; apply to walls to receive tile, sanitary wall panels and walls at locations specified on drawings.

D. Fire Resistant, Water Resistant Gypsum Board: ASTM C1396, Type X; 48 inches wide x thickness indicated, maximum practical length, water resistant; apply to walls to receive tile, sanitary wall panels and walls at locations specified on drawings.

E. Recycled Content: Gypsum wallboard shall contain recycled content material as follows:
   Paper facings: a minimum of 100% post-consumer recycled paper content. Gypsum cores: Where feasible, a minimum of 10% post-industrial recycled gypsum content. The percentage of recycled content is based on the weight of the component materials.

2.3 MATERIALS - CEMENTITIOUS PANELS

A. Cementitious Panels: ANSI A 118.9, high density, cementitious with glass fiber reinforcing, 5/8 inch thick x 48 inches wide, maximum practical length, ends and edges square cut; apply to walls in locations as indicated on drawings.

2.4 ACCESSORIES

A. Fasteners: ASTM C1002, Type W screws, minimum 5/8 inch penetration into framing.

B. Adhesive:
   1. Type recommended by gypsum panel manufacturer.

   1. Material: Formed steel, minimum 26 gage core steel, hot dip galvanized finish, expanded flanges.
   2. Corner reinforcement: GA-216, Type CB-100 x 100.
   3. Casing: GA-216, Type LC.
   4. Control joint.

D. Joint Treatment Materials:
   1. Reinforcing tape and joint compound; ASTM C475.
   2. Joint compound; maximum volatile organic compound (VOC) content: 250 grams per liter.

PART 3 EXECUTION

3.1 INSTALLATION OF GYPSUM PANELS

A. Install panels and accessories in accordance with ASTM C754, GA-216, and manufacturer's instructions.

B. Accurately cut panels to fit around openings and projections. Do not tear face paper or break gypsum core.

C. Apply panels at non fire-rated assemblies in most economical manner, with ends and edges occurring over supports.
D. Apply panels at fire-rated assemblies as required by design assembly.

E. Stagger joints on opposite sides of partitions.

F. Do not locate joints to align with edges of openings unless a control joint is installed.

G. Mechanically fasten single layer panels to framing. Place fasteners minimum 3/8 inch from edges of panels; drive heads slightly below surface. Stagger fasteners at abutting edges.

H. Apply face layer of double layer applications with joints offset from those in base layer; secure with mechanical fasteners to framing or with adhesive to base layer.

I. At deflection compensating head tracks, cut panels 1/2 inch short of structure at head; do not secure panels to top runner channel.

J. Treat cut edges and holes in moisture resistant gypsum board with joint sealer.

K. Where recessed items occur in fire rated partitions, box item on all sides with gypsum board as required to maintain continuity of fire rating.

3.2 INSTALLATION OF CEMENTITIOUS PANELS

A. Install in accordance with ANSI A108.11 and manufacturer's instructions.

B. Apply panels horizontally, with ends occurring over supports. Stagger end joints in adjacent rows.

C. Cut panels to fit around openings and projections.

D. Mechanically fasten panels to framing at maximum 12 inches on center.

3.3 INSTALLATION OF ACCESSORIES

A. Install in accordance with manufacturer's instructions.

B. Install corner reinforcement at outside corners. Use single lengths where length of corner does not exceed standard length.

C. Install casings where indicated and where gypsum board abuts dissimilar materials or stops with edge exposed.

D. Install control joints at walls and partitions:
   1. At changes in backup material.
   2. At maximum 30 feet on center.
   3. Above one jamb of openings in partitions.

3.4 JOINT TREATMENT

A. Treat joints and fasteners in gypsum board in accordance with GA-214.

B. Levels of Finish:
   1. Surfaces in service areas: Level 1 finish.
   2. Surfaces to receive tile: Level 2 finish.
   3. Surfaces to receive wall coverings: Level 4 finish.
   4. Surfaces to receive semigloss or gloss paints: Level 5 finish.

END OF SECTION
SECTION 09 3000
TILING

PART 1  GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Ceramic, Porcelain and Quarry tile floor and wall finishes.

B. Related Sections:
   1. Section 03 3000 - Cast-in-Place Concrete
   2. Section 07 9200 - Joint Sealers.
   3. Section 09 6723 - Resinous Flooring

1.2 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 10 years' experience in work of this Section.

B. Tile and Trim Units: Meet ANSI A137.1, Standard Grade.

C. Static Coefficient of Friction for Floor Tile: Minimum 0.60, tested to ASTM C1028 in dry condition.

1.3 DELIVERY, STORAGE AND HANDLING

A. Deliver mortar, adhesive, and grout containers bearing hallmark certifying compliance with reference standards.

B. Protect adhesive containers from freezing and overheating according to manufacturer's instructions.

1.4 PROJECT CONDITIONS

A. Environmental Requirements: Maintain minimum ambient temperature of 50 degrees F during and after installation.

1.5 MAINTENANCE

A. Extra Materials: 2 percent of each tile.

PART 2  PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers - Tile:
   1. Dal-Tile Corp. (www.daltileproducts.com)

B. Acceptable Manufacturers - Setting and Grouting Materials:
   1. Custom Building Products (www.custombuildingproducts.com)

C. Substitutions: Not permitted.

2.2 MATERIALS

A. Tile:
   1. Size: As indicated on drawings.
   2. Color: As indicated on drawings.
   3. Trim units: Beads, coves, and bullnoses, color to match tile.

2.3 ACCESSORIES

A. Latex-Portland Cement Mortar: ANSI A118.4, polymer modified dry set type.
B. Dry Set Portland Cement Mortar: ANSI A118.1, polymer modified dry set type.

C. Epoxy Adhesive:
1. ANSI A118.3, thin set bond type.

D. Portland Cement: ASTM C150, Type 1, white color.

E. Sand: ASTM C144, clean, free of organic matter.

F. Lime: ASTM C207, Type S, hydrated.

G. Water: Clean, potable.

H. Grout:
1. A118.3, epoxy type.
2. Color: As indicated on drawings.

I. Joint Sealers: Specified in Section 07 9200.

J. Joint Tape: Waterproof, perforated bedding tape.

PART 3  EXECUTION

3.1 PREPARATION

A. Clean surfaces to remove loose and foreign matter that could impair adhesion.

B. Remove ridges and projections. Fill voids and depressions with patching compound compatible with setting materials.

C. Allowable Substrate Tolerances:
1. Thin set method:

D. Test concrete substrate to ASTM D4263; do not install tile until surfaces are sufficiently dry.

3.2 INSTALLATION

A. Install crack suppression membrane in accordance with manufacturer’s instructions.

B. Methods:
1. Walls: ANSI A108.6, thin set with epoxy adhesive.

C. Minimize pieces less than one half size. Locate cuts to be inconspicuous.

D. Lay tile to pattern shown on Drawings. Do not interrupt tile pattern through openings.

E. Joint Widths:
1. Ceramic tile: 1/8 inch, plus or minus 1/16 inch.
2. Porcelain and Quarry tile: 1/4 inch, plus or minus 1/8 inch.

F. Make joints watertight, without voids, cracks, excess mortar, or excess grout. Align joints in wall and floor of same-sized tile.

G. Fit tile around projections and at perimeter. Smooth and clean cut edges. Ensure that trim will completely cover cut edges.
H. Install Trim:
   1. Inside corners: Cove units.
   2. Outside corners: Bead units.
   3. Base: Base units.
   4. Exposed tile ends: Bullnose units.

I. Allow tile to set for a minimum of 48 hours before grouting.

J. Grout tile joints in accordance with ANSI A108.10 without excess grout.

K. Control Joints:
   1. Provide control joints at:
      a. Changes in backup material.
      b. Changes in plane.
      c. Over joints in substrate.
      d. Maximum 24 feet on center at interior locations except maximum 8 feet at surfaces exposed to direct sunlight.
   2. Form joints per TCNA Method EJ-171.
   3. Install joint backing and joint sealer as specified in Section 07 9200.

3.3 ADJUSTING
   A. Remove and replace pieces that have been damaged during installation.

3.4 PROTECTION
   A. Provide protection for completed work using non-staining sheet coverings.
   B. Prohibit traffic on tile floors for minimum 3 days after installation.
PART 1  GENERAL

1.1  SUMMARY

A. Section Includes:
   1. Suspended metal ceiling grid system.
   2. Acoustical panels.

1.2  SUBMITTALS

A. Sustainable Design Submittals:
   1. Recycled Content.
   2. Regional Materials.

1.3  PROJECT CONDITIONS

A. Environmental Requirements: Install in approximately same conditions of temperature and humidity as will prevail after installation.

1.4  MAINTENANCE

A. Extra Materials: One unopened carton of each acoustical panel.

PART 2  PRODUCTS

2.1  MANUFACTURERS

A. Acceptable Manufacturers - Suspension System:
   1. Armstrong World Industries. (www.armstrong.com)

B. Acceptable Manufacturers - Acoustical Units:
   1. Armstrong World Industries. (www.armstrong.com)

C. Substitutions: Not permitted.

2.2  MATERIALS

A. Suspension Grid System:
   1. Grid type: Exposed T.
   3. Runners: 1-1/2 inches high, 15/16 inch exposed width, flush slotted profile.
   5. Finish: Factory applied enamel paint, sprayed and baked, white.
   6. Accessories: Stabilizer bars, clips and splices.

B. Acoustical Panels (Public Areas):
   1. Size: 24 x 48 inches x 3/4 inch thick.
   2. Edge configuration: Beveled.
   3. Performance requirements: Tested in accordance with ASTM E1264.
      a. NRC: 0.55.
      b. CAC: 35.
      c. Light reflectance: LR-0.84.

C. Acoustical Panels (Kitchen, Service Line and Food Areas):
   1. Size: 24 x 48 inches x 5/8 inch thick.
   2. Edge configuration: Square.
   3. Performance requirements: Tested in accordance with ASTM E1264.
      a. NRC: N/A
D. Recycled Content:
   1. Ceiling tiles contain 23% – 55% recycled content.
   2. Suspension systems contain 30% recycled content – 23% post-consumer, 7% pre-consumer.

2.3 ACCESSORIES

   A. Support Channels: Galvanized steel; size and type to suit application.
   B. Hanger Wire:
      1. ASTM A641, minimum 12 gage galvanized steel.
   C. Touch-Up Paint: Color to match acoustical panels and suspension grid.

PART 3 EXECUTION

3.1 INSTALLATION

   A. Install ceilings in accordance with ASTM C636 and CISCA Handbook.
   B. Minimize panels less than one half size.
   C. Install molding around perimeters and abutting surfaces. Miter molding at exterior corners; cut flanges and bend web to form interior corners.
   D. Space hanger wires maximum 48 inches on center. Install additional hangers where required to support light fixtures and ceiling supported equipment.
   E. Do not suspend hangers directly from metal deck. Attach steel channel horizontally to adjacent framing members; place hanger at regular spacing.
   F. Hang suspension system independent of walls, columns, ducts, pipes, and conduit.
   G. Where ducts or other equipment prevent regular spacing of hangers:
      1. Reinforce nearest related hangers to span extra distance, or:
      2. Suspend steel channel horizontally beneath duct or equipment; place hanger at regular spacing.
   H. Install main tees at maximum 48 inches on center.
   I. Install cross tees to form 24 x 48 inch modules. Lock cross tees to main tees.
   J. Support ends of tees on flange of perimeter molding.
   K. Place acoustical panels with edges resting flat on suspension grid.
   L. Cutting Acoustic Units:
      1. Cut to fit irregular grid and perimeter edge trim and around penetrations.
      2. Locate cuts to be concealed.
      3. Cut and field paint exposed edges of reveal edge units to match factory edge.
   M. Installation Tolerances: Ceilings level to 1/8 inch in 12 feet measured in any direction.

3.2 ADJUSTING

   A. Touch up minor scratches and abrasions to match factory finish.

END OF SECTION
SECTION 09 6723
RESINOUS FLOORING

PART 1   GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Liquid applied epoxy and aggregate floor finish.
   2. Divider strips.

1.2 REFERENCES

A. Material shall comply with the current editions of the applicable ASTM International (ASTM):

1.3 SUBMITTALS

A. Quality Control Submittals:
   1. Certificates of Compliance: Certification from an independent testing laboratory that flooring meets fire hazard classification requirements.

B. Sustainable Design Submittals:
   1. Regional Materials.

1.4 QUALITY ASSURANCE

A. Installer Qualifications:
   1. Approved by flooring manufacturer.

B. Static Coefficient of Friction: Minimum 0.60, tested to ASTM C1028 in dry condition.

1.5 DELIVERY, STORAGE AND HANDLING

A. Maintain minimum temperature of 55 degrees F in storage area unless otherwise instructed by manufacturer.

B. Store materials in installation area for 3 days prior to installation to achieve temperature stability.

1.6 PROJECT CONDITIONS

A. Maintain ambient temperature required by manufacturer 3 days prior to, during, and for 24 hours after installation of materials.

B. Fryer areas and rack wash areas receive a different Stonhard finish than the kitchen and other general flooring areas - refer to National Account Source Information for complete details.

1.7 WARRANTIES

A. Furnish manufacturer’s and applicator’s 2 year warranty providing coverage against flooring delamination from substrate and degradation of surface finish.

PART 2   PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Stonhard, Inc. (www.stonhard.com)

2.2 MATERIALS

A. Resinous Flooring:
   1. Binder: 100 percent solids epoxy, colored with mineral filler, refer to Finish Schedule for color.
   2. Aggregate: Graded quartz chips, granular, refer to Finish Schedule for color.
3. Top coat: Epoxy, Aliphatic polyurethane, clear.

2.3 ACCESSORIES

A. Cove Strips: Metal as recommended by flooring manufacturer.

B. Subfloor Filler: White, premixed, latex based, type recommended by flooring material manufacturer.

C. Primers, Adhesives, and Sealers: Types recommended by flooring manufacturer.

PART 3  EXECUTION

3.1 EXAMINATION

A. Verify that concrete floors have cured a minimum 28 days and do not exhibit negative alkalinity, carbonization, or dusting.

3.2 PREPARATION

A. Remove subfloor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with filler.

B. Prepare concrete substrates to receive flooring system by broom cleaning method to requirements of ASTM D4258.

C. Test substrate for moisture content to ASTM F1869; do not install flooring until moisture emission level is acceptable to flooring manufacturer.

D. Apply primer to substrate surfaces.

3.3 INSTALLATION

A. Install cove strip at floor to wall junction.

B. Apply flooring in accordance with manufacturer's instructions to minimum thickness of 1/4 inch.

C. Apply first coat of binder resin and allow to dry.

D. While binder is still wet, uniformly broadcast aggregate over wet binder.

E. After first coat has cured, apply second coat using same techniques as first coat.

F. Finish to smooth level surface.

G. After second coat has cured, apply top coat.

H. Cove flooring at vertical surfaces to a height of 6 inches.

3.4 PROTECTION

A. Prohibit traffic on floor finish for 48 hours after installation.

B. Barricade area to protect flooring until cured.

END OF SECTION
SECTION 09 7200

WALL COVERINGS

PART 1  GENERAL

1.1 SUMMARY
A. Section Includes:
   1. Vinyl wall coverings.

B. Related Sections:
   1. Section 09 7733 – Sanitary Wall Panels.
   2. Section 09 9100 – Painting.

1.2 SUBMITTALS

A. Sustainable Design Submittals:
   1. Recycled Content.
   2. Regional Materials.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 5 years’ experience in work of this Section.

1.4 DELIVERY, STORAGE AND HANDLING

A. Store materials in clean, dry storage area at minimum 40 degrees F and normal humidity.

B. Do not store rolls in upright position.

1.5 PROJECT CONDITIONS

A. Maintain minimum temperature of 50 degrees F in areas to receive wall covering for three days prior to, during, and after installation.

1.6 MAINTENANCE

A. Extra Materials: 5 percent of each color and pattern.

PART 2  PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. APA Color Graphics. (www.apacolorgraphics.com)

B. Substitutions: Not permitted.

2.2 MATERIALS

A. Vinyl Wall Covering:
   1. Manufacturer: See Section 2.1.

2.3 ACCESSORIES

A. Sealer: Type recommended by wall covering manufacturer.

B. Adhesive:
   1. Type recommended by wall covering manufacturer; water based, mildew resistant.

C. Patching Compound: White latex type.

PART 3  EXECUTION

3.1 PREPARATION
A. Prepare substrate to receive wall covering:
   1. Remove high spots.
   2. Fill holes, cracks, and depressions with patching compound; sand smooth and flush.
   3. Remove loose and foreign matter that could impair adhesion.
   4. Apply sealer as recommended by wall covering manufacturer.

B. Remove wall covering from packaging, place in installation area, and allow to acclimatize for minimum 24 hours prior to installation.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install panels vertically.

C. Do not locate joints within 6 inches of corners. Horizontal joints not permitted.

D. Smooth wall covering to eliminate bubbles and ensure adhesion. Remove excess adhesive from seams immediately.

E. Use panels in exact order they are cut from roll. Reverse every other panel of non-matching patterns.

F. Fill in above and below openings with panels cut in consecutive order from roll.

G. Install wall covering free from bubbles, wrinkles, open or loose seams, and other visible defects.

END OF SECTION
PART 1   GENERAL

1.1 SUMMARY
A. Section Includes:
   1. Prefinished sanitary wall panels.
   2. Trim.
B. Related Sections:
   1. Section 07 9200 - Joint Sealers.
   2. Section 09 7200 – Wall Coverings.

1.2 SUBMITTALS
A. Sustainable Design Submittals:
   1. Regional Materials.
   2. Low-Emitting Materials.

1.3 QUALITY ASSURANCE
A. Installer Qualifications: Minimum 5 years’ experience in work of this Section.

1.4 PROJECT CONDITIONS
A. Do not install products if temperature, humidity, and ventilation requirements are outside limits recommended by manufacturer.

PART 2   PRODUCTS

2.1 MANUFACTURERS
A. Acceptable Manufacturers:
   1. Crane Composites. (www.cranecomposites.com)
B. Substitutions: Not permitted.

2.2 MATERIALS
A. Sanitary Wall Panels:
   1. Type: Glass fiber reinforced plastic, USDA approved for incidental food contact.
   2. Size: 3/32 inch thick x 48 inches wide x maximum practical length.
   3. Color: As indicated on drawings
   4. Surface texture: Low gloss, pebbled.

2.3 ACCESSORIES
A. Trim:
   1. One piece extruded PVC, manufacturer's standard profile.
   2. Inside and outside corners, division bar, and J-molding.
   3. Color: To match panels.
B. Adhesive:
   1. Compatible with panels and substrate; recommended by panel manufacturer.
   2. Maximum volatile organic compound (VOC) content: 70 grams per liter.
C. Joint Sealer: Specified in Section 07 9200.
D. Patching Compound: White latex type.

PART 3 EXECUTION

3.1 PREPARATION

A. Prepare substrate to receive panels:
   1. Remove high spots.
   2. Fill low spots with patching compound; sand smooth.
   3. Remove loose and foreign matter that could impair adhesion.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install trim:
   1. Panel-to-panel joints: Division bar.
   2. Internal and external corners.
   3. Exposed edges: J molding.
   4. Secure to substrate.

C. Cut panels to fit at perimeter and around penetrations. Ensure that trim will completely cover cut edges.

D. Maintain 1/8 to 3/16 inch expansion space at perimeter and around penetrations.

E. Adhere panels to substrate with full bed of adhesive.

F. Install continuous bead of joint sealer between panels and trim and between trim and adjacent construction.

END OF SECTION
SECTION 09 9100
PAINTING

PART 1  GENERAL

1.1  SUMMARY

A.  Section Includes:
   1.  Texturing of gypsum board.
   2.  Surface preparation and field application of paints.

B.  Related Sections:
   1.  Section 07 4646 - Mineral-Fiber Cement Siding
   2.  Section 09 2400 - Portland Cement Plastering
   3.  Section 09 2900 - Gypsum Board

1.2  SUBMITTALS

A.  Sustainable Design Submittals:
   1.  Regional Materials.
   2.  Low-Emitting Materials.

1.3  DELIVERY, STORAGE AND HANDLING

A.  Paint Materials: Store at ambient temperature from 45 to 90 degrees F in ventilated area, or as
    required by manufacturer's instructions.

1.4  PROJECT CONDITIONS

A.  Do not apply materials when surface and ambient temperatures or relative humidity are outside
    ranges required by paint manufacturer.

B.  Maintain ambient and substrate temperatures above manufacturer's minimum requirements for 24
    hours before, during and after paint application.

C.  Do not apply materials when relative humidity is above 85 percent or when dew point is less than 5
    degrees F different than ambient or surface temperature.

D.  Provide lighting level of 30 footcandles at substrate surface.

1.5  MAINTENANCE

A.  Extra Materials: 1 gallon of each color and sheen.

PART 2  PRODUCTS

2.1  MANUFACTURERS

A.  Acceptable Manufacturers:

B.  Substitutions: Not permitted.

2.2  MATERIALS

A.  Paints:
   1.  As scheduled at end of Section, or approved substitute.
   2.  Free from all forms of lead and mercury.
   3.  All paints used in either food preparation, sales or storage areas must be non-toxic to foods.

2.3  ACCESSORIES
A. Accessory Materials: Paint thinners and other materials required to achieve specified finishes; commercial quality.

B. Patching Materials: Latex filler.

C. Fastener Head Cover Materials: Latex filler.

2.3 MIXES

A. Deliver paints pre-mixed and pre-tinted.

B. Uniformly mix to thoroughly disperse pigments.

C. Do not thin in excess of manufacturer's recommendations.

D. Re-mix paint during application; ensure complete dispersion of settled pigment and uniformity of color and gloss.

PART 2 EXECUTION

3.1 EXAMINATION

A. Test shop applied primer for compatibility with subsequent coatings.

B. Measure moisture content of surfaces using electronic moisture meter. Do not apply coatings unless moisture content of surfaces are below following maximums:
   1. Gypsum board and plaster: 12 percent.
   2. Wood: 15 percent, measured to ASTM D4442.

3.2 PREPARATION

A. General:
   1. Protect adjacent and underlying surfaces.
   2. Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
   3. Correct defects and clean surfaces capable of affecting work of this section.
   4. Seal marks that may bleed through surface finishes with shellac.

B. Impervious Surfaces: Remove mildew by scrubbing with solution of trisodium phosphate and bleach. Rinse with clean water and allow to dry.

C. Gypsum Board:
   1. Fill minor defects with filler compound. Spot prime defects after repair.

D. Plaster:
   1. Fill hairline cracks, small holes, and imperfections with latex patching plaster. Finish smooth and flush with adjacent surfaces.
   2. Wash and neutralize high alkali surfaces.

E. Aluminum: SSPC Method SP1 - Solvent Cleaning.

F. Uncoated Ferrous Metals: SSPC Method SP2 - Hand Tool Cleaning or Method SP3 - Power Tool Cleaning.

G. Shop Primed Ferrous Metals:
   1. SSPC Method SP2 - Hand Tool Cleaning or Method SP3 - Power Tool Cleaning.
   2. Feather edges to make patches inconspicuous.
   3. Prime bare steel surfaces.

H. Interior Wood:
   1. Wipe off dust and grit.
   2. Seal knots, pitch streaks, and sappy sections with sealer.
3. Fill nail holes and cracks after primer has dried; sand between coats.

I. Existing Surfaces:
   1. Remove loose, flaking, powdery, and peeling paints.
   2. Lightly sand glossy painted surfaces.
   3. Fill holes, cracks, depressions and other imperfections with patching compound; sand flush with surface.
   4. Remove oil, grease, and wax by scraping; solvent wash and thoroughly rinse.
   5. Remove rust by wire brushing to expose base metal.

3.3 APPLICATION
   A. Apply paints in accordance with MPI Painting Manual, Premium Grade finish requirements.
   B. Apply primer or first coat closely following surface preparation to prevent recontamination.
   C. Do not apply finishes to surfaces that are not dry.
   D. Apply coatings to minimum dry film thickness recommended by manufacturer.
   E. Apply each coat of paint slightly darker than preceding coat unless specified otherwise.
   F. Apply coatings to uniform appearance without laps, sags, curtains, holidays, and brush marks.
   G. Allow applied coats to dry before next coat is applied.
   H. When required on deep and bright colors apply an additional finish coat to ensure color consistency.
   I. Continue paint finishes behind wall-mounted accessories.
   J. Sand between coats on interior wood and metal surfaces.
   K. Match final coat to approved color samples.
   L. Where clear finishes are specified, tint fillers to match wood. Work fillers into grain before set. Wipe excess from surface.
   M. Prime concealed surfaces of exterior wood and interior wood in contact with masonry or cementitious materials with one coat primer paint.
   N. Mechanical and Electrical Components:
      1. Paint factory primed equipment.
      2. Remove unfinished and primed louvers, grilles, covers, and access panels; paint separately.
      3. Paint exposed and insulated pipes, conduit, boxes, ducts, hangers, brackets, collars, and supports unless factory finished.
      4. Do not paint name tags or identifying markings.
      5. Paint exposed conduit and electrical equipment in finished areas.
      6. Paint duct work behind louvers, grills, and diffusers flat black to minimum of 18 inches or beyond sight line.
   O. Do not Paint:
      1. Surfaces indicated on Drawings or specified to be unpainted or unfinished.
      2. Surfaces with factory applied finish coat or integral finish.
      3. Architectural metals, including brass, bronze, stainless steel, and chrome plating.

3.4 ADJUSTING
   A. Touch up or refinish disfigured surfaces.

3.5 CLEANING
   A. Remove paint from adjacent surfaces.
3.6 NEW BUILDING – EXTERIOR FINISH SCHEDULE

A. Doors and Trim
   1. Back Door
      Galvanized Iron, New
      Primer: Pro Industrial Pro-Cryl Universal Primer, B66-310 series, <100 g/L VOC
      1st coat: Pro Industrial Zero VOC Acrylic Semi-Gloss, B66-650 series, 0 g/L VOC
      2nd coat: Pro Industrial Zero VOC Acrylic Semi-Gloss, B66-650 series, 0 g/L VOC

2. Aluminum Trim
   Prime Coat: S-W DTM Wash Primer, B71Y1 (3.4 mils. wet, 0.7 mils. dry)
   1st coat: Pro Industrial Zero VOC Acrylic Semi-Gloss, B66-650 series 0 g/L VOC
   2nd coat: Pro Industrial Zero VOC Acrylic Semi-Gloss, B66-650 series 0 g/L VOC

3.7 NEW BUILDING – INTERIOR FINISH SCHEDULE

A. Doors and Trim
   Galvanized Iron, New
   Semi-Gloss Finish
   Primer: Pro Industrial Pro-Cryl Universal Primer, B66-310 series, <100 g/L VOC
   1st coat: Pro Industrial Zero VOC Acrylic Semi-Gloss, B66-650 series 0 g/L VOC
   2nd coat: Pro Industrial Zero VOC Acrylic Semi-Gloss, B66-650 series 0 g/L VOC

   Wood, New
   Use three sealant coats of Sherwin Williams #A68 Series waterborne polyurethane semi-gloss or gloss
   over Sherwin Williams #SWBW “Brighton Walnut” custom DD stain mix.

B. Walls in Sales Area (where wall covering is not used)
   Eg-Shel Finish — Low Odor Zero VOC System
   Primer: ProMar 200 Zero VOC Interior Latex Primer, B28W2600 0 g/L VOC
   1st coat: ProMar 200 Zero VOC Eg-Shel B26-2600 series, 0 g/L VOC
   2nd coat: ProMar 200 Zero VOC Eg-Shel B26-2600 series, 0 g/L VOC

C. Soffits, Ceilings at Restroom, Drive-Thru, Vestibule
   Eg-Shel Finish — Low Odor Zero VOC System
   Primer: ProMar 200 Zero VOC Interior Latex Primer, B28W2600 0 g/L VOC
   1st coat: ProMar 200 Zero VOC Eg-Shel B26-2600 series, 0 g/L VOC
   2nd coat: ProMar 200 Zero VOC Eg-Shel B26-2600 series, 0 g/L VOC

3.8 REMODELING SPECIFICATIONS – EXTERIOR FINISH SCHEDULE (PAINTING OVER METAL)
A. Exterior Metal Panels (ATAS)
   Aluminum, Repaint- Refer to Sherwin Williams Application Bulletin 1.23 and 1.27 for detailed information

   **Spot Prime:** SW Pro-Cryl Universal Primer at areas which have signs of rust
   **1st Coat:** S-W Bond-Plex Acrylic Coating
   **2nd Coat:** S-W Bond-Plex Acrylic Coating

B. Back Door (New, Repainted or Weathered)

   **Primer:** Pro Industrial Pro-Cryl Universal Primer, B66-310 series, <100 g/L VOC
   **1st coat:** Pro Industrial Zero VOC Acrylic Semi-Gloss, B66-650 series, 0 g/L VOC
   **2nd coat:** Pro Industrial Zero VOC Acrylic Semi-Gloss, B66-650 series, 0 g/L VOC

C. Exterior Walls
   CMU (Standard)

   **1st Coat:** S-W PrepRite Block Filler, B25W25 (75-125 sq ft/gal)
   **2nd Coat:** S-W A-100 Exterior Latex Gloss, A8 Series
   **3rd Coat:** S-W A-100 Exterior Latex Gloss, A8 Series (4 mils wet, 1.4 mils dry per coat)

3.9 REMODELING SPECIFICATIONS – INTERIOR FINISH SCHEDULE (Refer to Section 3.6 for all Walls, Soffits, Ceilings, Doors and Trims not listed below)

A. Doors and Trims
   Wood, Repaint

   **Primer:** Harmony Zero VOC Wall Primer, B11W1500, 0 g/L VOC
   **1st coat:** Pro Industrial Zero VOC Acrylic Semi-Gloss, B66-650 series, 0 g/L VOC
   **2nd coat:** Pro Industrial Zero VOC Acrylic Semi-Gloss, B66-650 series, 0 g/L VOC

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END OF SECTION
SECTION 10 2813
TOILET AND KITCHEN ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY
A. Section Includes:
   1. Toilet accessories.
   2. Kitchen accessories

1.2 SUBMITTALS
A. Sustainable Design Submittals:
   1. Recycled Content.
   2. Regional Materials.

1.3 QUALITY ASSURANCE
A. Conform to applicable accessibility code for locating accessories.

1.4 WARRANTIES

PART 2 PRODUCTS

2.1 MANUFACTURERS
A. Acceptable Manufacturers:
   1. American Specialties, Inc. (www.americanspecialties.com)
   2. Bobrick Washroom Equipment, Inc. (www.bobrick.com)
   4. Kay Chemical Company (www.ecolab.com)
   5. Excel Dryer Inc. (www.exceldryer.com)
   6. Proctor and Gamble (www.pg.com)

B. Substitutions: Not permitted.

2.2 ACCESSORIES
A. Fasteners: Stainless steel where exposed, hot dip galvanized where concealed; type best suited to substrate conditions.

2.3 FABRICATION
A. Provide hangers, adapters, anchor plates, and accessories required for installation.

PART 3 EXECUTION

3.1 INSTALLATION
A. Install in accordance with manufacturer's instructions.
B. Set plumb, level, square, and rigid.
C. Install wiring between power supply and accessories.

3.2 SCHEDULE
D. Bathroom Hardware (see National Account Source Info for package ordering information)
   1. Framed mirrors, ASI 0620-2436
   2. Coat hooks - ASI 0751
3. Hand dryer – Excel Dryer XL-BW
4. Soap dispensers – Derma Foam E, Kay Chemical Company
5. Grab bars for each accessible toilet - ASI 3701, 18in, 36in. & 42in.
6. Swing-Up grab bar for each accessible toilet – Bobrick #B-4998.99
7. Toilet tissue dispensers - Kimberly Clarke #9551 or as promised by D.C.P.
8. Waste receptacle – ASI 0458
9. Baby changing station – ASI 9012 Horizontal
10. Sanitary Napkin Disposal – ASI 0852
11. Seat Cover Dispenser – ASI 0477 SM
12. Wall Shelf – ASI 0692-516

E. Kitchen and Storage Hardware
   1. 2 soap dispensers - Proctor & Gamble Company – see National Account Source Info
   2. Chemical dispenser - Proctor & Gamble Company – see National Account Source Info
   3. 7 shelf standards - Knape & Vogt, 87 ANO-24 in.
   4. 14 shelf brackets - Knape & Vogt, 187LL ANO-12 in.
   5. 14 shelf clips - Knape & Vogt, 214 BLK
PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1.2 SYSTEM DESCRIPTION

A. Design Requirements: Design awnings to withstand:
   1. Live and dead loads in accordance with ASCE7 and/or applicable Building Code.
   2. Movement caused by an ambient temperature range of 120 degrees F and a surface temperature range of 160 degrees F.

1.3 SUBMITTALS

A. Sustainable Design Submittals:
   1. Recycled Content.
   2. Regional Materials.

1.4 QUALITY ASSURANCE

A. Fabricator and Installer Qualifications: Minimum 3 years documented experience in work of this Section.

1.5 WARRANTIES

A. Provide manufacturer’s warranty (see National Accounts) providing coverage against fading and loss of strength due to exposure to ultraviolet, mildew, and atmospheric chemicals.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers - Fabric:
   1. Arlon Corporation (www.arlon.com)
   2. 3M (www.3M.com)

B. Substitutions: Not permitted.

2.2 MATERIALS

A. Fabric:
   1. Type: See National Accounts.
   2. Fire resistant, tested to NFPA 701 under large and small scale tests.
   3. Color: See drawings

B. Framing:
   1. Aluminum tubing, ASTM B221, minimum 0.125 inch thick.

2.3 FABRICATION OF FRAMING

A. Shop assemble in largest practical sizes for shipment.

B. Make bends uniform, without wrinkles or buckles.
C. Miter and fit intersections and continuously weld.
   1. Welding to conform to AWS D1.1.
   2. Grind exposed welds and joints flush and smooth.

D. Locate exposed fasteners unobtrusively.

E. Provide anchors and brackets required for attachment of framing, of same material and finish as framing.

2.4 FABRICATION OF FABRIC

A. Fabricate fabric to be easily removable.

B. Fabricate in largest practical units to minimize seams.

C. Electronically heat seal seams.

D. Reinforce corners with additional layer of fabric.

E. Provide straight, even seams, without wrinkles, puckers, and other defects.

F. Provide grommets for fastening to framing at maximum 6 inches on center.

2.5 FINISHES

A. Aluminum: Chemically clean and apply manufacturer’s standard polyester powder coat finish, sprayed and baked, see National Account Source Information for color.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with manufacturer’s instructions and approved Shop Drawings.

B. Accurately position frames with horizontal lines level, free from distortion.

C. Secure in place using anchors best suited to substrate.

D. Stretch fabric taut, without wrinkles or folds, and attach to framing.

3.2 ADJUSTING

A. Clean and touch up scratches and abrasions in finish coat with same finish as originally applied.

END OF SECTION
SECTION 12 2413
ROLLER WINDOW SHADES

PART 1  GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Manually operated window shades.

1.2 SUBMITTALS

A. Submittals for Review:
   1. Product Data: Indicate components, materials, finishes, attachment, and operation.
   2. Samples:
      a. 12 x 12 inch shade cloth samples in each color.
      b. Submit working hand sample or mock up shade as required.
   3. Warranty: Sample warranty form.

1.3 PROJECT CONDITIONS

A. Verify dimensions at site prior to fabrication of shades.
B. Do not install shades until painting and finishing work is complete and ambient temperature and humidity conditions are maintained at occupancy levels.

PART 2  PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Phifer, Inc. (www.phifer.com)

B. Substitutions: Not permitted.

2.2 MANUFACTURED UNITS

A. Product: Mylar Shades

B. Solar Shade Fabric: Select from NFPA 701-1999 FR and ASTM-G21 and G22 Bacteria and Fungal Resistance approved

   Color: Bronze / Bronze
   No seams for shades less than 72” in one direction
   % Solar Transmittance 27
   % Solar Reflectance 19
   % Solar Absorbance 54
   % Visible Light Transmittance 15
   Shading Coefficient 0.48
   Thickness 4+ MM

C. Roller Tubes: Shall be 1 ½” hardened aluminum roller with Internal drive key. Larger diameter rollers should be supplied for heavy shades

D. Clutch Systems: Shall be Roll Ease Multi Directional 8 Pound Lift – color to be Black. Larger clutches should be supplied for heavy shades
E. Brackets – Safety locking positive drive speer. – Locking idler side.

F. Chain - Stainless steel qualified with stops

G. Bottom Hem Bar will be Décor Bar Black ½"x1” Punch Press tapered cut for clean (no bur) edge.

H. End Caps – Color to be Black. Bonded to the bottom bar.

I. Chain Hold Down – Clear dog Bone with screw that locks chain into place.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide adequate clearances to allow for proper operation.

C. Place units to locate shade cloth minimum 2 inches from interior face of glass.

3.2 ADJUSTING

A. Adjust shades for smooth, quiet operation.

END OF SECTION
SECTION 12 4813
ENTRANCE FLOOR MATS

PART 1  GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Aluminum grid floor mats.
   2. Recessed frame.

B. Related Sections:
   4. Section 03 3000 – Cast-In-Place Concrete
   5. Section 08 4113 - Aluminum-Framed Entrances and Storefronts
   6. Section 09 3000 – Tiling

2.3 REFERENCE

A. Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. The Standards listed here are identified with a designation number, title or other designation established by the issuing authority.

B. American Society for Testing and Materials (ASTM):
   1. ASTM C1028 Static Coefficient of Friction
   2. ASTM B117 Product Corrosion to Salt

C. Other referenced documents
   1. LEED-NC version 3

2.4 SYSTEM DESCRIPTION

a. Performance Requirements: Provide recessed aluminum entrance floor mat system, which has been manufactured and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

2.5 SUBMITTALS

a. Product data: Submit product data, including manufacturer’s specification sheet and installation instructions for specified products. Include methods of installation and substrate preparation for each type of substrate.

b. Shop drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures.

c. Samples: Submit samples for each type and color of exposed entrance mat, frames and accessories required. Provide samples of mat materials.

d. Quality Assurance Submittals: (1) Certified test reports showing compliance with specified performance characteristics and physical properties, and (2) Manufacturer’s Installation Instructions.

e. Closeout Submittals: (1) Cleaning & Maintenance Data (Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance), and (2) Warranty.
2.6 QUALITY ASSURANCE
   a. Installer: Installer should be highly experienced in performing work of this section, having previously done work similar to that required for this project.

2.7 SEQUENCING/SCHEDULING
   a. Ordering: Comply with Manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
   b. Delivery: Deliver materials in Manufacturer's original, unopened, undamaged packaging.
   c. Storage: Store materials at temperature and in humidity conditions recommended by manufacturer and protect from exposure to harmful weather conditions.
   d. Installation: Except as otherwise indicated herein, sequencing or scheduling for performance of work of this section in relation with other work is Contractor’s option. Delay installation of mats until near time of substantial completion for the project.

2.8 PROJECT CONDITIONS
   a. Temperature: Maintain temperature where products will be installed before, during and after installation as recommended by Manufacturer.
   b. Field Measurements: Where possible, verify actual measurements by field measuring before fabrication and include measurements in shop drawings. To avoid construction delays, coordinate field measurements and fabrication schedule based upon construction progress.

PART 3 PRODUCTS

3.1 ACCEPTABLE MANUFACTURER

3.2 MATERIALS
   a. Product: Dual Track.
      1) Construction: Bolt-thru design with individual aluminum spacers. Swedge, welded and key lock fastening of rails is not allowed.
      2) Material: Aluminum Alloy type 6061-T6. Soft Aluminum alloy (such as 6063-T52) is not allowed
      3) Drying Insert: Drying inserts to be Nylon material with 5% post-consumer recycled content.
      4) Recycled Content: Aluminum to be 43.97% pre-consumer and 14.12% post-consumer recycled content
      5) Blades: T-Shaped blades, 1-5/16 x 1/8 x 1-1/2 inch size, combined with T shaped blades 11/16 x 1/8” with anti-slip polymer C9065 insert. Spacing between blades not to exceed 3/16 inch.
      6) Dimension: Grille depth to be 1-1/2”, with frame 1-5/8”
      7) Panels: Foot Grille to be supplied in panels not to exceed 48” x 42”. One Piece design not allowed. All grille panels to be supplied with individual, prefabricated, factory-assembled frames
8) Load Capacity: 3,831 lbs per 2 foot span

b. Framing Accessories for Recessed Aluminum Foot Grille: Framing will have the following characteristics:

1. Recessed Frame Integral with Concrete Substrate: The perimeter frames shall be an inverted "T" shape such as model "VV" by Mats Inc, in order to anchor the structure into the concrete. All aluminum frames shall be pre-assembled at factory incorporating welded construction for all joints. Each grille section shall incorporate an invisible section divider integrated and welded within the frame. Frames and grilles shall be shipped fully assembled in protective wooden crating to each jobsite. For sections larger than 6'-0 by 8'-0 a mechanical joint is to be provided, (if specified).

2. The perimeter frames shall be "Z" shape such as model "TT" by Mats Inc. For installation over finished floor surfaces. All aluminum frames shall be pre-assembled at factory incorporating welded construction for all joints. Each grille section shall incorporate an invisible section divider integrated and welded within the frame. Frames and grilles shall be shipped fully assembled in protective wooden crating to each jobsite. For sections larger than 6'-0 by 8'-0 a mechanical joint is to be provided (if specified). A silicone joint is to be applied between the frame and the finished floor to prevent any water infiltration (by others).

3. Recessed Frame for either concrete substrate or finished surface: The perimeter frames shall be an angle AD frame, either "Level" or "Embedded" depending on the installation. For installation with either new construction or retrofits. All aluminum frames shall be pre-assembled at factory incorporating welded construction for all joints. Each grille section shall incorporate an invisible section divider integrated and welded within the frame. Frames and grilles shall be shipped fully assembled in protective wooden crating to each jobsite. For sections larger than 6'-0 by 8'-0 a mechanical joint is to be provided, (if specified).

c. Optional Accessories for Recessed Aluminum Foot Grille

1. Recessed Pan: 20 gauge Aluminum (optional)
2. Accessories: Stainless steel hinges

d. Product Testing for Recessed Foot Grille

1. ASTM C1028 Static Coefficient of Friction: 1.21
2. ASTM B117 Product Corrosion to Salt: Product withstands 1000 hours of salt fog without any noticeable changes.

2.3 PRODUCT SUBSTITUTIONS

A. Substitutions: No substitutions permitted.

PART 3 EXECUTION

3.1 SUBSTRATE PREPARATION

A. Examine substrates and conditions where floor mats will be installed. Do not proceed with installation until unsatisfactory conditions are corrected. Sub floor shall be clean and dry, and within acceptable tolerances.

3.2 INSTALLATION

A. Sizes: Shop-fabricate units of floor mat to greatest extent possible in sizes as indicated. Where not indicated otherwise, provide single unit for each mat installation, but do not exceed manufacturer's maximum size recommendation for units intended for removal and cleaning. Where joints in mats are necessary, space symmetrically and away from normal traffic lanes. Miter corner joints in framing
elements with hairline joints or provide prefabricated corner units without joints. Where possible, verify sizes by field measurement before shop fabrication.

B. Accessories: Where indicated for recessed or wall-to-wall applications, provide aluminum framework as recommended by manufacturer.

C. General: Strictly comply with manufacturer’s installation instructions and recommendations. Coordinate installation with adjacent work to ensure proper clearances and to prevent tripping hazards.

3.3 CLEANING AND PROTECTION

A. General Cleaning: Refer to Manufacturer’s Cleaning and Maintenance Instructions.
B. Owner’s Personnel: Instruct Owner’s personnel in proper maintenance procedures.
C. Protection: Protect installed product and finish surfaces from damage during construction and until acceptance.

END OF SECTION
DIVISION 22 – PLUMBING

SECTION 22 1000

PLUMBING

PART 1 – GENERAL

1.1 WORK INCLUDED

A. Furnish all labor, material and equipment necessary for the complete installation of the sanitary sewer system (including soil and vent piping), water service, water meter, tap valves, boxes, and cold and hot water supply system including all required 140 degree piping; all required gas piping; hot water heater; plumbing fittings and fixtures; and all related fittings and controls; connecting of all kitchen and service area equipment provided by Lessee or Franchise Owner and all other work required for a complete system as detailed on the Drawings or specified in this Section.

B. In areas where natural gas is not available, furnish and install L.P. gas piping and tanks.

1.2 PERMITS AND INSPECTIONS

A. All work shall be installed in strict accordance with State, County and Municipal Ordinances and Regulations.

B. All permits and fees shall be applied and paid for under this Section, including all required inspections for water, gas and sanitary drainage systems, required water meter and all taps to water mains and connections to sewers.

1.3 LESSEE’S OR FRANCHISE OWNER’S EQUIPMENT

A. Make final connections to all Lessee’s or Franchise Owner’s equipment and furnish and install any fittings or incidental accessories that may be necessary by job conditions or that may be required by local building or health codes for completing final connections and making equipment ready for operation.

1.4 UNDER-SLAB UTILITIES

A. Dimensions for all under-slab utilities are critical for later equipment installation. Cross-reference all Drawings with this work, including all elevations, showing dimensional location of this work.

PART 2 – PRODUCTS

2.1 MATERIAL

A. Water piping above grade shall be type “M” hard drawn copper tubing, with wrought copper fittings; piping below grade shall be type “K” soft copper tubing, with flared fittings. Sizes are shown on Plumbing Drawings. Piping shall be made up with sweat fittings. Solder shall be 95-50 type. The entire length of all type “K” piping under the slab and penetrating through the slab will be installed in the 1/2 in. thick Armadillo insulation.

B. Building sewer and all underground drainage and vent lines shall be sized as shown on Drawings, or as required by local codes. They shall be standard weight hub and spigot cast iron pipe and neoprene gasket fittings, unless otherwise shown or noted. Service weight cast iron pipe, if allowed by local codes, may be used. If allowed by local codes, from 10 ft. outside the buildings, sewer may be vitrified clay sewer pipe with Amvit joints or transite pipe. Minimum size of pipes to be 4 in.

C. Vents above grade shall be as shown on Drawings and shall be hubless cast iron pipe fittings and connectors. If permitted by local codes, type DWV copper may be used with DWV fittings.

D. Adjust, if necessary, sizes of gas piping with local gas company characteristics to deliver the specified BTU’s at the fixture. Piping shall be black steel, schedule 40, with screwed malleable iron fittings.

E. Furnish and install a mechanical gas valve (sized to pipe) for installation in the gas line to the fryer(s) and oven(s) as per Section 3.04 Gas Piping, Paragraph I.

F. Condensate I.W. drip drains shall be hub drains, floor drain with open funnel type, or floor sink with integral trap, as shown on Drawings or as required by code, as manufactured by the Josam Company or Jay R. Smith, Inc. All condensate drain lines from equipment to drain shall be PVC.

G. Kitchen floor sinks “FS” as required shall be Josam Manufacturing Company, Series No. 49000 with half-grate, nickeloy top and sediment bucket. All other floor drains “FD” to be Josam No. 30000-A. All exposed parts to be of nickel bronze finish.
2.2 FIXTURES

A. Water Closet

1. Water Closet shall be American Standard Elongated Cadet 3 FloWise Right Height Model No. 2835.128 with Elongated Everclean solid plastic open front seat no. 5284.016 in white, without cover and supply.

2. Alternate “hands free” Water Closet shall be American Standard Madera FloWise 16 ½” height Model No. 3043.001 with American Standard Manual 1.28 gpf Flushometer #6047.121.002, or American Standard 1.28 gpf Selectronic AC Power Flushometer #6067.221.002

B. Lavatory

1. Lavatory shall be American Standard Lucerne, 20½” by 18¼”. No. 0355.012 for concealed arms No. 700-E by J. R. Smith Co. (Massachusetts use Model #9141.011) complete with No. 7740 Zurn faucet with grid drain, 3/8 in. chrome supplies with angle stops, adjustable "P" brass trap to suit grid drain, tubing drain to wall, 1 ¼" inlet, 1 ½"outlet, escutcheon - chrome finish.

2. For alternate “Hands Free” operation provide faucet by Sloan – Optima #ETF-600 with transformer #EL-154 and aerator #ETEF-1024-A.

3. All lavatory faucets to be equipped with lockable removable aerators.

C. Mop Sink

1. Furnish one molded construction one piece Mop Service basin as manufactured by E.L Mustee & Sons, Model No. 63M, complete with drain body, strainer and lint basket. Fittings shall be Moen Commercial No. 8230 (Chrome). Provide Click and Clean dispensing system by Kay Chemical Company at mop sink. Refer to National Account Source Information for complete details.

D. Optional Urinal to be American Standard Trimbrook No. 6561.017 complete with wall supports and Sloan Royal flush valve.

E. Back bar fittings and exposed pipe to be chrome plated. Stop valves by American Standard.

F. In kitchen, furnish and install three compartment pot sink unit and drain boards as required by local codes, NSF standards and as specified:

1. Compartment size, drain board size and total dimensions as shown on drawings. Refer to equipment specifications for sink fabrication. Each compartment to have Kohler #8801 brass waste outlet, chrome plated, satin finish, with a 3-1/2 in. diameter stainless steel, perforated, flush strainer plate, threaded for connection to a 2 in. drain line.

2. Fittings shall be T & S B-133 pre-rinse spray with B-107C spray head, B-109 wall bracket, B-156 ADF Add-A-Faucet with 12 in. nozzle and special 4 in. chrome nipple. B-231 sink mixing faucet for three compartment sink.

3. Drain shall include rotary waste valve similar to T & S model B3901 with extended handle and snap-in stainless steel strainers. Fits drain opening of 3 1/2 inches to 4 1/2 inches.

4. Note: Smaller three compartment sinks may be allowed provided the sink compartment can accommodate the largest equipment item that will require washing, rinsing, and sanitizing. Sink specification for gauge, type of stainless steel and finish shall be the same as larger three-compartment sink listed below.

5. Provide Click and Clean dispensing system by Kay Chemical Company at three-compartment pot sink. Refer to National Account Source Information for complete details

G. On ½ in. domestic cold water connection to proofer(s), provide an water filtration system. See plan for specific requirements.

H. Furnish and install as required by local or state health and plumbing codes, the following items or equipment:

1. Install immersion heater and dip basket for pot sink.

2. Grease traps "GT" shall be Josam 60100 on-floor model or 60130 recessed type grease interceptor, with flow control valve 25 GPM (with flush floor cover, removable bucket and twist lock handle). Waste from food disposal shall not run through grease trap. Top cover to be flush with quarry tile floor. In addition to “Josam Series 60100” grease trap that is used when rough-in center is more than 6” below slab “Josam Series 60120” extended top is approved. This allows roughing to 17” below slab. Refer to local or state health and plumbing codes for
3. **Product:** Endura Grease Interceptor 25-35 GPM by IPEX. The unit shall be comprised of engineered thermoplastics to withstand operational temperatures up to 220 degree F (104 degree C) comprising a pedestrian rated cover capable of supporting 440 lb (200 kg) and incorporating an operationally air tight seal. The cover shall also utilize a quick access latching system to functionally secure and retain the cover to the tank, but allow consistent removal and replacement of the cover without operational compromise. Functional elements such as baffles will be made of material that prevents corrosion or deterioration and shall be easily removable for the purposes of maintenance, providing unrestricted upstream and downstream drain access. The grease interceptor shall be certified to the current version of the PDI-G101, ASME A112.14.3 or CSA B481.1 and where locally applicable have UPC listing.

4. **Model 3925ALT02 - Endura 25GPM/50LB**
   - D. **Flow Rate:** 25 US Gallons per Minute (1.6 L per second).
   - E. **Minimum Grease Capacity:** 50 lb (22.68 kg).
   - F. **Grease Capacity Actual:** 56.25 lb (25.51 kg).
   - G. **Average Efficiency % (ASME 112.14.3):** 98%.
   - H. **Unit Weight (Empty):** 45 lb (10.85 kg).
   - I. **Liquid Capacity:** 39.4 gal (149.1 L).
   - J. **Connection size (mechanical):** 2 inches (51 mm)
   - K. **Basket:** Solids basket accessory Model 3911A-1.
   - L. **Modular Riser Extensions:** Model 3920AX6 (Riser extension). For use with in-floor installations; sized during installation to project requirements, 18 inches (457 mm) maximum height adjustment. All installation components to be supplied by the manufacturer.
     - 1. Riser Extensions Required: One.
     - 2. Riser Extensions Required: Two.

5. **Model 3925ALT03 - Endura 25GPM/50LB**
   - a. **Flow Rate:** 25 US Gallons per Minute (1.6 L per second).
   - b. **Minimum Grease Capacity:** 50 lb (22.68 kg).
   - c. **Grease Capacity Actual:** 56.25 lb (25.51 kg).
   - d. **Average Efficiency % (ASME 112.14.3):** 98%.
   - e. **Unit Weight (Empty):** 45 lb (10.85 kg).
   - f. **Liquid Capacity:** 39.4 gal (149.1 L).
   - g. **Connection size (mechanical):** 3 inches (76 mm)
   - h. **Basket:** Solids basket accessory Model 3911A-1.
   - i. **Modular Riser Extensions:** Model 3920AX6 (Riser extension). For use with in-floor installations; sized during installation to project requirements, 18 inches (457 mm) maximum height adjustment. All installation components to be supplied by the manufacturer.
     - i. Riser Extensions Required: One.
     - ii. Riser Extensions Required: Two.
     - iii. Riser Extensions Required: Three.

### 2.3 ROOF FLASHING

- **A.** Cap flashing for roof vents shall be galvanized metal sleeve, overlapping 4 in. on exterior and turned 2” into stack and closely fitted into interior surface of stack to avoid reducing opening size unnecessarily. A 16 oz. copper flashing shall be provided around the pipe and flashed into the single ply roofing. Coordinate cap flashing with Section 07531 EPDM Elastomeric Membrane Roofing.

### 2.4 HOT WATER HEATER

**Note:** Specifications provide general guidance for hot water heaters. The contractor shall consult Drawings, local Health Department review of Drawings before ordering water heater. If a variation exists between the specifications and any of the other references mentioned, contact the Architect before placing orders for equipment.
A. Tankless hot water heater system to be manufactured by Rinnai – models to be used as applicable: RUR98i and RUR98e (both units contain built in recirculating function). Input: 15,200 to 199,000 btuh capacity; direct electronic ignition; flow rate: 0.4 – 9.8 gpm (dependent on temperature rise); thermal efficiency: 96%; condensing technology; cabinet dimensions: 18.3”w x 31.2”h x 10.1”d; gas type: natural gas or propane; use applicable Rinnai venting: condensing concentric vent components, 3” or 4” Schedule 40 PVC DWV Solid Core Pipe (or approved equal). Provide direct vent for interior mounting – no vent required for exterior mount. Provide Rinnai condensate neutralizer as needed. Condensate to be neutralized and drained according to local code guidelines. Coordinate exact model #, flow and # of required units w/ manufacturer based on store type, store size, store location and all local code requirements for hot water systems. Rinnai Commercial customer support: 866-383-0707. Rinnai Technical Support: 888-RinnaiS (1-888-746-6247)

B. 

![U.S. Water Hardness Map](image)

Recommend bi-annual flushing of tankless heat exchanger in areas where the hard water is greater than 10gpg. Reference Rinnai Water Heater Installation and Operation Manual for instructions

C. As an alternate, furnish and install a hot water heater as noted on the plumbing drawings to be equal to or exceed the following requirements:

1. For full producing shops, provide a hot water heater unit that will provide 75-gallon storage with an input rating of 75,000 B.T.U. with a 98-gph recovery at 70-degree temperature rise. Recommended manufacturer for: Gas Fueled:
   - State: SBN81 154NE
   - A.O. Smith: BT-80
   - Rheem: G75-75.

   Electric:
   - State: CSB-82-18-IFE
   - A.O. Smith: DVE-80
   - Rheem: ELD-80.

2. In areas where water has a high lime concentration, be sure to use a unit that is specially designed to reduce lime deposits.
3. For satellite shops or shops with no production facilities use a unit that will provide a minimum 50-gallon storage with an input rating of 60,000 B.T.U/hour with an 80 g.p.h. at 70 degree temperature rise:
   Gas Fueled:
   - A.O. Smith: BT 65
   Electric:
   - State: CSB-52-12-IFE
   - A.O. Smith: DVE-52
   - Rheem: ELD-52

C. Furnish and install a separate 6 gallon electric hot water heater for the restrooms if noted on the plumbing drawings to be equal to or exceed the following products:
   - A.O. Smith: DEL-6
   - State: PCE 6 10MSA

2.5 FLUE

A. Furnish and install, Underwriters’ Laboratories approved, 5 in. diameter, "Metalbestos" Type B, flue for water heater. Extend flue to 6 ft. above roof / as per local code requirements. Provide tall cone roof flashing, storm collar and Metalbestos top. The double wall metal vent flue shall have an outer casing of galvanized steel with a minimum of 0.028 gauge or 0.018 in. thickness, and an inner casing of aluminum. The vent shall be laboratory-tested and listed by the Underwriters’ Laboratories.

2.6 AUTOMATIC FIRE EXTINGUISHING SYSTEM

A. The installer will hook-up the mechanical gas shut-off valve, furnished and installed by the plumber before the fryer(s) and/or oven(s), to the automatic fire extinguishing system. See Section 15500 Automatic Fire Extinguishing System.

PART 3 –EXECUTION

3.1 INSTALLATION

A. All piping and equipment shall be installed in accordance with the Drawings and shall comply with all applicable codes, particularly health and plumbing, and standards of good practice.
B. Verify inverts of sewer and drainage connections before installing sewer lines.

3.2 WATER SUPPLY LINES

A. Water service, located as shown on Site Drawing, shall be installed and tested as required by the local utility company. Service to be 1½" in. minimum, type "K" copper, or as indicated on Drawings.
B. Piping shall be of minimum sizes shown on Drawings.
C. Provide valves on all lines as shown on drawings and on up-stream and down-stream side of water meter. Each fixture shall have separate stop and waste valves and all piping shall be concealed except as otherwise indicated on Drawings. Where water pipes and valves are exposed in finished Sales and Toilet areas, piping shall be threaded chrome and shall have chrome plated escutcheons and valve as required. Kitchen and work areas may be copper.
D. Hose bibbs shall be installed as indicated on the Drawings and shall have separate 3/4 in. main feed. When serving exterior areas, hose bibbs shall be frost-proof type with removable key handle. Fasten securely to wall. Install 18 in. above finish slab.
E. Standard air chambers, 20 diameters of pipe high, and one size larger shall be provided above each fixture outlet and as required elsewhere. If line pressure is greater than 60 pounds at water meter outlet, a pressure reducing valve shall be provided and installed, set at 60 pounds pressure for the complete system. On the cold water supply line to the ice machine, install PRV and set at 20 pounds pressure. Pressure gauge tabs shall be provided. Complete system shall be tested as required by applicable codes.
F. Minimum testing of water piping - maintains 75 psi of air pressure within the entire system for a period of not less than 15 minutes. Provide a thermostatic mixing valve on hot water service to toilet lavatories, Bradley #TMA or Leonard #210.
G. Insulate all piping in spaces subject to freezing with 1-1/2 in. pipe insulation as specified above. All piping shall be properly supported with hangers of compatible material and all water pipes passing through concrete shall be wrapped with an approved plastic tape to prevent chemical actions.
H. Final water connections to proofers shall be as shown on equipment specifications.
3.3 SANITARY SEWER SYSTEM

A. Sewer system shall be installed and tested in accordance with all applicable codes and as indicated on the Drawings and Specifications.
B. When house trap and fresh air inlet is required by code, trap shall have brass cleanout plugs flush with floor.
C. Vents shall be sized as shown, or as required or permitted by local codes, and shall project above roof a minimum of 1 foot. All vents shall be 3 in. minimum diameter through roof, (use increaser if necessary) unless codes require greater dimension.
D. Sewer piping shall be properly sloped and all required fittings, vents, traps and cleanouts shall be provided.
E. VERIFY INVERTS AT SEWER TAP AND BUILDING BEFORE STARTING INSTALLATION.
F. Minimum testing of waste piping - plug openings and fill the entire system to the top of the vents with water and allow to remain at least 30 minutes.

3.4 GAS PIPING

A. Connect to all equipment requiring gas service with a shut-off cock and drip at each fixture location.
B. Connections include, but are not limited to, heating and air conditioning unit, hot water heater, fryers and oven.
C. Pitch piping for drainage and install drip and dirt legs at all low points.
D. Make final connections to each fryer and oven with heavy duty, commercial type, flexible metal connector complete with quick connect-disconnect gas mate coupling, consisting of brass socket and brass plug. Flexible connector and coupling shall be as manufactured by Hansen Manufacturing Company.
E. Connector shall be a factory assembled integral unit, consisting of an inner liner of convulated 85/15 red brass tubing, with an outer flexible casing of interlocked strip wound galvanized steel.
F. Minimum length of connector shall be 24 in.
G. Uncoupling shall cause instant automatic shut-off of gas supply.
H. Connector and coupling shall be sized, to deliver the required BTU rating to the respective equipment.
I. Furnish and install a mechanical gas shut-off valve (sized to pipe). The valve will be installed in the gas line before the fryer(s) and/or oven(s) as indicated on the Drawings. The operating hook-up of the valve will be done by the installer of the automatic fire extinguishing system.

3.5 FINAL CONNECTIONS

A. Complete the final connections of equipment supplied by the Lessee or Franchise Owner immediately upon its delivery in place.
B. From chrome shut-off valves on back bar wall; provide copper piping to back bar equipment. Some equipment requires flare fittings – coordinate with equipment specifications.

END OF SECTION
SECTION 22 6000
WATER FILTER SYSTEM

PART 1 - GENERAL
1.1 WORK INCLUDED

A. Furnish all labor, material and equipment necessary for the installation of a store-wide filtration system, to be installed after the meter and backflow preventor. Site Specific conditions may require that a Reverse Osmosis System be installed, refer to Dunkin Brands Design guidance Documents available on the extranet for diagrammatic descriptions of both: (Refer to drawings for type & location)

PART 2 – PRODUCTS

2.1 FILTER INSTALLATION

A. Filtration system to be installed as per manufacturer’s requirements and specifications.
B. Filtration system to be as manufactured by 3M or Everpure – refer to National Account Source Information.

2.2 SERVICE

A. It is the responsibility of the franchisee to provide a continuous service contract for the ongoing maintenance of the water conditioning system. Filter to be replaced as per manufacturer’s recommendation or when the gauge indicates low water pressure.

END OF SECTION
DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING

SECTION 23 2000

HEATING, VENTILATING AND AIR CONDITIONING

PART 1 – GENERAL

1.1 WORK INCLUDED

A. Requirements of the general conditions, where applicable, are hereby made part of this Section.
B. Furnish all labor, material and equipment necessary for the installation of a complete, automatic, gas fired, mechanical warm air heating & air conditioning system, fryer exhaust and make-up air system as shown on the Drawings, and as specified in this Section.
C. Contractor to comply with State and Municipal codes, and ordinances, including Health and Mechanical, and applicable codes of the National Fire Protection Association. Pay for all permits and fees as required.

1.2 WARRANTY

A. This contractor shall provide a written guarantee against defects in workmanship or material for one (1) year from date of substantial completion of building. Additional four (4) years factory warranty on motor-compressor assembly shall be provided in writing.
B. Contractor shall properly fill out all warranty cards for heating-air conditioning unit and deliver to the franchisee for processing.
C. Material and equipment package purchased from Captive-Aire Systems, Inc. will contain a one (1) year general equipment warranty. Motor compressors have an additional four (4) year limited material warranty backed by the manufacturer. Gas heat exchangers have an additional nine (9) year limited material warranty backed by the manufacturer.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

Dunkin’ Brands has nationally accounted two HVAC manufacturers to supply rooftop equipment for the brand. Contact information is as noted for each of the manufacturers below.

TRANE, INC.
ACCOUNT REPRESENTATIVE: JONATHAN RALYS
P: 978-737-3814 or 1-800-392-8956
F: 781-938-9038
E: JONATHAN.RALYS@TRANE.COM
WEB: WWW.TRANE.COM

CARRIER CORPORATION
ACCOUNT REPRESENTATIVE: Maria Campanello
P: 315-432-3946
M: 860-622-0343
E: maria.campanello@carrier.utc.com

A. Furnish and install factory assembled rooftop heating and air conditioning unit(s) in the position(s) located on the Drawings and as further specified in this Section.
B. Furnish and install a kitchen exhaust system consisting of a hood, filters, and roof mounted exhaust fan in the position shown on the Drawings and as further specified in this Section.
C. A clearly visible red signal light shall be installed in the fire cabinet to indicate when the kitchen exhaust fans are operating.
D. Furnish and install a roof mounted exhaust fans and curbs with associated ductwork and exhaust grilles for two (2) toilet rooms and bagel toaster as shown on Drawings and as further specified in this section.

2.1 DUCTWORK

A. Black Iron
   1. Furnish and install 16-gauge steel exhaust duct for hood exhaust system. All seams and joints shall have a liquid-tight continuous external weld.
   2. Exhaust ductwork shall be within fire enclosure. Fire enclosure furnished and installed by general contractor.
   3. All ductwork for kitchen exhaust system shall conform to SMACNA standards and to N.F.P.A 96 standards for fire protection.
B. Flexible Round Fiberglass Duct
1. Flexible ductwork between HVAC units or diffuser drops, plenums, mixing boxes, etc. shall be Atco series 900 flexible duct or performance equivalent.
2. Each section shall bear a factory applied U.L. 181, class 1 label, static pressure 12 in. W.C. positive and 1 in. W.C. negative and shall have a thermal conductance of C = 0.26.
3. Provide support at or near every joint and at the midsection when undue sagging occurs.
4. All joints must be sealed for connections to sheet metal such as Tee Wyes, boots boxes. Pull insulation and install draw bands, screw tight. Seal with a 2 in. wide approved duct tape.

C. Diffusers and Registers
1. Furnish and install all supply registers, ceiling diffusers and return air grilles scheduled on Drawings.

D. Sheet Metal
1. Furnish and install all galvanized steel ductwork and housings as shown on drawings. All ducts shall be in conformance with current SMACNA Standards relative to gauge, bracing, joints, etc. Reinforce all housings and all ducts over 30” with 1-1/4” angles not less than 5’-6” on center, and closer if required for sufficient rigidity to prevent vibration. Provide airtight joints and blade elbows.
2. Provide balancing dampers where shown on drawings and wherever necessary for complete control of air flow. Seal all joints in ductwork as recommended by SMACNA.

E. Insulation
1. Provide duct liner on all supply and return ductwork. Liner shall be ½” thick, three pound density fiberglass. Certainteed Corp. #300 “Ultralite”, Owens-Corning “Aeroflex Duct Liner” or performance equivalent. Install with mastic and mechanical fasteners with vinyl surface on air stream side, according to manufacturer’s instructions. Duct sizes shown on drawings are inside clear air size. Sheet metal must be increased by liner thickness in both directions where liner is installed.
2. Round duct and outside air ducts shall be covered with 1-1/2” thick duct wrap, Certainteed Type IV-4, Owens-Corning or performance equivalent, 3/4 pound density, with heavy-duty Foil-Scrim-Kraft facing, and with all joints taped with 3” wide foil tape.
3. All insulating materials, adhesives, coatings, etc., shall have a flame spread of 25 or less and smoke developed rating not higher than 50. All containers for mastics and adhesives shall have U.L. Label.

2.2 EXHAUST SYSTEMS

A. Oven Hood
1. Hood shall be constructed of 18-gauge stainless steel, liquid tight seam welded throughout, ground and polished. N.F.P.A. 96 construction, N.S.F. (No. 1362), and carry the following labels: BOCA (Report No. 86-48), SBCCI (Report No. 8469), U.L. Classified (Report No. 91G6).
2. Filter holding racks shall be of low air bypass leakage design allowing for easy removal and replacement of filters.
3. Furnish and install a one (1) pint capacity grease collecting cup at low point of grease cutter.
4. Local codes may require alternative hood requirements.

B. Kitchen Exhaust Fan
1. As specified on the drawings and shall be capable of meeting all performance requirements as so stated on the Drawings.

C. Toilet Exhaust Fan
1. As specified on the drawings and shall be capable of meeting all performance requirements as so stated on the Drawings.

D. Filters and Extractors
1. Grease filters shall be 2 in. thick panel extractor type. Extractor U.L. classified.

E. Blodget Oven Vent
1. Furnish and install Underwriters’ Laboratories Approved 6 in. diameter Metalbestos Double Wall type B gas vent for Blodget oven from finished ceiling to above finished roof. Furnish and install 6 in. diameter stainless steel gas vent from finished ceiling to draft hood of oven. Exhaust fan for oven to be Penn Fumex Model No. FX08B.

F. Bagel Toaster Vent
1. Exhaust fan over bagel toaster shall be as specified on the drawings and shall be capable of meeting all performance requirements as so stated on the Drawings.

G. Controls
1. System Concept:
   - Provide an HVAC system control panel to interlock heating and cooling roof top units to
exhaust system. This panel shall maintain proper building pressurization by bringing enough outside air into the building to replace the air exhausted from the kitchen and toilet exhaust.

2. Fire Cabinet Control Panel:
   - Interlocks kitchen exhaust fan to make up air of HVAC roof top units. Indicator light on surface of panel to indicate when exhaust fan is on.
   
3. All power wiring, control wiring, and interlock wiring shall be furnished and installed by electrical contractor.

4. Fire cabinet control panel shall be furnished by kitchen hood manufacturer.

H. The optional ceiling heater unit over the rear door shall be as specified on the Drawings.
I. An optional air curtain is available with the Drive-Thru window. Coordinate this item with the National Account Source Information and Section 08411.

2.3 ROOF TOP UNIT

A. Contractor shall furnish and install self-contained roof top cooling and natural gas heating unit, as manufactured by Trane or Carrier or equal as indicated in the following paragraphs.

B. Roof top unit shall be designed and built for outdoor service and be factory assembled and include compressor, air cooled condenser coil with fans and interconnecting refrigerant piping, natural gas heating section pre-wired controls mounted in a corrosion resistant all weather cabinet.

C. Unit shall be shipped fully charged with refrigerant and oil, requiring only electrical, natural gas, and duct connections for operations.

D. The cabinet is to be hot dipped galvanized steel finished with baked enamel over primer mounted on a channel base with rigging brackets on the base rail.

E. Compressor is to be equipped with external and internal overload and overheat protection, crankcase heater and high and low refrigerant pressure cut-outs.

F. Low ambient lockout control prevents compressor from operating below 55 degrees F (during economizer cycle). The control section is to include compressor contactors, condenser and evaporator fan motor relays, 24-volt control circuit transformer with circuit breaker.

G. Natural gas heating section is to have welded tubular aluminized steel heat exchanger, combustion air blower electrical re-ignition, limit switch and vent blower proving switch.

H. Unit is to include filter rack, permanent metal filter frames, modulating infinite position motorized outside air damper, all factory installed. Factory fabricated roof curb to be furnished as specified on Drawings and in this Section of the Specifications.

I. Plastic locking cover; heating/cooling thermostat furnished with unit. 2 stage heating and 2 stage cooling.

J. Roof top unit to come complete with disconnect switch for field mounting by electrician.

K. Specify and verify voltage available at job site when ordering equipment.

L. See HVAC drawings for Rooftop Unit Schedule.

2.4 CURBS

A. Prefabricated curbs are to be supplied by HVAC Contractor and installed under Section 07531. For curb dimensions of applicable fans and units see submittals and/or Drawings. This curb must be set level. General contractor may need to provide wood leveling curb.

PART 3 - EXECUTION

3.1 Roof Opening

A. Heating contractor and general contractor must verify all roof openings in relation to specific units selected from schedule as shown on the Drawings.

B. Coordinate this work with other Sections and make arrangements for framing, openings, spacing, and duct locations.

C. General contractor will provide and patch all duct openings required. Installer will inform the general contractor of all required duct openings through the roof. Work to be accomplished under Section 07510.

END OF SECTION
SECTION 23 5000

AUTOMATIC FIRE EXTINGUISHING SYSTEM

PART 1 - GENERAL
1.1 WORK INCLUDED

A. Furnish all labor and material necessary for the complete installation of an automatic fire extinguishing system as indicated on the Drawings, as specified in this Section and as required by all local governing authorities and codes.

PART 2 - PRODUCTS
2.1 AUTOMATIC FIRE EXTINGUISHING SYSTEM

A. Furnish and install in the hood and exhaust duct system a Range Guard or Ansul wet chemical fire suppression system that meets or exceeds the requirements of Underwriter’s Laboratory 300 Fire Test. Installation will be made by a manufacturer’s trained installer. All work must meet the approval of N.F.P.A., local insurance rating bureaus, local and state Fire Marshals.

B. The system will consist of at least one 2.5 gallon chemical storage cylinder, two duct nozzles, one plenum nozzle, two plenum appliance nozzles, one appliance detector, one 1.5 in. mechanical gas valve and one mechanical remote. All exposed piping and trim accessories shall be stainless steel.

END OF SECTION
DIVISION 26 – ELECTRICAL
SECTION 26 1000
ELECTRICAL

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Furnish all labor, material and equipment necessary for the complete installation of the Electrical System as shown on the Drawings, including final connections to Lessee’s or Franchise Owner’s equipment and signs, as specified herein, in accordance with the National Electrical Code, State Electrical Code, the requirements of the local Utility Company, and all applicable codes and laws.

B. It is the intent of this Section of the Specifications and accompanying Electrical Drawings to require these systems to be furnished complete in every respect, furnish all wiring and equipment needed and usually furnished in connection with such work, whether specifically mentioned or not.

1.2 PERMITS

A. Procure all necessary permits for work installed; pay all fees and charges connected herein. Deliver certificates of approval by authorities having jurisdiction over work, to the Owner, before the work will be finally accepted.

1.3 FRANCHISE OWNER’S EQUIPMENT AND SIGNS

A. Make final connections to all Lessee’s or Franchise Owner’s signs and equipment and furnish and install any fittings or incidental accessories that may be necessary or that may be required by local codes for completing final connections and making equipment ready for operation.

B. Coordinate with the approved sign installation company and, in conjunction with the sign company, make final connections to signs at the time of installation.

1.4 UNDER-SLAB UTILITIES

A. Dimensions for all under-slab utilities are critical for later equipment installation. Cross reference all Drawings and Equipment Specifications with this work including the elevations showing dimensional location of all stubs for equipment.

1.5 ALL-ELECTRICAL BUILDING

A. In areas where no gas service is available and electricity is required for cooking and heating, Architect will furnish Drawings for an all-electric building, with increased sizing of electric service and equipment to suit.

1.6 GUARANTEES AND INSTRUCTIONS

A. Guarantee all equipment, systems and work furnished and installed under this Section for a period of one (1) year from date of substantial completion thereof, against defects in material, design and workmanship.

B. Failure of any part or parts during guarantee, owing to above causes, shall be replaced promptly upon notice by Architect, without charge to the Owner.

1.7 HEATING, VENTILATING & AIR CONDITIONING & LESSEE’S OR FRANCHISE OWNER’S EQUIPMENT

A. Refer to Section 15200 for Heating, Ventilating & Air Conditioning equipment selected and make whatever adjustments to wire sizes, breakers and switches necessary for proper operation and as per code or utility company requirements.

B. Electrically operated equipment furnished and installed under other Sections shall be connected under this Section, including heating and air conditioning units, exhaust fans, thermostats, controls, all signs, and Lessee’s or Franchise Owner’s equipment.
C. Refer to the Drawings and provide all power and control wiring to the Roof Top Units, hood exhaust fans, etc. Check with Section 15200 - Heating, Ventilating & Air Conditioning, obtain all information pertaining to this equipment and make all final connections as required.

D. Refer to the Drawings and do all wiring for all exhaust fans as required.

PART 2 - PRODUCTS

2.1 SERVICE MATERIAL

A. Arrange for and install 30 amp. minimum temporary electrical service, 120-208 volts, 3-wire, single phase. Remove from site after permanent service is operating.

B. Furnish and install 120-208 volts, 3 phase, 4-wire, 60-Hertz permanent service. Amperage as indicated on Drawings. Main service switch to be sized and fused compatible with Heating, Ventilating & Air Conditioning unit size. (See Drawings and Section 15200 of Specifications for unit size.)

2.2 WIRES

A. Minimum size for branch circuit wiring shall be No. 12 AWG solid copper for 600 volt service. Where permitted by Local Code, non-metallic sheathed cable type NMC (Romex) with ground wire may be used. If required by Local Code, use BX armored cable or type THHN wire enclosed in approved metal raceways. Aluminum wire shall not be used.

2.3 CONDUIT

A. Underground conduits for pylon sign, area lighting and drive-thru menu system, as indicated on the Site Drawing shall be heavy wall, Schedule 40 PVC. Conduit shall be capped during construction to prevent entrance of foreign matter. If the use of PVC is not permitted by Local Codes, all underground conduits shall be rigid steel, heavy wall galvanized. Conduit fittings exposed to weather shall be of a type approved for such use and shall be provided with gaskets or other means of excluding moisture.

B. Conduit clamps shall be of the one screw malleable type with matching clamp backs, Appleton Electric Company or performance equal.

C. “Swab” conduit dry before pulling wires. Threads shall be protected. Underground conduit in yard runs shall be laid with 2 ft. minimum cover of sand or as required by Local Code. Where required by Local Code, use rigid steel conduit, heavy wall galvanized for all work within building. Otherwise, where raceways are required use thinwall electrical metallic tubing.

D. Sealtite conduit and fittings shall be used for final motor connections. Smallest size conduit for branch circuit wiring shall be ½ inch conduit, unless otherwise noted.

2.4 DISTRIBUTION

A. Service entry equipment and distribution panels shall be as specified and detailed on the Drawings, or approved equal only, if authorized in writing by the Architect.

B. All wiring to and from panel boards, including main service, to be run within the 2 by 6 wall (Chase) as shown on the Drawings.

2.5 SWITCHES AND OUTLETS

A. All toggle switches and receptacles shall be flush with the finish wall, unless specifically noted otherwise.

1. Interior flush boxes shall be code grade steel, securely fastened with approved devices to studs or masonry and shall be as manufactured by Raco, or approved equal.

2. Toggle switches shall be Type 54521-2-I (Ivory) as manufactured by Leviton, Inc., and shall be tumbler type 20 amp. quiet type.

3. All indoor convenience outlets shall be Type CR-15 I as manufactured by Leviton. All convenience outlets in the Sales and Dining Areas, are to be Brown if located below chair rail. All others above chair rail to be Bone.

4. Outlet and switch plates shall be of stainless steel - Leviton.

2.6 LIGHTING FIXTURES AND EQUIPMENT
A. Lighting fixtures, including lamps and clocks in kitchen and sales area, shall be as specified and detailed on the Drawings. NO SUBSTITUTIONS will be permitted, unless authorized in writing by the Architect.

1. Furnish and install all lighting fixtures and lamps in accordance with the fixture schedule shown on Drawings, complete with necessary components, mounting and hanging devices required to install the particular fixture in its designated location, completely wired and ready for operation.

2. Kitchen Fryer Exhaust Hood will be furnished with two (2) vapor-proof fixtures. Furnish and install two (2) “A” type lamps in the fixtures. Install fixtures complete with all accessories such as close nipples, extension couplings, connecting strap and screws, lock nuts, hickeys, plaster rings to form a complete fixture installation for use with any type of standard outlet or switchbox.

3. All fluorescent fixtures shall be supported independent of furred or suspended ceilings to the building structure.

4. Lamps shall be LED, fluorescent and / or incandescent as indicated - 120 volt, Sylvania, Westinghouse, General Electric, or approved equal. Incandescent lamps shall be rated at 130 volts design voltage.

5. Fluorescent fixture ballasts shall be "P" rated, with power factor, CBM-ETL certified and listed by the Underwriters’ Laboratories. All ballasts to have integral thermal protection with automatic reset, Universal or approved equal.

6. Refer to Drawings for ceiling layout and construction.

7. All sales area lighting to have warm white lamps. Furnish and install in each toilet one (1) electrical hand dryer as manufactured by Excel Dryer, Inc. (as provided by Newton Distribution—see DBI National Accounts), XL model, white metal cover with Brand approved messaging, 110-120V, 12.5 amps, 60 hz.

2.7 PANELBOARDS

Dunkin’ Brands has a National Account Program for Panelboards with NESCO. Please call NESCO at 800-244-6980 and/or email dunkinbrands@nescoweb.com.

A. All panelboards shall be dead-front, safety-type equipped with single or multi-pole circuit breakers, specified in this Section and as scheduled on the Drawings. All panelboards shall be recessed wall mounted with a minimum capacity of 42 circuits.

B. Panelboards shall be suitable for 120-208 volts, three phase, four wire operations as scheduled on the Drawings.

C. All panelboards shall have a circuit directory card mounted in a frame with plastic cover installed on the inside of the door. All directory cards shall be properly filled in "type written" and indicating areas and devices served by each circuit.

D. All circuit breakers shall be bolted-type, quick-made and quick-break type of manual operation, trip free, and with inverse time characteristics secured through the use of bimetallic thermal-magnetic tripping elements. All multi-pole breakers shall have a simultaneous trip.

E. Single pole, double and three-pole circuit breakers for lighting and power panel boards shall be 240 volts, type THQB from 15 amps through 100 amps, having NEMA interrupting capacity not less than 10,000 amperes a.c. at 240 volts or less.

F. Panelboards shall be type AQ panel boards as manufactured by General Electric or equal, Square "D" Company, I.T.E., Westinghouse or Peterson.

G. Circuit breakers in lighting panel shall be approved “Switching Type” circuit breakers.

2.8 SAFETY SWITCHES AND FUSES

Dunkin’ Brands has a National Account Program for Switches & Fuses with NESCO. Please call NESCO at 800-244-6980 and/or email dunkinbrands@nescoweb.com.

A. Safety switches shall be of the fusible type equipped with an external lever or handle for manual operation with interlocking cover.

B. Neutral conductors shall be solid throughout. Safety switches shall be Type TH as manufactured by General Electric or equal: Square "D" Company, I.T.E. and Westinghouse.

C. All fuses installed in safety switches throughout the Contract shall be non-renewable dual element type. Fuses shall be as manufactured by Gould Shawmut.
PART 3 - EXECUTION

3.1 SERVICE INSTALLATION

A. Service shall be brought overhead to rear of building without crossing roof of Shop. Provide galvanized pipe and weather head in size as shown on Drawings, bolted to wall with through bolts and plate washers inside (unless otherwise shown on Drawings). Pipe to extend 8 ft. minimum above roof and 6 ft. on wall. Provide additional support to mast, extending above roof, if required, to prevent bending. Pipe to offset if necessary for clearance of structure.

B. See Site Plan for underground service to rear of building. Include any changes required in the Electrical panels, switches, motors, wiring, breaker sizes, and equipment necessary to adapt to the service available, the requirements of the Utility Company, Local Codes or the size of Heating, Ventilating & Air Conditioning equipment specified.

3.2 TELEPHONE INSTALLATION

A. Install concealed telephone conduit including necessary pull boxes and fish wire in accordance with local telephone company requirements to locations indicated on the Drawings. When called for on the Site Drawing, also provide necessary conduit to outside telephone booth.

3.3 INSTALLATION - GENERAL

A. Cooperate with other Sections for the proper execution of this work. Supply and cooperate in the placement of inserts, sleeves and other equipment to be installed in masonry. Carefully cut necessary holes for the installation of equipment and patch in such a manner as to match the original work.

B. Make ground connection between all apparatus, signs and conduit and the water piping as required by the National Electrical Code and according to the requirements of local authorities.

3.4 MUSIC SYSTEM - SPEAKERS

A. See Section 16770.

3.5 CASH REGISTERS

A. Provide CAT 5e cable and RJ45 termination points as indicated on Drawings. Pull wire to each terminal, using equal lengths of cable from middle of front counter. Network hub is located at front line (see drawings).

B. Provide isolated second ground for each cash register.

3.6 TESTS

A. After complete connections and installation of all the Lessee’s or Franchise Owner’s equipment, test all work and equipment as required by authorities having jurisdiction, furnish all equipment necessary, personnel, and electrical power. Test the entire installation for shorts, grounds and open circuits, and correct all defects before acceptance of the work. All work shall be demonstrated to be in proper operating condition to the complete satisfaction of the Franchise Owner. Instruct the Owner’s representatives in the care and operation of all apparatus and equipment forming the installation.

3.7 EMERGENCY LIGHTING

A. Furnish and install the emergency lighting unit and remote heads as shown. See Drawings for locations and type of emergency units.

3.8 EXTERIOR AREA LIGHTING

A. Furnish and install the exterior lighting as indicated by symbols on Site Drawing. Pole and wedge series pole lights shall be manufactured by Villa Lighting or Security Lighting Systems, Inc. (Specify voltage when ordering). See Electrical Plans for building lights.

B. Features:
1. Pole - Square steel pole finished with weatherproof rust preventative paint, four (4) galvanized anchor bolts with galvanized nuts and washers, metal template, hand hole, and decorative anchor bolt cover. Verify dimensions conform to all local code requirements and restrictions before placing order.

2. Fixture - 400-watt high-pressure sodium or metal halide, dark bronze or black finish. A complete mill finished aluminum housing with access to lamp and ballast through hinged door assembly, one-piece tempered glass lens and optical system fabricated of polished alzak aluminum. Also includes adjustable tenon adapter and integral/adjustable light cup of shield.

END OF SECTION
SECTION 26 7600
DRIVE-THRU WIRELESS COMMUNICATION SYSTEM

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Furnish all labor and material necessary for the complete installation of the wireless Drive-thru Communication System shown on the Drawings, as specified in this Section and in the National Account Source Information.

PART 2 - PRODUCTS

2.1 MATERIAL / EQUIPMENT

A. Refer to the National Account Source Information for ordering information, prices, detailed item descriptions and model numbers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All installation is to be performed by an authorized installer.

END OF SECTION
SECTION 26 7700
INTERIOR MUSIC SYSTEM

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Furnish all labor and material necessary for the complete installation of the interior music system as indicated on the Drawings and as specified in this Section.

PART 2 - PRODUCTS

2.1 CEILING SPEAKERS AND HARDWARE

A. Ceiling speakers and all hardware shall be provided and installed by an approved Music vendor, model numbers as indicated on National Account Source Information. Install hardware in the office. Coordinate exact location with field representative.
B. All interior speakers to be flush mounted, and white in color. All exterior speakers are to be black in color.
C. Furnish volume control device in an area designated by the Owner, with separate volume controls for the Sales Area speakers, restroom speakers and exterior speakers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Speakers and grilles shall be installed in accordance with manufacturer’s specifications and as shown on the Architectural Drawings. Speakers are to be located in each restroom, minimum of two in the seating area, at entry to store, and at exterior seating areas where applicable. Provide one exterior speaker adjacent to the rear service door. Do not provide speakers in service areas.

END OF SECTION
PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Removal of surface debris, paving and curbs.
   2. Removal of plant life and grass.
   4. Topsoil excavation.

B. Related Sections:
   1. Section 31 2200 - Grading.

PART 2 PRODUCTS

NOT APPLICABLE

PART 3 EXECUTION

3.1 SITE CLEARING

A. Remove vegetation, debris, and obstructions from areas of structures, walks, paving and planting beds.

B. Apply herbicide to remaining stumps and plant life to inhibit growth.

C. Strip existing topsoil from areas of structures, walks, and paving. Stockpile on site for reuse as specified in Section 31 2200.

D. Grub out roots and underground obstructions to minimum depth of 12 inches.

E. Remove waste material from site as it accumulates. Comply with applicable codes and ordinances regarding waste transportation and disposal.

END OF SECTION
SECTION 31 2200
GRADING

PART 1 GENERAL

1.1 SUMMARY
A. Section Includes:
   1. Cutting and grading of site.
   2. Topsoil placement.
B. Related Sections:
   1. Section 31 1100 - Clearing and Grubbing.

1.2 SUBMITTALS
A. Sustainable Design Submittals:
   1. Regionally Extracted Materials.

PART 2 PRODUCTS

2.1 MATERIALS
A. Topsoil:
   1. Stockpiled on site material, specified in Section 31 1100, supplemented by off-site material if required.
   2. Off-site materials: Natural friable loam of region, free of clay, toxic substances, large or matted roots, debris, excess weeds, and rocks over 1 inch in any dimension, with acidity range of 5.5 to 7.5.

PART 3 EXECUTION

3.1 CUTTING AND GRADING
A. Excavate expansive subsoils from areas under and to a point 5 feet outside of structures to a minimum depth as indicated on the drawings.
B. Excavate subsoil to permit placement of structures, paving, and site improvements, and from areas to be regraded.
C. Uniformly grade areas to smooth surface at required grades and elevations. Adjust contours to eliminate water ponding and provide positive drainage. Make grade changes gradually. Blend slopes into level areas.
D. Leave areas to receive topsoil 4 inches below final required grade.
E. Leave areas to receive planting beds 3 inches below final required grade.
F. Tolerances: Within plus or minus 1 inch of required subgrade elevation.

3.2 TOPSOIL PLACEMENT
A. Place topsoil to 4 inch depth over areas modified by work of this Contract that are not covered by planting beds, structures or paving.
B. Uniformly distribute to required grades; feather back to where grades remain unchanged.
C. Uniformly grade areas to smooth surface at required grades and elevations. Adjust contours to eliminate water ponding and provide positive drainage. Make grade changes gradually. Blend slopes into level areas.

D. Remove rubbish, debris, vegetation, and concentrations of rocks. Rake areas smooth; leave suitable for seeding or sodding.

3.3 CLEANING

A. Remove surplus materials and those not suitable for reuse from site.

3.4 PROTECTION

A. Protect graded areas from traffic and erosion; keep free of trash and debris.

B. Repair settled, eroded, or rutted areas.

END OF SECTION
SECTION 31 2300
EXCAVATION AND FILL

PART 1 GENERAL

1.1 SUMMARY
A. Section Includes:
1. Excavating for structures and site components.
2. Filling.
3. Trenching.
4. Backfilling.

1.2 SYSTEM DESCRIPTION
A. Limits of Work: Do not extend earthwork beyond areas of excavation or construction shown on Drawings or reasonably necessary for performance of Work.
B. Contractor is responsible for design of temporary earth retention systems.

1.3 SUBMITTALS
A. Sustainable Design Submittals:
1. Resource Reuse.
2. Regional Materials.

PART 2 PRODUCTS

2.1 MATERIALS
A. Engineered Fill: Crushed stone or gravel graded per ASTM C136.
B. Sand: Natural river or bank sand, washed, free from silt, clay, loam, friable or soluble materials, and organic matter, graded per ASTM C136.
C. Common Fill: Reused site or imported soils free from trash, debris, roots over 1 inch in diameter, matted roots, rocks over 3 inches in diameter, topsoil, and other deleterious matter.

2.2 SOURCE QUALITY CONTROL
A. Testing and Inspection Services: Test Engineered Fill prior to placement:
1. Liquid limit, plastic limit, and plasticity index: Test to ASTM D4318.
3. Provide soil description; determine compliance with gradation and quality requirements.

PART 3 EXECUTION

3.1 EXCAVATING
A. Excavate to grades and subgrades indicated. Make excavations large enough to permit placing and inspection of work.
B. Stockpile excavated materials that are suitable for reuse separately from subgrade material.
C. Remove and dispose of excavated material that is unsuitable or not required for backfilling. Remove underground obstructions.
D. Brace sides of excavations where necessary; maintain until permanent construction is in place. Remove temporary shoring and bracing as backfill is placed.

E. Excavation for Structures:
1. Form bottoms of excavations reasonably level.
2. Maintain moisture level in excavations as near their natural level as possible.

F. Correct over-excavation under footings by use of lean concrete. Correct other over-excavation by use of Engineered Fill, compacted to density of existing subgrade.

G. Keep excavations free of water.

3.2 FILLING

A. Prior to placing fill on existing subsoils:
   1. Proof roll to detect soft and weak zones. Remove soft and spongy soils down to firm subsoil.
   2. Replace undercut areas with Engineered Fill placed in maximum 8 inch deep loose, even, horizontal lifts. Compact each lift to 95 percent of ASTM D1557 modified Proctor maximum dry density.

B. Fill low areas outside of structures and under paving with Common Fill to achieve required grades and elevations.
   1. Place fill in maximum 8 inch deep loose, even, horizontal lifts.
   2. Compact each lift to 95 percent of ASTM D1557 modified Proctor maximum dry density.

C. Fill under structures with Engineered Fill.
   1. Place fill in maximum 8 inch deep loose, even, horizontal lifts.
   2. Compact each lift to 95 percent of ASTM D1557 modified Proctor maximum dry density.

D. Do not fill over porous, wet, frozen, or soft subgrades.

E. Bench fill into slopes.

F. When moisture must be added to aid in compaction, uniformly apply water to surface, but do not flood. Free water shall not appear on surface during or after compaction operations.

G. Scarify soil too wet for proper compaction and allow to dry. Replace and recompact.

H. Uniformly grade areas to smooth surface at required grades and elevations. Adjust contours to eliminate water ponding and provide positive drainage. Make grade changes gradually. Blend slopes into level grades.

I. Tolerances: Within plus or minus 1 inch of required subgrade elevation.

3.3 TRENCHING

A. Cut trenches sufficiently wide to allow for installation of utilities and for inspection of work.

B. Hand trim excavations; remove loose matter.

C. Remove rocks and obstructions.

D. Correct over-excavation by use of lean concrete or pipe bedding material.

E. Keep trenches free of water.

3.4 BACKFILLING

A. Backfill under structures with Engineered Fill.
   1. Place backfill in loose, even, horizontal lifts maximum 8 inches deep.
2. Compact each lift to 95 percent of ASTM D1557 modified Proctor maximum dry density.

B. Backfill outside of structures and under paving with Common Fill.
   1. Place backfill in loose, even, horizontal lifts maximum 8 inches deep.
   2. Compact each lift to 95 percent of ASTM D1557 modified Proctor maximum dry density.

3.5 CLEANING

A. Remove surplus materials and those not suitable for reuse from site.

3.6 PROTECTION

A. Protect graded areas from traffic and erosion; keep free of trash and debris.

END OF SECTION
PART 1  GENERAL

1.1 SUMMARY
A. Section Includes:
   1. Aggregate base course.
   2. Asphalt concrete binder and surface courses.

1.2 REFERENCES
A. Asphalt Institute (AI):
   1. MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot Mix Types.
   2. MS-3 - Asphalt Plant Manual.

B. ASTM International (ASTM):

1.3 SUBMITTALS
A. Sustainable Design Submittals:
   1. Recycled Content.
   2. Regional Materials.

1.4 QUALITY ASSURANCE
A. Perform work in accordance with AI MS-8.

B. Mixing Plant: AI MS-3.

C. Obtain materials from same source throughout work.

1.5 PROJECT CONDITIONS
A. Do not place asphalt when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2  PRODUCTS

2.1 MATERIALS
A. Asphalt Cement:
   1. ASTM D946.
   2. Recycled content: Minimum percent as indicated on drawings.

B. Aggregate: Crushed stone and sand, graded in accordance with AI MS-2.

C. Primer: AI MS-19, homogenous, medium curing, cut back liquid asphalt.
D. Tack Coat: AI MS-19, homogenous, rapid curing, cut back liquid asphalt.

2.2 MIXES

A. Asphaltic Concrete:
   1. Uniform mixture of coarse and fine aggregate, mineral filler, and asphalt cement, accurately proportioned by weight in accordance with AI MS-2.
   2. Binder course: Coarse graded aggregate, 4.5 to 6.0 percent asphalt cement by weight.
   3. Surface course: Fine graded aggregate, 5.0 to 7.0 percent asphalt cement by weight.

PART 3 EXECUTION

3.1 CONSTRUCTION

A. Aggregate Base Course:
   1. Place to 6 inch depth after compaction.
   2. Roller compact to minimum 95 percent. Add small quantities of fine aggregate if necessary to aid compaction.
   3. Uniformly grade areas to smooth surface at required grades and elevations. Make grade changes gradually. Blend slopes into level grades.
   4. Tolerances: Within plus or minus 1 inch of required elevation.

B. Primer: Apply to base course and contact surfaces of curbs and abutments at minimum rate of 1/2 gallon per square yard.

C. Asphaltic Concrete:
   1. Place within 24 hours after applying primer.
   2. Minimum compacted thicknesses:
      a. Binder course: 2 inches.
      b. Surface course: 1 inch.
   3. Apply tack coat to binder course at minimum rate of 1/2 gallon per square yard.
   4. Compact with pneumatic roller, then with steel roller. Do not displace or extrude asphaltic concrete from position. Hand compact in areas inaccessible to rolling equipment.
   5. Roll with consecutive passes to achieve uniform, smooth surface, free from roller marks.
   6. Construction joints:
      a. Place mixture as nearly continuous as possible. Roll unprotected edge of freshly laid mixture only when laying is discontinued for such length of time as will allow cooling of mixture.
      b. When resuming work, cut back previously laid material to produce slightly beveled edge for full depth of course; place fresh mixture against fresh cut.
      c. Hot smoothing irons may be used for sealing joints; use care to avoid burning surface.
      d. Construct joints either parallel to or at right angles to longitudinal axis of work.

D. Installation Tolerances:
   1. Maximum surface deviation: Plus or minus ¼ inch in 10 feet, measured parallel to line of drainage.
   2. Maximum deviation from specified thickness: Plus or minus 1/4 inch.

END OF SECTION
PART 1  GENERAL

1.1  SUMMARY

A. Section Includes:
   1. Fence framework, fabric, and accessories.
   2. Excavation for posts.
   3. Concrete post foundations.
   4. Gates and hardware.

B. Related Sections:
   1. Section 03 3000 - Cast-In-Place Concrete.

1.2  SYSTEM DESCRIPTION

A. Fence Height: 6 feet.

1.3  SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Include layout, spacing of components, post foundation dimensions, hardware, and schedule of components.

B. Sustainable Design Submittals:
   1. Materials Reuse.
   2. Recycled Content.
   3. Regional Materials.

1.4  QUALITY ASSURANCE

A. Recycled Content: Minimum percent recycled steel, with minimum percent classified as post-consumer as indicated on drawings

PART 2  PRODUCTS

2.1  MANUFACTURERS

A. Acceptable Manufacturers:
   1. Master-Halco, Inc. (www.fenceonline.com)
   3. Perfection Fence Corp. (www.perfectionfence.com)
   4. Southwestern Wire, Inc. (www.southwesternwire.com)

2.2  MATERIALS

A. Materials and Components: Conform to CLFMI Product Manual.

B. Chain Link Fabric:
   1. Zinc-coated steel fabric: ASTM A392, hot dipped galvanized before or after weaving, Class 1 - 1.2 ounces per square foot.
   2. Fabric selvage:
      a. Mesh size 2 inches or more:
         1) 72 inches high and over: Knuckle finish one end, twist finish opposite end.
         2) Fabric less than 72 inches high: Knuckle finish top and bottom.
C. Framework:
2. Grade: Intermediate Strength.
3. Finish: Exterior zinc coating Type A, interior zinc coating Type A.
4. Sizes:
   a. Line posts: 3 inch OD.
   b. End, corner, pull posts: 3 inch OD.
   c. Top, brace, bottom, and intermediate rails, 1.660 inches OD.

D. Tension Wire: Metallic coated steel marcelled tension wire: 7 gage, ASTM A824, Type I - Aluminum-Coated (Aluminized) 0.40 ounces per square foot.

E. Fittings:
1. Tension and brace bands: Pressed galvanized steel, ASTM F626, minimum 12 gage, minimum 3/4 inch width, minimum zinc coating of 1.20 ounces per square foot, with 5/16 3/8 inch galvanized steel carriage bolts.
2. Terminal post caps, line post loop tops, rail and brace ends, boulevard clamps, and rail sleeves: ASTM F626, pressed steel galvanized after fabrication, a minimum zinc coating of 1.20 ounces per square foot.
3. Truss rod assembly: ASTM F626, 3/8 inch diameter steel truss rod with pressed steel tightener, minimum zinc coating of 1.2 ounces per square foot, capable of withstanding 2000 pound tension.
4. Tension bars: ASTM F626, galvanized steel, single piece length 2 inches less than fabric height, minimum zinc coating thickness of 1.2 ounces per square foot.

F. Swing Gates:
1. ASTM F900, galvanized steel, welded fabrication, 1.900 inch OD frame members, [ASTM F1043, Group IA, ASTM F1083 Schedule 40 pipe,] [ASTM F1043 Group IC pipe,] spaced maximum 8 feet apart vertically and horizontally.
2. Welded joints protected with zinc-rich paint in accordance with ASTM A780.
3. Positive locking gate latch fabricated from 5/16 inch thick x 1-3/4 inch pressed steel galvanized after fabrication.
4. Galvanized malleable iron or heavy gage pressed steel post and frame hinges.
5. Fabric to match fencing.

G. Concrete: Specified in Section 03 3000.

PART 3 EXECUTION

3.1 INSTALLATION

A. Framework:
1. Drill post holes into undisturbed or compacted soil.
2. Set posts in concrete footings in accordance with ASTM F567.
3. Minimum footing depth: 36 inches plus an additional 3 inches for each 1 foot increase in fence height over 4 feet.
4. Minimum footing diameter: Four times largest cross section of post up to 4.000 inches and three times largest cross section of posts greater than 4.000 inches.
5. Gate post footings: Comply with minimum requirements listed in ASTM F567.
6. Place concrete around posts in continuous pour, tamp and dome top away from post. Check for vertical and top alignment; brace posts until concrete has set.
7. Locate top of footing at grade.
8. Install line posts at maximum 10 feet on center.
9. Brace and truss end, corner, pull and gate posts for fence 6 feet and higher and fences 5 feet and higher without top rail in accordance with ASTM F567.

10. Tension wire:
   a. Install tension wire 4 inches up from bottom of fabric [and 4 inches down from top edge of fabric for fences without top rail.
   b. Stretch wire taut, independently and prior to fabric, between terminal posts and secure to terminal post using brace band.
   c. Secure wire to chain link fabric with 9 gage hog rings spaced maximum 18 inches on center and to each line post with tie wire.
   d. Install top tension wire through barbed wire arm loop for fences having barbed wire and no top rail.

B. Fabric:
   1. Install fabric to inside of framework.
   2. Attach fabric to terminal post by threading tension bar through fabric; secure tension bar to terminal post with tension bands and 5/16 inch carriage bolts spaced maximum 12 inches on center.
   3. For small mesh fabric less than 1 inch, attach to terminal post by sandwiching mesh between post and vertical 2 inch wide x 3/16 inch steel bar using carriage bolts through bar, mesh and post, spaced maximum 15 inches on center.
   4. Stretch fabric taut, without sag. Secure fabric to line posts with tie wires spaced maximum 12 inches on center and to rails at maximum 18 inches on center.
   5. Secure fabric to tension wire with hog rings spaced maximum 18 inches on center.
   6. Wrap tie wire around post or rail and attached to fabric wire picket on each side by twisting tie wire around fabric wire picket two full turns. Cut off excess wire and bend over.

C. Swing Gates:
   1. Install in accordance with ASTM F567, with gates plumb in closed position and having 3 inch bottom clearance, grade permitting.
   2. Maximum hinge and latch offset opening space from gate frame to post: 3 inches in closed position.
   3. Set double leaf gate drop bar receivers in concrete footing minimum 6 inch diameter x 24 inches deep.
   4. Install gate leaf holdbacks for double leaf gates.

3.2 INSTALLATION TOLERANCES

A. Maximum Variation from Plumb: 1/4 inch in 10 feet.

B. Maximum Offset from True Position: 1 inch.

END OF SECTION
SECTION 32 8400
PLANTING IRRIGATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Pipe and fittings, valves, sprinkler heads, accessories, and controls.

B. Related Sections:
   1. Section 31 2300 - Excavation and Fill.

1.2 REFERENCES


1.3 SYSTEM DESCRIPTION

A. Electric solenoid controlled underground irrigation system, with low point self drain.

1.4 SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Indicate piping layout to water source, location of sleeves under pavement, location and coverage of sprinkler heads, controller, plant and landscaping features, site structures, schedule of fittings to be used.
   2. Product Data: Provide component and control system and wiring diagrams.

B. Sustainable Design Submittals:
   1. Recycled Content.
   2. Regional Materials.

1.5 MAINTENANCE

A. Provide maintenance services on system for 12 months after Substantial Completion.

B. Provide two each of following extra components:
   1. Sprinkler heads: Each type and size.
   2. Valve keys for manual valves.
   3. Valve box keys.
   5. Wrenches for each type head core and for removing and installing each type head.

PART 2 PRODUCTS

2.1 MATERIALS

A. Pipe:
   1. PVC in accordance with ASTM D2241; rated minimum 200 PSI pressure rated upstream from controls and 160 PSI downstream, solvent weld sockets.

B. Fittings: Type and style of connection to match pipe.

C. Rotary Type Sprinkler Head: Pop-up type, fully adjustable for flow and pressure, with letter or symbol designating degree of arc and arrow indicating center of spray pattern.

D. Spray Type Sprinkler Head: Fixed head with pattern to suit landscape layout.
2.2 VALVES
A. Gate Valves: Bronze construction, non-rising stem, inside screw with threaded ends.
B. Backflow Preventers: Bronze body construction.
C. Valve Box and Cover: Plastic construction, green color where exposed.

2.3 CONTROLS
A. Controller: Automatic, temporary override feature to bypass cycle for inclement weather, programmable for 14 days in quarter hour increments, with automatic start and shutdown.
B. Controller Housing: Weatherproof, watertight, with lockable access door.
C. Wire: Color coded.

PART 3 EXECUTION

3.1 INSTALLATION
A. Trench for piping in accordance with Section 31 2300.
B. Install pipe, valves, controls, and outlets in accordance with manufacturer’s instructions.
C. Set sprinkler heads and box covers.
D. Install control wiring.
E. Set valve markers in pipe risers exiting from top of valve to finish grade.
F. Backfill trench and compact to subgrade elevation as specified in Section 31 2300.

3.2 ADJUSTING
A. Adjust control system to achieve time cycles required.

3.3 TESTING
A. Prior to backfilling, test system for leakage to maintain 100 psi pressure for one hour.
B. If leakage or loss of pressure occurs during test period, repair system and retest until acceptable results are obtained.

END OF SECTION
PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Sod installation.
   3. Fertilizing.

1.2 REFERENCES

A. Turfgrass Producers International (TPI) - Guideline Specifications to Sodding.

1.3 QUALITY ASSURANCE

A. Sod: Minimum age of 18 months, with root development that will support its own weight without tearing, when suspended vertically by holding upper two corners.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver sod on pallets. Protect exposed roots from dehydration.
C. Do not deliver more sod than can be installed within 24 hours.
B. Deliver fertilized in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 PRODUCTS

2.1 MATERIALS

A. Sod:
   1. ASPA approved, field grown grade; cultivated grass sod, strong fibrous root system, free of stones, burned or bare spots; containing no more than 10 weeds per 1000 square feet.

2.2 ACCESSORIES

A. Fertilizer: Type recommended for grass.
B. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.

2.3 HARVESTING SOD

A. Machine cut sod and load on pallets in accordance with ASPA Guidelines.
B. Cut sod in area not exceeding 1 square yard, with minimum 1/2 inch and maximum 1 inch topsoil base.

PART 3 EXECUTION

3.1 PREPARATION

A. Prepare subsoil; eliminate uneven areas and low spots.
B. Remove foreign materials and undesirable plants and their roots. Do not bury foreign material beneath areas to be sodded.
C. Remove contaminated topsoil.

3.2 LAYING SOD

A. Moisten prepared surface immediately prior to laying sod.
B. Lay sod within 24 hours after harvesting to prevent deterioration.
C. Lay sod tight without open joints and without overlapping; stagger end joints 12 inches minimum. Do not stretch sod pieces.
D. Lay smooth.
E. Place top elevation of sod 1/2 inch below adjoining curbs.
F. On slopes 1:2 and steeper, lay sod perpendicular to slope and secure every row with wooden pegs at maximum 2 feet on center. Drive pegs flush with soil portion of sod.
G. Immediately after installation, roll sod; remove air pockets, voids, and minor depressions and irregularities.
H. Fill voids between sod pieces with topsoil. Rake excess topsoil into sod but do not smother grass with topsoil.

3.3 WATERING

A. Water sodded areas within 2 hours after installation, to saturation.
B. Continue watering daily using less water; ensure moisture to 4 inch depth but avoid standing water.
C. When root growth is observed by lifting corners of sod, reduce watering to alternating days.
D. After 14 days, if root growth prevents sod corners from being lifted, allow sod to dry to permit mowing.

3.4 MAINTENANCE

A. Maintain lawn areas by watering, mowing, and weeding from date of installation until Substantial Completion.
B. Water to minimum depth of 2 inches; provide temporary hoses and sprinklers for non-irrigated areas.
C. Mow weekly after grass reaches 2 inch height. Neatly trim edges.
D. Remove clippings immediately after mowing and trimming.
E. Remove weeds and foreign grass weekly. Use herbicides only if approved by Architect.

3.5 FERTILIZING

A. After first mowing, apply fertilizer in accordance with manufacturer's instructions.
B. Lightly water to aid in dissipation of fertilizer.

END OF SECTION
SECTION 32 9300
TREES, SHRUBS AND GROUND COVER

PART 1  GENERAL

1.1  SUMMARY
   A.  Section Includes:
       2.  Plant materials.
   B.  Related Sections:
       1.  Section 31 2200 - Grading.

1.2  REFERENCES
   A.  American National Standards Institute (ANSI) Z60.1 - Nursery Stock.

1.3  SUBMITTALS
   A.  Sustainable Design Submittals:
       1.  Regional Materials.

1.4  QUALITY ASSURANCE
   A.  Nursery Qualifications: Company specializing in growing and cultivating plants specified in this
       Section with minimum three years’ experience.
   B.  Installer Qualifications: Company specializing in installing plants specified in this Section with
       minimum three years’ experience.
   C.  Maintenance Services: Performed by installer.
   D.  Regulatory Requirements: Comply with requirements of authorities having jurisdiction for fertilizer and
       plant materials.
   E.  Plant Materials: Described by ANSI Z60.1.

1.5  DELIVERY, STORAGE AND HANDLING
   A.  Deliver fertilizer in waterproof bags showing weight, chemical analysis, and manufacturer.
   B.  Deliver plant materials immediately prior to installation; keep moist and protect from damage until
       planted.

1.6  PROJECT CONDITIONS
   A.  Environmental Requirements:
       1.  Do not install plant materials at ambient temperatures below 35 degrees F or above 95 degrees
           F.
       2.  Do not install plants when wind velocity exceeds 30 MPH.

1.7  MAINTENANCE
   A.  Maintenance Service:
       1.  Maintain plant life immediately after placement until plants are well established and exhibit
           vigorous growing condition. Include fertilization, weeding, pruning, and insect and disease
           control.
2. Replace dead or dying plants with plants of same size and species specified; plant in next growing season.

PART 2 PRODUCTS

2.1 MATERIALS

A. Trees, Shrubs, and Ground Cover:
   1. Species and size as indicated in plant schedule; grown in climatic conditions similar to those at site.
   2. Free of disease, hazardous insects, and defects including weak or broken limbs, crotches, and damaged trunks, roots, or leaves

B. Backfill: Topsoil as specified in Section 31 2200.

C. Mulch: Shredded Hardwood, free from growth or germination inhibiting ingredients.

D. Fertilizer: General purpose type.

E. Herbicides:
   1. Translocating type.
   2. Pre-emergent type.

F. Bracing Materials:
   2. Wires: Non-corrosive material.
   3. Protectors: Rubber or other suitable material.

2.2 MIXES

A. Prepared Topsoil Mixture: Mix fertilizer with topsoil at rate of 2 pounds per inch of caliper for trees, and 1/2 pound per container plant.

PART 3 EXECUTION

3.1 PREPARATION

A. Bed Preparation:
   1. Apply translocating herbicide to grass in areas to be planted.
   2. Remove foreign materials, large rocks, and lumps.
   3. Mix in 10 pounds of fertilizer per 1000 square feet. Apply pre-emergent herbicide.
   4. Till to 6 inch depth, then fine grade to lines and levels indicated.
   5. Request approval of bed preparation and location by Architect.

B. Plant Materials:
   1. Remove synthetic and treated cloths, twines, and pots.
   2. Untreated organic cloths may be left in place; loosen from root collar to prevent girdling.
   3. Locate plants and request approval of location by Architect.

3.2 INSTALLATION

A. Dig pits and beds 6 inches larger than plant root system.

B. Set plants vertically; place for best appearance.

C. Set plants in pits or beds, on prepared topsoil mixture. Lay bare-rooted plants so roots lie in natural position.

D. Place prepared topsoil mix around plant; settle with water when hole is half full and again when full; remove air pockets.
E. Brace plants against wind damage:

F. Install guy wires with protectors where wires contact trees. Stake in position.

G. Position to prevent hazards to pedestrians where possible.

H. Do not restrict plant movement under light wind loads or damage bark.

I. Cover bare soil with minimum 4 inch layer of mulch.

END OF SECTION
SECTION 33 4000
STORM UTILITY WATER DRAINAGE

PART 1  GENERAL

1.1  WORK INCLUDED

A. Furnish all labor and material necessary for the complete installation of storm sewerage system as indicated on the Drawings and as specified in this Section.

1.2  RELATED WORK SPECIFIED ELSEWHERE

A. Section 22 0000 - Plumbing

PART 2  PRODUCTS

2.1  CATCH BASINS AND STORM WATER DRAINAGE

A. Storm water drainage system above or below grade shall be as necessary to properly carry off surface water.

B. Furnish and install catch basins as noted on Site Drawing and as required by local conditions and codes. Connect catch basins to storm drain with drain line of adequate size to carry off water. Catch basins, covers, grates, rims and drain lines shall be constructed in accordance with local or state building codes.

C. Building downspouts to be connected to the storm water system if located in areas of sidewalks or paving.

PART 3  EXCAVATION

3.1  INSTALLATION

A. Install storm sewerage system as indicated on Drawings.

END OF SECTION