SECTION 02 4119
SELECTIVE STRUCTURE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Related Documents:
   1. Drawings and general provisions of the Contract apply to this Section.
   2. Review these documents for coordination with additional requirements and information that apply to work under this Section.

B. Section Includes: Selective demolition as follows:
   1. Remove architectural, structural, plumbing, fire protection, mechanical and electrical materials and equipment as indicated or required for new construction.
   2. Fire sprinkler and domestic water mains shall remain in operation.
   3. Refer to Article 3.05 Schedules for special requirements for selected items.
   4. Remove materials from site, and dispose of legally.
   5. Disconnect, remove, cap and identify utilities for later reconnection.

C. Related Sections:
   1. Division 01 Section "Submittal Procedures."
   2. Division 01 Section "Construction Waste Management".

1.2 SUBMITTALS

A. Submit under provisions of Division 01 Section "Submittal Procedures."
B. Shop Drawings: Indicate removal sequence and location of salvageable items.
C. Project Record Documents: Accurately record locations of capped utilities.

1.3 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Comply with requirements of applicable codes, rules and regulations.
   2. Obtain required permits from City of Des Moines.
   3. Do not close or obstruct roadways or sidewalks without permits.
   4. Maintain building and room egress and access at all times. Do not reduce required egress width to exits.
   5. Minimize interference with corridors, exits, sidewalks, roadways and public thoroughfares.
   6. Comply with applicable procedures if hazardous or contaminated materials are discovered or suspected.

B. Hazardous Materials Remediation Work:
   1. Perform lead and asbestos work in accordance with requirements of local, state, and Federal regulations for lead and asbestos in construction, including but not limited to Title 8 CCR 1529 and Title 8 CCR 1532.1, and 29 CFR 1926.1101 and 29 CFR 1926.62.

1.4 PROJECT CONDITIONS

A. Protect adjacent work to remain, and items to be turned over to Muscatine County , from damage.
B. Existing Conditions:

1. If lead, asbestos or other hazardous materials are found or suspected, immediately stop work in the suspected area and advise the Owner and Architect. Do not recommence work in the area until advised by the Owner that the area has been cleared for work.

C. Owner will occupy adjacent areas during the course of the Work. Work under this Section shall not affect Owner's operation of adjacent areas.

1.5 SEQUENCING

A. Submit schedule indicating proposed sequence of operations for selective demolition work to Owner for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services, and details for dust and noise control.
   1. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's operations.
   2. Coordinate the scheduling of work of Section with the work of other sections.

PART 2 NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

A. Inspect and verify the existing conditions and become familiar with the extent of the Work.
B. Examine the site to determine proper access within the limitations of the Contract. Conduct operations so as not to interfere with adjacent roads, driveways, walks, buildings, corridors, means of access and egress, and work areas.

3.2 PREPARATION

A. Interfaces With Other Work: Coordinate extent of selective demolition work with limits of existing work to remain, and with demolition and modification requirements shown on the Drawings.
B. Protection:
   1. Protect existing materials, appurtenances and equipment which are not to be demolished. Existing materials, appurtenances and equipment, building exterior and interior, and landscaping altered or damaged during demolition work shall be repaired or replaced by the Subcontractor to match existing undisturbed conditions at no additional cost to the Owner.
   2. Prevent movement of structure; provide bracing and shoring as required.
   3. Provide and maintain temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage, or wind damage occurs to structure or interior areas of existing building.
   4. Provide and maintain temporary barriers and security devices at doorways.
   5. Use periodic light water mist, temporary enclosures, and other suitable methods to limit dust and dirt. Comply with applicable environmental protection regulations.
   6. Provide and maintain temporary partitions to prevent spread of dust, odors and noise to permit continued Owner occupancy.
   7. Maintain path of travel for debris removal dust free and clean at all times.
   8. Maintain ventilation system dust free at all times.
   9. Cover and protect windows and walls that are adjacent to areas to be demolished.

10. Protect smoke alarms and fire sprinklers from dust intrusion.
11. Maintain parking areas, driveways, exterior walkways, exit paths, and landscaping in a clean, undisturbed condition. Any debris caused by selective demolition work shall be removed each day.

C. Field verify the exact location of existing concealed utilities. Use caution if working in or about concealed or exposed utilities.
   1. Disconnect, remove, and cap designated utility lines within demolition areas. Mark locations of disconnected utilities. Identify utilities and indicate capping locations on Project Record Documents.

3.3 EXECUTION

A. Minimize interference with adjacent occupied building areas, materials and equipment.
B. Remove items in an orderly and careful manner.
   1. Remove only as much material as is required for new construction work to be conveniently performed.
   2. Cut surfaces so as to minimize the amount of new surfaces required to match existing. Make cuts plumb, true, level and straight, or as otherwise required to provide proper surfaces to receive new work and repairs.
   3. Cut asphalt and concrete by power saw in neat, sharp straight lines. Repair broken edges or as directed by the Owner.
C. Remove miscellaneous abandoned appurtenances that will be exposed to view, unless indicated otherwise.
D. Investigate and measure the nature and extent of unanticipated items that conflict with intended function or design. Submit written report with accurate detailed information to the Owner and Architect. While awaiting instructions from the Owner, rearrange selective demolition schedule as necessary to continue overall job progress without delay.
E. Eliminate dust. Install dust barriers as required to keep dust out of corridors and adjacent areas. Use walkoff mats designed to remove dust at the corridor side of doors to rooms where demolition work is being done.
   1. Activities which generate silica dust, such as concrete saw cutting, jackhammering, chipping, or abrasive blasting, shall incorporate engineering controls to eliminate visible emissions.
   2. Do not use silica sand or other substances containing more than 1 per cent crystalline silica as abrasive blasting material
   3. Use concrete and masonry saws that provide water to the blade.
   4. Prevent human exposure to dust using methods such as removing dust with water, high efficiency particulate air (HEPA) filters, and wet sweeping. Do not use compressed air or dry sweeping.
F. Stop work and notify the Owner immediately if structure or other items to remain appear to be endangered. Do not resume work until directed by the Owner.
G. Do not disrupt service to existing fire sprinkler lines. If disruption becomes necessary, coordinate with the Owner..
H. Remove, store and protect materials to be re-installed or retained so as to prevent damage.
I. Remove and promptly dispose of vermin infested materials.

3.4 DISPOSAL AND CLEANUP

A. Material removed under this Contract which is not to be salvaged or reused in the Project shall become the property of the Contractor and shall be promptly removed from the job site. Do not

store or permit debris to accumulate at the site.

B. Unless indicated otherwise, remove demolished material from site in a timely manner. Dispose of materials legally off site. Do not burn or bury materials on site.

C. Upon completion, clean the entire area of demolition residue satisfactory for the continuation of the Work. Remove temporary work.

3.5 SCHEDULES

A. Remove the following materials from the site and dispose of legally.
   1. Demolition materials.

END OF SECTION

SECTION 03 1000
CONCRETE FORMING AND ACCESSORIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.
B. Openings for other work.
C. Form accessories.
D. Form stripping.

1.2 RELATED REQUIREMENTS

A. Section 03 20 00 - Concrete Reinforcing.
B. Section 03 30 00 - Cast-in-Place Concrete.

1.3 REFERENCE STANDARDS

A. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials 2010 (Reapproved 2015).
B. ACI 301 - Specifications for Structural Concrete 2016.
C. ACI 318 - Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).
D. ACI 347R - Guide to Formwork for Concrete 2014, with Errata (2017).

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store prefabricated forms off ground in ventilated and protected manner to prevent deterioration from moisture.

PART 2 - PRODUCTS

2.1 FORMWORK - GENERAL

A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.
B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.
C. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.
D. Comply with relevant portions of ACI 347R, ACI 301 and ACI 318.
E. Use the following form types at a minimum:
    1. Elevated Floor Slabs: Prefabricated glass fiber pan forms, treated for exposed to view finish.
    2. Elevated Floor/Roof Slabs: Permanent prefabricated foam panel formwork; formwork to remain.

2.2 REMOVABLE PREFABRICATED FORMS

A. Preformed Steel Forms: Minimum 16 gage, 0.0598 inch thick, matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
B. Preformed Aluminum Forms: ASTM B221 (ASTM B221M), 6061-T6 alloy, matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
C. Glass Fiber Fabric Reinforced Plastic Forms: Matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished concrete surfaces.
D. Pan Type: Glass fiber, of size and profile indicated.
E. Wood/Laminate Forms: for smooth-surface, exposed-to-view surfaces, forms should have been used less than three times and be clean and free of debris. Forms shall be able to provide a glossy smooth texture with few air pockets when vibrated.
F. Engineer may reject any forms that do not meet smoothness and cleanliness requirements.

2.3 FORMWORK ACCESSORIES

A. Form Ties: Snap-off type, fixed length, cone type, free of defects that could leave holes larger than 1 inch in concrete surface.
   1. Contractor shall default to filling the form tie holes with smooth non-shrink grout unless otherwise directed by Engineer or Owner.
B. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.
   1. Composition: Colorless reactive, mineral oil-based, soy-based or vegetable-oil based compound.
   2. Do not use materials containing diesel oil or petroleum-based compounds.
   3. VOC Content: In compliance with applicable local, State, and federal regulations.
   4. Products:
      a. SpecChem, LLC; Bio Strip WB (water-based): www.specchemllc.com/#sle.
      b. R. Meadows, Inc; Duogard: www.wrmeadows.com/#sle.
      c. Engineer approved equivalent..
C. Chamfer Strips: Wood strip type; 3/4" size unless otherwise noted.
D. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.
E. Embedded Anchor Shapes, Plates, Angles and Bars: As specified in Section 05 12 00.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.2 ERECTION - FORMWORK

A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

C. Obtain approval before framing openings in structural members that are not indicated on drawings.

3.3 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

3.4 INSERTS, EMBEDDED PARTS, AND OPENINGS

A. Provide formed openings where required for items to be embedded in passing through concrete work.
B. Locate and set in place items that will be cast directly into concrete.
C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.
D. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.

3.5 FORM CLEANING

A. Clean forms as erection proceeds, to remove foreign matter within forms.
B. Clean formed cavities of debris prior to placing concrete.

3.6 FORMWORK TOLERANCES

A. Construct formwork to maintain tolerances required by ACI 117, unless otherwise indicated.

3.7 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 40 00 - Quality Requirements.
B. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and to verify that supports, fastenings, wedges, ties, and items are secure.
C. Do not reuse wood formwork more than 3 times for concrete surfaces to be exposed to view. Do not patch formwork.

3.8 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
    1. For concrete to receive structural loads, Contractor shall verify with Engineer when forms may be removed. Contractor shall assume these areas will need to cure within the formwork until a minimum of 75% strength has been achieved.
B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
C. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

END OF SECTION

SECTION 03 2000
CONCRETE REINFORCING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete.
B. Supports and accessories for steel reinforcement.

1.2 RELATED REQUIREMENTS

A. Section 03 10 00 - Concrete Forming and Accessories.
B. Section 03 30 00 - Cast-in-Place Concrete.

1.3 REFERENCE STANDARDS

A. ACI 301 - Specifications for Structural Concrete 2016.
B. ACI 318 - Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).
C. ACI SP-66 - ACI Detailing Manual 2004.
D. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2018.
E. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete 2018a.
F. CRSI (DA4) - Manual of Standard Practice 2009.
G. CRSI (P1) - Placing Reinforcing Bars 2011.

1.4 SUBMITTALS

A. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
B. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.
C. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

1.5 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301.

PART 2 - PRODUCTS

2.1 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi tensile).
B. Steel Welded Wire Reinforcement (WWR): Plain type; ASTM A1064/A1064M.
C. Reinforcement Accessories:
    1. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
    2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

3. Provide stainless steel, galvanized, plastic or plastic coated steel components for placement within 1-1/2 inches of weathering surfaces.

2.2 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.
B. Welding of reinforcement is not permitted.
C. Locate reinforcing splices not indicated on drawings at point of minimum stress.

PART 3 - EXECUTION

3.1 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
B. Do not displace or damage vapor barrier.
C. Accommodate placement of formed openings.
D. Maintain concrete cover around reinforcing as follows (all clearances to be 2" minimum unless otherwise noted):
   1. Walls (exposed to weather or backfill): 3 inch.
   2. Footings and Concrete Formed Against Earth: 3 inch.
   3. Slabs on Fill: 2 inch.

3.2 FIELD QUALITY CONTROL

A. An independent testing agency shall be provided by the Owner to inspect installed reinforcement for compliance with contract documents before concrete placement.
B. Installation contractor to schedule inspection with Owner's testing agency and provide access to all pours prior to placement of concrete.

END OF SECTION

SECTION 03 3000
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Concrete foundation walls.
B. Exterior sidewalks, stairs and ramps
C. Joint devices associated with concrete work.
D. Concrete curing.

1.2 RELATED REQUIREMENTS

A. Section 03 1000 - Concrete Forming and Accessories: Forms and accessories for formwork.
B. Section 03 2000 - Concrete Reinforcing.
C. Section 03 3511 - Concrete Floor Finishes: Densifiers, hardeners, applied coatings, and polishing.

1.3 REFERENCE STANDARDS

A. ACI 117 - Specification for Tolerances for Concrete Construction and Materials 2010 (Reapproved 2015).
B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete 1991 (Reapproved 2009).
C. ACI 301 - Specifications for Concrete Construction 2020.
D. ACI 302.1R - Guide to Concrete Floor and Slab Construction 2015.
E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000 (Reapproved 2009).
F. ACI 305R - Guide to Hot Weather Concreting 2020.
G. ACI 306R - Guide to Cold Weather Concreting 2016.
H. ACI 308R - Guide to External Curing of Concrete 2016.
I. ACI 318 - Building Code Requirements for Structural Concrete 2019, with Errata (2021).
J. ACI 347R - Guide to Formwork for Concrete 2014, with Errata (2017).
K. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete 2012.
L. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2018.
M. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2021.
N. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2021b.
O. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete 2020.
P. ASTM C150/C150M - Standard Specification for Portland Cement 2021.
Q. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method 2016.
R. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete 2010a (Reapproved 2016).
S. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete 2019.
T. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete 2019.

U. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing 2017.
V. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete 2020a.
W. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete 2021.
X. NSF 61 - Drinking Water System Components - Health Effects 2020.
Y. NSF 372 - Drinking Water System Components - Lead Content 2020.

1.4 SUBMITTALS

A. See Section , 01 3300 Submittals for submittal procedures.
B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
C. Mix Design: Submit proposed concrete mix design.
   1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
   2. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.
D. Test Reports: Submit report for each test or series of tests specified.
E. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.
F. Pour Sequence: Contractor to submit a pouring sequence to the Engineer for review indicating days-work limits and plans to integrate into the overall schedule.
G. Jointing Plan: Contractor to submit a jointing plan including plans for sawing and expanding slabs. Should include rough timeframes/windows and be of sufficient detail that it can be thoroughly reviewed and edited as necessary.

1.5 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.
B. Follow recommendations of ACI 305R when concreting during hot weather.
C. Follow recommendations of ACI 306R when concreting during cold weather.
D. Follow Section 01 4533 for all testing requirements.

PART 2 - PRODUCTS

2.1 FORMWORK

A. Comply with requirements of Section 03 1000.
B. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.
C. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
   1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance and complying with Section 03 1000.
   2. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
   3. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

2.2 REINFORCEMENT MATERIALS

A. Comply with requirements of Section 03 2000.
B. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
   1. Type: Deformed billet-steel bars.
   2. Finish: Unfinished, unless otherwise indicated.
C. Steel Welded Wire Reinforcement (WWR): Galvanized, plain type, ASTM A1064/A1064M.
   1. Form: Coiled Rolls.
   2. WWR Style: 4 x 8-W6 x W10.
D. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
   3. Provide stainless steel, galvanized, plastic, or plastic coated steel components for placement within 1-1/2 inches of weathering surfaces.

2.3 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
   1. Acquire cement for entire project from same source.
B. Fine and Coarse Aggregates: ASTM C33/C33M.
   1. Acquire aggregates for entire project from same source.
C. Fly Ash: ASTM C618, Class C or F.
D. Calcined Pozzolan: ASTM C618, Class N.
E. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.

2.4 ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
B. Air Entrainment Admixture: ASTM C260/C260M.
C. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.
D. High Range Water Reducing Admixture: ASTM C494/C494M Type F.
E. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.

2.5 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.
B. Epoxy Bonding System:
   1. Complying with ASTM C881/C881M and of Type required for specific application.
C. Waterstops: Bentonite and butyl rubber, complying with NSF 61 and NSF 372.
   1. Size: 1" nominal
   2. Manufacturers:
      a. CETCO, a division of Minerals Technologies Inc; WATERSTOP RX: www.mineralstech.com/#sle.
      b. Substitutions: See Section 01 6000 - Product Requirements.
D. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
E. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with rectangular or round knockout holes for conduit or rebar to pass through joint form at 6

inches on center; ribbed steel stakes for setting.

2.6 CURING MATERIALS

A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.
B. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309.
C. Curing Agent, Water-Cure Equivalent Type: Clear, water-based, non-film-forming, liquid-water cure replacement agent.

2.7 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
    1. For trial mixtures method, employ independent testing agency acceptable to Engineer for preparing and reporting proposed mix designs.
C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
D. Normal Weight Concrete:
    1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 pounds per square inch.
    2. Fly Ash Content: Maximum 35 percent of cementitious materials by weight.
    3. Water-Cement Ratio: Maximum 40 percent by weight.
    4. Total Air Content: 6 percent, determined in accordance with ASTM C173/C173M.
        a. Tolerance: +/- 1%
        b. No air required for concrete not exposed to freeze-thaw.
    5. Maximum Slump: 4 inches.
    6. Maximum Aggregate Size: 3/4 inch.
    7. Admixtures: acceptable if submitted and approved by supplier

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.2 PREPARATION

A. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
    1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
    2. Use latex bonding agent only for non-load-bearing applications.
B. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.
C. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before

covering.
1. More information on vapor retarder in section 03 0516

D. All Floor to Foundation Connections
1. Place bentonite waterstop at foundation to wall intection per Section 2.6C of this specificaction.

3.3 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.
B. Place concrete for floor slabs in accordance with ACI 302.1R.
C. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
D. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.4 SLAB JOINTING

A. Locate joints as indicated on drawings. If jointing is not indicated - Contractor is responsible for providing a jointing plan based on their pouring schedule as described earlier in this specification.
B. Anchor joint fillers and devices to prevent movement during concrete placement.
C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

3.5 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. Maximum Variation of Surface Flatness:
1. Exposed Concrete Floors: 1/4 inch in 10 feet.
2. Under Seamless Resilient Flooring: 1/4 inch in 10 feet.
3. Under Carpeting: 1/4 inch in 10 feet.

B. Correct the slab surface if tolerances are less than specified.
C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.6 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.
B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.
C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
2. Sacking: After rubbing concrete to remove imperfections, mix portland cement and sand mixture and apply to "green" concrete with burlap cloth in circular motion to fill all air voids. After drying, remove all mixture from smooth surfaces with rinsing and/or brushing.

D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
1. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include seamless flooring.
2. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

E. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal.

3.7 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. 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. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   2. Final Curing: Begin after initial curing but before surface is dry.

3.8 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4533..
B. Provide free access to concrete operations at project site and cooperate with appointed firm.
C. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.
D. Compressive Strength Tests: ASTM C39/C39M, for each test, mold and cure 5 concrete test cylinders. Obtain test samples for every 25 cubic yards or less of concrete placed. Minimum of 1/day.
E. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
F. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

3.9 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Engineer and Contractor within 48 hours of test.
B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
C. Repair or replacement of defective concrete will be determined by the Engineer. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

3.10 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

SECTION 07 1300
SHEET WATERPROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Sheet Waterproofing:
   1. Self-adhered modified bituminous sheet membrane.

1.2 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Concrete substrate.
B. Section 07 9200 - Joint Sealants: Sealing moving joints in waterproofed surfaces that are not required to be treated in this section.

1.3 ABBREVIATIONS

A. SBS - Styrene-Butadiene-Styrene.

1.4 REFERENCE STANDARDS

A. ASTM D5295/D5295M - Standard Guide for Preparation of Concrete Surfaces for Adhered (Bonded) Membrane Waterproofing Systems 2018.
B. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials 2021.
C. NRCA (WM) - The NRCA Waterproofing Manual 2005.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.
B. Product Data: Provide data for membrane.

1.6 FIELD CONDITIONS

A. Maintain ambient temperatures above 40 degrees F for 24 hours before and during application and until liquid or mastic accessories have cured.

PART 2 PRODUCTS

2.1 WATERPROOFING APPLICATIONS

A. Self-Adhered Modified Bituminous Sheet Membrane:
   1. Location: Foundation Wall to Existing Waterproofing..

2.2 MEMBRANE MATERIALS

A. Self-Adhered Modified Bituminous Sheet Membrane:
   1. Thickness: 60 mil, 0.060 inch, minimum.
   2. Water Vapor Permeance: 0.05 perm, maximum, measured in accordance with ASTM E96/E96M.
   3. Adhesives, Sealants, Tapes, and Accessories: As recommended by membrane manufacturer.

4. Products:
   a. GCP Applied Technologies; Bituthene 4000 System: www.gcpat.com/#sle.
   b. Henry Company; Blueskin WP 200: www.henry.com/#sle.
   c. W.R. Meadows, Inc; MEL-ROL: www.wrmeadows.com/#sle.
   d. Substitutions: See Section 01 6000 - Product Requirements.

2.3 ACCESSORIES

A. Sealant for Cracks and Joints In Substrates: Resilient elastomeric joint sealant compatible with substrates and waterproofing materials.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions are acceptable prior to starting this work.
B. Verify substrate surfaces are durable; free of matter detrimental to adhesion or application of waterproofing system.

3.2 PREPARATION

A. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions; vacuum substrate clean.
B. Seal moving cracks with sealant and nonrigid filler, using procedures recommended by sealant and waterproofing manufacturers.
C. Concrete Surfaces for Adhesive Bonding: Prepare concrete substrate in accordance with ASTM D5295/D5295M.
   1. Remove substances that inhibit adhesion including form release agents, curing compounds admixtures, laitance, moisture, dust, dirt, grease and oil.
   2. Repair surface defects including honeycombs, fins, tie holes, bug holes, sharp offsets, rutted cracks, ragged corners, deviations in surface plane, spalling and delaminations, as described in the reference standard.
   3. Remove and replace areas of defective concrete; see Section 03 3000.
   4. Prepare concrete for adhesive bonded waterproofing using mechanical or chemical methods described in the referenced standard.
   5. Test concrete surfaces as described in referenced standards, and verify surfaces are ready to receive adhesive bonded waterproofing membrane system.

3.3 INSTALLATION - MEMBRANE

A. Install membrane waterproofing in accordance with manufacturer's instructions and NRCA (WM) applicable requirements.
B. Roll out membrane, and minimize wrinkles and bubbles.
C. Self-Adhering Membrane: Remove release paper layer, and roll out onto substrate with a mechanical roller to provide full contact bond.
D. Overlap edges and ends, minimum 3 inches, seal permanently waterproof by method recommended by manufacturer, and apply uniform bead of sealant to joint edge.
E. Reinforce membrane with multiple thickness of membrane material over joints, whether joints are static or dynamic.
F. Weather lap joints on sloped substrate in direction of drainage, and seal joints and seams.

G. Flexible Flashings: Seal items watertight that penetrate through waterproofing membrane with flexible flashings.
H. Seal membrane and flashings to adjoining surfaces.

3.4 PROTECTION

A. Do not permit traffic over unprotected or uncovered membrane.

END OF SECTION

SECTION 07 9200
JOINT SEALANTS

PART 1 - GENERAL

1.1 DESCRIPTION:

A. This section covers interior and exterior sealant and their application, wherever required for complete installation of building materials or systems.
B. Sealing of Site Work Concrete Paving: Section 320523, CEMENT AND CONCRETE FOR EXTERIOR IMPROVEMENTS.
C. Glazing: Section 088000, GLAZING.

1.2 QUALITY ASSURANCE:

A. Installer Qualifications: An experienced installer with a minimum of three (3) years' experience and who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance. Submit qualification.
B. Source Limitations: Obtain each type of joint sealant through one (1) source from a single manufacturer.

1.3 CERTIFICATION:

A. Contractor is to submit to the Construction Manager written certification that joints are of the proper size and design, that the materials supplied are compatible with adjacent materials and backing, that the materials will properly perform to provide permanent watertight, airtight or vapor tight seals (as applicable), and that materials supplied meet specified performance requirements.

1.4 SUBMITTALS:

A. Submit in accordance with Section 013300, SUBMITTALS.
B. Contractor certification.
C. Manufacturer's installation instructions for each product used.
D. Cured samples of exposed sealants for each color.
E. Manufacturer's Literature and Data:
    1. Primers
    2. Sealing compound, each type, including compatibility when different sealants are in contact with each other.
F. Manufacturer warranty.

1.5 PROJECT CONDITIONS:

A. Environmental Limitations:
    1. Do not proceed with installation of joint sealants under following conditions:
        a. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C (40 degrees F).
        b. When joint substrates are wet.
B. Joint-Width Conditions:

1. Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

C. Joint-Substrate Conditions:
1. Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.6 DELIVERY, HANDLING, AND STORAGE:

A. Deliver materials in manufacturers' original unopened containers, with brand names, date of manufacture, shelf life, and material designation clearly marked thereon.
B. Carefully handle and store to prevent inclusion of foreign materials.
C. Do not subject to sustained temperatures exceeding 32 degrees C (90 degrees F) or less than 5 degrees C (40 degrees F).

1.7 DEFINITIONS:

A. Definitions of terms in accordance with ASTM C717 and as specified.
B. Backing Rod: A type of sealant backing.
C. Bond Breakers: A type of sealant backing.
D. Filler: A sealant backing used behind a back-up rod.

1.8 WARRANTY:

A. Construction Warranty: Comply with FAR clause 52.246-21 "Warranty of Construction".
B. Manufacturer Warranty: Manufacturer shall warranty their sealant for a minimum of five (5) years from the date of installation and final acceptance by the client. Submit manufacturer warranty.

1.9 APPLICABLE PUBLICATIONS:

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.
B. ASTM International (ASTM):
1. Elastomeric Cellular Preformed Gasket and Sealing Material
2. Mineral Fiber Block and Board Thermal Insulation
3. Standard Terminology of Building Seals and Sealants
4. Test Method for Low-Temperature Flexibility of Latex Sealants after Artificial Weathering
5. Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants
6. Use of Sealants in Acoustical Applications.
7. Elastomeric Joint Sealants.
8. Laboratories Engaged in Testing of Building Sealants
9. Standard Guide for Use of Joint Sealants.
10. Test Method for Staining of Porous Substrate by Joint Sealants
11. Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants
12. Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints
13. Test Methods for Cone Penetration of Lubricating Grease
14. Specification for Flexible Cellular Materials—Sponge or Expanded Rubber
15. Surface Burning Characteristics of Building Materials

C. Sealant, Waterproofing and Restoration Institute (SWRI).
D. The Professionals' Guide
E. Environmental Protection Agency (EPA):

1. National Volatile Organic Compound Emission Standards for Consumer and Commercial Products

PART 2 - PRODUCTS

2.1 SEALANTS:

A. Exterior Sealants:
   1. Vertical surfaces, provide non-staining ASTM C920, Type S or M, Grade NS, Class 25, Use NT.
   2. Horizontal surfaces, provide ASTM C920, Type S or M, Grade P, Class 25, Use T.
   3. Provide location(s) of exterior sealant as follows:
      a. Joints formed where frames and subsills of windows, doors, louvers, and vents adjoin masonry, or metal frames. Provide sealant at exterior surfaces of exterior wall Penetrations.
      b. Metal to metal.
      c. Masonry to masonry or stone.
      d. Masonry expansion and control joints.
      e. Wood to masonry.
      f. Masonry joints where shelf angles occur.
      g. Voids where items penetrate exterior walls.
      h. Metal reglets, where flashing is inserted into masonry joints, and where flashing is penetrated by coping dowels.

B. Floor Joint Sealant:
   1. ASTM C920, Type S or M, Grade P, Class 25, Use T.
   2. Provide location(s) of floor joint sealant as follows.
      a. Seats of metal thresholds exterior doors.
      b. Control and expansion joints in floors, slabs, ceramic tile, and walkways.

2.2 COLOR:

A. Sealants used with exposed masonry are to match color of mortar joints.
B. Sealants used with unpainted concrete are to match color of adjacent concrete.
C. Color of sealants for other locations to be light gray or aluminum, unless otherwise indicated in construction documents.

2.3 JOINT SEALANT BACKING:

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
B. Cylindrical Sealant Backings: ASTM C1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
   1. Type C: Closed-cell material with a surface skin.
C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D1056 or synthetic rubber (ASTM C509), nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 32 degrees C (minus 26 degrees F). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.4 FILLER:

A. Mineral fiberboard: ASTM C612, Class 1.
B. Thickness same as joint width.
C. Depth to fill void completely behind back-up rod.

2.5 PRIMER:

A. As recommended by manufacturer of caulking or sealant material.
B. Stain free type.

2.6 CLEANERS-NON POROUS SURFACES:

A. Chemical cleaners compatible with sealant and acceptable to manufacturer of sealants and sealant backing material. Cleaners to be free of oily residues and other substances capable of staining or harming joint substrates and adjacent non-porous surfaces and formulated to promote adhesion of sealant and substrates.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Inspect substrate surface for bond breaker contamination and unsound materials at adherent faces of sealant.
B. Coordinate for repair and resolution of unsound substrate materials.
C. Inspect for uniform joint widths and that dimensions are within tolerance established by sealant manufacturer.

3.2 PREPARATIONS:

A. Prepare joints in accordance with manufacturer's instructions and SWRI (The Professionals' Guide).
B. Clean surfaces of joint to receive caulking or sealants leaving joint dry to the touch, free from frost, moisture, grease, oil, wax, lacquer paint, or other foreign matter that would tend to destroy or impair adhesion.
    1. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants.
    2. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous joint surfaces include but are not limited to the following:
        a. Concrete.
        b. Masonry.
    3. Remove laitance and form-release agents from concrete.
    4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous surfaces include but are not limited to the following:

a. Metal.
b. Glass.

C. Do not cut or damage joint edges.
D. Apply non-staining masking tape to face of surfaces adjacent to joints before applying primers, caulking, or sealing compounds.
1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
E. Apply primer to sides of joints wherever required by compound manufacturer's printed instructions or as indicated by pre-construction joint sealant substrate test.
1. Apply primer prior to installation of back-up rod or bond breaker tape.
2. Use brush or other approved means that will reach all parts of joints. Avoid application to or spillage onto adjacent substrate surfaces.

3.3 BACKING INSTALLATION:

A. Install backing material, to form joints enclosed on three sides as required for specified depth of sealant.
B. Where deep joints occur, install filler to fill space behind the backing rod and position the rod at proper depth.
C. Cut fillers installed by others to proper depth for installation of backing rod and sealants.
D. Install backing rod, without puncturing the material, to a uniform depth, within plus or minus 3 mm (1/8 inch) for sealant depths specified.
E. Where space for backing rod does not exist, install bond breaker tape strip at bottom (or back) of joint so sealant bonds only to two opposing surfaces.

3.4 SEALANT DEPTHS AND GEOMETRY:

A. At widths up to 6 mm (1/4 inch), sealant depth equal to width.
B. At widths over 6 mm (1/4 inch), sealant depth 1/2 of width up to 13 mm (1/2 inch) maximum depth at center of joint with sealant thickness at center of joint approximately 1/2 of depth at adhesion surface.

3.5 INSTALLATION:

A. General:
1. Apply sealants and caulking only when ambient temperature is between
2. 5 degrees C and 38 degrees C (40 degrees and 100 degrees F).
3. Do not install polysulfide base sealants where sealant may be exposed to fumes from bituminous materials, or where water vapor in continuous contact with cementitious materials may be present.
4. Do not install sealant type listed by manufacture as not suitable for use in locations specified.
5. Apply caulking and sealing compound in accordance with manufacturer's printed instructions.
6. Avoid dropping or smearing compound on adjacent surfaces.
7. Fill joints solidly with compound and finish compound smooth.
8. Tool exposed joints to form smooth and uniform beds, with slightly concave surface conforming to joint configuration per Figure 5A in ASTM C1193 unless shown or specified otherwise in construction documents. Remove masking tape immediately after tooling of

sealant and before sealant face starts to “skin” over. Remove any excess sealant from adjacent surfaces of joint, leaving the working in a clean finished condition.

9. Finish paving or floor joints flush unless joint is otherwise detailed.
10. Apply compounds with nozzle size to fit joint width.
11. Test sealants for compatibility with each other and substrate. Use only compatible sealant. Submit test reports.
12. Replace sealant which is damaged during construction process.

B. For application of sealants, follow requirements of ASTM C1193 unless specified otherwise. Take all necessary steps to prevent three-sided adhesion of sealants.

C. Interior Sealants:

1. Apply a 6 mm (1/4 inch) minimum bead of sealant each side of runners (tracks), including those used at partition intersections with dissimilar wall construction.
2. Openings: Apply a 6 mm (1/4 inch) bead of sealant around all cutouts to seal openings of electrical boxes, ducts, pipes and similar penetrations. To seal electrical boxes, seal sides and backs.
3. Control Joints: Before control joints are installed, apply sealant in back of control joint to reduce flanking path for sound through control joint.

3.6 CLEANING:

A. Fresh compound accidentally smeared on adjoining surfaces: Scrape off immediately and rub clean with a solvent as recommended by manufacturer of the adjacent material or if not otherwise indicated by the caulking or sealant manufacturer.

B. Leave adjacent surfaces in a clean and unstained condition.

END OF SECTION

SECTION 08 7100
DOOR HARDWARE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Hardware for aluminum doors.
B. Thresholds.
C. Weatherstripping and gasketing.

1.2 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Sealants for setting exterior door thresholds.
B. Section 08 0671 - Door Hardware Schedule: Schedule of door hardware sets.
C. Section 08 1113 - Hollow Metal Doors and Frames.
D. Section 08 4313 - Aluminum-Framed Storefronts: Door hardware, except as noted in section.

1.3 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
B. BHMA A156.3 - Exit Devices 2020.
C. BHMA A156.5 - Cylinders and Input Devices for Locks 2020.
D. BHMA A156.8 - Door Controls - Overhead Stops and Holders 2021.
E. BHMA A156.18 - Materials and Finishes 2020.
F. BHMA A156.21 - Thresholds 2019.
G. BHMA A156.22 - Standard for Gasketing 2021.

1.4 SUBMITTALS

A. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.
B. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience and approved by manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

PART 2 PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
B. Provide individual items of single type, of same model, and by same manufacturer.
C. Provide door hardware products that comply with the following requirements:
    1. Applicable provisions of federal, state, and local codes.

2.2 THRESHOLDS

A. Manufacturers:
    1. Basis of Design: Inverge SilGuard Drainable Threshold (https://invergellc.com/ppc/drainable-door-threshold/).
B. Thresholds: Comply with BHMA A156.21.
    1. Provide threshold at each exterior door, unless otherwise indicated.
    2. Type: Flat surface.
    3. Material: Aluminum, with rubber weatherstripping.
    4. Threshold Surface: Fluted horizontal grooves across full width.
    5. Field cut threshold to profile of frame and width of door sill for tight fit.
    6. Provide non-corroding fasteners at exterior locations.

2.3 WEATHERSTRIPPING AND GASKETING

A. Weatherstripping and Gasketing: Comply with BHMA A156.22.
    1. Head and Jamb Type: Adjustable.
    2. Door Sweep Type: Encased in retainer.
    3. Material: Aluminum, with brush weatherstripping.
    4. Provide door bottom sweep on each exterior door, unless otherwise indicated.

2.4 FINISHES

A. Finishes: Provide door hardware of same finish, unless otherwise indicated.
    1. Primary Finish: 625; bright chromium plated over nickel, with brass or bronze base material (former US equivalent US26); BHMA A156.18.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.
B. Use templates provided by hardware item manufacturer.
C. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on drawings.
D. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

3.2 ADJUSTING

A. Adjust hardware for smooth operation.
B. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.3 CLEANING

A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.

3.4 PROTECTION

A. Protect finished Work under provisions of Section 01 7000 - Execution and Closeout Requirements.
B. Do not permit adjacent work to damage hardware or finish.

END OF SECTION

SECTION 08 8000
GLAZING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes reglazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
   1. Storefront framing.

1.2 DEFINITIONS

A. Interspace: Space between lites of an insulating-glass unit that contains dehydrated air or a specified gas.
B. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.
C. Deterioration of Insulating Glass: Failure of hermetic seal under normal use that is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
D. Deterioration of Laminated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

1.3 SUBMITTALS

A. Product Data: For each glass product and glazing material indicated.
B. Samples: 12-inch-(300-mm-) square, for each type of glass product indicated, other than monolithic clear float glass.
C. Glazing Schedule: Use same designations indicated on Drawings.
D. Preconstruction Adhesion and Compatibility Test Report: From glazing sealant manufacturer.

1.4 QUALITY ASSURANCE

A. Preconstruction Adhesion and Compatibility Testing: Submit to elastomeric glazing sealant manufacturers, for testing according to ASTM C1087, samples of each glazing material type, tape sealant, gasket, glazing accessory, and glass-framing member that will contact or affect elastomeric glazing sealants:
B. Safety Glazing Products: Comply with testing requirements in 16CFR1201.
C. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. IGMA Publication for Insulating Glass: SIGMATM-3000,"Glazing Guidelines for Sealed Insulating Glass Units."

1.5 WARRANTY

A. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form, made out to Owner and signed by insulating-glass manufacturer agreeing to replace insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
   1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 -PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
   1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
   2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 GLAZING GASKETS

A. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:
   1. Neoprene, ASTM C 864.
   2. EPDM, ASTM C 864.
   3. Silicone, ASTM C 1115.
   4. Thermoplastic polyolefin rubber, ASTM C 1115.
   5. Any material indicated above.

B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned gaskets of material indicated below; complying with ASTM C509,Type II, black; and of profile and hardness required to maintain watertight seal:
   1. Neoprene.
   2. Silicone.
   3. Thermoplastic polyolefin rubber.
   4. Any material indicated above.

2.3 GLAZING SEALANTS

A. General: Provide products of type indicated, complying with the following requirements:
   1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
   2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.

3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.

B. Elastomeric Glazing Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
   1. Single-Component Neutral -and Basic-Curing Silicone Glazing Sealants:
      a. Available Products:
         1) Dow Corning Corporation ; 790
         2) GE Silicones; SilPruf LM SCS2700.
         3) Tremco; Spectrem 1 (Basic).
         4) GE Silicones; SilPruf SCS2000.
         5) Pecora Corporation, 864.
         6) Pecora Corporation, 890.
         7) Polymeric Systems Inc.; PSI-641.
         8) Sonneborn, Div. of ChemRex, Inc.; Omniseal.
         9) Tremco; Spectrem 3.
      b. Type and Grade: S (single component) and NS (nonsag).
      c. Class: 100/50.
      d. Use Related to Exposure: NT (nontraffic).
      e. Uses Related to Glazing Substrates: M, G, A, and, as applicable to glazing substrates indicated, O.
         1) Use O Glazing Substrates: Coated glass color anodic aluminum galvanized steel.

2.4 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based elastomeric tape with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
   1. AAMA806.3 tape, for glazing applications in which tape is subject to continuous pressure.
   2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:
   1. Type 1, for glazing applications in which tape acts as the primary sealant.
   2. Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.5 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions with a Shore, Type A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type 0 (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

PART 3 -EXECUTION

3.1 GLAZING

A. General: Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
   1. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
   2. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
   3. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
   4. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
   5. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
   6. Providespacersforglassliteswherelengthpluswidthislargerthan50inches(1270mm).
   7. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

B. Tape Glazing: Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
   1. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
   2. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
   3. Apply heel bead of elastomeric sealant.
   4. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
   5. Apply cap bead of elastomeric sealant to conceal exposed edge of tape.

C. Gasket Glazing (Dry): Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.

1. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
2. Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
3. Install gaskets so they protrude past face of glazing stops.

D. Sealant Glazing (Wet): Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
   1. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
   2. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.2 CLEANING AND PROTECTION

A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended by glass manufacturer.

B. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism during construction period.

END OF SECTION

SECTION 09 5113
ACOUSTICAL PANEL CEILINGS

PART 1 GENERAL

1.1 SUMMARY

A. Related Documents:
   1. Drawings and general provisions of the Subcontract apply to this Section.
   2. Review these documents for coordination with additional requirements and information that apply to work under this Section.

B. Section Includes:
   1. Acoustical surfaces including acoustic lay-in panels, grid systems, and required installation accessories.

C. Related Sections:
   1. Division 01 Section "Quality Requirements."
   2. Division 01 Section "Submittal Procedures."
   3. Division 09 Section "Painting" for field painting of lay-in panels.
   4. Division 23 Sections for acoustical duct liners, sound insulated metal plenum walls, vibration isolating supports for mechanical equipment, fire sprinklers and similar items of mechanical equipment mounted on or in acoustical surfaces.
   5. Division 26 Sections for:
      a. Light fixtures, smoke detectors and similar items of electrical equipment mounted in or on acoustical surfaces.
      b. Furnishing and installation of safety wires for recessed lighting fixtures.

1.2 REFERENCES

A. General:
   1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
   2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.
   3. Refer to Division 01 Section "Quality Requirements" for the list of applicable regulatory requirements.

B. ASTM International:
   1. ASTM C635 - Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
   2. ASTM C636 - Installation of Metal Ceiling Suspension Systems - Acoustical Tile and Lay-in Panels.

C. Ceilings & Interior Systems Construction Association:
   1. Ceiling Systems Handbook.
   2. Guidelines for Seismic Restraint of Direct-Hung Suspended Ceiling Assemblies—Seismic Zones 3 & 4.

D. UL - Underwriter’s Laboratories System Ratings.

1.3 SUBMITTALS

A. Submit under provisions of Division 01 Section "Submittal Procedures."

B. Product Data:

1. Manufacturer’s specifications, installation instructions and product data on metal grid system components, acoustical units, and all other products to be used.
2. Approved ICBO report for fasteners proposed to be used to attach acoustical ceilings to building superstructure.

C. Shop Drawings: Show grid layout and dimensioning, panel layouts, lighting fixtures, air diffusers, grilles, and all other items exposed in acoustical ceilings, locations of seismic braces and hangers, and suspension, seismic and bracing details. Show details of junctions with other work or ceiling finishes, and special conditions.

D. Samples:
1. Acoustic panels of each type – 6 by 6 inches (150 by 150 mm) minimum.
2. Grid system components, including suspension system main runner, cross runner, edge trim, and all special shapes, in 12 inches (300 mm) lengths.

1.4 QUALITY ASSURANCE

A. Installer's Qualifications: 5 years minimum experience with and specializing in acoustical ceilings installations.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site in original, undamaged, unopened containers bearing manufacturer's name, style, color and product number of each type of material.

B. Comply with manufacturer’s recommendations for storage of materials to be used in the work.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Unless otherwise required by the manufacturers of the materials, temperatures are to be maintained at 60 degrees F. or higher, and humidity at 20 to 40 percent, prior to, during and after installation.

1.7 SEQUENCING AND SCHEDULING

A. Do not install acoustical ceilings until building is enclosed, sufficient heat is provided, dust-generating activities have terminated, and overhead work is completed, tested and approved. Schedule installation of acoustic units after interior wet work is dry.

1.8 EXTRA MATERIALS

A. Upon completion of work, deliver stock of replacement materials of acoustical panels used in the work to the Project Manager. Furnish at least 10 percent or 10 panels, whichever is greater, of full-size units of each type, color and pattern of acoustical panel installed. Package extra materials in manufacturer’s standard, sealed, unopened boxes, labeled with manufacturer's name, style, number and color of unit, local distributor’s name, address and telephone number, and locations where installed in Project.

PART 2 PRODUCTS

2.1 ACOUSTICAL PANEL (AP) MATERIALS

A. USG “Mars” 86185, 3/4 inches thick, 24 by 24 inches as shown on Drawings, square edge, white, mineral fiber, Class A, CAC range 35-39.

2.2 GRID SUSPENSION SYSTEM (GS)

A. Manufacturers: Chicago Metallic Corp., Donn, Eastern, or National Rolling Mills, USG.
B. Basis of Design: USG Donn Brand DX System or equal.
C. System Description: Systems shall be of steel construction and shall consist of main and cross runners, perimeter trim, connectors, hangers and all accessories necessary for the complete installation.
    1. All systems shall permit the installation of recessed lighting fixtures upon the flanges of the systems and any form of splice or other obstruction which would inhibit or render such installation of fixtures difficult will not be permitted.
D. Finish: Factory finished white baked enamel over bonderized, electro-zinc-coated steel.
E. Main and Cross Runners:
    1. GS 1: 15/16 inch (14 mm) flange narrow suspension system, intermediate duty steel, grid module to suit lay-in panel size. Include 7/8 inch (14 mm) wide perimeter trim members.
F. Connectors and Clips: Manufacturer's standard.
G. Hanger and Bracing Wires: Fed. Spec. QQ-W-461, Class 1, galvanized and annealed, 12 gage minimum.
H. Fasteners: Fasteners used for attachment of acoustical ceilings to building superstructure shall have an approved ICBO report.
I. Edge Sealer: Latex adhesive designed for the purpose of sealing field-cut edges of acoustic panels, as manufactured by Kelly-Moore, Inc., or equal.

PART 3 EXECUTION

3.1 EXAMINATION

A. Surfaces shall be dry and wet work completed prior to commencing installation. Inspect surfaces to receive acoustical work and report any defects. Starting work implies acceptance of surfaces and existing conditions.

3.2 INSTALLATION

A. Coordinate installation with other trades whose work adjoins or combines with acoustical ceilings. Unless otherwise shown, equipment, fixtures, etc., applied on or within acoustical panels are to be located symmetrically with respect to both axes. Provide grid members required to accommodate lay-in air diffusers and similar items of mechanical equipment.
B. Except as otherwise specified to meet structural requirements, make installation of grid systems and acoustical materials in strict accordance with approved manufacturer's specifications or recommendations and Drawing details. Where details and/or these Specifications are in apparent conflict with manufacturer's recommendations, the more stringent requirement shall apply.
C. Grid Suspension Systems:
    1. Structural Requirements:
        a. Attachment to Building Superstructure: Install fasteners used to attach grid suspension system to building superstructure in accordance with the requirements of their approved ICBO report.
            1) Install suspension systems in flat, level plane unless otherwise shown, joints in exposed members tight and aligned without offsets. Direction of main runners, where not specifically indicated, shall be determined by fixture layout.

2) Unless closer spacings are required by manufacturer of system, space hanger wires along main runners at 4 feet (1.2 m) maximum. Provide special hangers as required where items above ceiling obstruct normal hanger wires.
3) Provide hold-down clips for lay-in panels where required to prevent lifting and flutter caused by air pressures.
4) Install perimeter trim at wall and abutting vertical surfaces. Flange of trim shall be at the same level as flanges of main and cross runners.
5) Level suspension systems to a tolerance of 1/8 inches (3 mm) in 12 feet (3.6 m).

D. Unless otherwise shown on reflected ceiling plans, align grid members and tile joints parallel to perimeter walls with pattern centered in room areas both directions.

3.3 PROTECTION

A. Protect the finished installation from damage during balance of construction period. Remove any soiled or damaged items and replace with new before acceptance of Project by District.

END OF SECTION

SECTION 09 6500
RESILIENT FLOORING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Resilient tile flooring.
B. Resilient base.
C. Installation accessories.

1.2 REFERENCE STANDARDS

A. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile 2004 (Reapproved 2018).
B. ASTM F1861 - Standard Specification for Resilient Wall Base 2021.
C. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings 2011.

1.3 SUBMITTALS

A. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
B. Selection Samples: Submit manufacturer's complete set of color samples for Design Professional's initial selection.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.
B. Store all materials off of the floor in an acclimatized, weather-tight space.

1.5 FIELD CONDITIONS

A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2 PRODUCTS

2.1 TILE FLOORING

A. Vinyl Composition Tile - Type [____]: Homogeneous, with color extending throughout thickness.
    1. Manufacturers:
        a. Armstrong Flooring, Inc; Excelon SDT: www.armstrongflooring.com/#sle.
        b. Johnsonite, a Tarkett Company; [_____]: www.johnsonite.com/#sle.
        c. Match Existing if Possible.
    2. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.
    3. Size: 12 by 12 inch.
    4. Thickness: 0.125 inch.

5. Color: To be selected by Design Professional from manufacturer's full range.

2.2 RESILIENT BASE

A. Resilient Base - Type [____]: ASTM F1861, Type TS rubber, vulcanized thermoset; style as scheduled.
   1. Manufacturers:
      a. Johnsonite, a Tarkett Company; [_____]: www.johnsonite.com/#sle.
      b. Roppe Corporation; Contours Profiled Wall Base System: www.roppe.com/#sle.
      c. Match Existing if Practical.
   2. Height: 4 inch.
   3. Thickness: 0.125 inch.
   4. Finish: Satin.

2.3 ACCESSORIES

A. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.

3.2 PREPARATION

A. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI (RWP).
B. Clean substrate.

3.3 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of subfloor conditions.
B. Install in accordance with manufacturer's written instructions.
C. Adhesive-Applied Installation:
   1. Spread only enough adhesive to permit installation of materials before initial set.
   2. Fit joints and butt seams tightly.
   3. Set flooring in place, press with heavy roller to attain full adhesion.

3.4 INSTALLATION - TILE FLOORING

A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.

3.5 INSTALLATION - RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
B. Install base on solid backing. Bond tightly to wall and floor surfaces.

END OF SECTION

SECTION 09 9100
PAINTING

PART 1 GENERAL

1.1 SUMMARY

A. Related Documents:
   1. Drawings and general provisions of the Subcontract apply to this Section.
   2. Review these documents for coordination with additional requirements and information that apply to work under this Section.
   3. Refer to other Sections for references to painting work included under this Section.

B. Section Includes:
   1. Field application of paints and coatings.
   2. Unless otherwise specified or shown, paint all surfaces and items which are exposed to view, including those out of doors or on roofs.
   3. Surface preparation.

C. Related Sections:
   1. Division 01 Section "Quality Requirements."
   2. Division 01 Section "Submittal Procedures."

D. Surfaces Not To Be Painted:
   1. Prefinished items, except prefinished items specified to be field painted in Article [3.03] [and] [3.09].
   2. Walls or ceilings of concealed or inaccessible areas.
   3. Fire or smoke rating labels on doors or frames.
   4. Equipment name plates.
   5. Heat detectors.
   6. Smoke detectors.
   7. Piping identification labels.
   8. Moving parts of mechanical or electrical equipment.

1.2 REFERENCES

A. General:
   1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
   2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.
   3. Refer to Division 01 Section "Quality Requirements" for the list of applicable regulatory requirements.

1.3 SUBMITTALS

A. Submit under provisions of Division 01 Section "Submittal Procedures."

B. Product Data:
   1. Materials List: Complete list of proposed manufacturers and products.
   2. Manufacturer's Specifications: Manufacturer’s technical information for each product, including paint analysis and application instructions.
   3. Material safety data sheets for each product.

C. Samples:
   1. Preliminary Samples: 8-1/2" x 11" samples of each color, texture and sheen on glossy card stock.
   2. Field Samples: After preliminary samples have been approved, apply minimum 30" x 30" field samples at locations designated by Project Manager for final approval.
      a. Do not prepare interior field samples until permanent lighting is in place and operating.
      b. Allow for applying field samples two additional times in order to achieve desired colors, without additional cost to District or delay in schedule.
D. Certificates: Provide certificate from each manufacturer stating material is premium quality and suitable for intended use on this Project.
E. Closeout Submittals:
   1. Two copies of manufacturer's color and sheen formula, and 4" x 6" color chips, for each final color used in the Project.
   2. Product Usage Records: Three copies of product usage records for each paint, coating and solvent product used in the project. Include product name, amount used, description of use and use location, and period of time over which the product was used.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the work of this section with minimum 5 years successful experience in work of similar scope.
B. Manufacturer's Instructions: Perform painting work in accordance with manufacturer's written instructions and recommendations.
C. Pre-Installation Meeting: Before painting begins, meet with Project Manager, Architect and Subcontractor to discuss painting work, color schedule, product compliance, and hazardous material remediation.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the Project in original, new, unbroken packages and containers bearing manufacturer's name and label, with:
   1. Name of material, color and sheen.
   2. Manufacturer’s name, product number and date of manufacture.
   3. Contents by volume of major pigments, vehicle constituents and volatile organic compound (VOC) content.
   4. Thinning and application instructions.

1.6 PROJECT CONDITIONS

A. Comply with paint manufacturer's instructions on temperature and humidity conditions under which materials can be applied.
B. Environmental Requirements:
   1. Silica Dust: Incorporate controls to eliminate visible emissions from any activity , which may generate silica dust, such as abrasive blasting.
      a. Do not use silica sand or other substances containing more than 1 per cent crystalline silica as abrasive blasting materials.
      b. Prevent exposure of workers and others to dust using methods such as removing dust with water, high efficiency particulate air (HEPA) filters, and wet sweeping. Do not use compressed air or dry sweeping to remove dust.

2. Contain and dispose of materials resulting from cleaning, including lead-containing materials, in accordance with District procedures and applicable regulations.
3. Disposal down District sanitary drains or storm drains of solvents, etching materials, or water contaminated with solvents or etching materials, is not permitted. Contain and dispose of such materials at legal disposal sites approved for this purpose.

1.7 MAINTENANCE STOCK

A. Provide 1 full gallon of each type and color of finish coats used on the Project. Label with paint manufacturer, paint type, product number, color, sheen and its representative use on the Project.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: Benjamin Moore, Diamond Vogel, Sherwin Williams or approved equal.

2.2 MATERIALS

A. Material Quality:
   1. Provide premium quality materials. Materials not bearing manufacturer's identification as a premium-grade product are not acceptable.
   2. Should manufacturer's specifications or product numbers change, provide its current equal or better product.
   3. Primer and undercoats are to be of same manufacturer as final coat.
   4. Materials left from previous jobs are not acceptable.
   5. Use only thinners approved by paint manufacturer, and use only within recommended limits.
   6. Etching Solutions: As recommended by paint manufacturer for the use intended.
   7. Solvents: Non-petroleum based, as recommended by paint manufacturer for the use intended.
   8. Crack Filler: Elastomeric, approved by paint manufacturer for the particular use intended.
B. Finish Coat Coordination: Provide finish coats which are compatible with prime paints used.
   1. Review other Sections in which prime paints are provided. Ensure compatibility of total coating systems.
   2. Upon request from other trades, furnish information on characteristics of finish materials proposed for use.
   3. Provide barrier coats over incompatible primers, or remove and reprime.
   4. Notify Owner's Representative in writing of any problems anticipated in use of specified coating systems with substrates primed by others.

2.3 COLORS

A. General:
   1. Use of proprietary names in color selections does not imply exclusion of equivalent products of other manufacturers.
   2. The proposal and acceptance of any paint manufacturer shall not restrict District to selection of standard colors of that manufacturer.
   3. Color palette will consist of existing colors.

B. Finish coat colors shall be factory mixed.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions under which painting work is to be applied.
B. Do not paint over dirt, rust, scale, grease, oil, dust, moisture, scuffed or damaged surfaces, or conditions detrimental to a durable paint life.
C. Starting work indicates acceptance of conditions of surfaces and within any particular area.

3.2 PREPARATION

A. Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as specified for substrate condition.
B. Remove hardware, accessories, and items in place and not to be painted, or provide protection prior to surface preparation and painting. Reinstall removed items after painting.
C. Clean surfaces before applying paint. Remove oil and grease prior to mechanical cleaning. Schedule cleaning so contaminants from cleaning process do not fall onto wet, newly painted surfaces.
D. Moisture Content: Do not paint over surfaces where moisture content exceeds manufacturer's instructions.
E. Ferrous Metals:
    1. Bare Surfaces: Clean of oil, dirt, loose mill scale, and other foreign substances with solvent or by mechanical cleaning.
    2. Shop Applied Primer: Touch up where damaged or bare using same type of primer as adjacent surfaces.
    3. Galvanized Surfaces: Clean free of oil and surface contaminants using etching solution, and rinse with water to neutralize
F. Non-Ferrous Metals: Remove contaminants with water, detergent or solvents. Allow metal to dry, then abrade to remove surface oxides.
G. Gypsum Board: Remove dust, and repair surface imperfections. Spot-prime defects after repair.
H. Mix painting materials in accordance with manufacturer's instructions.
I. Store materials in tightly covered containers. Maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.
    1. Cover containers of coatings or solvents when not in use.
J. Stir materials before application to produce mixture of uniform density, and stir as required during application. Do not stir surface film into material, strain material before using if necessary.

3.3 APPLICATION

A. Apply paint in accordance with manufacturer's instructions. Use applicators and techniques best suited for substrate and type of material being applied.
    1. Apply additional coats when stains or blemishes show through final coat, until paint is a uniform finish, color and appearance.
    2. Ensure dry film thickness at corners and crevices is equivalent to that of flat surfaces.
    3. Sand lightly between each succeeding enamel or varnish coat.

4. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment and furniture with prime coat only.
5. Paint interior surfaces of ducts, where visible through registers or grilles, with black, non-specular flat paint.
6. Paint backs and sides of access panels and removable or hinged covers to match exposed surfaces.
7. Finish exterior doors on tops, bottoms and side edges same as exterior faces.
8. Paint door louvers, glass stops [and astragals] to match color of door faces.
9. Paint prime coated access panels, grilles, louvers, etc., same color as adjacent surfaces, or, if adjacent surface does not require painting, use color as directed.
10. Paint ducts and piping which are exposed in finished areas, or are out-of-doors including roofs, to match wall or ceiling color.

B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated or otherwise prepared for paint as soon as practicable after preparation.
1. Do not apply materials in areas where dust is being generated, or will be generated, before coatings are thoroughly dry.
2. Do not commence painting work in an area or space until all firestopping work in that area or space has been completed and inspected.
3. Allow time between successive coats to permit proper drying.
4. Do not recoat until paint feels firm and does not deform or feel sticky under moderate thumb pressure.

C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to achieve a total dry film thickness (DFT) as recommended by coating manufacturer.

D. Prime Coats: Apply to items not previously primed. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat. Prime all CMU surfaces with block filler primer.

E. Finish Coats: Provide even texture. Leave no laps, irregularity in texture, skid marks, or other surface imperfections.
1. Opaque Finishes: Provide opaque, uniform finish, color and coverage. Cloudiness, spotting, holidays, brush marks, runs, sags, ropiness or other surface imperfections are not acceptable.
2. Transparent Finishes: Provide glass smooth surface film of even luster. Cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections are not acceptable.

F. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not accepted.

3.4 FIELD QUALITY CONTROL

A. Owner may require materials testing procedures at any time during field painting.

B. If test results show material being used does not comply with requirements, Subcontractor may be directed to remove non-complying work, pay for testing, and repaint surfaces at no additional cost to owner.

3.5 CLEANING

A. Remove discarded paint materials, rubbish, cans and rags from site at end of each workday.
1. Keep flammable materials in approved labeled containers in a well-ventilated area.

2. Cover containers of coatings or solvent products when not in use.

B. Protection: Protect work of other trades, whether to be painted or not. Correct damage by cleaning, repairing, replacing, or repainting, as acceptable to Project Manager.
   1. Clean glass and paint-spattered surfaces immediately by proper methods of washing and scraping. Do not damage or scratch finished surfaces.
   2. Do not paint fire sprinkler heads, heat detectors, or smoke detectors. If painted by Subcontractor, remove and replace with new items at no additional cost District.
   3. Provide “Wet Paint” signs to protect new painted finishes.
   4. Remove temporary protective wrappings, provided by others for protection of their work, after completion of painting operations.
   5. Do not cover operating mechanical or electrical equipment.

C. Repair: At completion of work by other trades, touch up and restore damaged surfaces or defaced painted surfaces.

3.6 PAINT SCHEDULE - COATINGS

A. Primers:
   1. Metals - Unprimed Ferrous:
      a. Preparation: Commercial Blast (Sspc-Sp6)
      b. Dry Mils 2.7
         1) Voc 91 G/L
         2) Waterborne Primer & Finish
   2. Metals - Shop Primed:
      a. Touch Up
      b. Dry Mils 2.7
         1) Voc 91 G/L
         2) Waterborne Primer & Finish
   3. Concrete Masonry Units:
      a. Dry Mils 7.7
         1) Voc <50 G/L

3.7 COATING SYSTEMS:

A. Masonry, Wood, Gypsum Board:
   1.
      a.
      b.
         1) Voc 0 G/L
      c. Dry Mils 1.6
         1) Voc 0 G/L

END OF SECTION