CESC, INC. INVITATION TO NEGOTIATE
Amended 9.18.2020 v4

Invitation to negotiate (ITN) For: Modifications for HVAC and Construction Elements at the Kearney Center in response to COVID-19. Proposals will be received via email to David.Draughon@cesctlh.org until 5pm, September 25, 2020. *Version

[RFP ID 005] Issued: __________ August 28, 2020 __________
Submission deadline: 5:00pm/________ September 25, 2020 deadlines around submission are only revisions in Version 4 of the ITN.

Questions:

ALL QUESTIONS PERTAINING TO THIS ITN MUST BE SUBMITTED BY 5pm, September 24, 2020

Questions need to be emailed to:

David.Draughon@cesctlh.org
Questions and answers will be shared with all bidders on the Kearney Center website.

Introduction

Connecting Everyone with Second Chances (CESC) is a 501(c)(3) private non-profit organization with a goal to offer help and hope by creating solutions that provide a path to self-sufficiency to those in poverty. We execute this mission through a variety of projects one being the Kearney Center which provides congregate shelter for adults experiencing homelessness, the others being low-income housing at Westgate and the Dwellings.

Connecting Everyone with Second Chances (CESC) invites proposals for an HVAC Contractor to make modifications and adjustment to the HVAC system and architectural elements in the Kearney Center facility to more effectively reduce the spread and transmission of pandemic viruses. CESC will received CARES Funds through Leon County to support the cost of this project.
Background

Built in 2014 and opened in April 2015, the Kearney Center has 36,000 square feet of space which includes 2 sleeping wings, a kitchen and dining facility, medical and dental operations, community meeting rooms, classroom, and offices. Prior to COVID-19, the Center served an average nightly number of 365 clients and provided day services (meals, showers, case management and more) to an additional 50-60 clients.

With the onset of COVID-19, and CDC guidance to for people to stay 6-feet apart, CESC partnered with Florida State University’s School of Interior Design to estimate the number of clients in a re-configured space that could be housed. The initial estimate is 145 clients could sleep in the dormitories six feet apart. Given the congregate nature of the building, the board of directors recommended moving all clients to non-congregate spacing until a plan could be devised to bring clients into a safer place.

In early August 2020, Clemons Rutherford & Associates Inc. (CRA) was selected to recommend upgrades. Outlined below are CRA’s initial considerations regarding scope of work:

- HVAC issues. Coordinate with Mechanical to ensure air distribution does not short circuit the physical modifications of spaces; Optimized Airflow Patterns; Distributing the supply and return air in such a way as to not cross contaminate high traffic areas with occupied workspaces. Re-Zoning certain units (or adding units) within the facility to allow for compartmentalized spaces and as to avoid the recirculation of air to other zones. Addition of specialty air cleaning equipment in localized spaces of employee and patron occupancy where required. Zone Pressurization by proper outside and exhaust rates per system zone. An overall building pressurization calculation to determine where transfer air is being moved throughout the building. Rebalancing of the existing DOAS unit and other surrounding units outside air amounts to accomplish pressure relationships between spaces as required by the CDC guidelines and ASHRAE. Addition of exhaust to prevent air from high traffic areas to propagate into occupied work areas. Unit Filtration Specifications will be provided for the appropriate filtration as required by the CDC guidelines and ASHRAE that will work in the existing systems filter racks. Estimated costs are 65-85% of project.

- Modify existing spaces to provide greater opportunities to compartmentalize areas and further reduce the amount of uncontrolled air movement. Estimated costs are 15-35% of project.
  a) Isolate food serving counter from corridor traffic when not in use – replace grille with solid slat overhead door.
  b) Isolate dining area when not in use - replace grille with solid slat overhead door
  c) Add wall and door at corridor serving women’s dorm to compartmentalize air flow in this area
  d) Add doors at each of the restrooms to better control air movement; At entrance, provide lower ceiling at corridor and increase wall at waiting area to reduce air movement

Copy of the current Floor Plan, HVAC layout and CRA Project Manual and 50% plans are attached.

Submission Procedure

Proposals conforming to the requirements set out below must be received by email David.Draughon@cesctlh.org no later than the deadline given above. Proposals must state that they are valid for a period of at least ninety (90) days from the closing deadline.

CESC reserves the right to waive irregularities and to reject any or all bids. CESC also reserves the
right to negotiate with the selected bidder.

CESC may consider informal any bid not prepared and/or not submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered.

**Modification of Bids**

Modifications to bids already submitted will be allowed if submitted in writing prior to the time fixed in the Request for Proposals. Modifications shall be submitted as such and shall not reveal the total amount of either the original or revised bids.

**Opening, Evaluation and Contracting**

Proposals may be opened by CESC at any time after the submission deadline. All proposals satisfying the requirements of this Request for Proposals will be evaluated to establish which of the offerors best fulfills the needs of CESC and this project. CESC anticipates entering into a contract with this/these offeror(s) to execute the proposed work. This Request for Proposals, however, does not commit CESC to award a contract, to pay any costs incurred in the preparation of a proposal or to contract for the goods and/or services offered. CESC reserves the right to accept or reject any or all proposals received as a result of this request, to negotiate with all qualified offerors or to cancel this Request for Proposals, if it is in the best interests of CESC to do so. The decision of CESC shall be final.

**Scope of Services**

This scope of the work is seeking proposal from qualified contracting firm. The successful HVAC contractor shall work with CRA and CESC leadership to implement plans for the Kearney Center that will accomplish the scope of work below. CESC will be awarded a total of $301,000 for all Construction/HVAC costs to support the agreed upon work by CRA and CESC.

- Compartmentalization of the areas in the buildings based on the functions, optimized airflow patterns, zone pressurization, exhaust ventilation, units’ filtrations and etc. with modifications of operations per CDC guidelines.
- Efforts will align with CDC Guidelines for Environmental Infection Control in Health-Care Facilities (2003) Air changes/hour (ACH) and time required for airborne-contaminant removal by efficiency to increase efficiency of airborne contaminants.
- Efforts needs to meet CDC Interim Guidance for Homeless Service Providers to Plan and Respond to Coronavirus Disease 2019 (COVID-19)
- Facility layout considerations primarily advance safety protocols to maintain social distancing which may include the following changes: use of plexiglass; staff office reconfiguration; partner offices reconfiguration; reconfiguration of dining space and seating
- Since work must be completed by December 1, 2020, CRA and CESC will work with HVAC contractor and based on timelines may agree to focus on projects that can be accomplished within that timeline.

**Proposal Response**

BIDDERS SHOULD NOTE THAT ANY AND ALL WORK INTENDED TO BE
SUBCONTRACTED AS PART OF THE BID SUBMITTAL MUST BE ACCOMPANIED BY BACKGROUND MATERIALS AND REFERENCES FOR PROPOSED SUBCONTRACTOR(S).

Proposals should include responses to the questions below and sent in according to the Submission Procedures provided above.

- The name of the person in your business who would be the official contact person for any contractual relationship.
- Experience: A description of your businesses experience in performing HVAC contracting and potential subcontracting to meet the scope of services being requested by CESC.
- Statement of Work: Include a management plan for the work. Describe the level of work to be performed to meet the Scope of Services. All aspects of the project must be completed by December 1 and payments by December 30, 2020, in order to access the CARES funds. Consideration of this requirement should be made in advancing proposal.
- Costs: Please describe ability to work cost effectively and within a budget.
- Minority business, women’s business enterprises, are encouraged to apply.

Evaluation Criteria

The proposals received will be evaluated based on the following criteria:

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>MAXIMUM WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience on Similar Projects</td>
<td>25 points</td>
</tr>
<tr>
<td>Management Plan with clear timelines</td>
<td>50 points</td>
</tr>
<tr>
<td>Competitive pricing (use examples of work with HVAC systems or other like work)</td>
<td>25 points</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100 POINTS</td>
</tr>
</tbody>
</table>

The successful bidder must be able to comply with the following:

<table>
<thead>
<tr>
<th>PROVISION</th>
<th>CITATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proof of insurance and bonding</td>
<td></td>
</tr>
<tr>
<td>General Liability Insurance (2M minimum) – name CESC, Inc. as an additional insured</td>
<td></td>
</tr>
<tr>
<td>Proof of Workers Compensation Insurance</td>
<td></td>
</tr>
<tr>
<td>Recipient Termination</td>
<td>2 CRF Part 200 Appendix II</td>
</tr>
<tr>
<td>Clean Air Act</td>
<td>42 U.S.C. 7401</td>
</tr>
<tr>
<td>PROVISION</td>
<td>CITATION</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>Federal Water Pollution Control Act</td>
<td>33 U.S.C. 1251</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>2 CRF Part 200 Appendix II</td>
</tr>
<tr>
<td>Debarment and Suspension</td>
<td>Executive Orders 12549 and 12689</td>
</tr>
<tr>
<td>Recycling</td>
<td>2 CRF Part 200 Appendix II</td>
</tr>
<tr>
<td>Davis-Bacon Act</td>
<td>40 U.S.C. 327-333</td>
</tr>
<tr>
<td>Rights to Inventions Made Under a Contract or Agreement</td>
<td>37 CFR part 401</td>
</tr>
<tr>
<td>Contractor Breach Clause</td>
<td>2 CFR Part 200 Appendix II</td>
</tr>
</tbody>
</table>
KEARNEY CENTER
COVID 19 RESPONSE

TALLAHASSEE, FLORIDA

INDEX OF DRAWINGS

T-10 Single copy & copies of drawings

ARCHITECTURAL
A1.1 ENGINEER PLAN
A1.2 ENGINEER SHEET 1
A1.3 ENGINEER SHEET 2
A1.4 ENGINEER SHEET 3
A2.1 REVISION SHEET
A2.2 REVISION SHEET 1
A2.3 REVISION SHEET 2
A2.4 REVISION SHEET 3
A2.5 REVISION SHEET 4

MECHANICAL
M1.1 PLAN AND SCHEDULES
M1.2 PLAN AND SCHEDULES
M1.3 PLAN AND SCHEDULES
M1.4 PLAN AND SCHEDULES
M1.5 PLAN AND SCHEDULES

ELECTRICAL
E1.1 PLAN AND SCHEDULES
E1.2 PLAN AND SCHEDULES
E1.3 PLAN AND SCHEDULES

LOCATION MAP
DEMOLITION KEYED NOTES:

1. REMOVE EXISTING CONDENSING UNIT FROM ROOF RACK. DEMOLISH EXISTING REFFRIGERANT PIPING, CONTROLS, POWER, TIE DOWN SUPPORTS AND OTHER APPURTENANCES AS NECESSARY FOR COMPLETE REMOVAL. TURN UNIT OVER TO OWNER FOR SALVAGE.

2. REMOVE EXISTING INDOOR AIR HANDLING UNIT. DEMOLISH EXISTING REFRRIGERANT PIPING, CONTROLS, POWER, SUPPORTS, HEATING HOT WATER COIL, LOAD MATCH ACCESSORIES, DUCTWORK (TO LIMITS INDICATED) AND OTHER APPURTENANCES AS NECESSARY FOR COMPLETE REMOVAL. TURN UNIT OVER TO OWNER FOR SALVAGE.

3. DEMOLISH GALVANIZED SHEET METAL DUCT, SUPPORTS, FLEXIBLE DUCT AND DAMPERS TO LIMITS INDICATED. GRILLES SHALL REMAIN AND BE REUSED. CLEAN AND ENSURE PROPER FUNCTIONALITY OF ALL EXISTING GRILLES TO REMAIN.

4. DEMOLISH EXISTING SIDEWALL GRILLE AND DAMPER. SEAL LEFTOVER OPEN PENETRATION IN DUCTWORK AIR TIGHT AND REPAIR INSULATION.

5. DEMOLISH EXISTING DUCT TO WALL. FIRE DAMPER SHALL REMAIN.
TO DETERMINE IF EXISTING RACK CAN ACCOMMODATE BOTH NEW UNITS AS CORRIDOR. BALANCE TO FLOW RATES SHOWN.

EX EF-1

TOP OF EXISTING WALL PARTITIONS. INSTALL SIDEWALL GRILLES ONTO INSTALL NEW SUPPLY AIR DUCTWORK ABOVE OFFICE SPACE AND SUPPORT ON.

EX RTU-1

SCHEDULE.

THROUGH SAME PATH AS EXISTING UNIT. BALANCE AIR FLOW RATES PER EX AHU-5

8X8

80 EXH

AH-1

- EX

LOCATION. IF NEW, THEN GRILLE SHALL MATCH THE LOOK OF THE EXISTING

680    CFM OA

2700  CFM SA

- EX

- EX

- EX

2300  CFM OA

630    CFM OA

2200  CFM RA

NEGATIVE PRESSURE WITH RESPECT TO THE ADJACENT ZONES.

EX RTU-2

- EX

- EX

- EX

6

8

2

2

EX

EX

85

- EX

- EX

- EX

- EX

- EX

SHALL HAVE THEIR OUTSIDE AIR DAMPERS OPEN FULLY THROUGHOUT BOTH OCCUPIED

CONTRACT DOCUMENTS EXCEPT WHERE INDICATED IN BUILDING PRESSURE SCHEDULE AND REBALANCE NOTES THIS EACH GRILLE SHOWN ON THE EXISTING

ELIMINATE AIR BYPASS AROUND FILTER WHEN UNIT IS FUNCTIONING. INSTALL

DAMPER TO ALL EXISTING GLASS PANELS.

NOTE SHEET BILLET FOR ADDITIONAL GLASS PANELS NOT SHOWN ON

EACH GLASS PANEL.

NOTE SHEET BILLET FOR ADDITIONAL GLASS PANELS NOT SHOWN ON.

NOTE SHEET BILLET FOR ADDITIONAL GLASS PANELS NOT SHOWN ON.

NOTE SHEET BILLET FOR ADDITIONAL GLASS PANELS NOT SHOWN ON.

NOTE SHEET BILLET FOR ADDITIONAL GLASS PANELS NOT SHOWN ON.

FLOOR PLAN A - RENOVATION - HVAC

KEY PLAN

EX EF-2
Robert E. Gelhardt II, P.E.  FL 77568
EX RTU-4
- 6"Ø
- 8"Ø
- 1380
- 200
- 32x10

EX EF-3
- 8"Ø
- 48x24
- 80
- 4
- 95
- 1/4" = 1'-0"

EX RTU-5
- 6"Ø
- 8"Ø
- 13

EX DSA-2.1
- 6"Ø
- 205
- 1
- 65
- 20x18

EX DSCU-1
- 6"Ø
- 80
- 16X12

EX CU-10
- 6"Ø
- 80
- 16X12

EX RTU-1
- 6"Ø
- 80
- 16X12

GRILLE SHALL BE LOCATED AS TO NOT BE SEEN WHEN STANDING IN THE INSTALL NEW SUPPLY AIR DUCTWORK ABOVE OFFICE SPACE AND SUPPORT ON LOCATION. CONNECT NEW SPLIT SYSTEM TO EXISTING DUCTWORK, AVOID SLEEPING WITHIN THE DORM AREAS. ARE SLEEPING WITHIN THE DORM AREAS. AND UNOCCUPIED HOURS WHEN PATRONS OAU-2
- 680    CFM OA
- 2950  CFM SA
- 2200  CFM RA

AH-2
- 300    CFM OA
- 1900  CFM SA
- 2100  CFM SA

AH-3
- 2200  CFM RA
- 3700  CFM SA

AH-9
- 1950  CFM OA
- 2600  CFM OA
- 1870  CFM RA

AH-11
- 1350  CFM RA
- 1900  CFM SA
- 2200  CFM RA

AH-7
- 65
- 20x18

AH-1
- 1900  CFM SA
- 2100  CFM SA
- 680    CFM OA

AH-4
- 2200  CFM RA
- 3700  CFM SA

RTU-4
- 6"Ø
- 8"Ø
- 13

RTU-1
- 6"Ø
- 8"Ø
- 13

AH-1
- 1900  CFM SA
- 2100  CFM SA
- 680    CFM OA

RTU-5
- 6"Ø
- 8"Ø
- 13

AH-3
- 2200  CFM RA
- 3700  CFM SA

AH-9
- 1950  CFM OA
- 2600  CFM OA
- 1870  CFM RA

AH-11
- 1350  CFM RA
- 1900  CFM SA
- 2200  CFM RA

AH-7
- 65
- 20x18

AH-1
- 1900  CFM SA
- 2100  CFM SA
- 680    CFM OA

AH-4
- 2200  CFM RA
- 3700  CFM SA

© 2011 CLEMONS, RUTHERFORD & ASSOCIATES, INC.

The Drawings, Specifications and other documents prepared by Clemons, Rutherford & Associates, Inc. (CRA) for this project are instruments of CRA for use solely with respect to this project and, unless otherwise provided, CRA shall be deemed the author of these documents and shall retain all common law, statutory and other reserved rights, including the copyright. The Owner shall be permitted to retain copies, including reproducible copies, of CRA's Drawings, Specifications and other documents for information and reference in connection with the Owner's use and occupancy of the Project. CRA's Drawings, Specifications or other documents shall not be used by the Owner or others on other projects, for additions to this Project or for completion of this Project by others, unless the Architect is adjudged to be in default under this Agreement, except by agreement in writing and with appropriate compensation to CRA.

### TABLE OF CONTENTS

**DIVISION 1 - GENERAL REQUIREMENTS**

**DIVISION 2 – EXISTING CONDITIONS**

**DIVISION 3 - CONCRETE**

**DIVISION 4 – MASONRY**

**DIVISION 5 - METALS**

**SECTION 054500 - LIGHT GAGE STEEL FRAMING SYSTEM** ................................. 054500-1 – 054500-3

**DIVISION 6 – WOOD, PLASTICS, AND COMPOSITES**

**SECTION 061000 - ROUGH CARPENTRY** ................................................................. 061000-1 – 061000-2

**SECTION 062000 - FINISH CARPENTRY** ............................................................... 062000-1 – 062000-2

**SECTION 064023 - INTERIOR ARCHITECTURAL WOODWORK** ................................ 064023-1 – 064023-5

**DIVISION 7 - MOISTURE PROTECTION**

**DIVISION 8 - OPENINGS**

**SECTION 081113 - HOLLOW METAL DOORS AND FRAME** ............................... 081113-1 – 081113-2

**SECTION 081416 - FLUSH WOOD DOORS** .............................................................. 081416-1 – 081416-2

**SECTION 083113 - ACCESS DOORS AND FRAMES** ............................................... 083113-1

**SECTION 084113 - ALUMINUM ENTRANCES AND STORE FRONTS** .................. 084113-1 – 084113-5

**SECTION 085113 - ALUMINUM WINDOWS** ............................................................ 085113-1 – 085113-5

**SECTION 087100 - FINISH HARDWARE** ................................................................. 087100-1 – 087100-8

**SECTION 088000 - GLASS AND GLAZING** ............................................................. 088000-1 – 088000-6

**DIVISION 9 - FINISHES**

**SECTION 092900 - GYPSUM DRYWALL** ................................................................. 092900-1 – 092900-4

**SECTION 093000 - TILE** ......................................................................................... 093000-1 – 093000-4

**SECTION 095100 - ACOUSTICAL CEILINGS** ............................................................ 095100-1 – 095100-2

**SECTION 096513 - RESILIENT WALL BASE** .......................................................... 096513-1 – 096513-4

**SECTION 099100 - PAINTING** ................................................................................ 099100-1 – 099100-5

**DIVISION 10 - SPECIALTIES**

**DIVISION 11 – EQUIPMENT**

**DIVISION 12 - FURNISHINGS**

END OF TABLE OF CONTENTS
SECTION 054500 - LIGHT GAGE STEEL FRAMING SYSTEM

PART 1 - GENERAL

1.01 SCOPE: The work under this section consists of furnishing and installing light gauge framing and bracing as shown on the contract documents and as specified.

   A. Wind design

      1. Wind design shall be per ASCE 7-98 (V-110 MPH, I = 1.15).

   B. All bridging and bracing, including erection bracing, required for the finished product shall be designed and furnished. Bracing required for horizontal wind loads shall be designed for loads indicated on the plans and specifications, and as required by applicable codes.

   C. Spacing and layout of framing must be coordinated with existing W-section steel beams.

   D. All framing connections shall be designed and furnished. Connections shall be designed for all loading conditions; including uplift and reactions from horizontal wind load transfer.

1.02 REFERENCE STANDARDS

   A. The following documents of the issue in effect date of material procurement, referred to thereafter by basic designation only form a part of this specification to the extent indicated by reference thereto.

      1. American Iron and Steel Institute: Specifications for the Design of Cold-Formed Steel Structural Members.


1.04 SUBMITTALS

   A. Product Data: Submit technical data covering materials, shapes, hardware, fabrication process, handling, and erection.

   B. Shop Drawings: Submit shop drawings showing shapes and dimensions of members to be used, including pitch, span, chamber configuration, and spacing for each type of configuration. Show all bearing and anchorage details. Specify and detail all supplemental framing, strapping, complete bracing, bracing clips, bridging and other required for proper installation and to satisfy all designed requirements. Shop drawings and calculations must prepared by, and sealed, sealed and dated by, an engineer registered in the State of Florida. Shop drawings bearing the seal, signature and date of the Florida registered engineer responsible for their preparation shall be submitted for approval.

   C. Furnish certification demonstrating that connections have been physically tested at a testing facility to support values used in design.
SECTION 054500 - LIGHT GAUGE STEEL FRAMING SYSTEM (continued):

1.05 DELIVERY, STORAGE, AND HANDLING

A. Handle and store materials and accessories, and in accordance with manufacturer's instructions to avoid damage from bending, overturning or other cause for which truss is not designed to resist or endure. Storage shall be off-ground in a dry ventilated space or protect with waterproof coverings.

PART 2 - PRODUCTS

2.01 FRAMING COMPONENTS

A. Design, analysis, and computation of section properties shall be in conformance with the Specification for the Design of Cold-Formed Steel Structural Members of the American Iron and Steel Institute.

B. All galvanized structural members shall be formed from steel that corresponds to the requirements of ASTM A-653.

C. All steel members shall be galvanized with a G-60 coating minimum.

2.02 FASTENERS

A. Framing Components shall be fastened to each other by screws as recommended manufacturer.

PART 3 - EXECUTION

3.01 FABRICATION

A. All metal framing shall be erected in accordance with the current printed instructions of the approved Subcontractors or fabricator.

B. All framing components shall be straight and true prior to fabrication. Flattening or straightening of components shall be done by a process not injurious to materials.

C. All framing components shall be cut neatly to fit against abutting members.

D. Provide all angles, clips, and other miscellaneous pieces necessary to attach other materials to light gauge framing.

E. All components shall be set square in line and shall be held firmly in position until properly fastened.

H. All components shall be joined by screws.

I. Finished assemblies shall be free from twist, bends, or open joints with all members straight, square, and true to line.

J. All Light Gage trusses shall be shop fabricated. Field fabrication will not be allowed.

3.02 ERECTION

A. All light gauge steel framing shall be erected by approval methods using equipment of adequate capacity to safely perform the work.

B. The Contractor is responsible for checking dimensions and assuring fit of all members before erection begins.
C.  All work shall be erected plumb and level and to dimensions, spacing, and elevations indicated on drawings.

D.  Members shall be of size and spacing shown on the approved shop drawings.

E.  Provide temporary bracing as required.

F.  Install permanent bracing and related components to withstand live and dead loads, wind uplift, material wind loads, and to comply with other indicated requirements.

END OF SECTION 054500
SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.01 Lumber, General: Manufacture lumber, S4S and grade stamped, to comply with PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review. Provide seasoned lumber with 19 percent moisture content at time of dressing and shipment, for sizes 2” or less in thickness. All lumber shall be fire-retardant treated.

1.02 Blocking: All wood blocking shall be a minimum 3/4" plywood. This applies to backing supporting for millwork, toilet accessories, t.v. brackets, etc. or unless otherwise indicated in drawings or by manufacturer of the product being hung.

A. Wood blocking methods shall be approved by manufacturers of all wall supported systems.

1.03 Related Sections:

A. Section 064023 – Interior Architectural Woodwork.
B. Section 102800 – Toilet and Bath Accessories for blocking requirements.

PART 2 - PRODUCTS

2.01 Dimension Lumber:

A. Construction grade light-framing lumber (2"-4" thick, 2"-4" wide): Any species graded under WWPA or WCLIB rules or Southern Pine graded under SPIB rules or Western Spruce-Pine-Fir graded under NLGA rules.

B. Studs (2"-4" thick, 2"-6" wide, 10’ and shorter): "Stud" or No. 3 Structural Light Framing grade, any species graded under WWPA, WCLIB, SPIB OR NLGA rules.

2.02 Lumber for Miscellaneous Uses: Unless otherwise indicated, provide Standard grade lumber for support of other work, including bucks, nailers, blocking, furring, grounds, stripping and similar members.

2.03 Fasteners and Anchorages: Of size, type, material and finish suited to application shown and of quality equal to products by Simpson Strong Tie Co., Inc. Provide metal hangers and framing anchors of size and type recommended for intended use by manufacturer. Hot-dip galvanize fasteners and anchorages for work exposed to weather, in ground contact and high relative humidity to comply with ASTM A 153.

2.04 Preservative pressure treat lumber with water-borne preservatives to comply with AWPA C2 and C9, respectively, and with AWPB LP-22 (Wood for Ground Contact Use) and AWPB LP-2 (Wood for Above-Ground Use).

A. Treat nailers, blocking, and similar items in conjunction with flashing and treat sills, blocking, furring, and similar items in direct contact with masonry or concrete.

2.05 WALL SUPPORT SYSTEM AND ROUGH-IN REQUIREMENTS: Provide blocking as recommended by the manufacturer for all wall hung items.

PART 3 - EXECUTION

3.01 Install rough carpentry work to comply with "Manual of House Framing" by National Forest Products Assoc. (N.F.P.A.) and with recommendations of American Plywood Association (APA), unless otherwise indicated. For sheathing and other products not covered in above standards, comply with recommendations of manufacturer of product involved for use intended. Set carpentry work to required levels and lines, with members plumb and true and cut to fit.

3.02 Securely attach carpentry work to substrates and supporting members using fasteners of size that will not
penetrate members where opposite side will be exposed to view or receive finish materials. Install fasteners without splitting wood; fasten panel products to allow for expansion at joints unless otherwise indicated.

3.03 Provide wood framing members of size and spacing indicated; do not splice structural members between supports.

END OF SECTION 061000
SECTION 062000 - FINISH CARPENTRY

PART 1 - GENERAL

1.01 Submittals: Submit product data and samples for each type of finish required, and for each type of application.

PART 2 - PRODUCTS

2.01 Lumber Standards: Comply with PS 20 "American Softwood Lumber Standard" for lumber and with applicable grading rules of inspection agencies.

2.02 Plywood Standards: Comply with PS 1 "U.S. Product Standard for Construction and Industrial Plywood" for plywood and, for products not manufactured under PS 1, with APA PRP-108.

2.03 Formaldehyde Emission Levels: Comply with formaldehyde emission requirements of HPMA FE for hardwood plywood.

2.04 Wood Moisture Content: Comply with requirements of referenced quality standard and manufacturer's recommendations for moisture content of finish carpentry.

2.05 Preservative Treatment Standard: Comply with NWWDA I.S. 4 for exterior finish carpentry to receive water-repellent preservative treatment.

2.06 Wood Trim:

A. Species: Yellow Pine.
   1. Finish: Light stain and polyurethane.
   2. Profiles:
      a. Wall and Ceiling Paneling: Equal to EF San Juan SG 5020 (3/4" x 5-1/8")
      b. Ceiling Trim and Apron at Window Sills: Equal to EF San Juan CV4098 (3/4" x 3/4").
      c. Window Sills: Equal to EF San Juan WS 4107 (3/4" x See detail on sheet 5/A3.1)
      d. Base: 1 x 6, no profile,
      e. Window and Door Casings: 1 x 6, no profile.

B. Species: Paint grade hardwood.
   1. Finish: Paint.
   2. Profiles:
      a. Window and Door Casings: 1 x 6, no profile.
      b. Window Sills (Classrooms): Equal to EF San Juan WS 4000 (13”/16”)
      c. Window Sill (Restrooms): Equal to EF San Juan WS4107 (3/4” x See detail on sheet )
      d. Apron at Window Sills: Equal to EF San Juan CV 4098 (3/4” x 3/4")
      e. Base: Equal to EF San Juan BS 1009 (3/4” x 6” h).

PART 3 - EXECUTION

3.01 Condition finish carpentry to average prevailing humidity conditions in installation areas before installation for a minimum of 24 hours.

3.02 Install finish carpentry plumb, level, true, and in proper alignment with adjacent materials. Use concealed shims where required for alignment. Scribe and cut finish carpentry to fit adjoining work, and refinish and seal cuts as recommended by manufacturer.
3.03 Repair damaged or defective finish carpentry where possible to eliminate functional or visual defects. Where not possible to repair, replace finish carpentry. Adjust joinery for uniform appearance.

END OF SECTION 062000
SECTION 064023 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 – GENERAL

1.01 RELATED DOCUMENTS:
   A. Drawings and Division 1, apply to work of this section.

1.02 DESCRIPTION OF WORK: Extent of each type of architectural millwork is indicated on drawings. Types of architectural millwork include laminate clad cabinets including tops and opaque shelving.

1.03 QUALITY ASSURANCE
   A. AWI Quality Standard: Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI) and American Laminators Association (ALA), except as otherwise indicated.
   B. Installer Qualifications: Arrange for installation of architectural millwork items by same firm which fabricated them.

1.04 SUBMITTALS
   A. Shop Drawings: Submit shop drawings showing location of each item, dimensioned plans and elevations, large scale details, joinery, attachment devices and other components. All shop drawings shall indicate use of particle board with minimum density of 45# throughout panels and plywood.
   B. Samples: Submit samples of plastic laminate and all cabinet hardware, one unit of each type and finish.

1.05 DELIVERY, STORAGE, AND HANDLING
   A. Protect millwork during transit, delivery, storage and handling to prevent damage, soiling and deterioration.
   B. Do not deliver millwork, until painting, wet work, grinding and similar operations which could damage, soil or deteriorate millwork have been completed in installation areas. If, due to unforeseen circumstances, millwork must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

1.06 PROJECT CONDITIONS
   A. Conditioning: Millwork Manufacturer and Installer shall advise Contractor of temperature and humidity requirements for millwork installation and storage areas. Do not install millwork until required temperature and relative humidity have been stabilized and will be maintained in installation areas.
   B. Maintain temperature and humidity in installation area as required to maintain moisture content of installed millwork within a 1.0 percent tolerance of optimum moisture content, from date of installation through remainder of construction period. Require Millwork Manufacturer to establish optimum moisture content and required temperature and humidity conditions.

PART 2 – PRODUCTS

2.01 ACCEPTABLE LAMINATE MANUFACTURER
   A. Manufacturer: Subject to compliance with requirements, provide high pressure decorative laminates by Wilsonart, Formica, Nevamar, Pionite OR approved equal.
2.02 MATERIALS

A. ARCHITECTURAL CABINETS AND SHELVING UNITS, LAMINATE CLAD: Comply with the following requirements:

Grade: Custom.

Construction: Semi-Reveal Overlay. Panel Type Construction.

Notes: 1. All construction shall be 45# density particleboard throughout panel.
2. All cabinets over 36” wide to have 3/4” continuous top.
3. Shelving units over 33” wide shall have vertical divider support or reinforced.
4. Drawer bottoms over 24” wide shall be reinforced.
5. Cabinets shall have a separate and continuous pressure treated sub-base. Cabinet sides to floor will not be acceptable.
6. Use largest sheets of laminate available to avoid butt seams. Butt seams will only be accepted when larger sheet size is unavailable.


Edge Treatment: Doors and drawers shall receive 3mm PVC banding, machine applied with waterproof hot melt adhesive with external edges and outside corners machine profiled to 1/8” radius for safety; Cabinet bodies and shelving shall receive 1mm PVC banding, machine applied with waterproof hot melt adhesive. Shelves shall have 1mm PVC banding on front and back edge.

Concealed Surfaces: 120 gram minimum Thermofused Melamine finish. Color to be selected by Architect.

Colors: See Color Legend in the Finish Plans. PVC color selections shall include wood grainsand patterns, and not be limited to stock colors.

Comply with AWI Section 400 and its Division 400B.

B. ARCHITECTURAL CABINET TOPS: Solid surfacing:

Grade: Custom.

Comply with AWI Section 400 and its Division 400C.

Grommets: Provide one (1) 2½” grommet by Doug Mockett & Co. Inc. (800-523-1269) for each 48” length of workstation countertop or as shown on drawings. Locations to be determined in the field by Owner.

Notes: 1. Counter tops to be 1/2” solid surfacing over 3/4” plywood with 1 1/4” built-up front edge up to 36” wide.
2. All counter tops to receive backer sheet.
3. Exposed corners shall have 1½” radius.
4. Tops over 36” wide to receive 3/4” continuous top with backer sheet. Counter tops longer than 36” shall have intermediate supports at 36” o.c.
C. CABINET HARDWARE AND ACCESSORY MATERIALS

Concealed Hinges: Grass 3000 Series, self closing, 110E swing, 2 per door and 4 per door on units over 60” high.

Metal Drawer Slides: BHMA A156.9, Zargen Drawer Slide System.
   Box Drawer Slides (Grade 1HD-100): For drawers not more than 6 inches high and 24 inches wide.
   File Drawer Slides (Grade 1HD-200): For drawers more than 6 inches high or 24 inches wide with 6110 Pendaflex Railing by Grass American Inc.

Metal Drawer Sides: Height shall be within 1" of depth of face of drawer.

Pulls: Hafele, Model 117.31.436, 153mm wide x 30mm deep; steel with a matte chrome finish. 1 per door or drawer.

Shelf Pins (Optional): 5mm pin holes with dual pin, anti tip shelf supports suitable for 3/4” or 1” shelving. 32mm line bore holes with double pin reinforced supports tested for over 250 lbs. with anti-lift supports to provide a non-tip feature suitable for 3/4” or 1” thick shelving.

D. FASTENERS AND ANCHORS:

1. Screws: Select material, type, size and finish required for each use. Comply with FS FF-S-111 for applicable requirements.

2. Nails: Select material, type, size and finish required for each use. Comply with FS FF-N-105 for applicable requirements.

3. Anchors: Select material, type, size and finish required by each substrate for secure anchorage. Provide non-ferrous metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion-resistance. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts and anchors, as required, to be set into concrete or masonry work for subsequent millwork anchorage.

2.03 FABRICATION, GENERAL

A. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of lumber at time of fabrication and for relative humidity conditions in the installation areas.

B. Fabricate millwork to dimensions, profiles, and details indicated with openings and mortises precut, where possible, to receive hardware and other items and work.

C. Complete fabrication, assembly, finishing, hardware application, and other work before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

D. Pre-Cut Openings: Fabricate architectural millwork with pre-cut openings, where possible, to receive hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing-in diagrams for proper size and shape. Smooth edges of cutoffs and, where located in countertops and similar exposures seal edges of cutouts with a water-resistant coating. Exposed openings to receive plastic grommets.
SECTION 064023 - INTERIOR ARCHITECTURAL WOODWORK (continued):

E. **Measurements:** Before proceeding with fabrication of millwork required to be fitted to other construction, obtain field measurements and verify dimensions and shop drawing details as required for accurate fit.

PART 3 - EXECUTION

3.01 **PREPARATION**

A. **Condition millwork** to average prevailing humidity conditions in installation areas prior to installing.

B. **Prior to installation** of architectural millwork, examine shop fabricated work for completion, and complete work as required, including back priming and removal of packing.

3.02 **INSTALLATION**

A. **Install millwork plumb, level, true and straight** with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level (including tops); and with no variations in flushness of adjoining surfaces.

B. **Scribe and cut** millwork to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.

C. **Anchor millwork** to anchors or blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fasteners heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with millwork, and matching final finish where transparent finish is indicated.

D. **Cabinets:** Install without distortion so that doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete the installation of hardware and accessory items as indicated.

E. **Tops:** Anchor securely to base units and other support systems as indicated.

3.03 **ADJUSTMENT, CLEANING, FINISHING, AND PROTECTION**

A. **Repair damaged** and defective millwork where possible to eliminate defects functionally and visually; where not possible to repair replace millwork. Adjust joinery for uniform appearance.

B. **Clean,** lubricate and adjust hardware.

C. **Clean millwork** on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.

D. **Complete the finishing** work specified as work of this section, to whatever extent not completed at shop or prior to installation of millwork.

E. **Provide final protection** and maintain conditions, in a manner acceptable to Fabricator and Installer, which ensures architectural millwork being without damage or deterioration at time of substantial completion.

END OF SECTION 064023
SECTION 081113 – HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 STANDARDS: In addition to other specified requirements, comply with Steel Door Institute "Recommended Specifications for Standard Steel Doors and Frames" (SDI-100), for the following classifications:

A. Interior Doors: SDI-100, Grade III, heavy-duty, Model 1, minimum 18-gage faces.

B. Exterior Doors: SDI-100, Grade III, extra heavy-duty, Model 2, minimum 16-gage faces.

1.02 SUBMITTALS: With manufacturer's standard details and specifications for steel doors and frames, submit shop drawings showing application to project, as required.

1.03 FIRE-RATED ASSEMBLIES: Provide units that display appropriate UL or FM labels for fire-rating indicated.

1.04 THERMAL INSULATED ASSEMBLIES: Provide thermal insulating door and frame assemblies tested in accordance with ASTM C 236, with U factor of 0.24 Btu/(hr x sq ft x deg. F) or better at all exterior locations.

PART 2 - PRODUCTS

2.01 MANUFACTURER: One of the following OR Approved Equal:

Amweld Building Products, Inc.
Ceco Door Products.
Curries Co.
Mesker Door, Inc.
Pioneer Industries, Inc.
Steelcraft / Division of Ingersoll Rand.
Republic Builders Products.

2.02 MATERIALS: Steel doors and frames; hot-rolled, pickled and oiled per ASTM A 569 and A 568; cold-rolled per ASTM A 366 and A 568.

A. Galvanized sheets: ASTM A 526 with ASTM A 525, A 60 zinc coating, mill phosphatized. (At exterior doors and frames).

B. Anchors and Accessories: Manufacturer's standard units. Use galvanized items for units built into exterior walls, complying with ASTM A 153.

C. Doors: Comply with SDI-100, of the types and styles indicated, for materials quality, metal gages, and construction details.
   1. Provide top cap at all exterior doors.

D. Door Frames: All frames shall be 16 gage and comply with SDI-100, of the types and styles indicated, for materials quality, metal gages, and construction details.
   1. Provide standard hollow metal frames for doors, transoms, sidelights, borrowed lights, and other openings as indicated.
   2. Prepare frames to receive 3 silencers on strike jambs of single-swing frames and 2 silencers on heads of double-swing frames.
   3. Provide 26-gage steel plaster guards or mortar boxes, welded to frame, at back of hardware cutouts where installed in concrete, masonry or plaster openings.
   4. All fire rated frames shall be labeled with a permanently affixed raised metal tag located...
SECTION 081113 – HOLLOW METAL DOORS AND FRAMES (continued):

on the hinge side of frame. Stenciled or paper labels shall not be used.

2.03 FABRICATION: Fabricate units to be rigid, neat in appearance, and free from defects, warp or buckle. Weld exposed joints continuously, grind, dress, and make smooth, flush and invisible.

A. Prepare steel doors and frames to receive mortised and concealed finish hardware, including cutouts, reinforcing, drilling and tapping, complying with ANSI A 115 "Specifications for Door and Frame Preparation for Hardware".

B. Reinforce units to receive surface-applied finish hardware to be field applied.

C. Locate finish hardware as indicated or, if not indicated, per DHI "Recommended Locations for Builder's Hardware".

2.04 Shop paint exposed surfaces of doors and frame units, including galvanized surfaces, using manufacturer's standard baked-on rust inhibitive primer.

PART 3 - EXECUTION

3.01 INSTALLATION: Install hollow-metal units in accordance with manufacturer's instructions and final shop drawings (if any). Fit doors to frames and floors with clearances specified in SDI-100.

A. Install fire-rated units in accordance with NFPA Std. No. 80.

B. Finish hardware is specified in another Division-8 section.

END OF SECTION 081113
SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.01 QUALITY STANDARDS: Comply with NWWDA I.S.1 and AWI "Architectural Woodwork Quality Standards".

1.02 SUBMITTALS: In addition to product data, submit Samples 1’-0” square, of each type of core construction, face material and finish required.

1.03 WARRANTY: Provide manufacturer’s life time of installation warranty for interior wood doors.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS: Subject to compliance with requirements, provide wood doors by one of the following:

Algoma Hardwoods, Inc.
Buell Door Company.
Eggers Industries, Architectural Door Division.
Marshfield Door Systems, Inc.
Oshkosh Architectural Door Company.
V. T. Industries.

2.02 GENERAL WOOD DOOR PRODUCT REQUIREMENTS: Provide doors with same exposed surface material on both faces of each door, unless otherwise indicated.

A. Louvers: Manufacturer’s standard louvers of type, materials and size indicated:

2.03 INTERIOR SOLID CORE DOORS FOR STAINED FINISH: As follows:

A. Faces: Natural birch, rotary sliced.
B. AWI Grade: Premium.
C. Construction: PC-5 (Particleboard core, 5-ply).
D. Finish: Color to be selected by Architect.
E. Metal Frames for Light Openings: Manufacturer’s standard 18-gage cold-rolled steel frame, factory-primed, to be painted in field. Color to be selected by Architect.

2.04 INTERIOR FIRE-RATED SOLID CORE DOORS: Labeled and listed for rating indicated, by testing and inspection agency acceptable to authorities having jurisdiction, complying with the following requirements:

A. Faces and AWI Grade: Match faces of non-rated doors in same area of building, unless otherwise indicated.
B. Edge Construction: Manufacturer’s standard laminated edge construction for improved screw-holding capability and split resistance.
C. Pairs: Furnished formed steel edges and astragals for pairs of fire-rated doors, unless otherwise indicated.
D. **Metal Frames for Light Openings in Fire Doors**: Manufacturer's standard 18-gage cold-rolled steel frame, factory-primed, approved for use in door of fire-rating indicated.

E. All doors in stairwells shall be temperature rise doors.

F. Fire rated doors shall be labeled with a permanently affixed raised metal tag located on the hinge side of the door. Stenciled or paper labels shall not be used.

2.05 **FABRICATION**: Fabricate flush wood doors to produce doors complying with following requirements:

A. **In sizes indicated** for job-site fitting.

B. **Metal Astragals**: Pre-machine astragals and formed steel edges for hardware where required for pairs of fire-rated doors.

C. **Openings**: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required.
   1. **Light Openings**: Trim openings with moldings of material and profile indicated.

D. **Louvers**: Factory install louvers in prepared openings.

2.06 **SHOP SEAL** faces and edges of doors for field-applied transparent finish with stain (if required) and other required pre-treatments and first coat of finish as specified in Division-9 section "Painting".

PART 3 - EXECUTION

3.01 **INSTALLATION**:

G. Install wood doors to comply with manufacturer's instructions and of referenced AWI standard and as indicated.

B. Install fire-rated doors in corresponding fire-rated frames in accordance with requirements of NFPA No. 80.

3.02 **ALIGN AND FIT** doors in frames with uniform clearances and bevels. Machine doors for hardware. Seal cut surfaces after fitting and machining.

3.03 **PRE-FIT DOORS**: Fit to frames for uniform clearance at each edge.

END OF SECTION 081416
SECTION 083113 - ACCESS DOORS AND FRAMES

1.1 SUMMARY

A. Access doors and frames for walls and ceilings.

B. Floor access doors and frames.

1.2 QUALITY ASSURANCE


1.3 PRODUCTS

A. Access Doors and Frames for Walls and Ceilings:

1. Type:
   a. Flush access doors and trimless frames.

3. Latch: Cam latch operated by screwdriver with interior release.
4. Lock: Cylinder.

B. Finishes:

1. Steel: Primed finish.
2. Stainless Steel: Directional satin, No. 4 finish.

END OF SECTION 083113
SECTION 08 41 13
ALUMINUM-FRAMED ENTRANCES & STOREFRONTS

PART 1 GENERAL

1.01 SUMMARY
A. Section Includes: Aluminum Storefront, including:
   1. YKK AP Series YES 45 TU Center Set Storefront System.
B. Related Sections:
   1. Sealants: Refer to Division 7 Joint Treatment Section for sealant requirements.
   2. Glass and Glazing: Refer to Division 8 Glass and Glazing Section for glass and glazing requirements.
   3. Single Source Requirement: All products listed below shall be by the same manufacturer.
      a. Section 08 51 13 Aluminum Windows.

1.02 SYSTEM PERFORMANCE DESCRIPTION
A. Performance Requirements: Provide aluminum storefront systems that comply with performance requirements indicated, as demonstrated by testing manufacturer's assemblies in accordance with test method indicated.
   1. Air Infiltration: Completed storefront systems shall have 0.06 CFM/FT² (1.10 m³/h·m²) maximum allowable infiltration when tested in accordance with ASTM E 283 at differential static pressure of 6.24 PSF (299 Pa).
   2. Water Infiltration: No uncontrolled water when tested in accordance with ASTM E 331 at test pressure differential of: 10 PSF (479 Pa) (or when required, field tested in accordance with AAMA 503). Fastener Heads must be seated and sealed against Sill Flashing on any fasteners that penetrate through the Sill Flashing.
   3. Wind Loads: Completed storefront system shall withstand wind pressure loads normal to wall plane indicated:
      a. Exterior Walls:
         1) Positive Pressure:
         2) Negative Pressure:
      b. Interior Walls (Pressure Acting in Either Direction):
   4. Deflection: Maximum allowable deflection in any member when tested in accordance with ASTM E 330 with allowable stress in accordance with AA Specifications for Aluminum Structures.
      a. Without Horizontals: L/175 maximum.
      b. With Horizontals: L/175 or L/240 + 1/4" (6.4mm) for spans greater than 13'-6" (4.1m) but less than 40'-0" (12.2m).
   5. Thermal Movement: Provide for thermal movement caused by 180 degrees F. (82.2 degrees C.) surface temperature, without causing buckling stresses on glass, joint seal failure, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or detrimental effects.
   6. Thermal Performance: When tested in accordance with AAMA 507, AAMA 1503 and NFRC 100:
      a. Condensation Resistance Factor (CRF): A minimum of 60.
      b. Thermal Transmittance -Factor: 0.45 BTU/HR/FT²/°F or less.
   Note: Thermal Performance for the glazed system as a whole will be affected by the characteristics of the glass specified and percentage of vision area.
   7. Acoustical Performance: When tested in accordance with AAMA 1801:
      a. Sound Transmission Class (STC) shall not be less than 35 laminated.
      b. Outdoor–Indoor Transmission Class (OITC) shall not be less than 29 laminated.

1.03 SUBMITTALS
A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in "Conditions of the Contract."
B. Product Data: Submit product data for each type storefront series specified.
C. Substitutions: Whenever substitute products are to be considered, supporting technical data, samples, and test reports must be submitted ten (10) working days prior to bid date in order to make a valid comparison.
D. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, accessories, finish colors and textures.
E. Samples: Submit verification samples for colors on actual aluminum substrates indicating full color range expected in installed system.
F. Quality Assurance / Control Submittals:
   1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics and physical properties.
   2. Installer Qualification Data: Submit installer qualification data.
G. Closeout Submittals:
   1. Warranty: Submit warranty documents specified herein.
   2. Project Record Documents: Submit project record documents for installed materials in accordance with Division 1 Project Closeout (Project Record Documents) Section.

1.04 QUALITY ASSURANCE
A. Qualifications:
   1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project. If requested by Owner, submit reference list of completed projects.
   2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction process.
B. Mock-Ups (Field Constructed): Install at project site a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Owner's and Architect's acceptance of finish color, and workmanship standard.
   1. Mock-Up Size:
   2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.
   3. Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.
C. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

1.05 PROJECT CONDITIONS / SITE CONDITIONS
A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

1.06 WARRANTY
A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.
B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by an authorized company official.
   1. Warranty Period: Manufacturer’s one (1) year standard warranty commencing on the substantial date of completion for the project provided that the warranty, in no event, shall start later than six (6) months from the date of shipment by YKK AP America Inc.

PART 2 PRODUCTS
2.01 MANUFACTURERS (Acceptable Manufacturers/Products)
A. Acceptable Manufacturers:
   YKK AP America Inc.
   270 Riverside Parkway, Suite A
   Austell, GA 30168
   Telephone: (678) 838-6000; Fax: (678) 838-6001
   1. Storefront System: YKK AP YES 45 TU Center Set Storefront System or Approved Equal.
B. Storefront Framing System:
   1. Description: Center set, exterior flush glazed; jambs and vertical mullions continuous; head, sill, intermediate horizontal attached by screw spline joinery or shear block attachment.
   2. Components: Manufacturer's standard extruded aluminum mullions, 90 degree corner posts, entrance door framing, and indicated shapes.
   3. Thermal Barrier: Provide continuous thermal barrier by means of a poured and debridged pocket consisting of a two-part, chemically curing high density polyurethane which is bonded to the aluminum by YKK ThermaBond Plus®. Systems employing non-structural thermal barriers are not acceptable.
2.02 MATERIALS
A. Extrusions: ASTM B 221 (ASTM B 221M), 6063-T5 Aluminum Alloy.
B. Aluminum Sheet:
   1. Anodized Finish: ASTM B 209 (ASTM B 209M), 5005-H14 Aluminum Alloy, 0.050" (1.27 mm) minimum thickness.

2.03 ACCESSORIES
A. Manufacturer's Standard Accessories:
   1. Fasteners: Zinc plated steel concealed fasteners; Hardened aluminum alloys or AISI 300 series stainless steel exposed fasteners.
   2. Glazing: Setting blocks, edge blocks, and spacers in accordance with ASTM C 864, shore durometer hardness as recommended by manufacturer; Glazing gaskets in accordance with ASTM C 864.
   3. 0.050 Aluminum Sill Flashing End Dams must have 3 point attachment.

2.04 RELATED MATERIALS (Specified In Other Sections)
A. Glass: Refer to Division 8 Glass and Glazing Section for glass materials.

2.05 FABRICATION
A. Shop Assembly: Fabricate and assemble units with joints only at intersection of aluminum members with uniform hairline joints; rigidly secure, and sealed in accordance with manufacturer's recommendations.
   1. Hardware: Drill and cut to template for hardware. Reinforce frames and door stiles to receive hardware in accordance with manufacturer's recommendations.
   2. Welding: Conceal welds on aluminum members in accordance with AWS recommendations or methods recommended by manufacturer. Members showing welding bloom or discoloration on finish or material distortion will be rejected.

2.06 FINISHES AND COLORS
A. YKK AP America Anodized Plus® Finish:
   CODE   DESCRIPTION
   * Indicates standard finish usually carried as inventory.
   Anodized Plus® is an advanced sealing technology that completely seals the anodic film yielding superior durability (See AAMA 612).
B. Anodized Finishing: Prepare aluminum surfaces for specified finish; apply shop finish in accordance with the following:
   1. Anodic Coating: Electrolytic color coating followed by an organic seal applied in accordance with the requirements of AAMA 612. Aluminum extrusions shall be produced from quality controlled billets meeting AA-6063-T5.
      a. Exposed Surfaces shall be free of scratches and other serious blemishes.
      b. Extrusions shall be given a caustic etch followed by an anodic oxide treatment and then sealed with an organic coating applied with an electrodeposition process.
      c. The anodized coating shall comply with all of the requirements of AAMA 612: Voluntary Specifications, Performance Requirements and Test Procedures for Combined Coatings of Anodic Oxide and Transparent Organic Coatings on Architectural Aluminum. Testing shall demonstrate the ability of the finish to resist damage from mortar, salt spray, and chemicals commonly found on construction sites, and to resist the loss of color and gloss.
      d. Overall coating thickness for finishes shall be a minimum of 0.7 mils.
   2) CASS Corrosion Resistance Test, CASS 240/ASTM B368 Test Method.
   3) Other AAMA 2605 Performance Tests specified in these specifications, such as: 7.3 Dry Film Hardness; 7.8.2 Salt Spray Resistance; 7.9.1.2 Color Retention, South Florida; 7.9.1.4 Gloss Retention, South Florida.

PART 3 EXECUTION
3.01 MANUFACTURER'S INSTRUCTIONS / RECOMMENDATIONS
3.02 EXAMINATION
A. Site Verification of Conditions: Verify conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions.

3.03 PREPARATION
A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.
   1. Aluminum Surface Protection: Protect aluminum surfaces from contact with lime, mortar, cement, acids, and other harmful contaminants.

3.04 INSTALLATION
A. General: Install manufacturer's system in accordance with shop drawings, and within specified tolerances.
   1. Protect aluminum members in contact with masonry, steel, concrete, or dissimilar materials using nylon pads or bituminous coating.
   2. Shim and brace aluminum system before anchoring to structure.
   3. Provide sill flashing at exterior storefront systems. Extend extruded flashing continuous with splice joints; set in continuous beads of sealant.
   4. Verify storefront system allows water entering system to be collected in gutters and wept to exterior. Verify metal joints are sealed in accordance with manufacturers installation instructions.
   5. Locate expansion mullions where indicated on reviewed shop drawings.
   6. Seal metal to metal storefront system joints using sealant recommended by system manufacturer.

3.05 FIELD QUALITY CONTROL
A. Manufacturer's Field Services: Upon request, provide manufacturer's field service consisting of site visit for inspection of product installation in accordance with manufacturer's instructions.
B. Field Test: Conduct field test to determine watertightness of storefront system. Conduct test in accordance with AAMA 501.2.

3.06 ADJUSTING AND CLEANING
A. Adjusting: Adjust swing doors for operation in accordance with manufacturer's recommendations.
B. Cleaning: The General Contractor shall clean installed products in accordance with manufacturer's instructions prior to owner's acceptance, and remove construction debris from project site. Legally dispose of debris.
C. Protection: The General Contractor shall protect the installed product's finish surfaces from damage during construction.

END OF SECTION
SECTION 08 51 13 - ALUMINUM WINDOWS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Operable Aluminum Window Systems
   1. YKK AP Series YOW 350 T MegaTherm® Heavy Wall Fixed Aluminum Window System.

B. Related Sections:
   1. Sealants: Refer to Division 7 Joint Treatment Section for sealant requirements.
   2. Glass and Glazing: Refer to Division 8 Glass and Glazing Section for glass and glazing requirements.
   3. Single Source Requirement: All products listed below shall be by the same manufacturer.
      a. Section 08 32 13 Sliding Aluminum - Framed Glass Doors.
      b. Section 08 41 13 Aluminum - Framed Entrances and Storefronts.

1.02 TEST AND PERFORMANCE REQUIREMENTS

A. All test unit sizes and configurations shall conform to the minimum sizes in accordance with AAMA/WDMA/CSA/LS.A 440-05, with a performance class of AW, performance grade 80 (Operable), 100 (Fixed). Windows shall also comply with the following specific performance requirements indicated.

1. Air Infiltration: When tested in accordance with ASTM E 283-91 at differential static pressure of 6.24 PSF (299 Pa), completed window systems shall have maximum allowable infiltration of 0.10 CFM/FT² (1.85 m³/h·m²).

2. Water Infiltration: No uncontrolled water other than condensation on indoor face of any component when tested in accordance with ASTM E 331-93 and E547-86 at a minimum test pressure differential of 12 PSF (575 Pa) operable, 15 PSF (718 Pa) fixed.

3. Uniform Load Structural Test: Provide aluminum window systems that comply with AAMA/WDMA/CSA 101/LS. A440-05, voluntary specifications for aluminum and polyvinylchloride (PVC) prime windows and glass doors, guidelines for specified AW rated product.

4. Thermal Movement: Provide for thermal movement caused by 180 degrees F. (82.2 degrees C.) surface temperature, without causing buckling stresses on glass, joint seal failure, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or detrimental effects.

5. Thermal Performance: When tested in accordance with AAMA 1503 and NFRC 102:
   a. Condensation Resistance Factor (CRF): A minimum of 55 (Casement), 50 (Project), and 63 (Fixed).
   b. Thermal Transmittance U Value: Triple Glazing –0.32 (Fixed) BTU/HR/FT²/°F or less.

6. Acoustical Performance: When tested in accordance with ASTM E 90 and ASTM E 1332, the Sound Transmission Class (STC), and Outdoor–Indoor Transmission Class (OITC) shall not be less than 33 (Casement), 38 (Project), and 31 (Fixed) STC and 26 (Casement), 30 (Project), and 31 (Fixed) OITC.

7. Life Cycle Testing: When tested in accordance with AAMA 910, there shall be no damage to fasteners, hardware parts, or any other damage that would cause the specimen to be inoperable. Resistance to air leakage and water penetration resistance test results shall not exceed the gateway performance.

Note: Performance based on lab testing and will vary by configuration and glass type; contact YKK AP engineering for AAMA 507 Certificate of Compliance, to demonstrate compliance with NFRC for various glass types.
1.03 SUBMITTALS

A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in "Conditions of the Contract."

B. Product Data: Submit product data for each type window series specified.

C. Substitutions: Whenever substitute products are to be considered, supporting technical data, samples, and test reports must be submitted ten (10) working days prior to bid date in order to make a valid comparison.

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

E. Samples: Submit verification samples for colors on actual aluminum substrates indicating full color range expected in installed system.

F. Quality Assurance / Control Submittals:
   1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics and physical properties.
   2. Installer Qualification Data: Submit installer qualification data.

G. Closeout Submittals:
   1. Warranty: Submit warranty documents specified herein.
   2. Project Record Documents: Submit project record documents for installed materials in accordance with Division 1 Project Closeout (Project Record Documents) Section.

1.04 QUALITY ASSURANCE

A. Qualifications:
   1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project. If requested by Owner, submit reference list of completed projects.
   2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction process.

B. Mock-Ups (Field Constructed): Install at project site a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Owner's and Architect's acceptance of finish color, and workmanship standard.
   1. Mock-Up Size:
   2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.
   3. Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.

C. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

1.05 PROJECT CONDITIONS / SITE CONDITIONS

A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded Measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.
1.06 WARRANTY

A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by an authorized company official.

  1. Warranty Period: Manufacturer’s one (1) year standard warranty commencing on the substantial date of completion for the project provided that the warranty, in no event, shall start later than six (6) months from the date of shipment by YKK AP America Inc.

PART 2 PRODUCTS

2.01 MANUFACTURERS (Acceptable Manufacturers/Products)

A. Acceptable Manufacturers: YKK AP America Inc.

  7680 The Bluffs, Suite 100
  Austell, GA 30168
  Telephone: (678) 838-6000; Fax: (678) 838-6001

  OR APPROVED EQUAL


B. Window Framing System:

  1. AAMA Designation: AW-80 (operable), AW-100 (fixed).
  2. Description: The windows shall be extruded aluminum with integral structural thermal break; 3-1/2” frame depth;
     Vents shall be flush with frame and have mitered corner construction; Factory-assembled.
  3. Configuration: The thermally broken windows shall be (select one or more) Fixed, Casement (outswing or inswing), or Project (in or out).
  4. Thermal Barrier: Provide YKK AP MegaTherm® continuous thermal barrier by means of 6/6 nylon polyamide glass fiber reinforced pressure extruded bars. Systems employing non structural type thermal barriers are not acceptable.
  5. Glazing: Exterior glazing tape with silicone cap bead; 1” insulated units; Interior EPDM wedge gaskets; Aluminum interior glazing beads; Factory or bench glazed. Glazing thickness as specified in Division 8 glass and glazing sections.

C. Access Panels:

  1. Dual or triple glazed units shall incorporate the use of a pivoted access panel, locked in place with a concealed custodial cam lock.

2.02 MATERIALS

A. Extrusions: ASTM B 221 (ASTM B 221M), 6063-T5 Aluminum Alloy, typical wall thickness 0.125”

B. Aluminum Sheet:

  1. Anodized Finish: ASTM B 209 (ASTM B 209M), 5005-H14 Aluminum Alloy, 0.050” (1.27 mm) minimum thickness.
  2. Painted Finish: ASTM B 209 (ASTM B 209M), 3003-H14 Aluminum Alloy, 0.080” (1.95 mm) minimum thickness.

2.03 ACCESSORIES

A. Manufacturer's Standard Accessories:

  1. Hardware: YKK AP 4 bar hinges for casement outswing and projected vents, exposed white bronze butt hinges for casement outswing vents, white bronze cam handles and strikes; Optional white bronze rotoperators for casement outswing vents, stainless steel support arms for casement outswing vents,
aluminum/white bronze push bars for project out vents, white bronze custodial locks or multi-locks in lieu of cam handles, stainless steel limit stop device.
2. Fasteners: All fasteners shall be AISI 300 series (except for self-drilling, which are to be series 400) stainless steel.
3. Sealant: Non-skinning type, AAMA 803.3
4. Glazing: Setting blocks, edge blocks, and spacers in accordance with ASTM C 864, shore durometer hardness as recommended by manufacturer; Glazing gaskets in accordance with ASTM C 864.
5. Blinds (used with triple glazed units):
   — or —
   b. 5/8” blinds shall be used in triple glazed units.
6. Blind Hardware:
   a. Head and bottom rails shall be extruded aluminum with a powder coated finish.
   b. Slats shall be .006” roll formed aluminum with baked on enamel finish.
   c. Lift cord shall be braided synthetic yarn.
   d. Mounting clips shall be 33% glass-filled nylon.
   e. Tilt control knob shall be a minimum of 0.5” diameter with serrations to facilitate operation.
   f. Slip mechanism shall be employed to eliminate damage to the blind once full closure has been reached.

2.04 RELATED MATERIALS (Specified In Other Sections)
A. Glass: Refer to Division 8 Glass and Glazing Section for glass materials.

2.05 FABRICATION
A. Shop Assembly: Fabricate and assemble units with joints only at intersection of aluminum members with uniform hairline joints; rigidly secure, and sealed in accordance with manufacturer's recommendations.

2.06 FINISHES AND COLORS
A. YKK AP America Anodized Plus® Finish:
   CODE      DESCRIPTION
   YS1N*     Clear Anodized Plus®
* Indicates standard finish usually carried as inventory.
Anodized Plus® is an advanced sealing technology that completely seals the anodic film yielding superior durability (See AAMA 612).

B. Anodized Finishing: Prepare aluminum surfaces for specified finish; apply shop finish in accordance with the following:
   1. Anodic Coating: Electrolytic color coating followed by an organic seal applied in accordance with the requirements of AAMA 612-02. Aluminum extrusions shall be produced from quality controlled billets meeting AA-6063-T5.
      a. Exposed Surfaces shall be free of scratches and other serious blemishes.
      b. Extrusions shall be given a caustic etch followed by an anodic oxide treatment and then sealed with an organic coating applied with an electrodeposition process.
      c. The anodized coating shall comply with all of the requirements of AAMA 612-02: Voluntary Specifications, Performance Requirements and Test Procedures for Combined Coatings of Anodic Oxide and Transparent Organic Coatings on Architectural Aluminum. Testing shall demonstrate the ability of the finish to resist damage from mortar, salt spray, and chemicals commonly found on construction sites, and to resist the loss of color and gloss.
      d. Overall coating thickness for finishes shall be a minimum of 0.7 mils.

C. High Performance Organic Coating Finish:
   1. Type Factory applied two-coat 70% Kynar resin by Arkema or 70% Hylar resin by Solvay Solexis, fluoropolymer based coating system, Polyvinylidene Fluoride (PVF-2), applied in accordance with YKK AP procedures and meeting AAMA 2605 specifications.
2. Colors: Selected by Architect from the following:
   a. Standard coating color charts.
   b. Custom coating color charts.
   c. Color Name and Number:

D. Finishes Testing:
   1. Apply 0.5% solution NaOh, sodium hydroxide, to small area of finished sample area; leave in place for sixty minutes; lightly wipe off NaOh; Do not clean area further.
   2. Submit samples with test area noted on each sample.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS / RECOMMENDATIONS

3.02 EXAMINATION
   A. Site Verification of Conditions: Verify conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions.

3.03 PREPARATION
   A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.
      1. Aluminum Surface Protection: Protect aluminum surfaces from contact with lime, mortar, cement, acids, and other harmful contaminants.

3.04 INSTALLATION
   A. General: Install manufacturer's system in accordance with shop drawings, and within specified tolerances.
      1. Protect aluminum members in contact with masonry, steel, concrete, or dissimilar materials using nylon pads or bituminous coating.
      2. Shim and brace aluminum system before anchoring to structure.
      3. Verify window system allows water entering system to be collected in gutters and wept to exterior. Verify weep holes are open, and metal joints are sealed in accordance with manufacturer’s installation instructions.
      4. Locate expansion mullions where indicated on reviewed shop drawings.
      5. Seal metal to metal window system joints using sealant recommended by system manufacturer.

3.05 FIELD QUALITY CONTROL
   A. Manufacturer's Field Services: Upon request, provide manufacturer's field service consisting of site visit for inspection of product installation in accordance with manufacturer's instructions.
   B. Field Test: Conduct field test to determine watertightness of window system. Conduct test in accordance with AAMA 501.2-03.

3.06 ADJUSTING AND CLEANING
   A. Adjusting: Adjust swing doors for operation in accordance with manufacturer's recommendations.
   B. Cleaning: The General Contractor shall clean installed products in accordance with manufacturer’s instructions prior to owner's acceptance, and remove construction debris from project site. Legally dispose of debris.
   C. Protection: The General Contractor shall protect the installed product's finish surfaces from damage during construction.

END OF SECTION
SECTION 087110 - FINISH HARDWARE

PART I- General
1.1 SUMMARY

A. The work required under this section consists of furnishing hardware and supervising the installation of hardware and related items that are necessary to complete the work, as indicated on the drawings and described in this section.

B. Related work described in other sections includes:
   1. Division 6 Section "Rough Carpentry" for wood blocking requirements.
   2. Division 8 Section "Hollow Metal Doors, and Frames" for hollow metal work.
   3. Division 8 Section "Flush Wood Doors" for requirements of wood doors.
   4. Division 8 Section "Aluminum Entrances and Storefronts" for Aluminum doors and frames.
   5. Division 16 Section "General Electrical Requirements" for basic Electrical requirements.

1.2 REFERENCES

A. ANSI A117.1 - Specifications for making buildings and facilities usable by physically handicapped people.

B. AWI - Architectural Woodwork Institute

C. BHMA – Builders’ Hardware Manufacturers Association

D. FM – Factory Mutual

E. DHI- Door and Hardware Institute

F. IBC International Building Code

G. NAAMM – National Association of Architectural Metal Manufacturers

H. NFPA- National Fire Protection Association
   1. NFPA 80-Fire Door and Windows
   3. NFPA 252 – Fire Test of Door Assemblies
   4. NFPA 105- Smoke and Draft Control Door Assemblies

I. UL-Underwriters Laboratories
   1. UL 10B- Fire Test of Door Assemblies
   2. UL 305- Panic Hardware

J. WHI- Warnock Hersey

1.3 SUBMITTAL

A. Hardware Schedule: Submit a complete schedule of hardware. Using the format of this specification, indicate type, number location, and finish of each item. Include manufacturer’s name and model description, fastening devices, and complete keying schedule. Reference architect's door designation. Submit six (6) copies.

B. Provide a cross-reference between door number and hardware headings.
C. Physical Samples: When requested, submit physical samples of each item of hardware and show manufacturer’s name, model, and finish.

D. Templates: Furnish templates and approved schedule to each related manufacturer of equipment which require same for the fabrication of their material.

E. Electrical Products: Provide wiring diagrams including elevation, riser, and point to point wiring diagrams to Electrical Contractor/Security Contractor. Also, provide “Function Description” or Electrical Packages. See coordination requirements 3.06.

1.4 QUALITY ASSURANCE

A. Provide hardware in compliance with the local building code requirements. Also comply with NFPA101 Life Safety Code and ANSI A117.1 where applicable.

B. Provide hardware for fire rated openings in accordance with NFPA80, Fire Doors and Windows and NFPA 105, Smoke and Draft-Control Door assemblies.

C. Provide the services of a finish hardware supplier who has been furnishing hardware in the project's vicinity for a period of not less than five (5) years and is an experienced hardware consultant (AHC). The consultant shall be available during the course of the work to the architect, contractor, and using agency and be located within 90 miles of the project site. Supplier to be a manufacturer authorized dealer for products furnished. Engage services of manufacturer's representative for each major component such as locks, closers, and exit devices to conduct a pre-installation meeting, and a final hardware inspection with the contractor, and installer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver finish hardware to project site in manufacturer's protective packaging. All items are to be marked to indicate door opening number, hardware schedule number, or other identifying marks.

B. Store hardware in secure lock-up area that is dry and lighted.

1.6 WARRANTY

A. Warrant door closers against failure due to defective materials and workmanship for a period often (10) years beginning at date of substantial completion. Closers judged defective during this period shall be replaced or repaired at no cost to the owner.

B. Warrant exit devices against failure due to defects in material or workmanship for a period of three (3) years.

C. All other warranties and bonds are to be in accordance with Division I Section 07 1700- Contract close-out.

PART 2- PRODUCTS

2.0 GENERAL

A. The first manufacturer designated by an asterisks (*) denotes manufacturer specified in hardware schedule

B. At the completion of the project the Contractor shall provide the following Items to the Owner:
   1. One (1) complete bitting list of keys
   2. One (1) complete set of any specialized tools required for installation and/or maintenance.
3. One (1) complete set of instruction sheets for each item provided that includes, as a minimum, the Maintenance instructions necessary for the Owner's continued adjustment, maintenance, and removal/replacement of the finish hardware.

2.1 HARDWARE FINISH

A. Finish shall be as follows unless otherwise listed in schedule:

1. Hinges- Interior-626- Exterior 630
2. Continuous Hinges – Anodized Aluminum
3. Exit Devices-630
4. Exterior Locksets-630
5. Interior Locksets- 626
6. Closers – Sprayed Aluminum (SB)
7. Stops and Miscellaneous- 626
8. Overhead Stops– 630
9. Flat Goods- 630

2.2 KEYING

A. All cylinders shall be keyed to a new Master Key system

B. All cylinders to have proper blocking rings and tail pieces as required.

C. Key cylinders to the Using Agency’s existing 8N keyway. All cylinders to be keyed by the factory. Local keying will not be allowed.

D. Construct lock cylinder parts from brass or bronze, stainless steel, or nickel silver.

E. Meet with Using Agency to establish key layout. Provide separate detailed key schedule for approval.

F. Meet with Using Agency to obtain instructions for master keying and provide individual change key for each lock that is not designated to be keyed alike with group of related locks.

G. Tag keys for installation into key cabinet, fill in key cabinet cross reference and index, and ship keys to Using Agency.

H. Provide the following number of keys:
   1. Four change keys per keyset
   2. Five master keys for each master system

I. Key material shall be nickel silver only.

J. Keying System:
   1. All lockset keying shall be keyed by the cylinder manufacturer at the cylinder manufacturer’s plant of facility. Keying of cylinders by the distributor, supplier, installer, of anyone other than the cylinder manufacturer is prohibited.

2.3 HINGES

A. Types and materials as listed in the schedule.
B. Size shall be 4.5 x 4.5 unless otherwise listed in schedule. Provide 2 pair hinges for door leaves over 7'-6' in height for new door frames.

C. Bearings are not to be installed in hinge before electro-plating the hinge. If frozen bearings are found, replace the complete shipment.

D. Verify spacing and size of existing hinge locations and screw spacing at all existing door frames.

E. Manufacturer's whose product meets the criteria of this specification and are acceptable.
   1. Hager
   2. McKinney* (manufacturers number specified)
   3. Stanley Works

2.4 LOCKSETS AND LATCHES

A. All mortise locksets and latchsets shall meet the following:
   1. Chassis: Cold-rolled steel, handling field-changeable without disassembly.
   2. Latchbolts: ¾ inch throw stainless steel anti-friction type.
   3. Lever Trim: Through-bolted, accessible design, cast or solid rod lever as scheduled.
   5. Thumbturns: Accessible design not requiring pinching of twisting motions to operate.
   7. Strikes: 116 gauge curved stainless steel, bronze or brass with 1-inch deep box construction, lips of sufficient length to clear trim and protect clothing.
   8. Scheduled Lock Series and Design: Corbin/Russwin ML series, designed to match existing

B. All locksets shall be manufactured by the same manufacturer. All lever trim is to be cast solid. Locks leading to hazardous areas shall have knurled levers.

C. Manufacturer's whose products meet the criteria of this specification and are acceptable.
   1. Sargent
   2. Corbin-Russwin* (manufacturers number specified)
   3. Best Lock Company

2.5 EXIT DEVICES

A. Exit devices shall be listed by Underwriters’ Laboratories, Inc. for Accident Hazard. Exit Devices for use on fire-rated openings shall bear factory installed UL markings that indicate a three (3) hour fire rating.

B. All exit devices shall be of one manufacturer. All latch bolts are to be deadlocking type. Attach surface applied items to doors with sex nuts and bolts. Provide shim kits to provide clearance for lite kits and molding.

C. All exit devices shall be installed with sex nuts and bolts.

D. Manufacturer's whose product meets the criteria of this specification and are acceptable:
   1. Corbin Russwin* (manufacturers number specified)
   2. Sargent
   3. Von Duprin
2.6 SURFACE AND RECESSED MOUNTED DOOR CLOSERS

A. All surface and recessed closers shall be of one manufacturer. The closers shall be non-handed and non-sized. They will be hydraulically controlled and full rack and pinion operation. They shall have cast bodies and will have adjustments for back check, general speed, and latch speed.

B. Provide mounting plates as required, use sex nuts and bolts for surface application to all doors.

C. All parallel arm closers shall be installed with heavy duty parallel arms. Provide drop plates for mounting closers if required.

D. All closures shall utilize a stable fluid withstanding temperature range of 120°F to -30°F without seasonal adjustment of closer speed to properly close the door. Closures for fire-rated doors shall be provided with temperature stabilizing fluid that complies with standards UBC 7-2 (1997) and UL 10c.

E. Hold-Open Closers/Detectors: Coordinate and interface integral smoke detector and closer device with fire alarm system.

F. Manufacturer's whose product meets the criteria of this specification and are acceptable.
   1. Corbin /Russwin * (manufacturers number specified)
   2. LCN
   3. Sargent

2.7 CONTINUOUS HINGES

A. Continuous gear hinges shall be manufactured of extruded 6063-T6 aluminum alloy/temper. Hinges shall consist of three interlocking extrusions in a pinless assembly applied to the full height of the door and frame. All hinges shall be manufactured to template screw locations and be non-handed. Frame leaf and door leaf shall be independently milled. Thrust bearings shall carry the vertical loads and be completely concealed by the gear cap the full length of the hinge. The frame leaf and door leaf shall be anodized after milling and drilling processes are complete. Thru-bolt fasteners shall be template so as not to make contact with the frame assembly. All mortise hinges shall cover and wrap the edge of door completely. All hinges shall be tested by a certified independent testing laboratory to 1,500,000 cycles and certified functional ANSI 156.1.

B. Manufacturers whose product meets the criteria of the specification and are acceptable.
   1. Pemko
   2. McKinney* (manufacturers number specified)
   3. Bommer
   4. Hagar-Roton

2.8 OVERHEAD STOPS AND HOLDERS

A. Types as indicated in hardware schedule.

B. Manufacturer's whose product meets the criteria of this specification and are acceptable.
   1. Rixson* (manufacturers number specified)
   2. Dorma
   3. Glynn Johnson
   4. Rockwood
2.9  STOPS AND MISCELLANEOUS

A. Types as indicated in Hardware Schedule.

B. Manufacturer's whose product meets the criteria of this specification and are acceptable:

1. Trimco
2. Burns Manufacturing
3. Rockwood* (manufacturers number specified)

2.10 BOLTS

A. Flush bolts shall be 1” x 6-3/4” brass, rectangular front, per lengths indicate with 3/4” throw. Furnish bottom strike and top strike plate. Wrought bolts are unacceptable.

B. Bolts and accessories for use on fire-rated doors shall be Underwriters’ Laboratories listed.

C. Manufacturer's whose product meets the criteria of this specification and are acceptable:

1. Trimco
2. Burns Manufacturing
3. Rockwood* (manufacturers number specified)

2.11 FLATGOODS

A. All kick plates shall be 10” in height and 1 1/2” less than door width unless listed otherwise.

B. All mop plates shall be 6” in height and 1” less than door width unless listed otherwise.

C. All armor plates shall be 31 ” in height and 2” less than door width unless listed otherwise.

D. All kick plates and mop plates shall be .050 inch stainless steel.

E. Manufacturer's whose product meets the criteria of this specification and are acceptable:

1. Trimco
2. H.B. Ives Co.
3. Baldwin
4. Rockwood* (manufacturers number specified)

2.12 THRESHOLDS AND WEATHERSTRIP

A. All thresholds shall be installed with flat head sleeve anchors, set in grout with sealant around perimeter.

B. Weatherstripping brush color shall be black.

C. Manufacturer's whose product meets with criteria of this specification and are acceptable:

1. Pemko*(manufacturers number specified)
2. National Guard
3. Reese
2.13 HANDICAPP DOOR OPERATOR

A. Meet IBC code requirements and ANSI A156.10
B. Concealed mounted controller.
C. Provide all mounting brackets, headers, end caps, pivots.
D. Provide flush mounted automatic actuator.
E. Manufacturer's whose product meets the criteria of this specification and are acceptable:
   1. LCN
   2. Norton*(manufacturers number specified)
   3. Beesam

3.0 EXECUTION

3.1 PRELIMINARY

A. Receive, store in temporary bins, and be responsible for all finish hardware. Tag, index, and file all keys temporarily during construction.

B. Check all hardware upon arrival on job site against approved Finish Hardware Schedule. Function of hardware shall be examined against the job site conditions and interference's. If Exceptions in these regards are found, notify Architect at once and retain subject hardware in its original packing carton. Adjustment and/or substitution shall be made only as authorized by Architect.

3.2 INSTALLATION

A. Install hardware to doors as listed in the door schedule. Comply with "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" as published by the Door and Hardware Institute. Application shall be by skilled workmen, who work with proper equipment, and shall be in accord with manufacturer's instructions, fit to work of others accurately, applied securely, and adjusted properly. Hardware let into work of others shall be neatly done from template and shall fit perfectly. Exercise care not to injure work of others.

B. Install finish hardware to template. Cut and fit substrate to avoid damage or weakening. Cover cut-outs with hardware item. Mortise work to correct location and size without gouging, splintering, or causing irregularities in exposed finished work.

C. Where cutting and fitting is required on substrates to be painted or similarly finished, install, fit, and adjust hardware prior to finishing, and then remove and place in original packaging. Reinstall hardware after finishing operation is completed.
   1. Protect hardware from scratches or other damage, properly adjust the hardware, and turn the hardware over to the owner in perfect operating condition.
   2. Tag keys and turn over to the owner at the time of acceptance of the project.
   3. Set hardware level, plumb and true to line and location.

D. Attach thresholds and flathead sleeve anchors, spaced at 24"o.c. maximum and symmetrical with the center of door opening. On cast thresholds where east-on-anchors are used, apply utilizing an epoxy grout.
mixture. Set thresholds of exterior doors in full bed of grout and seal around perimeter with butyl-rubber or polyisobutylene mastic sealant complying with the requirements specified in Division 7, Section “SEALANT”.

E. Attach exit devices, and door closers to door, whether wood or metal, with sex nut and bolt assemblies. Where closers have stop function, install closer to stop the door before striking obstructions.

F. Weather-stripping and seals shall comply with manufacturer's instructions and recommendations, except as specifically required to comply with governing regulations or directed otherwise by the Architect.

G. Install hardware to aluminum storefront system by template. Hardware shall be cut and fit to aluminum storefront system by storefront system manufacturer, not by storefront installer.

3.3 CLEANING AND ADJUSTING

A. At the time of hardware installation, adjust each hardware item to perform function intended. Lubricate moving parts with lubricant acceptable to hardware manufacturer.

B. One week prior to "Date of Substantial Completion", re-adjust and re-lubricate hardware. Repair or replace defective materials. Clean hardware as recommended by manufacturer to remove dust and stains.

3.4 FASTENINGS

A. All exposed screws shall be Phillips head, finished to match item and sized to suit job requirements.

B. Surface applied items such as exit devices, closers and overhead holders shall be applied with sex nut and bolt assemblies.

3.5 OPERATION AND ADJUSTMENT

A. After installation, all templates, installation instructions, as-built and special details to be placed in a properly identified binder. This binder and all special tools are to be turned over to the Architect at Final Acceptance of the project.

B. After Final Acceptance, the hardware supplier shall instruct the Using Agency's designated personnel in the proper operation, adjustment, and maintenance of hardware and finishes.

3.6 COORDINATION

A. Coordinate finish hardware and electrical hardware installation with other trades to ensure proper installation and function for a complete operating system.

END OF SECTION
SECTION 088000 – GLASS AND GLAZING

PART 1 – GENERAL

1.1 SUMMARY

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections apply to this Section.

B. Section Includes:
   1. Transparent and translucent glass glazing for general and special purpose applications including; coated, float, heat-strengthened, impact resistant, insulating, low emissivity, laminated, spandrel and tempered glass.
   2. Work Results: Manufacture, handle, deliver and install glazing systems as shown on the architectural drawings or as otherwise specified and in accordance with the requirements of the contract documents.

1.2 REFERENCES

A. Abbreviations and Acronyms:
   1. AAMA American Architectural Manufacturers Association
   2. ANSI American National Standards Institute
   3. ASTM Formerly the American Society for Testing and Materials
   4. CPSC Consumer Products Safety Commission
   5. FT Fully Tempered
   6. GANA Glass Association of North America
   7. HS Heat-strengthened
   8. ICC International Code Council
   9. IGCC Insulating Glass Certification Council
   10. IGMA Insulating Glass Manufacturers Alliance
   11. LBNL Lawrence Berkeley National Laboratories
   12. LEED Leadership in Energy & Environmental Design
   13. Low-E Low emissivity
   14. LSG Light to Solar Gain
   15. NFRC National Fenestration Rating Council
   16. SHGC Solar Heat Gain Coefficient
   17. SC Shading Coefficient
   18. USGBC The U.S. Green Building Council
   19. VLT Visible Light Transmittance

B. Definitions:
   1. Deterioration of Coated Glass: Defects developing 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.
   2. Deterioration of Insulating Glass: Failure of the 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.
   3. 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, delaminating material obstructing vision through glass and blemishes exceeding those allowed by referenced laminated glass standards.
4. Interspace or Airspace: The space between lites of any insulating glass unit that contains dehydrated air or a specified gas.
5. Manufacturer: A firm that produces primary glass or fabricated glass products as defined in referenced glazing publications.

C. Reference Standards: This section does not require compliance with standards, but is merely a listing of those used. If compliance is required, statements will be included in the appropriate Section.
1. ASTM C 1036 Standard Specification for Flat Glass
2. ASTM C 1048 Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass
3. ASTM C 1172 Standard Specification for Laminated Architectural Flat Glass
4. ASTM C 1376 Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass
10. ANSI Z97.1 Performance Specifications and Methods of Test for Safety Glazing Materials Used in Buildings
11. BS EN 14179 Glass in building - Heat-soaked thermally-toughened soda lime silicate safety glass

1.3 SUBMITTALS
A. Shop Drawings: Show details of each type of glazing system in conjunction with the framing system indicating type of glass, sizes, shapes, glazing material and quantity. Show details indicating glazing material, glazing thickness, bite on the glass and glass edge clearance.

B. Samples: Submit 12-inch (305 mm) long samples of each type of glass indicated except for clear monolithic glass products, and 12-inch (305 mm) long samples of each color required, except black, for each type of sealant or gasket exposed to view.

C. Test and Evaluation Reports: Glazing contractor shall obtain compatibility and adhesion test reports from sealant manufacturer indicating that glazing materials were tested for compatibility and adhesion with glazing sealant as well as other glazing materials including insulating units.

D. Manufacturer Reports: Submit Glass Fabricator’s Shop Drawing Review indicating compliance with glazing standards established by the Glass Association of North America (GANA). Submittal to include thermal stress and structural load analysis of the proposed glass types, configuration and sizes.

E. Sustainable Design Submittals: Submit manufacturer’s documentation verifying product content, origin or other attributes for projects requiring special sustainability provisions, to meet the USGBC’s LEED requirements or other sustainable goals.

F. Warranties:
1. Provide a written 10-year warranty from date of manufacture for sputter coated glass. Warranty covers deterioration due to normal conditions of use and not to handling, installing, and cleaning practices contrary to the glass manufacturer’s published instructions.
2. Provide a written 10-year warranty from date of manufacture for laminated glass. Warranty covers deterioration due to normal conditions of use and not to handling, installing, and cleaning practices contrary to the glass manufacturer’s published instructions.
3. Provide a written 10-year warranty from date of manufacture for insulating glass. Warranty covers deterioration due to normal conditions of use and not to handling, installing, protecting and maintaining practices contrary to the glass manufacturer’s published instructions.
4. Provide a written 10-year warranty from date of manufacture for Viraspan ceramic frit. Warranty covers deterioration due to normal conditions of use and not to handling, installing, and cleaning practices contrary to the glass manufacturer’s published instructions.

5. Provide a written 5-year warranty from date of manufacture for fully tempered glass that has been Heat Soaked. Warrants that heat soaked tempered glass will not break spontaneously as a result of Nickel Sulfide (NiS) inclusions at a rate exceeding 0.5% (5/1000) for a period of five years from the date of manufacture.

6. Provide a written 5-year warranty from date of manufacture for DigitalDistinctions™ digitally printed ceramic ink. Warranty covers deterioration due to normal conditions of use and not to handling, installing, and cleaning practices contrary to the glass manufacturer’s published instructions.

1.4 QUALITY ASSURANCE

A. Qualifications:
   1. Manufacturers: Fabrication processes, including low emissivity and reflective coatings, insulating, laminated, silk-screening and tempering shall be manufactured by a single manufacturer with a minimum of ten (10) years of fabrication experience and meet ANSI / ASQC 9002 1994.

B. Mock-ups: Before glazing, build mockups for each glass product indicated in section 2.5 Product Schedule to verify selections and to demonstrate aesthetic effects and qualities of materials and execution.
   1. Construction: Build mockups with glass and glazing systems specified for the project, including typical lite size, framing systems and glazing methods.
   2. Scheduling: Notify architect seven days in advance of dates and times when mockups will be available for viewing.
   3. Quality Assurance: Maintain mockups during construction in an undisturbed condition as a standard for judging the completed work. Accepted mockups may become part of the completed work if undisturbed at the time of substantial completion.

C. Publications: Comply with recommendations in the publications below, except where more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this section or in Article 1.2 References.
   1. GANA Glazing Manual
   2. GANA Engineering Standards Manual

1.5 DELIVERY, STORAGE AND HANDLING

A. Storage and Handling Requirements:
   1. Protect glass from edge damage during handling. For insulating units exposed to substantial altitude changes, comply with insulating glass manufacturers written recommendations for venting and sealing to avoid hermetic seal ruptures.
   2. Storage and Protection: Protect glazing materials according to manufacturer’s written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun or other causes.

1.6 SITE CONDITIONS

A. Ambient Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by the glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation or other causes.
   1. Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 40°F (4.4°C).
PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Source Listing: Acceptable source, Viracon, Inc. or approved equal.

B. Product Options: Obtain glass and glazing materials from one source for each product indicated. Coatings and finished assemblies, such as insulating units and laminated units, to be manufactured by the same fabricator in order to have a common source of warranty.

2.2 DESCRIPTION

A. Provide glazing systems capable of withstanding normal thermal movements, wind loads and impact loads, without failure, including loss due to defective manufacture, fabrication and installation; deterioration of glazing materials; and other defects in construction.

2.3 PERFORMANCE / DESIGN CRITERIA

A. Glass Strength: Analysis shall comply with ASTM E 1300 Determining Load Resistance of Glass in Buildings. Provide glass products in the thickness and strengths (annealed or heat-treated) required to meet or exceed the following criteria based on project loads and in-service conditions.

1. Minimum thickness of annealed or heat-treated glass products to be selected so the worst case probability of failure does not exceed the following:
   a. 8 breaks per 1000 for glass installed vertically or not 15 degrees or more from the vertical plane and under wind action.
   b. 1 break per 1000 for glass installed 15 degrees or more from the vertical plane and under action of wind and/or snow.

2. Deflection must be limited to prevent disengagement from the frame and be less than or equal to 1” (25mm).

B. Thermal and Optical Performance: Provide glass products with performance properties specified in 2.5 Product Schedule. Performance properties to be manufacturer’s published data as determined according to the following procedures:

1. Center of glass U-Value: NFRC 100 methodology using LBNL WINDOW 5.2/6.3 computer program.
2. Center of glass solar heat gain coefficient: NFRC 200 methodology using LBNL-35298 WINDOW 5.2/6.3 computer program.
3. Solar optical properties: NFRC 300

2.4 FABRICATION

A. Flat Glass:

1. Shall comply with ASTM C1036 Standard Specification for Flat Glass, Type 1, Class 1 (clear) or Class 2 (tinted, heat-absorbing and light reducing) and Quality q3
2. ASTM C 1048 Heat Treated Flat Glass, Kind HS or FT (remove ASTM Standard C 1048 if annealed glass), Condition A (uncoated), B (spandrel glass, one surface coated), or C (other coated glass

a. Heat Treated Flat Glass to be by horizontal (roller hearth) process with inherent rollerwave distortion parallel to the bottom edge of the glass as installed.

b. Maximum peak to valley rollerwave 0.003” (0.08mm) in the central area and 0.008” (0.20mm) within 10.5” (267mm) of the leading and trailing edge

c. For clear or low-iron glass 1/4” to 3/8” thick without ceramic frit or ink, maximum + or – 100 mD (millidiopter) over 95% of the glass surface.

d. Maximum bow and warp 1/32” per lineal foot (0.79mm).

e. All tempered architectural safety glass shall conform with ANSI Z97.1 and CPSC 16 CFR 1201.
f. For all fully tempered glass, provide heat soak testing conforming to EN14179 which includes a 2 hour dwell at 290°C±10°C.

B. Insulating Glass:
   a. Units shall be certified for compliance by the IGCC in accordance with the above ASTM test method.
2. The unit overall thickness tolerance shall be -1/16” (1.59mm) / +1/32” (0.79mm) for a 1” two ply insulating unit. Unit constructed with patterned or laminated glass shall be +/-1/16” (1.59mm).
3. Shall comply with ASTM E 546 Standard Test Method for Frost Point of Sealed Insulating Glass Units
5. Sealed Insulating Glass Units to be double sealed with a primary seal of polyisobutylene and a secondary seal of silicone.
   a. The minimum thickness of the secondary seal shall be 1/16” (1.59mm).
   b. The target width of the primary seal shall be 5/32” (3.97mm).
   c. There shall be no voids or skips in the primary seal.
   d. Up to a maximum of 3/32” of the airspacer may be visible above the primary polyisobutylene sealant.
   e. Gaps or skips between primary and secondary sealant are permitted to a maximum width of 1/16” (1.59mm) by maximum length of 2” (51mm) with gaps separated by at least 18” (457mm). Continuous contact between the primary seal and the secondary seal is desired.
6. To provide a hermetically sealed and dehydrated space, lites shall be separated by a spacer with bent corners and straight butyl injected zinc plated steel straight key joints.

C. Laminated Glass:
2. All laminated architectural safety glass shall conform with ANSI Z97.1 and CPSC 16 CFR 1201.
3. Laminated Glass products to be fabricated free of foreign substances and air or glass pockets in autoclave with heat plus pressure.

D. Coated Vision Glass:
1. Shall comply with ASTM C 1376 Standard for Pyrolytic and Vacuum Deposition Coatings on Glass
2. Coated products to be magnetically sputtered vacuum deposition (MSVD)
3. Edge Deletion – When low-e coatings are used within an insulating unit, coating shall be edge deleted to completely seal the coating within the unit.
   a. The edge deletion should be uniform in appearance (visually straight) and remove 95% of the coating.

E. Ceramic Coated Glass Products:

2.5 ACCESSORIES

A. Glazing Materials: Select glazing sealants, tapes, gaskets and additional glazing materials of proven compatibility with other materials they will contact, including glass products, seals of insulating glass units and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.
1. Setting blocks to be 100% silicone with a durometer hardness of 85±5.
2.6 PRODUCT SCHEDULE

All products shall comply with ASTM Standards and requirements in Article 2.3 Materials.

A. Insulating Coated Glass:
   1. 1” VRE6-54 Insulating Coated Glass as manufactured by Viracon.
      a. Exterior Glass Ply: ¼” Bluegreen tint tempered
      b. Coating: VRE-54 on #2 surface
      c. Space: ½” thick aluminum airspacer Argon filled
      d. Silicone: black
      e. Interior Glass Ply: ¼” Clear tempered

2. Performance Requirements
   a. Visible Light Transmittance: 41%
   b. Exterior Reflectance: 24%
   c. Winter U-Value: 0.25
   d. Summer U-Value: 0.22
   e. Shading Coefficient: 0.28
   f. Solar Heat Gain Coefficient: 0.24
   g. Light to Solar Gain Ratio: 1.71

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:
   1. Verify prepared openings for glazing are correctly sized and within tolerance. Verify that the minimum required face and edge clearances are being followed.
   2. Verify that a functioning weep system is present.
   3. Do not proceed with glazing until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Preparation: Immediately before glazing, clean glazing channels and other framing members receiving glass. Remove coatings not firmly bonded to substrates.

B. Demolition / Removal: Remove and replace glass that is broken, chipped, cracked or damaged in any way.

3.3 INSTALLATION

A. Install products using the recommendations of manufacturers of glass, sealants, gaskets and other glazing materials including those in the GANA Glazing Manual except where more stringent requirements are indicated.

B. Prevent glass from contact with contaminating substances that result from construction operations such as weld splatter, fire-safing or plastering.

3.4 CLEANING

A. Clean excess sealant or compound from glass and framing members immediately after application using solvents or cleaners recommended by manufacturers.

END OF SECTION
SECTION 092900 - GYPSUM DRYWALL

PART 1 - GENERAL
1.01 Fire-Resistance Ratings: Provide gypsum drywall construction fire-resistance ratings indicated, conforming to assemblies tested per ASTM E 119 by inspecting and testing organization acceptable to authorities having jurisdiction.
   A. All fire and/or smoke barriers or walls shall be effectively and permanently identified with stenciling above any decorative ceiling and/or in concealed space with letters a minimum of two (2) inches high on a contrasting background spaced a maximum of twelve (12) feet on center with a minimum of one per wall or barrier. The hourly fire rating shall be included on all rated barriers or walls. Wording shall be as follows: “(___) Hour Fire and Smoke Barrier-Protect All Openings.”
   B. Storage rooms which are sprinkled shall have permanently stenciled, eighteen (18) inches below sprinkler heads, a designation line (red) with the following wording: “NO STORAGE ABOVE LINE.” Requirements for stenciling shall be as noted above.
   C. See UL cut sheets at end of this section.

1.02 SUBMITTALS
   A. Product Data: For each type of product indicated.

PART 2 – PRODUCTS
2.01 Manufacturers: Subject to compliance with requirements, provide gypsum board and related products by one of the following:
   - Georgia-Pacific Corp.
   - Gold Bond Building Products Div.
   - National Gypsum Co.
   - United States Gypsum Co.

2.02 Steel Framing Components for Suspended Ceilings: As follows, sized per ASTM C 754, unless otherwise indicated:
   A. Wire for Hangers and Ties: ASTM A 641, soft, Class 1 zinc coating.
   B. Grid Suspension System: ASTM C 645, manufacturer's standard grid suspension system composed of main beams and cross furring members which interlock to form a modular supporting network.

2.03 Steel Framing for Walls and Partitions: Comply with ASTM C 754 and the following:
   A. Steel Studs and Runners: ASTM C 645, 0.0179 inch (25 gauge) base metal thickness unless otherwise indicated.
      1. Height for which 0.0179 inch (25 gauge) is insufficient per manufacturer’s “Limiting Height Tables”, shall be accomplished in the gauge of material required by these tables. Such materials to be provided at no additional cost to the Owner.
      2. All door frame openings shall be reinforced with two (2) 0.0312 inch (20 gauge) studs on each side for a total of four (4) studs.
   B. Base Track: ASTM C 645, 0.0312 inch (20 gauge) for interior; 0.0538 inch (16 gauge) for exterior.
   C. Top Track: Slip Track, 0.0312 inch (20 gauge) for interior; 0.0538 inch (16 gauge) for exterior.
   D. Steel Rigid Furring Channels: ASTM C 645, 0.0179 inch (25 gauge) base metal thickness, hat-shaped.
2.04 **Gypsum Board:** Provide gypsum board of types indicated in maximum lengths available to minimize end joints:

A. **Exposed Gypsum Board:** ASTM C 36, 5/8" thickness, Type 'X'. For fire-rated-assemblies refer to Drawings for UL Design Numbers.

B. **Moisture & Mold Resistant Gypsum Board:** ASTM C 1396, 5/8" thickness, regular type except where Type X Fire-resistant type is indicated or required to meet UL assembly types. Edges shall be tapered. Provide Sheetrock brand Mold Tough Firecode Gypsum Panels by USG OR approved equal. **Note:** All wet areas to receive Moisture & Mold Resistant Gypsum Board. Wet areas include walls and ceilings where gypsum board is specified. Areas include, but are not necessarily limited to, bathrooms, gang toilets, showers, janitor closets, kitchens and laundry areas.

C. **Mineral Board:** Provide 1/2" gypsum sheathing board core in accordance with ASTM C 1177 with glass mats both sides and long edges. Application requires a No.15, nonperforated, asphalt saturated felt complying with ASTM D 226, Type 1 or equal. Provide Dens-Glass Gold by Georgia-Pacific Corp. OR approved equal.

2.05 **Trim Accessories:** ASTM C 840; manufacturer's standard trim accessories, including cornerbead and edge trim of beaded type with face flanges for concealment in joint compound.

2.06 **Gypsum Board Joint Treatment Materials:** ASTM C 475 and ASTM C 840, and as follows:

A. **Joint Tape:** Paper reinforcing tape, unless open-weave glass fiber tape is recommended by gypsum board manufacturer.

B. **Setting-Type Joint Compound:** Factory-prepackaged, job-mixed chemical-hardening powder products formulated for uses indicated.

C. **Drying-Type Joint Compounds:** Factory-prepackaged -premixed vinyl-based products. Taping compound formulated for embedding tape and first coat over fasteners and flanges of corner beads and edge trim. Topping compound formulated for fill (2nd) and finish (3rd) coats.

2.07 **Miscellaneous Materials:** As recommended by gypsum board manufacturer:

A. **Gypsum Board Screws:** ASTM C 1002.

B. **Concealed Acoustical Sealant:** Comply with requirements specified in Division-7 Section "Joint Sealers."

**PART 3 - EXECUTION:**

3.01 **Install steel framing** to comply with ASTM C 754 and ASTM C 840.

A. **Do not bridge** building expansion joints with support systems, frame both sides of joints with furring and other supports as indicated.

B. **Secure hangers** to structural support by connecting directly to structure where possible, otherwise connect to inserts, clips other anchorage devices or fasteners as indicated.
SECTION 092900 - GYPSUM DRYWALL (continued):

C. **Install direct-hung grid suspension system**, including perimeter wall track or angle, with members spaced and installed to comply with mfr's instructions.

D. **Install steel studs** with bottom and top runner tracks anchored to substrates. Isolate system from building structure to prevent transfer of loading and deflections into metal support system, both vertically and horizontally.

E. **Install supplementary framing**, runners, furring, blocking, steel plate, and bracing at openings and terminations in gypsum drywall and where required for support of other work which cannot be adequately supported on gypsum board alone.

3.02 Install and finish gypsum board to comply with ASTM C 840 and as follows:

A. **Isolate drywall construction** from abutting structural and masonry work; provide edge trim and acoustical sealant as recommended by manufacturer.

B. **Screw gypsum board to metal supports**.

C. **Do not bridge building expansion joints**. Leave space of the width indicated between boards, and trim both edges for installation of sealant or gasket.

3.03 **Install water-resistant backing board** where indicated to receive thin-set tile.

3.04 **DRYWALL FINISHING**:

A. **General**: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. **Prefill open joints and damaged surface areas**.

C. **Apply joint tape over gypsum board joints**, except for trim products specifically indicated as not intended to receive tape.

D. **Gypsum Board Finish Levels**: Finish panels to levels indicated below and according to ASTM C840:

1. **Level 4**:
   a. All Joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. **Note**: It is recommended that the prepared surface be coated with a drywall primer prior to the application of final finishes. (See Section 099000 – Painting.)

3.05 Install compound in 3 coats (plus prefill of cracks where recommended by manufacturer); sand between coats and after last coat.

A. **Embedding and First Coat**: Ready-mix drying type all-purpose of taping compound.

B. **Fill (Second) Coat**: Ready-mix drying type all-purpose or topping compound.

C. **Finish (Third) Coat**: Ready-mix drying-type all-purpose or topping compound.

END OF SECTION 092900
SECTION 093000 – TILE

PART 1 - GENERAL

1.01 SECTION INCLUDES
A. Tile setting mortars and adhesives.
B. Grout for tile installation.
C. Waterproofing membrane for tile.

1.02 REFERENCES
B. ANSI A136.1 – American National Standards for Organic Adhesives for Installation of Ceramic Tile.
E. TCNA (HB) – Handbook for Ceramic Tile Installation; Tile Council of North America, Inc.

1.03 SUBMITTALS
A. Submit under provisions of Section 013300.
B. Manufacturer’s technical information for each product specified.
C. Samples:
   1. Color charts for selection of grout.
   2. Three 6” x 6” samples of each porcelain tile specified.
D. Installation Instructions: Manufacturer’s printed instructions for each product.

1.04 DELIVERY, STORAGE AND HANDLING
A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage or contamination to materials by water, freezing, foreign matter or other causes.
B. Do not use frozen materials unless specifically allowed by manufacturer.
C. Deliver and store materials on site at least 24 hours before work begins.
D. Provide heated and dry storage facilities on site.

1.05 EXTRA MATERIALS
A. Provide additional stock to Owner equaling 2% of each type and color installed.

1.06 PROJECT CONDITIONS
A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer’s printed recommendations.
B. Vent temporary heaters to exterior to prevent damage to tilework from carbon dioxide build-up.
SECTION 093000 - TILE (continued):

C. Maintain temperatures at no less then 50 deg F (10 deg C) in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standards or manufacturer’s written instructions.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers for grout, mortar and setting materials:
MAPEI Corp. U. S. A.,
1144 E. Newport Center Rd
Deerfield Beach, FL 33442; Toll Free Tel: 800-42-MAPEI; Tel: (954) 246 – 8888;
Fax: (954) 246 – 8801; Web: www.mapei.com
OR approved equal.

B. Provide tile grout, setting materials, additives, waterproofing, shower-pan mortar, and factory-prepared mortars from the same manufacturer.

C. Request for substitutions will be considered in accordance with provisions of Section 016000.

2.02 MORTAR /MATERIALS

A. Floor Tile:
1. Thinset Bed Mortar: Premium Grade, Single-component, Ultra high performance, polymer-modified thin set mortar complying with ANSI A118.4 and ANSI A118.11; MAPEI Ultraflex 3.
2. Grout: Solvent-free, 100%-solids epoxy grout. Non-sagging, chemical resistant grout, with high-compressive strength; MAPEI Kerapoxy 410 meeting or exceeding ANSI A118.3.

2.03 MIXES

A. Proportion and mix materials in accordance with manufacturer’s most current written instructions and applicable ANSI standards.

2.04 Porcelain Tile (PT):

Manufacturer: Daltile OR approved equal.
Pattern: City View
Colors (PT-1 & 2): PT-1 - NOT USED. See color legend in drawings.
Sizes: 12” x 12” x 3/8”.
Type: Porcelain, unpolished, color body
Face: Plain with static coefficient of friction (SCOF) to equal 0.60 wet or higher as per ASTM C 1028 and dynamic coefficient of friction (DCOF) greater than 0.42 wet.
Trim Shapes: 3” x 12” bullnose.
Contact: Terry Tampa (407) 402-0815.

Pattern: Porcelalto
Sizes: 12” x 12” x 5/16”.
Type: Porcelain, unpolished, color body
Face: Plain with static coefficient of friction (SCOF) to equal 0.60 wet or higher as per ASTM C 1028.
Trim Shapes: 4” x 12” bullnose.
Contact: Terry Tampa (407) 402-0815.
SECTION 093000 - TILE (continued):

2.05 Ceramic Mosaic Tile (CMT):
Manufacturer: Daltile OR approved equal.
Pattern: Keystones
Color: To be selected from price group 1.
Size: 2" x 2" x 1/4".
Type: Porcelain, unpolished, color body
Face: Plain with static coefficient of friction (SCOF) to equal 0.60 wet or higher as per ASTM C 1028 and dynamic coefficient of friction (DCOF) greater than 0.42 wet as per A137.1.
Contact: Terry Tampa (407) 402-0815.

2.06 Ceramic Tile (CT):
Manufacturer: Daltile OR approved equal.
Pattern: Matte
Color: To be selected from price group 1.
Size: 3" x 6" x 5/16".
Type: Ceramic, matte finish
Trim Shapes: 3" x 6" bullnose (top, side and corner); 3" x 6" cove base; inside and outside corners; Quarter rounds at bench edges
Contact: Terry Tampa (407) 402-0815.

2.07 Ceramic Tile (CTL):
Manufacturer: Daltile OR approved equal.
Pattern: Semi Gloss tile liners
Color: To be selected from price group 1.
Size: 1/2" x 6" x 5/16".
Type: Ceramic, matte finish
Contact: Terry Tampa (407) 402-0815.

2.08 Metal Transition Strip: Provide a metal transition strip between porcelain tile and carpet equal to Schluter RENO-TK in a satin anodized aluminum finish.

2.09 Setting Materials: Provide setting materials as follows:
A. Sealer: ASTM E 96 Tile/grout sealer shall be water based, sub-surface, water repellant equal to Silox 110 by Cerama Seal, where applicable.
B. Waterproofing and crack-isolation membrane (floors): Trowel applied, flexible, fiber-mesh-reinforced waterproofing and crack-isolation membrane applied as per ANSI A118.10; Mapei, Mapelastic 315. Install membrane to comply with pertinent codes and manufacturer’s directions. 1. Fiberglass Mesh: Use Mapei Fiberglass mesh with Mapelastic 315.

PART 3 - EXECUTION

3.01 EXAMINATION AND SURFACE PREPARATION
A. Before work commences, the flooring contractor must examine areas to be covered and report any deficiency or adverse condition in writing to the general contractor and architect.
B. Do not proceed with the work until surfaces and conditions comply with the requirements indicated in the manufacturer's instructions, applicable industry standard, federal, state, provincial, local regulations and good work practices. By beginning work, the applicator/user acknowledges that the conditions are acceptable for installation.
C. All concrete substrates must be fully cured and free of any hydrostatic and/or moisture problems. The moisture-vapor emission from a concrete slab must not exceed the industry accepted level per 1,000 sq. ft. (1.36 kg per 92.9m2) per 24 hours as measured by the anhydrous calcium chloride test kit, based upon test.
SECTION 093000 - TILE (continued):

method ASTM F1869. It also must not exceed the flooring or adhesive manufacturer’s written limitations for suitable emission rates.

D. Substrates should be sound, stable and free of all oils, grease, loose debris, paint, drywall debris, curing agents, sealers or any potential bond breaking contaminants must be removed mechanically. Do not use chemicals for surface prep. Consult the manufacturer for their specific recommendations.

E. Do not install over vinyl asbestos tile (VAT) or any flooring, substrate or substance that may contain asbestos. Do not install over any adhesives, including asphalt cutback residue, that may have been used to install flooring containing asbestos. Do not sand or remove any existing resilient floors or cutback adhesive that contains asbestos fibers or crystalline silica. For removal instructions, refer to the Resilient Floor Covering Institute’s Recommended Work Practices. Follow all local, state and federal regulations and industry standards when mechanical removal is required.

F. All substrates must be plumb and flat to a tolerance in plane of 1/4” in 10’ for floors and 1/4” in 8’ for walls. Refer to manufactures specifications for their specific product.

3.02 INSTALLATION

A. Comply with ANSI A108.1 and 108.4 through A108.10, as applicable for type of tile; setting materials, and grout. Comply with manufacturer’s instructions for application of proprietary materials.

B. Comply with standards by the TCNA, Tile Council of North America.

C. Install expansion and control joints in accordance with TCNA EJ-171 – 12.

D. Joint Pattern: As required by manufacturer.

E. Slab on grade floor tile installed according to TCNA F115-12.

F. Wall tile installed according to TCNA W244C-12.

3.03 PROTECTION

A. Floors: Protect from all traffic for at least 72 hours after installation.
   1. Do not step on floor for at least 24 hours; if traffic is unavoidable after that, use plywood stepping boards.
   2. Protect from heavy traffic for at least 7 days after installation.
   3. Protect from food products and chemicals which can cause staining for at least 14 days.
   4. Protect from freezing and total water immersion for at least 21 days after installation.

B. Walls: Protect from impact, vibration and heavy hammering on adjacent and opposite walls for at least 14 days after installation, unless manufacturer’s instructions allow a shorter period.

3.04 Cleaning and Protection: Clean tile in accordance with applicable ANSI standard for type of tile and method of installation used and manufacturer's instructions. Apply heavy craft paper or other heavy protective covering to prevent surface damage.

END OF SECTION 093000
SECTION 095100 - ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.01 Acoustical Panel and Tile Standard: FS SS-S-118.

1.02 Acoustical Suspension System Standards: ASTM C 635 for materials, ASTM C 636 for installation.

1.03 Surface Burning Characteristics: 25 or less for flame spread, 50 or less for smoke developed, per ASTM E 84.

1.04 Submittals: Submit product data for each type of acoustical ceiling tile along with 6" square samples of each type of acoustical tile.

1.05 Coordination: Review Finish Plan on drawings and Mechanical and Electrical Drawings for layout and pattern of acoustical units, location of recessed light fixtures, ceiling diffusers and grilles, details of ceiling penetrations, details of fire rated acoustical treatment, access doors and necessary connections to work of other trades.

Provide coordination drawings for reflected ceiling plans drawn accurately to scale and coordinating penetrations and ceiling-mounted items. Show the following:
1. Ceiling suspension members.
2. Methods of attaching hangers to building structure.
3. Size and location of initial access modules.
4. Ceiling-mounted items including light fixtures; air outlets and inlets; speakers; sprinkler heads; and column penetrations and other junctures with adjoining construction.

1.06 Installer Qualifications: Engage an experienced Installer who has successfully completed acoustical ceilings similar in material, design and extent to that indicated for Project.

1.07 Preinstallation Conference: Conduct a preinstallation conference at the Project site to coordinate work from all trades.

1.08 Delivery, Storage and Handling: Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination and other causes. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.

1.09 Deliver extra materials to Owner. Furnish extra materials of each size and type matching products installed and equaling 2.0% of acoustical units and exposed suspension members installed. Package materials in protective covering and identify with appropriate labels.

1.10 Warranty: Provide acoustical panels and grid from the same manufacturer with a thirty year warranty from the date of substantial completion.

PART 2 - PRODUCTS:

2.01 ACT – Wet formed mineral fiber with factory applied latex paint; Type III; Form 1; Class A and as follows:
SECTION 095100 - ACOUSTICAL CEILINGS (continued):

Color: White.
Light Reflectance: 85%
NRC: 0.80
CAC: 35.
Edge Detail: Beveled Tegular.
Size: 24" x 24" x 1".
Products: Subject to compliance with requirements, provide "Ultima High NRC # 1941, by Armstrong OR approved equal.
Sag Resistance: HumiGuard+
Antimicrobial: BioBlock+

2.02 **ACT(SP)** – Wet formed mineral fiber with factory applied latex paint; Type IX; Form 2; Class A and as follows:
Color: White.
Light Reflectance: 89%
NRC: NA
CAC: 33.
Edge Detail: Square.
Size: 24" x 24" x 5/8".
Products: Subject to compliance with requirements, provide "Kitchen Zone # 673, by Armstrong OR approved equal.
Sag Resistance: HumiGuard+
Antimicrobial: BioBlock+

2.03 **Dimensional Stability:** Suspension systems shall meet or exceed the requirements of ASTM C635 for dimensional tolerances, coatings and finishes, and load carrying capabilities.

2.04 **Humidity control:** Ceilings shall have a 30-year system warranty against system sagging and warping when installed according to manufacturer’s recommendations. Ceilings shall have and anti-microbial warranty against fungi, mold, mildew, bacteria, yeast or algae.

2.05 **Suspension Systems:**
A. **Non-Fire-Resistance-Rated Exposed Double Web Steel Direct-Hung Suspension System with 15/16" Wide Exposed Faces:** Roll-formed from prefinished cold-rolled steel sheet, with hanger wire, attachment devices and edge moldings and trim; intermediate-duty system structural classification; white painted finish. Note: All cold-rolled steel sheets shall be hot dipped galvanized (G-30).
Armstrong – 15/16” Prelude XL.
*(Armstrong Ceiling Tile shall be installed with Armstrongs Suspension System in order to keep the 30 year warranty - No exceptions).*

PART 3 - EXECUTION

3.01 **Project Conditions:** Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet work in space is completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

3.02 **Layout:** Balance ceiling borders on opposite sides, using more-than-half-width acoustical units.

3.03 **Tolerance:** 1/8" in 12'-0" level tolerance.

3.04 **Suspension System:** Secure to building structure, with hangers spaced 4'-0" along supported members.
3.05 **Edge Moldings:** Secure to substrate with screw anchors spaced 16" o.c. Miter corner joints. Cope exposed edges of intersecting exposed suspension members to produce flush intersections.

3.06 **Damaged ceiling panels:** Prior to Substantial Completion, remove and replace skinned, damaged or dirty ceiling panels with new material.

3.07 **Cleaning:** Clean exposed surfaces of acoustical ceilings, including trim, edge moldings and suspension members. Comply with manufacturer’s instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095100
SECTION 096513 - RESILIENT WALL BASE

PART 1 - GENERAL

1.01 SUMMARY:
A. Section Includes: RESILIENT WALL BASE AND PROFILED RESILIENT WALL BASE

1.02 REFERENCED DOCUMENTS:
A. ASTM International
B. Other Referenced Documents

1.03 SUBMITTALS:
A. Product Data: Submit product data, including manufacturer's specification summary sheet for specified products.
B. Shop Drawings: Submit shop drawings showing layout, finish colors, patterns and textures.
C. Samples: Submit selection and verification samples for finishes, colors, and textures.
D. Quality Assurance Submittals: Submit the following
   1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
   2. Manufacturer's Instructions: Manufacturer's installation and maintenance instructions.
E. Maintenance Information: Maintenance information for installed products in accordance with Division 1 sections.
   1. Methods for maintaining installed products.
   2. Precautions against cleaning materials and methods detrimental to finishes and performance.
F. Warranty: Warranty documents specified herein.

1.04 QUALITY ASSURANCE:
A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installing work similar to that required for this project.
B. Regulatory Requirements
   1. Fire Performance characteristics: Provide resilient wall base with the following Fire performance characteristics as determined by testing products in accordance with ASTM method (and NFPA method) indicated below by a certified testing laboratory or another testing and inspecting agency acceptable to authorities having jurisdiction.
      a. ASTM E648 (NFPA 253), Critical Radiant Flux of Floor Covering Systems; Class 1, Greater than 0.45 W/cm².
      b. ASTM E662 (NFPA 258), Specific Optical Density of Smoke Generated by Solid Materials; < 450.
C. Single-Source Responsibility: Obtain resilient wall base tile and manufacturer’s recommended adhesive from a single supplier.
D. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, Manufacturer’s conditions, recommended adhesive depending on product, substrate type and type of installation, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with requirements in Division 1.
SECTION 096513 - RESILIENT WALL BASE (continued):

1.05 DELIVERY, STORAGE AND HANDLING:
   A. General: Comply with requirements in Division 1.
   B. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
   C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with Identification labels intact.
   D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and acclimated to site conditions at temperature and humidity conditions recommended by manufacturer.

1.06 PROJECT CONDITIONS:
   A. Environmental Requirements/Conditions: In accordance with manufacturer's recommendations, areas to receive rubber flooring shall be clean, fully enclosed, weather tight with the permanent HVAC set at a uniform temperature of 65º - 85º F for 48 hours prior to, during and thereafter installation of rubber flooring. Rubber flooring and adhesive shall be conditioned in the same manner. Rubber flooring/tile must be un-boxed at least 48 hours prior to installation in the areas in which it will be installed.

1.07 SEQUENCING AND SCHEDULING:
   A. Finishing Operations: Install resilient wall base after finishing operations, including floor covering, painting and ceiling operations, have been completed.

1.08 MAINTENANCE:
   A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1, Closeout Submittals Section.
   B. Quantity: Furnish quantity of resilient wall base equal to 5% of amount to be installed.
   C. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.
   D. Maintenance of finished resilient wall base to be conducted per Manufacturer’s Maintenance Guide.

1.09 WARRANTY:
   A. Manufacturer's Materials Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.
   1. Warranty: 1 year limited warranty commencing on Date of Substantial Completion. Notice of any defect must be made in writing to manufacturer within 30 days after buyer learns of the defect.

PART 2 – PRODUCTS

2.01 RESILIENT WALL BASE
   A. Manufacturer: Flexco Corporation, 1401 E. 6th Street, Tuscumbia, AL 35674, Phone: 800-633-3151, Fax: 800-346-9075, Web: www.flexcofloors.com OR approved equal.
   B. Test results
      1. ASTM D570, Water Absorption of Plastics; < 0.15%.
      2. ASTM E84 (NFPA 255), Surface Building Characteristics of Building Materials; Class C.
      3. ASTM E648 (NFPA 253), Critical Radiant Flux; Class 1, > 1.0 W/cm².
      4. ASTM E662 (NFPA 258), Specific Optical Density of Smoke Generated by Solid Materials; Passes.
      5. ASTM F925, Resistance to Chemicals; Passes, List Available.
      6. ASTM F1515, Light Stability; Excellent.
      7. ASTM F1861, Standard Specification for Resilient Wall Base - Types TS, TP & TV, Group 1 & 2, Styles A&B; (Federal Specification SSW40a, Type II, Styles A&B).
      8. NFPA 101 Life Safety Code, Wall Base; Interior floor trim material used at the junction of the wall and the floor to provide a functional or decorative border, and not exceeding 6 in. (150 mm) in height shall meet
the requirements for the interior wall finish for its location or the requirements for Class II interior floor finish as described (CFR > .22 W/cm² / < .45 W/cm²) using ASTM E 648. If Class I floor finish is required (CFR > .45 W/cm²), the interior floor trim shall be Class I.

C. Products:

1. **Profiled Resilient Base - PRB:** Base Sculptures Wall Base; Colors: To be selected
   a. Profile: Chrisma
   c. Complies with ASTM F 1861 Type TP (Thermoplastic Rubber), Group 1 (Solid).
   d. Profile:
      1) No Toe (Straight)
   e. Height:
      1) 4 1/2”
   f. Length: 40’ (12.19 m) Coils
   g. Thickness: 1/8” (3.175 mm) to 3/8” (9.53 mm) nominal.
   h. Corner Installation:
      1) Job Site Mitered Corners by Installer.

2. **Resilient Base - RB:** BASE 2000 Wall Base.
   b. Complies with ASTM F 1861 Type TP (Thermoplastic Rubber), Group 2 (Layered).
   c. Profile:
      1) Standard Toe (Cove base)
   d. Height:
      1) 4” (101.6 mm)
   e. Length:
      1) 120’ (36.57 m) Coils (4 foot pieces are not acceptable)
   f. Thickness: 1/8” (3.175 mm)
   g. Corner Installation:
      1) Job Site Formed by Installer.

### PART 3 – EXECUTION

3.01 **MANUFACTURER’S INSTRUCTIONS:**
   A. Compliance: Comply with manufacturer’s requirements as published in Flexco installation instructions.
   B. Adhesive: Flexco 106 Wall Base Adhesive.
   C. Caulking: Flexco colored caulking as required.

3.02 **EXAMINATION:**
   A. Site Verification of Conditions: Confirm substrate conditions (which have been previously addressed under other sections) are acceptable for product installing in accordance with manufacturer's instructions.
   B. Material Inspection: In accordance with manufacturer's installing requirements, visually inspect materials prior to installing. Material with visual defects shall not be installed.

3.03 **PREPARATION:**
   A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage while installing.
   B. Substrate Preparation: Prepare substrate to be smooth, rigid, flat, level, permanently dry, clean and free of foreign materials such as paint, dust, grease, oils, solvent, old adhesive residue, vinyl wall coverings, non-porous surfaces and all other contaminants that may interfere with adhesive bond.
   C. Do not install over existing floor covering or over substrates not approved by manufacturer.

3.04 **INSTALLING:**
   A. Refer to Flexco installation instructions for specific resilient wall base detailed specifications on installing.
   1. Finish Floor Covering Designs: As selected by Architect.
2. Accessories: Architect shall specify manufacturers’ color coordinated accessories as required, including (but not limited to) resilient wall base, stair nosing, reducers or other edgings, welding rods for heat welded seams.

3.05 FIELD QUALITY REQUIREMENTS:
A. Manufacturer's Field Services: Upon Owner's request and with minimum 72 hours notice, provide manufacturer's field service consisting of product use recommendations and periodic site visits to confirm installing of product is in accordance with manufacturer's instructions.
B. Site Visits: (Specify number and duration of periodic site visits).

3.06 PROTECTION:
A. Protection: Protect installed product and finish surfaces from damage during construction. Remove and legally dispose of protective covering at time of substantial completion.
B. Restrict cleaning for first 72 hours.

3.07 INITIAL MAINTENANCE PROCEDURES:
A. General: Include in contract sum cost for initial maintenance procedures and execution by professional maintenance personnel after resilient wall base has been installed for 72 hours as specified in the Flexco maintenance instructions.

3.08 CLEANING:
A. Cleaning: See Flexco maintenance instructions. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of.

END OF SECTION 096513
SECTION 099100 – PAINTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and Division 1 Specification Sections, apply to this section.

1.02 DESCRIPTION OF WORK
   A. Painting and finishing of interior and exterior items and surfaces, unless otherwise indicated.
   B. Includes field painting of bare and covered pipes and ducts (including color coding), and hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under mechanical and electrical work.
   C. Paint exposed surfaces, except as otherwise indicated, whether or not colors are designated. If not designated, colors will be selected by Architect from designer colors available for the coatings required.

1.03 WORK NOT INCLUDED: Unless otherwise indicated, shop priming of ferrous metal items and fabricated components are included under their respective trades. Pre-finished items are not included.
   A. Unless otherwise indicated, painting not required on surfaces of concealed areas except for piping, equipment and other such items within concealed spaces. Finished metals such as anodized aluminum, stainless steel, bronze, and similar metals will not be painted. Do not paint any moving parts of operating units, or over any equipment identification, performance rating, name or nomenclature plates or code-required labels.

1.04 RELATED SECTIONS
   A. Section 064023 - Interior Architectural Woodwork
   B. Section 081113 – Hollow Metal Doors and Frames
   C. Section 092900 - Gypsum Drywall

1.05 FLAME SPREAD RATING
   A. Class A (0-25) over non-combustible surfaces.

1.06 SUBMITTALS: In addition to manufacturer’s data, application instructions, and label analysis for each coating material, submit samples for Architect’s review of color and texture only. Resubmit samples if requested until required sheen, color and texture is achieved.
   A. On 8” x 8” hardboard, provide samples of each color and material, with texture to simulate finish conditions.
   B. On actual wall surfaces and other building components, duplicate painted finishes of acceptable samples, as directed by Architect. Final acceptance of paint color and texture shall be from wall sample.

1.07 PROJECT CONDITIONS
   A. Do not apply paint in rain, fog or mist or when relative humidity exceeds 85%. Do not apply paint to damp or wet surfaces or before the building is weathered in.

1.08 EXTRA MATERIALS
   A. Furnish extra paint materials from the same production run as the materials applied. Package with protective covering for storage and identify with labels describing contents. Deliver extra
SECTION 099100 - PAINTING (continued):

materials to Owner. Furnish Owner with 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
A. Provide specified paint by Sherwin-Williams Company OR approved equal by one of the following paint manufacturers:
   1. Pittsburgh Paints.
   2. Porter Paints.
   3. ICI Paint Stores.
   5. Color Wheel.

2.02 PAINT MATERIALS – GENERAL
A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates recommended by manufacturer.

B. Material Quality: Provide manufacturer’s best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer’s product identification will not be acceptable.

2.03 PAINT SCHEDULE
A. Exterior Surfaces:
      1st Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
      2nd Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
      (2.5-4 mils dry per coat; VOC 0 g/L)

   2. Ferrous Metal (Exterior) (Shop Primed Metal):
      1st Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
      2nd Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
      (2.5-4 mils dry per coat; VOC 0 g/L)

B. Interior Surfaces:
   1. Gypsum Drywall (Interior):
      1st Coat: S-W ProMar 200 Zero VOC Latex Primer, B28W2600
      (4 mils wet, 1.5 mils dry; Zero VOC)
      2nd Coat: S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series
      3rd Coat: S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series
      (4 mils wet, 1.6 mils dry per coat; Zero VOC)

   2. Gypsum Drywall (Wet Areas or where EP-Epoxy Paint is scheduled on the Finish Plans):
      Semi-Gloss Finish
      1st Coat: S-W ProGreen 200 Interior Latex Primer, B28W600
      (4 mils wet, 1.5 mils dry; VOC 49 g/L, 0.36 lb/gal)
      2nd Coat: S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy, K46
      3rd Coat: S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy, K46
      (4.0 mils wet, 1.5 mils dry per coat; VOC 155 g/L, 1.29 lb/gal)

   3. Concrete Masonry Units and Concrete (Interior):
      Semi-Gloss Finish
SECTION 099100 - PAINTING (continued):

1st Coat: S-W PrepRite Blockfiller, B25W25 (VOC, 50 g/L)
or
S-W Loxon Block Surfacer, A24W200 (VOC, 100 g/L)
2nd Coat: S-W ProMar 200 Zero VOC Latex Semi-gloss, B31-2600 Series
3rd Coat: S-W ProMar 200 Zero VOC Latex Semi-gloss, B31-2600 Series
(4 mils wet, 1.6 mils dry per coat; Zero VOC)

4. Concrete Masonry Units (Where EP-Epoxy Paint is scheduled on finish plans):
1st Coat: S-W Loxon Block Surfacer, A24W200
(50-100 sq ft/gal; VOC 81 g/L, 0.68 lb/gal)
2nd Coat: S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy, K46
3rd Coat: S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy, K46
(4.0 mils wet, 1.5 mils dry per coat; VOC 155 g/L, 1.29 lb/gal)

5. Concrete Floor (Where SC-Sealed Concrete is scheduled on finish plans):
Properly prepare concrete surface for stain/sealer.
See manufacturer’s surface preparation guidelines
1st Coat: S-W H&C Concrete Stain, Solid Color, Water Based
2nd Coat: S-W H&C Concrete Stain, Solid Color, Water Based
(100-150 sq/ft per gallon)

6. Galvanized Metal (Interior):
Primer: S-W Pro-Cryl Universal Primer, B66-310 Series
(5.0-10.0 mils wet, 2.0-4.0 mils dry; VOC <100 g/L, <0.93 lb/gal)
1st Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
2nd Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
(2.5-4 mils dry per coat; VOC 0 g/L)

7. Ferrous Metal (Interior):
Primer: S-W Pro-Cryl Universal Primer, B66-310 Series
(5.0-10.0 mils wet, 2.0-4.0 mils dry; VOC <100 g/L, <0.93 lb/gal)
1st Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
2nd Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
(2.5-4 mils dry per coat; VOC 0 g/L)

8. Painted Woodwork - Trim, Doors, Windows (Interior):
1st Coat: S-W PrepRite ProBlock Interior/Exterior Latex Primer Sealer,
B51 Series
(4 mils wet, 1.4 mils dry; 96 g/L, 0.80 lb/gal)
2nd Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
3rd Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
(2.5-4 mils dry per coat; VOC 0 g/L)

Polyurethane System
1st Coat: S-W WoodClassics Waterborne Polyurethane Varnish, A68 Series
2nd Coat: S-W WoodClassics Waterborne Polyurethane Varnish, A68 Series
(400-500 sq ft/gal; VOC 311 g/L, 2.50 lb/gal)
SECTION 099100 - PAINTING (continued):

10. Wood – Semi-Transparent Finish (Interior):

   Polurethane (topcoat)

   1st Coat: S-W Minwax Wood Finish 250 VOC Stains
             (500 sq ft/gal; VOC <250 g/L)

   2nd Coat: S-W WoodClassics Waterborne Polyurethane Varnish, A68 Series
   3rd Coat: S-W WoodClassics Waterborne Polyurethane Varnish, A68 Series
             (400-500 sq ft/gal; VOC 311 g/L, 2.50 lb/gal)

PART 3 - EXECUTION

3.01 EXAMINATION:
   A. Examine substrates, areas, and conditions, with Applicator present, for compliance with
      requirements for paint application.
      1. Proceed with paint application only after unsatisfactory conditions have been corrected
         and surfaces receiving paint are thoroughly dry.
      2. Start of painting will be construed as Applicator’s acceptance of surfaces and conditions
         within a particular area.
      3. Notify Architect about anticipated problems when using the materials specified over
         substrates primed by others.

3.02 PREPARATION
   A. Remove hardware and accessories, machined surfaces, plates, lighting fixtures and similar items in
      place and not to be finish-painted or provide surface-applied protection. Reinstall removed items
      and remove protective coverings at completion of work.

   B. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer’s written
      instructions for each particular substrate condition and as specified.
      1. Cementitious Surfaces: Prepare concrete, concrete masonry, cement plaster and surfaces
         to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents.
         Roughen as required to remove glaze. If hardeners or sealers have been used to improve
curing, use mechanical methods of surface preparation. Determine alkalinity and
         moisture content of surfaces to be painted. Do not paint surfaces where moisture content
         exceeds that permitted in manufacturer's printed directions.
      2. Wood: Clean surfaces of dirt, oil, or other foreign substances with scrapers, mineral
         spirits, and sandpaper, as required. Sand surfaces exposed to view smooth, and dust off.
         a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white
            shellac or other recommended knot sealer before applying primer. After primer,
            fill holes and imperfections in finish surfaces with putty or plastic wood filler.
            Sand
         b. Prime, stain, or seal wood to be painted immediately upon delivery. Prime
            edges, ends, faces, undersides, and backsides of wood, including cabinets,
            counters, cases, and paneling.
         c. Seal tops, bottoms, and cut-outs of unprimed wood doors with a heavy coat of
            varnish or sealer immediately upon delivery.

   C. Ferrous Metals: Clean non-galvanized ferrous metal surfaces that have not been shop-coated;
      remove oil, grease, dirt, loose mill scale and other foreign substances. Use solvent or mechanical
      cleaning methods that comply with recommendations of the Steel Structures Painting Council.
      Touch-up shop-applied prime coats that have been damaged, and bare areas. Wire-brush, clean
      with solvents and touch-up with the same primer as the shop coat.
D. **Galvanized Surfaces:** Clean galvanized surfaces with non-petroleum based solvents so that surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock, by mechanical methods.

E. **Material Preparation:** Mix and prepare paint materials according to Manufacturer’s written instructions.

### 3.03 APPLICATION:

A. Apply painting and finishing materials in accordance with manufacturer's directions. Use applicators, and techniques best suited for materials and surfaces to which applied.

B. Apply additional coats when undercoats, stains or other conditions show through final paint coat, until paint film is of uniform finish, color and appearance.

C. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before equipment is installed.

D. Paint interior surfaces of ducts, where visible through registers or grilles, flat, non-specular black.

E. Paint back sides of access panels, and removable or hinged covers to match exposed surfaces.

F. Sand lightly between exceeding enamel or varnish coats.

G. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise specified.

H. Apply prime coat to material which is required to be painted or finished, and which has not been prime coated by others.

I. **Apply each material** at not less than manufacturer's recommended spreading rate, to provide a total dry film to thickness of not less than 4.0 mils for entire coating system of prime and finish coats for 3-coat work.

J. **Minimum Coating Thickness:** Apply paint materials no thinner than manufacturer=s recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.

### 3.05 PROTECTION:

A. Protect work of other trades. Correct any painting related damages by cleaning, repairing or replacing, and refinishing, as directed by Architect.

### 3.06 COORDINATION:

A. Provide finish coats which are compatible with prime paints used. Provide barrier coats over incompatible primers where required. Notify Architect in writing of anticipated problems using specified coatings with substrates primed by others.

### 3.07 COMPLETED WORK

A. Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

END OF SECTION 099100