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ADDENDUM #2
RFB # 25-0052
COMCARE COMMUNITY CRISIS RELOCATION AND EXPANSION

July 23, 2025

The following is to ensure that vendors have complete information prior to submitting a ***Request for Bid***. Here are some clarifications regarding the RFB for ComCare Community Crisis Relocation and Expansion for Project Services*:*

Questions and/or statements of clarification are in **bold** font, and answers to specific questions are *italicized.*

Attached are Project Manual Modifications for the ComCare Community Crisis Relocation and Expansion. This addendum shall supersede and supplement all portions of the bidding documents, dated 03/26/2025 with which it conflicts.

Firms interested in submitting a ***Request for Bid***, must respond with complete information and **deliver on or before 1:45 pm *CDT, Tuesday, August 5, 2025*.** Late responses will not be accepted and will not receive consideration for final award.

"PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE RFB RESPONSE PAGE."

Lee Barrier

Lee Barrier, NIGP-CPP
Senior Purchasing Agent

LB/ks

ADDENDUM 02

Community Crisis Center
Helix Project No.24001.00

Issue Date: 7.3.25

This Addendum shall supersede and supplement all portions of the bidding documents, dated 03.26.2025, with which it conflicts.

Project Manual Modifications

Section 00 0105 – CERTIFICATIONS AND SEALS

1. **REVISE** Helix list of Specifications and Drawings as indicated.
2. **REVISE** PEC structural list of specifications as indicated.

Section 00 0110 - TABLE OF CONTENTS

1. **REVISE** Table of Contents to remove sections 08 3343.
2. **REVISE** Table of Contents to correct numbering at section 05 2100 to 05 3100.
3. **ADD** section 05 4000 COLD-FORMED METAL FRAMING to the Table of Contents.
4. **ADD** section 05 7000 DECORATIVE METAL to the Table of Contents.
5. **REVISE** Table of Contents to correct numbering at section 07 1100 to 07 1110.
6. **ADD** section 07 4247 ULTRA HIGH PERFORMANCE CONCRETE FAÇADE PANELS to the Table of Contents.
7. **DELETE** section 08 3343 OVERHEAD COILING SMOKE CURTAINS FOR ELEVATOR DOORS from the Table of Contents.
8. **DELETE** section 09 6516 RESILIENT SHEET FLOORING from the Table of Contents.
9. **ADD** section 09 6519 RESILIENT TILE FLOORING to the Table of Contents
10. **ADD** section 09 6710 RESINOUS FLOORING to the Table of Contents
11. **ADD** section 11 1233 PARKING GATE OPERATORS to the Table of Contents.

Section 00 0115 – LIST OF DRAWINGS

1. **REVISE** section as indicated.

Section 01 2200 UNIT PRICES

1. **REVISE** section as indicated.

Section 05 4000 COLD-FORMED METAL FRAMING

1. **ADD** section to the Project Manual.

Section 05 7000 DECORATIVE METAL

1. **ADD** section to the Project Manual.

Section 06 4100 ARCHITECTURAL WOOD CASEWORK

1. **REVISE** section as indicated.

Section 06 6120 STONE AND QUARTZ FABRICATIONS

1. **REVISE** section as indicated.

Section 06 6410 FIBERGALSS REINFORCED PLASTIC (FRP)
1. **REVISE** section as indicated.

Section 07 4223 METAL WALL PANELS
1. **REVISE** section as indicated.

Section 07 4247 ULTRA HIGH PERFORMANCE CONCRETE FAÇADE PANELS
1. **ADD** section to the Project Manual.

Section 07 9200 JOINT SEALANTS
1. **REVISE** section as indicated.

Section 08 3343 OVERHEAD COLING SMOKE CURTAINS FOR ELEVATOR DOORS
1. **DELETE** section entirely.

Section 08 4113 GLAZED ALUMINUM CURTAIN WALLS
1. **REVISE** section as indicated.

Section 09 6510 RESILIENT BASE AND ACCESSORIES
1. **REVISE** section as indicated.

Section 09 6516 RESILIENT SHEET FLOORING
1. **DELETE** section entirely.

Section 09 6519 RESILIENT TILE FLOORING
1. **ADD** section to the Project Manual.

Section 09 6710 RESINOUS FLOORING
1. **ADD** section to the Project Manual.

Section 10 2200 PARTITIONS
1. **REVISE** section as indicated.

Section 11 1233 PARKING GATE OPERATORS
1. **ADD** section to the Project Manual.

Drawing Modifications

Architectural:

G001 – GENERAL INFORMATION
1. **ADD** Sheet A454 to sheet index.

AD101 – LEVEL 01 - DEMOLITION FLOOR PLAN
1. **ADD** demolition extent of existing concrete slab, Keyed Note 10.

2. **REVISE** demolition extent of concrete slab.

AD102 – LEVEL 02 - DEMOLITION FLOOR PLAN
1. **ADD** demolition extent of existing floor, Keyed Note 10.

AD103 – ROOF - DEMOLITION PLAN
1. **ADD** demolition keyed note for removal of existing downspout and scuppers.

AS101 – ARCHITECTURAL SITE PLAN
1. **REVISE** extents of skid rail.
2. **ADD** keyed note for emergency key box location, RE: keyed note 10.

AS151 – ARCHITECTURAL SITE DETAILS
1. **DELETE** detail H12. It is now the same as detail F12.
2. **ADD** weeps to base plate detail, drawing F12, and C12.
3. **REVISE** location of picket fence posts' base plates.
4. **REVISE** distance from Level 01 to bottom of metal plates of picket fence to be 4" in lieu of 1'-0", drawing F09.

AS152 – ARCHITECTURAL SITE DETAILS
1. **REVISE** footing detail of Guardrail Section Detail, drawing F09.
2. **REVISE** footing detail of Guardrail Section Detail, drawing A09.
3. **REVISE** extents of skid rail.
4. **ADD** further information to south gate, Drawing E03
5. **ADD** heavy-duty electronic gate latch and cane bolt, Drawing A03.

A101 – LEVEL 01 FLOOR PLAN
1. **ADD** Emergency Key Box and AED cabinet locations, keyed notes 15 and 16.
2. **REVISE** furring wall location at northeast corner of security room 104.

A102 – LEVEL 02 FLOOR PLAN
1. **ADD** ADA clearance at dual-height drinking fountain.
2. **ADD** furring wall to conference room 250.

A151 – LEVEL 01 REFELCTED CEILING PLAN
1. **REVISE** furring wall location at northeast corner of security room 104.

A152 – LEVEL 02 REFELCTED CEILING PLAN
1. **ADD** furring wall to conference room 250.

A153 – ROOF PLAN
1. **REVISE** new roof slope configuration
2. **ADD** roof drain and overflow drain to existing roof, east of the building addition. RE: plumbing drawings.
3. **ADD** information about replacement of existing scuppers and downspouts, RE: keyed note 9.
4. **ADD** utility walkway pads at new roof, RE: keyed note 10.

A201 – EXTERIOR ELEVATIONS
1. **REVISE** notes as indicated.

A202 – EXTERIOR ELEVATIONS
2. **ADD** location for emergency key box, RE: keyed note 34.
3. **REVISE** window type for six Level 02 windows to be type "NR". Refer to Window Types on Sheet A851 for Type "NR" information.
4. **REVISE** extents of ACM facade panels at west entry shroud.

5. **ADD** information about roof drain and overflow roof drain outlets on West Elevation, RE: keyed note 35.
6. **ADD** information about new loading area gate, RE: keyed note 36.
7. **ADD** information about new skid rail at West Elevation, RE: keyed note 37.
8. **REVISE** extents of skid rail.

A251 – BUILDING SECTIONS
1. **ADD** keynotes to identify building elements.
2. **DELETE** keynotes that indicate elements within a wall section. Refer to wall sections.

A301 – WALL SECTIONS
1. **REVISE** keynote numbers to correct spec sections in Drawings A12, A09, A06, and A03.

A302 – WALL SECTIONS
1. **REVISE** keynote numbers to correct spec sections in Drawings A12, A09, A06, and A03.

A303 – WALL SECTIONS
1. **REVISE** keynote numbers to correct spec sections in Drawings A12, A09, A06, and A03.

A351 – SECTION DETAILS
1. **REVISE** detailing of vestibule canopy, Drawing F11.
2. **DELETE** cant strip at roofing-to-parapet conditions, Drawings F07 and F03.
3. **REVISE** keynote numbers to correct spec sections in Drawings F07, F03, A11, A07, and A03.
4. **ADD** damp-proofing to underside of interior concrete slabs and interior face of footings.
5. **DELETE** foundation drains at footings, except at elevator footings.
6. **REVISE** footing detail at lobby planter to coordinate with structural drawings, Drawing A07.

A352 – SECTION DETAILS
1. **REVISE** keynote numbers to correct spec sections in Drawings F11, F07, H03, A03, A07, and A11.
2. **REVISE** depth of batt insulation at Stair 02 Egress Door Head detail, Drawing F11.
3. **REVISE** TPO membrane termination at Detail at New Roof, Drawing A03.
4. **DELETE** cant strip at roof to parapet condition at Detail at New Roof, Drawing A03.

A353 – SECTION DETAILS
1. **REVISE** keynote numbers to correct spec sections in Drawings F11, F07, F03, and A07.

A354 – SECTION DETAILS
1. **REVISE** coping at existing parapet detail to include more information, Drawing I08.
2. **REVISE** keynote numbers to correct spec sections in Drawings I08, E08, C08, A08, G03, and A03.
3. **REVISE** blocking detailing at storefront header in Drawing A03.

A371 – PLAN DETAILS
1. **REVISE** keynote numbers to correct spec sections in Drawings A03, A07, A11, D03, D07, D11, G03, G07, and G11.

A372 – PLAN DETAILS
1. **REVISE** keynote numbers to correct spec sections in Drawings F06, F03, A03, and A06.

A401 – VERTICAL CIRCULATION PLANS
1. **REVISE** keynote numbers to correct spec sections add dimensions as indicated.

A451 – VERTICAL CIRCULATION - DETAILS
1. **REVISE** all details to have keynotes in lieu of text annotations
2. **REVISE** details to coordinate with structural drawings.

A452 – VERTICAL CIRCULATION - DETAILS
1. **REVISE** handrail description to be stock 1 ¼" outside-diameter metal tube, typ.
2. **REVISE** spacing and thickness of guardrail infill steel bars.
3. **ADD** detail callout for elevator footing detail, RE: sheet A351, drawing A09.

A453 – VERTICAL CIRCULATION - DETAILS
1. **REVISE** handrail end conditions, RE: Drawing A01.
2. **REVISE** guardrail infill graphics and spacing. RE: Drawing C12 on Sheet A452.
3. **REVISE** keynote numbers to correct spec sections as indicated.

A454 – VERTICAL CIRCULATION - DETAILS
1. **ADD** new sheet A454 with section details D01 and G01.

A501 – ENLARGED PLANS & ELEVATIONS
1. **ADD** General note on RR Accessory Legend.
2. **ADD** FRP2 fiber reinforced panels to wet walls of patient RRs.

A502 – ENLARGED PLANS & ELEVATIONS
1. **ADD** ADA clearance at dual-height drinking fountain.
2. **REVISE** nook width at drinking fountain.
3. **ADD** ADA turning radius at lockers.
4. **ADD** dimension at opening to lockers.
5. **ADD** undercounter brackets at security elevation.

A503 - ENLARGED PLANS & ELEVATIONS
1. **REVISE** Chase wall type between restrooms.
2. **ADD** FRP2 fiber reinforced panels to wet walls of patient RRs.

A504 - ENLARGED PLANS & ELEVATIONS
1. **REVISE** filler panel dimensions at kitchenette casework.

A505 - ENLARGED PLANS & ELEVATIONS
1. **REVISE** dimensions at patient showers.
2. **ADD** FRP2 fiber reinforced panels to wet wall of patient RRs.

A507 - ENLARGED PLANS & ELEVATIONS
1. **ADD** sheet A507.

A508 - ENLARGED PLANS & ELEVATIONS
1. **ADD** detail at work cafe full height cabinet.

A651 - INTERIOR DETAILS
1. **ADD** concealed blocking at all recessed TVs.
2. **ADD** resilient flooring to carpet transition detail.

A652 – INTERIOR DETAILS
1. **REVISE** keynote numbers to correct spec sections in Drawings C11, G01, G04, G08, and G11.

A653 – INTERIOR DETAILS
1. **REVISE** keynote number to correct spec sections in Drawings A04, C08, C11, H11, E08, D04, and H08.

A671 - CASEWORK DETAILS
1. **ADD** full height cabinet detail.
2. **ADD** note for sealant at wall counter.

3. **REVISE** keynote number to correct spec sections in Drawing G07.

A672 - CASEWORK DETAILS
1. **REVISE** door hardware at full height cabinet (A04).

A700 - FINISH LEGEND & NOTES
1. **ADD** spec number column.
2. **ADD** static dissipative flooring finish.
3. **ADD** existing concrete line item.
4. **REVISE** EF1 product to Stonhard Stonclad GR.
5. **ADD** RFP2 line item.

A701 - LEVEL 01 FINISH PLAN
1. **REVISE** extent of rubber flooring in the main circulation corridor.
2. **REVISE** extent of new and existing concrete.
3. **ADD** brick finish B1 to SACK perimeter rooms.
4. **REVISE** floor finish in data room 179 to RF3 - static dissipative flooring.

A702 - LEVEL 02 FINISH PLAN
1. **REVISE** extents of new and existing concrete.
2. **REVISE** floor finish in data room 230 to RF3 - static dissipative flooring.

A851 – CURTAIN WALL AND STOREFRONT ELEVATIONS
1. **ADD** Window Type “NR”, non-fire-rated glass. Refer to spec section 084123.A.

Civil:

C200 – DIMENSION CONTROL PLAN
1. **ADD** concrete drainage flume and modify dimensions.

C201 – PAVING PLAN
1. **ADD** concrete drainage flume.

C203 – PAVING DETAIL 2
1. **ADD** concrete drainage flume detail.

Landscape:

L100 – LANDSCAPE PLAN
1. **DELETE** (4) plants and adjust layout to accommodate drainage flume.

L101 – LANDSCAPE DETAILS
2. **REVISE** planting schedule.

Structural:

S001 – STRUCTURAL COVER SHEET
1. **ADD** Sections “Contract/Construction, Contractor’s Responsibility, Construction Means and Method Issues, and Structural Test, Inspections, and Quality

Assurance". **DELETE** from sheet S002.

S002 – STRUCTURAL GENERAL NOTES
1. **ADD** Section "Delegated Engineering of Structural Components and Systems"

S101 – LEVEL 01 – FOUNDATION PLAN
1. **ADD** South Gate foundation.

S504 – FOUNDATION DETAILS
1. **ADD** South Gate foundation detail "6/S504".

Plumbing:

P100 – BELOW FLOOR PLUMBING PLAN
1. **ADD** sump for drain tile.

P101 – LEVEL 01 PLUMBING FLOOR PLAN
1. **Add** discharge locations for new rain leaders/sump pump

P102 – LEVEL 02 PLUMBING FLOOR PLAN
1. **ADD** rain leaders and roof drains

P602 – PLUMBING SCHEDULES
1. **ADD** Scheduled sump pump SP-2.

Mechanical:

M105 – Mechanical Roof Plan
1. **ADD** new roof drains.

M601 – Mechanical Schedules
1. **ADD** note to refer to architectural sheets for contractor demo/investigation.

Electrical:

E111 – ELECTRICAL SITE PLAN
1. **ADD** Site Gate and associated vehicle loop and key pad coordination.
2. **ADD/REVISE** Keyed Notes.

E131 – LEVEL 01 ELECTRICAL POWER FLOOR PLAN
1. **REVISE** Device location/coordination – RM 103, 143, 132.
2. **REVISE** Elevator pit receptacle.
3. **ADD** SP-2 added in RM 108.
4. **ADD** Keyed Note P18.

E132 – LEVEL 02 ELECTRICAL POWER FLOOR PLAN

1. **REVISED** Mechanical Equipment tags.

E141 – LEVEL 01 ELECTRICAL LIGHTING FLOOR PLAN

1. **REVISE** Lighting device locations, coordination with floor plan.
2. **DELETE** Occupancy sensor locations in various locations.

E142 – LEVEL 01 ELECTRICAL LIGHTING FLOOR PLAN

1. **REVISE** lighting spacing in RM 201 and 101.
2. **ADD** Elevator shaft lighting on plan.
3. **ADD** Control zones identified in RM 226.
4. **ADD** fixtures added in RM 224, S200, and 236.
5. **ADD** Keyed Note L11.

E503 – ELECTRICAL DETAILS

1. **REVISE** Detail G04: circuit updated.
2. **REVISE** Detail A01: circuit information identified.

E611 – ELECTRICAL SCHEDULES

1. **ADD** SP-2 to Mechanical Equipment Schedule.
2. **REVISE** Panel L1A.

E613 – ELECTRICAL SCHEDULES

1. **REVISE** Panel L2A.

E623 – ELECTRICAL LIGHTING SCHEDULES

1. **ADD** Lighting Controls Switch ‘N’ ID.

END OF DOCUMENT

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00 0105 - CERTIFICATIONS AND SEALS

CERTIFICATION: Helix Architecture & Design, Inc. (Architect)

I, Douglas Stockman AIA, hereby specify, the documents to be authenticated by my seal are limited to:

SPECIFICATIONS:

SECTION	TITLE
DIVISION 00	**PROCUREMENT AND CONTRACTING REQUIREMENTS**
SECTION 00 0105	CERTIFICATIONS AND SEALS
SECTION 00 0110	TABLE OF CONTENTS
SECTION 00 0115	LIST OF DRAWINGS
SECTION 00 3132	GEOTECHNICAL DATA
DIVISION 01	**GENERAL REQUIREMENTS**
SECTION 01 1100	SUMMARY
SECTION 01 2200	UNIT PRICES
SECTION 01 2500	SUBSTITUTION PROCEDURES
SECTION 01 2600	CONTRACT MODIFICATIONS PROCEDURES
SECTION 01 2613	REQUESTS FOR INTERPRETATION
SECTION 01 2900	PAYMENT PROCEDURES
SECTION 01 3100	PROJECT MANAGEMENT AND COORDINATION
SECTION 01 3126	ELECTRONIC COMMUNICATIONS PROTOCOL
SECTION 01 3226	CONSTRUCTION PROGRESS DOCUMENTATION
SECTION 01 3233	PHOTOGRAPHIC DOCUMENTATION
SECTION 01 3250	VOLUNTARY SUSTAINABLE GOALS
SECTION 01 3300	SUBMITTAL PROCEDURES
SECTION 01 4000	QUALITY REQUIREMENTS
SECTION 01 4200	REFERENCES
SECTION 01 4310	MOCK-UPS
SECTION 01 5000	TEMPORARY FACILITIES AND CONTROLS
SECTION 01 6000	PRODUCT REQUIREMENTS
SECTION 01 7300	EXECUTION
SECTION 01 7419	CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
SECTION 01 7700	CLOSEOUT PROCEDURES
SECTION 01 7823	OPERATION AND MAINTENANCE DATA
SECTION 01 7839	PROJECT RECORD DOCUMENTS
SECTION 01 7900	DEMONSTRATION AND TRAINING
SECTION 01 9123	FIRE-RATED DOOR COMMISSIONING
DIVISION 02	**EXISTING CONDITIONS**
SECTION 02 2200	EXISTING CONDITIONS ASSESSMENT
SECTION 02 2600	HAZARDOUS MATERIALS ASSESSMENT
SECTION 02 4116	STRUCTURE DEMOLITION
SECTION 02 4120	SELECTIVE DEMOLITION
DIVISION 03	**CONCRETE**
SECTION 03 3510	POLISHED CONCRETE FINISHING

DIVISION 04	**MASONRY**
SECTION 04 0100	MAINTENANCE OF MASONRY
SECTION 04 0140	MAINTENANCE OF STONE ASSEMBLIES
SECTION 04 2000	UNIT MASONRY
SECTION 04 4300	STONE MASONRY
DIVISION 05	**METALS**
SECTION 05 5000	METAL FABRICATIONS
SECTION 05 5100	METAL PAN STAIRS
SECTION 05 5210	PIPE AND TUBE RAILINGS
SECTION 05 7000	DECORATIVE METAL
DIVISION 06	**WOOD, PLASTICS AND COMPOSITES**
SECTION 06 1000	MISCELLANEOUS ROUGH CARPENTRY
SECTION 06 1600	SHEATHING
SECTION 06 2020	INTERIOR ARCHITECTURAL WOODWORK
SECTION 06 2200	FLEXIBLE WOOD TAMBOUR PANELS
SECTION 06 4100	ARCHITECTURAL WOOD CASEWORK
SECTION 06 6110	SOLID SURFACING FABRICATIONS
SECTION 06 6120	STONE AND QUARTZ FABRICATIONS
SECTION 06 6410	FIBERGLASS REINFORCED PLASTIC (FRP)
DIVISION 07	**THERMAL AND MOISTURE PROTECTION**
SECTION 07 1110	DAMPPROOFING
SECTION 07 1326	PRE + POST-APPLIED SHEET MEMBRANE WATERPROOFING
SECTION 07 2100	THERMAL INSULATION
SECTION 07 2510	FLUID-APPLIED MEMBRANE AIR BARRIERS
SECTION 07 4223	METAL WALL PANELS
SECTION 07 4243	COMPOSITE WALL PANELS
SECTION 07 4247	ULTRA-HIGH PERFORMANCE CONCRETE FAÇADE PANELS
SECTION 07 5423	THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING
SECTION 07 6200	SHEET METAL FLASHING AND TRIM
SECTION 07 6500	FLEXIBLE FLASHING
SECTION 07 7200	ROOF ACCESSORIES
SECTION 07 8116	CEMENTITIOUS FIREPROOFING (SFRM)
SECTION 07 8400	PENETRATION FIRESTOPPING
SECTION 07 8410	JOINT FIRESTOPPING
SECTION 07 9200	JOINT SEALANTS
SECTION 07 9219	ACOUSTICAL JOINT SEALANTS
DIVISION 08	**OPENINGS**
SECTION 08 1100	METAL DOORS AND FRAMES
SECTION 08 1400	WOOD DOORS
SECTION 08 3100	ACCESS DOORS AND PANELS
~~SECTION 08 3343~~	~~OVERHEAD COILING SMOKE CURTAINS FOR ELEVATOR DOORS~~
SECTION 08 4113	ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS
SECTION 08 4123	FIRE-RATED GLASS AND FRAMING SYSTEMS
SECTION 08 4413.10	GLAZED ALUMINUM CURTAIN WALLS
SECTION 08 7113	AUTOMATIC DOOR OPERATORS
SECTION 08 8000	GLAZING
SECTION 08 8300	MIRRORS
SECTION 08 8813	FIRE-RATED GLASS - FIRELITE PLUS
DIVISION 09	**FINISHES**

SECTION 09 2117	GYPSUM BOARD SHAFTWALL ASSEMBLIES
SECTION 09 2210	NON-STRUCTURAL METAL FRAMING
SECTION 09 2900	GYPSUM BOARD ASSEMBLIES
SECTION 09 3000	TILING
SECTION 09 5000	ACOUSTICAL METAL CEILINGS - SECURITY
SECTION 09 5113.10	ACOUSTICAL PANEL CEILINGS - ULTIMA
SECTION 09 6510	RESILIENT BASE AND ACCESSORIES
~~SECTION 09 6516~~	~~RESILIENT SHEET FLOORING~~
SECTION 09 6519	RESILIENT TILE FLOORING
SECTION 09 6536.13	STATIC DISSIPATIVE RESILIENT FLOORING
SECTION 09 6710	RESINOUS FLOORING
SECTION 09 6810	TILE CARPETING
SECTION 09 7200	WALL COVERINGS
SECTION 09 8400	ACOUSTICAL WALL TREATMENT
SECTION 09 9100	PAINTING, STAINING AND TRANSPARENT FINISHING

DIVISION 10	**SPECIALTIES**
SECTION 10 1130	RESINOUS MARKERBOARDS (DEKO)
SECTION 10 1419	DIMENSIONAL LETTER SIGNAGE
SECTION 10 1420	MISCELLANEOUS SIGNAGE
SECTION 10 2113.17	PHENOLIC-CORE TOILET COMPARTMENTS
SECTION 10 2120	CUBICLE CURTAINS AND TRACKS
SECTION 10 2200	PARTITIONS
SECTION 10 2600	WALL AND DOOR PROTECTION
SECTION 10 2800	TOILET, BATH AND LAUNDRY ACCESSORIES
SECTION 10 4310	AUTOMATED EXTERNAL DEFIBRILLATOR (AED) & CABINET
SECTION 10 4410	FIRE PROTECTION CABINETS AND SPECIALTIES
SECTION 10 4420	FIRE EXTINGUISHERS
SECTION 10 5123	PHENOLIC LOCKERS

DIVISION 11	**EQUIPMENT**
SECTION 11 1233	PARKING GATE OPERATORS
SECTION 11 3100	RESIDENTIAL APPLIANCES

DIVISION 12	**FURNISHINGS**
SECTION 12 2000	WINDOW TREATMENTS - MECHO
SECTION 12 2000.10	WINDOW TREATMENTS - WEBBLOK
SECTION 12 4813	ENTRANCE FLOOR MATS AND FRAMES
SECTION 12 5210	UPHOLSTERED SEATING

DIVISION 14	**CONVEYING EQUIPMENT**
SECTION 14 2100	ELECTRIC TRACTION ELEVATORS

DRAWINGS:

SHEET	TITLE

GENERAL

CVR	COVER SHEET
G001	GENERAL INFORMATION & SHEET INDEX
G002	STANDARD ACCESSIBILITY REQUIREMENTS & DIAGRAMS
G003	STANDARD ACCESSIBILITY REFERENCE DIAGRAMS
G004	STANDARD ACCESSIBILITY REFERENCE DIAGRAMS
G005	STANDARD ACCESSIBILITY REFERENCE DIAGRAMS

LIFE SAFETY

LS001	CODE ANALYSIS
LS002	LEVEL 01 EGRESS PLAN
LS003	LEVEL 02 EGRESS PLAN
LS004	FIRE RATED ASSEMBLIES
LS005	FIRE RATED ASSEMBLIES
LS006	FIRE RATED ASSEMBLIES

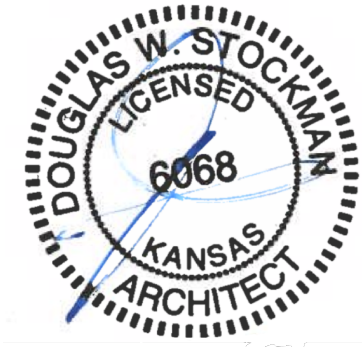
ARCHITECTURE

AD101	LEVEL 01 - FLOOR DEMOLITION PLAN
AD102	LEVEL 02 - FLOOR DEMOLITION PLAN
AD103	ROOF - DEMOLITION PLAN
AD201	EXTERIOR DEMOLITION ELEVATIONS
AD202	EXTERIOR DEMOLITION ELEVATIONS
AS101	ARCHITECTURAL SITE PLAN
AS151	ARCHITECTURAL SITE DETAILS
AS152	ARCHITECTURAL SITE DETAILS
A001	INTERIOR WALL TYPES
A101	LEVEL 01 FLOOR PLAN
A102	LEVEL 02 FLOOR PLAN
A151	LEVEL 01 REFLECTED CEILING PLAN
A152	LEVEL 02 REFLECTED CEILING PLAN
A153	ROOF PLAN
A201	EXTERIOR ELEVATIONS
A202	EXTERIOR ELEVATIONS
A251	BUILDING SECTIONS
A301	WALL SECTIONS
A302	WALL SECTIONS
A303	WALL SECTIONS
A351	SECTION DETAILS
A352	SECTION DETAILS
A353	SECTION DETAILS
A354	SECTION DETAILS
A371	PLAN DETAILS
A372	PLAN DETAILS
A401	VERTICAL CICULATION PLANS
A451	VERTICAL CIRCULATION - DETAILS
A452	VERTICAL CIRCULATION - DETAILS
A453	VERTICAL CIRCULATION – DETAILS
A454	VERTICAL CIRCULATION - DETAILS
A501	ENLARGED PLANS & DETAILS
A502	ENLARGED PLANS & DETAILS
A503	ENLARGED PLANS & DETAILS
A505	ENLARGED PLANS & DETAILS
A506	ENLARGED PLANS & DETAILS
A507	ENLARGED PLANS & DETAILS
A508	ENLARGED PLANS & DETAILS
A601	INTERIOR ELEVATIONS
A602	INTERIOR ELEVATIONS
A651	INTERIOR DETAILS
A652	INTERIOR DETAILS
A653	INTERIOR DETAILS
A671	CASEWORK DETAILS

A672	CASEWORK DETAILS
A700	FINISH LEGEND & NOTES
A701	LEVEL 01 FINISH PLAN
A702	LEVEL 02 FINISH PLAN
A801	DOOR SCHEDULE, TYPES & DETAILS
A802	DEMOUNTABLE PARTITIONS GLAZING ELEVATIONS
A851	CURTAIN WALL AND STOREFRONT ELEVATIONS
A901	LEVEL 01 - FFE PLAN
A902	LEVEL 02 - FFE PLAN

I hereby disclaim any responsibility for all other plans, specifications, reports or other documents or instruments relating to or intended to be used for any part or parts of the documents for the Community Crisis Center general construction project in Wichita, KS.

Signed and Sealed By:



7.3.25

Douglas Stockman AIA
Helix Architecture & Design, Inc.

CERTIFICATION: PEC (Structural Engineer)

I, Kent Wells, PE, hereby specify, the documents to be authenticated by my seal are limited to:

SPECIFICATIONS:

SECTION	TITLE
DIVISION 03	**CONCRETE**
SECTION 03 3300	CAST IN PLACE CONCRETE
DIVISION 04	**MASONRY**
SECTION 04 2200	CONCRETE UNIT MASONRY
DIVISION 05	**METALS**
SECTION 05 1200	STRUCTURAL STEEL
SECTION 05 3100	STEEL DECKING
SECTION 05 4000	COLD-FORMED METAL FRAMING

DRAWINGS:

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S001	STRUCTURAL COVER SHEET
S002	STRUCTURAL GENERAL NOTES
S003	STRUCTURAL IBC INSPECTION TABLES
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SD102	LEVEL 02 – DEMOLOITION FRAMING PLAN
SD103	LEVEL 03 – DEMOLITION ROOF FRAMING PLAN
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S553	FRAMING DETAILS
S554	FRAMING DETAILS
S555	FRAMING DETAILS
S701	FRAMING ELEVATIONS AND DETAILS
S801	TYPICAL CMU DETAILS

I hereby disclaim any responsibility for all other plans, specifications, reports or other documents or instruments relating to or intended to be used for any part or parts of the documents for the Community Crisis Center general construction project in Wichita, KS.

Signed and Sealed By:

Kent Wells, PE
PEC

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SECTION 01 2200 - UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for unit prices.

B. Related Requirements:

1. Section 01 2600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.2 DEFINITIONS

A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment or services or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.3 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead and profit.

B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. **Unit Price No. 1: ROCK EXCAVATION**
1. Description: Rock Excavation according to Division 31, Section 31 20 00, EARTH MOVING.
2. Unit of Measurement: Cubic yard of excavation.
3. Number of units included in Base Bid: _____.

B. **Unit Price No. 2: UNSUITABLE SOIL MATERIAL**
   1. Description: Remove and replace unsuitable soil material other than specified to be removed and replaced under building and facility foundations, slabs on grade, pavements and walks according to Division 31, Section 31 20 00, EARTH MOVING.
   2. Unit of Measurement: Cubic yard of excavation.
   3. Number of units included in Base Bid: _____.

C. **Unit Price No. 3: ROCK EXCAVATION FOR BUILDING FOUNDATIONS IN EXCESS OF THAT INDICATED BY THE DOCUMENTS AND GEOTECHNICAL REPORT**
   1. Description: Provide unit pricing to include labor, materials, tools, equipment and incidentals required for rock excavations:
      a. Unit of Measurement:
         1) Cubic yard of rock removed.
   2. Number of units included in Base Bid: _____.

D. **Unit Price No. 4: REMOVE AND REPLACE INDIVIDUAL CRACKED, SPALLED OR MISSING BRICK IN EXCESS OF THAT INDICATED BY THE DOCUMENTS**
   1. Description: Provide unit pricing to include labor, materials, tools, equipment and incidentals required:
      a. Unit of Measurement: Each.
   2. Number of units included in Base Bid: _____.

E. **Unit Price No. 5: CRACK REPAIR IN BRICK MASONRY IN EXCESS OF THAT INDICATED BY THE DOCUMENTS**
   1. Description: Provide unit pricing to include labor, materials, tools, equipment and incidentals required:
      a. Unit of Measurement: Linear foot.
   2. Number of units included in Base Bid: _____.

F. **Unit Price No. 6: REPOINT DETERIORATED MORTAR JOINTS IN EXCESS OF THAT INDICATED BY THE DOCUMENTS**
   1. Description: Provide unit pricing to include labor, materials, tools, equipment and incidentals required:
      a. Unit of Measurement: Linear foot.
   2. Number of units included in Base Bid: _____.

G. **Unit Price No. 7: REMOVE AND REPLACE INDIVIDUAL CRACKED, SPALLED OR MISSING STONE IN EXCESS OF THAT INDICATED BY THE DOCUMENTS**
   1. Description: Provide unit pricing to include labor, materials, tools, equipment and incidentals required:
      a. Unit of Measurement: Each.
   2. Number of units included in Base Bid: _____.

H. **Unit Price No. 8: REMOVE AND REPLACE STEEL LINTELS IN EXCESS OF THAT INDICATED BY THE DOCUMENTS**
   1. Description: Provide unit pricing to include labor, materials, tools, equipment and incidentals required:
      a. Unit of Measurement: Each.
   2. Number of units included in Base Bid: _____.

END OF SECTION 01 2200

SECTION 054000 - COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Exterior non-load-bearing wall framing.
2. Interior non-load-bearing wall framing exceeding height limitations of standard, nonstructural metal framing.

B. Related Requirements:

1. Section 055000 "Metal Fabrications" for miscellaneous steel shapes, masonry shelf angles, and connections used with cold-formed metal framing.
2. Section 092216 "Non-Structural Metal Framing" for standard, interior non-load-bearing, metal-stud framing, with height limitations and ceiling-suspension assemblies.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project Site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

C. Delegated-Design Submittal: For cold-formed steel framing.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.

B. Welding certificates.

C. Product Certificates: For each type of code-compliance certification for studs and tracks.

D. Product Test Reports: For each listed product, for tests performed by manufacturer and witnessed by a qualified testing agency.

1. Steel sheet.
2. Expansion anchors.
3. Power-actuated anchors.
4. Mechanical fasteners.
5. Vertical deflection clips.
6. Horizontal drift deflection clips
7. Miscellaneous structural clips and accessories.

E. Evaluation Reports: For nonstandard cold-formed steel framing post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

B. Product Tests: Mill certificates or data from a qualified independent testing agency, or in-house testing with calibrated test equipment, indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.

C. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association.

D. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

E. Comply with AISI S230 "Standard for Cold-Formed Steel Framing - Prescriptive Method for One and Two Family Dwellings."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. All Steel & Gypsum Product

B. CEMCO; California

C. ClarkDietrich Building Systems

D. Consolidated Fabricators

E. Craco Manufacturing, Inc.

F. Custom Stud

G. Design Shapes in Steel

H. Formetal Co, Inc. (The)

I. Jaimes Industries

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design cold-formed steel framing.

B. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.

1. Design Loads: As indicated on Drawings**.**
2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:

    a. Exterior Non-Load-Bearing Framing: Horizontal deflection of 1/360 of the wall height.
    b. Interior Non-Load-Bearing Framing: Horizontal deflection of 1/360 of the wall height under a horizontal load of 5 lbf/sq. ft. (239 Pa).

3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F (67 deg C).
4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:

    a. Upward and downward movement of 1/2 inch (13 mm).

5. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.

C. Cold-Formed Steel Framing Standards: Unless more stringent requirements are indicated, framing shall comply with AISI S100, AISI S200, and the following:

1. Floor and Roof Systems: AISI S210.
2. Wall Studs: AISI S211.
3. Headers: AISI S212.
4. Lateral Design: AISI S213.

D. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency acceptable to authorities having jurisdiction.

2.3 COLD-FORMED STEEL FRAMING MATERIALS

A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating designation as follows:

1. Grade: ST33H (ST230H)
2. Coating: G60 (Z180) or equivalent**.**

B. Steel Sheet for Vertical Deflection Clips: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:

1. Grade: 33 (230) Class 1.
2. Coating: G60 (Z180).

2.4 EXTERIOR NON-LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: 0.0329 inch (0.84 mm).
2. Flange Width: 1-3/8 inches (35 mm)

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: 0.0329 inch (0.84 mm) Matching steel studs.
2. Flange Width: 1-1/4 inches (32 mm)

C. Vertical Deflection Clips: Manufacturer's standard bypass clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.

D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:

1. Minimum Base-Metal Thickness: 0.0428 inch (1.09 mm)
2. Flange Width: 1 inch (25 mm) plus the design gap for one-story structures

E. Double Deflection Tracks: Manufacturer's double, deep-leg, U-shaped steel tracks, consisting of nested inner and outer tracks; unpunched, with unstiffened flanges.

1. Outer Track: Of web depth to allow free vertical movement of inner track, with flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:

a. Minimum Base-Metal Thickness: 0.0329 inch (0.84 mm)
b. Flange Width: 1 inch (25 mm) plus the design gap for one-story structures**.**

2. Inner Track: Of web depth indicated, and as follows:

a. Minimum Base-Metal Thickness: 0.0428 inch (1.09 mm)
b. Flange Width: equal to sum of outer deflection track flange width plus 1 inch (25 mm).

F. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

2.5 INTERIOR NON-LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: 0.0329 inch (0.84 mm)
2. Flange Width: 1-3/8 inches (35 mm)

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: 0.0329 inch (0.84 mm) Matching steel studs.
2. Flange Width: 1-1/4 inches (32 mm).

C. Vertical Deflection Clips: Manufacturer's standard bypass clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.

D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:

1. Minimum Base-Metal Thickness: 0.0428 inch (1.09 mm)
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E. Double Deflection Tracks: Manufacturer's double, deep-leg, U-shaped steel tracks, consisting of nested inner and outer tracks; unpunched, with unstiffened flanges.

1. Outer Track: Of web depth to allow free vertical movement of inner track, with flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:

a. Minimum Base-Metal Thickness: 0.0329 inch (0.84 mm)
b. Flange Width: 1 inch (25 mm) plus the design gap for one-story structures**.**

2. Inner Track: Of web depth indicated, and as follows:

a. Minimum Base-Metal Thickness: 0.0428 inch (1.09 mm).
b. Flange Width: sum of outer deflection track flange width plus 1 inch (25 mm).

F. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

FRAMING ACCESSORIES

G. Fabricate steel-framing accessories from ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated steel sheet, of same grade and coating designation used for framing members.

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

1. Supplementary framing.

2. Bracing, bridging, and solid blocking.
3. Web stiffeners.
4. Anchor clips.
5. End clips.
6. Foundation clips.
7. Gusset plates.
8. Stud kickers and knee braces.
9. Joist hangers and end closures.
10. Hole-reinforcing plates.
11. Backer plates.

2.6 ANCHORS, CLIPS, AND FASTENERS

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

B. Anchor Bolts: ASTM F 1554, Grade 36, Grade 55, threaded carbon-steel hex-headed bolts, carbon-steel nuts, and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C

C. Post-Installed Anchors: Fastener systems with bolts of same basic metal as fastened metal, if visible, unless otherwise indicated; with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 as appropriate for the substrate.

1. Uses: Securing cold-formed steel framing to structure.
2. Type: Torque-controlled expansion anchor, Torque-controlled adhesive anchor or adhesive anchor.
3. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, unless otherwise indicated.
4. Material for Exterior or Interior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F 593 (ASTM F 738M), and nuts, ASTM F 594 (ASTM F 836M).

D. Power-Actuated Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

E. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.

1. Head Type: Low-profile head beneath sheathing; manufacturer's standard elsewhere.

F. Welding Electrodes: Comply with AWS standards.

2.7 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: ASTM A 780/A 780M**.**

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

C. Nonmetallic, Nonshrink Grout: Factory-packaged, nonmetallic, noncorrosive, nonstaining grout, complying with ASTM C 1107/C 1107M, and with a fluid consistency and 30-minute working time.

D. Shims: Load-bearing, high-density, multimonomer, nonleaching plastic; or cold-formed steel of same grade and metallic coating as framing members supported by shims.

E. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch (6 mm) thick, selected from manufacturer's standard widths to match width of bottom track or rim track members as required.

2.8 FABRICATION

A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.

1. Fabricate framing assemblies using jigs or templates.
2. Cut framing members by sawing or shearing; do not torch cut.
3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.

    a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    b. Locate mechanical fasteners and install according to Shop Drawings, with screws penetrating joined members by no fewer than three exposed screw threads.

4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.

B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies by means that prevent damage or permanent distortion.

C. Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable variation of 1/8 inch in 10 feet (1:960) and as follows:

1. Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, conditions, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

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

3.2 PREPARATION

A. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.

B. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that required to obtain fire-resistance ratings indicated. Protect remaining fire-resistive materials from damage.

C. Install load-bearing shims or grout between the underside of load-bearing wall bottom track and the top of foundation wall or slab at locations with a gap larger than 1/4 inch (6 mm) to ensure a uniform bearing surface on supporting concrete or masonry construction.

D. Install sealer gaskets at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

3.3 INSTALLATION, GENERAL

A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.

B. Install cold-formed steel framing according to AISI S200, AISI S202, and manufacturer's written instructions unless more stringent requirements are indicated.

C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.

1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch (1.6 mm).

D. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.

1. Cut framing members by sawing or shearing; do not torch cut.
2. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.

    a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    b. Locate mechanical fasteners, install according to Shop Drawings, and comply with requirements for spacing, edge distances, and screw penetration.

E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.

F. Install temporary bracing and supports to secure framing and support loads equal to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

G. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.

H. Install insulation, specified in Section 072100 "Thermal Insulation," in framing-assembly members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.

I. Fasten hole-reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.

3.4 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.

B. Fasten both flanges of studs to top and bottom track unless otherwise indicated. Space studs as follows:

1. Stud Spacing: 16 inches (406 mm)

C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.

D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.

1. Install single deep-leg deflection tracks and anchor to building structure.
2. Install double deep-leg deflection tracks and anchor outer track to building structure.
3. Connect vertical deflection clips to bypassing studs and anchor to building structure.
4. Connect drift clips to cold-formed steel framing and anchor to building structure.

E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches (1220 mm) apart. Fasten at each stud intersection.

1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
3. Bar Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.

F. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 12 inches (305 mm) of single deflection track. Install a combination of bridging and stud or stud-track solid blocking of width and thickness matching studs, secured to stud webs or flanges.

1. Install solid blocking at 96-inch (2440-mm) centers.

G. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.5 INTERIOR NON-LOAD-BEARING WALL INSTALLATION

A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.

B. Fasten both flanges of studs to top and bottom track unless otherwise indicated. Space studs as follows:

1. Stud Spacing: 16 inches (406 mm)

C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.

D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.

1. Install single deep-leg deflection tracks and anchor to building structure.
2. Install double deep-leg deflection tracks and anchor outer track to building structure.
3. Connect vertical deflection clips to studs and anchor to building structure.
4. Connect drift clips to cold-formed steel metal framing and anchor to building structure.

E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches (1220 mm) apart. Fasten at each stud intersection.

1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
3. Bar Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.

F. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 12 inches (305 mm) of single deflection track. Install a combination of bridging and stud or stud-track solid blocking of width and thickness matching studs, secured to stud webs or flanges.

1. Install solid blocking at 96-inch (2440-mm) centers.

G. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.6 ERECTION TOLERANCES

A. Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:

1. Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.7 FIELD QUALITY CONTROL

A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform

field tests and inspections and prepare test reports.

B. Field and shop welds will be subject to testing and inspecting.

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

D. Cold-formed steel framing will be considered defective if it does not pass tests and inspections.

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

3.8 REPAIRS AND PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780/A 780M and manufacturer's written instructions.

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

END OF SECTION 054000

SECTION 057000 - DECORATIVE METAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Decorative interior wall panel system.

B. Related Requirements:

1. Section 092900 "Gypsum Board Assemblies”

1.2 COORDINATION

A. Coordinate installation of anchorages for decorative metal items. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product, including finishing materials.

B. Shop Drawings: Show fabrication and installation details for decorative metal.

1. Include plans, elevations, component details, and attachment details.
2. Indicate materials and profiles of each decorative metal member, fittings, joinery, finishes, fasteners, anchorages, and accessory items.

C. Samples for Initial Selection: For products involving selection of color, texture, or design including mechanical finishes.

D. Samples for Verification: For each type of exposed finish.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store in location to avoid damage from job-site traffic, direct sunlight, moisture, stacking or other job-site contaminates. Store in a completely supported flat position. Edge storage is not recommended.

B. Handle components to avoid denting or scratching of finished surfaces.

C. DO NOT use markers on protective PVC film. Some types of ink will permeate the film and mark the material surface.

1.6 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with decorative metal by field measurements before fabrication and indicate measurements on Shop Drawings.

B. Maintain a constant temperature range of 65°F to 85°F (18°C to 24°C), with stable relative humidity, for at least 48 hours prior to, throughout the installation period and maintained consistently thereafter.

C. Installation locations must be enclosed, weatherproofed and climate controlled prior to commencing installation.

D. Do not install if relative humidity is greater than 80%.

1.7 WARRANTY

A. Provide manufacturer's warranty against defects in material and workmanship.

PART 2 - PRODUCTS

2.1 DECORATIVE METAL MANUFACTURER

A. Fabricator: Subject to compliance with requirements, provide products by the following:

1. Moz Designs, Inc., 711 Kevin Court, Oakland, CA 94621, PH: 510.632.0853, email: Estimating@mozdesigns.com.

2.2 METALS, GENERAL

A. Metal Surfaces, General: Use materials with smooth, flat surfaces unless otherwise indicated. Use materials without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

2.3 ALUMINUM

A. Moz Metals
1. .090 thick aluminum: Type 5052 alloy complying with ASTM B209
2. Sizes: 4'x8' and 4' x 10' standard sizes unless otherwise indicated on Drawings.
3. Collection: Terrace Panel System, color/finish per finish schedule.
4. Provide all closures, trims, shims, spacers, transitions, for a complete system installation.

2.4 FASTENERS

A. Fastener Materials: Unless otherwise indicated, provide the following:

1. Aluminum Items: Aluminum or stainless steel fasteners.
2. Dissimilar Metals: stainless steel fasteners.

B. Fasteners for Anchoring to Other Construction: Unless otherwise indicated, select fasteners of type, grade, and class required to produce connections suitable for anchoring indicated items to other types of construction indicated.

C. Provide concealed fasteners for interconnecting components and for attaching decorative metal items to other work unless otherwise indicated.

2.5 FABRICATION, GENERAL

A. Assemble items in the shop to greatest extent possible to minimize field splicing and assembly.

1. Disassemble units only as necessary for shipping and handling limitations.
2. Clearly mark units for reassembly and coordinated installation.
3. Use connections that maintain structural value of joined pieces.

B. Form decorative metal to required shapes and sizes, true to line and level with true curves and accurate angles and surfaces. Finish exposed surfaces to smooth, sharp, well-defined lines and arris.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.

D. Form simple and compound curves in bars, pipe, tubing, and extruded shapes by bending members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces.

E. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

F. Mill joints to a tight, hairline fit. Cope or miter corner joints. Fabricate connections that will be exposed to weather in a manner to exclude water.

G. Provide weep holes where water may accumulate. Locate weep holes in inconspicuous locations.

H. Provide necessary rebates, lugs, and brackets to assemble units and to attach to other work. Cut, reinforce, drill, and tap as needed to receive finish hardware, screws, and similar items unless otherwise indicated.

I. Comply with AWS for recommended practices in shop welding and brazing. Weld and braze behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed joints of flux, and dress exposed and contact surfaces.

1. Where welding and brazing cannot be concealed behind finished surfaces, finish joints to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 1 Welds: no evidence of a welded joint.

2.6 FINISHES, GENERAL

A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

2.7 ALUMINUM FINISHES

A. As indicated on Finishes Legend.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of decorative metal.

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

3.2 INSTALLATION, GENERAL

A. Provide anchorage devices and fasteners where needed to secure decorative metal to in-place construction.

B. Perform cutting, drilling, and fitting required to install decorative metal. Set products accurately in location, alignment, and elevation, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items to be built into concrete, masonry, or similar construction.

C. Fit exposed connections accurately together to form tight, hairline joints or, where indicated, uniform reveals and spaces for sealants and joint fillers. Where cutting, welding, and grinding are required for proper shop fitting and jointing of decorative metal, restore finishes to eliminate evidence of such corrective work.

D. Do not cut or abrade finishes that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.

E. Install concealed gaskets, joint fillers, insulation, and flashings as work progresses.

F. Restore protective coverings that have been damaged during shipment or installation. Remove protective coverings only when there is no possibility of damage from other work yet to be performed at same location.

1. Retain protective coverings intact; remove coverings simultaneously from similarly finished items to preclude nonuniform oxidation and discoloration.

G. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1. Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

H. Install the work in strict accordance with the manufacturer’s written instructions.

3.3 CLEANING AND PROTECTION

A. Remove protective coverings and clean decorative metal to remove adhesives and tape residue. Test all solvents on non-exposed surfaces prior to use.

B. Follow manufacturer’s written instructions for cleaning and repair of minor surface scratches.

C. DO NOT treat with rubbing compounds or lacquer thinner as this may dissolve or etch the coating.

D. Visually inspect all exposed surfaces for scratches or blemishes.

E. Protect Decorative Metal from damage during remainder of construction period.

F. Protect finishes of decorative metal from damage during construction period with temporary protective coverings approved by decorative metal fabricator. Remove protective covering at time of Substantial Completion.

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

END OF SECTION 057000

SECTION 06 4100 - ARCHITECTURAL WOOD CASEWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Wood cabinets for transparent finish.
2. Cabinet hardware and accessories.
3. Plastic laminate clad wood cabinets
4. Miscellaneous materials.
5. Shop finishing

B. Related Requirements:

1. Section 06 1000 "Miscellaneous Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing cabinets that are concealed within other construction before cabinet installation.

1.3 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to support loads imposed by installed and fully loaded cabinets.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Shop Drawings: For architectural cabinets.

1. Include plans, elevations, sections and attachment details.
2. Show large-scale details.
3. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
4. Show locations and sizes of cutouts and holes for items installed in architectural cabinets.
5. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.

C. Samples: For each exposed product and for each color and finish specified, in manufacturer's standard size.

D. Samples for Initial Selection: For each type of exposed finish.

E. Samples for Verification: For the following:

1. Lumber and Panel Products with Shop-Applied Opaque Finish: 5 inches wide by 12 inches long for lumber and 8 by 10 inches for panels, for each finish system and color.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer and Installer.

B. Evaluation Reports: For fire-retardant-treated materials, from ICC-ES.

C. Field quality-control reports.

1.7 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

B. Mock-ups: Build mock-ups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Build mock-ups of typical architectural cabinets as shown on Drawings.
2. Subject to compliance with requirements, approved mock-ups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE AND HANDLING

A. Do not deliver cabinets until painting and similar finish operations that might damage architectural cabinets have been completed in installation areas. Store cabinets in installation areas or in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.9 FIELD CONDITIONS

A. Environmental Limitations without Humidity Control: Do not deliver or install cabinets until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.

B. Environmental Limitations with Humidity Control: Do not deliver or install cabinets until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.

C. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking and reinforcements that support cabinets by field measurements before being enclosed/concealed by construction and indicate measurements on Shop Drawings.

D. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site and coordinate construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 ARCHITECTURAL CABINET MANUFACTURERS

A. Source Limitations: Engage a qualified woodworking firm to assume responsibility for production of architectural cabinets with sequence-matched wood veneers wood paneling wood doors with face veneers that are sequence matched with architectural cabinets and transparent-finished wood doors that are required to be of same species as architectural cabinets.

2.2 CABINETS, GENERAL

A. Quality Standard: Unless otherwise indicated, comply with the Architectural Woodwork Standards for grades of architectural cabinets indicated for construction, finishes, installation, and other requirements.

1. The Contract Documents may contain requirements that are more stringent than the referenced woodwork quality standard. Comply with requirements of Contract Documents in addition to those of the referenced quality standard.

2.3 WOOD CABINETS FOR TRANSPARENT FINISH

A. Architectural Woodwork Standards Grade: Premium.

B. Type of Construction: Frameless.

C. Door and Drawer-Front Style: Flush overlay.

1. Reveal Dimension: 1/8 inch.

D. Wood for Exposed Surfaces:

1. Species: White oak.
2. Blueprint Matching: Comply with veneer and other matching requirements indicated for blueprint-matched paneling.
3. Cut: Rift cut/rift sawn.
4. Grain Direction: Vertically for drawer fronts, doors and fixed panels.
5. Matching of Veneer Leaves: Slip match.
6. Veneer Matching within Panel Face: Running match.
7. Veneer Matching within Room: Provide cabinet veneers in each room or other space from a single flitch with doors, drawer fronts, and other surfaces matched in a sequenced set with continuous match where veneers are interrupted perpendicular to the grain.

E. Semi-exposed Surfaces:

1. Surfaces Other Than Drawer Bodies: Same species and cut indicated for exposed surfaces.

a. Edges of Thermally Fused Laminate Panel Shelves: PVC or polyester edge banding.

2. Drawer Subfronts, Backs and Sides: Solid-hardwood lumber.
3. Drawer Bottoms: Thermally fused laminate panels.

F. Dust Panels: 1/4-inch plywood or tempered hardboard above compartments and drawers unless located directly under tops.

G. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.

1. Join subfronts, backs and sides with glued rabbeted joints supplemented by mechanical fasteners.

2.4 PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

A. PLASTIC LAMINATE (PLAM)
1. High-pressure, decorative laminate meeting NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard.

B. PLASTIC-LAMINATE CABINETS
1. Quality Standard: Comply with AWI Section 400 – Custom Grade requirements for laminate cabinets.
2. AWI Type of Cabinet Construction: Frameless with flush overlay.
3. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following:
   a. Horizontal Surfaces Other Than Tops: HGL.
   b. Post-formed Surfaces: HGP.
   c. Vertical Surfaces: VGS.
   d. Edges: Self-edged with PVC tape, 0.018-inch minimum thickness, matching laminate in color, pattern, and finish.

C. PLASTIC-LAMINATE (PLAM) COUNTERTOPS
1. Quality Standard: Comply with AWI Section 400 – Custom Grade.
2. Core material: MDF, or waterproof MDF at countertops with sinks.
3. High-Pressure Decorative Laminate Grade: HGS (HGP at post-formed countertops).
4. Colors, Patterns and Finishes: Provide materials and products as indicated on the Drawings. Other manufacturers must be submitted as a substitution per of Division-01 requirements. If color is not indicated, provide from Architect approved plastic laminate manufacturer, in manufacturer's full range of colors and finishes in both solid colors, and in solid colors with the core the same color as the surface.
5. Edge Treatment: Self-edged in same material as horizontal laminate cladding.

2.5 WOOD MATERIALS

A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.

1. Do not use plain-sawn softwood lumber with exposed, flat surfaces more than 3 inches wide.
2. Wood Moisture Content: 5 to 10 percent.

B. Composite Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.

1. Medium-Density Fiberboard (MDF): ANSI A208.2, Grade 130.
2. Softwood Plywood: DOC PS 1, medium-density overlay.
3. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1.
4. Thermally Fused Laminate (TFL) Panels: Particleboard or MDF finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for Test Methods 3.3, 3.4, 3.6, 3.8, and 3.10.

2.6 FIRE-RETARDANT-TREATED MATERIAL

A. Fire-Retardant-Treated Materials, General: Where fire-retardant-treated materials are indicated, use materials that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

1. Use treated materials that comply with requirements of referenced quality standard. Do not use materials that are warped, discolored, or otherwise defective.
2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.
3. Identify fire-retardant-treated materials with appropriate classification marking of qualified testing agency in the form of removable paper label or imprint on surfaces that will be concealed from view after installation.

B. Fire-Retardant-Treated Lumber and Plywood: Products with a flame-spread index of 25 or less when tested according to ASTM E84, with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Kiln-dry lumber and plywood after treatment to a maximum moisture content of 19 and 15 percent, respectively.
2. For items indicated to receive a stained or natural finish, use organic resin chemical formulation.
3. Mill lumber before treatment and implement procedures during treatment and drying processes that prevent lumber from warping and developing discolorations from drying sticks or other causes, marring, and other defects affecting appearance of architectural cabinets.

C. Fire-Retardant Particleboard: Made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E84.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Arauco North America.
    b. Timber Products, Inc.

2. For panels 3/4 inch thick and less, comply with ANSI A208.1 for Grade M-2 except for the following minimum properties: modulus of rupture, 1600 psi; modulus of elasticity, 300,000 psi; internal bond, 80 psi; and screw-holding capacity on face and edge, 250 and 225 lbf, respectively.
3. For panels 13/16 to 1-1/4 inches thick, comply with ANSI A208.1 for Grade M-1 except for the following minimum properties: modulus of rupture, 1300 psi; modulus of elasticity, 250,000 psi; linear expansion, 0.50 percent; and screw-holding capacity on face and edge, 250 and 175 lbf, respectively.

D. Fire-Retardant Fiberboard: MDF panels complying with ANSI A208.2, made from softwood fibers, synthetic resins, and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame-spread index of 25 or less and smoke-developed index of 200 or less per ASTM E84.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

    a. Roseburg.

2.7 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 08 7100 "Door Hardware."

B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening.

C. Pulls: Back mounted, solid stainless steel: Doug Mockett DP105A: 6 27/32 inches long, 9/16-inch square profile.

D. Catches: Magnetic catches, BHMA A156.9, B03141.

E. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.

F. Shelf Rests: BHMA A156.9, B04013; metal.

G. Drawer Slides: BHMA A156.9.

1. Grade 1 and Grade 2: Side mounted and extending under bottom edge of drawer.

a. Type: Full extension.
b. Material: Zinc-plated steel with polymer rollers.

H. Door Locks: BHMA A156.11, E07121.

I. Drawer Locks: BHMA A156.11, E07041.

J. Door and Drawer Silencers: BHMA A156.16, L03011.

K. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.

1. Satin Stainless Steel: BHMA 630.

L. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.8 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims and Hanging Strips: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

2.9 FABRICATION

A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.

B. Fabricate architectural cabinets to dimensions, profiles, and details indicated. Ease edges and corners to 1/16-inch radius unless otherwise indicated.

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

D. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

2.10 SHOP FINISHING

A. General: Finish architectural cabinets at manufacturer's shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.

B. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural cabinets, as applicable to each unit of work.

1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of cabinets.

C. Transparent Finish:

1. Architectural Woodwork Standards Grade: Premium.
2. Finish: System - 3, postcatalyzed lacquer.
3. Wash Coat for Closed-Grain Woods: Apply wash-coat sealer to cabinets made from closed-grain wood before staining and finishing.
4. Staining: Match Architect's sample.
5. Open Finish for Open-Grain Woods: Do not apply filler to open-grain woods.
6. Sheen: Flat, 15-30 gloss units measured on 60-degree gloss meter per ASTM D 523.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours.

3.2 INSTALLATION

A. Architectural Woodwork Standards Grade: Install cabinets to comply with quality standard grade of item to be installed.

B. Assemble cabinets and complete fabrication at Project site to extent that it was not completed in the shop.

C. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with cabinet surface.

1. For shop-finished items, use filler matching finish of items being installed.
2. All wood blocking to be fire retardant treated.

D. Install cabinets level, plumb and true in line to a tolerance of 1/8 inch in 96 inches using concealed shims.

1. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
2. Install cabinets without distortion so doors and drawers fit openings and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
3. Maintain veneer sequence matching of cabinets with transparent finish.
4. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with No. 10 wafer-head screws sized for not less than 1-1/2-inch penetration into wood framing, blocking, or hanging strips.

E. Shop Finishes: Touch up finishing after installation of architectural cabinets. Fill nail holes with matching filler.

1. Apply specified finish coats, including stains and paste fillers if any, to exposed surfaces where only sealer/prime coats are shop applied.

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects. Where not possible to repair, replace architectural cabinets. Adjust joinery for uniform appearance.

B. Clean, lubricate and adjust hardware.

C. Clean cabinets on exposed and semi-exposed surfaces. Touch up finishes to restore damaged or soiled areas.

END OF SECTION 06 4100

SECTION 06 6120 - STONE AND QUARTZ FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Solid surface material countertops.
2. Solid surface material backsplashes.
3. Solid surface material end splashes.
4. Terrazzo countertops
5. Terrazzo back and end splashes

B. Related Requirements:

1. Section 06 1000 “Miscellaneous Rough Carpentry”.
2. Division 22 “Plumbing”.

1.3 ACTION SUBMITTALS

A. Product Data: For shower base and wall materials and sills.

B. Shop Drawings: Show materials, finishes, edge and profiles, methods of joining and cutouts for plumbing fixtures.

1. Show locations and details of joints.
2. Show direction of directional pattern, if any.

C. Samples for Initial Selection: For each type of material exposed to view.

D. Samples for Verification: For the following products:

1. Plastic material, 6 inches square.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For solid surface material to include in maintenance manuals. Include Product Data for care products used or recommended by Installer and names, addresses and telephone numbers of local sources for products.

1.6 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Not less than 10 years of experience in the actual production of specified products.

B. Installer Qualifications: Firm experienced in installation of systems similar in complexity to those required for this Project, plus the following:

1. Acceptable to the manufacturer.
2. Not less than 3 years of experience with systems.
3. Successfully completed not less than 5 comparable scale projects using this system.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete.

1.8 COORDINATION

A. Coordinate locations of utilities that will penetrate countertops or backsplashes.

1.9 SPECIAL WARRANTIES

A. Manufacturer shall warranty installed system for 15 years, beginning from the Date of Substantial Completion against all conditions indicated below. When notified in writing by Owner, manufacturer shall promptly, and without inconvenience and cost to the Owner, correct said deficiencies.

1. Defects in material.

PART 2 - PRODUCTS

2.1 STONE AND QUARTZ MATERIALS

A. Quartz Agglomerate: Solid sheets consisting of quartz aggregates bound together with a matrix of filled plastic resin and complying with ICPA SS-1, except for composition.

B. Products: Subject to compliance with requirements of this specification, provide the quartz products as indicated in the Finish Legend provided on the individual Finish Plans.

1. Quartz manufactured by other manufacturers may be considered, provided deviations in project performance, recycled content, details, dimensions, textures, style, patterns and colors are minor and do not change the design concept as judged by the Architect. The burden of proof is on the proposer.

C. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.

D. Counter Support Bracket: Provide Rakks EH-1824 Support Brackets as indicated on drawings. Mount vertical leg inside wall.

2.2 COUNTERTOP FABRICATION

A. Fabricate countertops according to solid surface material manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards."

1. Grade: Premium.

B. Configuration:

1. Front: Straight, slightly eased at top.
2. Backsplash: Straight, slightly eased at corner.
3. End Splash: Matching backsplash.

C. Countertops: Thickness as indicated on the drawings.

D. Backsplashes: 1/2-inch-thick, same material as countertop.

E. Fabricate tops with shop-applied edges and backsplashes unless otherwise indicated. Comply with quartz agglomerate manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.

1. Fabricate with loose backsplashes for field assembly.

F. Joints: Fabricate countertops in sections for joining in field.

1. Joint Locations: Not within 18 inches of a sink and not where a countertop section less than 36 inches long would result, unless unavoidable.
2. Splined Joints: Accurately cut kerfs in edges at joints for insertion of metal splines to maintain alignment of surfaces at joints. Make width of cuts slightly more than thickness of splines to provide snug fit. Provide at least three splines in each joint.

G. Cutouts and Holes:

1. Undercounter Plumbing Fixtures: Make cutouts for fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.
    1) Provide vertical edges, slightly eased at juncture of cutout edges with top and bottom surfaces of countertop and projecting 3/16 inch into fixture opening.

2. Counter-Mounted Plumbing Fixtures: Prepare countertops in shop for field cutting openings for counter-mounted fixtures. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.
3. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.

H. Fabricate and install terrazzo countertops, back and side splashes per the manufacturer's written instructions. Coordinate with architect.

2.3 INSTALLATION MATERIALS

A. Adhesive: Product recommended by solid surface material manufacturer.

1. Adhesives shall have a VOC content of 70 g/L or less.

B. Sealant for Countertops: Comply with applicable requirements in Section 07 9200 "Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates to receive solid surface material countertops and conditions under which countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of countertops.

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

3.2 INSTALLATION

A. Install countertops level to a tolerance of 1/8 inch in 8 feet, 1/4 inch maximum. Do not exceed 1/64-inch difference between planes of adjacent units.

B. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Predrill holes for screws as recommended by manufacturer. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

C. Fasten subtops to cabinets by screwing through subtops into cornerblocks of base cabinets. Shim as needed to align subtops in a level plane.

D. Secure countertops to subtops with adhesive according to solid surface material manufacturer's written instructions. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

E. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.
   1. Clamp units to temporary bracing, supports, or each other to ensure that countertops are properly aligned and joints are of specified width.

F. Install backsplashes and end splashes by adhering to wall and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears.

G. Install aprons to backing and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears. Fasten by screwing through backing. Predrill holes for screws as recommended by manufacturer.

H. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.

I. Apply sealant to gaps at walls; comply with Section 07 9200 "Joint Sealants."

END OF SECTION 06 6120

SECTION 06 6410 - FIBERGLASS REINFORCED PLASTIC (FRP)

PART 1 - GENERAL

1.1 SUMMARY

A. Surface preparation of wall surfaces and installation of Fiberglass Reinforced Plastic (FRP) paneling where indicated on the drawings, as specified herein and as needed for a complete and proper installation.

1.2 SUBMITTALS

A. Product Data: For all components to be provided, including manufacturer's installation recommendations.

B. Samples: 12" x 12" samples for each color and texture selected by Architect. Include samples of trims, transitions and accessories.

PART 2 - PRODUCTS

2.1 FRP GENERAL

A. Selected products: Refer to finish legend for basis of design selections.

2.2 FRP ACCESSORIES

A. TRIM:
1. Manufacturer's standard, color-matched one-piece vinyl extrusions, designed to retain and cover all edges of panels. Provide continuous trim units at all joints between panels (division bars), at top edge caps (when applicable), at inside and outside corners and at top and bottom edges of panels typically.

B. EXPOSED FASTENERS
1. Nylon drive rivets recommended by panel manufacturer, color to match panel color.

C. ADHESIVE
1. Manufacturer's recommendation formulation in compliance with Project's VOC requirements.

D. SEALANT
1. Mildew-resistant, single-component, neutral-curing or acid-curing silicone sealant recommended by paneling manufacturer, and per requirements of Division-07 "Joint Sealant" Section.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions in which FRP will be installed. Complete all finishing operations, including prime coat of paint, before beginning installation of wall surface protection materials.

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

3.2 PREPARATION

A. Acclimate panels in temperature and humidity conditions approximating those at the project site for not less than 24 hours before application. Lay panels flat. Do not stack on fresh conc. floors or other surfaces that emit moisture. Walls must be dry and free from dirt, dust and grease. Remove switchplates, wall plates, and surface- mounted fixtures in areas where panels are to be applied.

3.3 INSTALLATION

A. PANEL FITTING
1. Position panels with 1/4" gap at ceiling and floor, and 1/8” gap between each panel and division bar of moldings to allow for normal expansion and contraction. Allow not less than 1/8" gap around pipes, electrical fittings, and other projections. Use carbide-tipped power saws to cut panels. Pre-fit each panel before installing.
2. Install panels by using manufacturer’s recommended adhesive applied to back of panels for 100% coverage, with a notched trowel. Before adhesive skins over, set panels in position and press against wall. Pull entire panel back from wall 8" to 10" to flash off any solvents, if applicable, and press back into place. Apply adequate, firm pressure to make full contact between panel and wall substrate.
3. Provide exposed panel fasteners only when recommended by Manufacturer, and when applied to fire-retardant plywood substrate when chemical compatibility with panel adhesive is not known or is known to be incompatible.

B. PANEL MOLDINGS
1. Install one-piece matching trim and panel moldings at all joints between panels, and at top and bottom edges of panels. Install moldings with continuous bead of silicone sealant during installation of panels. Seal joints between moldings and between molding and adjacent finish material. Remove excess sealant immediately.

C. CLEAN-UP
1. Remove excess adhesive and sealant while it is still wet. Replace removed plates and fixtures. Remove surplus materials and debris resulting from panel installation upon completion of Work and leave areas of installation in clean condition.

END OF SECTION 06 6410

SECTION 07 4223 - METAL WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
1. Metal wall panels.

1.3 SUBMITTALS

A. Action Submittals.
1. Shop Drawings: Illustrate products, installation, and relationship to adjacent construction.
2. Panel Calculations: Sealed calculations for panel structural integrity by licensed engineer.
3. Product Data: Manufacturer's descriptive data and product attributes for metal panels.
4. Samples: Selection samples.

B. Informational Submittals:
1. Certificate of Compliance: Certification that installed products meet specified design and performance requirements.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Pre-Installation Conference:
1. Attendance: Design Professional, Owner, Contractor, installer and related trades.
2. Review: Project conditions, manufacturer requirements, delivery and storage, staging and sequencing, and protection of completed work.

1.5 SYSTEM DESCRIPTION

A. Design Requirements:
1. Live and dead loads in accordance with Building Code.
2. Minimum wind pressure as indicated on Drawings, in accordance with Building Code, tested to ASTM E1592 (see Morin available panel profiles).

B. Performance Requirements:
1. Air leakage: As indicated on Drawings, tested to ASTM E283.
2. Water leakage: None, tested to ASTM E331 at test pressure of 40 PSF.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Firm specializing in work of this Section with minimum 5 years' experience.

B. Mock-up: 8 x 8 feet. Approved mock-up may remain as part of the Work.

1.7 WARRANTIES

A. Manufacturer's 2-year warranty against defects in materials and workmanship.

B. Manufacturer's 20-year warranty against chipping, cracking, fading, or delamination of panel finish.

C. Installer's 2-year warranty against water leakage through wall system.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Contract Documents are based on products by Morin Corporation, www.morincorp.com.

B. Substitutions: Refer to Division 01.

2.2 MATERIALS

A. Aluminum-Zinc Alloy Coated Steel Sheet: ASTM A792 coating class.

2.3 ACCESSORIES

A. Closure Strips: Closed cell rubber, minimum 1 inch thick, to match panel profile. Metal closure fabricated from same material, gage, and finish as panels.

B. Tapes and Sealers: Types recommended by panel manufacturer.

2.4 FABRICATION

A. Roll form panels from minimum 20 gage aluminum-zinc alloy coated sheet.

B. Wall Panels:
1. Profile: Pulse Panel: P-1.
2. Panel width: 12 inches.
3. Panel depth: 1-1/2 inches.
4. Panel joint: Tongue and groove interlock.
5. Panel Attachment: Concealed floating MIP clip and fastener.
6. Provide shop fabricated and prefinished seamless outside corners.

2.5 FINISHES

A. Panels and Trim:
1. Coating type: 2-Coat Fluropon PVDF.
2. Color: As indicated on Drawings or if not indicated as selected by Architect from manufacturer's full range of options including custom color.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Provide field measurements to manufacturer as required to achieve proper fit of the preformed wall panel envelope. Measurements shall be provided in a timely manner so that there is no impact to construction or manufacturing schedule.

B. Supporting Steel: All structural supports required for installation of panels shall be by others. Support members shall be installed within the following tolerances:
1. Plus or minus 1/8 inch in 5 feet in any direction along plane of framing.
2. Plus or minus 1/4 inch cumulative in 20 feet in any direction along plane of framing.
3. Plus or minus 1/2 inch from framing plane on any elevation.
4. Plumb or level within 1/8 inch at all changes of transverse for pre-formed corner panel applications.
5. Verify that bearing support has been provided behind vertical joints of horizontal panel systems and horizontal joints of vertical panel systems. Width of support shall be as recommended by manufacturer.

C. Examine individual panels upon removing from the bundle; notify manufacturer of panel defects. Do not install defective panels.

3.2 PANEL INSTALLATION

A. Installation shall be in accordance with manufacturer's installation guidelines and recommendations.

B. Install panels plumb, level, and true-to-line to dimensions and layout indicated on approved shop drawings.

C. Fasten panels using concealed clip and fasteners.

D. Install closure strips per manufacturer's instructions at exposed panel edges.

E. Installation Tolerances: Maximum variation from plane: 1/4 inch in 20 feet, noncumulative.

3.3 CLEANING AND PROTECTION

A. Remove protective film immediately after installation.

B. Touch-up, repair or replace metal panels and trim that have been damaged.

C. After metal wall panel installation, clear weep holes and drainage channels of obstructions, dirt and sealant.

END OF SECTION 07 4223

SECTION 07 4247 - ULTRA-HIGH PERFORMANCE CONCRETE FAÇADE PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Provide a copy of all applicable drawings, including shop drawings, specifications and installation instructions at the site during all work covered under this Section.

1.2 WORK INCLUDED

A. This Section includes the furnishing and installation of factory-cast, Ultra High-Performance Concrete (UHPC) solid exterior wall panels, associated components and engineered support structure (subframe). The panels shall be for exterior and interior applications. Exterior applications shall include factory cut and pre-drilling of holes for concealed/undercut and/or visible fastening per approved shop drawings to the extent feasible for the installation and field conditions.

1.3 REFERENCE STANDARDS

A. ASTM: American Society for Testing and Materials & American Iron and Steel Institute.
1. ASTM C1185-08 Standard Test Methods for Sampling and Testing Non-Asbestos Fiber-Cement Flat Sheet, Roofing and Siding
2. ASTM 1629: Standard Test Method for Hard Body and Soft Body impact test for fiber reinforced gypsum and cement wall panels.
3. ASTM E 330: Standard Test Method for Structural Performance of Curtain Walls by Uniform Static Air Pressure Difference
4. ASTM C496 - Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens.
5. ASTM C531 - Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing's, and Polymer Concretes.
6. ASTM C109- Standard Test Method for Compressive Strength of Hydraulic Cement Mortars Using Cube Specimens.
7. ASTM D2244: - Standard Practice for Calculation of Color Differences from Instrumentally Measured Color Coordinates; 2011.
8. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2014.
9. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2012.
10. ASTM E488 - Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements; 2010.
11. AISI 905.4: Standard test methods for steel fasteners
12. ASTM G155 - Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials; 2013.

1.4 RELATED WORK SPECIFIED ELSEWHERE

1. Division 05 Section "Structural Steel".
2. Division 05 Section "Cold-Formed Metal Framing".

1.5 DEFINITIONS

A. Design Reference Sample: Sample of A|UHPC color, finish, and texture that has been preapproved by Architect before execution of the Contract.
   1. Design Reference Sample Panel

      a. Texture: As indicated on the Drawings.

      b. Color: As indicated on the Drawings.

      c. Aggregate: As indicated on the Drawings.

      d. Finish: As indicated on the Drawings.

      e. Sealer: As indicated on the Drawings.

1.6 PERFORMANCE REQUIREMENTS

A. General Performance: Comply with performance requirements specified, as determined by testing of manufacturers' products representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

B. Failure also includes the following:
   1. Thermal stresses transferring to building structure.
   2. Solid exterior wall panels and support structure cracking or breakage.
   3. Noise or vibration created by wind, thermal and structural movements. Noise or vibration-induced noise from wind cannot be controlled by the panel manufacturer or installer. Environmental / façade design factors (panel sizes, building massing, orientation, wall cavity, etc.) beyond their control can contribute to wind induced sound.
   4. Loosening or weakening of fasteners, attachments, and other components.

C. Structural, Wind and Pressure Loads: As indicated on Structural Drawings.

D. Provide Design Calculations for Panel, Panel Anchors and sub-frame – report to be stamped by registered engineer.

E. Structural Performance: Provide Solid Exterior Wall Panel and support system as follows:
   1. Will not evidence deflection exceeding specified limits.
   2. Thermal Movement: Provide for thermal movement resulting from annual ambient temperature change of 120 degrees F.
   3. At 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, will not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
   4. Durations: As required by design wind velocity, but not less than 10 seconds.
   5. Design Panel anchorage and supporting frame to accommodate sub-frame and building deflection appropriate to loads and limitations of adjacent materials.
   6. Deflection of Framing Members: At design wind pressure, as follows:

      a. Deflection Normal to Wall Plane: Limited to L/240 of the panel support frame clear span, (L=measurement between anchor points, not full panel dimension).

      b. Deflection Parallel to Panel Plane: Limited to L/360 of panel support frame clear span or 1/8-inch, manufacturer's product limitations, whichever is smaller.

      c. Cantilever Deflection: Where framing members overhang an anchor point, limit deflection to 2 times the length of cantilevered member divided by 175, or manufacturer's product limitations, whichever is smaller.

F. Story Drift: Accommodate design displacement of adjacent stories.

G. Design Displacement: As indicated on Structural Drawings.

H. Maximum Solid Exterior Wall Panels Deflection: when tested in accordance with positive and negative pressures.
1. Deflection of Center of Panel Normal to Wall Plane: Limited to L/150 of clear span between anchor/fastener points or 1/4 inch, whichever is less.
2. Deflection of Center of Panel Parallel to Panel Plane: Limited to L/240 of clear span between anchor/fastener points.

I. Solid exterior and interior wall panel system shall comply with 2012 or 2015 International Building Code 1405.16.1 Panel Siding.

J. Anchorage system: Wall brackets and anchorages for exterior systems shall be designed to restrict thermal transfer to the greatest extent possible.

1.7 SYSTEM DESCRIPTION

A. Complete system shall include the design and installation of the solid exterior wall panels and support structure system.

1.8 SUBMITTALS (Action Submittals)

A. Product Data: For each type of product indicated, including:
1. TAKTL Product Data
2. TAKTL Standard + Product Data
3. TAKTL Quality Management, Tolerances and Acceptance Criteria
4. TAKTL Natural Color Variation Document
5. TAKTL Color Specification Guide
6. TAKTL Hardware Product Data Sheet
7. TAKTL Storage and Handling Instructions
8. TAKTL Cleaning and Maintenance Instructions

B. Shop Drawings: Show fabrication and installation details for UHPC panels including the following:
1. Panel elevations, sections, and dimensions.
2. Panel thickness and fastener type and size.
3. Finishes.
4. Joint and connection details.
5. Erection details.
6. Panel frame details for typical panels including sizes, spacings, thicknesses, and yield strengths of various members.
7. Locations and details of connection hardware attached to structure.
8. Sizes, locations and details of flex, gravity, and seismic anchors for typical panels.
9. Relationship to adjacent materials.
10. Shop Drawings for Mock-ups: Include plans, elevations, sections, details and attachments to other work.

C. Samples: Representative of finished exposed face of solid exterior A|UHPC panel. For each color and pattern specified, submit a minimum of two samples, each not less than 6 by 6 inches, and of actual thickness. Each sample to be labeled and dated. Approved sample to be stamped approved and returned to manufacturer for reference.

D. Delegated-Design Submittals:
1. For Exterior Solid UHPC Wall Panel, support system, fasteners and anchors to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

2. Panel Layout drawings indicating actual sizes of panels with anchor/fastener locations, drawings coordinating panel rails and may include sub-girts and wall bracket layouts along with typical details and unique transition conditions details. Drawing shall be utilized for review and approval and shall be utilized for purposed of coordinating with other trades and verification of field conditions and measurements by installing contractor.

E. Quality Assurance Submittals:
1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics and physical properties.
2. Independent QMS Certification and Listing Document
3. Manufacturer's quality documentation:

a. Certified Test Results

b. KORSA Aggregate Acceptance Guidelines (if applicable)

c. Uncrating, Storage, + Handling

d. Field Cutting Instructions-Wet

e. Field Drilling Instructions-Wet

F. Closeout Submittals:
1. Operation and Maintenance Data:

a. Operation and maintenance data for installed products in accordance with Division 01 Closeout Submittals (Maintenance Data and Operation Data) Section.

b. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.

c. Manufacturers Limited Liability Product Warranty

1.9 QUALITY ASSURANCE

A. Fabricator/Installer Qualifications:
1. Installer shall be experienced in performing work with thin concrete cladding panels of similar type and scope. Supervisors and installers shall have a minimum 5 years' experience of projects of similar type.

B. Mock-ups:
1. Build mock-up indicated on Drawings to verify material selections made under sample submittals to demonstrate assembly of full-scale components and details.
2. Build mock-up, including insulation, supports, attachments and accessories for typical conditions/parts not to exceed one (1) window surround, cornice section and or building corner and not more than 100 square foot area.
3. Evaluation and acceptance of mockup shall be in accordance with the manufacturer's Quality Management, Tolerances and Acceptance criteria submittal document.
4. Approval of mock-up does not constitute approval of deviations from the Contract Documents contained in mock-ups unless Architect specifically approves such deviations in writing.
5. Note to Specifier: Panels are made to order for Mock-up panels, and cannot represent all of the potential conditions, natural variations in color/ finish or aesthetic effects for the full façade installation. Mock-up approval criteria is therefore within the context of the associated panel product submittal documents.

C. Pre-installation Meetings:
1. Conduct pre-installation meeting to verify project requirements, substrate conditions, and manufacturers' installation instructions.

2. Conduct observation and evaluation of not less than the first 300 sf area installed with report by cladding installer's representative.

1.10 DELIVERY, STORAGE AND HANDLING

A. Deliver exterior solid UHPC wall panels and support system components packaged to comply with manufacturers' requirements and adequately protected from damage during shipment.

B. Protect components from adverse job conditions prior to installation.

C. Protect components from damage after installation including staining or solvents used in adjacent work, impact damage and abrasion, etc.

D. Panels are to be stored and handled vertically until installed.

E. Store exterior solid UHPC wall panels and support system components on platforms or pallets, covered with tarpaulins so that water accumulations will drain freely.

F. Store with non-staining resilient spacers between panels. with suitable ventilation.

G. Do not store exterior solid UHPC wall panels and support system components in contact with other materials that might cause staining, denting, surface damage or other deleterious effects.

1.11 PROJECT CONDITIONS

A. Field Measurements: Installer to verify locations of structural members and wall opening dimension by field measurements before concrete panel fabrication and indicate measurements on Shop Drawings.
1. Established Dimensions: Where field measurements cannot be made without delaying the Work, either establish framing and opening dimensions and process with fabricating concrete panels without field measurements or allow for field trimming of panels. Coordinate wall construction with all trades to ensure that actual building dimensions, locations of structural members, and opening correspond to established dimensions.
2. Field trimming is required for all penetrations through panels.

1.12 WARRANTY

A. Special Warranty: Installer agrees to repair or replace components of cladding support system that do not comply with requirements or that fail in materials or workmanship within the specified warranty period.
1. Failures include the following:

a. Structural Failure includes excessive deflection.

b. Noise and Vibration created by structural movement.

c. Deterioration of metals and other materials beyond normal weathering.

d. Water penetration through wall, fixed glazing and framing areas

2. Warranty Period from Date of Substantial Completion

a. Cladding Support system: 5 years.

b. A|UHPC Panel: Per manufactures Limited Liability Warranty: Twenty (20) years.

1.13 FM GLOBAL REQUIREMENTS

A. FM Global approval will be required for this system(s), product(s) outlined in this Section.

B. In general, all materials used in this construction should be, in order of preference, non-combustible, FM Approved or Class 1 where applicable. FM Approved products are all marked with the FM APPROVAL mark. This includes, but is not limited to ducts, pipes, plastic construction materials, and insulations. The Approval Guide, a publication of FM Approvals, may be referenced at www.approvalguide.com.

C. If it is found that a specified system, product or material does not meet FM Global's recommendations and requirements immediately bring it to the attention of the Architect for review.

1.14 FAÇADE MATERIALS INCLUDING COLUMN WRAPS

A. FM Global advises the use of noncombustible or FM Approved products / materials for the exterior wall veneer/façade. FM Global recommends against the use of metal composite panels since there are currently no FM Approved aluminum composite material (ACM) or metal composite material (MCM) panel exterior wall assemblies (FM Approval 4411, Cavity Wall Systems) as detailed in Section 2.2.15 of FM Global Property Loss Prevention Data Sheet 1-57 *Plastics in Construction.* It is FM Global's stance to use a noncombustible, FM Approved or Class 1 rated non-plastic material instead (such as a solid metal or aluminum panel). If the installation of an ACM or MCM panel, FM Global to consider the use of ACM/MCM panels tolerable (for this installation only), complete details of the finalized ACM/MCM wall assembly and all the materials in the wall assembly should be provided for review, and ALL the following must be verified:
   1. Plastic wall panels are discouraged for use; noncombustible panels/finishes are preferred. It is FM Global's best advice to not use plastics in construction when possible; however if unavoidable, plastic panels (including but not limited to insulated metal panels, fiberglass reinforced plastic panels, translucent panels, sound absorbing foam wall panels, etc.) must be FM Approved and installed in accordance with their Approval Guide listing and per FM Global Property Loss Prevention Data Sheet 1-57 *Plastics in Construction.* FM Approved panels can be found in the Approval Guide under "Walls, Ceilings and Associated Equipment". Product data sheets for plastics in construction should be submitted for review, if applicable.

PART 2 - PRODUCTS

2.1 SOLID EXTERIOR UHPC WALL PANELS

A. Manufacturers: The construction documents are based on the manufacturer and product/system noted below. As such, TAKTL is a pre-approved Manufacturer for the scope described under this section. Other manufacturers will be considered, provided that they submit for approval according to the Part 1 "Quality Assurance" provisions of this specification section.

B. Basis of Design Product/Manufacturer: TAKTL Exterior Patterned Wall and Facade Panels (Standard +), factory-formulated with TAKTL ultra high-performance concrete and reinforced with alkali-resistant (AR) glass mesh, factory-mixed and manufactured; complying with ASTM C1186. Type A, Grade IV. Phone: 412-486-1600; www.taktl-llc.com
   1. Approved equals will be considered.

C. Panel Performance Characteristics:
   1. Thermal Expansion (ASTM C531-00): 6.41E-06 in/in/degree F (0.01 inches per meter at 40-degree temperature change
   2. Material Behavior in Vertical Tube Furnace @ 750 degrees C (ASTM E136-09): Pass
   3. Density – Thin Panel (ASTM C1185-08): 137 lbs./ft³.
   4. Flexural Strength (Thin Panel) – Dry (ASTM C1185-08): Pass, Mean length direction not less than 3,800 lbs./in² and width direction 3,600 lbs./in².
   5. Flexural Strength (Thin Panel) – Wet (ASTM C1185-08): Pass, Mean length direction not less than 3,800 lbs./in² and width direction 3,400 lbs./in².

6. Freeze/Thaw (Cladding) (ASTM C1185-08): Pass. No visible cracks and not less than 90% post-exposure strength retention.
7. Moisture Content – Thin Panel (ASTM C1185-08): Less than 1.0%
8. Moisture Movement – Thin Panel (ASTM C1185-08): 0.00%
9. Warm Water (ASTM C1185-08): Pass. No visible cracks or structural alteration. Not less than 90.0% ratio of retained post-exposure strength.
10. Water Absorption - Thin Panel (ASTM C1185-08): less than 4.0%
11. Water Tightness (ASTM C1185-08): Pass. No water droplet formation.
12. Anchor Pullout Strength (ASTM E488-96): 10mm embed in 16mm thick panel.

    a. Tension (Min. Mean) Peak Load – 520 lbf or greater.

    b. Shear (Min. Mean) Peak Load – 890 lbf or greater.

    c. TAKTL's Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements:
        1) Tension (min. mean) Peak Load: 692 lbf (F.O.S. 4.0)
        2) Recommended Design Value: 520 lbf (F.O.S.3.0)
        3) Shear (min. mean) Peak Load: 1187 lbf (F.O.S. 4.0),

    a. Recommended Design Value: 890 lbf (F.O.S. 3.0)

13. Surface Burning Characteristics (ASTM E84-09):

    a. Flame Spread – Pass

    b. Smoke Developed – Pass

    c. Class A.

14. Colorfastness & Weathering (500 hours) (ASTM G155-05a & D2244-09a):

    a. 2.07 delta E. without coating standard, varies with pigment type, texture and coating.

15. Compressive Strength (ASTM C109): ≥ 12,000 lbs./in² (83MPA) to 18,000 (124 MPa).
16. Tensile (splitting matrix prism) Strength (ASTM C496): 1,319 lbs./in² (9 MPa).

D. Panel Finishes:
1. Finish exposed, front-facing surface of UHPC as follows, to match approved design reference sample. Panel faces shall be free of joint marks, grain or other obvious defects.
2. Design Reference Sample:

    a. Pattern: As indicated on Drawings.

    b. Pattern Direction: As indicated on Drawings.

E. Panel Sizes: Vary and as indicated on approved panel/part layout.

F. Panel Dimensional Tolerances

G. Panel Thickness: 5/8”

H. Panel Edges: As indicated on Drawings.

I. Panel Weight: Per panel thickness indicated on Drawings.

2.2 SUPPORT STRUCTURE (provided by Installing contractor)

A. Support Structure:
1. Complete sub-frame assembly to support and anchor solid exterior solid UHPC wall panels. Aluminum support structure to be anchored to building structure.

B. Components:
1. Horizontally oriented concealed fastener attachment system support bracket/angle bracket anchored directly to building structure.
2. Vertical girt profile, shelf shimming extrusions or cold formed channels that fasten into support brackets and supports.
3. For Concealed Anchor Attachment Horizontal support rails: TAKTL Hardware TM Extruded Aluminum ‘C’ shaped rails with ‘mated’ ‘C’ clips attached to girt profile which provides means to suspend UHPC wall panels. Rails to be painted black. Fasteners: Corrosion-resistant stainless-steel fasteners and anchors of type, size and spacing required for type of substrate and project conditions.

a. Basis-of-Design Product/Manufacturer (Concealed): KEIL Concealed Anchoring System for Facade Panels, provided by panel manufacturer.

2.3 AUXILIARY MATERIALS (provided by installing contractor

A. Adhesives & Sealants: As recommended in UHPC panel manufacturer's written instructions (to be determined per application).

B. Sub-frame Connections Stainless Steel Drill Screws: Of sufficient lengths and sizes to securely fasten support structure to building wall framing members, and as follows:
1. Screws complying with ASTM C 1002 for fastening to steel members less than 0.033 inches thick.
2. Screws complying with ASTM C 954 for fastening to steel members from 0.033 to 0.112 inches thick.

C. Sub-frame Materials
1. Aluminum Extrusions: ASTM B 221, Alloy 6005 T5.
2. Aluminum Sheet: ASTM B 209, Alloy 6061-T5
3. Carbon Steel Shapes and Plates: ASTM A 36, finished as follows (to be modified as needed by specifier)

a. Shop primed with paint complying with MPI#79 on surfaces prepared to comply with SSPC-SP 2, “Hand Tool Cleaning” or better.

b. Stainless steel Bars and shapes: ASTM A 276, Type 304 or better.

c. There are areas where subframing may be exposed. This should be painted. Color per Architect.

d. Provide separation of dissimilar metals to prevent galvanic corrosion.

2.4 FABRICATION

A. Fabricate wall panels and accessory items in accordance with manufacturers’ recommendations and approved submittals.

B. Panels shall be fabricated to size, with all concealed/undercut OR visible fastened anchor holes factory-drilled by the UHPC panel manufacturer.

C. Field-cut panels and drill face-fastening anchor holes in accordance with the UHPC panel manufacturer’s written directions.

D. Do not field-modify factory-drilled concealed/undercut panel anchor holes.

E. Fabricate all panels to profiles, colors and textures per samples and approval selected by the Architect.

F. Fabricate panels in accordance with manufacturers' Quality Management System Tolerances and Acceptance Criteria.

G. Closure panels and trim to prevent bird nesting and to conceal subframing.

2.5 FABRICATION TOLERANCES

A. Retain one of two "Manufacturing Tolerances" paragraphs below. Retain first if incorporating tolerances by reference; retain second if detailed listing is required.

B. Manufacturing Tolerances: Manufacture UHPC panels so each finished unit complies with the following dimensional tolerances.
1. Overall Height and Width of Units, Measured at the Face of Panel: plus or minus 1/16 inch.
2. Weight of finished panels not to exceed 7.4 psf.
3. Texture and Reveal Depth: Maximum 1/8 inch.
4. Thickness: 5/8 inch, Plus or minus 1/16 inch. Average per ASTM C1185
5. Variation from Square or Designated Skew (Difference in Length of Two Diagonal Measurements): Plus, or minus 1/16 inch per 72 inches or plus or minus 1/8-inch total, whichever is greater.
6. Local Smoothness: 1/8 inch per 10 feet.
7. Pre-drilled anchor location: Plus or minus 1/16 inch

C. Position Tolerances: Cladding Installation and Enclosure Fabricators comply with tolerances Measured from datum line locations, as indicated on Shop Drawings.
1. Bowing: Not to exceed L/240 unless unit complies with erection tolerances using connection adjustments. Flatness measured as installed (not panel alone).
2. Length and Width of Block Outs and Openings within One Unit: Plus, or minus 1/4 inch.
3. Location of Window Opening within Panel: Plus, or minus 1/4 inch.
4. Maximum Permissible Warpage of One Corner out of the Plane of the Other Three: 1/16 inch per 18 inches of distance from nearest adjacent corner.
5. Position Tolerances: Panel Alignment: Plus, or minus 1/8 inch.
6. Special Handling Devices: Plus, or minus 3 inches. (where applicable)
7. Location of Bearing Devices: Plus, or minus 1/16 inch.
8. Cutouts: Plus, or minus 3/8 inch. Refer to manufacturer’s guide to cutouts and notching of panels in the field cutting instructions.

D. Color Variation and Aggregate Distribution Variation Acceptance Criteria: Per Manufacturer’s Tolerances and Acceptance Criteria.

E. Blemishes and Chips Acceptance Criteria: Per Manufacturer’s Tolerances and Acceptance Criteria.

F. Acceptance of installed panels shall be assessed when viewed from a distance of 20 ft., under even light, and from a position 90 degrees to the building elevation.

PART 3 - EXECUTION

3.1 MANUFACTURERS’ INSTRUCTIONS

A. Compliance: Comply with manufacturers’ product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.2 EXAMINATION

A. Examine structure and conditions for compliance with requirements for installation tolerances, true and level bearing surfaces, and other conditions affecting performance of the Work.

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

3.3 ERECTION/INSTALLATION – DELEGATED DESIGN

A. Install wall reinforcements, channel cleats, clips, hangers, and other accessories required for connecting UHPC wall panels to supporting members and backup materials per project/façade engineers approved design.

B. Provide miscellaneous reinforcement of adhered panel parts and unitized panel parts per manufacturer and installation contractor’s engineer.

C. Lift UHPC wall panels and install without damage.

D. Install UHPC panels level, plumb, square and in alignment.

E. Provide temporary supports and bracing as required to maintain position, stability, and alignment of panels until permanent connections are completed.
1. Maintain horizontal and vertical joint alignment and uniform joint width.
2. Remove temporary shims, wedges, and spacers as soon as possible after connecting is complete.
3. Remove temporary projecting hoisting devices.

3.4 ERECTION TOLERANCES

A. Erect UHPC panels to comply with the following noncumulative tolerances:
1. Plan Location from Building Grid Datum: Plus or minus 1/2 inch
2. Top Elevation from Nominal Top Elevation as follows:

    a. Exposed Panel Face Relative to Adjacent Panel: 3/16 inch
3. Support Elevation from Nominal Elevation as follows:

    a. Maximum Low: 1/8” inch

    b. Maximum High: 1/8 inch
4. Maximum Plumb Variation over the Lesser of Height of Structure or 100 feet: 1 inch
5. Plumb in any 10 feet of Element Height: 1/4 inch.
6. Maximum Offset in Vertical/Horizontal Alignment of Matching Edges: 1/8 inch
7. Face Width of Joint as follows (governs over joint taper):

    a. Panel Dimension 12 feet or Less: 1/4 inch
8. Maximum Joint Taper in 10 Feet: 1/8 inch for 1/2" inch joint
9. Differential Bowing, as Erected, between Adjacent Members of Same Design: 1/4 inch
10. TAKTL adheres to ICC-ES AC10 Quality Requirements in accordance with TAKTL's Evaluation Service Report.

3.5 CLEANING AND PROTECTION

A. Perform cleaning procedures according to UHPC panel manufacturer's written instructions.

B. Clean soiled UHPC surfaces with water, using soft fiber brushes and sponges, and rinse with clean water. Mild detergent may be used if water alone is not satisfactory. Power washing is permitted, if the spray is

not concentrated and nozzle is not held within 5 ft. for the panel surface. Prevent damage to UHPC surfaces and staining of adjacent materials.

C. Should the standard cleaning procedure be found deficient in special circumstances, do not proceed without consulting with the manufacturer.

D. Prevent damage to UHPC surfaces and staining of adjacent material.

E. The installer is responsible for removing all metal, and UHPC scraps, clips, or fasteners along with crates and packing materials from this work, from the site when the installation is complete.

END OF SECTION 07 4247

SECTION 07 9200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Nonstaining silicone joint sealants.
3. Urethane joint sealants.
4. Mildew-resistant joint sealants.
5. Butyl-rubber based joint sealants.
6. Acoustic sealants.
7. Immersible joint sealants.

B. Related Requirements:

1. Division 32 for sealing joints in paved roads, parking lots, walkways and curbing.

2. Section 07 9219 ACOUSTICAL JOINT SEALANTS

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Product Test Reports: For each kind of joint sealant, for tests performed by manufacturer and witnessed by a qualified testing agency.

C. Preconstruction Laboratory Test Schedule: Include the following information for each joint sealant and substrate material to be tested:

1. Joint-sealant location and designation.
2. Manufacturer and product name.
3. Type of substrate material.
4. Proposed test.
5. Number of samples required.

D. Preconstruction Laboratory Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation are needed for adhesion.

E. Preconstruction Field-Adhesion-Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.

F. For alternative acoustic sealants not listed in Part 3 Execution section submit sample sealant to acoustical consultant for minimum 7 days of review to determine hardening.

G. Field-Adhesion-Test Reports: For each sealant application tested.

H. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer. Installer must submit proof of at least five years successful experience applying products of the type specified.

B. Product Testing: Test joint sealants using a qualified testing agency.

1. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

C. Mock-ups: Install sealant in mock-ups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.7 ACOUSTIC REQUIREMENTS

A. The acoustic sealant shall be a permanently resilient, non-hardening, non-bleeding, caulking material. The elastomeric qualities of the acoustic sealant shall comply with all performance requirements of sealants specified at similar locations as indicated in the contract documents.

B. Sealant shall be permanently resilient and capable of high elongation, +/- 50%. Fire rated acoustic sealants shall also be permanently resilient and capable of a +/- 25% elongation.

C. Acoustic sealants are divided into two categories – concealed and exposed. Concealed type sealants are non-paintable and will be used in applications that do not have visual impact. Exposed sealants will be

used in applications that will be visible in their untreated or pigmented state or will be painted per the Architect. All fire rated sealants are listed as concealed sealants.

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Laboratory Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

1. Adhesion Testing: Use ASTM C 794 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
2. Compatibility Testing: Use ASTM C 1087 to determine sealant compatibility when in contact with glazing and gasket materials.
3. Stain Testing: Use ASTM C 1248 to determine stain potential of sealant when in contact with masonry substrates.
4. Submit manufacturer's recommended number of pieces of each type of material, including joint substrates, joint-sealant backings, and miscellaneous materials.
5. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
6. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures, including use of specially formulated primers.
7. Testing will not be required if joint-sealant manufacturers submit data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, staining of, and compatibility with joint substrates and other materials matching those submitted.

B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:

1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
2. Conduct field tests for each kind of sealant and joint substrate.
3. Notify Architect seven days in advance of dates and times when test joints will be erected.
4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.
   a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

      1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.9 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.10 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period for Silicone Sealants: 20 years from date of Substantial Completion.
2. Warranty Period for Urethane Sealants: 5 years from date of Substantial Completion

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

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

2.2 NONSTAINING SILICONE JOINT SEALANTS

A. Silicone, Nonstaining, S, NS, 50, NT: Nonstaining, single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Dow Corning Corporation.
   b. GE Construction Sealants; Momentive Performance Materials Inc.
   c. Pecora Corporation.
   d. Sika Corporation; Joint Sealants.
   e. Tremco Incorporated.

2.3 URETHANE JOINT SEALANTS

A. Urethane, S, NS, 25, NT: Single-component, nonsag, nontraffic-use, plus 25 percent and minus 25 percent movement capability, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. BASF Corporation; Construction Systems.
   b. Pecora Corporation.
   c. Sika Corporation; Joint Sealants.
   d. Tremco Incorporated.

B. Urethane, S, P, 25, T, NT: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type S, Grade P, Class 25, Uses T and NT.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. BASF Corporation; Construction Systems.
      b. Pecora Corporation.
      c. Polymeric Systems, Inc.
      d. Sherwin-Williams Company (The).

C. Urethane, M, P, 50, T, NT: Multicomponent, pourable, plus 50 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type M, Grade P, Class 50, Uses T and NT.
   1. Manufacturers: Subject to compliance with requirements, provide products by the following:
      a. LymTal International Inc.
      b. Sika Corporation; Joint Sealants.

2.4 MILDEW-RESISTANT JOINT SEALANTS

A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Dow Corning Corporation.
      b. GE Construction Sealants; Momentive Performance Materials Inc.
      c. Pecora Corporation.
      d. Tremco Incorporated.

2.5 BUTYL-RUBBER BASED JOINT SEALANTS

A. Butyl-Rubber-Based Joint Sealants: ASTM C 1311.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Bostik, Inc.
      b. Pecora Corporation.

2.6 LATEX JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Pecora Corporation.
      b. Sherwin-Williams Company (The).
      c. Tremco Incorporated.

2.7 ACOUSTIC JOINT SEALANTS

A. Acoustic Sealant for Exposed and Concealed Joints: For each product of this description indicated in the Acoustic Joint-Sealant Schedule at the end of Part 3, provide manufacturer's standard nonsag, paintable, nonstaining sealant complying with ASTM C 834 and the following:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Hilti, Inc.
      b. Pecora Corporation.
      c. Specified Technologies, Inc.
      d. Tremco Incorporated.

2. Sealant shall be permanently resilient and capable of high elongation, +/- 50 percent.
3. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
4. See also requirements of Section 7 9219 ACOUSTICAL JOINT SEALANTS

2.8 IMMERSIBLE JOINT SEALANTS

A. Polyurethane, Immersible, S, NS, 50, T, NT, I: Immersible, single-component, nonsag, plus 50 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Uses T, NT, and I. Product to be compliant with below grade sheet waterproofing.
1. Manufacturers: Subject to compliance with requirements, provide products by the following:
a. Tremco, Dymonic 100.

2.9 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

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

2.10 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.

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

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
   a. Concrete.
   b. Masonry.
   c. Unglazed surfaces of ceramic tile.
   d. Exterior insulation and finish systems.

3. Remove laitance and form-release agents from concrete.

4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
   a. Metal.
   b. Glass.
   c. Porcelain enamel.
   d. Glazed surfaces of ceramic tile.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.
   a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed and cured sealant joints as follows:
   a. Perform 10 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.

2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
   a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

3. Inspect tested joints and report on the following:
   a. Whether sealants filled joint cavities and are free of voids.
   b. Whether sealant dimensions and configurations comply with specified requirements.
   c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion complies with sealant manufacturer's field-adhesion hand-pull test criteria.

4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant material, sealant configuration, and sealant dimensions.

5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT-SEALANT SCHEDULE

A. Exterior joints in horizontal traffic surfaces.

1. Joint Locations:
    a. Isolation and contraction joints in cast-in-place concrete slabs.
    b. Other joints as indicated on Drawings.

2. Joint Sealant: Urethane, M, P, 50, T, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces subject to water immersion.

1. Joint Locations:
    a. Joints in pedestrian plazas.
    b. Joints in swimming pool decks.
    c. Other joints as indicated on Drawings.

2. Joint Sealant: Polyurethane, immersible, S, P, 50, T, NT, I.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:
    a. Construction joints in cast-in-place concrete.
    b. Control and expansion joints in unit masonry.
    c. Joints between metal panels (where required by system specified).
    d. Joints between different materials listed above.
    e. Perimeter joints between materials listed above and frames of doors, windows and louvers.
    f. Control and expansion joints in ceilings and other overhead surfaces.
    g. Other joints as indicated on Drawings.

2. Joint Sealant: Silicone, nonstaining, S, NS, 50, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Interior joints in horizontal traffic surfaces.

1. Joint Locations:
    a. Isolation joints in cast-in-place concrete slabs.
    b. Control and expansion joints in stone or tile flooring.
    c. Other joints as indicated on Drawings.

2. Joint Sealant: Urethane, S, P, 25, T, NT.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:
   a. Control and expansion joints on exposed interior surfaces of exterior walls.
   b. Tile control and expansion joints.
   c. Vertical joints on exposed surfaces of concrete walls.
   d. Other joints as indicated on Drawings.

2. Joint Sealant: Urethane, S, NS, 25, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

F. Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement.

1. Joint Locations:
   a. Control joints on exposed interior surfaces of exterior walls.
   b. Perimeter joints between interior wall surfaces and frames of interior doors windows and elevator entrances.
   c. Other joints as indicated on Drawings.

2. Joint Sealant: Acrylic latex.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

G. Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:
   a. Joints between plumbing fixtures and adjoining walls, floors and counters.
   b. Tile control and expansion joints where indicated.
   c. Other joints as indicated on Drawings.

2. Joint Sealant: Silicone, mildew resistant, acid curing, S, NS, 25, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

H. Interior joints in acoustically rated partitions and assemblies.

1. Joint Locations:
   a. Base and head conditions in acoustic partitions,
   b. Penetrations through one or both sides of acoustic partitions.

2. Joint Sealant: Acoustic sealant.
3. Joint Sealant Color: As selected by Architect from manufacturer's full range of colors.

I. Concealed mastics.

1. Joint Locations:
   a. Aluminum thresholds.
   b. Sill plates.
   c. Other joints as indicated on Drawings.

2. Joint Sealant: Butyl-rubber based.

J. Exterior Joints below grade.

1. Joint Locations:
   a. Concrete joints below grade.

2. Joint Sealant: Polyurethane, immersible, S,NS,50,T,NT,I.

3. Joint Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 07 9200

SECTION 08 4113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Provide a copy of all applicable drawings, including shop drawings, specifications and installation instructions at the site during all work covered under this Section.

1.2 SUMMARY

A. Section Includes: Aluminum Storefront, including:
   1. YKK AP Series YES 45 XT Storefront System.

B. Related Sections:
   1. Sealants: Refer to Division 07 Joint Treatment Section for sealant requirements.
   2. Glass and Glazing: Refer to Division 08 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 4413.10 Glazed Aluminum Curtain Walls.

1.3 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 maximum allowable infiltration when tested in accordance with ASTM E 283 at differential static pressure of 6.24 PSF.
   2. Water Infiltration: No uncontrolled water when tested in accordance with ASTM E 331 at test pressure differential of: 10 PSF (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: As indicated on Drawings.
         2) Negative Pressure: As indicated on Drawings.
         3) Interior Walls (Pressure Acting in Either Direction): As indicated on Drawings.
   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 or 3/4" maximum.
      b. With Horizontals: L/175 or L/240 + 1/4" for spans greater than 13'-6" but less than 40'-0".
   5. Thermal Movement: Provide for thermal movement caused by 180 degrees F 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_f): A minimum of 66 (with a CRF_g of 64.)
      b. Thermal Transmittance U Value: 0.36 BTU/HR/FT²/°F or less.
   7. Acoustical Performance: Acoustical Performance: When tested in accordance with AAMA 1801:
      a. Sound Transmission Class (STC) shall not be less than 32 for 1” standard insulating unit; 36 for laminated glazing.
      b. Outdoor–Indoor Transmission Class (OITC) shall not be less than 27 for 1” standard insulating unit; 30 for laminated glazing.

1.4 SUBMITTALS

A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 01 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 01 Project Closeout (Project Record Documents) Section.

1.5 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.

1.6 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.

1.7 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

2.1 MANUFACTURERS

A. Acceptable Manufacturers: YKK AP America Inc. 101 Marietta Street NW, Suite 2100, Atlanta, GA 30303, Telephone: (678) 838-6000,

B. Storefront System: YKK AP YES 45 XT Storefront System.
   1. Storefront Framing System:
      a. Description: Center set, exterior flush glazed; jambs and vertical mullions continuous; head, sill, intermediate horizontal attached by screw spline joinery.
      b. Components: Manufacturer's standard extruded aluminum mullions, 90-degree corner posts, entrance door framing, and indicated shapes.
      c. Dual Thermal Barrier: Provide dual continuous thermal barriers by means of poured and debridged pockets 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.

2.2 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" minimum thickness.
   2. Painted Finish: ASTM B 209 (ASTM B 209M), 3003-H14 Aluminum Alloy, 0.080" minimum thickness.

2.3 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.

2.4 RELATED MATERIALS (Specified in other Sections)

A. Glass: Refer to Division 08 Glass and Glazing Section for glass materials.

2.5 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 of finish or material distortion will be rejected.

2.6 FINISHES AND COLORS

A. YKK AP America Anodized Plus Finish: As indicated on Drawings or if not indicated as selected from manufacturer’s full range of options.

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.
         1) CASS Corrosion Resistance Test, CASS 240/ASTM B368 Test Method.
         2) 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.
      e. Color: Medium Bronze anodized

C. High Performance Organic Coating Finish (west façade only):
   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: As indicated on Drawings or if not indicated as selected from manufacturer’s full range of options.

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

3.1 MANUFACTURER'S INSTRUCTIONS / RECOMMENDATIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, installation instructions, and product carton instructions. The latest installation manual is available at www.ykkap.com.

3.2 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.

3.3 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.

3.4 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 manufacturer’s 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.

3.5 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.

3.6 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 08 4113

SECTION 08 4413.10 - GLAZED ALUMINUM CURTAIN WALLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Provide a copy of all applicable drawings, including shop drawings, specifications and installation instructions at the site during all work covered under this Section.

1.2 SUMMARY

A. Section Includes: Glazed Aluminum Curtain Walls:
   1. YKK AP Series YCW 750 Four Side SSG Aluminum Curtain Wall System

B. Related Sections:
   1. Sealants: Refer to Division 07 Joint Treatment Section for sealant requirements.
   2. Glass and Glazing: Refer to Division 08 Glass and Glazing Section for glass and glazing requirements.

1.3 SYSTEM PERFORMANCE DESCRIPTION

A. Performance Requirements: Provide aluminum curtain wall systems that comply with performance requirements indicated, as demonstrated by testing manufacturer's assemblies in accordance with test method indicated.
   1. Air Infiltration: Completed curtain wall systems shall have 0.06 CFM/FT² maximum allowable infiltration when tested in accordance with ASTM E 283 at differential static pressure of 6.24 PSF.
   2. Water Infiltration:
      a. ASTM E 331 at a static pressure of 15 PSF (718 Pa).
      b. AAMA 501 at a dynamic pressure of 15 PSF (718 Pa).
   3. Wind Loads: Completed curtain wall system shall withstand wind pressure loads normal to wall plane indicated:
      a. Exterior Walls:
         1) Positive Pressure: As indicated on Drawings.
         2) Negative Pressure: As indicated on Drawings.
      b. Interior Walls (Pressure Acting in Either Direction): As indicated on Drawings.
   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. For spans less than 13'-6": L/175 or 3/4" maximum.
      b. For spans greater than 13'-6" but less than 40'-0": L/175 or L/240 + 1/4".
      c. Single lite edge of glass deflection shall be limited to 3/4" along any length of supported glass edge.
   5. Thermal Movement: Provide for thermal movement caused by 180 degrees F 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:
      a. Thermal Performance for YCW 750 SSG when tested in accordance with AAMA 1503 and NFRC 102:
         1) Thermal Transmittance U Value:
            a) Shop Glazed: 0.36 BTU/HR/FT²/ºF or less.
            b) Field Glazed: 0.38 BTU/HR/FT²/ºF or less.
         2) Condensation Resistance Factor (CRF_f):
            a) Shop Glazed: A minimum of 80.
            b) Field Glazed: A minimum of 76.

7. Acoustical Performance: When tested in accordance with ASTME 90 and AAMA 1801:
    1) Sound Transmission Class (STC) shall not be less than:
        a) 1” IGU; 33, 1” Laminated; 37 (Shop Glazed)
        b) 1” IGU; 33, 1” Laminated; 36 (Field Glazed)
    2) Outdoor–Indoor Transmission Class (OITC) shall not be less than:
        a) 1” IGU; 26, 1” Laminated; 31 (Shop Glazed)
        b) 1” IGU; 27, 1” Laminated; 31 (Field Glazed)

1.4 SUBMITTALS

A. General: Prepare, review, approve, and submit specified submittals in accordance with “Conditions of the Contract” and Division 01 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 curtain wall 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 01 Project Closeout (Project Record Documents) Section.

1.5 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: As indicated on Drawings.
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.

1.6 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.

1.7 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 ten (10) 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.

C. Delegated Design:
   1. Design glazed aluminum curtain walls, including comprehensive engineering including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: YKK AP America Inc. 101 Marietta Street NW, Suite 2100, Atlanta, Georgia 30303. Telephone: (678) 838-6000; Fax: (678) 838-6001
   1. Curtain Wall System: YKK AP YCW 750 XT SSG Aluminum Curtain Wall System.

B. Curtain Wall Framing System:
   1. Two Side SSG - framing shall be thermally improved. Intermediate vertical mullions shall be structural silicone glazed with no exposed exterior aluminum. Horizontal members and jambs shall have a nominal face dimension of 2-1/2”.
   2. Four Side SSG - Intermediate vertical mullions and horizontal members shall be structural silicone glazed with no exposed exterior aluminum. Perimeter members shall include perimeter trim with 1” face dimension.

2.2 MATERIALS

A. Extrusions: ASTM B 221 (ASTM B 221M), 6063-T5 and 6063-T6 Aluminum Alloys.

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

2.3 ACCESSORIES

A. Manufacturer’s Standard Accessories:
   1. Fasteners: Zinc plated steel concealed fasteners; Hardened aluminum alloys or AISI 300 series stainless steel exposed fasteners, countersunk, finish to match aluminum color.
   2. Sealant: Non-skinning type, AAMA 803.3

3. 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.
4. Provide brackets, armatures plates, fasteners, etc. for complete installation of entry signage brow.
   a. Finish: match curtain wall system.
5. Provide aluminum infill panels and back panels as indicated at main entrance
   a. Finish: match curtain wall system.

2.4 RELATED MATERIALS (Specified in other Sections)

A. Glass: Refer to Division 08 Glass and Glazing Section for glass materials.

2.5 FABRICATION

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

2.6 FINISHES AND COLORS

A. YKK AP America Anodized Plus Finish: As indicated on Drawings or if not indicated as selected from manufacturer's full range of options.

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. Color: medium bronze anodized.

~~C. High Performance Organic Coating Finish:~~
~~1. Fluoropolymer 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: As indicated on Drawings or if not indicated as selected from manufacturer's full range of options.~~

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

3.1 MANUFACTURER'S INSTRUCTIONS / RECOMMENDATIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, installation instructions, and product carton instructions. The latest Installation Manual can be found at www.ykkap.com.

3.2 EXAMINATION

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

3.3 PREPARATION

A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

3.4 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 curtain wall system allows water entering system to be collected in gutters and wept to the exterior. Verify weep holes are open and metal joints are sealed in accordance with manufacturer's installation instructions.
   4. Seal metal to metal curtain wall system joints using sealant recommended by system manufacturer.

3.5 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 curtain wall system. Conduct test in accordance with AAMA 501.2.

3.6 ADJUSTING AND CLEANING

A. Adjusting: Adjust operating items as recommended by manufacturer.

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 installed product's finish surfaces from damage during construction.

END OF SECTION 08 4413.10

SECTION 09 6510 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Resilient base.
2. Resilient accessories
3. Resilient stair treads

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.

C. Samples for Initial Selection: For each type of product indicated.

D. Samples for Verification: For each type of product indicated and for each color, texture, and pattern required in manufacturer's standard-size Samples, but not less than 12 inches long.

E. Product Schedule: For resilient base and accessory products. Use same designations indicated on Drawings.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern and size of resilient product installed.

1.5 QUALITY ASSURANCE

A. Resilient Wall Base Adhesive VOC Limits: Use adhesives and sealants that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA method 24):

1. Cove Base Adhesives: 50 g/L

1.6 DELIVERY, STORAGE AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.7 FIELD CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following time periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 RUBBER BASE

A. Products: Subject to compliance with requirements, provide rubber base products as indicated in the Finish Legend provided on the individual Finish Plans:

1. Rubber base manufactured by other manufacturers may be considered, provided deviations in project performance, recycled content, details, dimensions, textures, style, patterns and colors are minor and do not change the design concept as judged by the Architect. The burden of proof is on the proposer.

B. Size: As indicated on the drawings.

C. Color: As indicated on the drawings.

2.2 RUBBER MOLDING ACCESSORY

A. Provide products from same manufacturer as rubber base.

B. Description: Rubber transition strips.

C. Profiles and Dimensions: As selected from manufacturer’s standard shapes and sizes.

D. Locations: Provide rubber molding in areas indicated.

2.3 RESILIENT STAIR TREADS

A. Basis of Design: Nora Systems, Inc. 9 Northeastern Blvd., Salem, NH 03079. www.nora.com
1. Product: Norament Refer to finish Legend for additional selections. Final Selection by architect.
2. ASTM Specification: ASTM F2169 Standard Specification for Resilient Stair Treads Type TS, Class 2, can be Group 1 and/or 2 and Grade 2

3. Material Composition: nora vulcanized rubber compound 926 with environmentally compatible color pigments that are free of toxic heavy metals like lead, cadmium, or mercury
4. Construction: Homogeneous rubber compound
5. Limited Wear Warranty: 15 years
6. Color: See finish legend
7. Surface: Hammered and smooth
8. Back of Stair Tread: Double-sanded smooth
9. Thickness: 5 mm (~0.20 in)
10. Substrate Preparation: Per ASTM F710 and the nora Installation Instructions
11. Cleaning: Cleaned and maintained effectively using water and a DoodleBug™ pad holder with a 3M™ #5300 (blue) cleaning pad, without the use of any factory and/or field-applied coatings. Also, without using any chemicals that may be hazardous or containing any teratogenic, mutagenic or any other ingredients known to be carcinogenic. Refer to nora Maintenance Guidelines for product specific details.

2.4 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

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

1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

C. Do not install resilient products until they are the same temperature as the space where they are to be installed.

1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.

D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

H. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.

    a. Form without producing discoloration (whitening) at bends.

2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.

    a. Miter corners to minimize open joints.

3.4 RESILIENT ACCESSORY AND STAIR TREAD INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient accessories and stair treads.

B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

3.5 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

B. Perform the following operations immediately after completing resilient-product installation:

1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum horizontal surfaces thoroughly.

C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 09 6510

SECTION 096519 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Rubber floor tile.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For each type of resilient floor tile.

   1. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
   2. Show details of special patterns.

C. Samples: Full-size units of each color, texture, and pattern of floor tile required.

   1. For heat-welding bead, manufacturer's standard-size Samples, but not less than 9 inches (230 mm) long, of each color required.

D. Samples for Initial Selection: For each type of floor tile indicated.

E. Samples for Verification: Full-size units of each color and pattern of floor tile required.

   1. For heat-welding bead, manufacturer's standard-size Samples, but not less than 9 inches (230 mm) long, of each color required.

F. Welded-Seam Samples: For seamless-installation technique indicated and for each floor covering product, color, and pattern required; with seam running lengthwise and in center of 6-by-9-inch (150-by-230-mm) sample applied to a rigid backing and prepared by Installer for this Project.

G. Product Schedule: For floor tile. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run**,** that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Floor Tile: Furnish one box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.

1. Engage an installer who employs workers for this Project who are trained or certified by floor tile manufacturer for installation techniques required.

B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Coordinate mockups in this Section with mockups specified in other Sections.

a. Size: Minimum 100 sq. ft. (9.3 sq. m) for each type, color, and pattern in locations directed by Architect.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C). Store floor tiles on flat surfaces.

1.9 FIELD CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C), in spaces to receive floor tile during the following periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).

C. Close spaces to traffic during floor tile installation.

D. Close spaces to traffic for 48 hours after floor tile installation.

E. Install floor tile after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For resilient floor tile, as determined by testing identical products according to ASTM E648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

2.2 RUBBER FLOOR TILE

A. Basis of Design: Nora Systems, Inc. 9 Northeastern Blvd., Salem, NH 03079. www.nora.com
1. Product: Norament Kivo Refer to finish Legend for additional selections. Final Selection by architect.

B. Tile Standard: ASTM F1344, Class I-B, Homogeneous Rubber Tile, through mottled.

See "Rubber Floor Tile" Article in the Evaluations for a discussion of hardness values.

C. Hardness: Grade 2, minimum hardness of 70, measured using Shore, Type A durometer according to ASTM D2240.

D. Thickness: 2.7mm

E. Size: 1004 mm x 1004 mm.

F. Colors and Patterns: Refer to finish legend.

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.

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

3.2 PREPARATION

A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates: Prepare according to ASTM F710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
4. Moisture Testing: Perform tests so that each test area does not exceed 1000 sq. ft. (304.8 sq. m), and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

    a. Anhydrous Calcium Chloride Test: ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
    b. Relative Humidity Test: Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install floor tiles until materials are the same temperature as space where they are to be installed.

1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.3 FLOOR TILE INSTALLATION

A. Comply with manufacturer's written instructions for installing floor tile.

B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.

1. Lay tiles in pattern indicated

C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.

1. Lay tiles as indicated on the Drawings.

D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.

Retain first paragraph below for floor tile installed on floor covers.

G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.

Revise first paragraph below if other-than-full-spread adhesive method is recommended by manufacturer for substrate and tile products.

H. Adhere floor tiles to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.

B. Perform the following operations immediately after completing floor tile installation:

1. Remove adhesive and other blemishes from surfaces.
2. Sweep and vacuum surfaces thoroughly.
3. Damp-mop surfaces to remove marks and soil.

C. Protect floor tile from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Cover floor tile until Substantial Completion.

END OF SECTION 096519

SECTION 09 6710 - RESINOUS FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Provide a seamless resinous flooring system with integral cove base, where indicated and as indicated herein.

B. The Work of this Section includes:
   1. Patching and repair of existing or new concrete substrate
   2. On-site verification testing of substrate for humidity prior to installation of system

1.3 SUBMITTALS

A. Product Data: Include material specifications, installation instructions, and installation recommendations from the manufacturer.

B. Manufacturer Certification: Provide letter of certification from flooring manufacturer indicating that installer is an Approved Applicator of flooring system and is familiar with proper procedures and installation requirements required by manufacturer.

C. Samples:

   1. Submit samples actual material and texture to Architect for approval.

1.4 INFORMATIONAL SUBMITTALS

A. Certificate of Acceptance: Of substrate conditions, signed by Contractor and Installer, indicating written acceptance of floor substrate conditions before beginning Work, and referencing acceptability of test reports performed.

B. Maintenance Instructions: Submit maintenance instructions and manufacturer’s recommended maintenance practices for each type of flooring required.

1.5 QUALITY ASSURANCE

A. Regulatory Compliance
   1. Comply with applicable requirements of the United States Department of Agriculture (USDA), the Food & Drug Administration (FDA), and with requirements of the local Health Department. Comply with the Indoor Air Quality (IAQ) requirements of California Section 01350 as verified by a qualified independent testing laboratory (submit testing report upon request).

B. Installer Qualifications
   1. Approved applicator by resinous flooring manufacturer, with a minimum of 15 resinous flooring applications within last 3 years similar in type and size to Work of this Contract. Assign experienced installer from previous applications including lead tradesperson.

C. Material Compatibility
   1. Provide primers and undercoat material produced by the same manufacturer as the finish coats. Use only thinners recommended by the manufacturer, and only within recommended limits.

1.6 MOCK-UP

A. Prior to starting work, install a minimum 100-square foot mock-up sample with not less than ten (10) feet of integral base of the required color and texture, which upon approval, will serve as the standard for installation of the entire Project.

B. Mock-up area may remain in place as installed product, upon approval of the manufacturer and the Architect.

1.7 DELIVERY, STORAGE AND HANDLING

A. Store materials in dry, enclosed area protected from exposure to moisture. Maintain temperature of storage area between 60- and 90-degrees-F. Store materials for three days prior to installation in area of installation to achieve temperature stability.

1.8 FIELD CONDITIONS

A. Protect the Work of other trades, whether to be coated or not, against damage from coating. Correct damage by cleaning, repairing, replacing, and recoating as acceptable to the Architect. Leave in an undamaged condition.

B. Take necessary precautions to ensure that workmen and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing and application special flooring materials.

C. Areas of installation must be broom clean and reasonably dust free, with adequately controlled ventilation and uniform, bright lighting of not less than 50 FC. Maintain a minimum temperature of 55 degrees F for not less than three (3) days before installation, and for not less than 48 hours after completion of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. BASIS-OF-DESIGN: Stonhard “Stonclad GR” System or equivalent by the following:
   1. Dur-A-Flex.
   2. Treadwell.
   3. Desco
   4. Approved equals will be considered.

B. SYSTEM DESCRIPTION: Self-leveling slurry-coat of epoxy resin containing multi-sized aggregates to achieve color and texture, without use of pigmented epoxy base or top coats, with 3-coats of urethane resin finish to achieve surface indicated, with a slip-resistant topcoat for wet areas or as otherwise indicated:
   1. Installed System Thickness: Minimum 1/8-inch.
   2. Surface Texture: As indicated on Drawing.
   3. Finish: Semi-Gloss.
   4. Color: As indicated on Drawings or as selected by Architect from manufacturer’s full range of available color options.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content and other conditions affecting performance of the Work.

B. Verify finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale and foreign deposits that might interfere with adhesion of resilient products.

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

3.2 MECHANICAL ABRASIVE PREPARATION

A. Clean existing surfaces with manufacturer’s recommended cleaner. Remove all traces of cleaner from slabs and allow to dry thoroughly.

B. Remove all existing sealers, efflorescence, chalk, dust, dirt, release agents, grease, oils by roughening concrete surfaces with a shotblaster, a scarifier, a diamond grinder or other approved mechanical abrasive system in accordance with manufacturer's requirements. Substrate must have a minimum profile of CSP 4 to 5 as described by the International Concrete Repair Institute. Areas not accessible to mobile blast machine must be mechanically abraded to the same profile with diamond grinders, needle guns, bush hammers or other approved equipment.

C. Chisel or chip-out cracks and non-moving joints greater than 1/4-inch-wide and repair per manufacturer’s recommendations. At spalled or worn areas of substrate, mechanically remove loose or delaminated concrete and patch per manufacturer’s recommendations.

D. Saw-cut edge treatment: At free edges under doors, wall perimeters, expansion joints, columns, drains and equipment pads, cut-in a minimum 1/4-inch-deep by 3/16-inch-wide keyway.

E. Continue abrasive operations until test for sealer passes. The prepared concrete surface must have a surface profile equivalent to 40 - 60 grit sandpaper. Grind protrusions smooth and fill voids with a filler approved for use by the manufacturer.

3.3 CONCRETE SUBSTRATE TESTING

A. Perform testing recommended by flooring materials manufacturers, and as follows. Proceed with installation only if testing indicates compliance with requirements:
   1. Test for concrete sealer by pouring a small amount of muratic acid on the floor in several locations. If "frothing" occurs instantly, the existing floor sealer remains.
   2. Alkalinity Testing: Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
   3. Relative Humidity Testing: Per ASTM F2170 using in-situ probes. Proceed with installation only if substrates have a maximum 75-percent relative humidity level measurement.
   4. Testing Frequency: Perform tests so that each test area does not exceed 200 sq. ft. and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

3.4 APPLICATION OF FLOORING

A. Initiation of coating application represents acceptance and approval of substrate conditions by the Installer.

B. Prime clean and prepare concrete substrate per manufacturer's instructions and allow to fully cure. Prime wall base surfaces, in accordance with recommendations of manufacturer.

C. Apply masking tape at bottom of door frames, around pipes and conduits in the floor surface, and against adjacent surfaces wherever coating is intended to terminate. Protect the Work of other trades, whether to be coated or not, against damage from the coating or from coating applications.

D. Mix, prepare and apply materials in full compliance with the manufacturer's instructions. Stir materials before application to produce a mixture of uniform density, and as required during application.

E. Apply primer to prepared surfaces, by trowel or brush. Apply evenly without puddles. Allow primer to become tacky for approximately 30-minutes before applying base coat.

F. Apply additional base coat(s) if necessary, to obtain a uniform surface appearance, within 18 hours of application of the previous coating. Sand all ridges, if any, with coarse sandpaper before applying additional coats. Apply successive coats at a 90-degree angle to the previous application.

G. Provide a smooth coved base of base coat material and extend up substrate wall surface. Apply three (3) coats of resin to assure a smooth surface and cove, trowel applied. Hand sand cove base to be smooth and without imperfections or depressions.

H. Remove, refinish or recoat work not in compliance with these requirements.

3.5 CLEANING AND PROTECTION

A. Clean adjacent spattered surfaces upon completion of work. Remove spattered coatings by washing, scraping or other proper methods, using care not to scratch or damage adjacent finished surfaces. Correct damage to other trades by cleaning, repairing, replacing, and recoating as acceptable to the Owner. Leave in an undamaged condition.

B. Provide caution signs to protect newly applied finishes. Remove temporary protective wrappings after completion of coating operations. Do not allow any water on coated surfaces for 48-hours after installation, and do not allow any traffic on floor until fully cured.

C. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

D. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

E. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION 09 6710

SECTION 10 2200 - PARTITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes

1. Framing system
2. Glazing materials
3. Doors and frames
4. Hardware
5. Finishes

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination Procedures:

1. Scheduling: Manufacturer production time shall not exceed four weeks from date of receipt of approved shop drawings.

B. Preinstallation Meeting Attendees and Procedures: Conduct meeting one week, minimum, before starting Work of this Section.

1.4 ACTION SUBMITTALS

A. Product Data:

1. Demountable partition system components. Mark required options. Include standard details applicable to Project.
2. Doors and hardware.
3. Glazing.

B. Shop Drawings:

1. Plans, elevations, sections, and details.
2. Show anchorages to other construction, including concealed supports in walls.
3. Door locations, hardware and details.

C. Samples: Provide manufactures standard size samples for verification of support system and each type, color, and texture of exposed finish, full thickness:

1. Aluminum Extrusion Components.
2. Glass.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Partitions and facing.

B. Warranty Documentation: For specified system.

C. Installation drawing: Indicating final locations of components.

1.6 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturers: Specialize in designing and manufacturing stick-built partitions and have production facilities capable of single-source responsibilities and warranty.
2. Installers: Manufacturer or approved by Manufacturer.

B. Certifications: From Contractor for sound transmission characteristics.

1.7 DELIVERY, STORAGE AND HANDLING

A. Do not deliver products until building is enclosed.

B. Store products inside building.

C. Protect components and finishes from damage.

D. Handle in accordance with the manufacturer’s instructions.

1.8 FIELD CONDITIONS

A. Ambient Conditions: Perform work within following limitations:

1. Building enclosed and environmental systems maintaining design conditions for Owner occupancy.
2. Temperature: 60 degrees F, minimum, 90 maximum degrees F, maximum.
3. Humidity: 25 percent, minimum, 55 percent, maximum.

B. Existing Conditions: Verify site dimensions before project approval and fabrication. Show site dimensions on production drawing.

1.9 WARRANTY

A. Manufacturer Warranties:

1. Partition System Components: Repair or replacement of defective components of site assembled structure, cladding system and components.
2. Warranty Period: 10-year limited warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Manufacturer: Falkbuilt Ltd.

2.2 SYSTEM DESCRIPTION

A. Factory fabricated, site installed partitions, including:

1. Steel framing structure.
2. Doors, millwork, finishes, building services components, technology and accessories.

2.3 PERFORMANCE REQUIREMENTS

A. Structural Performance: Stick-built partitions shall be capable of withstanding the effects of gravity loads, dead loads, and the following loads and stresses within limits and under conditions indicated:

1. Deflection: Lateral deflection tested under a uniformly distributed load of 5 psf, maximum.

a. Glass Walls: L/175 or 3/4 inch whichever is less.

B. Acoustical Performance: Provide stick-built partitions with STC rating indicated, determined by testing to ASTM E90 and classified in accordance with ASTM E413.

2.4 FRAMING SYSTEM

A. Description: Modular system for partitions that can be readily dismantled and reinstalled in other locations.

B. Framing, Fixed Glazed Wall System: ASTM B221 Alloy 6063-T6 Extruded aluminum, Framed and Butt-jointed.

1. Product:

a. Kai: Adjustable glass wall.

2. Profile Dimensions:

a. Base Height: 2-1/2 inches.
b. Head Height: 2-1/2 inches.
c. Width: 2-1/2 inches.
d. Frame Depth: 1-5/8 inches.

3. Glass Thickness: 1/2 inch.

4. STC Rating: 36 & 39.

5. Finish: Powder coat.

a. Color: Custom color to match curtainwall framing.

6. Leveler Stem: Manufacturer's standard screw adjusted leveling system.

a. Base Adjustability Range: Plus or minus 1/2 inch.
b. Head Adjustability Range: Plus or minus 1 inch.

7. Fasteners: Zinc plated steel, type F.

2.5 GLAZING MATERIALS

A. Safety Glazing Labels: Permanent certification label in visible location of SGCC or other agency acceptable to authorities having jurisdiction.

B. Base Glass:

1. Clear Glass: ASTM C1036, Type I, Class 1, Quality-Q3.

a. Tempered Glass: 1/2".

C. Laminated Acoustic Glass:

1. 1/2 inch.

2.6 DOORS AND FRAMES

A. Swinging Doors:

1. Wood Swinging Doors: Flush wood doors with transparent finish.

a. Flush Wood Doors: As specified in Division 08 Section “Flush Wood Doors”.
b. Hinge: Butt.

B. Butt Hinge Frames: Aluminum frame single door.

1. Finish: Powder coat.

a. Color: Custom color to match curtainwall framing.

2.7 HARDWARE

A. Hardware:

1. Lever Set: ANSI A156.2.

a. Function: ~~To Be Determined.~~ Refer to Door Schedule and Section 087100 Door Hardware.
b. Finish: ~~To Be Determined.~~ Refer to Door Schedule and Section 087100 Door Hardware.
c. Core: ~~To Be Determined.~~ Refer to Door Schedule and Section 087100 Door Hardware.

B. Miscellaneous available hardware. Refer to Door Schedule and Section 087100 Door Hardware.

1. Magnetic Locks:
2. Card Readers:
3. Electric Strikes:
4. Panic Hardware:
5. Push to Exit

C. Hinges:

1. Butt: ~~Manufacturer's standard.~~ Refer to Door Schedule and Section 087100 Door Hardware.

2. Finish: ~~To Be Determined.~~ Refer to Door Schedule and Section 087100 Door Hardware.

D. Locks:

2.8 FABRICATION

A. Framing:

1. Fabricate components for installation with concealed fasteners and pressure fit.
2. Fabricate components for installation utilizing fasteners for use in gypsum board ceilings, seismic applications, and doors at base building components.
3. Fabricate components for concealed anchorage and assembly fasteners.
4. Where partitions join fixed construction or require sound attenuation, use manufacturer's standard seals around perimeter.
5. Conceal wiring in frame components. Bundle, lace, and train conductors to terminal points with no excess.

B. Prepare doors and frames for hardware.

C. Swinging Doors: Fabricate for 1/8 inch jamb and head clearance, 1/4 inch floor clearance.

2.9 ALUMINUM FINISHES

A. Powder Coating: Thermoset polyester; AAMA 2603 but 1.5 mil minimum dry film thickness.

1. Color: Custom color to match curtainwall framing.

PART 3 - EXECUTION

3.1 INSTALLERS

A. Manufacturer of partitions or manufacturer approved and trained installer.

3.2 EXAMINATION

A. Verify locations of concealed construction for support and anchorage.

B. Verify that openings are plumb, level and square.

C. Verify that floor and ceiling surfaces are in plane.

3.3 PREPARATION

A. Clean floor, wall and ceiling contact surfaces.

B. Vacuum clean carpet below sill members.

3.4 INSTALLATION

A. General:

1. Comply with manufacturer's installation instructions.
2. Do not cut metal components except where trimming is indicated on Shop Drawings.
3. Install system without gaps at joints with other construction.

B. Framing:

1. Install framing plumb, accurately aligned, and free of warp or twist.
2. Install components with securely fastened full-contact joints.
3. Anchor framing system rigidly and securely to adjacent construction without damaging surfaces.
4. Install perimeter gaskets without gaps to provide continuous light and acoustical seals.

C. Glazing:

1. Install glass panels per factory-numbered sequence.
2. Install glass on resilient setting blocks in glazing channels.
3. Install glazing gaskets with joints only at corners and to provide continuous barrier to air and sound.
4. Install glass panels with open vertical joints of uniform width.
5. Double Glazing: Clean surfaces that will be inaccessible after installation in framing.

D. Swinging Doors:

1. Install doors with uniform jamb and head clearance.
2. Adjust doors for smooth, accurate operation and secure latching.
3. Adjust closers for ADA compliance.

E. Sliding Doors:

1. Align track for smooth, quiet operation.
2. Adjust end stops for accurate closed and fully open positions.

F. Systems Integration:

1. Coordinate wiring connections.

G. Tolerances:

1. Plumb: 1/8-inch maximum deviation.
2. Plane: 1/8-inch maximum deviation in 12 feet.
3. Level: 1/8-inch maximum deviation in 12 feet for top of sill.

3.5 CLEANING

A. Clean in accordance with the manufacturer's instructions.

1. Do not use alkaline or abrasive agents.
2. Do not scratch or mar finishes.

B. Provide new replacements for components that are damaged or have soiling or staining that cannot be satisfactorily cleaned.

3.6 CLOSEOUT ACTIVITIES

A. Demonstration: Manufacturer's Authorized Representative will coordinate demonstration with Owner's staff.

3.7 PROTECTION

A. Protection: Protect from damage through the duration of construction activities.

END OF SECTION 10 2200

SECTION 11 1233 – PARKING GATE OPERATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Vehicular gate operators.
2. Sensors and controls.

B. Related Requirements:

1. Section 05 1200 “Structural Steel”.
2. Section 26 0500 “Common Work Results for Electrical”.
3. Section 26 0533 “Raceway and Boxes for Electrical Systems”.

1.3 REFERENCES

A. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.

B. ASTM F 2200 - Standard Specification for Automated Vehicular Gate Construction.

1.4 ACTION SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

B. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

C. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data to include in maintenance manuals. Include maintenance data for each component.

1.6 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Not less than 10 years of experience in the actual production of specified products.

B. Installer Qualifications: Firm experienced in installation of systems similar in complexity to those required for this Project, plus the following:

1. Acceptable to the manufacturer.
2. Not less than 3 years of experience with systems.
3. Successfully completed not less than 5 comparable scale projects using this system.

1.7 WARRANTY

1. Warranty: Manufacturer's standard two year warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design manufacturer: SEA USA Inc., 10850 N.W. 21st, unit 160 Doral, Miami, FL 33172, 305.594.1151.

B. Request for substitutions will be considered in accordance with provisions of Section 01 6000 – Product Requirements

2.2 GATE OPERATORS

A. Swing Gate Operator: SEA Super Full Tank

B. Class III, when tested in accordance with UL 325.

C. Motor: 120 V, 3 phase; AC power.

D. Entrapment Protection: Gate stopped and internal alarm activated when sensing an entrapment, allowing entrapment opportunity to free self without outside intervention; requires reset switch activation to return to normal.

E. Magnetic lock

F. Control board and enclosure

G. Battery Powered Back Up DC Drive System: Powers barrier arm in case of power failure to operator; resets operator to normal operation when power resumes.

H. Provide all components for a fully functioning, code compliant and secure system with remote access control for the size, weight, and configuration of vehicular gate as shown in the Drawings, including loop detectors and call boxes.
1. Access control functionality to be coordinated with adjacent project.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Mount directly to steel frame/post.

C. Wire in accordance with national electric codes.

D. Enclose all splices in easily accessible junction boxes or on terminal boards.

E. Tag and identify all cable runs in all junction boxes.

F. Test system and adjust to assure components and accessories are hooked-up and in working order.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

3.5 MAINTENANCE

A. Provide Owner with two copies of operation, installation, and maintenance manuals including typical wiring diagrams.

B. Provide Owner with two copies of risers, layouts, and special wiring diagrams showing any changes to standard drawings.

C. Maintain at three-month intervals, checking external reversing devices once a month.

END OF SECTION 11 1233