ADDENDUM NUMBER THREE (3) TO THE PLANS AND SPECIFICATIONS FOR:

City of Port Aransas Public Safety Center Port Aransas, Texas Project No. 18.22

GIGNAC & ASSOCIATES 416 STARR STREET CORPUS CHRISTI, TEXAS 78401 (361) 884-2661



This addendum is generally separated into sections for convenience; however, all contractors, subcontractors, materialmen, and other parties shall be responsible for reading the entire addendum. The failure to list an item or items in all affected sections of this addendum does not relieve any party affected from performing as per instructions, provided that the information is set forth any time, any place in this addendum. These documents shall be attached to and become a part of the contract documents for this project.

BIDDERS' QUESTIONS:

- Question 1Please provide the wage rates for this project.Response:Use current and applicable Davis-Bacon wage rates.
- Question 2 On sheet CE3.00 it shows a sanitary sewer line and what appears to be a grease trap (if this is necessary please provide a cut sheet and specs for this product). If you go to the sheet P103 it does not show any sanitary sewer line existing the building at this location to tie into the grease trap. Please clarify what is needed at this location. Response:

No grease trap is required. Civil drawings have been revised and are included in this addendum.

Question 3 There is a spec for 09 69 00 Access Flooring but sheet A-101 Floor plan does not show where the access flooring is. Is there any access flooring specifically in the court room? Also it appears that the access flooring is in the dispatch room but the finish schedule does not show this.

Response:

Access Flooring is in Dispatch B117 only. Reference revised drawings and specification included in this addendum for additional information/clarification.

Question 4Specification section 05 52 13.16 is for Aluminum railings at the interior, but interior
elevations on A-114 state "Galv steel handrails". Which is the intent for this project?
Response:

The design intent is for <u>all</u> interior and exterior railings to be aluminum. Specification section 05 52 13.16 has been modified to include both interior and exterior railings. The revised spec. section is included in this addendum. The specification section 05 52 13 Steel Pipe & Tube Railings (Exterior) has been deleted in this addendum.

- Question 5Addenda 2 sheet AS-101 shows phase 2 parking area. Please confirm that this is a part
of this project. Is phase 2 for scheduling purposes?
Response:
Phase 2 parking area is included in the Scope of Work and shall be included as part of
base bid.
- Question 6There is no space for the Alternate Shade Structure on the Bid Form. Please provide an
updated bid form.
Response:
Updated bid form (Section 00 41 13) is included in this addendum and lists both
alternates listed in specification section 01 23 00 Alternates included in this addendum.
- Question 7
 Specifications call for AWI Certification on shop drawings.We have contractors that build to AWI standards, but they are not certified. Will non-AWI certified contractors be acceptable?

 Response:
 Non-AWI certified contractors are acceptable.

CLARIFICATION ITEMS:

Item C-1 Fences & Gates:

If there is any conflicting information between the Architectural Site (AS) sheets and the specification sections 32 31 14, 32 31 19, 32 31 19.13 & 32 35 00 included in this addendum, the specifications take precedence over the drawings.

SPECIFICATION ITEMS:

Item S-1 The following specification sections shall be added and become part of the contract documents: 01 23 00 05 50 00 05 51 33 08 11 77 08 34 63 08 56 19.13 09 50 00 09 84 33 10 11 16 10 11 43 10 26 23.13 10 26 41 10 28 00.10 10 28 13.63 10 43 00 10 51 26 10 51 53 107300 11 19 00 11 30 13 11 46 83 11 52 15 12 24 13 12 36 61.19

12 55 00

	14 10 00
	23 09 23
	32 31 14
	32 31 19
	32 31 19.13
	32 31 29
	32 35 00
Item S-2	The following specification sections shall replace previously issued specification sections
	of the same section number and shall become part of the contract documents:
	00 00 03
	00 41 13
	06 61 16
	08 71 00
	09 51 13
	09 65 13
	09 65 19.23
	09 69 00
	10 14 19
	13 31 23
	23 36 16
	32 33 13
Item S-3	The following specification sections shall be <u>deleted</u> from the contract documents:
	05 52 13
	06 41 17
	08 14 16
	08 56 20
	08 56 59
	12 21 13

PLAN ITEMS:

Item P-1	The following sheets shall be <u>added</u> and become part of the contract documents:
	A-700

Item P-2 The following sheets shall <u>replace</u> previously issued sheets of the same sheet number and shall become part of the contract documents: CE1.00

CE3.00 L-1.0 L-2.0 L-3.1 L-3.2 A-109 A-112 A-113 MEP-201 E-202 E-301 E-302 E-303 E-501 E-502 FA-101 P-201 P-203

END OF ADDENDUM-03



Job No: 6100.C3.01

June 19, 2023

Mr. Nick Gignac, Associate AIA Gignac Architects 416 Starr Corpus Christi, Texas 78401

Subject: Addendum #3 - City of Port Aransas Public Safety Building, Port Aransas, Texas

Dear Mr. Gignac:

The following plan and specification changes are included in the Civil portion of Addendum #2 for the City of Port Aransas Public Safety Building project:

1. <u>Civil Construction Plans</u>

Sheet CE3.00 – Utility Plan:

a) The proposed grease trap and proposed 6" gravity line has been removed from the north side of the building facing Avenue A.

Sheet CE1.00 – Existing Conditions and Demo Plan:

a) References that a portion of the existing gravity sanitary sewer line running south from the existing manhole shall remain have been removed from the plan. All of the existing gravity sanitary sewer line running south from the existing manhole near Avenue A south towards the proposed building shall be removed.

The only existing gravity sanitary sewer line to remain is the line running west from the existing manhole. This line continues into the site and all of the proposed sanitary sewer from the proposed building will tie into it.

Regards, URBAN ENGINEERING, LLC

Stephen P. Grunewald, P.E Project Engineer sgrunewald@urbaneng.com



ADDENDUM

VOHWINK

103809

IAN C.

ADDENDUM:

DATE: June 19, 2023

3

PROJECT: Port Aransas – Public Safety Center

PROJECT NO.: 32857.00

SPECIFICATIONS

MECHANICAL:

Item 1.	<u>Specification 230923 – Direct Digital Control System:</u>
	A) Add specification section in its entirety.
Item 2.	Specification 233616 – Air Terminal Units:
	A) Revised paragraph 2.6.

DRAWINGS

<u>ELECTRICAL</u> : Item 1.	<u>Sheet E-202 – ELECTRICAL LIGHTING PLAN – AREA B:</u>A) Adjust switch locations due to floor plan change.
Item 2.	 <u>Sheet E-301 - ELECTRICAL POWER PLAN - AREA A:</u> A) Add circuit for electric hand dryers in rooms A117, A107. B) Raise cable tray to be above ceiling in B101.
Item 3.	 <u>Sheet E-302 - ELECTRICAL POWER PLAN - AREA B:</u> A) Add circuit for electric hand dryers in rooms B112, B111, B122, B123, B127 B) Raise cable tray to be above ceiling in B101.
Item 4.	<u>Sheet E-303 – ELECTRICAL POWER PLAN – AREA C:</u> A) Update circuiting in C117.
Item 5.	<u>Sheet FA-101 – FIRE ALARM PLAN – FIRST FLOOR:</u> A) Show revised floor plan.
Item 6.	Sheet E-501 - SCHEDULES & DETAILS:A)Add hand dryers to equipment connection schedule. Update MPS-1.B)Update fixtures type S, S2 & S4.
Item 7.	Sheet E-502 - PANEL SCHEDULES:A)Update panel LA2 & LA3 schedules.

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Item 8. <u>Sheet MEP-201 – MEP SITE PLAN:</u> A) Designate phase 2 area.

PLUMBING:

<u>Sheet P-201 – PLUMBING PLAN – AREA A:</u>

- A) Added 1/2" cold water supply for <u>P-9A</u>.
- B) Added Ice Machine Box <u>P-9A</u>.

Item 2.

Item 1.

<u>Sheet P-203 – PLUMBING PLAN – AREA C</u>:

- A) Added 1/2" cold water supply for ice machine and <u>P-9A</u>.
- B) Added Ice Machine Box <u>P-9A</u>.

END OF NARRATIVE

- 00 00 01 COVER
- 00 00 02 TITLE PAGE
- 00 00 03 TABLE OF CONTENTS
- 00 01 07 SEALS PAGE

DIVISION ZERO - PROCUREMENT & CONTRACTING REQUIREMENTS

- 00 20 00 REQUEST FOR PROPOSALS
- 00 21 10 BID FORMAT
- 00 21 13 INSTRUCTIONS TO BIDDERS
- 00 21 13A AIA DOCUMENT A701 INSTRUCTIONS TO BIDDERS
- 00 22 13 SUPPLEMENTAL INSTRUCTIONS TO BIDDERS
- 00 25 13 PREBID MEETING
- 00 31 19 EXISTING CONDITION INFORMATION
- 00 31 21 EXISTING UTILITIES
- 00 31 32 GEOTECHNICAL DATA
- 00 31 32A GEOTECHNICAL REPORT- PORT ARANSAS HARBOR MASTER FACILITY
- 00 31 43 PERMIT APPLICATION
- 00 41 13 BID PROPOSAL FORM
- 00 43 13 BID SECURITY FORM
- 00 43 73 PROPOSED SCHEDULE OF VALUES FORM
- 00 50 00 AGREEMENT FORM
- 00 50 00A AIA DOCUMENT A101 STANDARD FOR OR AGREEMENT BETWEEN OWNER AND CONTRACTOR
- 00 50 00B AIA DOCUMENT A101 EXHIBIT A -INSURANCE AND BONDS
- 00 60 00 BONDS AND CERTIFICATES
- 00 70 00 GENERAL CONDITIONS
- 00 70 00A AIA DOCUMENT A201 2017 GENERAL CONDITION OF THE CONTRACTOR FOR CONSTRUCTION
- 00 73 00 SUPPLEMENTARY CONDITIONS TO AIA DOCUMENT A201 2017
- 00 73 43 WAGE RATE REQUIREMENTS

DIVISION ONE - GENERAL REQUIREMENTS

- 01 10 00 SUMMARY
- 01 21 00 ALLOWANCES
- 01 23 00 ALTERNATES
- 01 25 00 SUBSTITUTION PROCEDURES
- 01 26 00 CONTRACT MODIFICATION PROCEDURES
- 01 29 00 PAYMENT PROCEDURES
- 01 31 00 PROJECT MANAGEMENT & COORDINATION
- 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
- 01 32 33 PHOTOGRAPHIC DOCUMENTATION
- 01 33 00 SUBMITTAL PROCEDURES
- 01 40 00 QUALITY REQUIREMENTS
- 01 42 00 REFERENCES
- 01 50 00 TEMPORARY FACILITIES AND CONTROLS
- 01 60 00 PRODUCT REQUIREMENTS
- 01 73 00 EXECUTION
- 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
- 01 77 00 CLOSEOUT PROCEDURES
- 01 78 23 OPERATION AND MAINTENANCE DATA
- 01 78 39 PROJECT RECORD DOCUMENTS
- 01 79 00 DEMONSTRATION AND TRAINING

DIVISION TWO - EXISTING CONDITIONS

02 41 16 STRUCTURE DEMOLITION

DIVISION THREE - CONCRETE

03 10 00	CONCRETE FORMS
03 10 01	CONCRETE FORMWORK (CIVIL)
03 11 13	CONCRETE STRUCTURES (CIVIL)
03 20 00	CONCRETE REINFORCEMENT
03 20 01	CONCRETE REINFORCEMENT (CIVIL)
03 30 00	CAST-IN-PLACE CONCRETE
03 30 02	NORMAL WEIGHT AGGREGATE CONCRETE (CIVIL)
03 36 19	PENETRATING REACTIVE CONCRETE STAIN

DIVISION FOUR - MASONRY

04 22 00 CONCRETE UNIT MASONRY 04 22 00.16 PRE-FACED CONCRETE UNIT MASONRY

DIVISION FIVE - METALS

05 04 00	HOT DIP GALVANIZING
05 12 00	STRUCTURAL STEEL FRAMING
05 21 00	STEEL JOISTS

- 05 31 00 STEEL DECK
- 05 40 00 COLD FORMED METAL FRAMING
- 05 50 00 METAL FABRICATIONS
- 05 51 33 METAL ROOF LADDERS (ALUMINUM)
- 05 50 13 METAL BOLLARDS
- 05 52 13 STEEL PIPE & TUBE RAILINGS (EXTERIOR)
- 05 52 13.16 ALUMINUM RAILINGS (INTERIOR & EXTERIOR)

DIVISION SIX - WOOD AND PLASTICS

06 16 00 SHEATHING

- 06 41 13 WOOD VENEER FACED ARCHITECTURAL CABINETS
- 06 41 16 PLASTIC LAMINATE FACED ARCHITECTURAL CABINETS
- 06 41 17 PLASTIC LAMINATE-CLAD COUNTERTOPS
- 06 42 16 FLUSH WOOD PANELING
- 06 61 16 SOLID SURFACING FABRICATIONS

DIVISION SEVEN - THERMAL AND MOISTURE PROTECTION

- 07 21 13.13 FOAM BOARD INSULATION
- 07 21 16 BLANKET INSULATION
- 07 27 26 FLUID APPLIED MEMBRANE AIR BARRIERS
- 07 41 13.16 STANDING SEAM METAL ROOF PANELS
- 07 46 46 FIBER CEMENT SIDING
- 07 52 16.11 SBS MODIFIED BITUMEN MEMBRANE ROOFING
- 07 62 00 SHEET METAL FLASHING AND TRIM
- 07 72 00 ROOF HATCHES
- 07 84 46 THROUGH PENETRATION FIRESTOP SYSTEMS
- 07 92 00 JOINT SEALANTS

DIVISION EIGHT - DOORS AND WINDOWS

08 11 13 HOLLOW METAL DOORS AND FRAMES

08 11 13.19 SEVERE STORM HOLLOW METAL DOORS AND FRAMES

08 11 77 BULLET-RESISTANT STEEL DOORS & FRAMES

08-14-16 FLUSH WOOD DOORS

08 34 63 DETENTION DOORS & FRAMES

TABLE OF CONTENTS - Addendum-03

- 08 41 13 ALUMINUM FRAMED ENTRANCES AND STOREFRONTS (EXTERIOR)
- 08 41 13.16 INTERIOR ALUMINUM FRAMED ENTRANCES AND STOREFRONTS
- 08 56 19 INTERIOR SLIDING PASS THRU WINDOW
- 08 56 19.13 SECURITY ALUMINUM INTERIOR SLIDING SERVICE WINDOW
- 08 56 20 INTERIOR SLIDING SERVICE WINDOW
- 08 56 59 ALUMINUM CASHIER WINDOW 08 71 00 DOOR HARDWARE
- 08 80 00 GLAZING
- 08 88 53 SECURITY GLAZING
- 08 91 19 FIXED LOUVERS

DIVISION NINE - FINISHES

09 22 16 09 24 00	NON-STRUCTURAL METAL FRAMING
09 29 00	GYPSUM BOARD
09 30 00	TILING
<mark>09 50 00</mark>	ACOUSTICAL METAL CEILINGS
09 51 13	ACOUSTICAL PANEL CEILINGS
09 65 13	RESILIENT BASE AND ACCESSORIES (ALTERNATE NO. 2)
<mark>09 65 19.23</mark>	SOLID VINYL TILE FLOORING (LVT)
09 69 00	ACCESS FLOORING
<mark>09 84 33</mark>	SOUND-ABSORBING WALL UNITS
09 91 13	PAINTING

DIVISION TEN - SPECIALTIES

10 11 16	MARKERBOARDS
<u>10 11 43</u>	BULLETIN BOARD CABINETS
10 14 16	PLAQUES
10 14 19	DIMENSIONAL LETTER SIGNAGE
10 14 23	PANEL SIGNAGE
10 26 23.13	IMPACT-RESISTANT WALL PROTECTION
10 26 41	BULLET RESISTANT PANELS
10 28 00	TOILET AND BATH ACCESSORIES
10 28 00.10	WARM-AIR HAND DRYERS
10 28 13.16	DETENTION TOILET ACCESSORIES
10 41 16	EMERGENCY KEY CABINET (KNOX BOX)
10 43 00	EMERGENCY AID SPECIALTIES
10 44 16	FIRE EXTINGUISHER CABINETS AND ACCESSORIES
<u>10 51 26</u>	PLASTIC LOCKERS
<u>10 51 53</u>	LOCKER ROOM BENCHES
10 73 00	METAL (ALUMINUM) AWNINGS
10 75 00	FLAGPOLES

DIVISION ELEVEN - EQUIPMENT

11 19 00 DETENTION SURFACE PADDING SYSTE
--

- 11 30 13 RESIDENTIAL APPLIANCES
- 11 46 83 ICE MACHINES
- 11 52 15 ELECTRICALLY-OPERATED PROJECTION SCREENS

DIVISION TWELVE - FURNISHINGS

12 21 12	HORIZONTAL LOUVER BLINDS

- 12 24 13 ROLLER WINDOW SHADES
- 12 36 61.16 SOLID SURFACING COUNTERTOPS & WINDOWSILLS
- 12 36 61.19 QUARTZ SOLID SURFACING COUNTERTOPS
- 12 55 00 DETENTION FURNITURE

DIVISION THIRTEEN - SPECIAL CONSTRUCTION

13 31 23 FRAMED FABRIC STRUCTURES

DIVISION FOURTEEN - CONVEYING EQUIPMENT

14 10 00 DUMBWAITERS

DIVISION TWENTY ONE - FIRE SUPPRESSION

21 13 13 SPRINKLER SYSTEMS

DIVISION TWENTY TWO - PLUMBING

- 22 05 00 BASIC PLUMBING REQUIREMENTS
- 22 05 23 PLUMBING VALVES
- 22 05 29 PLUMBING SUPPORTS AND ANCHORS
- 22 05 53 PLUMBING IDENTIFICATION
- 22 07 00 PLUMBING INSULATION
- 22 08 00 PLUMBINGCOMMISSIONING OF PLUMBING SYSTEMS
- 22 20 00 PLUMBING PIPING AND SPECIALTIES
- 22 34 00 STORAGE WATER HEATERS
- 22 40 00 PLUMBING FIXTURES

DIVISION TWENTY THREE - HVAC

- 23 05 00 BASIC MECHANICAL REQUIREMENTS
- 23 05 29 SUPPORTS AND ANCHORS
- 23 05 48 MECHANICAL SOUND, VIBRATION AND SEISMIC CONTROL
- 23 05 53 MECHANICAL IDENTIFICATION
- 23 07 00 MECHANICAL INSULATION
- 23 08 00 COMMISSIONING OF HVAC SYSTEMS

23 09 23 DIRECT DIGITAL CONTROL SYSTEM

- 23 11 23 NATURAL GAS SYSTEM
- 23 23 00 REFRIGERANT PIPING SPECIALTIES
- 23 31 00 DUCTWORK AND ACCESSORIES
- 23 34 00 FANS
- 23 36 16 AIR TERMINAL UNITS
- 23 37 13 AIR DISTRIBUTION DEVICES
- 23 37 50 AIR INLET AND OUTLET LOUVERS
- 23 62 13 AIR COOLED CONDENSING UNITS
- 23 81 26 DUCTLESS SPLIT SYSTEM
- 23 82 19 FAN COIL UNITS
- 23 82 39 ELECTRIC HEATERS
- 23 90 00 TESTING, ADJUSTING AND BALANCING

DIVISION TWENTY SIX - ELECTRICAL

- 26 05 00 GENERAL REQUIREMENTS FOR ELECTRICAL WORK
- 26 05 19 WIRE AND CABLE (600 VOLTS AND LESS)
- 26 05 20 WIRE CONNECTIONS AND SPLICES (600 VOLTS AND LESS)
- 26 05 26 GROUNDING
- 26 05 33 RACEWAY SYSTEMS
- 26 05 34 BOXES, WIREWAYS AND AUXILIARY GUTTERS
- 26 05 35 VOICE AND DATA COMMUNICATION RACEWAY SYSTEM
- 06 05 36 WIRE BASKET CABLE SUPPORT SYSTEM
- 26 05 53 ELECTRICAL IDENTIFICATION
- 26 08 00 COMMISSIONING OF ELECTRICAL SYSTEMS
- 26 09 23 LIGHTING CONTROL DEVICES
- 26 22 13 DRY TYPE TRANSFORMERS
- 26 24 16 BRANCH CIRCUIT PANELBOARDS

- 26 27 26 WIRING DEVICES
- 26 28 00 OVERCURRENT PROTECTIVE DEVICES
- 26 28 16 DISCONNECT SWITCHES
- 26 32 13 PACKAGED ENGIN GENERATOR ASSEMBLIES
- 26 36 23 AUTOMATIC TRANFER SWITCHES
- 26 41 00 LIGHTING PROTECTI9ON SYSTEM
- 26 43 00 TRANSIENT VOLTAGE SURGE SUPPRESSION/ SURGE PROTECTIVE DEVICE
- 26 51 00 LIGHTING INTERIOR
- 26 56 00 EXTERIOR LIGHTING FIXTURES

DIVISION TWENTY-SEVEN - COMMUNICATIONS

NONE

DIVISION TWENTY-EIGHT - FIRE PROTECTION

28 31 00 FIRE DETECTION AND ALARM

DIVISION THIRTY-ONE - EARTHWORK

- 31 10 00 CLEARING, GRUBBING & STRIPPING
- 31 20 00 SITE EXCAVATIN AND FILL
- 31 22 13 SITE GRADING
- 31 23 00 STRUCTURAL EXCAVATION AND BACKFILL
- 31 23 16.13 PIPE TRENCH EXCAVATION AND BACKFIL
- 31 23 23 COMPACTED EMBANKMENTS
- 31 25 13 STORM WATER PREVENTION PLAN
- 31 25 13.1 LARGE CONSTRUCTION SITE NOTICE PRIMARY OPERATION
- 31 25 13.2 LARGE CONSTRUCTION SITE NOTICE SECONDARY OPERATION
- 31 31 16 TERMITE CONTROL
- 31 32 16 LABORATORY TESTING
- 31 63 29 DRILLED PIERS

DIVISION THIRTY-TWO - EXTERIOR IMPROVEMENTS

- 32 01 90 LANDSCAPE MAINTENANCE
- 32 11 33.13 PORTLAND CEMENT CONCRETE PAVEMENT
- 32 16 13.13 CONCRETE CURB, GUTTER AND CONCRETE VALLEY GUTTER
- 32 16 23 CONCRETE SIDEWALK AND CONCRETE DRIVEWAYS
- 32 31 13 CHAIN LINK FENCES (HEAVY DUTY)
- 32 31 14 CHAIN LINK GATES & GATE OPERATORS
- 32 31 19 DECORATIVE METAL (STEEL) PEDESTRIAN EGRESS GATE SYSTEM
- 32 31 19.13 DECORATIVE METAL (STEEL) FENCES, VEHICULAR GATES & GATE OPERATORS
- 32 31 29 WOOD FENCES & GATES
- 32 33 13 BIKE RACKS
- 32 35 00 DUMPSTER ENCLOSURE SCREENING GATES
- 32 84 00 LANDSCAPE IRRIGATION
- 32 91 13 SOIL PREPARATION
- 32 93 03 LANDSCAPE PLANTING

DIVISION THIRTY-THREE - UTILITIES

	33 05 05	INSTALLATION OF WATER PIPE
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- 33 05 05.31 HYDROSTATIC TESTING OF PRESSURE SYSTEM
- 33 05 05.11 INSTALLATION OF SANITARY SEWER PIPE
- 33 05 19 DUCTILE-IRON PIPE AND FITTINGS
- 33 05 31.16 POLYVINYL CHLORIDE PIPE AND FITTINGS
- 33 05 31.29 POLYVINYL CHLORIDE PIPE AND FITTING FOR DUCT
- 33 05 76 SANITARY SEWER MANHOLES
- 33 14 19 GATE VALVES
- 33 15 19.13 FIRE HYDRANTS

TABLE OF CONTENTS - Addendum-03

33 31 11 POLYVINYL CHLORIDE PIPE AND FITTINGS FOR SEWER LINES

END OF TABLE OF CONTENTS 00 00 03

DOCUMENT 00 41 13 - BID FORM - SINGLE-PRIME CONTRACT - Addendum-03

1.1 **BID INFORMATION**

- Α. Bidder:
- Β. Date & Time: June 22, 2023, at 2:00 p.m. CST
- C. Project Name: Public Safety Center - City of Port Aransas.
- D. Project Location: 705 W Avenue A, Port Aransas, TX 78373.
- Ε. Owner: City of Port Aransas.
- F. Architect: Gignac & Associates, LLP.
- G. Architect Project Number: 18.22
- CERTIFICATIONS AND BASE BID 1.2
 - Base Bid, Single-Prime (All Trades) Contract: The undersigned Bidder, having carefully examined the Α. Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, as prepared by Gignac Architects and Architect's consultants, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including all scheduled allowances, necessary to complete the construction of the above-named project, according to the requirements of the Procurement and Contracting Documents, for the stipulated sum of:

Dollars (\$).

1.3 ALTERNATES

- The undersigned Proposer proposes the amount below be added to or deducted from the Base Bid if Α. particular alternates are accepted by Owner. Amounts listed for each alternate include costs of related coordination, modification, or adjustment.
- If the alternate does not affect the Contract Sum, the Bidder shall indicate "NO CHANGE." В.
- The Bidder shall be responsible for determining from the Contract Documents the affects of each C. alternate on the Contract Time and the Contract Sum.
- Owner reserves the right to accept or reject any alternate, in any order, and to award or amend the D. Contract accordingly within 60 days of the Notice of Award unless otherwise indicated in the Contract Documents.
- Ε. Acceptance or non-acceptance of any alternates by the Owner shall have no affect on the Contract Time unless the "Schedule of Alternates" Article below provides a formatted space for the adjustment of the Contract Time.
- 1.4 SCHEDULE OF ALTERNATES (For further description of the alternates below, reference specification section 01 23 00).
 - Alternate No. One (1): 36'-0" W x 100'-0" L Fabric Framed Structure: Α.
 - ADD____DEDUCT____NO CHANGE____ 1.
 - 2. Dollars (\$_
 - ADD DEDUCT calendar days to adjust the Contract Time for this alternate. 3.
 - Alternate No. Two (2): 8" Rubber Base (Over 8" CMU Base) ILO 8" Pre-Faced (Glazed) CMU Base: Β. ADD____DEDUCT____NO CHANGE____ 1.
 - 2.

Dollars (\$_ DEDUCT calendar days to adjust the Contract Time for this alternate. 3. ADD

1.5 **ALLOWANCES**

The undersigned Bidder certifies that Base Bid submission includes those allowances described in the Contract Α. Documents and scheduled in Section 012100 "Allowances."

- 1.6 **BID GUARANTEE**
 - The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as Α. specified within 10 days after a written Notice of Award, if offered within 60 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid amount above:
 - 1. Dollars (\$). In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the Β.
 - undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.
 - C. Bidders agrees that the Owner has the right to accept or reject any or all bids and to waive all informalities.
 - D. The contractor acknowledges the prevailing wage rates for this county and agrees to provide actual wage rates to be paid upon award of the contract.

1.7 TIME OF COMPLETION

The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a Α. date specified in a written Notice to Proceed to be issued by Architect and shall fully complete the Work within _____ calendar days including anticipated inclement weather days and muddy ground

conditions davs.

- To work working days per week. Β.
- To start work days after notice of award of contract. C.

1.6 EXTRA WORK:

- The undersigned agrees that should any change in the work or extra work be ordered, the allowance for D. overhead and profit combined shall be as scheduled below, but in no case shall it exceed 8%. The following applicable percentages shall be added to the extra work cost as defined by Article 12 of the General Conditions.
- Ε. Allowance to the Contractor for overhead and profit for extra work provided by his own forces: 4%%
- F. Allowance to the Contractor for overhead and Profit for extra work provided by a subcontractor and supervised by the Contractor: 4%.
- G. The General Contractor shall not be allowed to charge the Owner for "extended overhead" changes relating to Change of Orders or anticipated weather delays.

ACKNOWLEDGEMENT OF ADDENDA 1.7

- The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid: H.
 - Addendum No. 1, dated ______. 1.
 - Addendum No. 2, dated ______. 2.
 - 3. Addendum No. 3, dated .

BID SUPPLEMENTS 1.8

- Α. The following supplements are a part of this Bid Form.
 - Bid Form Supplement Schedule of Values. 1.
 - 2. Bid Form Supplement - Bid Bond Form (AIA Document A310).
 - AIA Document A310, "Bid Bond," is the recommended form for a bid bond. A bid bond acceptable to Owner, or other bid security as described in the Instructions to Bidders, is required to be attached to the Bid Form as a supplement.

1.9 CONTRACTOR'S LICENSE

- The undersigned further states that it is a duly licensed contractor, for the type of work proposed, in the State of Α. Texas, Nueces County, City of Kingsville and that all fees, permits, etc., pursuant to submitting this proposal have been paid in full.
- The Bidder attests and affirms that he and his subcontractors are skilled and experienced in the use and В. interpretation of plans, specifications, addenda and related proposal documents and, that he has carefully reviewed the plans, specifications, addenda and related proposal documents for this project and has found them to be free of conflicts and/or ambiguities and sufficient for bid and construction purposes. Further, he has carefully examined the soils reports and the site of the work, and, through his own personal observations, has satisfied himself as to the nature, location and requirements of the work; the character, quality and quantity of materials required; the difficulties likely to be encountered; the other items and/or conditions which may affect the satisfactory performance of the work. He has based his bid solely on these documents, and personal observations, and has not relied in any way on any explanation or interpretation, oral or written, from any source other than those written and issued by the Architect/Engineer.

1.10 SUBMISSION OF BID

- Respectfully submitted this ____ day of _____, 2023. Α.
- В. Submitted By : _____(Name of bidding firm or corporation).
- Authorized Signature : ______(handwritten signature). C.
- D.
- Ε.

END OF DOCUMENT 00 41 13

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.
- PART 2 PRODUCTS (Not Used)
- PART 3 EXECUTION
- 3.1 SCHEDULE OF ALTERNATES:

A. Alternate # 1: 36'-0" W x 100'-0" L Fabric Framed Structure.

1. Alternate: Provide a 36'-0" W x 100'-0" L Fabric Framed Structure as identified in the plans as Alternate No. 1 and as specified under Structure #2 in specification section 13 31 23 FABRIC FRAMED STRUCTURES. (Structure #1 listed in section 13 31 23 is part of base bid).

B. Alternate # 2: 8" Rubber Base (Over 8" CMU Base) ILO 8" Pre-Faced (Glazed) CMU Base:

1. Alternate: Provide 8" Rubber Base per specification section 09 65 13 RESILIENT BASE & ACCESSORIES over exposed sides of the two rows of nominal 8"x16"x2" standard CMU base in lieu of the two rows of nominal 8"x16"x2" pre-faced (glazed) CMU base per specification section 04 22 00.16 PRE-FACED CONCRETE UNIT MASONRY.

END OF SECTION 01 23 00

SECTION 05 50 00 - METAL 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. Steel framing and supports for mechanical and electrical equipment.
- 2. Steel framing and supports for applications where framing and supports are not specified in other Sections.
- 3. Hoist beams, and divider beams.
- 4. Steel shapes for supporting dumbwaiter door sills.
- 5. Shelf angles.
- 6. Steel ladders. (Provide two steel ladders in Room B126. One ladder is to access the roof hatch above, the other ladder is the access the mezzanine level above.)
- 7. Metal pipe crossovers.
- 8. Miscellaneous steel trim including steel angle corner guards and steel edgings.
- 9. Loose bearing and leveling plates for applications where they are not specified in other Sections.
- B. Products furnished, but not installed, under this Section include the following:
 - 1. Loose steel lintels.
 - 2. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
 - 3. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.
- C. Related Requirements:
 - 1. Section 03 30 00 "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, slottedchannel inserts, wedge-type inserts, and other items cast into concrete.
 - 2. Section 04 20 00 "Unit Masonry" for installing loose lintels, anchor bolts, and other items built into unit masonry.
 - 3. Section 05 12 00 "Structural Steel Framing."

1.3 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. 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.

1.4 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Nonslip aggregates and nonslip-aggregate surface finishes.
 - 2. Prefabricated building columns.
 - 3. Metal nosings and treads.
 - 4. Paint products.
 - 5. Grout.
- B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:
 - 1. Steel framing and supports for mechanical and electrical equipment.
 - 2. Steel framing and supports for applications where framing and supports are not specified in other Sections.
 - 3. Hoist beams, and divider beams.
 - 4. Steel shapes for supporting dumbwaiter door sills.
 - 5. Shelf angles.
 - 6. Steel vertical ladder for access to roof hatch.
 - 7. Miscellaneous steel trim including steel angle corner guards.
 - 8. Loose steel lintels
- C. Delegated-Design Submittal: For ladders, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- 1.5 INFORMATIONAL SUBMITTALS
 - A. Qualification Data: For professional engineer.

- Β. Mill Certificates: Signed by stainless-steel manufacturers, certifying that products furnished comply with requirements.
- C. Welding certificates.
- Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying D. that shop primers are compatible with topcoats.
- Ε. Research/Evaluation Reports: For post-installed anchors, from ICC-ES.
- QUALITY ASSURANCE 1.6
 - Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Α. Welding Code - Steel."
 - Β. Welding Qualifications: Qualify procedures and personnel according to the following:
 - ÄWS D1.1/D1.1M, "Structural Welding Code Steel." AWS D1.2/D1.2M, "Structural Welding Code Aluminum." 1
 - 2.
 - AWS D1.6/D1.6M, "Structural Welding Code Stainless Steel." 3.
- 1.7 FIELD CONDITIONS
 - Field Measurements: Verify actual locations of walls and other construction contiguous with metal Α. fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

- PERFORMANCE REQUIREMENTS 2.1
 - Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Α. Requirements," to design ladders.
 - Β. Structural Performance of Aluminum Ladders: Aluminum ladders, including landings, shall withstand the effects of loads and stresses within limits and under conditions specified in ANSI A14.3.
 - C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
- Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces. 1. 2.2 METALS
 - Α. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
 - Recycled Content of Steel Products: Postconsumer recycled content plus one-half of pre-consumer Β. recycled content not less than 25.
 - C. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
 - Stainless-Steel Sheet, Strip, and Plate: ASTM A 240/A 240M or ASTM A 666, [Type 304] [Type 316L]. D.
 - Stainless-Steel Bars and Shapes: ASTM A 276, [Type 304] [Type 316L]. E.
 - F. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
 - G. Rolled-Stainless-Steel Floor Plate: ASTM A 793.
 - Steel Tubing: ASTM A 500/A 500M, cold-formed steel tubing. Η.
 - Steel Pipe: ASTM A 53/A 53M, Standard Weight (Schedule 40) unless otherwise indicated. Ι.
 - J. Zinc-Coated Steel Wire Rope: ASTM A 741.
 - 1. Wire-Rope Fittings: Hot-dip galvanized-steel connectors with capability to sustain, without failure, a load equal to minimum breaking strength of wire rope with which they are used.
 - K. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.
 - Size of Channels: 1-5/8 by 1-5/8 inches (41 by 41 mm) or as indicated. 1.
 - Material: Galvanized steel, ASTM A 653/A 653M, structural steel, Grade 33 (Grade 230), with 2. G90 (Z275) coating; 0.108-inch (2.8-mm) nominal thickness.
 - 3. Material: Cold-rolled steel, ASTM A 1008/A 1008M, structural steel, Grade 33 (Grade 230); 0.0966-inch (2.5-mm) minimum thickness; hot-dip galvanized after fabrication.
 - Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M, unless otherwise L. indicated.
 - Aluminum Plate and Sheet: ASTM B 209 (ASTM B 209M), Alloy 6061-T6. Μ.
 - Aluminum Extrusions: ASTM B 221 (ASTM B 221M), Alloy 6063-T6. N.
 - Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T6. Ο.
 - Ρ. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.
- 2.3 FASTENERS
 - Α. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
 - Provide stainless-steel fasteners for fastening aluminum. 1.
 - Provide stainless-steel fasteners for fastening stainless steel. 2.
 - Provide stainless-steel fasteners for fastening nickel silver. 3.

- 4. Provide bronze fasteners for fastening bronze.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with hex nuts, ASTM A 563 (ASTM A 563M); and, where indicated, flat washers.
- C. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 325, Type 3 (ASTM A 325M, Type 3); with hex nuts, ASTM A 563, Grade C3 (ASTM A 563M, Class 8S3); and, where indicated, flat washers.
- D. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F 593 (ASTM F 738M); with hex nuts, ASTM F 594 (ASTM F 836M); and, where indicated, flat washers; Alloy Group 2 (A4).
- E. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563 (ASTM A 563M); and, where indicated, flat washers.
 - 1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.
- F. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.
- G. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.
- H. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.
 - 1. 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.
 - 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 2 (A4) stainless-steel bolts, ASTM F 593 (ASTM F 738M), and nuts, ASTM F 594 (ASTM F 836M).
- I. Slotted-Channel Inserts: Cold-formed, hot-dip galvanized-steel box channels (struts) complying with MFMA-4, 1-5/8 by 7/8 inches (41 by 22 mm) by length indicated with anchor straps or studs not less than 3 inches (75 mm) long at not more than 8 inches (200 mm) o.c. Provide with temporary filler and tee-head bolts, complete with washers and nuts, all zinc-plated to comply with ASTM B 633, Class Fe/Zn 5, as needed for fastening to inserts.
- 2.4 MISCELLANEOUS MATERIALS
 - A. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
 - B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
 - 1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.
 - C. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.
 - D. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.
 - E. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
 - F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.
 - G. Non-shrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
 - H. Concrete: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, airentrained, concrete with a minimum 28-day compressive strength of 3000 psi (20 MPa).

2.5 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
 - B. 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.
 - C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
 - D. Form exposed work with accurate angles and surfaces and straight edges.
 - E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.

- 3. Remove welding flux immediately.
- 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches (3.2 by 38 mm), with a minimum 6-inch (150-mm) embedment and 2-inch (50-mm) hook, not less than 8 inches (200 mm) from ends and corners of units and 24 inches (600 mm) o.c., unless otherwise indicated.
- 2.6 MISCELLANEOUS FRAMING AND SUPPORTS
 - A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
 - B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
 - 1. Fabricate units from slotted channel framing where indicated.
 - 2. Furnish inserts for units installed after concrete is placed.
 - Galvanize miscellaneous framing and supports where indicated.
 - D. Prime miscellaneous framing and supports with zinc-rich primer where indicated.
 - METAL LADDERS
- A. General:

C.

2.7

- 1. Comply with ANSI A14.3, except for elevator pit ladders.
- 2. For elevator pit ladders, comply with ASME A17.1/CSA B44.
- B. Steel Ladders: (Provide two steel ladders in Room B126. One ladder is to access the roof hatch above, the other ladder is the access the mezzanine level above. For the ladder to mezzanine, extend ladder 3'-0" above mezzanine's finish floor.)
 - 1. Space side rails 18 inches (457 mm) apart unless otherwise indicated.
 - 2. Side rails: Continuous, 1/2-by-2-1/2-inch (12.7-by-64-mm) steel flat bars, with eased edges.
 - 3. Rungs: 1-inch- (25-mm-) diameter steel bars.
 - 4. Fit rungs in centerline of side rails; plug-weld and grind smooth on outer rail faces.
 - 5. Provide nonslip surfaces on top of each rung, either by coating rung with aluminum-oxide granules set in epoxy-resin adhesive or by using a type of manufactured rung filled with aluminum-oxide grout.
 - 6. Provide platforms as indicated fabricated from welded or pressure-locked steel bar grating, supported by steel angles. Limit openings in gratings to no more than 1/2 inch (12 mm) in least dimension.
 - 7. Support each ladder at top and bottom and not more than 60 inches (1500 mm) o.c. with welded or bolted steel brackets.
 - 8. Galvanize and prime exterior ladders, including brackets.
 - 9. Prime exterior ladders, including brackets and fasteners, with zinc-rich primer.
- C. Aluminum Ladders: Reference specification section 05 51 33 Metal Ladders (Aluminum) for all exterior aluminum roof ladders.

2.8 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
 - 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.
- C. Galvanize and prime exterior miscellaneous steel trim.
- D. Prime exterior miscellaneous steel trim with primer specified in Section 099600 "High-Performance Coatings."
- 2.9 LOOSĚ BEARING AND LEVELING PLATES
 - A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

- B. Galvanize plates.
- C. Prime plates with primer specified in Section 099600 "High-Performance Coatings."
- 2.10 LOOSE STEEL LINTELS
 - A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.
 - B. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span, but not less than 8 inches (200 mm) unless otherwise indicated.
 - C. Galvanize and prime loose steel lintels located in exterior walls.
 - D. Prime loose steel lintels located in exterior walls with primer specified in Section 099600 "High-Performance Coatings."
- 2.11 STEEL WELD PLATES AND ANGLES
 - A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.
- 2.12 FINISHES, GENERAL
 - A. Finish metal fabrications after assembly.
 - B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.
- 2.13 STEEL AND IRON FINISHES
 - A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
 - B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.
 - C. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
 - 1. Shop prime with universal shop primer indicated.
 - D. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:
 - 1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 3. Items Indicated to Receive Primers Specified in Section 099600 "High-Performance Coatings": SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 4. Other Items: SSPC-SP 3, "Power Tool Cleaning."
 - E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
- PART 3 EXECUTION
- 3.1 INSTALLATION, GENERAL
 - A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
 - B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
 - C. Field Welding: Comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
 - D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
 - E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- 3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS
 - A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

- B. Anchor supports for overhead doors and overhead grilles securely to, and rigidly brace from, building structure.
- C. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.
 - 1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in "Installing Bearing and Leveling Plates" Article.
- D. Install pipe columns on concrete footings with grouted base plates. Position and grout column base plates as specified in "Installing Bearing and Leveling Plates" Article.
 - 1. Grout base plates of columns supporting steel girders after girders are installed and leveled.
- 3.3 INSTALLING BEARING AND LEVELING PLATES
 - A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
 - B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with non-shrink grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.
- 3.4 ADJUSTING AND CLEANING
 - A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.
 - B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 099113 " Painting."
 - C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

END OF SECTION 05 50 00

SECTION 05 51 33 - METAL ROOF LADDERS (ALUMINUM)

PART 1 - GENERAL

- 1.1 SUMMARY
 - A. Section Includes:
 - 1. Tubular Rail Roof-to-Roof Access Ladders with Roofover Rail Extensions. Reference drawings for locations and heights.

1.2 References

- A. AA Aluminum Association.
- B. ASTM B 209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- C. ASTM B 221 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- D. OSHA 1910.27 Fixed Ladders
- 1.3 ACTION SUBMITTALS
 - A. Product Data: For the following:
 - 1. Fasteners.
 - 2. Manufactured metal ladders.
 - B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
 - C. Delegated-Design Submittal: For ladders, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

PART 2 - PRODUCTS

- 2.1 PERFORMANCE REQUIREMENTS
 - A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design ladders.
 - B. Structural Performance of Aluminum Ladders: Ladders, including landings, shall withstand the effects of loads and stresses within limits and under conditions specified in ANSI A14.3.

2.2 METALS

- A. Aluminum Sheet: Alloy 5005-H34 to comply with ASTM B209.
- B. Aluminum Extrusions: Alloy 6063-T6 to comply with ASTM B221
- 2.3 FASTENERS
 - A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use at exterior walls. Select fasteners for type, grade, and class required.
 - 1. Provide stainless steel fasteners for fastening.
 - B. Post-Installed Anchors:
 - 1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.
- 2.4 FABRICATION, GENERAL
 - A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
 - B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
 - C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
 - D. Form exposed work with accurate angles and surfaces and straight edges.
 - E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
 - F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.

- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, not less than 8 inches from ends and corners of units and 24 inches o.c.

2.5 METAL LADDERS

- A. General:
 - 1. Comply with ANSI A14.3.
- B. Aluminum Ladders:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide O'Keeffe's, Inc., 502 Access Ladder or comparable product.
 - 2. Space siderails 24 inches apart unless otherwise indicated.
 - 3. Heavy Duty Tubular Side Rails: Assembled from two interlocking aluminum extrusions no less than 1/8 inch (3 mm) wall thickness by 3 inches (76 mm) wide. Construction shall be self-locking stainless steel fasteners, full penetration TIG welds and clean, smooth and burr-free surfaces.
 - 4. Rungs: Not less than 1-1/4 inches (32 mm) in section and 18–3/8 inches (467mm) long, formed from tubular aluminum extrusions. Squared and deeply serrated on all sides.
 - a. Rungs shall withstand a 1,500 pound (454 kg) load without deformation or failure.
 - 5. Walk-Through Rail and Roof Rail Extension: Not less than 3 feet 6 inches (1067 mm) above the landing and shall be fitted with deeply serrated, square, tubular grab rails.
 - 6. Accessories:
 - a. Off floor bracket.
 - b. Intermediate bracket where required for proper installation.
- 2.6 GENERAL FINISH REQUIREMENTS
- A. Finish metal fabrications after assembly.
- 2.7 FINISHES
 - A. Mill finish. As extruded.
- PART 3 EXECUTION
- 3.1 INSTALLATION, GENERAL
 - A. Install in accordance with manufacturer's instructions and in proper relationship with adjacent construction.
 - B. Coordinate anchorages. Furnish setting drawings, templates, and anchorage structural loads for fastener resistance.
 - C. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
 - D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations.
 - E. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
 - F. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

END OF SECTION 05 5133

SECTION 05 52 13.16 - ALUMINUM RAILINGS (INTERIOR & EXTERIOR) – Addendum-03

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. Aluminum railings Provide at ALL interior and exterior guardrails and handrails.

1.3 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages for railings. 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.

1.4 ACTION SUBMITTALS

- A. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- B. Samples for Initial Selection: For products involving selection of color, texture, or design.
- C. Delegated-Design Submittal: For railings, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- 1.5 DELIVERY, STORAGE, AND HANDLING
 - A. Protect mechanical finishes on exposed surfaces of railings from damage by applying a strippable, temporary protective covering before shipping.

1.6 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with railings by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design railings, including attachment to building construction.
- B. Structural Performance: Railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ ft. applied in any direction.
 - b. Concentrated load of 200 lbf applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.
 - 2. Infill of Guards:
 - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft..
 - b. Infill load and other loads need not be assumed to act concurrently.

2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.
 - 1. Provide type of bracket with flange tapped for concealed anchorage to threaded hanger bolt and that provides 1-1/2-inch clearance from inside face of handrail to finished wall surface.

2.3 ALUMINUM RAILINGS

- A. Aluminum, General: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than the strength and durability properties of alloy and temper designated below for each aluminum form required.
- B. Extruded and Tubing: ASTM B221, Alloy 6063-T5/T52.
- C. Extruded Structural and Round Tubing: ASTM B429/B429M, Alloy 6063-T6.
 - 1. Provide Standard Weight (Schedule 40) pipe unless otherwise indicated.
- D. Drawn Seamless Tubing: ASTM B210/B210M, Alloy 6063-T832.

2.4 FASTENERS

- A. Fastener Materials:
 - 1. Aluminum Railing Components: Type 316 stainless steel fasteners.
 - 2. Finish exposed fasteners to match appearance, including color and texture, of railings.
- B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction and capable of withstanding design loads.
- C. Post-Installed 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 AC193 or ICC-ES AC308.
 - 1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.

2.5 MISCELLANEOUS MATERIALS

- A. Handrail Brackets: Cast aluminum, center of handrail 2-1/2 inches from face of railing .
- B. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for metal alloy welded.
 - 1. For aluminum and stainless steel railings, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
- C. Bituminous Paint: Cold-applied asphalt emulsion, complying with ASTM D1187/D1187M.
- D. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout, complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- E. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.
 - 1. Water-Resistant Product: At exterior locations, provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.6 FABRICATION

E.

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Shop assemble railings to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations.
 - 1. Clearly mark units for reassembly and coordinated installation.
 - 2. Use connections that maintain structural value of joined pieces.
- C. Cut, drill, and punch metals cleanly and accurately.
 - 1. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated.
 - 2. Remove sharp or rough areas on exposed surfaces.
- D. Form work true to line and level with accurate angles and surfaces.
 - Fabricate connections that are exposed to weather in a manner that excludes water.
 - 1. Provide weep holes where water may accumulate.
 - 2. Locate weep holes in inconspicuous locations.
- F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- G. Connections: Fabricate railings with welded connections unless otherwise indicated.
- H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove flux immediately.
 - 4. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #1 welds; ornamental quality with no evidence of a welded joint
- I. Welded Connections for Aluminum Pipe: Fabricate railings to interconnect members with concealed internal welds that eliminate surface grinding, using manufacturer's standard system of sleeve and socket fittings.
- J. Form changes in direction as follows:
 - 1. By bending.
 - 2. By bending to smallest radius that will not result in distortion of railing member.

- K. Bend 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 of components.
- L. Close exposed ends of hollow railing members with prefabricated cap and end fittings of same metal and finish as railings.
- M. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.
- N. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
 - 1. At brackets and fittings fastened to plaster or gypsum board partitions, provide crush-resistant fillers or other means to transfer loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.
- O. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work.
 - 1. Fabricate anchorage devices capable of withstanding loads imposed by railings.
 - 2. Coordinate anchorage devices with supporting structure.
- P. For railing posts set in concrete, provide stainless steel sleeves not less than 6 inches long with inside dimensions not less than 1/2 inch greater than outside dimensions of post, with metal plate forming bottom closure.

2.7 ALUMINUM FINISHES

- A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- B. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
 - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements are clearly marked for Installer. Locate reinforcements and mark locations if not already done.

3.2 INSTALLATION, GENERAL

- A. Perform cutting, drilling, and fitting required for installing railings.
 - 1. Fit exposed connections together to form tight, hairline joints.
 - 2. Install railings level, plumb, square, true to line; without distortion, warp, or rack.
 - 3. Set railings accurately in location, alignment, and elevation; measured from established lines and levels.
 - 4. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 - 5. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
 - 6. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.
- B. 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.
- C. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- D. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.3 RAILING CONNECTIONS

A. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article, whether welding is performed in the shop or in the field.

B. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve, extending 2 inches beyond joint on either side; fasten internal sleeve securely to one side; and locate joint within 6 inches of post.

3.4 ANCHORING POSTS

- A. Use stainless steel pipe sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.
- B. Cover anchorage joint with flange of same metal as post, welded to post after placing anchoring material.
- C. Leave anchorage joint exposed with 1/8-inch buildup, sloped away from post .

3.5 ATTACHING RAILINGS

- A. Anchor railing ends to concrete and masonry with railing ends and anchored to wall construction with anchors and bolts.
- B. Anchor railing ends to metal surfaces with flanges bolted to metal surfaces and .

3.6 REPAIR

A. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in

3.7 CLEANING

A. Clean aluminum by washing thoroughly with clean water and soap and rinsing with clean water.

3.8 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. 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 05 52 13.16

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 and splashes at all countertops, except for the countertops in Kitchen C100. Reference specification section 12 36 61.19 QUARTZ SOLID SURFACING COUNTERTOPS for countertops in Kitchen C100.
 - 2. Solid-surface material sills at all interior sills at exterior windows.

1.3 ACTION SUBMITTALS

- A. Product Data: For sills, countertop and integral sink materials and benchtop materials.
- B. Shop Drawings: Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.
- C. Samples for Initial Selection: For each type of material exposed to view.

1.4 PROJECT CONDITIONS

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

1.5 COORDINATION

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

PART 2 - PRODUCTS

2.1 SOLID-SURFACE-MATERIAL COUNTERTOPS

- A. Configuration: Provide countertops with the following front and backsplash style:
 - 1. Front: 1/16-inch bullnose.
 - 2. Backsplash: Straight, slightly eased at corner.
 - 3. Endsplash: Matching backsplash.
- B. Countertops: 3/4-inch- (19-mm-) thick, solid surface material with front edge built up with same material.

- C. Backsplashes: 3/4-inch- (19-mm-) thick, solid surface material.
- D. Fabrication: Fabricate tops in one piece with shop-applied edges and backsplashes unless otherwise indicated. Comply with solid-surface-material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.
 - 1. Fabricate with loose backsplashes for field assembly.
 - 2. Install integral sink bowls in countertops in the shop.

2.2 SOLID-SURFACE-MATERIAL SILLS

- A. Configuration: Provide sills with the following front style:
 - 1. Front: 1/2-inch thick with continuous bullnose along the front edge and exposed sides. Depth of sills will vary depending on the depth of each window sill. Typical sill overhang (from the wall below): ³/₄". Width of sills: full clear width of window opening with no seams permitted.
- B. Fabrication: Fabricate in one piece with shop-applied edges unless otherwise indicated. Comply with solid-surface-material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.

2.3 MATERIALS

- A. Particleboard: ANSI A208.1, Grade M-2, made with binder containing no urea formaldehyde.
 - 1. Recycled Content: Not less than 70 percent preconsumer or postconsumer recycled content.
- B. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.
- C. Adhesives: Adhesives shall not contain urea formaldehyde.
- D. Solid Surface Material: Homogeneous solid sheets of filled plastic resin complying with ANSI SS1.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dupont Corian
 - b. Formica Corporation.
 - c. Wilsonart International (Basis of Design)
 - 2. Type: Provide Standard Type or Veneer Type made from material complying with requirements for Standard Type, as indicated unless Special Purpose Type is indicated.
 - 3. Colors and Patterns Schedule:
 - a. SS-1: Mystique 9200CS by Wilsonart.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install countertops level to a tolerance of 1/8 inch in 8 feet (3 mm in 2.4 m).
- 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.

- 1. Install backsplashes and endsplashes to comply with manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.
- 2. Seal edges of cutouts in particleboard subtops by saturating with varnish.

END OF SECTION 06 61 16

SECTION 08 11 77 - BULLET-RESISTANT STEEL DOORS AND FRAMES

PART 1GENERAL

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. Bullet-resistant steel door and frame assemblies. <u>Provide at the following doors: A114A, A104, A107, B101B & B101C.</u>
- 1.3 REFERENCES
 - A. American Welding Society (AWS) (www.aws.org) D1.3/D1.3M Structural Welding Code Sheet Steel.
 - B. ASTM International (ASTM) (www.astm.org) A1008/A1008M Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
 - C. Underwriters Laboratories (UL) (www.ul.com) 752 Bullet Resisting Equipment.

1.4 SYSTEM DESCRIPTION

A. Design Requirements: Provide door and frame assemblies of "non-ricochet type" intended to permit capture and retention of attacking projectile, lessening potential of random injury or lateral penetration.

1.5 ADMINISTRATIVE REQUIREMENTS

A. Provide hardware templates to door and frame assembly manufacturer for preparation of door and frame units to receive hardware other than hinges.

1.6 SUBMITTALS

- A. Submittals for Review:
 - 1. Shop Drawings: Include door and frame profiles and sizes, type and spacing of frame anchors, reinforcement size and locations, details of joints and connections, and welding details.
 - 2. Product Data: Include product description for door and frame assemblies including bullet-resistant ratings.
- B. Closeout Submittals:
 - 1. Maintenance Data: Include instructions for cleaning of glazed panels.

1.7 QUALITY ASSURANCE

- A. Door and Frame Assemblies: Ballistic Level 3 tested to UL 752.
- B. Doors and frames manufactured by same firm.
- 1.8 DELIVERY, STORAGE AND HANDLING
 - A. Store door and frame assemblies upright in protected, dry area, off ground or floor, with at least 1/4 inch space between individual units.
 - B. Do not cover with non vented coverings that create excessive humidity.
 - C. Remove wet coverings immediately.

PART 2 PRODUCTS

- 2.1 MANUFACTURERS
 - A. Source Limitations: Obtain bullet resistant doors and frames from single source from single manufacturer.
- 2.2 BULLET RESISTANT DOOR AND FRAME ASSEMBLIES
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide ARMORTEX, Bullet Resistant Hollow Metal Door and Frame Assembly or comparable product.

2.3 MATERIALS

- A. Steel Sheet:
 - 1. ASTM A1008/1008M, cold rolled, free from scale, pitting, coil breaks, and other surface defects.
- B. Bullet-Resistant Composite: UL Listed Bullet Resistant Composite of UL level equal to specified door and frame ballistic protection level.
- C. Ballistic Steel: Hi-Hard Ballistic Steel, of UL Ballistic Level equal to specified door and frame ballistic protection level.
- 2.4 ACCESSORIES
 - A. Hinges: Aluminum continuous gear type.
- 2.5 FABRICATION
 - A. Doors:

- 1. Fabricate with 16 gage steel face plates, foam insulation, and bullet-resistant composite or ballistic steel core.
- 2. Weld 16 gage rails and stiles to face plates with flush surface on all edges.
- 3. Factory hang doors in frames using specified hinges.
- 4. Mortise and reinforce doors and frames at factory to receive hardware in accordance with approved hardware schedule.
- 5. Vision Panels: Clear glazing material of same ballistic level as door and frame assembly.
- B. Frames:
 - 1. Same ballistic protection as doors.
 - 2. Fabricate from 16 gage steel lined with bullet-resistant composite or ballistic steel.
 - 3. Weld frame corners; knock-down and mechanical joints not acceptable.
- C. Welding: In accordance with AWS D1.3/D1.3M. Grind exposed welds flush and smooth.
- D. Finish work neat and free from defects.
- E. Allowable Tolerances: Plus or minus 1/16 inch for frame opening width, height, diagonal dimensions, and overall width and height (outside to outside).
- 2.6 FINISHES
 - A. Steel:
 - 1. Dress tool marks and surface imperfections to smooth surfaces.
 - 2. Clean and chemically treat steel surfaces.
 - 3. Apply manufacturer's standard rust inhibiting gray primer paint.
- PART 3 EXECUTION
- 3.1 INSTALLATION
 - A. Install door and frame assemblies in accordance with manufacturer's instructions and approved Shop Drawings.
 - B. Set plumb, square, and level.
 - C. Secure to adjacent construction using fastener type best suited to application.
 - D. Drill and tap for surface-mounted hardware in field. Install hardware in accordance with manufacturer's written instructions.
 - E. Field alterations to door and frame assemblies other than drilling and tapping for surface-mounted hardware not permitted unless approved in advance by manufacturer and Architect.
- 3.2 ADJUSTING
 - A. Touch up minor scratches and abrasions in primer paint to match factory finish.
 - B. Adjust doors to swing freely, without sticking or binding.

END OF SECTION 08 11 77

SECTION 08 34 63 - DETENTION DOORS AND FRAMES

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 the following, and are to be provided at Doors B131, B132, B135, B136B, B136C, B138, B139, B140, B141, B142, B143 & B144:
 - 1. Swinging detention doors.
 - 2. Sliding detention doors.
 - 3. Detention panels.
 - 4. Detention frames.
 - B. Related Requirements:
 - 1. Section 087163 "Detention Door Hardware" for door hardware for detention doors.

1.3 DEFINITIONS

- A. Minimum-Thickness Steel: Indicated as the specified minimum thicknesses for base metal without coatings, according to NAAMM-HMMA 803.
- B. Nominal-Thickness Stainless Steel: Indicated as the specified thicknesses for which over- and underthickness tolerances apply, according to ASTM A 480/A 480M.

1.4 COORDINATION

A. Coordinate anchorage installation for detention frames. 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 adjacent construction. Deliver such items to Project site in time for installation.

1.5 PREINSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at Project site.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: In addition to requirements below, provide a schedule using same reference numbers for details and openings as those on Drawings:
 - 1. Elevations of each door type.
 - 2. Direction of swing or slide.
 - 3. Inmate and non-inmate sides.
 - 4. Details of doors, including vertical and horizontal edge details, and metal thicknesses.
 - 5. Details of frames, including dimensioned profiles, and metal thicknesses.
 - 6. Locations of reinforcement and preparations for hardware.
 - 7. Details of each different wall opening condition.
 - 8. Details of anchorages, joints, field splices, and connections.
 - 9. Details of food-pass openings.
 - 10. Details of moldings, removable stops, and glazing.
- 1.7 INFORMATIONAL SUBMITTALS
 - A. Qualification Data: For Installer.
 - B. Welding certificates.
 - C. Product Test Reports: For each type of detention hollow-metal door and frame assembly including vision and side lights, for tests performed by manufacturer and witnessed by a qualified testing agency.

1.8 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. Security Fasteners: Furnish not less than one box for every 50 boxes or fraction thereof, of each type and size of security fastener installed.
 - 2. Tools: Provide two sets of tools for installing and removing security fasteners.
- 1.9 QUALITY ASSURANCE
 - A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
 - B. Welding Qualifications: Qualify procedures and personnel according to the following:

- 1. AWS D1.1/D1.1M, "Structural Welding Code Steel."
- 2. AWS D1.3, "Structural Welding Code Sheet Steel."
- 1.10 DELIVERY, STORAGE, AND HANDLING
 - A. Deliver detention hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
 - B. Deliver welded detention frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
 - C. Store detention hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch-(102-mm-) high wood blocking. Provide minimum 1/4-inch (6.3-mm) space between each stacked door to permit air circulation.

PART 2 - PRODUCTS

- 2.1 MANUFACTURERS
- A. Source Limitations: Obtain detention doors and frames from single source from single manufacturer.
- 2.2 DETENTION DOOR AND FRAME ASSEMBLIES
 - A. Detention Door and Frame Assemblies: Provide detention door and frame assemblies that comply with the following, based on testing manufacturer's standard units in assemblies similar to those indicated for this Project:
 - 1. Security Grade: Assemblies pass testing requirements in ASTM F 1450 for security grades specified.
 - 2. Tool-Attack Resistance: Small-tool-attack-resistance rated when tested according to UL 437 and UL 1034.
 - B. Detention Frames: Provide sidelight and borrowed-light detention frames that comply with ASTM F 1592 and removable stop test according to NAAMM-HMMA 863, based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.

2.3 DETENTION DOORS

- A. General: Provide flush-design detention doors of seamless hollow construction, 2 inches (51 mm) thick unless otherwise indicated. Construct detention doors with smooth, flush surfaces without visible joints or seams on exposed faces or stile edges.
 - 1. For single-acting swinging detention doors, bevel both vertical edges 1/8 inch in 2 inches (3 mm in 51 mm).
 - 2. For sliding detention doors, square both vertical edges.
- B. Core Construction: Provide the following core construction of same material as detention door face sheets, welded to both detention door faces:
 - 1. Steel-Stiffened Core: 0.042-inch-(1.0-mm-) thick, steel vertical stiffeners extending full-door height, with vertical webs spaced not more than 4 inches (102 mm) apart, spot welded to face sheets a maximum of 3 inches (76 mm) o.c. Fill spaces between stiffeners with insulation.
- C. Vertical Edge Channels: 0.123-inch-(3.1-mm-) thick, continuous channel of same material as detention door face sheets, extending full-door height at each vertical edge; welded to top and bottom channels to create a fully welded perimeter channel. Noncontiguous channel is permitted to accommodate lock-edge hardware only if lock reinforcement is welded to and made integral with channel.
- D. Top and Bottom Channels: 0.123-inch-(3.1-mm-)thick metal channel of same material as detention door face sheets, spot welded, not more than 4 inches (102 mm) o.c., to face sheets.
 - 1. Reinforce top edge of detention door with 0.053-inch-(1.3-mm-) thick closing channel, welded so channel web is flush with top door edges.
- E. Hardware Reinforcement: Fabricate reinforcing plates from same material as detention door face sheets to comply with the following minimum thicknesses:
 - 1. Full-Mortise Hinges and Pivots: 0.187 inch (4.7 mm) thick.
 - 2. Strike Reinforcements: 0.187 inch (4.7 mm) thick.
 - 3. Slide-Device Hanger Attachments: As recommended by device manufacturer.
 - 4. Lock Fronts, Concealed Holders, and Surface-Mounted Closers: 0.093 inch (2.3 mm) thick.
 - 5. All Other Surface-Mounted Hardware: 0.093 inch (2.3 mm) thick.
- F. Hardware Enclosures: Provide enclosures and junction boxes for electrically operated detention door hardware of same material as detention door face sheets, interconnected with UL-approved, 1/2-inch-(12.7-mm-) diameter conduit and connectors.
 - 1. Access Plates: Where indicated for wiring installation, provide access plates to junction boxes, fabricated from same material and thickness as face sheet and fastened with at least four security fasteners spaced not more than 6 inches (152 mm) o.c.

- G. Interior Detention Doors: Construct interior doors to comply with materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances indicated in NAAMM-HMMA 863 and as specified.
 - 1. Security Grade 2: Provide doors with face sheets of 0.093-inch-(2.3-mm-) minimum-thickness, cold-rolled steel.

2.4 DETENTION FRAMES

- A. General: Provide fully welded detention frames with integral stops, of seamless construction without visible joints or seams. Fabricate detention frames with contact edges closed tight and corners mitered, reinforced, and continuously welded full depth and width of detention frame.
- B. Stop Height: Provide minimum stop height of 0.625 inch (16 mm) for detention door openings and minimum stop height of 1-1/4 inches (32 mm) in security glazing or detention panel openings unless otherwise indicated.
- C. Interior Detention Frames: Construct interior frames to comply with materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances indicated in NAAMM-HMMA 863 and as specified.
 - 1. Security Grade 2: Provide frames fabricated from 0.093-inch-(2.3-mm-) minimum-thickness, cold-rolled steel.
- D. Hardware Reinforcement: Fabricate reinforcing plates from same material as detention frame to comply with the following minimum thicknesses:
 - 1. Hinges and Pivots: 0.187 inch (4.7 mm) thick by 1-1/2 inches (38 mm) wide by 10 inches (254 mm) long.
 - 2. Strikes, Flush Bolts, and Closers: 0.187 inch (4.7 mm) thick.
 - 3. Surface-Mounted Hardware: 0.093 inch (2.3 mm) thick.
- E. Hardware Enclosures: Provide enclosures and junction boxes for electrically operated detention door hardware, interconnected with UL-approved, 1/2-inch-(12.7-mm-) diameter conduit and connectors.
- F. Mullions and Transom Bars: Provide closed or tubular mullions and transom bars where indicated. Fasten mullions and transom bars at crossings and to jambs by butt welding. Reinforce joints between detention frame members with concealed clip angles or sleeves of same metal and thickness as detention frame.
- G. Jamb Anchors: Weld jamb anchors to detention frames near hinges and directly opposite on strike jamb or as required to secure detention frames to adjacent construction.
 - 1. Number of Anchors: Provide two anchors per jamb plus the following:
 - a. Detention Door Frames: One additional anchor for each 18 inches (457 mm), or fraction thereof, above 54 inches (1372 mm) in height.
 - b. Detention Frames with Security Glazing or Detention Panels: One additional anchor for each 18 inches (457 mm), or fraction thereof, above 36 inches (914 mm) in height.
 - 2. Masonry Anchors: Adjustable, corrugated or perforated, strap-and-stirrup anchors to suit detention frame size; formed of same material and thickness as detention frame; with strap not less than 2 inches (51 mm) wide by 10 inches (254 mm) long.
- H. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, formed of same material and thickness as detention frame, and as follows:
 - 1. Monolithic Concrete Slabs: Clip anchors, with two holes to receive fasteners, welded to bottom of jambs and mullions with at least four spot welds per anchor.
- I. Rubber Door Silencers: Except on weather-stripped detention doors, drill stops in strike jambs to receive three silencers on single-detention-door frames and drill head jamb stop to receive two silencers on double-detention-door frames. Keep holes clear during construction.
- J. Grout Guards: Provide factory-installed grout guards of same material as detention frame, welded to detention frame at back of hardware cutouts, silencers, and glazing-stop screw preparations to close off interior of openings and prevent mortar or other materials from obstructing hardware operation or installation.
- 2.5 MOLDINGS AND STOPS
 - A. Provide fixed moldings on inmate side of glazed openings and removable stops on non-inmate side.
 - 1. Height: As required to provide minimum 1-inch (25-mm) glass engagement, but not less than 1-1/4 inches (32 mm).
 - 2. Removable Stops: Formed from 0.123-inch-(3.1-mm-) thick angle, of same material as detention door face sheets. Secure with button head security fasteners spaced uniformly not more than 9 inches (229 mm) o.c. and not more than 2 inches (51 mm) from each corner, and as necessary to satisfy performance requirements. Form corners with notched or mitered hairline joints.

B. Coordinate rabbet width between fixed and removable stops with glass or panel type and installation type indicated.

2.6 MATERIALS

- A. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, CS (Commercial Steel), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- B. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, CS (Commercial Steel), Type B.
- C. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- D. Concealed Bolts: ASTM A 307, Grade A unless otherwise indicated.
- E. Masonry Anchors: Fabricated from same steel sheet as door face.
 - 1. 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.
- F. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- G. Glazing: Comply with Section 088853 "Security Glazing."
- H. Grout: Comply with ASTM C 476, with a slump of not more than 4 inches (102 mm) as measured according to ASTM C 143/C 143M.
- I. Insulation: Slag-wool-fiber/rock-wool-fiber or glass-fiber blanket insulation. ASTM C 665, Type I (un-faced); with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics. Minimum 1.5-lb/cu. ft. (24-kg/cu. m) density.
- J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.7 FABRICATION

- A. Fabricate detention doors and frames rigid, neat in appearance, and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Weld exposed joints continuously; grind, fill, dress, and make smooth, flush, and invisible. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Tolerances: Fabricate detention doors and frames to comply with manufacturing tolerances indicated in NAAMM-HMMA 863.
- C. Fabricate multiple-opening detention frames with mullions that have closed tubular shapes and with no visible seams or joints.
- D. Hardware Preparation: Factory prepare detention doors and frames to receive mortised hardware, including cutouts, reinforcement, mortising, drilling, and tapping, according to final Door Hardware Schedule and templates provided by detention door hardware supplier.
 - 1. Reinforce detention doors and frames to receive surface-mounted door hardware. Drilling and tapping may be done at Project site.
 - 2. Locate door hardware according to NAAMM-HMMA 863.
- E. Factory cut openings in detention doors.
- F. Weld components to comply with referenced AWS standard. Weld before finishing components to greatest extent possible. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

2.8 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish detention doors and frames after assembly.

2.9 STEEL SHEET FINISHES

- A. Surface Preparation: Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning", or SSPC-SP 8, "Pickling".
- B. Factory Priming for Field-Painted Finish: Apply shop primer specified in "Shop Primer" Subparagraph below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mil (0.02 mm).
 - 1. Shop Primer: Manufacturer's or fabricator's standard, fast-curing, corrosion-inhibiting, lead- and chromate-free, universal primer complying with SDI A250.10 acceptance criteria; compatible with substrate and field-applied finish paint system indicated; and providing a sound foundation for field-applied topcoats despite prolonged exposure.
2.10 SECURITY FASTENERS

- A. Operable only by tools produced by fastener manufacturer or other licensed fabricator for use on specific fastener type. Provide drive-system type, head style, material, and protective coating as required for assembly, installation, and strength, and as follows:
 - 1. Drive-System Type: Pinned Torx-Plus.
 - 2. Fastener Strength: 120,000 psi (827 MPa).
 - 3. Socket Button Head Fasteners:
 - a. Heat-treated alloy steel, ASTM F 835 (ASTM F 835M).
 - 4. Socket Flat Countersunk Head Fasteners:
 - a. Heat-treated alloy steel, ASTM F 835 (ASTM F 835M).
 - 5. Socket Head Cap Fasteners:
 - a. Heat-treated alloy steel, ASTM A 574 (ASTM A 574M).
 - 6. Protective Coatings for Heat-Treated Alloy Steel:
 - a. Zinc and clear trivalent chromium where indicated.
 - b. Zinc phosphate with oil, ASTM F 1137, Grade I, or black oxide unless otherwise indicated.

2.11 SEALANTS

A. Polyurethane Security Sealants: Manufacturer's standard, non-sag, tamper-resistant sealant for joints with low movement.

2.12 ACCESSORIES

- A. Concealed Bolts: ASTM A 307, Grade A unless otherwise indicated.
- B. Embedded Plate Anchors: Fabricated from mild steel shapes and plates, minimum 3/16 inch (4.8 mm) thick; with minimum 1/2-inch-(12.7-mm-)diameter, headed studs welded to back of plate.
- C. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- D. Pass-Through Openings: Fabricate flush openings using 0.093-inch-(2.3-mm-)thick interior channels of same material as detention door faces, inverted to be flush with openings, welded to inside of both face sheets and with corners fully welded. Mount shutters on non-inmate side of detention doors. Reinforce for locks and food-pass hinges.
 - 1. Inset Shutters: Fabricate from two steel plates, 0.123 inch (3.1 mm) thick, of same material as detention door face sheets, spot welded together and sized to inset inside opening and to prevent inmate tampering of lock and hinges.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations of detention frame connections before detention frame installation.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Inspect embedded plate installations before installing detention frames to verify that plate installations comply with requirements. Prepare inspection reports.
 - 1. Remove and replace plates where inspections indicate that they do not comply with specified requirements. Re-inspect after repairs or replacements are made.
 - 2. Perform additional inspections to determine compliance of replaced or additional work.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory.
- B. Before installation and with shipping spreaders removed, adjust detention frames for squareness, alignment, twist, and plumbness to the following tolerances:
 - 1. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb and perpendicular to frame head.
 - 2. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of face.
 - 3. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of door rabbet.
 - 4. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a perpendicular line from head to floor.

3.3 INSTALLATION

- A. General: Install detention doors and frames plumb, rigid, properly aligned, and securely fastened in place, complying with Drawings, schedules, and manufacturer's written recommendations.
- B. Anchorage: Set detention frame anchorage devices according to details on Shop Drawings and according to anchorage device manufacturer's written instructions.
 - 1. Masonry Anchors: Coordinate frame installation to allow for solidly filling space between frames and masonry with grout.
- C. Where detention frames are fabricated in sections due to shipping limitations, assemble frames and install angle splices at each corner, of same material and thickness as detention frame, and extend at least 4 inches (102 mm) on both sides of joint.
 - 1. Field splice only at approved locations. Weld, grind, and finish as required to conceal evidence of splicing on exposed faces.
 - 2. Continuously weld and finish smooth joints between faces of abutted, multiple-opening, detention frame members.
 - 3. Field Welding: Comply with the following requirements:
 - a. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - b. Obtain fusion without undercut or overlap.
 - c. Remove welding flux immediately.
 - d. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Placing Detention Frames: Install detention frames of sizes and profiles indicated. Set detention frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - 1. Install detention frames with removable stops located on non-inmate side of opening.
- E. Grout: Fully grout detention frame jambs and heads. Completely fill space between frames and adjacent substrates. Hand trowel grout and take other precautions, including bracing detention frames, to ensure that frames are not deformed or damaged by grout forces.
- F. Security Sealant: Apply polyurethane security sealant at all exposed gaps between detention frames and adjacent substrates.
- G. Swinging Detention Doors: Fit non-fire-rated detention doors accurately in their frames, with the following clearances:
 - 1. Between Doors and Frames at Jambs and Head: 1/8 inch (3.2 mm).
 - 2. Between Edges of Pairs of Doors: 1/8 inch (3.2 mm).
 - 3. At Door Sills with Threshold: 3/8 inch (9.5 mm).
 - 4. At Door Sills without Threshold: 3/4 inch (19 mm).
 - 5. Between Door Bottom and Nominal Surface of Floor Covering: 1/2 inch (12.7 mm).
- H. Sliding Detention Doors: Fit sliding detention doors in their frames according to manufacturer's written instructions and as required to allow doors to slide without binding.
- I. Installation Tolerances: Comply with installation tolerances indicated in NAAMM-HMMA 863.
- J. Glazing: Comply with installation requirements in Section 088853 "Security Glazing" unless otherwise indicated.

3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including detention doors and frames that are warped, bowed, or otherwise unacceptable.
- B. Clean grout and other bonding material off detention doors and frames immediately after installation.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas, and repair galvanizing to comply with ASTM A 780.
- D. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
 - 1. After finishing smooth field welds, apply air-drying primer.
- E. Stainless-Steel Surfaces: Clean surfaces according to manufacturer's written instructions.

END OF SECTION 083463

SECTION 08 56 19.13 – SECURITY ALUMINUM INTERIOR SLIDING SERVICE WINDOW PART 1 – GENERAL

1.1 SUMMARY

- A. This section includes:
 - Aluminum SECURITY interior sliding service window with Level Three (3) bullet-resistant glazing to be provided at the three service windows in Lobby B101 (Serving Municipal Clerk A100, Municipal Records B102 & Dispatch B117) and at the two service windows in Lobby A113 (Serving County Reception A118 & County Clerks A110).

1.2 SUBMITTALS

- A. Product Data: Submit Manufacturer's technical product data substantiating that products comply.
- B. Shop drawings: Submit for fabrication and installation of windows. Include details, elevations and installation requirement of finish hardware and cleaning.
- C. Certification: Provide printed data in sufficient detail to indicate compliance with the contract documents.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver windows crated to provide protection during transit and job storage.
- B. Inspect windows upon delivery for damage. Unless minor defects can be made to meet the Architect's specifications and satisfaction, damaged parts should be removed and replaced.
- C. Store windows at building site under cover in dry location.

1.4 PROJECT CONDITIONS

A. Field measurements: Check opening by accurate field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of work.

1.5 WARRANTY

A. All material and workmanship shall be warranted against defects for a period of one (1) year from the original date of purchase.

PART 2 - PRODUCTS

- 2.1 ACCEPTABLE MANUFACTURER'S
- A. Basis-of-Design Product: Subject to compliance with requirements, provide CR Laurence Co. Inc, Protection Manual Service Window with Bullet Resistance Level 3, Model SBRWA3 or comparable product.

2.2 MATERIALS

Ε.

- A. Frames: Aluminum frame modules shall be constructed of .125" thick 6063-T5 extruded aluminum. Window rolls on top-hung ball bearing rollers. Catch locks included with all interior windows. Overall frame sizes are to be in accordance with the contract drawings.
- B. Finish: All aluminum to be clear satin anodized.
- C. Glazing: The glazing shall be 1 ¹/₄" Level 3 Lexgard.
- D. Configuration:O-X
 - Provide also the following:
 - 1. Stainless steel shelf.
 - 2. Keyed lock.
 - 3. Full bottom track.
 - 4. Surround frame.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install window in accordance with manufacturer's printed instructions and recommendations. Repair damaged units as directed or replace with new units.

3.2 CLEANING

A. Clean frame and glazing surfaces after installation, complying with requirements contained in the manufacturer's instructions. Remove excess glazing sealant compounds, dirt or other substances.

3.3 PROTECTION

- A. Institute protective measures required throughout the remainder of the construction period to ensure that all the windows do not incur any damage or deterioration, other than normal weathering, at the time of acceptance.
- END OF SECTION 08 56 19.13

SECTION 087100 - DOOR HARDWARE - ADDENDUM-03

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Hardware for wood and hollow metal doors.
- B. Hardware for fire-rated doors.
- C. Lock cylinders for doors with balance of hardware specified in other sections.
- D. Thresholds.
- E. Weatherstripping and gasketing.

1.02 RELATED REQUIREMENTS

- A. Section 081113 Hollow Metal Doors and Frames.
- B. Section 081213 Hollow Metal Frames.
- C. Section 081416 Flush Wood Doors.
- D. Section 081433 Stile and Rail Wood Doors.
- E. Section 084313 Aluminum-Framed Storefronts: Door hardware, except as noted in section.
- F. Division 26 Electrical

1.03 REFERENCE STANDARDS

- A. ADA Standards Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. BHMA A156.1 Standard for Butts and Hinges 2021.
- C. BHMA A156.2 Bored and Preassembled Locks and Latches 2017.
- D. BHMA A156.3 Exit Devices 2020.
- E. BHMA A156.4 Door Controls Closers 2019.
- F. BHMA A156.5 Cylinders and Input Devices for Locks 2020.
- G. BHMA A156.6 Standard for Architectural Door Trim 2021.
- H. BHMA A156.7 Template Hinge Dimensions 2016.
- I. BHMA A156.13 Mortise Locks & Latches Series 1000 2017.
- J. BHMA A156.16 Auxiliary Hardware 2018.
- K. BHMA A156.21 Thresholds 2019.
- L. BHMA A156.22 Standard for Gasketing 2021.
- M. BHMA A156.28 Recommended Practices For Mechanical Keying Systems 2018.
- N. BHMA A156.115 Hardware Preparation In Steel Doors And Steel Frames 2016.
- O. BHMA A156.115W Hardware Preparation in Wood Doors with Wood or Steel Frames 2006.
- P. DHI (H&S) Sequence and Format for the Hardware Schedule 2019.
- Q. DHI (KSN) Keying Systems and Nomenclature 2019.
- R. DHI (LOCS) Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames 2004.
- S. DHI WDHS.3 Recommended Locations for Architectural Hardware for Flush Wood Doors 1993; also in WDHS-1/WDHS-5 Series, 1996.
- T. ICC (IBC) International Building Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- U. ICC A117.1 Accessible and Usable Buildings and Facilities 2017.
- V. NFPA 80 Standard for Fire Doors and Other Opening Protectives 2022.

- W. NFPA 101 Life Safety Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- X. NFPA 105 Standard for Smoke Door Assemblies and Other Opening Protectives 2022.
- Y. NFPA 252 Standard Methods of Fire Tests of Door Assemblies 2022.
- Z. Storm Codes:
 - 1. Texas Department of Insurance (TDI).
- AA. UL (DIR) Online Certifications Directory Current Edition.
- BB. UL 10C Standard for Positive Pressure Fire Tests of Door Assemblies Current Edition, Including All Revisions.
- CC. UL 1784 Standard for Air Leakage Tests of Door Assemblies Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.
- B. Sequence installation to ensure facility services connections are achieved in an orderly and expeditious manner.
- C. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; require attendance by affected installers and the following:
 - 1. Architect.
 - 2. Installer's Architectural Hardware Consultant (AHC).
 - 3. Hardware Installer.
 - 4. Owner's Security Consultant.
- D. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.

1.05 SUBMITTALS

- A. See Section 013000 Administrative Requirements for submittal procedures.
- B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.
- C. Shop Drawings Door Hardware Schedule: A detailed listing that includes each item of hardware to be installed on each door.
 - 1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
 - 2. Comply with DHI (H&S) using door numbering scheme and hardware set numbers as indicated in Contract Documents.
 - a. Submit in vertical format.
 - 3. List groups and suffixes in proper sequence.
 - 4. Include complete description for each door listed.
 - 5. Include manufacturer's and product names, and catalog numbers; include functions, types, styles, sizes and finishes of each item.
 - 6. Include account of abbreviations and symbols used in schedule.
- D. Samples for Verification:
 - 1. Submit minimum size of 2 by 4 inch (51 by 102 mm) for sheet samples, and minimum length of 4 inch (102 mm) for other products.
 - 2. Include product description with samples.
- E. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- F. Manufacturer's qualification statement.
- G. Installer's qualification statement.

- H. Supplier's qualification statement.
- I. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- J. Keying Schedule:
 - 1. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.
- K. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- L. Project Record Documents: Record actual locations of concealed equipment, services, and conduit.
- M. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 Product Requirements, for additional provisions.

1.06 QUALITY ASSURANCE

- A. Standards for Fire-Rated Doors: Maintain one copy of each referenced standard on site, for use by Architect and Contractor.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.
- C. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.
- D. Supplier Qualifications: Company with certified Architectural Hardware Consultant (AHC) to assist in work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

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

1.08 WARRANTY

- A. See Section 017800 Closeout Submittals for additional warranty requirements.
- B. Manufacturer Warranty: Provide manufacturer warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion. Complete forms in Owner's name and register with manufacturer.
 - 1. Closers: Twenty five years, minimum.
 - 2. Exit Devices: Three years, minimum.
 - 3. Locksets: Ten years, minimum.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
- B. Provide individual items of single type, of same model, and by same manufacturer.
- C. Closers:
 - 1. Provide door closer on each exterior door, unless otherwise indicated.
 - 2. Provide door closer on each fire-rated and smoke-rated door.
 - 3. Spring hinges are not an acceptable self-closing device, unless otherwise indicated.
- D. Weatherstripping and Gasketing:
 - 1. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated.
 - 2. Provide door bottom sweep on each exterior door, unless otherwise indicated.

- E. Electrically Operated and/or Controlled Hardware: Provide necessary power supplies, power transfer hinges, relays, and interfaces as required for proper operation; provide wiring between hardware and control components and to building power connection in compliance with NFPA 70.
- F. See Section 281000 for additional access control system requirements.
- G. Fasteners:
 - 1. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.
 - a. Aluminum fasteners are not permitted.
 - b. Provide phillips flat-head screws with heads finished to match door surface hardware unless otherwise indicated.
 - Provide machine screws for attachment to reinforced hollow metal and aluminum frames.
 a. Self-drilling (Tek) type screws are not permitted.
 - 3. Provide stainless steel machine screws and lead expansion shields for concrete and masonry substrates.
 - 4. Provide wall grip inserts for hollow wall construction.
 - 5. Fire-Resistance-Rated Applications: Comply with NFPA 80.
 - a. Provide wood or machine screws for hinges mortised to doors or frames, strike plates to frames, and closers to doors and frames.
 - b. Provide steel through bolts for attachment of surface mounted closers, hinges, or exit devices to door panels unless proper door blocking is provided.

2.02 PERFORMANCE REQUIREMENTS

- A. Provide door hardware products that comply with the following requirements:
 - 1. Applicable provisions of federal, state, and local codes.
 - 2. Accessibility: ADA Standards and ICC A117.1.
 - 3. Fire-Resistance-Rated Doors: NFPA 80, listed and labeled by qualified testing agency for fire protection ratings indicated, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.
 - 4. Hardware on Fire-Resistance-Rated Doors: Listed and classified by UL (DIR), ITS (DIR), or testing firm acceptable to authorities having jurisdiction as suitable for application indicated.
 - 5. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.
 - 6. Hardware Preparation for Wood Doors with Wood or Steel Frames: BHMA A156.115W.
 - 7. Products Requiring Electrical Connection: Listed and classified by UL (DIR) as suitable for the purpose specified.

2.03 HINGES

- A. Manufacturers: Conventional butt hinges.
 - 1. BEST; dormakaba Group: www.bestaccess.com/#sle.
 - 2. Ives, Allegion Group.
 - 3. Mckinney, Assa Abloy Group.
- B. Properties:
 - 1. Butt Hinges: As applicable to each item specified.
 - a. Standard Weight Hinges: Minimum of two (2) permanently lubricated non-detachable bearings.
 - b. Heavy Weight Hinges: Minimum of four (4) permanently lubricated bearings on heavy weight hinges.
 - c. Template screw hole locations.
 - d. Bearing assembly installed after plating.
 - e. Bearings: Exposed fully hardened bearings.
 - f. Bearing Shells: Shapes consistent with barrels.
 - g. Pins: Easily seated, non-rising pins.

- 1) Fully plate hinge pins.
- 2) Non-Removable Pins: Slotted stainless steel screws.
- h. UL 10C listed for fire-resistance-rated doors.
- C. Sizes: See Door Hardware Schedule.
 - 1. Hinge Widths: As required to clear surrounding trim.
 - 2. Sufficient size to allow 180 degree swing of door.
- D. Finishes: See Door Hardware Schedule.
 - 1. Fully polish hinges; front, back, and barrel.
- E. Grades:
 - 1. Butt Hinges: Comply with BHMA A156.1 and BHMA A156.7 for templated hinges.
- F. Material: Base metal as indicated for each item by BHMA material and finish designation.
- G. Types:
 - 1. Butt Hinges: Include full mortise hinges.
- H. Options: As applicable to each item specified.
- I. Quantities:
 - 1. Butt Hinges: Three (3) hinges per leaves up to 90 inches (2286 mm) in height. Add one (1) for each additional 30 inches (762 mm) in height or fraction thereof.
 - a. Hinge weight and size unless otherwise indicated in hardware sets:
 - 1) For doors up to 36 inches (914 mm) wide and up to 1-3/4 inches (44.5 mm) thick provide hinges with a minimum thickness of 0.134 inch (3.4 mm) and a minimum of 4-1/2 inches (114 mm) in height.
 - 2) For doors over 36 inches (914 mm) wide up to 48 inches (1067 mm) wide and up to 1-3/4 inches (44.5 mm) thick provide hinges with a minimum thickness of 0.145 inch (3.7 mm) and a minimum of 4-1/2 inches (114 mm) in height.
 - 3) For doors greater than 1-3/4 inches (44.5 mm) thick provide hinges with a minimum thickness of 0.180 inch (4.6 mm) and a minimum of 5 inches (127 mm) in height.
- J. Applications: At swinging doors.
 - 1. Provide non-removable pins at out-swinging doors with locking hardware and all exterior doors.
- K. Products:
 - 1. Butt Hinges:
 - a. Ball Bearing, Five (5) Knuckle.

2.04 EXIT DEVICES

- A. Manufacturers:
 - 1. BEST, dormakaba Group: www.bestaccess.com/#sle.
 - 2. Sargent, Assa Abloy Group.
 - 3. Von Duprin, Allegion Group.
- B. Properties:
 - 1. Actuation: Full-length touchpad.
 - 2. Touchpads: 'T" style metal touchpads and rail assemblies with matching chassis covers end caps.
 - 3. Latch Bolts: Stainless steel deadlocking with 3/4 inch (19 mm) projection using latch bolt.
 - 4. Lever Design: Match project standard lockset trims.
 - 5. Cylinder: Include where cylinder dogging or locking trim is indicated.
 - 6. Strike as recommended by manufacturer for application indicated.
 - 7. Sound dampening on touch bar.
 - 8. Touch bar assembly on wide style exit devices to have a 1/4 inch (6.3 mm) clearance to allow for vision frames.

- 9. All exposed exit device components to be of architectural metals and "true" architectural finishes.
- 10. Handing: Field-reversible.
- 11. Fasteners on Back Side of Device Channel: Concealed exposed fasteners not allowed.
- 12. Vertical Latch Assemblies' Operation: Gravity, without use of springs.
- C. Grades: Complying with BHMA A156.3, Grade 1.
 - 1. Provide exit devices tested and certified by UL or by a recognized independent laboratory for mechanical operational testing to 10 million cycles minimum with inspection confirming Grade 1 Loaded Forces have been maintained.
- D. Options:
 - 1. Internally mounted switch used to signal other components.
 - 2. MLR: Motorized latch retraction.
 - 3. Furnish less bottom rod (LBR) at scheduled locations to eliminate use of floor mounted strikes.
- E. Products:
 - 1. 2000.

2.05 LOCK CYLINDERS

- A. Manufacturers:
 - 1. BEST, dormakaba Group: www.bestaccess.com/#sle.
 - 2. Sargent, Assa Abloy Group.
 - 3. Schlage, Allegion Group.
- B. Properties:
 - 1. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.
 - a. Provide cylinders from same manufacturer as locking device.
 - b. Provide cams and/or tailpieces as required for locking devices.
 - c. Provide cylinders with appropriate format interchangeable cores where indicated.
- C. Grades:
 - 1. Standard Security Cylinders: Comply with BHMA A156.5.
- D. Material:
 - 1. Manufacturer's standard corrosion-resistant brass alloy.
- E. Types: As applicable to each item specified.
 - 1. Standard security small format interchangeable core (SFIC) type cylinders, with seven-pin, 1C 7-pin cores.
- F. Applications: At locations indicated in hardware sets, and as follows
 - 1. As required for items with locking devices provided by other sections, including at elevator controls and cabinets.
 - a. When provisions for lock cylinders are referenced elsewhere in the Project Manual to this Section, provide compatible type of lock cylinder, keyed to building keying system, unless otherwise indicated.
- G. Products:
 - 1. Rim/mortise.

2.06 CYLINDRICAL LOCKS

- A. Manufacturers:
 - 1. BEST, dormakaba Group: www.bestaccess.com/#sle.
 - 2. Sargent, Assa Abloy Group.
 - 3. Schlage, Allegion Group.
- B. Properties:
 - 1. Mechanical Locks:
 - a. Fitting modified ANSI A115.2 door preparation.

- Door Thickness Fit: 1-3/8 inches (35 mm) to 2-1/4 inches (57 mm) thick doors. b.
- Construction: Hub, side plate, shrouded rose, locking pin to be a one-piece casting C. with a shrouded locking lug.
 - 1) Through-bolted anti-rotational studs.
- Cast stainless steel latch retractor with roller bearings for exceptionally smooth d. operation and superior strength and durability.
- Bored Hole: 2-1/8 inch (54 mm) diameter. e.
- Backset: 2-3/4 inches (70 mm) unless otherwise indicated. f.
- Latch: Single piece tail-piece construction. g.
 - Latchbolt Throw: 9/16 inch (14.3 mm), minimum. 1)
- h. Cylinders:
 - Cylinder Core Types: Locks capable of supporting manufacturers' cores, as 1) applicable.
 - (a) Small format interchangeable.
- Lever Trim: i.
 - Style: See Door Hardware Schedule. 1)
 - Functionality: Allow the lever handle to move up to 45 degrees from horizontal 2) position prior to engaging the latchbolt assembly.
 - Strength: Locksets outside locked lever designed to withstand minimum1,400 3) inch-lbs (158.2 Nm) of torque. In excess of that, a replaceable part will shear. Key from outside and/or inside lever will still operate lockset.
 - 4) Independent spring mechanism for each lever. (a) Contain lever springs in the main lock hub.
 - Outside Lever Sleeve: Seamless one-piece construction.
 - 5) Keyed Levers: Removable only after core is removed by authorized control key.
 - 6)
- C. Finishes: See Door Hardware Schedule.
 - 1. Core Faces: Match finish of lockset.
- D. Grades: Comply with BHMA A156.2, Grade 1, Series 4000, Operational Grade 1, Extra Heavy Duty.
 - 1. Durability: Passing 50 Million cycle tests verified by third party testing agency.
- Material: Manufacturer's stadard for specified lock. E.
 - 1. Critical Latch and Chassis Components: Brass or corrosion-resistance treated steel.
 - 2. Outside Lever Sleeve: Hardened steel alloy.
- F. Options:
- G. Products: Cylindrical locks, including mechanical and electrical types.
 - 9K (Grade 1). 1.

2.07 AUXILIARY LOCKS (DEADLOCKS)

- A. Manufacturers:
 - 1. BEST, dormakaba Group: www.bestaccess.com/#sle.
 - 2. Sargent, Assa Abloy Group.
 - Schlage, Allegion Group. 3.
- Properties: Β.
 - 1. Backset: 2-3/4 inch (70 mm), unless otherwise indicated.
 - Strike: Appropriate for door frame. 2.
 - Cylindrical Deadbolt: Manufacturer's standard, adjustable to accommodate range of door 3. thicknesses indicated.
 - a. Door Thickness Fit: 1-3/8 inches (35 mm) to 3 inches (76 mm) thick doors.
 - b. Bolt Throw: 1 inch (25.4 mm) hardened steel.
 - UL listed for up to 3 hours. C.
- C. Grades:

- 1. Cylindrical Deadbolts: Tested and approved by BHMA A156.36, Operational Grade 1.
- D. Products:
 - 1. 82/83T (Cylindrical, Grade 1).

2.08 DOOR PULLS AND PUSH PLATES

- A. Manufacturers:
 - 1. Trimco: www.trimcohardware.com/#sle.
 - 2. Substitutions: See Section 016000 Product Requirements.
- B. Properties:
 - 1. Pull Type: Straight, unless otherwise indicated.
 - 2. Push Plate Type: Flat, with square corners, unless otherwise indicated.
 - a. Edges: Beveled, unless otherwise indicated.
- C. Grades: Comply with BHMA A156.6.
- D. Material: Stainless steel, unless otherwise indicated.

2.09 CLOSERS

- A. Manufacturers:
 - 1. BEST, dormakaba Group www.bestaccess.com/#sle.
 - 2. LCN, Allegion Group.
 - 3. Sargent, Assa Abloy Group.
- B. Properties:
 - 1. Surface Mounted Closers: Manufacturer's standard.
 - a. Construction: R14 high silicon aluminum alloy.
 - b. Maximum Projection from Face of Door: 2-7/16 inches (62 mm).
 - c. Mechanism: Separate tamper-resistant adjusting valves for closing and latching speeds.
 - 1) Include advanced backcheck feature.
 - 2) Include delayed action feature.
 - d. Hydraulic Fluid: All-weather type.
 - e. Arm Assembly: Standard for product specified.
 - 1) Include hold-open, integral stop, or spring-loaded stop feature, as specified in Door Hardware Schedule.
 - 2) Where "IS" or "S-IS" arms are specified in hardware sets, if manufacturer does not offer this arm provide a regular arm mount closer in conjunction with a heavy-duty overhead stop equal to a dormakaba 900 Series.
 - f. Covers:
 - 1) Type: Standard for product selected.
 - (a) Full.
 - 2) Material: Plastic.
 - 3) Finish: Painted.
- C. Grades:
 - 1. Closers: Comply with BHMA A156.4, Grade 1.
 - a. Underwriters Laboratories Compliance:
 - 1) Product Listing: UL (DIR) and ULC for use on fire-resistance-rated doors.
 - (a) UL 228 Door Closers-Holders, With or Without Integral Smoke Detectors.
- D. Types:
 - 1. Rack-and-pinion, surface-mounted. 1-1/2 inches (38 mm) minimum bore.
- E. Installation:
 - 1. Mounting: Includes surface mounted installations.
 - 2. Mount closers on non-public side of door and stair side of stair doors unless otherwise noted in hardware sets.

- 3. At outswinging exterior doors, mount closer on interior side of door.
- 4. Provide adapter plates, shim spacers, and blade stop spacers as required by frame and door conditions.
- 5. Where an overlapping astragal is included on pairs of swinging doors, provide coordinator to ensure door leaves close in proper order.
- F. Products:
 - 1. Surface Mounted:
 - a. HD8000.

2.10 PROTECTION PLATES

- A. Manufacturers:
 - 1. Trimco: www.trimcohardware.com/#sle.
 - 2. Substitutions: See Section 016000 Product Requirements.
- B. Properties:
 - 1. Plates:
 - a. Kick Plates: Provide along bottom edge of push side of every wood door with closer, except aluminum storefront and glass entry doors, unless otherwise indicated.
 - b. Edges: Beveled, on four (4) unless otherwise indicated.
- C. Grades: Comply with BHMA A156.6.
- D. Material: As indicated for each item by BHMA material and finish designation.1. Metal Properties: Stainless steel.
- E. Installation:
 - 1. Fasteners: Countersunk screw fasteners

2.11 STOPS AND HOLDERS

- A. Manufacturers:
 - 1. Trimco: www.trimcohardware.com/#sle.
 - 2. Substitutions: See Section 016000 Product Requirements.
- B. General: Provide overhead stop/holder when wall or floor stop is not feasible.
- C. Grades:
 - 1. Door Holders, Wall Bumpers, and Floor Stops: Comply with BHMA A156.16 and Resilient Material Retention Test as described in this standard.
- D. Material: Base metal as indicated for each item by BHMA material and finish designation.
- E. Types:
 - 1. Wall Bumpers: Bumper, concave, wall stop.
- F. Installation:
 - 1. Non-Masonry Walls: Confirm adequate wall reinforcement has been installed to allow lasting installation of wall bumpers.
- G. Products:
 - 1. Wall Bumpers.

2.12 THRESHOLDS

- A. Manufacturers:
 - 1. National Guard Products, Inc: www.ngpinc.com/#sle.
 - 2. Substitutions: See Section 016000 Product Requirements.
- B. Properties:
 - 1. Threshold Surface: Fluted horizontal grooves across full width.
- C. Grades: Thresholds: Comply with BHMA A156.21.
- D. Types: As applicable to project conditions. Provide barrier-free type at every location where specified.

E. Products:

2.13 WEATHERSTRIPPING AND GASKETING

- A. Manufacturers:
 - 1. National Guard Products, Inc: www.ngpinc.com/#sle.
 - 2. Substitutions: See Section 016000 Product Requirements.
- B. Properties:
 - 1. Weatherstripping Air Leakage Performance: Not exceeding 0.3 cfm/sq ft. of door opening at 0.3 inches of water pressure differential for single doors, and 0.5 cfm/sq ft.of door area at 0.3 inches of water pressure differential for double doors for gasketing other than smoke control, as tested according to ASTM E283/E283M; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.
 - 2. Adhesive-Backed Perimeter Gasketing: Slilicone gasket material applied to frame with self- adhesive.
 - 3. Rigid, Housed, Perimeter Gasketing: Sponge silicone gasket material held in place by aluminum housing; fastened to frame stop with screws.
 - 4. Door Sweeps: Neoprene gasket material held in place by flat aluminum housing or flange; surface mounted to face of door with screws.
- C. Grades: Comply with BHMA A156.22.

2.14 MISCELLANEOUS ITEMS

- A. Manufacturers:
 - 1. Trimco: www.trimcohardware.com/#sle.
 - 2. Substitutions: See Section 016000 Product Requirements.
- B. Properties:
 - 1. Coat Hooks: Provide on room side of door, screw fastened.
 - a. Material: Brass.
 - 2. Silencers: Provide at equal locations on door frame to mute sound of door's impact upon closing.
 - a. Single Door: Provide three on strike jamb of frame.
 - b. Pair of Doors: Provide two on head of frame, one for each door at latch side.
 - c. Material: Rubber, gray color.
- C. Products:
 - 1. Coat Hooks.
 - 2. Silencers.

2.15 ELECTRIFIED HARDWARE

- A. Manufacturers:
 - 1. BEST, dormakaba Group: www.bestaccess.com/#sle.
 - 2. RCI; dormakaba Group: www.dormakaba.com/us-en/#sle.
 - 3. Sargent, Assa Abloy Group
 - 4. Schlage, Allegion Group
 - 5. Von Duprin, Allegion Group
- B. Properties:
 - 1. Door Position Switches: Recessed devices with magnetic contacts.
 - a. Switch Type: Using two Form C high reliability Rhodium-plated reed switches.b. SPDT configuration.
 - 2. Power Supply Units: Manufacturer's standard.
 - a. Enclosures: Lockable NEMA Type 1, with hinged cover and knockouts.
 - b. Emergency Release Terminals: Designed to release devices upon activation of fire alarm system.
 - c. Auxiliary contacts for remote signaling.

- d. User-selectable time delay from 0 to 4 minutes.
- e. Fire Alarm System Interface: Standard.
 - 1) Fire alarm terminal with green LED indicating power is available.
- f. Output Distribution Board with indicator LEDs.
- g. On/Off LED power indicator.
- 3. Power Transfers: Manufacturer's standard.
 - a. Mortised Type with Wires & Connectors:
 - 1) Listed by UL and ULC.
 - 2) Stainless steel housing and spring conduit.
 - 3) Wire Harness: Pre-installed, twelve wire, equipped with ten (10) 24 gauge wires and two 18 gauge wires.
 - 4) Accommodate 180 degree door swing.
 - 5) Quick-Connect Plugs: Pre-installed.
- 4. Wire Harnesses: Of sufficient length, with quick connectors.
 - a. Wire Harness End Connection to Power Supply or Junction Box: One end with bare leads.
- C. Products:
 - 1. Door Position Switches:
 - a. 9540 Recessed Magnetic Contact/Door Position Switch.
 - 2. Power Supplies:
 - a. RPSMLR2.
 - 3. Power Transfers: a. EPT-12C.
 - 4. Wire Harnesses:
 - a. BEST wire harnesses.

2.16 KEYS AND CORES

- A. Manufacturers:
 - 1. BEST, dormakaba Group: www.bestaccess.com/#sle.
 - 2. Substitutions: Not permitted.
- B. Properties: Complying with guidelines of BHMA A156.28.
 - 1. Provide small format interchangeable core.
 - 2. Provide Patented CORMAX keys and cores.
 - 3. Provide keying information in compliance with DHI (KSN) standards.
 - 4. Keying Schedule: Arrange for a keying meeting, with Architect, Owner and hardware supplier, and other involved parties to ensure locksets and locking hardware, are functionally correct and keying complies with project requirements.
 - 5. Keying: Master keyed.
 - 6. Include construction keying and control keying with removable core cylinders.
 - 7. Supply keys in following quantities:
 - a. Master Keys: 4 each.
 - b. Construction Master Keys: 6 each.
 - c. Construction Keys: 15 each.
 - d. Construction Control Keys: 2 each.
 - e. Control Keys if New System: 2 each.
 - 8. Provide key collection envelopes, receipt cards, and index cards in quantity suitable to manage number of keys.
 - 9. Deliver keys with identifying tags to Owner by security shipment direct from manufacturer.
 - 10. Permanent Keys and Cores: Stamped with applicable key marking for identification. Do not include actual key cuts within visual key control marks or codes. Stamp permanent keys "Do Not Duplicate."
 - 11. Include installation of permanent cores and return construction cores to hardware supplier. Construction cores and keys to remain property of hardware supplier.

- C. Products:
 - 1. Patented:
 - a. CORMAX.

2.17 FINISHES

- A. Finishes: Provide door hardware of same finish, unless otherwise indicated.
 - 1. Finish: 630; satin stainless steel, with stainless steel 3000 series base material (former US equivalent 32D), 652; satin chromium plated over nickel, with steel base material (former US equivalent 26D), and 689; aluminum painted, with any base material (former US equivalent US28); BHMA A156.18.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.
- B. Correct all defects prior to proceeding with installation.
- C. Verify that electric power is available to power operated devices and of correct characteristics.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Install hardware using the manufacturer's fasteners provided. Drill and tap all screw holes located in metallic materials. Do not use "Riv-Nuts" or similar products.
- C. Install hardware on fire-rated doors and frames in accordance with applicable codes and NFPA 80.
- D. Install hardware for smoke and draft control doors in accordance with NFPA 105.
- E. Use templates provided by hardware item manufacturer.
- F. Do not install surface mounted items until application of finishes to substrate are fully completed.
- G. Wash down masonry walls and complete painting or staining of doors and frames.
- H. Complete finish flooring prior to installation of thresholds.
- I. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on drawings.
 - 1. For Steel Doors and Frames: Install in compliance with DHI (LOCS) recommendations.
 - 2. For Steel Doors and Frames: See Section 081113.
 - 3. For Steel Door Frames: See Section 081213.
 - 4. For Aluminum-Framed Storefront Doors and Frames: See Section 084313.
 - 5. For Wood Doors: Install in compliance with DHI WDHS.3 recommendations.
 - 6. Flush Wood Doors: See Section 081416.
 - 7. Stile and Rail Wood Doors: See Section 081433.
 - 8. Mounting heights in compliance with ADA Standards:
 - a. Locksets: 40-5/16 inch (1024 mm).
 - b. Push Plates/Pull Bars: 42 inch (1067 mm).
 - c. Deadlocks (Deadbolts): 48 inch (1219 mm).
 - d. Exit Devices: 40-5/16 inch (1024 mm).
 - e. Door Viewer: 43 inch (1092 mm); standard height 60 inch (1524 mm).
- J. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

K. Include in installation for existing doors and frames any necessary field modification and field preparation of doors and frames for new hardware. Provide necessary fillers, reinforcements, and fasteners for mounting new hardware and to cover existing door and frame preparations.

3.03 FIELD QUALITY CONTROL

A. Perform field inspection and testing under provisions of Section 014000 - Quality Requirements.

3.04 ADJUSTING

- A. Adjust work under provisions of Section 017000 Execution and Closeout Requirements.
- B. Adjust hardware for smooth operation.
- C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.05 CLEANING

- A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.
- B. Clean adjacent surfaces soiled by hardware installation activities.
- C. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

3.06 PROTECTION

- A. Protect finished Work under provisions of Section 017000 Execution and Closeout Requirements.
- B. Do not permit adjacent work to damage hardware or finish.

3.07 HARDWARE SETS

Manufacturer List

Code:	Name:
BE	BEST Access Systems
DM	Dorma Door Controls
NA	National Guard
PR	BEST Precision Exit Devices
RC	RCI
ST	BEST Hinges and Sliding
TR	Trimco

Option List

Code:	Description:
B4E	Beveled 4 Edges
CORMAX PATENTED	-
KEYING	Cormax Patented Keying
CSK	Counter Sinking
MLR	Motorized Latch Retraction
RQE	Request to Exit
TS	Touchbar Monitoring Switch

Finish List

Code: Description:

Port Aransas Public Safety

Satin Chrome
Satin Stainless Steel
Satin Chromium Plated
Weatherized Satin Chrome
Satin Aluminum, Clear Anodized
Satin Stainless Steel
Aluminum Painted
Black
Grey
Silver

Hardware Sets

Set #1 Doors: C105

6	Hinges Manual Eluchbolt	FBB191 4.5" x 4.5" NRP	32D	ST TP
2 1	Stororoom Locksot		626	
1		9K3-7D14D FATD CORMAX FATENTED RETING	020	
1	Coordinator	3094BZ	Sliver	IR
2	Closer w/ Stop	HD8016 DS	689	ΒE
2	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	ΤR
1	Dust Proof Strike	3910	630	ΤR
2	Mounting Bracket	3095 / 3096 as req'd	Silver	ΤR
1	Gasketing	110 SA Head & Jambs		NA
1	Drip Cap	16 A - 4" ODW		NA
1	Astragal	139 SP 84"		NA
2	Door Sweep	200 SA x Width		NA
1	Threshold	8513 x Width		NA

NOTE: Coordinate hardware with hollow metal door supplier to ensure the package complies with TDI requirements.

Set #2

Doors: A113, B101A

6	Hinges	FBB191 4.5" x 4.5" NRP	32D	ST
1	Removable Mullion	KR822	689	PR
1	Exit Device	MLR TS 2103 X 4903D	626W	PR
1	Exit Device	TS 2102 X 4902D	626W	PR
2	Rim Cylinder	12E-72 PATD CORMAX PATENTED KEYING	626	ΒE
2	Closer w/ Stop	HD8016 DS	689	ΒE
2	Power Transfer	EPT-12C		PR
2	Harness	WH-6		ST
2	Harness	WH-6E		ST
2	Harness	WH-192		ST
1	Power Supply	RPSMLR2		PR
2	Position Switch	9540	BLACK	RC
1	Mullion Seal	5100N-86 86"		NA
2	Door Sweep	200 SA x Width		NA
1	Threshold	8513 x Width		NA

NOTE: Card reader by access control supplier.

Seals by storefront door supplier.

Coordinate hardware with storefront door supplier to ensure the package complies with TDI requirements.

Operational Description: Doors locked at all times. Presenting authorized credentials to reader retracts latch allowing temporary entry. Key from outside will also provide temporary entry. Request to exit switch in push bar to shunt alarm in access control software for exiting. Free egress at all times.

Set #3

Doors: B136A, A120B, A114A

3	Hinges	FBB191 4.5" x 4.5" NRP	32D	ST
1	Exit Device	MLR TS 2103 X 4903D	626W	PR
1	Rim Cylinder	12E-72 PATD CORMAX PATENTED KEYING	626	ΒE
1	Closer w/ Stop	HD8016 DS	689	ΒE

1	Power Transfer	EPT-12C		PR
1	Harness	WH-6		ST
1	Harness	WH-6E		ST
1	Harness	WH-192		ST
1	Power Supply	RPSMLR2		PR
1	Position Switch	9540	BLACK	RC
1	Gasketing	110 SA Head & Jambs		NA
1	Drip Cap	16 A - 4" ODW		NA
1	Door Sweep	200 SA x Width		NA
1	Threshold	8513 x Width		NA

NOTE: Card reader by access control supplier.

Coordinate hardware with hollow metal door supplier to ensure the package complies with TDI requirements.

Operational Description: Doors locked at all times. Presenting authorized credentials to reader retracts latch allowing temporary entry. Key from outside will also provide temporary entry. Request to exit switch in push bar to shunt alarm in access control software for exiting. Free egress at all times.

Set #4

Doors: C100B

3	Hinges	FBB191 4.5" x 4.5" NRP	32D	ST
1	Electromechanical Lock	9KW3-7DEU14D CORMAX PAT'D KEYING C RQE	626	ΒE
1	Closer w/ Stop	HD8016 DS	689	ΒE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	ΤR
1	Power Transfer	EPT-12C		PR
1	Harness	WH-6E		ST
1	Harness	WH-192		ST
1	Position Switch	9540	BLACK	RC
1	Harness	WH-38		ST
1	Power Supply	DKPS-2A		DM
1	Door Viewer	976	626	ΤR
1	Gasketing	110 SA Head & Jambs		NA
1	Drip Cap	16 A - 4" ODW		NA
1	Door Sweep	200 SA x Width		NA
1	Threshold	8513 x Width		NA

NOTE: Card reader by access control supplier.

Coordinate hardware with hollow metal door supplier to ensure the package complies with TDI requirements.

Operational Description: Doors locked at all times. Presenting authorized credentials to reader retracts latch allowing temporary entry.. Key from outside will also provide temporary entry. Request to exit switch in interior lever to shunt alarm in access control software for exiting. Free egress at all times.

Set #4A Doors: C111

3	Hinges	FBB191 4.5" x 4.5" NRP	32D	ST
1	Electromechanical Lock	9KW3-7DEU14D CORMAX PAT'D KEYING C RQE	626	ΒE
1	Closer w/ Stop	HD8016 DS	689	ΒE
1	Power Transfer	EPT-12C		PR
1	Harness	WH-6E		ST
1	Harness	WH-192		ST
1	Position Switch	9540	BLACK	RC
1	Harness	WH-38		ST

1	Power Supply	DKPS-2A	DM
1	Door Sweep	200 SA x Width	NA
1	Threshold	8513 x Width	NA

NOTE: Card reader by access control supplier. Seals by storefront door supplier. Coordinate hardware with storefront supplier to ensure the package complies with TDI requirements. Operational Description: Doors locked at all times. Presenting authorized credentials to reader retracts latch allowing temporary entry.. Key from outside will also provide temporary entry. Request to exit switch in interior lever to shunt alarm in access control software for exiting. Free egress at all times.

Set #5 Doors: C115, C116, D100

3	Hinges	FBB191 4.5" x 4.5" NRP	32D	ST
1	Storeroom Lockset	9K3-7D14D PATD CORMAX PATENTED KEYING	626	BE
1	Closer w/ Stop	HD8016 DS	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	TR
1	Gasketing	110 SA Head & Jambs		NA
1	Drip Cap	16 A - 4" ODW		NA
1	Door Sweep	200 SA x Width		NA
1	Threshold	8513 x Width		NA

NOTE: Coordinate hardware with hollow metal door supplier to ensure the package complies with TDI requirements.

Set #6

Doors: B130

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Electromechanical Lock	9KW3-7DEU14D CORMAX PAT'D KEYING C RQE	626	ΒE
1	Closer	HD8016 AF80P	689	ΒE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	ΤR
1	Wall Bumper	1270CV	626	ΤR
1	Power Transfer	EPT-12C		PR
1	Position Switch	9540	BLACK	RC
1	Power Supply	DKPS-2A		DM
1	Gasketing	110 SA Head & Jambs		NA
1	Door Sweep	200 SA x Width		NA
1	Threshold	8513 x Width		NA

NOTE: Card reader by access control supplier. Operational Description: Doors locked at all times. Presenting authorized credentials to reader retracts latch allowing temporary entry.. Key from outside will also provide temporary entry. Request to exit switch in interior lever to shunt alarm in access control software for exiting. Free egress at all times.

Set #7

Doors: A100, A104, A108B, A115, B101C, B102, B117A, B117B, A103, B105, B106, B107, C101, C104, C109, A102, C108, B124, A101, A108C, B129, C103, C113

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Electromechanical Lock	9KW3-7DEU14D CORMAX PAT'D KEYING C RQE	626	ΒE
1	Closer	HD8016 AF80P	689	ΒE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	TR

1	Wall Bumper	1270CV	626	TR
1	Power Transfer	EPT-12C		PR
1	Position Switch	9540	BLACK	RC
1	Power Supply	DKPS-2A		DM
3	Silencer	1229A	GREY	TR

NOTE: Card reader by access control supplier. Operational Description: Doors locked at all times. Presenting authorized credentials to reader retracts latch allowing temporary entry.. Key from outside will also provide temporary entry. Request to exit switch in interior lever to shunt alarm in access control software for exiting. Free egress at all times.

Set #7A Doors: A108A

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Electromechanical Lock	9KW3-7DEU14D CORMAX PAT'D KEYING C RQE	626	ΒE
1	Closer w/ Stop	HD8016 DS	689	ΒE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	TR
1	Power Transfer	EPT-12C		PR
1	Position Switch	9540	BLACK	RC
1	Power Supply	DKPS-2A		DM
3	Silencer	1229A	GREY	TR

NOTE: Card reader by access control supplier.

Operational Description: Doors locked at all times. Presenting authorized credentials to reader retracts latch allowing temporary entry.. Key from outside will also provide temporary entry. Request to exit switch in interior lever to shunt alarm in access control software for exiting. Free egress at all times.

Set #8 Doors: B101B

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Exit Device	MLR TS 2103 X 4903D	628	PR
1	Rim Cylinder	12E-72 PATD CORMAX PATENTED KEYING	626	ΒE
1	Closer	HD8016 AF80P	689	ΒE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	TR
1	Wall Bumper	1270CV	626	TR
1	Power Transfer	EPT-12C		PR
1	Harness	WH-6		ST
1	Harness	WH-6E		ST
1	Harness	WH-192		ST
1	Power Supply	RPSMLR2		PR
1	Position Switch	9540	BLACK	RC
3	Silencer	1229A	GREY	TR

NOTE: Card reader by access control supplier.

Operational Description: Doors locked at all times. Presenting authorized credentials to reader retracts latch allowing temporary entry. Key from outside will also provide temporary entry. Request to exit switch in push bar to shunt alarm in access control software for exiting. Free egress at all times.

Set #9

Doors: A114B, A120A, A109, A110, A118, A119, A122, A124, B104, B115, C100A, C107, C117

	3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
--	---	------------	--------------------	-----	----

1 1 1 3	Office Lockset Closer Kick Plate Wall Bumper Silencer	9K3-7A14D PATD CORMAX PATENTED KEYING HD8016 AF80P K0050 10" x 2" LDW B4E CSK 1270CV 1229A	626 689 630 626 GREY	BE BE TR TR TR
Set #1 Doors:	1 : B122, B123			
3 1 1 1 1 1 5et #1	Butt Hinge Push Plate Pull Plate Closer Kick Plate Wall Bumper Gasketing 2	FBB179 4.5" x 4.5" 1001-3 1017-3B HD8016 AF80P K0050 10" x 2" LDW B4E CSK 1270CV 5050C Head & Jambs	26D 630 630 689 630 626	ST TR TR BE TR TR NA
Doors:	: A111			
3 1 1 1 3	Butt Hinge Passage Set Closer Kick Plate Wall Bumper Silencer	FBB179 4.5" x 4.5" 9K3-0N14D HD8016 AF80P K0050 10" x 2" LDW B4E CSK 1270CV 1229A	26D 626 689 630 626 GREY	ST BE BE TR TR TR
Set #1 Doors:	3 : A105			
6 2 1 2 2 2 1 2 1 2	Butt Hinge Manual Flushbolt Storeroom Lockset Coordinator Closer Kick Plate Wall Bumper Dust Proof Strike Mounting Bracket Astragal Silencer	FBB179 4.5" x 4.5" 3917-12 9K3-7D14D PATD CORMAX PATENTED KEYING 3094B2 HD8016 AF80P K0050 10" x 2" LDW B4E CSK 1270CV 3910 3095 / 3096 as req'd 139 SP 84" 1229A	26D 626 626 Silver 689 630 626 630 Silver GREY	ST TR BE TR TR TR TR TR NA TR
Set #1 Doors:	4 : B121, B138			
3 1 1 1 1 1	Butt Hinge Privacy Set Closer w/ Stop Kick Plate Mop Plate Coat & Hat Hook Gasketing	FBB179 4.5" x 4.5" 9K3-0L14D HD8016 DS K0050 10" x 2" LDW B4E CSK KM050 6" x 1" LDW B4E CSK 3070-1 5050C Head & Jambs	26D 626 689 630 630 626	ST BE BE TR TR TR NA
Set #1 Doors:	5 : A107, A117, B108, B111,	B112, B127		
3 1	Butt Hinge Privacy Set	FBB179 4.5" x 4.5" 9K3-0L14D	26D 626	ST BE

Port Aransas Public Safety

1	Closer	HD8016 AF80P	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	TR
1	Mop Plate	KM050 6" x 1" LDW B4E CSK	630	TR
1	Wall Bumper	1270CV	626	TR
1	Coat & Hat Hook	3070-1	626	TR
1	Gasketing	5050C Head & Jambs		NA

Set #16

Doors: B139, B131, B132, B135, B140, B141, B142, B143, B144

3 1	Butt Hinge One-Sided Lockset	FBB179 4.5" x 4.5" NRP 9K3-7YD14D PATD CORMAX PATENTED KEYING	26D 626	ST BE
1	Closer w/ Stop	HD8016 DS	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	ΤR
3	Silencer	1229A	GREY	ΤR

Set #17

Doors: B136C

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Electromechanical Lock	9KW3-7DEU14D CORMAX PAT'D KEYING C RQE	626	ΒE
1	Closer	HD8016 AF80P	689	ΒE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	ΤR
1	Wall Bumper	1270CV	626	ΤR
1	Power Transfer	EPT-12C		PR
1	Position Switch	9540	BLACK	RC
1	Power Supply	DKPS-2A		DM
1	Gasketing	110 SA Head & Jambs		NA
1	Door Sweep	200 SA x Width		NA
1	Threshold	8513 x Width		NA

NOTE: Card reader by access control supplier.

Operational Description: Doors locked at all times. Presenting authorized credentials to reader retracts latch allowing temporary entry.. Key from outside will also provide temporary entry. Request to exit switch in interior lever to shunt alarm in access control software for exiting. Free egress at all times.

Set #18 Doors: B136B

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Electromechanical Lock	9KW3-7DEU14D CORMAX PAT'D KEYING C RQE	626	ΒE
1	Closer w/ Stop	HD8016 DS	689	ΒE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	TR
1	Power Transfer	EPT-12C		PR
1	Position Switch	9540	BLACK	RC
1	Power Supply	DKPS-2A		DM
1	Gasketing	110 SA Head & Jambs		NA
1	Door Sweep	200 SA x Width		NA
1	Threshold	8513 x Width		NA

NOTE: Card reader by access control supplier.

Operational Description: Doors locked at all times. Presenting authorized credentials to reader retracts latch allowing temporary entry.. Key from outside will also provide temporary entry. Request to exit switch in interior lever to shunt alarm in access control software for exiting. Free egress at all times.

Set #19 Doors: B125

3	Butt Hinge	FBB168 4.5" x 4.5"	26D	ST
1	Storeroom Lockset	9K3-7D14D PATD CORMAX PATENTED KEYING	626	BE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	TR
1	Wall Bumper	1270CV	626	TR
1	Gasketing	5050C Head & Jambs		NA

Set #20

Doors: C110, A116, A121, B114, B116, C114

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Storeroom Lockset	9K3-7D14D PATD CORMAX PATENTED KEYING	626	ΒE
1	Closer	HD8016 AF80P	689	ΒE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	ΤR
1	Wall Bumper	1270CV	626	ΤR
3	Silencer	1229A	GREY	ΤR

Set #21

Doors: B126

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Storeroom Lockset	9K3-7D14D PATD CORMAX PATENTED KEYING	626	BE
1	Closer	HD8016 AF80P	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	TR
1	Wall Bumper	1270CV	626	TR
1	Gasketing	5050C Head & Jambs		NA

Set #22

Doors: B103

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Storeroom Lockset	9K3-7D14D PATD CORMAX PATENTED KEYING	626	ВF
1	Wall Bumper	1270CV	626	ΤR
3	Silencer	1229A	GREY	TR

Set #GATE

Doors: #2, #3, #5, #7

1	Exit Device	2108 X 4908D	626W	PR
1	Rim Cylinder	12E-72 PATD CORMAX PATENTED KEYING	626	ΒE
1	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	TR

NOTE: Remainder of hardware by gate supplier. Coordinate with gate supplier to determine if any additional plates are required to install the exit device.

Set #GATE-2 Doors: #1, #4, #6

1	Exit Device	2108 X 4908D	626W	PR
1	Rim Cylinder	12E-72 PATD CORMAX PATENTED KEYING	626	ΒE
2	Kick Plate	K0050 10" x 2" LDW B4E CSK	630	ΤR
1	Lockable Drop Rod	NW6270L	US26D	ΒY
1	Padlock	41B-772		ΒE

NOTE: Remainder of hardware by gate supplier. Coordinate with gate supplier to determine if any additional plates are required to install the exit device.

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Opening List

Opening:	Hardware Set:
A100	7
A101	7
A102	7
A103	7
A104	7
A105	13
A107	15
A108A	7A
A108B	7
A108C	7
A109	9
A110	9
A111	12
A113	2
A114A	3
A114B	9
A115	7
A116	20
A117	15
A118	9
A119	9
A120A	9
A120B	3
A121	20
A122	9
A124	9
B101A	2
B101B	8
B101C	7
B102	7
B103	22
B104	9
B105	7
B106	7
B107	7
B108	15
B111	15
B112	15
B114	20
B115	9
B116	20
B117A	7
B117B	7
B121	14
B122	14
B123	11
B124	7
B125	, 19
B126	21
B127	15
B120	7
B130	6
B131	16
	10

Port Aransas Public Safety

B132	16
B135	16
B136A	3
B136B	18
B136C	17
B138	14
B139	16
B140	16
B141	16
B142	16
B143	16
B144	16
C100A	9
C100B	4
C101	7
C103	7
C104 C105	1
C107	Q
C108	7
C109	7
C110	20
C111	4A
C113	7
C114	20
C115	5
C116	5
C117	9
D100	5
#1	GATE-2
#2	GATE
#3	GATE
#4	GATE-2
#5	GATE
#6	GATE-2
#1	GATE

END OF SECTION

SECTION 09 50 00 - ACOUSTICAL METAL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Section Includes

Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section

1.2 SUMMARY

A. Section Includes

1. Acoustical metal ceiling panels

- 2. Exposed grid suspension system
- 3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings
- 4. Perimeter Trim
- B. Related Sections:
 - 1. Section 09 51 33.13 Acoustical Snap In Metal Pan Ceiling
 - 2. Section 09 20 00 (09250) Plaster and Gypsum Board
 - 3. Section 09 51 13 (09500) Acoustical Fabric-Faced Panel Ceilings
 - 4. Section 09 53 00 (09500) Acoustical Ceiling Suspension Assemblies
 - 5. Section 01 81 13 Sustainable Design Requirements
 - 6. Section 01 81 19 Indoor Air Quality Requirements
 - 7. Section 09 54 00 Specialty Ceilings
 - 8. Divisions 23 HVAC Air Distribution
 - 9. Division 26 Electrical

C. Substitutions:

1. Prior Approval: Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products that have not been approved by Addenda, the specified products shall be provided without additional compensation.

2. Submittals that do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Underwriters' Laboratories Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability

2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire

3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process

4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings

6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels

7. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

8. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials

9. ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint

10. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems

11. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum

12. ASTM E 1264 Classification for Acoustical Ceiling Products

B. International Building Code

C. ASHRAE Standard 62 1 2004 Ventilation for Acceptable Indoor Air Quality

D. NFPA 70 National Electrical Code

E. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures

F. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic **Qualification Testing of Non-structural Components**

G. International Code Council-Evaluation Services Report - Seismic Engineer Report 1. ESR 1308 - Armstrong Suspension Systems

H. International Association of Plumbing and Mechanical Officials - Seismic Engineer Report 1. 0244 - Armstrong Single Span Suspension System

I. California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.1 2010 J. LEED - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings K. International Well Building Standard

L. Mindful Materials

M. Living Building Challenge

N. U.S. Department of Agriculture BioPreferred program (USDA BioPreffered).

1.4 SYSTEM DESCRIPTION

Canopies/Architectural Elements

1.5 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.

B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.

C. Shop Drawings: Layout and details of acoustical ceilings show locations of items that are to be coordinated with, or supported by the ceilings.

D. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.

E. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.6 SUSTAINABLE MATERIALS

Transparency: Manufacturers will be given preference when they provide documentation to support sustainable requirements for the following: Material ingredient transparency, Removal of Red List Ingredients per LBCV3, Life Cycle impact information, Low-Emitting Materials, and Clean Air performance.

1. Health Product Declaration. The end use product has a published, complete Health Product Declaration with disclosure at a minimum of 1000ppm of known hazards in compliance with the Health Product Declaration open Standard.

2. Declare Label. The end use product has a published Declare label by the International Living Future Institute with disclosure of 100 ppm with a designation of Red List Free or Compliant (less than 1% proprietary ingredients).

3. Low Emitting products with VOC emissions data. Preference will also be given to manufacturers that can provide emissions data showing their products meet CDHP Standard Method v1.1 (Section 01350).

4. Life cycle analysis. Products that have communicated lifecycle data through Environmental Product Declarations (EPDs) will be preferred.

5. End of Life Programs/Recycling: Where applicable, manufacturers that provide the option for recycling of their products into new products at end-of-life through take-back programs will be preferred.

1.7 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.

B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.

a. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 Classification.

C. Acoustic Panels: As with other architectural features located at the ceiling, may obstruct or skew the planned fire sprinkler water distribution pattern through possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection en gineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present. D. Coordination of Work: Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.

C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way. 1.9 PROJECT CONDITIONS

A. Space Enclosure:

Standard Ceilings: Do not install interior ceilings until space is enclosed and weatherproof; wet work in place is completed and nominally dry; work above ceilings is complete; and ambient conditions of temperature and humidity are continuously maintained at values near those intended for final occupancy. Building areas to receive ceilings shall be free of construction dust and debris.

1.11 WARRANTY

A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:

1. Acoustical Panels: Sagging and warping

2. Grid System: Rusting and manufacturer's defects

- B. Warranty Period:
 - 1. Acoustical Metal panels: One (1) year from date of substantial completion
 - 2. Grid: Ten (10) years from date of substantial completion

C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.12 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.

1. Acoustical Metal Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.

2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Metal Ceiling Panels:

1. Armstrong World Industries, Inc.

- B. Suspension Systems:
 - 1. Armstrong World Industries, Inc.
- C. Aluminum Custom Trims:
- 1. Armstrong World Industries, Inc.
- 2.2.1 ACOUSTICAL CEILING UNITS
 - A. Acoustical Panels Type AMP

1. Acoustical Panel Type AMP-1: <u>Provide a total of six (6) AMP-1 panels (46-1/2" x 74-1/2"</u> each panel) in Lobby B101 with two rows of three AMP-1 panels side-by-side:

- a. Surface Texture: Smooth
- b. Composition: Metal
- c. Color: White
- d. Size: 46-1/2" x 74-1/2"
- e. Edge Profile: Square
- f. Perforation Option: Round Diagonal
- g. Noise Reduction Coefficient (NRC):
- h. Ceiling Attenuation Class (CAC):
- i. Sabin: 1.25
- j. Articulation Class (AC):
- k. Flame Spread: ASTM E 1264; Class A (FM).
- I. Light Reflectance (LR) White Panel: ASTM E 1477; .
- m. Dimensional Stability: Standard
- q. Acceptable Product: METALWORKS Canopies, 5375H6M2 No added

formaldehyde as manufactured by Armstrong World Industries

- 2. Metal Panel Accessories:
 - 1. 7006 Escutcheon Kit
 - 2. 8149L8 MW Canopy Hanging-Kit 8' Chrome PC2

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.

B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.

1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

3.3 INSTALLATION

A. Follow manufacturer installation instructions

B. Install suspension system and panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.

C. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.

D. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.

E. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

F. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.4 ADJUSTING AND CLEANING

A. Replace damaged and broken panels.

B. Clean exposed surfaces of ceilings panels, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 50 00

SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS - Addendum-03

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 acoustical panels and exposed suspension systems for interior ceilings.
 - B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete.
- 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, 6 inches in size.
- 1.4 INFORMATIONAL SUBMITTALS
 - A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Ceiling suspension-system members.
 - 2. Structural members to which suspension systems will be attached.
 - 3. Method of attaching hangers to building structure.
 - a. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.
 - 4. Carrying channels or other supplemental support for hanger-wire attachment where conditions do not permit installation of hanger wires at required spacing.
 - 5. Size and location of initial access modules for acoustical panels.
 - 6. Items penetrating finished ceiling and ceiling-mounted items including the following:
 - a. Lighting fixtures.
 - b. Diffusers.
 - c. Grilles.
 - d. Speakers.
 - e. Sprinklers.
 - f. Access panels.
 - g. Perimeter moldings.
 - 7. Show operation of hinged and sliding components covered by or adjacent to acoustical panels.
 - 8. Minimum Drawing Scale: 1/8 inch = 1 foot .
 - B. Product Test Reports: For each acoustical panel ceiling, for tests performed by manufacturer and witnessed by a qualified testing agency .
 - C. Evaluation Reports: For each acoustical panel ceiling suspension system and anchor and fastener type, from ICC-ES.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For finishes to include in maintenance manuals.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
 - 1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

PART 2 - PRODUCTS

- 2.1 MANUFACTURERS
 - A. Source Limitations: Obtain each type of acoustical ceiling panel and its supporting suspension system from single source from single manufacturer.

- 2.2 PERFORMANCE REQUIREMENTS
 - A. Seismic Performance: Suspended ceilings shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 - B. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: Class A according to ASTM E 1264.
 - 2. Smoke-Developed Index: 50 or less.
- 2.3 ACOUSTICAL PANELS
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Armstrong World Industries, Inc.
 - 2. CertainTeed Corp.
 - 3. USG Interiors, Inc.; Subsidiary of USG Corporation.
 - B. Classification: Provide panels complying with ASTM E 1264 for type, form, and pattern as follows:
 - C. Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:
 - 1. APC-1 Fine Fissured, # 1713, Armstrong World Interiors Inc.. Provide in the following rooms: Court A108, Dispatch B117, Patrol C117.
 - <mark>a. 24"X24"x3/4"</mark>
 - b. White
 - c. NRC 0.70
 - 2. APC-2 Fine Fissured, # 1728, Armstrong World Interiors Inc.. Provide in all rooms not listed in APC-1 and APC-3.
 - <mark>a. 24"X24"x5/8"</mark>
 - b. White
 - c. NRC 0.55
 - APC-3 Kitchen Zone, # 673, Armstrong World Industries, Inc.. Provide in the following rooms: Kitchen C100.
 - <mark>a. 24"X24"x5/8"</mark>
 - b. White
 - <mark>с. САС:</mark> 33
- 2.4 METAL SUSPENSION SYSTEM
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide Armstrong Ceiling & Wall Solutions; Prelude Plus XL aluminum or comparable product by one of the following:
 - 1. Certainteed; SAINT-GOBAIN.
 - 2. USG Corporation.
 - 3. Armstrong Ceiling & Wall Solutions.
 - B. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C 635/C 635M and designated by type, structural classification, and finish indicated.
 - 1. High-Humidity Finish: Where indicated, provide coating tested and classified for "severe environment performance" according to ASTM C 635/C 635M.
 - C. Wide-Face, Capped, Double-Web, Aluminum Suspension System: Aluminum main and cross runners; with prefinished 15/16-inch- wide aluminum caps on flanges.
 - 1. Structural Classification: light-duty system.
 - 2. End Condition of Cross Runners: Override (stepped) or butt-edge type.
 - 3. Face Design: Flat, flush.
 - 4. Cap Material: aluminum.
 - 5. Cap Finish: Painted white.
- 2.5 ACCESSORIES
 - A. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
 - 1. Anchors in Concrete: Anchors of type and material indicated below, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing according to ASTM E 488/E 488M or ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.

- a. Type: anchors.
- B. Wire Hangers, Braces, and Ties: Provide wires as follows:
 - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 - 2. Stainless-Steel Wire: ASTM A 580/A 580M, Type 304, nonmagnetic.
 - 3. Nickel-Copper-Alloy Wire: ASTM B 164, nickel-copper-alloy UNS No. N04400.
 - 4. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than 0.106-inch- diameter wire.
- C. Angle Hangers: Angles with legs not less than 7/8 inch wide; formed with 0.04-inch- thick, galvanized-steel sheet complying with ASTM A 653/A 653M, G90 coating designation; with bolted connections and 5/16-inch-diameter bolts.
- D. Hold-Down Clips: Manufacturer's standard hold-down.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plans.
- B. Layout openings for penetrations centered on the penetrating items.

3.3 INSTALLATION

- A. Install acoustical panel ceilings according to ASTM C 636/C 636M and manufacturer's written instructions.
 - 1. Fire-Rated Assembly: Install fire-rated ceiling systems according to tested fire-rated design.
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
 - 4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 5. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both the structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
 - 6. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-inplace hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 - 7. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
 - 8. Do not attach hangers to steel deck tabs.
 - 9. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 - 10. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
 - 11. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
 - 1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 - 2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.
 - 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.
 - 1. Arrange directionally patterned acoustical panels as follows:
 - a. As indicated on reflected ceiling plans.
 - b. Install panels with pattern running in one direction parallel to short axis of space.
 - c. Install panels in a basket-weave pattern.
 - 2. For square-edged panels, install panels with edges fully hidden from view by flanges of suspensionsystem runners and moldings.
 - 3. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
 - 4. For reveal-edged panels on suspension-system members with box-shaped flanges, install panels with reveal surfaces in firm contact with suspension-system surfaces and panel faces flush with bottom face of runners.
 - 5. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
 - 6. Install hold-down clips in areas indicated; space according to panel manufacturer's written instructions unless otherwise indicated.
 - a. Hold-Down Clips: Space 24 inches o.c. on all cross runners.

3.4 ERECTION TOLERANCES

- A. Suspended Ceilings: Install main and cross runners level to a tolerance of 1/8 inch in 12 feet , non-cumulative.
- B. Moldings and Trim: Install moldings and trim to substrate and level with ceiling suspension system to a tolerance of 1/8 inch in 12 feet , non-cumulative.

3.5 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.
- B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 13
SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES (ALTERNATE #2) - Addendum-03

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. Thermoplastic-rubber base.
- 1.3 ACTION SUBMITTALS
 - A. Product Data: For each type of product.
 - B. Sustainable Design Submittals:
 - 1. Product Data: For adhesives, indicating VOC content.
 - 2. Laboratory Test Reports: For adhesives, indicating compliance with requirements for low-emitting materials.
 - 3. Product Data: For sealants, indicating VOC content.
 - 4. Laboratory Test Reports: For sealants, indicating compliance with requirements for low-emitting materials.
 - 5. Laboratory Test Reports: For resilient base and stair products and accessories, indicating compliance with requirements for low-emitting materials.
 - 6. Environmental Product Declaration: For each product.
 - C. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.
 - D. Samples for Initial Selection: For each type of product indicated.
 - E. 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.
 - F. Product Schedule: For resilient base and accessory products.

1.4 QUALITY ASSURANCE

- A. 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.
 - 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.
- 1.5 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.

1.6 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 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

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2.1 PERFORMANCE REQUIREMENTS

- A. Verify products comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- 2.2 THERMOPLASTIC-RUBBER BASE
- A. Basis-of-Design Product: Subject to compliance with requirements, provide Johnsonite; a Tarkett company; Johnsonite Millwork Wall Finishing System, *Johnsonite Reveal 8" Wall Base* or comparable product by one of the following:
 - 1. Armstrong Flooring, Inc.
 - 2. Nora by Interface.
 - 3. Roppe Corporation.
 - 4. Johnsonite; a Tarkett company.
 - Product Standard: ASTM F 1861, Type TP (rubber, thermoplastic).
 - 1. Group: I (solid, homogeneous).
 - 2. Style and Location:

a. Style Johnsonite Reveal

- C. Thickness: 0.25 inch.
- D. Height: 8 inches.
- E. Lengths: Cut lengths 96 inches long.
- F. Outside Corners: Pre-formed corners.
- G. Inside Corners: Mitered Cut.
- H. Colors: Match Architect's sample.
- 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 resilient-product manufacturer for applications indicated.
 - B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
 - 1. Verify adhesives have a VOC content of 50 Insert value> g/L or less and 60 g/L or less for rubber stair treads.
 - C. Stair-Tread Nose Filler: Two-part epoxy compound recommended by resilient stair-tread manufacturer to fill nosing substrates that do not conform to tread contours.
 - D. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient stair-tread manufacturer.

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. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F 710.
 - 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 manufacturer. Do not use solvents.
 - 3. Alkalinity and Adhesion Testing: Perform tests recommended by 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. , 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 F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 - b. Relative Humidity Test: Using in-situ probes, ASTM F 2170. 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 resilient products 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 products and installation materials into spaces where they will be installed.
- E. 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 INSTALLATION
 - A. Comply with manufacturer's written instructions for installing resilient accessories.
- 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 surfaces.
 - 2. Sweep and vacuum horizontal surfaces thoroughly.
 - 3. Damp-mop horizontal surfaces to remove marks and soil.
 - 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. Floor Polish: Remove soil, adhesive, and blemishes from resilient stair treads before applying liquid floor polish.
 - 1. Apply three coat(s).
- E. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 09 65 13

SECTION 09 65 19.23 - SOLID VINYL TILE FLOORING (LVT) - Addendum-03

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 vinyl floor tile.
- 1.3 ACTION SUBMITTALS
 - A. Product Data: For each type of product.
 - B. Samples for Initial Selection: For each type of floor tile indicated.
 - C. Product Schedule: For floor tile.
- 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 QUALITY ASSURANCE
 - A. Installer Qualifications: A qualified installer who employs workers for this Project 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.
- 1.7 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.

1.8 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 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 (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 SOLID VINYL FLOOR TILE LVT
 - A. Products: Basis-of-Design Product: Subject to compliance with requirements, provide Karndeen or comparable product:
 - B. Tile Standard: ASTM F 1700.
 - 1. Class: Class III, printed film vinyl tile.
 - 2. Type: B, embossed surface.
 - C. Thickness: 0.126 inch (3.2 mm).
 - D. Wear Layer: 20 mil (0.65 mm)
 - E. Size: at LVT1 9" X 56"; at LVT2 12" x 18"
 - F. Commercial Warranty: 15 years
 - G. Seamless-Installation Method: Chemically bonded.
 - H. Colors and Patterns: at LVT1 Van Gogh Gluedown, Reclaimed Redwood VGW997; at LVT2- Honed Oyster Slate
- 2.2 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. Verify adhesive is compatible with percent fly ash in concrete slab.
- C. Seamless-Installation Accessories:
 - 1. Chemical-Bonding Compound: Manufacturer's product for chemically bonding seams.

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 F 710.
 - 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] [10] <Insert number> pH.
 - 4. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed with installation only after substrates pass testing.
 - a. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75% 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 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 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 square with room axis, unless otherwise 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.
- 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.
- G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor 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.
- H. Adhere floor tiles to flooring 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.
- I. Seamless Installation:

1. Chemically Bonded Seams: Bond seams with chemical-bonding compound to permanently fuse sections into a seam less flooring. Prepare seams and apply compound to produce tightly fitted seams without gaps, overlays, or excess bonding compound on flooring surfaces.

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 exposed 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 096519.23

SECTION 09 69 00 – ACCESS FLOORING – Addendum-03

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.

SUMMARY

- B. This Section includes the following:
 - 1. Interchangeable access-flooring panels
 - 2. Understructure
 - 3. Labor, material, equipment and installation as per specifications and/or shown on the Architect's drawings.

Related Sections include the following:

- 4. Section 03 30 00 Concrete work and concrete floor sealer
- 5. Section 26 05 00 Electrical connections and grounding
- 1.2 PERFORMANCE REQUIREMENTS
 - A. Provide access flooring system consisting of moveable assemblies composed of modular floor panels supported on pedestals forming accessible under floor cavities to accommodate electrical and mechanical, services which comply with performance requirements specified. Raised floor panels must be interchangeable with each other except where cut for special conditions.
 - B. Where applicable load testing shall be performed according to "Recommended Test Procedures for Access Flooring" as established by the Ceiling and Interior Systems Construction Association (CISCA). These procedures shall be used as a guideline when presenting load performance product information.
 - 1. Concentrated Load: 1,250 lb. on one square inch (25mm) at any location with a top surface deflection not to exceed 0.10" (2.5mm), and a permanent set not to exceed .010" (.25mm).
 - 2. Uniform Load: With a top surface deflection not exceeding 0.040" (1mm), floor can hold 600 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010" (0.25mm).
 - 3. Ultimate Load: Panel shall be designed to withstand a load of 1800 lb. applied over one inch at the weakest point on a pedestal.
 - 4. Rolling Load: Panels shall withstand a rolling load of 1,300 lbs. applied through a 3" (76mm) dia. x 1-13/16" (46mm) wide caster for 10 cycles over the same path with a maximum of .040" (1mm) top surface permanent set. Panels shall withstand a rolling load of 900 lb. applied through a hard rubber-surfaced wheel 6" (152mm) dia. x 2" (51mm) wide for 10,000 cycles over the same path with a maximum of .040" (1mm) top surface permanent set.
 - 5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one-inch square indenter shall not render the system unserviceable.
 - Flammability: Bare panel system shall meet Class A requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.
 - Combustibility: All components of the access floor system shall qualify as noncombustible by demonstrating compliance with requirements of ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.
 - 8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.
 - 9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 6000 lb. (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 "Pedestal Axial Load Test."
 - 10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.
 - 11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an average overturning moment of 1000 in*lbs. (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, "Pedestal Overturning Moment Test."
 - C. Product testing shall be witnessed and certified by an accredited independent engineering and testing laboratory based in the U.S.A. with a minimum of five (5) years' experience testing access floor components in accordance with CISCA test methods.

1.3 SUBMITTALS

- A. Submit a sample of the floor panel and each understructure component.
- B. Shop Drawings:
 - 1. Submit drawings showing raised floor panel layout including starting point of installation.
 - 2. Include details of component panels and pedestals. If required show edge details of ramps, steps, handrails and anchoring of pedestal bases to subfloor.
- C. Product Certificates:
 - 1. Submit independent testing organization certificates indicating compliance with specified design criteria when tested and reported according to CISCA "Recommended Test Procedures for Access Floors."

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Access floor manufacture shall be ISO9001:2015 certified demonstrating it has a robust and well documented quality management system with continual improvement goals and strategies.
 - 2. Access floor manufacturer's facilities shall be ISO14001:2015 certified demonstrating that they maintain an environmental management system.
- B. Installer Qualifications: Engage an experienced installer with minimum of 5 years' experience in the installation of access floor systems of comparable size and complexity.
- C. Access Floor Tolerances:
 - 1. Manufacturing Tolerance:
 - a. Nominal panel size: ± 0.015" (.4mm) or less.
 - b. Panel flatness: ± 0.020" (.5mm) or less.
 - c. Panel squareness: ± 0.015" (.4mm) or less.
 - d. Panel interchangeability: All panels, except those modified to meet special conditions, shall be interchangeable.
 - 2. Installation Tolerance:
 - a. Finished installation shall be level within ± 0.060" (2mm) in 10 feet (3m) and ± 0.100" (3mm) for the entire floor.
- 1.5 DELIVERY STORAGE AND HANDLING
 - A. Deliver flooring components clearly labeled with manufacturer's name and item description.
 - B. Handle and store packages containing flooring in a manner which avoids overloading building structure.
 - C. Provide a dry accessible area to receive and unload material with a free path to elevators, hoists and/or the area receiving the floor.
 - D. The subfloor shall be free of moisture, dust, dirt and other debris. Once installed, the tile floor must be maintained in the same manner.

1.6 PROJECT CONDITIONS

- A. Provide a clean, level, dry subfloor, temperature controlled, and protected from the weather.
- B. Access flooring storage and installation areas shall be maintained at a temperature between 40°F to 120°F and be less than 70% relative humidity for 24 hours a day before, during and after installation.
- C. Overhead construction work must be completed before installing access floor to avoid damage to panels and finishes.

PART 2PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Netfloor USA -CamassCrete CSW1000W-100 Low Profile (4" System Height) with 24"x24" module size Access Flooring or comparable product.
- 2.2 MATERIALS
 - A. Floor Panels: Panels shall be integrated steel pan construction with cementitious core panel body.
 - Panels shall be nominal 20" (510mm) x 20" (510mm) manufactured with powder-coated steel panels Panel corners shall be manufactured to receive the pedestal head positioning dome. Each panel shall accept a flush-fit metal fastener which securely fastens each panel corner to the pedestal head.
 - B. Understructure:
 - 1. Pedestal assemblies shall be of hot-dip galvanized steel.

- 2. The base shall be a minimum of 16 square inches and shall be stamped and/or embossed on its underside and shall be adhered to the sub floor with an adhesive recommended by the access flooring manufacturer.
- 3. Where mechanical anchors are required for seismic zones, provide same as required by project specific seismic calculations.
- 4. The threaded stud shall be 3/4" (19mm) diameter steel.
- 5. The head assembly shall be designed so that the panels will be held in place with or without cornerlock fasteners.
- 6. Pedestal assembly shall provide an adjustment range of +/- 1" (25mm) when finished floor height is 6" (152mm) or more, adjustable at 1/64" (.4mm) increments.
- 7. The assembly shall provide a mechanical means to lock the floor in a level plane and adjustments shall be capable of being made without special tools.
- 8. For cornerlock system, the head of the all-steel assembly shall be designed to accept a metal fastener to mechanically lock the panels in place.
- 9. Pedestal assembly shall support not less than 6,000 lb. axial load and shall resist an average 1,000 inch-pound overturning moment when bonded to a clean concrete slab.
- C. Accessories:
 - 1. Furnish ramps, steps, lateral bracing, fascia, handrails, cutouts and miscellaneous items where indicated.

PART 3EXECUTION

3.1 INSPECTION

- A. Examine the subfloor which is to receive access flooring for dryness, cleanliness, unevenness, or any irregularities that will affect the quality of the access flooring.
 - 1. Verify that material storage and installation areas are at recommended temperature and relative humidity before, during and after installation.
 - 2. Verify that access floor is level to within 1/8" (3mm) in 10 feet (3m).
- B. Do not commence installation of access flooring until subfloor is clean and dry, temperature controlled, and protected from the weather.

3.2 INSTALLATION

- A. Pedestal locations shall be established from approved shop drawings so that mechanical and electrical work can be installed without interfering with pedestal locations.
- B. Cut edges of panels shall be sealed with compressible neoprene gasketing to prevent Category 2 Leakage.
- C. Installer is to coordinate with other trades to maintain the integrity of the installed access flooring. All traffic on access floor shall be controlled by the installer only. No traffic other than the access floor installation crew shall be permitted on any floor area for 48 hours to allow the pedestal adhesive to set. Access floor panels shall not be removed by other trades for 72 hours after their installation.
- D. Floor system and accessories shall be installed by an authorized factory trained installation company with a minimum of five (5) years' experience.
- E. No dust or debris producing operations by other trades shall be allowed in areas where access floor is being installed to ensure proper bonding of pedestals to subfloor.
- F. Installer shall keep the subfloor broom clean as installation progresses.
- G. Finished installation shall be level within +/- 0.060" (2mm) in 10 feet (3m) and +/- 0.100" (3mm) for the entire floor area.
- H. Replace damaged materials prior to the application of field applied surfaces.
- I. Assure compatibility between the concrete sealer and the pedestal adhesive provided by the access floor manufacturer.

3.3 ACCEPTANCE

- A. Protect the access floor and accessories from damage, contamination or overloading.
- B. Provide underfloor cleaning.

END OF SECTION 09 69 00

SECTION 09 84 33 - SOUND-ABSORBING WALL UNITS

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 shop-fabricated, fabric-wrapped panel units tested for acoustical performance, including:
 1. Sound-absorbing wall panels.
- 1.3 DEFINITIONS
 - A. NRC: Noise Reduction Coefficient.
 - B. SAA: Sound Absorption Average.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of fabric facing, panel edge, core material, and mounting indicated.
- B. Shop Drawings: For sound-absorbing wall units. Include mounting devices and details; details at panel head, base, joints, and corners; and details at ceiling, floor base, and wall intersections. Indicate panel edge and core materials.
 - 1. Include elevations showing panel sizes and direction of fabric weave and pattern matching.
- C. Samples for Initial Selection: For each type of fabric facing from sound-absorbing wall unit manufacturer's full range.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Elevations and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Electrical outlets, switches, and thermostats.
 - 2. Items penetrating or covered by sound-absorbing wall units including the following:
 - a. Lighting fixtures.
 - b. Air outlets and inlets.
 - c. Speakers.
 - d. Alarms.
 - e. Sprinklers.
 - f. Access panels.
 - 3. Show operation of hinged and sliding components covered by or adjacent to sound-absorbing wall units.
- B. Product Certificates: For each type of sound-absorbing wall unit, from manufacturer.
- C. Warranty: Sample of special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sound-absorbing wall units to include in maintenance manuals. Include fabric manufacturers' written cleaning and stain-removal recommendations.

1.7 QUALITY ASSURANCE

- A. Source Limitations: Obtain sound-absorbing wall units from single source from single manufacturer.
- B. Fire-Test-Response Characteristics: Provide sound-absorbing wall units meeting the following as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1. Surface-Burning Characteristics: As determined by testing per ASTM E 84.
 - 2. Fire Growth Contribution: Meeting acceptance criteria of local code and authorities having jurisdiction when tested according to [NFPA 265][NFPA 286].

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with fabric and sound-absorbing wall unit manufacturers' written instructions for minimum and maximum temperature and humidity requirements for shipment, storage, and handling.
- B. Deliver materials and units in unopened bundles and store in a temperature-controlled dry place with adequate air circulation.
- 1.9 PROJECT CONDITIONS
 - A. Environmental Limitations: Do not install sound-absorbing wall units until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work at and above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

- B. Lighting: Do not install sound-absorbing wall units until a lighting level of not less than 50 fc (538 lux) is provided on surfaces to receive the units.
- C. Air-Quality Limitations: Protect sound-absorbing wall units from exposure to airborne odors, such as tobacco smoke, and install units under conditions free from odor contamination of ambient air.
- D. Field Measurements: Verify locations of sound-absorbing wall units and actual dimensions of openings and penetrations by field measurements before fabrication.
- 1.10 WARRANTY
 - A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of sound-absorbing wall units that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to the following:
 - a. Acoustical performance.
 - b. Fabric sagging, distorting, or releasing from panel edge.
 - c. Warping of core.
 - 2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

- 2.1 SOUND-ABSORBING WALL UNITS
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated or comparable product by one of the following:
 - 1. Kinetics Noise Control, Inc.

B. Sound-Absorbing Wall Panel AWP-1 (1" Thick) in the following rooms: Patrol C117.

Manufacturer's standard panel construction consisting of facing material stretched over front face of edgeframed core and bonded or attached to edges and back of frame.

- 1. Basis-of-Design Product: HardSide Acoustical Wall Panels, Kenetics Noise control, Inc.
- 2. Mounting: Edge mounted with splines secured to substrate.
 - a. Finish Color at Exposed Edges: Match color of facing material.
- 3. Mounting: Back mounted with manufacturer's standard adhesive, secured to substrate.
- 4. Core: glass-fiber board.
 - a. Core-Face Layer: Manufacturer's standard tackable, impact-resistant, high-density board.
- 5. Edge Construction: Manufacturer's standard chemically hardened core with no frame.
- 6. Edge Profile: Square.
- 7. Corner Detail in Elevation: Square.
- 8. Facing Material: 100% polyester fabric, FR 701 Style 2100 by Guilford of Maine.
- Acoustical Performance: Sound absorption NRC of 0.29 to 1.02 according to ASTM C 423 for Type A mounting according to ASTM E 795.
- 10. Nominal Core Thickness: 1 inch.
- 11. Panel Width: As indicated on drawings.
- 12. Panel Height: As indicated on drawings.
- 13. Color: Colors to be selected at a later date by Architect from full range of manufacturer's standard colors.

C. Sound-Absorbing Wall Panel AWP-2 (2" Thick) in the following rooms: Court A108, Dispatch B117. Manufacturer's standard panel construction consisting of facing material stretched over front face of edge-

framed core and bonded or attached to edges and back of frame.

- 1. Basis-of-Design Product: HardSide Acoustical Wall Panels, Kenetics Noise control, Inc.
- 2. Mounting: Edge mounted with splines secured to substrate.
 - a. Finish Color at Exposed Edges: Match color of facing material.
- 3. Mounting: Back mounted with manufacturer's standard adhesive, secured to substrate.
- 4. Core: glass-fiber board.
 - a. Core-Face Layer: Manufacturer's standard tackable, impact-resistant, high-density board.
- 5. Edge Construction: Manufacturer's standard chemically hardened core with no frame.
- 6. Edge Profile: Square.
- 7. Corner Detail in Elevation: Square.
- 8. Facing Material: 100% polyester fabric, FR 701 Style 2100 by Guilford of Maine.

- 9. Acoustical Performance: Sound absorption NRC of 0.29 to 1.02 according to ASTM C 423 for Type A mounting according to ASTM E 795.
- 10. Nominal Core Thickness: 2 inches.
- 11. Panel Width: As indicated on drawings.
- 12. Panel Height: As indicated on drawings.
- 13. Color: Colors to be selected at a later date by Architect from full range of manufacturer's standard colors.

2.2 MATERIALS

- A. General:
 - 1. Minimum Recycled Content: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than <Insert number> percent by weight.
 - 2. Regional Materials: Sound-absorbing wall units shall be manufactured within 500 miles (800 km) of Project site.
- B. Core Materials: Manufacturer's standard.
 - 1. Impact-Resistant, Acoustically Transparent, Copolymer Sheet for Face Layer: 1/16- to 1/8-inch-(1.6- to 3.2-mm-) thick layer of perforated, noncombustible, copolymer sheet laminated to face of core.
- C. Facing Material as selected by Architect from manufacturer's full range.
 - 1. Manufacturer: Guilford of Maine.
- D. Mounting Devices: Concealed on back of unit, recommended by manufacturer to support weight of unit, and as follows:
 - 1. Splines: Manufacturer's standard concealed metal or plastic splines that engage the kerfed edges of the unit, with other moldings and trim for interior corners, exterior corners, and exposed edges, with factory-applied finish on exposed items.
 - 2. Adhesives: As recommended by sound-absorbing wall unit manufacturer and with a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 3. Metal Clips or Bar Hangers: Manufacturer's standard two-part metal "Z" clips, with one part of each clip mechanically attached to back of unit and the other part to substrate, designed to permit unit removal.

2.3 FABRICATION

- A. General: Use manufacturer's standard construction except as otherwise indicated; with facing material applied to face, edges, and back border of dimensionally stable core; and with rigid edges to reinforce panel perimeter against warpage and damage.
- B. Core-Face Layer: Evenly stretched over core face and edges and securely attached to core; free from puckers, ripples, wrinkles, or sags.
- C. Facing Material: Apply fabric facing fully covering visible surfaces of unit; with material stretched straight, on the grain, tight, square, and free from puckers, ripples, wrinkles, sags, blisters, seams, adhesive, or other visible distortions or foreign matter.
 - 1. Square Corners: Tailor corners.
 - 2. Fabrics with Directional or Repeating Patterns or Directional Weave: Mark fabric top and attach fabric in same direction so pattern or weave matches in adjacent units.
- D. Dimensional Tolerances of Finished Units: Plus or minus 1/16 inch (1.6 mm) for the following:
 - 1. Thickness.
 - 2. Edge straightness.
 - 3. Overall length and width.
 - 4. Squareness from corner to corner.
 - 5. Chords, radii, and diameters.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine fabric, fabricated units, substrates, areas, and conditions, for compliance with requirements, installation tolerances, and other conditions affecting performance of sound-absorbing wall units.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install sound-absorbing wall units in locations indicated with vertical surfaces and edges plumb, top edges level and in alignment with other units, faces flush, and scribed to fit adjoining work accurately at borders and at penetrations.

- B. Comply with sound-absorbing wall unit manufacturer's written instructions for installation of units using type of mounting devices indicated. Mount units securely to supporting substrate.
- C. Align and level fabric pattern and grain among adjacent units.
- 3.3 INSTALLATION TOLERANCES
 - A. Variation from Plumb and Level: Plus or minus 1/16 inch (1.6 mm).
 - B. Variation of Panel Joints from Hairline: Not more than 1/32 inch (0.79 mm) wide.

3.4 CLEANING

- A. Clip loose threads; remove pills and extraneous materials.
- B. Clean panels on completion of installation to remove dust and other foreign materials according to manufacturer's written instructions.

END OF SECTION 09 84 33

SECTION 10 11 16 - MARKERBOARDS

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. Markerboards: <u>One 4'H x 6'W markerboard in each of the following rooms: Jury A102, Deputies</u> <u>Room A122, Chief B105, Dispatch B117 & Patrol C117.</u>
- B. Related Sections:
 - Section 101143 Bulletin Board Cabinets.
- 1.3 DEFINITIONS

1.

A. Visual Display Board Assembly: Visual display surface that is factory fabricated into composite panel form, either with or without a perimeter frame; includes markerboards.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for visual display surfaces.
- B. Shop Drawings: For visual display surfaces. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Show locations of panel joints.
 - 2. Show locations of special-purpose graphics for visual display surfaces.
 - 3. Include sections of typical trim members.
 - 4. Wiring Diagrams: For power, signal, and control wiring.
- C. Product Schedule: For visual display surfaces. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for surface-burning characteristics of fabrics.
- C. Maintenance Data: For visual display surfaces to include in maintenance manuals.
- D. Warranties: Sample of special warranties.
- 1.6 QUALITY ASSURANCE
 - A. Source Limitations: Obtain visual display surfaces from single source from single manufacturer.
 - B. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 450 or less.
- 1.7 DELIVERY, STORAGE, AND HANDLING
 - A. Deliver factory-built visual display surfaces, including factory-applied trim where indicated, completely assembled in one piece without joints, where possible. If dimensions exceed maximum manufactured panel size, provide two or more pieces of equal length as acceptable to Architect. When overall dimensions require delivery in separate units, pre-fit components at the factory, disassemble for delivery, and make final joints at the site.
- B. Store visual display surfaces vertically with packing materials between each unit.
- 1.8 PROJECT CONDITIONS
 - A. Environmental Limitations: Do not deliver or install visual display surfaces until spaces are enclosed and weather tight, wet work in spaces is complete and dry, work above ceilings is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
 - B. Field Measurements: Verify actual dimensions of construction contiguous with visual display surfaces by field measurements before fabrication.
 - 1. Allow for trimming and fitting where taking field measurements before fabrication might delay the Work.
- 1.9 WARRANTY

- A. Special Warranty for Porcelain-Enamel Face Sheets: Manufacturer's standard form in which manufacturer agrees to repair or replace porcelain-enamel face sheets that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Surfaces lose original writing and erasing qualities.
 - b. Surfaces exhibit crazing, cracking, or flaking.
 - 2. Warranty Period: 50 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Porcelain-Enamel Face Sheet: Manufacturer's standard steel sheet with porcelain-enamel coating fused to steel; uncoated thickness indicated.
 - 1. Gloss Finish: Gloss as indicated; dry-erase markers wipe clean with dry cloth or standard eraser.
- B. Hardboard: ANSI A135.4, tempered.
- C. Particleboard: ANSI A208.1, Grade M-1, made with binder containing no urea formaldehyde.
- D. Fiberboard: ASTM C 208.
- E. Extruded Aluminum: ASTM B 221 (ASTM B 221M), Alloy 6063.
- F. Adhesives: Manufacturer's standard product that complies with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.2 MARKERBOARD ASSEMBLIES

- A. Porcelain-Enamel Markerboards: Balanced, high-pressure, factory-laminated markerboard assembly of three-ply construction consisting of backing sheet, core material, and 0.021-inch- (0.53-mm-) thick, porcelain-enamel face sheet with low-gloss finish.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Best-Rite Manufacturing.
 - b. Claridge Products and Equipment, Inc.
 - c. Ghent Manufacturing, Inc.
 - 2. Manufacturer's Standard Core: Minimum 1/4 inch (6 mm) thick, with manufacturer's standard moisture-barrier backing.
 - 3. Laminating Adhesive: Manufacturer's standard, moisture-resistant thermoplastic type.

2.3 MARKERBOARD ACCESSORIES

- A. Aluminum Frames and Trim: Fabricated from not less than 0.062-inch- (1.57-mm-) thick, extruded aluminum; standard size and shape.
 - 1. Factory-Applied Trim: Manufacturer's standard.
 - B. Chalk tray: Manufacturer's standard, continuous.
 - 1. Box Type: Extruded aluminum with ribbed section and smoothly curved exposed ends.
 - C. Map Rail: Provide the following accessories:
 - 1. Display Rail: Continuous and integral with map rail; fabricated from cork approximately 1 to 2 inches (25 to 50 mm) wide.
 - 2. End Stops: Located at each end of map rail.
 - 3. Map Hooks and Clips: Two map hooks with flexible metal clips for every 48 inches (1219 mm) of map rail or fraction thereof.
 - 4. Flag Holder: One for each room.

2.4 FABRICATION

- A. Porcelain-Enamel Visual Display Assemblies: Laminate porcelain-enamel face sheet and backing sheet to core material under heat and pressure with manufacturer's standard flexible, waterproof adhesive.
- B. Visual Display Boards: Factory assemble visual display boards unless otherwise indicated.
 - 1. Where factory-applied trim is indicated, trim shall be assembled and attached to visual display boards at manufacturer's factory before shipment.
- C. Factory-Assembled Visual Display Units: Coordinate factory-assembled units with trim and accessories indicated. Join parts with a neat, precision fit.
 - 1. Make joints only where total length exceeds maximum manufactured length. Fabricate with minimum number of joints, balanced around center of board, as acceptable to Architect as indicated on approved Shop Drawings].

- 2. Provide manufacturer's standard vertical-joint spline system between abutting sections of markerboards.
- 3. Where size of visual display boards or other conditions require support in addition to normal trim, provide structural supports or modify trim as indicated or as selected by Architect from manufacturer's standard structural support accessories to suit conditions indicated.
- D. Aluminum Frames and Trim: Fabricate units straight and of single lengths, keeping joints to a minimum. Miter corners to a neat, hairline closure.
 - 1. Where factory-applied trim is indicated, trim shall be assembled and attached to visual display units at manufacturer's factory before shipment.

2.5 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.6 ALUMINUM FINISHES

1.

A. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

2.7 VISUAL DISPLAY SURFACE SCHEDULE

- A. Visual Display Board: Factory assembled.
 - Markerboard: Porcelain-enamel markerboard assembly.
 - a. Color: White.
 - 2. Corners: Square.
 - 3. Width: 72 inches.
 - 4. Height: 48 inches.
 - 5. Mounting: Wall.
 - 6. Mounting Height: 36" AFF from bottom edge.
 - 7. Factory-Applied Aluminum Trim: Manufacturer's standard clear anodic finish.
 - 8. Accessories:

b.

- a. Chalk tray: Solid type.
 - Map rail with display rail, end stops, map hooks and clips and flag holder.

PART 3 - EXECUTION

- 3.1 EXAMINATION
 - A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, surface conditions of wall, and other conditions affecting performance of the Work.
 - B. Examine walls and partitions for proper preparation and backing for visual display surfaces.
 - C. Examine walls and partitions for suitable framing depth where sliding visual display units will be installed.
 - D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions for surface preparation.
- B. Clean substrates of substances that could impair the performance of and affect the smooth, finished surfaces of visual display boards, including dirt, mold, and mildew.
- C. Prepare surfaces to achieve a smooth, dry, clean surface free of flaking, unsound coatings, cracks, defects, projections, depressions, and substances that will impair bond between visual display surfaces and wall surfaces.
- D. Prepare recesses for sliding visual display units as required by type and size of unit.
- 3.3 INSTALLATION, GENERAL
 - A. General: Install visual display surfaces in locations and at mounting heights indicated on Drawings, or if not indicated, at heights indicated below. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.
 - 1. Mounting Height for Grades 7 and Higher: 36 inches (914 mm) above finished floor to top of chalktray.
- 3.4 INSTALLATION OF FACTORY-FABRICATED VISUAL DISPLAY BOARDS AND ASSEMBLIES

- A. Visual Display Boards: Attach concealed clips, hangers, and grounds to wall surfaces and to visual display boards with fasteners at not more than 16 inches (400 mm) o.c. Secure both top and bottom of boards to walls.
- 3.5 CLEANING AND PROTECTION
 - A. Clean visual display surfaces according to manufacturer's written instructions. Attach one cleaning label to visual display surface in each room.
 - B. Touch up factory-applied finishes to restore damaged or soiled areas.
 - C. Cover and protect visual display surfaces after installation and cleaning.

END OF SECTION 10 11 16

SECTION 10 11 43 - BULLETIN BOARD CABINETS

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. Illuminated Recessed Interior Bulletin Board Cabinets. Four (4) total cabinet units to be furnished and installed by Contractor. Locations of all four units to be coordinated with the Owner and the Architect during construction.

1.3 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for display cases.
- B. Shop Drawings: For display cases. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Show location of seams and joints in visual display surfaces.
 - 2. Include sections of typical trim members.
- C. Samples for Initial Selection: For units with factory-applied color finishes, and as follows:
 - 1. Actual sections of visual display surfaces.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified professional engineer.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain display cases from single source from single manufacturer.
- B. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 450 or less.
- 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install display cases until spaces are enclosed and weather tight, wet work in spaces is complete and dry, work above ceilings is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
- PART 2 PRODUCTS
- 2.1 GENERAL
 - A. Basis-of-Design: Recessed Bulletin Board Cabinet Contemporary Series, Model # 2035D with Hinged Doors and recessed LED lighting by Claridge or equivalent product from an approved manufacturer.

2.2 MATERIALS

- A. Hardboard: ANSI A135.4, tempered.
- B. Hardwood Plywood: HPVA HP-1, that complies with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. Extruded-Aluminum Bars and Shapes: ASTM B 221 (ASTM B 221M), Alloy 6063.
- D. Aluminum Tubing: ASTM B 429, Alloy 6063.
- E. Clear Tempered Glass: ASTM C 1048, Kind FT, Condition A, Type I, Class 1, Quality Q3, with exposed edges seamed before tempering, and 6 mm thick unless otherwise indicated.
- F. Fasteners: Provide screws, bolts, and other fastening devices made from same material as items being fastened, except provide hot-dip galvanized, stainless-steel, or aluminum fasteners for exterior applications. Provide types, sizes, and lengths to suit installation conditions. Use security fasteners where exposed to view.
- G. Tack Surface: Designer Fabric. Color to be selected by Architect.
- H. Illumination System: Concealed top-lighting system consisting of LED fixture, with Universal 120-277V LED Driver. Include lamps and internal wiring with single concealed electrical connection to building system. Coordinate electrical characteristics with power supply provided.
- I. Size: Reference plans for cabinet sizes. If no information is on the plans, provide 4'-0"H x 6'-0"W at each location indicated (If locations are not indicated in the drawings, Min. total quantity: 2).
- J. Adhesives: Manufacturer's standard product that complies with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.3 FABRICATION

- A. Use metals and shapes of thickness and reinforcing to produce flat surfaces, free of oil-canning, and to impart strength for size, design, and application indicated.
- B. Fabricate cabinets and door frames with reinforced corners, mitered to a hairline fit, with no exposed fasteners.
- C. Fabricate exterior units with vents to permit evaporation of moisture trapped inside.
- D. Fabricate shelf standards plumb and at heights to align shelf brackets for level shelves.

2.4 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls, with Installer present, for compliance with requirements for installation tolerances, surface conditions of wall, and other conditions affecting performance of the Work.
- B. Examine roughing-in for electrical power system to verify actual locations of connections before installation of illuminated units.
- C. Examine walls and partitions for suitable framing depth if recessed units will be installed.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install units in locations and at mounting heights indicated on Drawings, or if not indicated, at heights indicated below. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.
 - 1. Mounting Height: 72 inches (1829 mm) or as indicated on drawings above finished floor to top of cabinet.

3.3 ADJUSTING AND CLEANING

- A. Adjust doors to operate smoothly without warp or bind and so contact points meet accurately. Lubricate operating hardware as recommended by manufacturer.
- B. Touch up factory-applied finishes to restore damaged or soiled areas.

END OF SECTION 10 11 43

SECTION 10 14 19 - DIMENSIONAL LETTER SIGNAGE - Addendum-03

PART 1 - GENERAL

- 1.1 SUMMARY
 - A. Section Includes:
 - 1. Cutout dimensional characters.
 - 2. Illuminated, fabricated channel dimensional characters.
- 1.2 ACTION SUBMITTALS
 - A. Product Data: For each type of product.
 - B. Shop Drawings: For signs.
 - 1. Include fabrication and installation details and attachments to other work.
 - 2. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
 - 3. Show message list, typestyles, graphic elements, and layout for each sign at least half size .
 - 4. Show locations of electrical service connections.
 - 5. Include diagrams for power, signal, and control wiring.
 - C. Samples: For each exposed product and for each color and texture specified.
 - D. Delegated-Design Submittal: For signs indicated in "Performance Requirements" Article .
 - 1. Include structural analysis calculations for signs indicated to comply with design loads; signed and sealed by the qualified professional engineer responsible for their preparation.
- 1.3 INFORMATIONAL SUBMITTALS
- A. Sample warranty.
- 1.4 CLOSEOUT SUBMITTALS
 - A. Maintenance data.
- 1.5 WARRANTY
 - A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.
- PART 2 PRODUCTS
- 2.1 PERFORMANCE REQUIREMENTS
 - A. Structural Performance: Signs and supporting elements shall withstand the effects of gravity and other loads within limits and under conditions indicated.
 - B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 DIMENSIONAL CHARACTERS

- A. Cutout Characters: Characters with uniform faces; square-cut, smooth edges; precisely formed lines and profiles; and as follows:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. A.R.K. Ramos.
 - b. ASI Sign Systems, Inc.
 - c. Gemini Incorporated.
 - d. Metallic Arts.
 - e. Southwell Company (The).
 - 2. Character Material: Sheet or plate aluminum.
 - 3. Character Height: As listed in sign schedule below.
 - 4. Thickness: 0.25 inch.
 - 5. Finishes:
 - a. Baked Enamel or Powder Coat Finish: Manufacturer's standard in color as selected by Architect from manufacture's full range of colors.
 - b. Overcoat: Manufacturer's standard baked-on clear coating .
 - 6. Mounting: Projecting studs.
 - 7. Cut Out (CO) Character Sign Schedule:
 - a. Sign Type CO-1 Cutout Characters.
 - 1) Character Size: 8 inches.

- 2) Text/Message: 705 (ADDRESS)
- 3) Quantity: 1 Set
- 4) Location: Exterior, as indicated or as directed by Architect.
- b. Sign Type CO-2 Cutout Sign.
 - 1) Size: 30 inches in diameter.
 - Text/Message: "City of Port Aransas" Logo, as indicated on drawings.
 - 3) Quantity: 1 Set
 - 4) Location: Lobby B101. Ref. Elevation 11/A-113.
- c. Sign Type CO-3 Cutout Sign.
 - 1) Size: 36 inches in diameter.
 - Text/Message: "City of Port Aransas" Logo, as indicated on drawings.
 - 3) Quantity: 1 Set
 - 4) Location: Court A108. Ref. Elevation 6/A-112.
- d. Sign Type CO-4 Cutout Characters.
 - 1) Size: 12 inches high.
 - 2) Text/Message: "dispatch", as indicated on drawings.
 - 3) Quantity: 1 Set
 - 4) Location: Lobby B101. Ref. Elevation 11/A-113.
- e. Sign Type CO-5 Cutout Characters.
 - 1) Size: 12 inches high.
 - 2) Text/Message: "administration", as indicated on drawings.
 - 3) Quantity: 1 Set
 - 4) Location: Lobby B101. Ref. Elevation 10/A-113.
- f. Sign Type CO-6 Cutout Characters.
 - 1) Size: 12 inches high.
 - 2) Text/Message: "courts", as indicated on drawings.
 - 3) Quantity: 1 Set
 - 4) Location: Lobby B101. Ref. Elevation 5/A-113.
- B. Fabricated Channel Characters : Metal face and side returns , formed free from warp and distortion; with uniform faces, sharp corners, and precisely formed lines and profiles; internally braced for stability, to meet structural performance loading without oil-canning or other surface deformation, and for securing fasteners; and as follows.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. A.R.K. Ramos.
 - b. ASI Sign Systems, Inc.
 - c. Gemini Incorporated.
 - d. Metallic Arts.
 - 2. Illuminated Characters: Backlighted character construction with LED lighting, including transformers, insulators, and other accessories for operability, with provision for servicing and concealing connections to building electrical system. Use tight or sealed joint construction to prevent unintentional light leakage. Space lamps apart from each other and away from character surfaces as needed to illuminate evenly.
 - a. Power: As indicated on electrical Drawings .
 - 3. Character Material: Sheet or plate aluminum.
 - 4. Finishes:
 - a. Baked Enamel or Powder Coat Finish: Manufacturer's standard in color as selected by Architect from manufacturer's full range of colors.
 - b. Overcoat: Manufacturer's standard baked-on clear coating .
 - 5. Mounting: Projecting studs.
 - a. Hold characters at 2-inch distance from wall surface.
 - 6. Fabricated Channel (FC) Character Sign Schedule:





a. Sign Type FC-1 – Illuminated Backlighted Channel Characters

- 1) Size: 15 inches in diameter.
- 2) Logo: "PUBLIC SAFETY CENTER", as indicated on drawings.
- 3) Quantity: 1 Set
- 4) Location: Reference Details 1, 3 & 4 on Sheet A-201.
- b. Sign Type FC-2 Illuminated Backlighted Channel Characters
 - 1) Size: 72 inches in diameter.
 - Logo: "City of Port Aransas" Logo, as indicated on
 - drawings. 3) Quantity: 1 Set
 - 4) Location: Reference Elevation 1 on Sheet A-201.

2.3 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following:
 - 1. Use concealed fasteners and anchors unless indicated to be exposed.
 - 2. For exterior exposure, furnish stainless-steel or hot-dip galvanized devices unless otherwise indicated.
 - 3. Sign Mounting Fasteners:
 - a. Concealed Studs: Concealed (blind), threaded studs welded or brazed to back of sign material, screwed into back of sign assembly, or screwed into tapped lugs cast integrally into back of cast sign material, unless otherwise indicated.
 - b. Projecting Studs: Threaded studs with sleeve spacer, welded or brazed to back of sign material, screwed into back of sign assembly, or screwed into tapped lugs cast integrally into back of cast sign material, unless otherwise indicated.
 - c. Through Fasteners: Exposed metal fasteners matching sign finish, with type of head indicated, installed in predrilled holes.
- B. Adhesive: As recommended by sign manufacturer.

2.4 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
 - 1. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
 - 2. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
 - 3. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
 - 4. Internally brace dimensional characters for stability, to meet structural performance loading without oilcanning or other surface deformation, and for securing fasteners.
 - 5. Provide rabbets, lugs, and tabs necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.
 - 6. Castings: Fabricate castings free of warp, cracks, blowholes, pits, scale, sand holes, and other defects that impair appearance or strength. Grind, wire brush, sandblast, and buff castings to remove seams, gate marks, casting flash, and other casting marks before finishing.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
 - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
 - 3. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- B. Mounting Methods:
 - 1. Concealed Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.
 - a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place sign in position and push until flush to surface, embedding studs in holes. Temporarily support sign in position until adhesive fully sets.

- b. Thin or Hollow Surfaces: Place sign in position and flush to surface, install washers and nuts on studs projecting through opposite side of surface, and tighten.
- 2. Projecting Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.
 - a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place spacers on studs, place sign in position, and push until spacers are pinched between sign and substrate, embedding the stud ends in holes. Temporarily support sign in position until adhesive fully sets.
 - b. Thin or Hollow Surfaces: Place spacers on studs, place sign in position with spacers pinched between sign and substrate, and install washers and nuts on stud ends projecting through opposite side of surface, and tighten.
- 3. Through Fasteners: Drill holes in substrate using predrilled holes in sign as template. Countersink holes in sign if required. Place sign in position and flush to surface. Install through fasteners and tighten.
- 4. Back Bar and Brackets: Remove loose debris from substrate surface and install backbar or bracket supports in position, so that signage is correctly located and aligned.
- 5. Adhesive: Clean bond-breaking materials from substrate surface and remove loose debris. Apply linear beads or spots of adhesive symmetrically to back of sign and of suitable quantity to support weight of sign after cure without slippage. Keep adhesive away from edges to prevent adhesive extrusion as sign is applied and to prevent visibility of cured adhesive at sign edges. Place sign in position, and push to engage adhesive. Temporarily support sign in position until adhesive fully sets.

C. Remove temporary protective coverings and strippable films as signs are installed.

END OF SECTION 10 14 19

SECTION 10 26 23.13 - IMPACT RESISTANT WALL PROTECTION

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. Corner guards. <u>Provide 6'-0" high corner guards at all outside corners at the following: Lobby B101,</u> <u>Corridors A120, A115, B113, B118, B130, C102, C111 & C112.</u>
 - Impact-resistant crash rails. Provide crash rails along both sides of the following corridors (to withing 6" of doors and corners: Corridors A104, A106, A111, A114, B113, B118, B130, C102, C111 & C112.

1.3 ACTION SUBMITTALS

- A. Product Data: Include construction details, material descriptions, impact strength, fire-test-response characteristics, dimensions of individual components and profiles, and finishes for each impact-resistant wall protection unit.
- B. Shop Drawings: For each impact-resistant wall protection unit showing locations and extent. Include sections, details, and attachments to other work.
- C. Samples for Initial Selection: For each type of impact-resistant wall protection unit indicated.
 - 1. Include similar Samples of accent strips and accessories involving color selection.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Material Test Reports: For each impact-resistant plastic material.
- C. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each impact-resistant wall protection unit to include in maintenance manuals.
 - 1. Include recommended methods and frequency of maintenance for maintaining optimum condition of plastic covers under anticipated traffic and use conditions. Include precautions against using cleaning materials and methods that may be detrimental to plastic finishes and performance.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- B. Source Limitations: Obtain impact-resistant wall protection units from single source from single manufacturer.
- C. Product Options: Drawings indicate size, profiles, and dimensional requirements of impact-resistant wall protection units and are based on the specific system indicated. Refer to Section 014000 "Quality Requirements."
 - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- D. Surface-Burning Characteristics: Provide impact-resistant, plastic wall protection units with surface-burning characteristics as determined by testing identical products per ASTM E 84, NFPA 255, or UL 723 by UL or another qualified testing agency.
- E. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines, Texas Accessibility Standards and ICC/ANSI A117.1.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store impact-resistant wall protection units in original undamaged packages and containers inside wellventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.
 - 1. Maintain room temperature within storage area at not less than 70 deg F (21 deg C) during the period plastic materials are stored.
 - 2. Keep plastic sheet material out of direct sunlight.
 - 3. Store plastic wall protection components for a minimum of 72 hours, or until plastic material attains a minimum room temperature of 70 deg F (21 deg C).
 - a. Store corner-guard covers in a vertical position.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install impact-resistant wall protection units until building is enclosed and weatherproof, wet work is complete and dry, and HVAC system is operating and maintaining temperature at 70 deg F (21 deg C) for not less than 72 hours before beginning installation and for the remainder of the construction period.

1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of impact-resistant wall protection units that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures.
 - b. Deterioration of plastic and other materials beyond normal use.
 - Warranty Period: Five years from date of Substantial Completion.

2. Warrar PART 2 - PRODUCTS

2.1 MATERIALS

- A. PVC Plastic: ASTM D 1784, Class 1, textured, chemical- and stain-resistant, high-impact-resistant PVC or acrylic-modified vinyl plastic with integral color throughout; sheet material, thickness as indicated.
 - 1. Impact Resistance: Minimum 25.4 ft-lbf/in. (1356 J/m) of notch when tested according to ASTM D 256, Test Method A.
 - 2. Self-extinguishing when tested according to ASTM D 635.
 - 3. Flame-Spread Index: 25 or less.
 - 4. Smoke-Developed Index: 450 or less.
- B. Stainless-Steel Sheet: ASTM A 240/A 240M.
- C. Adhesive: As recommended by impact-resistant plastic wall protection manufacturer and with a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.2 CORNER GUARDS

b.

- A. **CG-1**: Surface-Mounted, Metal Corner Guards: Fabricated from one-piece, formed or extruded metal with formed edges; with 90- or 135-degree turn to match wall condition.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Korogard GS Series Stainless Steel Corner Guards, Model #GS15 by Koroseal or comparable product from a different approved manufacturer.
 - a. Material: Stainless steel, Type 304.
 - 1) Thickness: Minimum 0.0500 inch (1.3 mm).
 - 2) Finish: Directional satin, No. 4.
 - Wing Size: Nominal 1-1/2 by 1-1/2 inches (38 by 38 mm).
 - c. Corner Radius: 1/8 inch (3 mm).
 - d. Mounting: Adhesive.
 - IMPACT-RESISTANT WALL CRASH RAILS

A. **CR-1:** Impact-Resistant Wall Crash Rails:

- 1. Basis-of-Design Product: Subject to compliance with requirements, provide 6"h x 1 1 1/2"d Surfacemounted crash rail, model # SCR-48 by Acrovyn or comparable product.
 - a. Fire Rating: Class A.
 - b. Color-Finish: As selected by Architect from manufacturer's full range.
 - c. Height: As indicated.

2.4 FABRICATION

2.3

- A. Fabricate impact-resistant wall protection units to comply with requirements indicated for design, dimensions, and member sizes, including thicknesses of components.
- B. Assemble components in factory to greatest extent possible to minimize field assembly. Disassemble only as necessary for shipping and handling.
- C. Fabricate components with tight seams and joints with exposed edges rolled. Provide surfaces free of wrinkles, chips, dents, uneven coloration, and other imperfections. Fabricate members and fittings to produce flush, smooth, and rigid hairline joints.

2.5 METAL FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 - 1. Remove tool and die marks and stretch lines, or blend into finish.
 - 2. Grind and polish surfaces to produce uniform finish, free of cross scratches.

IMPACT-RESISTANT WALL PROTECTION

- 3. Run grain of directional finishes with long dimension of each piece.
- 4. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
- B. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and wall areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Examine walls to which impact-resistant wall protection will be attached for blocking, grounds, and other solid backing that have been installed in the locations required for secure attachment of support fasteners.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Complete finishing operations, including painting, before installing impact-resistant wall protection system components.
- B. Before installation, clean substrate to remove dust, debris, and loose particles.

3.3 INSTALLATION

- A. General: Install impact-resistant wall protection units level, plumb, and true to line without distortions. Do not use materials with chips, cracks, voids, stains, or other defects that might be visible in the finished Work.
 - 1. Install impact-resistant wall protection units in locations and at mounting heights indicated on Drawings.
 - 2. Provide splices, mounting hardware, anchors, and other accessories required for a complete installation.
 - a. Provide anchoring devices to withstand imposed loads.
 - b. Where splices occur in horizontal runs of more than 20 feet (6.1 m), splice aluminum retainers and plastic covers at different locations along the run, but no closer than 12 inches (305 mm).
 - c. Adjust end and top caps as required to ensure tight seams.

3.4 CLEANING

- A. Immediately after completion of installation, clean plastic covers and accessories using a standard, ammonia-based, household cleaning agent.
- B. Remove excess adhesive using methods and materials recommended in writing by manufacturer.

END OF SECTION 10 26 23.13

SECTION 10 26 41 - BULLET RESISTANT PANELS

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes bullet resistant fiberglass panels for all interior walls (from finish floor to 10'-0" AFF) in Lobby A113 and in Lobby B101.

1.2 REFERENCES

- A. American Society for Testing and Materials:
 - 1. ASTM E119-98 Standard Test for One-Hour Fire-Rating of Building Construction and Materials
 - 2. ASTM F1233-98 Standard Test Method for Forced Entry Testing of Materials/Assemblies, Class IV
- B. International Organization for Standardization:
 - 1. ISO 9001:2015 Quality Management System
- C. National Institute of Justice Ballistic Standards:
 - 1. NIJ Standard 0108.01 Type III-A
- D. Underwriters Laboratories:
 - 1. UL 752 Specifications and Ammunition, 11th Edition, Standard for Bullet Resisting Equipment published September 9, 2005, revised December 21, 2006, Level 3.

1.3 SUBMITTALS

- A. Submittals for Review: Submit for approval prior to fabrication.
 - 1. Product Data: Include specifications, brochures, and samples.
 - 2. Recommendations for installation of Bullet Resistant Fiberglass Panels available in <u>print</u> <u>document</u> and <u>video link</u>.
- B. Certificates: Submit printed data to indicate compliance with following requirements.
 - 1. UL LISTING Verification and UL752 Current Test Results as provided by Underwriters Laboratories.
 - 2. ASTM E119-98 One-Hour Fire Rating of Building Construction and Materials.
 - 3. ASTM F1233-98 Standard Test Method for Forced Entry Testing of Materials/Assemblies.
 - 4. Manufacturer's third party certificate of registration with ISO 9001:2015.

1.4 DELIVERY, HANDLING, AND STORAGE

- A. Deliver materials to project with manufacturer's UL LISTED Labels intact and legible.
- B. Handle material with care to prevent damage. Store materials inside under cover, stack flat and off the floor.

1.5 WARRANTY

A. Warrant all materials and workmanship against defects for a period of ten (10) years from the date of Substantial Completion.

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. Design Basis: Contract Documents are based on ArmorCore by Waco Composites, (Waco, TX 76710, phone: <u>254-752-3622</u>, toll free: 866-688-3088, email: <u>sales@armorcore.com</u>, web: <u>www.armorcore.com</u>)

2.2 PERFORMANCE CRITERIA

- A. Bullet Resistant Fiberglass Panels shall be "non ricochet type" to permit the encapture and retention of an attacking projectile lessening the potential of a random injury or lateral penetration.
- B. Panel Rating: UL752 Level 3.
- C. Bullet resistance of joints: equal to that of the panel.

2.3 MATERIALS

- A. Panels fabricated of multiple layers of woven roving ballistic grade fiberglass cloth impregnated with a thermoset polyester resin and compressed into flat rigid sheets.
- B. Thickness: 7/16" nominal thickness
- C. Nominal Weight: 4.8 lbs. per sq. ft.
- D. Panel Sizes: 4' x 10'
- E. Panels manufactured in the United States of America with raw materials sourced from the U.S.A. for quality assurance purposes and to comply with any applicable "Buy American" provisions.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to starting installation, verify work of related trades required in contract documents and architectural drawings is complete to the point where work of this Section may properly commence. Notify the Architect in writing of conditions detrimental to the proper and timely completion of the work.

3.2 JOINTS

A. Reinforce joints with a back-up layer of bullet resistive material. Minimum width of reinforcing layer at joint shall be 4-inches, centered on panel joints.

3.3 APPLICATION

- A. Install armor in accordance with manufacturer's <u>printed recommendations</u> and as required by contract documents.
- B. Secure armor panels using screws, bolts, or an industrial adhesive.
 - 1. Method of application shall install panels minimizing vulnerabilities by fitting tightly to adjacent surfaces including concrete floor slab, concrete roof slab, bullet resistive door frames, bullet resistive window frames, and the like.

END OF SECTION 10 26 41

SECTION 10 28 00.10 - WARM AIR HAND DRYERS

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. Warm-air dryers. One warm-air dryer per each of the following rooms: A107, A117, A122, B111, B112, B122, B123, B127, B128, B138 & C100.
 - B. Related Sections:
 - 1. Section 09 30 00 "Tiling" for ceramic toilet and bath accessories.
- 1.3 ACTION SUBMITTALS
 - A. Product Data: For each type of product indicated. Include the following:
 - 1. Construction details and dimensions.
 - 2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 3. Material and finish descriptions.
 - 4. Features that will be included for Project.
 - 5. Manufacturer's warranty.
 - B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated.
 - 2. Identify products using designations indicated.
- 1.4 INFORMATIONAL SUBMITTALS
- A. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Source Limitations: For products listed together in the same Part 2 articles, obtain products from single source from single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.7 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.
- 1.8 WARRANTY
 - A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.

Warranty Period: 15 years from date of Substantial Completion.

1. Warraı PART 2 - PRODUCTS

2.1 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch (0.8-mm) minimum nominal thickness unless otherwise indicated.
- B. Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036-inch (0.9-mm) minimum nominal thickness.
- D. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 (Z180) hot-dip zinc coating.
- E. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- F. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.

G. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).

2.2 WARM-AIR DRYERS

A. Warm-Air Dryer:

- 1. Basis-of-Design Product: World Hand Dryer, VERDIdri.
- 2. Mounting: Surface mounted.
- 3. Operation: Electronic-sensor activated with timed power cut-off switch.
 - a. Operation Time: 30 to 40 seconds.
- 4. Features: HEPA filtration
- 5. Cover Material and Finish: Stainless steel, No. 4 finish (satin).
- 6. Electrical Requirements: 115 V, 8.3 A, 950 W.

2.3 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

- 3.1 INSTALLATION
 - A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 10 28 00.10

SECTION 102813.63 - DETENTION TOILET ACCESSORIES

PART 1 - GENERAL

- 1.1 RELATED DOCUMENTS
 - A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- 1.2 SUMMARY

Β.

- A. Section Includes:
 - 1. Miscellaneous toilet accessories.
 - 2. Stainless-steel mirrors.
 - 3. Grab bars.
 - Related Sections:
 - 1. Division 4 Section "Unit Masonry Assemblies" for inserting anchors into masonry construction.
 - 2. Division 9 painting Sections for field painting detention toilet accessories.
 - 3. Division 10 Section "Toilet and Bath Accessories" for nondetention toilet accessories.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Samples for Verification: For each type of detention toilet accessory indicated.
 - 1. Approved full-size Samples will be returned and may be used in the Work.
- C. Product Schedule: For detention toilet accessories. Indicate types, quantities, sizes, and installation locations by room of each accessory required.
- D. Welding certificates.
- E. Maintenance Data: For detention toilet accessories to include in maintenance manuals.
- F. Warranties: Sample of special warranties.
- G. Other Informational Submittals:
 - 1. Examination reports documenting inspection of substrates, areas, and conditions.
 - 2. Anchor inspection reports documenting inspections of built-in and cast-in anchors.
 - 3. Field quality-control certification signed by Contractor and Detention Specialist].
- 1.4 QUALITY ASSURANCE
 - A. Source Limitations: Obtain each type of detention toilet accessory from single source from single manufacturer.
- 1.5 COORDINATION
 - A. Coordinate installation of anchorages for detention toilet accessories. 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 adjoining construction. Deliver such items to Project site in time for installation.
 - B. Coordinate wall construction to ensure that actual opening dimensions correspond to dimensions required for recessed detention toilet accessories.
- 1.6 WARRANTY
 - A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace detention toilet accessories that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including deflection exceeding 1/4 inch (6.3 mm).
 - b. Faulty operation of hardware.
 - c. Deterioration of metals, metal finishes, and other materials.
 - 2. Warranty Period: Two years from date of Substantial Completion.
- 1.7 MAINTENANCE TOOLS
 - A. Tool Kit: Provide six sets of tools for use with security fasteners, each packaged in a compartmented kit configured for easy handling and storage.
- PART 2 PRODUCTS
- 2.1 MATERIALS
 - A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, CS (Commercial Steel), Type B.
 - B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, CS (Commercial Steel), Type B; with G60 (Z180) zinc (galvanized) coating designation.

- C. Stainless-Steel Sheet: ASTM A 666 or ASTM A 240/A 240M, austenitic stainless steel, Type 304; Type 430 for mirrors.
- D. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- E. Concealed Bolts: ASTM A 307, Grade A unless otherwise indicated.
- F. Cast-in-Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials capable of sustaining, without failure, a load equal to [4] <Insert safety factor> times the load imposed, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.
- G. Embedded Plate Anchors: Fabricated from steel shapes and plates, minimum 3/16 inch (4.8 mm) thick; with minimum 1/2-inch- (12.7-mm-) diameter headed studs welded to back of plate.

2.2 SECURITY SEALANTS

- A. Manufacturer's standard, high-modulus, non-sag, two-part, pick-proof, epoxy sealant[, with a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24),] recommended for sealing nonmoving interior joints in security applications.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Degussa Building Systems; Sonneborn EpoGel.
 - b. Pecora Corporation; DynaPoxy EP-1200.

2.3 SECURITY FASTENERS

- A. Fasteners that are operable only by tools produced by fastener manufacturer or other licensed fabricator for use on specific type of fastener.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Holo-Krome; a Danaher Corporation.
 - b. Safety Socket LLC.
 - c. Tamper-Pruf Screws, Inc.
 - d. Textron Fastening Systems, Inc.
 - B. Provide drive-system type, head style, material, and protective coating as required for assembly, installation, and strength, and as follows:
 - 1. Drive-System Types: Pinned Torx-Plus.
 - 2. Fastener Strength: 120,000 psi (827 MPa).
 - 3. Socket Button Head Fasteners:
 - a. Heat-treated alloy steel, ASTM F 835 (ASTM F 835M).
 - b. Stainless steel, ASTM F 879 (ASTM F 879M), Group 1 CW.
 - 4. Socket Flat Countersunk Head Fasteners:
 - a. Heat-treated alloy steel, ASTM F 835 (ASTM F 835M).
 - b. Stainless steel, ASTM F 879 (ASTM F 879M), Group 1 CW.
 - 5. Socket Head Cap Fasteners:
 - a. Heat-treated alloy steel, ASTM A 574 (ASTM A 574M).
 - b. Stainless steel, ASTM F 837 (ASTM F 837M), Group 1 CW.
 - 6. Protective Coatings for Heat-Treated Alloy Steel:
 - a. Zinc and clear trivalent chromium, where indicated.
 - b. Zinc phosphate with oil, ASTM F 1137, Grade I, or black oxide unless otherwise indicated.
- 2.4 MISCELLANEOUS DETENTION TOILET ACCESSORIES
- A. Recessed, Detention Toilet Tissue Dispenser: Minimum 5-inch diameter by 4-1/2 inches (127-mm diameter by 114 mm) deep; formed from 0.062-inch- (1.57-mm-) thick, stainless-steel sheet. Secure to wall with rear-mounting steel strap and adjustment bolts. Provide No. 4 finish.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. A & J Washroom Accessories Inc.; Security Toilet Paper Holder, US74.
 - b. American Specialties, Inc.; Security Recessed Toilet Paper Holder, Model No. 110.
 - c. Bradley Corporation; Security Recessed Toilet Tissue Roll Holder, Model SA11.

- d. General Accessory Manufacturing Company; Toilet Tissue Dispenser, MSA-1.
- e. Maximum Security Products Corp.; Model TP 970.
- f. Panel Specialties, Inc.; Recessed Toilet Paper Holder, Model TPH-600.
- g. Willoughby Industries, Inc.; Rear Mounted Tissue Holder, Model No. RTH-1.
- Face: 1-inch (25.4-mm) lip around entire face.
- 2.5 DETENTION GRAB BARS

2.

- A. Grab Bars: 1-1/2 inches (38.1 mm) in diameter; formed from 0.038-inch- (0.95-mm-) thick, stainlesssteel tubing, with 3-inch- (76.2-mm-) diameter flanges formed from 0.125-inch- (3.18-mm-) thick, stainless steel. Closure plates formed from 0.125-inch- (3.18-mm-) thick, stainless steel. All-welded construction. Provide No. 4 finish.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. A & J Washroom Accessories Inc.; US130.
 - b. American Specialties, Inc.; 165.
 - c. Bradley Corporation; SA70.
 - d. General Accessory Manufacturing Company; MSA-13.
 - e. Panel Specialties, Inc.; GB-600.
 - 2. Length: 42"
 - 3. Mounting: Front mounting with security fasteners.

2.6 FABRICATION

- A. Coordinate dimensions and attachment methods of detention toilet accessories with those of adjoining construction to produce integrated assemblies with closely fitting joints and with edges and surfaces aligned unless otherwise indicated.
- B. Shear and punch metals cleanly and accurately. Remove burrs.
- C. Form edges and corners to be free of sharp edges and rough areas. Fold back exposed edges of unsupported sheet metal to form a 1/2-inch- (12.7-mm-) wide hem on the concealed side, or ease edges to a radius of approximately 1/32 inch (0.8 mm) and support with concealed stiffeners.
- D. Form metal in maximum lengths to minimize joints. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- E. Weld corners and seams continuously to comply with referenced AWS standard and the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
 - 5. Weld before finishing components to greatest extent possible. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- F. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure detention toilet accessories rigidly in place and to support expected loads. Build in straps, plates, and brackets as needed to support and anchor fabricated items to adjoining construction. Reinforce formed-metal units as needed to attach and support other construction.
- G. Cut, reinforce, drill, and tap detention toilet accessories to receive hardware, security fasteners, and similar items.
- H. Form exposed work true to line and level with accurate angles and surfaces. Grind off and ease edges unless otherwise indicated.
- I. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Use exposed security fasteners of type indicated or, if not indicated, flat-head (countersunk) security fasteners. Locate joints where least conspicuous.

2.7 FINISHES

- A. Finish detention toilet accessories after assembly.
- B. Steel Finishes:
 - 1. Surface Preparation: Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or SSPC-SP 8, "Pickling."
 - 2. Factory Priming for Field-Painted Finish: Apply manufacturer's standard prime coat immediately after surface preparation and pretreatment.

- 3. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 1.2 mils (0.03 mm).
 - a. Color and Gloss: As selected by Architect from manufacturer's full range.
- 4. Chromium Plating: ASTM B 456, Service Condition Number SC 2 (moderate service), nickel plus chromium electrodeposited on base metal.
- C. Stainless-Steel Finishes: Remove tool and die marks and stretch lines or blend into finish.
 - 1. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
 - 2. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of detention toilet accessories.
 - 1. Examine roughing-in for embedded and built-in anchors to verify actual locations of detention toilet accessory connections before detention toilet accessory installation.
 - 2. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of detention toilet accessories.
 - B. Inspect built-in and cast-in anchor installations before installing detention toilet accessories to verify that anchor installations comply with requirements. Prepare inspection reports.
 - 1. Remove and replace anchors where inspections indicate that they do not comply with specified requirements. Re-inspect after repairs or replacements are made.
 - 2. Perform additional inspections to determine compliance of replaced or additional work. Prepare inspection reports.
 - C. Verify locations of detention toilet accessories.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing detention toilet accessories to in-place construction. Include threaded fasteners for concrete and masonry inserts, security fasteners, and other connectors.
- B. Provide temporary bracing or anchors in formwork for items that are to be built into concrete or masonry or similar construction.
- C. Apply security sealant around perimeter in a continuous ribbon on back of detention toilet accessories before installation.
- D. Security Fasteners: Install detention toilet accessories using security fasteners with head style appropriate for installation requirements, strength, and finish of adjacent materials. Provide stainless-steel security fasteners in stainless-steel materials.

3.3 FIELD QUALITY CONTROL

- A. Inspect installed products to verify compliance with requirements. Prepare inspection reports and indicate compliance with and deviations from the Contract Documents.
- B. Remove and replace detention work where inspections indicate that work does not comply with specified requirements.
- C. Perform additional inspections to determine compliance of replaced or additional work. Prepare inspection reports.
- D. Prepare field quality-control certification that states installed products and their installation comply with requirements in the Contract Documents.

3.4 ADJUSTING AND CLEANING

- A. Remove temporary labels and protective coatings.
- B. Painting: Immediately after erection, clean bolted connections and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
- C. Touchup Painting: Cleaning and touchup painting of bolted connections and abraded areas of shop paint are specified in Division 9 painting Sections.

END OF SECTION 102813.63

SECTION 10 43 00 - EMERGENCY AID SPECIALTIES

PART 1 - GENERAL

- 1.1 SUMMARY
 - A. Section includes:
 - 1. Automated external defibrillator (AED). <u>Provide two AED units.</u>: One for the City and the other for the <u>County.</u>
 - 2. Automated external defibrillator (AED) cabinet. <u>Provide two AED cabinets.</u>: One for the City and the other for the County. Locations of cabinets to be coordinated with the Architect.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: For automated external defibrillator cabinets. Coordinate final automated external defibrillator cabinet schedule with number and type of automated external defibrillators to ensure proper fit and function.
- C. Sustainable Design Submittals:
 - 1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.
 - 2. Environmental product declaration.
 - 3. Product Certificates: For regional materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project and cost for each regional material.
 - 4. Environmental Product Declaration (EPD): For each product.
 - 5. Product Certificates: For indigenous materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project, means of transportation, and cost for each indigenous material.
 - 6. Environmental Product Declaration: For each product.
 - 7. Product Certificates: For regional materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project, means of transportation, and cost for each regional material.
 - 8. Environmental Product Declaration: For each product.
 - 9. Environmental Product Declaration: For each product.
 - 10. Third-Party Certifications: For each product.
 - 11. Third-Party Certified Life Cycle Assessment: For each product.
- 1.3 INFORMATIONAL SUBMITTALS
- A. Warranty: Sample of special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For automated external defibrillators and automated external defibrillator cabinets to include in maintenance manuals.

1.5 COORDINATION

- A. Coordinate size of automated external defibrillator cabinets to ensure that type and capacity of automated external defibrillators indicated are accommodated.
- B. Coordinate sizes and locations of automated external defibrillator cabinets with wall depths.
- 1.6 WARRANTY
 - A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace automated external defibrillators that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

1.

- 2.1 MANUFACTURERS
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide Basis-of-Design products by Activar Construction Products Group, Inc. JL Industries or comparable product by one of the following:
 - Automated External Defibrillator (AED):
 - a. HeartSine.
 - b. Philips.
 - c. Physio-Control.
 - 2. Automated External Defibrillator (AED) Cabinets:
 - a. Modern Metal Products.
b. Safety Technology, Inc.

2.2 AUTOMATED EXTERNAL DEFIBRILLATOR (AED)

- A. Automated External Defibrillator: Portable automated external defibrillator capable of automatically diagnosing life-threatening cardiac arrhythmias, suitable for use on adult or pediatric patients. Audible and visual with illuminated display icons operation. Type, size, and capacity for each cabinet indicated.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Activar Construction Products Group, Inc. - JL Industries; LIFEPAK CR2 Defibrillator or comparable product.
 - 2. Model: LP-CR2-WIFI AUTO.
 - 3. Storage Case: Manufacturer's standard.
 - 4. Battery Capacity: 13 hours.
 - 5. Standby Life: 6 years.
- 2.3 MOUNTABLE AUTOMATED EXTERNAL DEFIBRILLATOR CABINET
 - A. Automated External Defibrillator (AED) Cabinet Type: Mountable AED cabinet of suitable type, size and capacity for automated external defibrillator.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Activar Construction Products Group, Inc. JL Industries; LifeStart cabinet product indicated or comparable product.
 - B. AED Cabinet Construction: Flush doors with 5/8-inch doorstop attached by continuous hinge and equipped with zinc-plated pull and roller catch.
 - 1. Stainless Steel Sheet Model: 1435.
 - C. Cabinet Construction: Nonrated.
 - D. Recessed Cabinet: Exposed 3/8-inch Flat Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface, with exposed trim face and wall return at outer edge (backbend).
 - E. Door Glazing: Acrylic sheet.
 - F. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
 - G. Alarm: Alarm that actuates when fire-protection cabinet door is opened and that is powered by batteries.
 - 1. Basis-of-Design: Activar Construction Products Group, Inc. JL Industries; "Commander," audible alarm or comparable.
 - a. Alarm Contacts: 14MAG, Magnetic Door Contact for existing alarm systems.
 - H. Identification: Manufacturer's standard graphics and lettering complying with authorities having jurisdiction for letter style, size, spacing, and location.
 - I. Door Finish:
 - 1. Aluminum: Anodized, Clear.
 - 2. Steel: Manufacturer's standard baked-enamel or powder coat finish.
 - a. Standard Color: White.
 - Stainless Steel: Manufacturer's standard #4 Satin.

PART 3 - EXECUTION

3.

3.1 EXAMINATION

- A. Examine roughing-in for cabinets to verify actual locations of piping connections before cabinet installation.
- B. Examine walls and partitions for suitable framing depth and blocking where recessed cabinets will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare recesses for recessed automated external defibrillator cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION

- A. General: Install automated external defibrillator cabinets in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.
- B. Automated External Defibrillator Cabinets: Fasten cabinets to structure, square and plumb.
 - 1. Unless otherwise indicated, provide recessed automated external defibrillator cabinets. If wall thickness is inadequate for recessed cabinets, provide semirecessed automated external defibrillator cabinets.
 - 2. Provide inside latch and lock for break-glass panels.
 - 3. Fasten mounting brackets to inside surface of automated external defibrillator cabinets, square and plumb.

- C. Identification:
 - 1. Apply vinyl lettering at locations indicated.
- 3.4 ADJUSTING AND CLEANING
 - A. Remove temporary protective coverings and strippable films, if any, as automated external defibrillator cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.
 - B. Adjust automated external defibrillator cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
 - C. On completion of automated external defibrillator cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
 - D. Touch up marred finishes or replace automated external defibrillator cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by automated external defibrillator cabinet manufacturer.

END OF SECTION 104300

SECTION 10 51 26 - PLASTIC LOCKERS

PART 1 - GENERAL

- 1.1 SECTION INCLUDES
- A. Solid plastic lockers.
- 1.2 RELATED SECTIONS
- A. Division 06 Section "Rough Carpentry" for locker anchorage.
- 1.3 REFERENCES
 - A. ASTM International (ASTM):
 - 1. ASTM A 666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - 2. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
 - B. US Federal Government:
 - 1. U.S. Architectural & Transportation Barriers Compliance Board. Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG).

1.4 ACTION SUBMITTALS

- A. Product Data: Manufacturer's data sheets for each type of product indicated include fabrication details, description of materials and finishes.
 - 1. Product Test Reports: When requested by Architect, provide documentation indicating compliance of products with requirements, from a qualified independent testing agency.
- B. Shop Drawings: Include overall locker dimensions, floor plan, elevations, sections, details, and attachments to other work. Include choice of options with details.
- C. Samples for Selection: Furnish samples of manufacturer's full range of colors for initial selection.
- D. Samples for Approval: Furnish a physical sample of the material in the selected color.
 1. Size: 6 by 6 inch (102 by 102 mm) in type of finish specified.
- 1.5 INFORMATIONAL SUBMITTALS
 - A. Installation instructions.
- B. Warranty: Sample of special warranty.
- 1.6 MAINTÉNANCÉ SUBMITTALS
- A. Operation and Maintenance Data.
- 1.7 QUALITY ASSURANCE
 - A. Manufacturer Qualifications: Approved manufacturer listed in this section, with minimum [5] years experience in the manufacture of plastic lockers. Manufacturers seeking approval must submit the following in accordance with Instructions to Bidders and Division 01 requirements:
 - 1. Product data, including test data from qualified independent testing agency indicating compliance with requirements.
 - 2. Samples of each component of product specified.
 - 3. List of successful installations of similar products available for evaluation by Architect.
 - 4. Submit substitution request not less than 15 days prior to bid date.
 - B. Installers Qualifications: An experienced Installer regularly engaged in the installation of lockers for a minimum of 3 years.
 - C. Source Limitations: Obtain plastic lockers and trim accessories from single manufacturer.
 - D. Accessibility Requirements: Comply with requirements of ADA/ABA and with requirements of authorities having jurisdiction.
 - E. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 100 or less.
 - 2. Smoke-Developed Index: 450 or less.
- 1.8 DELIVERY, STORAGE, AND HANDLING
 - A. Do not deliver plastic lockers to the site until the building is enclosed and HVAC systems are in operation. Deliver plastic lockers in manufacturer's original packaging. Store in an upright condition. Protect plastic lockers from exposure to direct sunlight.
 - B. Ship plastic lockers fully assembled.
 - C. Lift and handle plastic lockers from the base not the sides.

- 1.9 WARRANTY
 - A. Special Manufacturer's Warranty: 20 years against rust, delamination or breakage of plastic parts under normal use.

PART 2 - PRODUCTS

- 2.1 MANUFACTURERS
 - A. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide products of Bradley Corporation, Menomonee Falls, WI 53051, (800)272-3539, fax (262)251-5817; Email info@BradleyCorp.com; Website www.bradleycorp.com.
 - 1. Provide basis of design products or comparable products of an approved manufacturer:
 - a. Submit requests for substitution in accordance with Instructions to Bidders and Division 01 General Requirements.
 - B. MATERIALS
 - 1. High Density Polyethylene (HDPE): 30 percent pre-consumer recycled content polyethylene thermoplastic formed under high pressure into solid plastic components.
 - 2. Stainless-Steel Sheet: ASTM A 666, Type 304.
 - 3. Fasteners: Tamper-Resistant Fasteners: Stainless steel torx-head screws.
 - a. Locker Connectors: No. 10-24 sex bolts.
 - b. Anchors: Type and size required for secure anchorage.
 - c. Drilled-in-place Masonry Anchors: Minimum 1/4 by 1-3/4 inch (6 by 44 mm) screws.
- 2.2 MULTI-HEIGHT LOCKERS
 - A. Basis-of-Design Product: Bradley LENOXZLOCKER.
 - B. Locker Configurations: Multiple height two tier units with full-height garment and half-height accessory storage compartments.
 - C. "Z" Locker Dimensions
 - 1. Height, Nominal: 72 inch (1829 mm).
 - 2. Width: 24 inch (610mm.
 - 3. Depth: 18 inch (457 mm).
 - D. Material: HDPE plastic, 30 percent recycled material.
 - E. Sides, Tops, Bottoms, Dividers, and Shelves: 3/8 inch (10 mm) thick HDPE plastic with smooth finish.
 - F. Locker Shelves: 3/8 inch (10 mm) HDPE plastic, mortised into sides and back.
 - G. Locker Tops: Slope top.
 - H. Doors: Fabricate from a single piece 1/2 inch (13 mm) HDPE plastic.
 - 1. Doors and Frame: 1/2 inch (13 mm) thick HDPE plastic with matte texture finish with ventilation slots.
 - 2. Logo on Door: Match Owner's artwork
 - 3. Handle: ADA/ABA-compliant handle fabricated from injection molded plastic.
 - 4. Locks: Standard hasp.
 - 5. Hinges: Continuous piano hinges, .05 inch/18 gauge (1.27mm) type 304 stainless steel fabricated to wrap around edges of door and frame and attached with stainless steel tamper-resistant screws.
 - a. Finish: Powder coated to match color of locker.
 - 6. Latch Bar: Full-height latch bar constructed of 1/2 inch (13 mm) HDPE plastic secured to locker with stainless steel tamper-resistant screws.
 - I. Color: As selected by Architect from manufacturer's full range.
 - J. Accessories:
 - 1. Coat Hooks: Black polycarbonate double hook.
 - 2. End Panels: 1/2 inch (13mm) thick, with color and finish matching locker body.
 - 3. Filler Panels: 1/2 inch (13 mm) HDPE filler panel, with color and finish matching locker body, attached with 3/8 inch (10 mm) thick HDPE solid plastic angle bracket.
 - 4. Wall Hooks: Black powder coated, cast zinc hook three per locker.
 - 5. Number Plate: White acrylic with black film coating, laser etched with number specified. Provide one per locker.
 - 6. Locker Base: 1 inch (26 mm) solid HDPE plastic, with color and finish matching locker body, 4 inch (101 mm) high.
 - 7. Coat Rod: Schedule 40 PVC with plastic pole sockets and stainless steel tamperresistant screws.

2.3 LOCKER FABRICATION

- A. Fabricate locker box from a single sheet of HDPE solid plastic with corners fused together. Weld frames and shelves to box assembly. Provide all welded construction of locker parts without dovetail slots or metal fasteners. Add welded gussets in single tier full height lockers.
- B. Center Dividers: Full-depth, vertical partitions between bottom and shelf; finished to match lockers.
- C. Hardware Attachment: All hinges, handles, hasps, hooks, latch bars, and locks attached with tamper-resistant screws.
- D. Provide ventilated panels where indicated.
- E. Continuous Base: Set toe clearance 3 inch (76 mm) from locker front. Notch end caps for ease of installation.
- F. Continuous Sloping Tops: Fabricated in lengths indicated, without visible fasteners at splice locations; and finished to match lockers.
- G. Filler Panels: Fabricated in unequal leg angle shape; finished to match lockers.
- H. Finished End Panels: Fabricated with 1/2 inch (13 mm) wide edge dimension, configured to conceal fasteners and holes at exposed ends of plastic lockers.

PART 3 - EXECUTION

- 3.1 INSTALLATION
 - A. Install lockers in climate controlled environment, shielded from direct sunlight.
 - B. General: Install on floor or other firm support. Install level, plumb, and true.
 - 1. Position locker base per approved shop drawing. Using fasteners provided by manufacturer, anchor base sections to the floor.
 - 2. Attach filler pieces to lockers with male-female sex bolts.
 - 3. Position first locker according to submittal layout. Square and plumb the locker using concealed shims. Secure the locker to the wall at the top and bottom of the locker. Position second locker next to first, square and plumb to align the tops and bottoms; and temporarily clamp lockers together. Drill four holes through the sides of the lockers and connect lockers using sex bolts provided by manufacturer.
 - C. Accessories: Fit exposed connections of trim, fillers, and closures together to form tight, hairline joints, with concealed fasteners and splice plates furnished by locker manufacturer. Install as indicated on approved shop drawings.
 - 1. Coat Hooks: Attach with at least two fasteners.
 - 2. Coat Rods: Attach at height indicated.
 - 3. Identification Plates: Identify plastic lockers with approved identification numbers. Attach plates to each locker door.
 - 4. Filler Panels: Attach with concealed fasteners.
 - 5. Sloping Tops: Attach sloping-tops to plastic lockers, with closures at exposed ends.
 - 6. Finished End Panels: Attach at ends indicated.
- 3.2 FINAL CLEANING
 - A. Clean locker interior and exterior surfaces.
 - B. Remove packaging and construction debris and legally dispose of off-site.

END OF SECTION 10 51 26

SECTION 10 51 53 – LOCKER ROOM BENCHES

PART 1 - GENERAL

- 1.1 SUMMARY
- A. Section Includes:
 - 1. Locker room ADA benches (with back rest).
- 1.2 ACTION SUBMITTALS
 - A. Product Data: For each type of product.
- B. Samples: For each color specified.
- 1.3 INFORMATIONAL SUBMITTALS
- A. Sample warranty.
- 1.4 CLOSEOUT SUBMITTALS
- A. Maintenance data.
- 1.5 WARRANTY
- A. Special Warranty: Manufacturer agrees to repair or replace components of metal lockers that fail in materials or workmanship, excluding finish, within specified warranty period.
- PART 2 PRODUCTS
- 2.1 PERFORMANCE REQUIREMENTS
- A. Accessibility Standard: For locker room benches indicated to be accessible, comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design" the ABA standards of the Federal agency having jurisdiction and ICC A117.1.
- 2.2 MANUFACTURER
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide Penco Products, Inc; or comparable product by one of the following:
 - 1. Art Metal Products.
 - 2. List Industries Inc.
- 2.3 FIXED LOCKER BENCHES
 - A. Provide bench units with overall assembly height of 17-1/2 inches .
 - B. Bench Tops: Manufacturer's standard one-piece units, with rounded corners and edges.
 - 1. Size (Handicap Accessible Benches): 20- to 24-inch- wide tops with 18 inch high backrest where accessible benches are indicated.
 - 2. Laminated clear hardwood with one coat of clear sealer on all surfaces and one coat of clear lacquer on top and sides.
 - C. Fixed-Bench Pedestals: Manufacturer's standard supports, with predrilled fastener holes for attaching bench top and anchoring to floor, complete with fasteners and anchors.
 - 1. Color: Match color of plastic lockers.
 - D. Materials:
 - 1. Steel Tube: ASTM A500/A500M, cold rolled.
- PART 3 EXECUTION

Α.

- 3.1 INSTALLATION
 - A. Install benches in accordance with manufacturer's written instructions.
 - B. Fixed Benches: Provide no fewer than two pedestals for each bench, uniformly spaced not more than 72 inches apart.
- PART 4 LOCKER ROOM BENCH SCHEDULE
 - Type A: Male & Female Locker Rooms ADA/Handicap Accessible
 - 1. Type: Fixed Bench Pedestals with backrest.
 - 2. Size: 42" long

END OF SECTION 10 51 53

SECTION 10 73 00 - METAL (ALUMINUM) AWNINGS

PART 1 – GENERAL

- 1.1 SUMMARY
 - A. Section Includes: Standing seam metal panel awnings and metal awning frames.
 - B. Related Requirements: Division 1 General Requirements
- 1.2 REFERENCES
 - A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
 - B. American Welding Society (AWS):
 - i. Standard D1.2 Structural Welding Code Aluminum
 - C. American Architectural Manufacturers Association (AAMA):
 - i. Aluminum finishes AAMA 2603 standard for Powder Coat
 - ii. Aluminum finishes AAMA 2605 standard for Kynar 500

1.3 SUBMITTALS

- A. Shop Drawings: Indicate size, material and finish. Include plan elevation pages to clearly outline awning locations. Include installation procedures, details of joints, attachments and clearances. Provide lead time and note possible conflicts.
- B. Color charts showing manufacturer's full range of colors from standard line for both powder coated aluminum awning frames and approved sheet metal manufacturers.

1.4 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal canopies that fail in materials or workmanship within specified warranty period.
 - i. Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 APPROVED MANUFACTURERS

- A. Specifications are based on Architectural Fabrication, Inc. Standing Seam AwningS. Architectural Fabrication, Inc. – Manufacturer and Installer is located at 2100 E. Richmond Avenue, Fort Worth, TX 76104. 800.962.8027. www.arch-fab.com
- B. Substitutions are acceptable assuming they comply with these specifications, are submitted based on Section 01 25 00 Substitution Procedures.

2.2 MATERIALS

- A. Framing: Aluminum Tube 6063-T52 alloy extruded aluminum. Fully welded with no open ends. All welds are to be ground smooth. Tubing size to be indicated in drawings, minimum 1" square for frame with a 1" x 2" framing member located for Z-Closure attachment.
- B. Panel Material: Pre-finished Kynar coated 24ga sheet metal by Pac-Clad or equivalent. Standing seam panels to be formed 12" wide unless indicated otherwise in drawings. No exposed fasteners on or thru panels.
- C. Connections: Awnings are to be installed with either "Z" clips (an electro galvanized steel clip) powder coated to match. Other acceptable method is attach through the frame into the wall behind with the appropriate sized anchor.
- D. Hardware and Fasteners: Nuts, bolts, washers, clevis pins, screws, anchors and pipe spacers to be zinc plated or galvanized steel required to suit application and per pre-engineered canopy load requirements. All penetrations thru wall are to be sealed. See <u>www.arch-fab.com</u> website for installation videos for both connection details and standing seam awnings specifically.
- E. Flashing & Z-Closure: Shall match skin material, fabricated to prevent leakage and sealed with Novaflex metal roof sealant in clear or color match. Every panel to be fitted with a Z-Closure and hooked into the flashing. Flashing is to be turned down at each end as to provide a neat and

closed end. Reglet cut flashing is required on all surfaces where a flashing can not be flush and sealed Ex. Stone and split face CMU. Other equivalent sealant is acceptable.

F. Finish: Powder coat finish per ASTM D 3451, complying with finish manufacturer's written instructions for surface preparation including pretreatment, application, baking and minimum dry film thickness. Color to be selected from standard color line.

PART 3 – EXECUTION

3.1 FABRICATION

A. Fabricate and preassemble awnings in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

3.2 INSTALLATION

- A. Install awnings per manufacturer's written instructions and as indicated on drawings.
- B. Locate and place awnings level, plumb and at indicated alignment with adjacent work.
- C. Use concealed anchors where possible.
- D. Repair damaged finishes so no evidence remains of corrective work. Return items to the factory that cannot be refinished in the field. Make required alterations and refinish entire unit or provide new units.
- E. Protect galvanized and nonferrous-metal surfaces from corrosion or galvanic action by applying a coating of bituminous paint or elastomeric coating on surfaces that will be in contact with concrete, masonry or dissimilar metals.

END OF SECTION 10 73 00

SECTION 111900 - DETENTION SURFACE PADDING SYSTEM

PART I GENERAL

- 1.1 SECTION INCLUDES
 - A. Surface padding system for floors, walls, doors and frames in the following detention room only: Violent Room B139.
 - B. System shall consist of field-applied MF-SILTEC, covered with bullet resistant Kevlar by DuPont and a protective top coat of high-build liquid vinyl.

1.2 RELATED SECTIONS

- A. Division 8: Doors and Frames
- B. Division 15: Air outlets and diffusers for ventilation.
- C. Division 16: Lighting fixtures and fixture lenses.
- 1.3 PERFORMANCE AND DESIGN REQUIREMENTS
 - A. Provide detention surface padding system which isolates detainees from hard surfaces within the scheduled detention area.
 - 1. Padded surface system shall resist chipping and peeling.
 - 2. Padded surface system shall be easy to clean.
 - 3. Padded surface system shall be water-repellent, impervious to oil, urine and salt.
- 1.4 QUALITY ASSURANCE
 - A. Comply with governing codes and regulations.
 - B. Applicator Qualifications: Application shall be performed by an applicator with a minimum of five years of experience in the successful fabrication and installation of detention surface padding system.
 - C. Deliver, handle and store materials in accordance with manufacturer's instructions.
 - D. Surface burning characteristics of detention surface system when tested in accordance with UL Standard 723 (ASTM E84) must be equal to or less than:
 - 1. Flame Spread Index 10
 - 2. Fuel Contributed 10
 - 3. Smoke Developed 160
 - E. Compression Deflection (ASTM D 1056)
 - F. Acute Oral Toxicity Test
 - G. Fungus Resistance(ASTM G-21-90)
 - H. CSS 12-100-1 Corner Test

Non Toxic 0 (Completely resistance) Pass

4 psi @ 25 % deflection.

- 1.4 SUBMITTALS
 - A. Product Data: Submit manufacturer's product data and installation instructions. Include methods of installation of surface padding system for each type of substrate to receive padding.
 - B. Shop Drawings: Submit shop drawings showing typical method of padding application.
 - C. Maintenance Information: Submit, for Owner's use, information regarding the proper care and maintenance of detention surface padding system.
- 1.5 WARRANTY
 - A. New Installations: A padded surface installed by Padded Surfaces by B&E is guaranteed impenetrable by organic human body parts for a period of three years from date of manufacturer's installation approval for use. Should penetration occur, the damage will be repaired or the surface replaced at the manufacturer's option.
 - B. Conditions: This guarantee does not apply to damage caused by non-organic human body parts, nor damage resulting from use prior to completion of final curing. This product is not intended to replace established management practices, but to supplement those practices, while allowing for a greater degree of protection against client self-injury.
- PART 2 PRODUCTS
- 2.1 MANUFACTURER
 - A. Provide detention padded surface system equal to: Padded Surfaces by B&E, 888-243-8788 or 317-243-2233 Fax 317-248-2832
- 2.2 MATERIALS
 - A. Foam Sheets: MFSiltec-500
 - 1. Specifications:

	a.	ASTM D 3674 & E 162	Pass
	b.	UL-94	V-O
	с.	California Technical Bulletin 117	Pass
	d.	FMVSS 302	Pass
	e.	ASTM E662 (Flaming Mode)	Ds @ 1.5 min. < 50
	f.	ASTM E662 (Non Flaming Mode)	Ds @ 4 min. < 100
	g.	Bombardier SMP 800-C	Pass
	h.	ASTM D573	Pass
2.	Compr	ession Set, % ASTM D-1056 22 hours @ 10	0 C 5 %
3.	Compr	ession Deflection, psi @ 25 %	4 psi.
4.	Tensile	e Strength, psi	25 psi minimum
5.	Elonga	ition, %	60 % minimum
6.	Water Absorption, %		10 % maximum
7.	Therm	al Conductivity k Factor	0.30 (BTU in/hr/ft./F)
Reinforcing Mesh: Kevlar bullet resistant material			
1.	Tensile	e Strength (Average)	25,000 psi
2.	Elonga	ition at break	10 %
_			

C. Encapsulate: High-build liquid vinyl of consistency to permit spray or field application.

- D. Architect's color choice
- E. Adhesive: Type compatible with the materials to be adhered.
- PART 3 EXECUTION
- 3.1 EXAMINATION

Β.

- A. Examine areas and conditions under which detention surface padding system is to be applied. Verify that substrate is in proper condition for installation of system. Do not proceed with installation until satisfactory conditions have been corrected.
- 3.2 PREPARATION
 - A. Verify that ambient temperatures will be within range required by manufacturer for successful installation and curing of system.
 - B. Verify that work of other trades are complete and will not adversely affect curing and protection of detention surface padding system.
- 3.3 INSTALLATION ON WALLS AND FLOORS
 - A. Cover specified areas with Kev-Koat padded material system.
 - B. Apply protective top coat to encapsulate entire padded surface. Color as selected by Architect.
 - C. If the application is new construction a sixty day curing time is necessary for the concrete floor.
 - D. Temperature must be 60 degrees Fahrenheit at time of installation and maintained for the duration of the construction period and 30 day cure time.
 - E. At penetrations of padding system for plumbing fixtures, air diffusers, lighting fixtures and security devises, coordinate with requirements of the respective trades for correct mounting.
 - F. A 30-day cure time is required before rooms with detention surface padding can be utilized. Use prior to the 30-day cure time will void the 3 year warranty.

3.4 DOOR PADDING PANEL FABRICATION

- A. Fabricate components to comply with performance and design requirements specified and in accordance with approved shop drawings.
- B. Door padding panels shall be composed of Kev-Koat padded material system adhered to a 3/4" thick fire resistant plywood backing board.
- C. Provide openings for glazed observation openings and food slots.
- 3.4 CLEANING AND PROTECTION
 - A. Touch up damaged areas.
 - B. Clean work of debris associates with installation.
 - C. Clean surface with mild, non-abrasive liquid detergent.

END OF SECTION

SECTION 11 30 13 - RESIDENTIAL APPLIANCES

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. Cooking appliances.
 - 2. Kitchen exhaust ventilation.
 - 3. Refrigeration appliances.
 - 4. Cleaning appliances.
- 1.3 ACTION SUBMITTALS
 - A. Product Data: For each type of product.
 - 1. Include installation details, material descriptions, dimensions of individual components, and finishes for each appliance.
 - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.
 - B. Product Schedule: For appliances. Use same designations indicated on Drawings.
- 1.4 INFORMATIONAL SUBMITTALS
 - A. Product Certificates: For each type of appliance.
 - B. Sample Warranties: For manufacturers' special warranties.
- 1.5 CLOSEOUT SUBMITTALS
- A. Operation and Maintenance Data: For each residential appliance to include in operation and maintenance manuals.
- 1.6 QUALITY ASSURANCE
 - A. Gas-Fuel Conversion: Provide gas-fueled appliances with manufacturer's [high-altitude] [and] [propane] conversion kit installed by a qualified service agency according to manufacturer's written instructions for Project location and type of fuel.

1.7 WARRANTY

- A. Special Warranties: Manufacturer agrees to repair or replace residential appliances or components that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.
 - B. Electric Range : Full warranty, including parts and labor, for on-site service on surface-burner elements.
 - 1. Warranty Period: Two years from date of Substantial Completion.
 - C. Refrigerator/Freezer, Sealed System: Full warranty, including parts and labor for on-site service on the product.
 - 1. Warranty Period for Sealed Refrigeration System: Two years from date of Substantial Completion.
 - 2. Warranty Period for Other Components: Two years from date of Substantial Completion.
 - D. Dishwasher: Full warranty, including parts and labor for on-site service on the product.
 - 1. Warranty Period for Deterioration of Tub and Metal Door Liner: Three years from date of Substantial Completion.
 - 2. Warranty Period for Other Components: Two years from date of Substantial Completion.
 - Clothes Washer: Full warranty, including parts and labor, for on-site service on the product.
 - 1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

Ε.

2.1 MANUFACTURERS

- A. Source Limitations: Obtain each type of residential appliance from single manufacturer].
- 2.2 PERFORMANCE REQUIREMENTS
 - A. Electrical Appliances: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 - B. Accessibility: Where residential appliances are indicated to comply with accessibility requirements, comply with applicable provisions in the DOJ's 2010 ADA Standards for Accessible Design the ABA standards of the Federal agency having jurisdiction, Texas Accessibility Standards and ICC A117.1.

2.3 RANGES

- A. Gas Range (K6) for Kitchen C100 (Total Quantity: One): 36" wide smart commercial style gas range with 6 burners.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Model No. KFGC506JSS by KitchenAid or comparable product.
 - 2. Width: 36 inches.
 - 3. Gas Burner Elements: Six.
 - a. Two 20,000 BTU UltraPower Dual-Flame Burners, 5,000 BTU Simmer & Melt Burner
 - b. Controls: Controls located at front of range top for ADA accessibility.

- 4. Anti-Tip Device: Manufacturer's standard.
- 5. Electric Power Supply: As indicated on Drawings.
- 6. Color/Finish: Stainless Steel.
 - KITCHEN EXHAUST VENTILATION
- A. Overhead Exhaust Hood (K6A) for Kitchen C100 (Total Quantity: One) 36" wide commercial-style range hood:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Model # KVUC606KSS by KitchenAid or comparable product.
 - 2. Type: Under cabinet mounted exhaust-hood system.
 - 3. CFM: 585 CFM Motor Class
 - 4. Width: 36 inches.
 - 5. Finish: Stainless Steel
- 2.5 MICROWAVE OVENS

2.4

- A. Built-in Microwave (K5A) for Kitchen C100 (Total Quantity: Two): 30" wide 1,000 Watt Built-In Low Profile Microwave with Slim Trim Kit.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Model No. KMBT5011KSS by KitchenAid or comparable product.
 - 2. Width: 30 inches.
 - 3. Electric Power Supply: As indicated on Drawings.
 - 4. Color/Finish: Stainless Steel.
- B. Countertop Microwave (K5B) for Break Room B128 & Booking B136 (Total Quantity: Two): 30" wide 1,000 Watt Built-In Low Profile Microwave with Slim Trim Kit.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Model No. KMBT5011KSS by KitchenAid or comparable product.
 - 2. Width: 30 inches.
 - 3. Electric Power Supply: As indicated on Drawings.
 - 4. Color/Finish: Stainless Steel.

2.6 REFRIGERATOR/FREEZERS

- A. Refrigerator/Freezer with ice maker (K-1A) for Deputies Room A122 (Total Quantity: One). Two-door refrigerator/freezer with freezer on top and complying with AHAM HRF-1.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Frigidaire, Model No. FFTR1814SS or comparable product.
 - 2. Type: Freestanding.
 - 3. Dimensions:
 - a. Width: 30 inches.
 - b. Depth: 30 1/8 inches.
 - c. Height: 66 5/8 inches.
 - 4. Storage Capacity:
 - a. Refrigeration Compartment Volume: 14.1 cu. ft..
 - b. Freezer Volume: 5.9 cu. ft..
 - c. Shelf Area: Three adjustable wire shelves, 26 sq. ft. .
 - 5. Refrigerator Features:
 - a. Interior light in refrigeration compartment.
 - b. Compartment Storage: Wine racks vegetable crisper and meat compartment.
 - c. Door Storage: Gallon- milk-container storage.
 - d. Temperature-controlled meat/deli bin.
 - 6. Freezer Features: One freezer compartment.
 - a. Automatic icemaker and storage bin.
 - 7. ENERGY STAR: Provide appliances that qualify for the EPA/DOE ENERGY STAR product-labeling program.
 - 8. Appliance Color/Finish: Stainless Steel.
- B. Compact Refrigerator/Freezer (K7) for Evidence Room C108 (Total Quantity: One). 4.5 Cu. Ft. Compact single door refrigerator/freezer with freezer on top.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Frigidaire, Model No. FFPE4533UM or comparable product.
 - 2. Type: Freestanding.
 - 3. Dimensions:
 - a. Width: 21 3/4 inches.
 - b. Depth: 23 inches.
 - c. Height: 33 1/2 inches.
 - 4. Storage Capacity: Total capacity 4.5 cu. ft.
 - 5. Appliance Color/Finish: Silver Mist.

- 2.7 REFRIGERATORS
 - A. Refrigerator (K-1B) for Kitchen C100 (Total Quantity: One). Professional 19 Cu. Ft. Single Door Refrigerator.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Frigidaire, Model No. FPFU19F8WF or comparable product.
 - 2. Type: Freestanding.
 - 3. Dimensions:
 - a. Width: 33 inches.
 - b. Depth: 27 inches.
 - c. Height: 72 1/2 inches.
 - Storage Capacity:
 - a. Refrigeration Compartment Volume: 18.9 cu. ft..
 - Appliance Color/Finish: Stainless Steel.

5. Applia 2.8 FREEZERS A. Upright Free

4.

Upright Freezer (K-2) for Kitchen C100 (Quantity: One) and Booking B136 (Quantity: One). Professional 19 Cu. Ft. Single Door Freezer.

- 1. Basis-of-Design Product: Subject to compliance with requirements, provide Frigidaire, Model No. FPRU19F8WF or comparable product.
- 2. Type: Freestanding.
- 3. Dimensions:
 - a. Width: 33 inches.
 - b. Depth: 27 inches.
 - c. Height: 72 1/2 inches.
- 4. Storage Capacity:
 - a. Refrigeration Compartment Volume: 17.9 cu. ft..
 - Appliance Color/Finish: Stainless Steel.

2.9 DISHWÄSHERS

5.

A. ADA-Compliant Dishwasher (K-4) for Kitchen C100 (Total Quantity: One). ADA Compliant Stainless Steel Interior Dishwasher with Sanitize cycleProfessional 19 Cu. Ft. Single Door Freezer.

- 1. Basis-of-Design Product: Subject to compliance with requirements, provide GE Appliances, Model No. GDT225SSLSS or comparable product.
- 2. Type: Undercounter.
- 3. Dimensions:
 - a. Width: 24 inches.
 - b. Depth: 22 inches.
 - c. Height: 32 1/4 inches.
- 4. Appliance Color/Finish: Stainless Steel.
- 2.10 CLOTHES WASHERS AND DRYERS
 - A. Extra Large Capacity Clothes Washer (CW-1) for Laundry B125 (Total Quantity: One): Complying with AHAM HLW-1.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Samsung, Model No. WV60A9900AV; or comparable product.
 - 2. Type: Freestanding , front-loading unit, Wi-Fi enabled, interior light, water heater.
 - 3. Dimensions:
 - a. Width: 27 inches.
 - b. Depth: 31.5 inches.
 - c. Height: 38.7 inches.
 - 4. Drum: Perforated stainless steel.
 - a. Capacity: 6.0 cu. ft. .
 - 5. Electrical Power: 120 V, 60 Hz, 1 phase, 15 A.
 - 6. Appliance Finish: Enamel.
 - a. Color: Black.
 - B. Extra Large Capacity Clothes Dryer (CD-1) for Laundry B125 (Total Quantity: One):): Complying with AHAM HLD-1.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Samsung, Model No. DVE60A9900V; or comparable product.
 - 2. Type: Freestanding , frontloading, electric unit, smart.
 - 3. Dimensions:
 - a. Width: 27 inches.
 - b. Depth: 31.5 inches.
 - c. Height: 38.7 inches.
 - 4. Drum: Manufacturer's standard.

- a. Capacity: 7.5 cu. ft..
- 5. Controls: Rotary-dial controls for drying cycle, temperatures, and fabric selectors.
- 6. Electric-Dryer Power: 240 V, 60 Hz, 1 phase, 30 A.
- 7. Features:
 - a. Removable lint filter.
 - b. Electronic temperature and moisture-level-sensor controls.
 - c. End-of-cycle signal.
 - d. Interior drum light.
 - e. Self-leveling legs.
 - f. Antibacterial cycle.
 - g. Auxiliary drying rack.
 - h. Built-in electrical power fuse.
 - i. Stacking kit to stack dryer over washer.
- 8. Appliance Finish: Enamel.
 - a. Color: Black.
- 2.11 GENERAL FINISH REQUIREMENTS
 - A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
 - B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, power connections, and other conditions affecting installation and performance of residential appliances.
 - B. Examine roughing-in for piping systems to verify actual locations of piping connections before appliance installation.
- C. Examine walls, ceilings, and roofs for suitable conditions where appliances will be installed.
- D. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install appliances according to manufacturer's written instructions.
- B. Built-in Equipment: Securely anchor units to supporting cabinets or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and that rough openings are completely concealed.
- C. Freestanding Equipment: Place units in final locations after finishes have been completed in each area. Verify that clearances are adequate to properly operate equipment.
- D. Range Anti-Tip Device: Install at each range according to manufacturer's written instructions.

END OF SECTION 11 30 13

SECTION 11 46 83 - ICE MACHINES

PART 1 - GENERAL

- 1.1 SUMMARY
- Α. Section includes Ice Machine. Provide One Ice Making Machine 'K3' in Kitchen C100.
- ACTION SUBMITTALS 1.2
- Product Data: For each type of product. Α.
- INFORMATIONAL SUBMITTALS 1.3
- Sample warranties. Α.
- CLOSEOUT SUBMITTALS 1.4
- Α. Operation and maintenance data.
- 1.5 WARRANTY
 - Α. Refrigeration Compressor Warranty: Manufacturer agrees to repair or replace compressors that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.
- PART 2 PRODUCTS
- PERFORMANCE REQUIREMENTS 2.1
 - NSF Standards: Provide equipment that bears NSF Certification Mark or UL Classification Mark certifying Α. compliance with applicable NSF standards.
 - UL Certification: Provide electric and fuel-burning equipment and components that are evaluated by UL for Β. fire, electric shock, and casualty hazards according to applicable safety standards, and that are UL certified for compliance and labeled for intended use.
 - Regulatory Requirements: Install equipment to comply with the following: C.
 - ASHRAE 15, "Safety Code for Mechanical Refrigeration." 1.
 - NFPA 70, "National Electrical Code." 2.
- 2.2 **ICE MACHINES**
 - Ice-Making Machine (K3): Α.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Hoshizaki, Modular Cubelet Ice Machine; Model No. F-330BAJ-Cor comparable product. 2.
 - Description: Freestanding units.
 - Production: Cubelet. a.
 - Capacity: Minimum of 300 lbs. per 24-hour period. b.
 - Storage Bin: Built in. C.
 - Storage Capacity: 80 lbs. 1)
 - d. Accessories:
 - Stainless steel stand and legs. 1)
 - 2) Water filter.
 - Electrical Service: Equip unit for connection to service indicated on Drawings. e.
- 2.3 MISCELLANEOUS MATERIALS
- Installation Accessories, General: NSF certified for end-use application indicated. Α.
- 2.4 **FINISHES**
 - Α. Stainless Steel Finishes: Remove tool and die marks and stretch lines, or blend into finish, Grind and polish surfaces to produce uniform finish, free of cross scratches.
- PART 3 EXECUTION

Β.

- INSTALLATION 3.1
 - Install foodservice equipment level and plumb, according to manufacturer's written instructions. Α.
 - 1. Connect equipment to utilities.
 - Provide cutouts in equipment, neatly formed, where required to run service lines through equipment 2. to make final connections.
 - Complete equipment assembly where field assembly is required.
 - Provide closed butt and contact joints that do not require a filler. 1.
 - Grind field welds on stainless steel equipment until smooth and polish to match adjacent finish. 2.
 - C. Install equipment with access and maintenance clearances that comply with manufacturer's written installation instructions and with requirements of authorities having jurisdiction.
- 3.2 CLEANING AND PROTECTING
 - Α. After completing installation of equipment, repair damaged finishes.
 - В. Clean and adjust equipment as required to produce ready-for-use condition.
 - C. Protect equipment from damage during remainder of the construction period.

END OF SECTION 11 46 83

SECTION 115215 - ELECTRICALLY-OPERATED PROJECTION SCREENS

PART 1 GENERAL

- 1.01 SUMMARY
 - A. Section Includes: This Section specifies recessed electrically operated front projection screens and accessories for screens located in the following Rooms: Patrol Room C117.
- 1.02 RELATED SECTIONS/DIVISIONS
 - A. Division 26 Common Work Results for Electrical: Power supply, conduit and wiring.
- 1.03 DEFINITIONS
 - A. Gain: Indication of screen's luminance or brightness measured perpendicular to screen center and relative to magnesium carbonate block, which serves as standard for 1.0 gain. Higher numbers indicate greater brightness.
 - B. Viewing Angle: Horizontal angle from perpendicular center of screen at which gain or brightness decreases by 50%.
 - C. Format: Proportion of projection screen viewing area expressed as a ratio of height to width.
 - 1. Square: 1.0 to 1.0
 - 2. Cinemascope or Anamorphic Format: 1.0 to 2.35.
 - 3. HDTV Format: 1.0 to 1.78.
 - 4. Letterbox: 1.0 to 1.85.
 - 5. NTSC or Video Format: 1.0 to 1.33.
 - 6. Wide Format: 1.0 to 1.6.
- 1.04 REFERENCES
 - A. International Code Council (ICC):
 - 1. International Building Code.
 - B. Society of Motion Picture and Television Engineers (SMPTE):
 - 1. SMPTE RP 94-2000, Gain Determination of Front Projection Screens.
 - C. Underwriters Laboratories Inc. (UL).
 - D. Underwriters' Laboratories of Canada (ULC).
- 1.05 ACTION SUBMITTALS
 - A. General: Submit listed action submittals in accordance with Contract Conditions and Section 01 33 00 -Submittal Procedures.
 - B. Product Data: Submit product data, including manufacturer's technical product data sheet, for specified products.
 - 1. Material Safety Data Sheets (MSDS).
 - C. Shop Drawings: Indicate dimensions, fabrication and installation details.
 - 1. Include electric wiring diagrams.
 - D. Samples: Submit two 6 inches × 6 inches (152 × 152 mm) samples of screen finish material.

1.06 INFORMATION SUBMITTALS

- A. Quality Assurance:
 - 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
 - 2. Certificates: Product certificates signed by manufacturer certifying that materials comply with specified performance characteristics, criteria and physical requirements.
 - 3. Manufacturer's installation instructions.
- 1.07 CLOSEOUT SUBMITTALS
 - A. Operation and Maintenance Data: Submit for products in accordance with Section 01 77 00 Project Closeout Procedures, Include:
 - 1. Manufacturer's instructions detailing maintenance requirements.
 - 2. Parts catalog that includes complete list of repair and replacement parts, with cuts and identifying

numbers.

1.08 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Worker experienced in performing work of this section who has specialized in work similar to that required of this project.
- B. Regulatory Requirements:
 - 1. Comply with International Building Code (IBC) 2018.
- C. Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements and manufacturer's instructions. Comply with Section 01 31 00 - Project Management & Coordination.

1.09 DELIVERY, STORAGE & HANDLING

- A. Storage and Protection:
 - 1. Store electric projection screens in a dry, ventilated area, protected from exposure to harmful weather conditions, at temperature less than 80 degrees F (27 degrees C).
- B. Handling: Handle electrically operated projection screen materials with care in order to prevent damage.
- C. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

1.010 PROJECT AMBIENT CONDITIONS

A. Project Location: Perform electrically operated projection screen work when temperatures are greater than 40 degrees F (4 degrees C).

1.011 SEQUENCING

A. Sequence With Other Work: Comply with projection screen manufacturer's written recommendations for sequencing construction operations.

1.012 WARRANTY

A. Warranty: 5 years. Commencing on date of Substantial Completion.

1.013 MAINTENANCE MATERIALS

A. Use standard product line parts produced by manufacturer of electrically operated projection screens.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Ensure manufacturer has minimum 5 years experience manufacturing components similar to or exceeding project requirements.
- B. Approved Manufacturers:
 - 1. Da-Lite Screen Company, Inc. Design Guide: Advantage Electrol.
 - 2. Bretford/Knox Manufacturing Co. (Manufacturer must provide a system which meets or exceeds specification requirements modeled around the Design Guide in order to be an approved manufacturer.)
 - 3. Draper Shade & Screen Co. (Manufacturer must provide a system which meets or exceeds specification requirements modeled around the Design Guide in order to be an approved manufacturer.)

2.02 PROPRIETARY PRODUCTS/PROJECTION SCREEN SYSTEMS

- A. Ceiling Recessed Electrically Operated Projection Screens
 - 1. Screen Operation: Electrically operated, UL and ULC listed, retractable, with 1 rigid metal roller.
 - 2. Motor:
 - a. Quantity: 1.
 - b. 120 V, 60 Hz, 3-wire with ground, with quick connect male plug-in connector permanently lubricated, quick reversal type designed for mounting inside roller.
 - c. Amperage:4.8 amps maximum.
 - d. Include automatic thermal overload protection, integral gears, capacitor and electric brake to prevent coasting.
 - e. Include preset, adjustable limit switches to automatically stop viewing surface in UP or

DOWN positions.

- f. Housing: Inside metal roller.
- 3. Controls:
 - a. Electric Screen Control Switch:
 - 1) Wall mounted, 115 V, 60 Hz position control switch.
 - b. Junction Box: Internally attached to the screen case.
- 4. Screen Mounting: Ceiling recessed, UL and plenum rated.
 - a. Include mounting hardware and roller mounting brackets that adjust to allow centering or offsetting of the screen within the case.
- 5. Screen Case: Designed to receive mounting hardware and sized to suit projection screen.
 - a. Type 1: Extruded aluminum.
 - 1) Case Bottom: Self-trimming with built-in flange and equipped with concealed-hinge aluminum access panel.
 - 2) End Caps: Heavy gage steel.
 - 3) Steel Brackets: Adjustable.
 - 4) Finish: White.
- 6. Screen Size:
 - a. Overall Dimensions: H 78 inches × W 108 inches.
- 7. Acceptable Material: Advantage Electrol Projection Screens or approved equal from approved list of manufacturers.
 - a. Non-Tensioned Screen Material:
 - 1) Front projection, flame retardant, mildew resistant fiberglass, black backing without standard black borders, easily cleaned with mild soap and water solution.
 - 2) Bottom of fabric to form a pocket holding a metal rod.
 - 3) Seams: Seamless.
 - b. Gain: To SMPTE RP 94-2000, 1.0.
 - c. Viewing Angle: 60.
 - d. Format: Wide Format 1.0 to 1.6.
 - 1) Material: Rolled, can be easily cleaned with mild soap and water solution.
 - e. Acceptable Materials: Da-Lite Screen Company, Inc.:
 - 1) Matte White with GREENGUARD Certification #90068-3.

2.03 ACCESSORIES

- A. Screen Drop: Extra drop of 6 inches in black fabric at top, not to exceed 7 feet maximum total surface height including picture area.
- B. Silent Motor with Integrated LVC.
- C. Key Locking Cover Plate: Hinged cover plate with brushed stainless steel finish provides keyed access to 120 V wall switch.
- D. Key Operated Switch for 120 V: Flush mounted wall control switch with white cover plate, key activated for security.
- E. Installation Hardware: Fasteners and other components of type, size and spacing recommended by manufacturer for complete, functional and secure installation of electric screen.
- 2.04 PRODUCT SUBSTITUTIONS
 - A. Substitutions: In accordance with Section 01 25 00- Substitution Procedures.

PART 3 EXECUTION

- 3.01 INSTALLERS
 - A. Provide experienced and qualified technicians to install electrically operated projection screens.
- 3.02 MANUFACTURER'S INSTRUCTIONS
 - A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and technical data sheets.

3.03 EXAMINATION

- A. Site Verification of Conditions:
 - 1. Verify that conditions of substrates previously installed under other sections or contracts are acceptable with electrically operated projection screen installation.
 - 2. Ensure electrical power supply is installed to meet electric projection screen requirements.
 - a. Verify type and location of power supply.
 - Proceed with installation only after unacceptable conditions have been corrected.

3. Proceed 3.04 COORDINATION

A. Coordinate electric projection screen placement with other ceiling and wall mounted components.

3.05 INSTALLATION

- A. Install electric projection screens in accordance with reviewed shop drawings at locations and heights indicated.
 - 1. Verify locations with Architect prior to installation.
- B. Install screen housing and make electrical connections in conjunction with installation of suspended ceiling system.
- C. Screen fabric to be permanently attached to roller.
 - 1. Install viewing surface and drive assembly in housing only after interior construction is substantially complete.
- D. Securely install screens plumb and level to supporting substrate.

3.06 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Have manufacturer's technical representative schedule site visits to review work as follows:
 - 1. After delivery and storage of products.
 - 2. When preparatory work for which work of this Section depends is complete, but before installation begins.
 - 3. During progress of work at 25% and 60% of completion.
 - 4. Upon completion of work, after cleaning is carried out.
- B. Testing and Inspection: Operate each screen 3 times to ensure viewing surfaces extend and retract through full range of motion.
 - 1. Verify controls, limit switches and other components function as designed and meet project requirements.
 - 2. Ensure viewing surface raising operation fully engages and lifts screen closure door into closed position.
 - 3. Adjust motors, controls and components to allow for smooth, unobstructed screen operation.

3.07 FINAL CLEANING

- A. Perform cleanup in accordance with Section 01 77 00 Closeout Procedures.
- B. Upon completion, remove surplus materials, rubbish, tools and equipment.

3.08 PROTECTION

- A. Protect electrically operated projection screens from damage during construction.
- B. Repair damage to adjacent materials caused by electrically operated projection screen work.

3.09 MAINTENANCE

A. Perform work during regular trade working hours satisfactory to Owner.

END OF SECTION 11 52 15

SECTION 12 24 13 - ROLLER WINDOW SHADES

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. Manually operated roller shades with single rollers <u>at all exterior glazing, except over aluminum</u> <u>entrances (exterior entry/exit doors)</u>.
 - B. Related Requirements:
 - 1. Section 06 10 00 "Rough Carpentry" for wood blocking and grounds for mounting roller shades and accessories.
 - 2. Section 07 92 00 "Joint Sealants" for sealing the perimeters of installation accessories for lightblocking shades with a sealant.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include styles, material descriptions, construction details, dimensions of individual components and profiles, features, finishes, and operating instructions for roller shades.
- B. Shop Drawings: Show fabrication and installation details for roller shades, including shade band materials, their orientation to rollers, and their seam and batten locations.
- C. Samples: For each exposed product and for each color and texture specified, 10 inches (250 mm) long.
- D. Samples for Initial Selection: For each type and color of shade band material.
 - 1. Include Samples of accessories involving color selection.
- 1.4 INFORMATIONAL SUBMITTALS
 - A. Qualification Data: For Installer.
 - B. Product Certificates: For each type of shade band material, signed by product manufacturer.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roller shades to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Fabricator of products.
- 1.7 DELIVERY, STORAGE, AND HANDLING
 - A. Deliver roller shades in factory packages, marked with manufacturer, product name, and location of installation using same designations indicated on Drawings.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not install roller shades until construction and finish work in spaces, including painting, is complete and dry and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Field Measurements: Where roller shades are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operating hardware of operable glazed units through entire operating range. Notify Architect of installation conditions that vary from Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. <u>Basis-of-Design Product</u>: Subject to compliance with requirements, provide MechoSystems or comparable product by one of the following:
 - 1. Lutron
- B. Source Limitations: Obtain roller shades from single source from single manufacturer.
- 2.2 MANUALLY OPERATED SHADES WITH SINGLE ROLLERS (WT-1) At all exterior windows except at corridors.
 - A. Chain-and-Clutch Operating Mechanisms: With continuous-loop bead chain and clutch that stops shade movement when bead chain is released; permanently adjusted and lubricated.
 - 1. Bead Chains: Stainless steel.
 - a. Loop Length: Full length of roller shade.
 - b. Limit Stops: Provide upper and lower ball stops.

ROLLER WINDOW SHADES

- c. Chain-Retainer Type: Chain tensioner, jamb mounted.
- B. Rollers: Corrosion-resistant steel or extruded-aluminum tubes of diameters and wall thicknesses required to accommodate operating mechanisms and weights and widths of shade bands indicated without deflection. Provide with permanently lubricated drive-end assemblies and idle-end assemblies designed to facilitate removal of shade bands for service.
 - 1. Roller Drive-End Location: Right side of inside face of shade.
 - 2. Direction of Shade band Roll: Regular, from back of roller.
 - 3. Shade band-to-Roller Attachment: Removable spline fitting integral channel in tube.
- C. Mounting Hardware: Brackets or endcaps, corrosion resistant and compatible with roller assembly, operating mechanism, installation accessories, and mounting location and conditions indicated.
- D. Roller-Coupling Assemblies: Coordinated with operating mechanism and designed to join up to three inline rollers into a multiband shade that is operated by one roller drive-end assembly.

E. Shade bands:

- 1. Shade band Material: Light-filtering fabric.
- 2. Shade band Bottom (Hem) Bar: Steel or extruded aluminum.
 - a. Type: Enclosed in sealed pocket of shade band material.
 - b. Color and Finish: As selected by Architect from manufacturer's full range.
- F. Installation Accessories:
 - 1. Front Fascia: Aluminum extrusion that conceals front and underside of roller and operating mechanism and attaches to roller endcaps without exposed fasteners.
 - a. Shape: L-shaped.
 - b. Height: Manufacturer's standard height required to conceal roller and shade band when shade is fully open, but not less than 3 inches (76 mm).
 - 2. Installation Accessories Color and Finish: As selected from manufacturer's full range.

2.3 SHADEBAND MATERIALS

- A. Shade band Material Flame-Resistance Rating: Comply with NFPA 701. Testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- B. Light-Filtering Fabric: Woven fabric, stain and fade resistant.
 - 1. Source: Roller-shade manufacturer, MechoSystem ThermoVeil 1300 Series, dense basket weave, 5% open, 2X2 dense basket weave pattern.
 - 2. Type: Woven extruded vinyl, 21% polyester and 79% reinforced vinyl.
 - 3. Weave: Dense Basket weave.
 - 4. Thickness: .030 inch (0.762 mm).
 - 5. Roll Width: as required.
 - 6. Color: As selected by Architect from manufacturer's full range.

2.4 ROLLER-SHADE FABRICATION

- A. Product Safety Standard: Fabricate roller shades to comply with WCMA A 100.1, including requirements for flexible, chain-loop devices; lead content of components; and warning labels.
- B. Unit Sizes: Fabricate units in sizes to fill window and other openings as follows, measured at 74 deg F (23 deg C):
 - 1. Between (Inside) Jamb Installation: Width equal to jamb-to-jamb dimension of opening in which shade is installed less 1/4 inch (6 mm) per side or 1/2-inch (13-mm) total, plus or minus 1/8 inch (3.1 mm). Length equal to head-to-sill or -floor dimension of opening in which shade is installed less 1/4 inch (6 mm), plus or minus 1/8 inch (3.1 mm).
 - 2. Outside of Jamb Installation: Width and length as indicated, with terminations between shades of end-to-end installations at centerlines of mullion or other defined vertical separations between openings.
- C. Shade band Fabrication: Fabricate shade bands without battens or seams to extent possible except as follows:
 - 1. Vertical Shades: Where width-to-length ratio of shade band is equal to or greater than 1:4, provide battens and seams at uniform spacing's along shade band length to ensure shade band tracking and alignment through its full range of movement without distortion of the material.
 - Skylight Shades: Provide battens and seams at uniform spacing's along shade band as required to ensure shade band tracking and alignment through its full range of movement without distortion or sag of material.

3. Railroaded Materials: Railroad material where material roll width is less than the required width of shade band and where indicated. Provide battens and seams as required by railroaded material to produce shade bands with full roll-width panel(s) plus, if required, one partial roll-width panel located at top of shade band.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ROLLER-SHADE INSTALLATION

- A. Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions.
 - 1. Opaque Shade bands: Located so shade band is not closer than 2 inches (51 mm) to interior face of glass. Allow clearances for window operation hardware.

3.3 ADJUSTING

A. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.4 CLEANING AND PROTECTION

- A. Clean roller-shade surfaces after installation, according to manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure that roller shades are without damage or deterioration at time of Substantial Completion.
- C. Replace damaged roller shades that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

END OF SECTION 12 24 13

SECTION 12 36 61.19 - QUARTZ SOLID SURFACING COUNTERTOPS

PART 1 - GENERAL

- 1.1 SUMMARY
 - A. Section Includes:
 - 1. Quartz solid surface material countertops at all countertops in Kitchen C100.

1.2 ACTION SUBMITTALS

- A. Product Data: For countertop materials.
- B. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.
- C. Samples: For each type of material exposed to view.

PART 2 - PRODUCTS

2.1 QUARTZ SOLID SURFACE COUNTERTOP MATERIALS

- A. Quartz Solid Surface Material: Homogeneous-filled plastic resin complying with ICPA SS-1. Generally consisting of natural quartz particles, reacted monomers and resins, pigments and various performance-enhancing additives manufactured as slabs of various specific calipers. Quartz surface materials shall be solid, non-porous and homogeneous and exhibit strength, hardness and durability
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Wilsonart, Quartz or comparable product.
 - a. Color: Badaling Q4001
 - 2. Type: Provide Standard type unless Special Purpose type is indicated.
- B. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.

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. Countertops: 3/4-inch- thick, solid surface material with front edge built up with same material.
- C. Backsplashes: 1/2-inch- thick, solid surface material.
- D. Joints: Fabricate countertops without joints.

2.3 INSTALLATION MATERIALS

- A. Adhesive: Product recommended by solid surface material manufacturer.
 - 1. Verify adhesives have a VOC content of 70 g/L or less.
- B. Sealant for Countertops: Comply with applicable requirements in Section 079200 "Joint Sealants."

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Predrill holes for screws as recommended by manufacturer.
- B. Install backsplashes and end splashes by adhering to wall and countertops with adhesive.
- C. 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.
- D. Apply sealant to gaps at walls; comply with Section 079200 "Joint Sealants."

END OF SECTION 12 36 61.19

SECTION 125500 - DETENTION FURNITURE

PART 1 - GENERAL

- 1.1 SUMMARY
 - A. Section Includes:
 - 1. Detention bunks.
 - 2. Detention seating.
 - B. Related Requirements:
 - 1. Section 102813.63 "Detention Toilet Accessories" for detention toilet and bath accessories.
 - 2. Section 119814 "Detention Door Hardware" for security key cabinets.
- 1.2 COORDINATION
 - A. Detention Specialist: Coordinate with Section 013513.16 "Special Project Procedures for Detention Facilities" for requirements of this Section that are to be performed by a Detention Specialist or other entity.
 - B. Coordinate installation of anchorages for detention furniture. 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 adjacent construction. Deliver such items to Project site in time for installation.
 - C. Coordinate size and location of recesses in wall construction to receive detention furniture.
- 1.3 PREINSTALLATION MEETINGS
- A. Preinstallation Conference: Conduct conference at Project site .

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for detention furniture.
- B. Shop Drawings: For detention furniture.
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Indicate locations, dimensions, and profiles of wall and floor reinforcements.
 - 3. Indicate locations and installation details of built-in anchors.
 - 4. Show elevations of detention furniture and indicate dimensions of furniture, preparations for receiving anchors, and locations of anchorage.
 - 5. Show details of attachment of detention furniture to built-in anchors.
- 1.5 CLOSEOUT SUBMITTALS
- A. Maintenance Data: For detention mattresses to include in maintenance manuals.
- 1.6 QUALITY ASSURANCE
 - A. Mockups: Build mockups to set quality standards for fabrication and installation.
 - 1. Build mockup of typical detention cell with furniture as shown on Drawings.
 - 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.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Detention Mattresses: Deliver wrapped to provide protection during transit and Project-site storage. Protect from contact with moisture.

1.8 FIELD CONDITIONS

A. Field Measurements: Verify openings for recessed detention furniture by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 DETENTION BUNKS

- A. Wall-Mounted Bunks:
 - 1. <u>Manufacturers:</u> Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Jail Products L.L.C.
 - b. BarkerBuilt, Division of Bob Barker Company, Inc.
 - c. Maximum Security Products Corp.
 - d. Norix Group, Inc.

- e. PSI LLC.
- f. Sweeper Metal Fabricators Corp.
- 2. Bunk Pan: Formed from 0.134-inch nominal-thickness steel sheet.
 - a. Size: Minimum 27 inches wide by 76 inches long with bunk pan 2 inches from wall.
 - b. Edges: Turn up edges of back and sides and turn down edge of front, with minimum 2-inch flanges.
- 3. Combination End Panel/Mounting Plate: Formed from 3/16-inch- thick steel sheet welded at connections to bunk pan, with 2-inch flange for wall mounting; provide two end panel/mounting plates for each bunk.
- B. Materials:
 - 1. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
 - 2. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, CS (Commercial Steel), Type B; suitable for exposed applications.
 - 3. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, CS (Commercial Steel), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Finishes:
 - 1. Steel Baked-Enamel or Powder-Coat Finish: Clean, pretreat, and apply manufacturer's standard twocoat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils.
 - a. Color and Gloss: As selected by Architect from manufacturer's full range.
- 2.2 DETENTION SEATING
- A. Floor-Mounted Bench:
 - 1. <u>Manufacturers:</u> Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Jail Products L.L.C.
 - b. BarkerBuilt, Division of Bob Barker Company, Inc.
 - c. Maximum Security Products Corp.
 - d. Norix Group, Inc.
 - e. PSI LLC.
 - f. Willo Products Company, Inc.
 - 2. Bench Top: Formed from 0.141-inch- thick, stainless steel 0.109-inch- thick, stainless steel sheet, with minimum 1-1/2-inch flanged edges.
 - a. Size: Minimum 12 inches deep by 48 inches long.
 - 3. Supports: Formed from 0.164-inch- thick, formed-steel channels or 2-1/2-inch-OD-by-0.0677-inchthick, steel tubing; welded to bench and base plate for an overall bench height of not less than 18 inches.
 - 4. Handcuff Ring: Formed from 3/8-inch- diameter, stainless steel rod; welded to front of each support.
 - 5. Base Plates: Minimum 8-inch-square by 1/4-inch- thick, steel plate punched with four holes for floor anchorage.
 - B. Materials:
 - 1. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
 - 2. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, CS (Commercial Steel), Type B; suitable for exposed applications.
 - 3. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, CS (Commercial Steel), Type B; free of scale, pitting, or surface defects; pickled and oiled.
 - 4. Stainless Steel Sheet, Strip, Plate, and Flat Bars: ASTM A666 or ASTM A240/A240M, austenitic stainless steel, Type 304.
 - 5. Steel Tubing: ASTM A513/A513M, Type B unless otherwise indicated; thickness indicated or required by structural loads.
 - 6. Steel Pipe: ASTM A53/A53M, Standard Weight (Schedule 40) unless another weight is indicated or required by structural loads.
 - C. Finishes:
 - 1. Steel Baked-Enamel or Powder-Coat Finish: Clean, pretreat, and apply manufacturer's standard twocoat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils.
 - 1) Color and Gloss: As selected by Architect from manufacturer's full range.

2.3 FABRICATION

- A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Coordinate dimensions and attachment methods of detention furniture with those of adjoining construction to produce integrated assemblies with closely fitting joints and with edges and surfaces aligned unless otherwise indicated.
- C. Shear and punch metals cleanly and accurately. Remove burrs.
- D. Form and grind edges and corners to be free of sharp edges or rough areas.
 - 1. Fabricate detention furniture with no more than 1/32-inch gap between component materials. Weld edges that cannot be crimped to meet tolerance so as to provide a seamless joint with no place for concealment of contraband.
- E. Form metal in maximum lengths to minimize joints. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.
- F. Weld corners and seams continuously to comply with referenced AWS standard and the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. Finish exposed welds and surfaces smooth and blended at exposed connections so that no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
 - 5. Weld before finishing components to greatest extent possible. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- G. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure detention furniture rigidly in place and to support expected loads. Build in straps, plates, and brackets as needed to support and anchor fabricated items to adjoining construction. Reinforce formed-metal units as needed to attach and support other construction.
- H. Cut, reinforce, drill, and tap detention furniture as indicated to receive hardware, security fasteners, and similar items.
- I. Form exposed work true to line and level with accurate angles, surfaces, and straight sharp edges.
- J. Form exposed connections with hairline joints, flush and smooth using concealed fasteners where possible. Use exposed security fasteners of type indicated or, if not indicated, flat-head (countersunk) security fasteners. Locate joints where least conspicuous.
- K. Attach to furniture with security fasteners.

2.4 SECURITY FASTENERS

A. Operable only by tools produced by fastener manufacturer or other licensed fabricator for use on specific type of fastener. Drive-system type, head style, material, and protective coating as required for assembly, installation, and strength, and as follows:

2.5 SECURITY SEALANTS

- A. Polyurethane Security Sealants: Manufacturer's standard, nonsag, tamper-resistant sealant for joints with low movement.
 - 1. <u>Verify sealant has a VOC</u> content of 250 g/L or less.

2.6 ACCESSORIES

- A. Concealed Bolts: ASTM A307, Grade A unless otherwise indicated.
- B. Cast-in-Place Anchors in Concrete: Fabricated from corrosion-resistant materials capable of sustaining, without failure, a load equal to four times the load imposed, as determined by testing per ASTM E488/E488M, conducted by a qualified testing agency; of type indicated below:
 - 1. Threaded or wedge type; galvanized ferrous castings, either ASTM A47/A47M malleable iron or ASTM A27/A27M cast steel. Provide bolts, washers, and shims as needed; hot-dip galvanized per ASTM A153/A153M or ASTM F2329/F2329M.
- C. Embedded Plate Anchors: Fabricated from mild steel shapes and plates, minimum 3/16 inch thick; with minimum 1/2-inch- diameter, headed studs welded to back of plate.
- D. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for metal alloy welded.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of detention furniture.

- B. Examine roughing-in for embedded and built-in anchors to verify actual locations of detention furniture before detention furniture installation.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of detention furniture.
- D. Inspect built-in and cast-in anchor installations, before installing detention furniture, to verify that anchor installations comply with requirements. Prepare inspection reports.
 - 1. Remove and replace anchors where inspections indicate that they do not comply with specified requirements. Reinspect after repairs or replacements are made.
 - 2. Perform additional inspections to determine compliance of replaced or additional work. Prepare inspection reports.
- E. Verify locations of detention furniture with those indicated on Shop Drawings.
- F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing detention furniture to in-place construction. Include threaded fasteners for concrete and masonry inserts, security fasteners, and other connectors.
- B. Cutting, Fitting, and Placement: Obtain manufacturer's written approval for cutting, drilling, and fitting required for installing detention furniture. Set detention furniture accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete or masonry or similar construction.
- D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations.
- E. Assemble detention furniture requiring field assembly with security fasteners with no exposed fasteners on exposed faces and frames.
- F. Anchor furniture with security fasteners to floors and walls at intervals required by expected loads, but not more than 12 inches o.c.
 - 1. Install anchors through backup reinforcing plates where necessary to avoid metal distortion.
 - 2. Use security fasteners with head styles appropriate for installation requirements, strength, and finish of adjacent materials, except that a maximum of two different sets of tools shall be required to operate security fasteners for Project. Provide stainless steel security fasteners in painted materials.
 - 3. Weld nuts onto cast-in-place anchors after installation so as to be nonremovable.
- G. Apply polyurethane security sealant at all exposed gaps between detention furniture and adjacent construction greater than 1/16 inch.
- H. Install one detention mattress for each detention bunk.

3.3 CLEANING AND PROTECTION

- A. Touchup Painting:
 - 1. Immediately after erection, clean bolted connections and abraded areas of shop paint, and paint exposed areas with same material used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 2. Cleaning and touchup painting of bolted connections and abraded areas of shop paint are specified in Section 099123 "Interior Painting."

END OF SECTION 125500

SECTION 13 31 33 - FRAMED FABRIC STRUCTURES - Addendum-03

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions Specification Sections, apply to this section.

1.2 SUMMARY

- A. Hip Framed Shade Structures.
- 1.3 SUBMITTALS
 - A. Provide sealed structural engineering drawings and calculations.
 - B. Provide fabric samples and powder coat colors for final order selection.

1.4 QUALITY ASSURANCE

Fabrication and erection are limited to firms with proven experience in design and construction of fabric shade structures; such firms shall meet the following minimum requirements:

- A. A single manufacturer must design engineer, manufacture the steel and fabric and erect the fabric shade structures including foundations.
- B. All manufacturers must have at least ten (10) years of experience in the design, engineering, manufacture, and installation of structures with similar.
- C. The manufacturers shall demonstrate that it has a staff of experienced fabric structure installation personnel who will undertake the installation of each project.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify layout information for shade structures shown on the Drawings in relation to the property survey and existing structures, and verify locations by field measurements prior to construction.

1.6 WARRANTY

1. Manufacturer's warranty shall be provided for a period of 10 years on fabric and 10 years on the structural integrity of the steel from date of substantial completion.

PART 2 PRODUCTS

2.1 GENERAL

- A. Basis-of-Design for Structure #1: Subject to compliance with requirements, provide Superior Recreational Products, Model # Rectangle-Hip-Shade or a comparable product.
 - 1. Size: 22'-6" W x 24'-6" L.
 - 2. Entry Height: 8'-0".
 - 3. Shape: Rectangular.
- B. Basis-of-Design for Structure #2 (Alternate #1): Subject to compliance with requirements, provide Superior Recreational Products, Model # Rectangle-Hip-Shade or a comparable product.
 - 1. Size: 36'-0" W x 100'-0" L.
 - 2. Entry Height: 8'-0".
 - 3. Shape: Rectangular.
- C. The structures shall include engineering drawings and calculations, patterning and fabrication of architectural membrane, structural steel frame, architectural hdpe membrane roof, steel cables, all fasteners, and installation of structure(s) including foundations.
- C. The shade structure shall conform to the current adopted version of the International Building Code 2018 including local agency amendments and additions to the code.
- D. All shade structures shall be engineered and designed to meet a minimum **wind design** criteria per sheet S1.1.
- E. Welding:
 - All shop welded connections of the shade structure shall be designed and performed in strict accordance with the requirements of the "American Welding Society" (AWS) Specifications. Structural welds shall be made in compliance with the requirements of the "Prequalified" welded joints where applicable and by certified welders. No onsite or field welding shall be permitted.

- F. Tension Cable: Steel cable is determined based on calculated engineering load.
- G. Fabric Roof Systems:
 - 1. UV Shade Fabric:
 - a. UV Shade fabric is made of a UV stabilized high-density polyethylene. Mesh shall be Rachel knitted with monofilament and tape yarn filler to ensure that material will not unravel if cut. Panels to be 10ft wide.
 - b. Fabric shall meet the following fire resistance tests:
 - 1) ASTM E84
 - 2) NFPA 701-97 (Weathered of un-weathered)
 - 2. Size/Form: See site plan and construction details for size requirements for each structure. See site plan for layout.
 - 3. Stitching & Thread:
 - a. All sewing threads are to be double stitched.
 - b. Thread shall be GORE Tenara Sewing Thread manufactured from 100% expanded PTFE; mildew resistant exterior approved thread. Thread shall meet or exceed the following:
 - 1) Flexible temperature range
 - 2) Very low shrinkage factor
 - 3) Extremely high strength, durable in outdoor climates
 - 4) Resists flex and abrasion of fabric
 - 5) Unaffected by cleaning agents; acid rain, mildew, salt water and rot resistant, unaffected by most industrial pollutants
 - 6) Treated for prolonged exposure to the sun
 - 4. Fabric colors shall be determined from the standard colors available from the manufacturer by the Architect.

PART 3 EXECUTION

- 3.1 INSTALLATION
 - A. Install framed fabric shade structure in accordance with manufacture's written instructions.
 - B. Foundations:
 - 1. Footings shall be placed in accordance with and conform to manufacturers
 - engineered drawings.

END OF SECTION 13 31 33

SECTION 14 10 00 - DUMBWAITERS

PART 1 - GENERAL

- 1.1 SUMMARY
 - A. Section Includes:
 - 1. Power dumbwaiter.
- 1.2 PREINSTALLATION MEETINGS
- A. Preinstallation Conference: Conduct conference at Project site .
- 1.3 ACTION SUBMITTALS
 - A. Product Data: For each type of product.
 - B. Shop Drawings: For dumbwaiters.
 - 1. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 2. Include diagrams for power, signal, and control wiring.
 - C. Samples: For each exposed product and for each color and texture specified.
- 1.4 INFORMATIONAL SUBMITTALS
 - A. Product certificates.
 - B. Sample warranty.
- 1.5 CLOSEOUT SUBMITTALS
 - A. Operation and maintenance data.
- 1.6 WARRANTY
 - A. Manufacturer's Special Warranty: Manufacturer agrees to repair or replace components of dumbwaiters that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with ASME A17.1/CSA B44.
- B. Fire-Rated Door and Frame Assemblies: Units complying with NFPA 80 that are listed and labeled by UL or another testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252 or UL 10B.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- 2.2 DUMBWAITERS
 - A. Power Dumbwaiter : Manufacturer's standard preengineered, electric-driving-machine dumbwaiter system.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Nationwide Lifts; Inteli-Lift Pro 250 Gal or comparable product.
 - 2. Car Inside Height: 28 inches, clear inside dimension to lowest point.
 - 3. Rated Load: Minimum 250 lbs.
 - 4. Car: Manufacturer's standard construction and as follows:
 - a. Light Fixture: Manufacturer's standard recessed light fixture, located in ceiling near front of car.
 - 5. Car Entrance: Power operated, vertically sliding gate .
 - a. Automatic Hoistway-Door Operation: Equip car entrance with connecting linkages to operate hoistway doors at each landing when car is present.
 - b. Material and Finish: Match car-enclosure walls .
 - 6. Hoistway Doors and Frames: Manually operated, single-swing door equipped with linkages to allow opening only when car is present at landing.
 - a. Construction: Manufacturer's standard construction except as indicated on Drawings .
 - b. Fire Rating: 1-1/2 hours.
 - c. Hardware: . Equip fire-rated doors with fire-rated hardware and closers.
 - 7. Stainless Steel Finish: Manufacturer's standard .

2.3 OTHER COMPONENTS

- A. Access Door and Frame: swing door.
 - 1. Fire Rating: 1-1/2 hours.
 - 2. Hardware: As selected by Architect from manufacturer's full range . Equip fire-rated doors with fire-rated hardware and closers.

- B. Control System for Power Dumbwaiters: Manufacturer's standard, fully automatic, call-and-send control system that responds to momentary push-button signals at each landing.
- C. Signal Equipment for Power Dumbwaiters: Manufacturer's standard signal equipment at each landing pushbutton station; include call button, send button for each landing served, and illuminated "car-in-use" light that flashes when car arrives at landing until door is opened. Station recessed, set in wall adjacent to dumbwaiter, with surface-mounted, stainless steel faceplate.
 - 1. Power-Operated Door Buttons: Momentary-pressure "door open" and constant-pressure "door close" buttons.
 - 2. Arrival Signal: Manufacturer's standard arrival lantern and gong system.
 - 3. Audible Service Call Signal: Manufacturer's standard buzzer system, located on top of each car.

2.4 MATERIALS

- A. Steel Sheet: Cold-rolled steel sheet, ASTM A1008/A1008M; or hot-rolled steel sheet, ASTM A1011/A1011M.
- B. Stainless Steel Plate, Sheet, and Strip: ASTM A240/A240M or ASTM A666, Type 302 or Type 304.
- C. Plastic Laminate: ISO 4586-3, Grade HGS.
- D. Composite Wood Products: Verify products are made without added urea formaldehyde.
- E. Plywood: Manufacturer's standard plywood.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with ASME A17.1/CSA B44 and manufacturer's written instructions.
- B. Alignment: Coordinate hoistway doors with dumbwaiter travel and car positioning for accurate alignment and required clearances between dumbwaiter components including car, hoistway doors, sills, and door frame at each landing.
- C. Set sills flush with finished surface of landings.
- D. Adjust car stops for accurate stopping at each landing, within required tolerances.
- E. Lubricate operating parts of dumbwaiter, including wire ropes, guide rails, door tracks, and hardware.

3.2 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain dumbwaiters.

END OF SECTION 14 10 00

SECTION 23 09 23 - DIRECT DIGITAL CONTROL SYSTEM

PART 1 – GENERAL

1.1 WORK INCLUDED

- A. A complete and satisfactory operating system of automatic controls which accomplish the sequence of control.
- B. The control system shall include but not be limited to the following:
 - 1. A direct digital control system with electronic actuation for all systems indicated in the Sequence of Control.
 - 2. DDC controller(s).
 - 3. Operator's station.
 - 4. Field controllers and associated devices.
 - 5. Energy management software.

1.2 SUBMITTAL

- A. Manufacturer's Product Data on the following:
 - 1. System equipment.
 - 2. Field materials.
 - 3. Signal transmission system.
 - 4. Software.
- B. Control one-line diagrams for this specific project with accompanying description of the sequence of control.
- C. Provide a flow diagram depicting the program control algorithms and how they are implemented on this project with specific input and output points shown.
- D. Testing Procedure: Scope and details of field test that supplier shall perform to demonstrate that the system meets these specifications.
- E. One-line diagrams from sensor and control points to I/O boards and controllers, including all components, signal values and cables.
- F. Terminal cabinets, including terminal blocks.
- G. Communication links between distributed controllers and central operator's terminal complete communication systems and on-line diagrams, including all components, elements and cables.
- H. Communication terminal cabinets including terminal blocks.
- I. Control panels.
- J. Test Reports: Description of test exercise events and results of measurements and observations.
- K. Provide complete manuals which include the following documentation:
 - 1. General description and specifications for all components.
 - 2. Principles and theory of operation.
 - 3. Detailed schematics and assembly drawings and complete alignment and calibration procedures for all components.
 - 4. Complete trouble-shooting procedures, diagrams and guidelines.

- 5. Operator's Manual: Complete instruction with keyboard pictures and step-by-step procedures annotated to properly describe the system and its operation as installed. Provide index and tabbed sections for each operator function.
- 6. Complete description of all keyboard programming functions with sample written programs.
- 7. Two sets of manuals for each application package and each utility package.
- 8. Provide one copy of the final version of all software on 1.2 mb floppy disks.
- 9. Document all user-performed maintenance, including inspection, preventative maintenance, fault diagnosis and repair/replacement of defective components. Provide properly identified ordering number for each system components and source of supply. Provide a list of recommended spare parts needed to minimize downtime of the DDC control system.
- 10. Interconnection wiring diagrams and wire lists of the complete field installed system with ordering number for each component.
- 11. Test reports.

1.3 QUALITY ASSURANCE

- A. Equipment and materials: Cataloged products of manufacturers regularly engaged in production and installation of HVAC control products. Products shall be manufacturer's latest standard design and have been tested and proven in actual use.
- B. Single source responsibility of supplier: Complete installation and proper operation of the DDC Control system shall include debugging and calibration of the entire control system.
- C. Maintenance service contract by supplier: Established program to be available to the Owner following the warranty period.
- D. The specification covers minimum requirements and is not intended to preclude provisions of equipment or methods that exceed the requirements.
- E. The supplier shall have an established office within a 150-mile radius of the job site staffed with factory trained Engineers fully capable of providing instruction, routine maintenance, and emergency maintenance service on all system components.
- F. Performance Test: Prepare test procedure and perform testing, calibration and adjusting of entire system. Submit written report. Demonstrate satisfactory operation of points randomly selected by the Engineer. If more than 10% of the selected points fail to perform as expected, repeat entire testing procedure.
- G. Workmanship: Provide skilled technicians, properly trained and qualified for the work, and directed by experienced Engineers.
- H. Electrical work and safety requirements: NFPA 70 and all applicable local and State codes.

1.4 JOB CONDITIONS

- A. Environmental Conditions of Operations:
 - 1. DDC controller and I/O equipment shall be designed to operate in ambient temperatures from 32 to 122 degrees F and relative humidity form 10-95% non-condensing.
 - 2. Operator's Terminal: Same as remote controllers and I/O equipment.
 - 3. Sensors and operating devices: The environment which they are sensing or controlling but not less severe than for controller and I/O devices.

1.5 INSTRUCTIONS

- A. Instructions to Operations Personnel:
 - 1. First Phase: On the job training during start-up, checkout, and performance test period. On-the-job training shall consist of facilities personnel working with the Contractor's installation and test people daily. During the performance test period ten 4-hour periods of instructions shall be provided.
 - 2. Second Phase: Formal instruction, for a total of 24 hours, conducted after the performance test period, at a time mutually agreeable to the Contractor and Owner's Operating Personnel.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

The products of the manufacturers listed below are of acceptable quality and may be substituted for the item scheduled, provided the substituted manufacture's device complies with all physical and performance characteristics of the scheduled device. Performance characteristics are those scheduled on the drawings or listed in the scheduled manufacture's literature for the device schedule.

Refer to Specifications Section 230500 for additional requirements.

- A. Control Systems:
 - 1. Automated Logic
 - 2. BLCCS
 - 3. Trane Co.
 - 4. Unify
 - 5. Yates Co.

2.2 SYSTEM DESCRIPTION

A. The system shall be modular design consisting of a network of DDC controllers and stand-alone remote field control units (FCU's) and an operator's station including display terminal (CRT) and printer. These basic system elements shall be interconnected to form a complete Energy Management System. The system shall permit expansion by adding computer memory, application software, operator peripherals, and field hardware.

2.3 DDC CONTROLLERS

- A. Control of the HVAC system shall be performed by a digital system controller, microprocessor based, which incorporates Direct Digital Control, and provides for digital display and convenient local adjustments of set points and software variables at the controller cabinet.
- B. The Digital System Controller shall perform its assigned control and energy management functions as a stand-alone unit. These stand-alone capabilities shall include but not be limited to:
 - 1. All closed loop control functions (proportional (P), proportional plus integral (PI) or proportional plus integral plus derivative (PID)).
 - 2. All control shall be performed in a digital manner using the digital signal from the microprocessor-based controller for operation of damper and valve operators.
- C. Local Display and Adjustment Panel including:
 - 1. A six-character digital display, programmed to display analog variables, binary conditions and other analog or binary information required for analysis and adjustment of the system

being controlled. For systems without local display and adjustment, provide a portable display unit.

- 2. A keyboard with numerical keys to call up the desired point and type of value to be displayed and have several special dedicated keys for special functions as an aid to the operator.
- 3. Adjustment of control variables through the keyboard and display.
- 4. Indication of controller trouble and system alarm.
- 5. Each local display and adjustment panel shall be able to interrogate any and all DDC controllers and remote field control units.
- D. Equipment on/off status sensing shall use a differential air flow or water flow sensing device.
- 2.4 REMOTE FIELD CONTROL UNIT (FCU'S)
 - A. The system shall utilize stand alone micro-processor based remote FCU's to interface to the field input/output devices. Each FCU shall be a standard assembly consisting of an enclosure with lockable door, power supplies, card cage, interface cards and termination modules. The components of the FCU shall have all the stand-alone features listed in 2.03B above.

2.5 COMMUNICATIONS EUQIPMENT

- A. The system shall use low voltage digital transmission over a twisted pair of wires form communications between CPU and FCU's. The FCU's shall employ a multi-drop communications technique, allowing multiple FCU's to be connected to a single communications trunk. Each multi-drop trunk shall have an allowable line length of 2000 feet minimum without signal degradation. (The communication trunks shall be protected from lightning and other voltage transient surges.
- B. Analog-to-digital and digital-to-analog conversions shall be performed at the FCU. These accuracies shall be verified as explained under the inspection and approval section. All communications between CPU and FCU's shall be in true digital form. Multiple parity bit, double transmission, or cyclic redundant error checking techniques shall be used in all transmissions to prevent communication errors.

2.6 SENSORS

- A. All sensors and controllers shall be of commercial grade quality and shall be installed according to the manufacturer's recommendations.
- B. Temperature sensors shall be of the wire-wound resistive element type (RTD) or thermistors. Duct air sensors shall use a bulb type element, except for where averaging type elements are indicated. Room air sensors shall be of a bulb type mounted beneath a thermostat cover. Room temperature sensors shall have setpoint adjustment (±4 degrees F) and override switches. Chilled water sensors shall be insertion type. Provide averaging type elements for cooling coil discharge air temperature sensing.
- C. Temperature sensors with positive temperature coefficient (PTC) of the silicon type may be provided where RTD's are not compatible with the FCU's.
- D. Pressure Sensors: Pressure sensors and differential pressure sensors shall be piezoresistive stain-gauge with temperature compensation. Sensors shall not require external power sources. Sensors shall be selected to provide linear indication with an adequate span for the application. Sensor shall be 0-10V, 4-20 MA or resistive output. Ensure sensors are rated to operate at temperature of sensed media.

- E. Space and Duct Humidity Sensors: A sensor shall have sensing span of 30% to 80% relative humidity. All sensors shall be corrosion resistant and temperature compensated. Adjustments shall be factory calibrated.
- F. Low Temperature Protection Thermostats: Shall be the manual reset type and shall have sensing elements not less than 20' in length. The thermostat shall operate in response to the coldest one-foot length of the sensing element regardless of the temperature at other parts of the element. The element shall be properly supported to cover the entire duct width.

2.7 LOCAL CONTROL PANELS

- A. Each air handling unit and major mechanical system (boilers, chiller converts, etc.) shall be furnished with an individual factory fabricated local control panel.
- B. All controllers, relays, switches, etc., for equipment located within the mechanical equipment room shall be mounted in enclosed control panels with hinged lock type doors. Locations of each panel are to be convenient for adjustment and service.
- C. Nameplates shall be provided beneath each panel mounted control device describing the function of said device.
- D. All electrical devices within the panels shall be factory wired.

2.8 CONTROL WIRING AND CONDUIT

- A. Furnish and install all power, control and interlock wiring, conduit, circuit breakers and appurtenances required for the control system. All control wiring 25 volts or less shall be not less than 18 AWG; all other wiring shall be no less than 12 AWG and conform to applicable electrical code requirements.
- B. Power for controls shall be obtained from the nearest electrical panel having available capacity. Circuits used for control power shall be clearly marked at the panel directory and on the electrical as-built drawings.
- C. Wiring for circuits over 48 volts; and all wiring (regardless of voltage) in furred or otherwise inaccessible areas; and all wiring exposed in equipment spaces or otherwise subject to mechanical injury shall be run in conduit.
- D. Refer to NEC for material and installation requirements.

2.9 DAMPERS

- A. All damper frames are to be constructed of #13-gauge galvanized sheet metal and shall have flanges for duct mounting.
- B. Damper blades shall not exceed 6 inches in width. All blades are to be of corrugated type construction, fabricated from two sheet of #22-gauge galvanized sheet steel, spot welded together. Blades are to be suitable for high velocity performance with <u>maximum leakage of 1/2%</u> based on 2000 fpm approach velocity and 4 inches W.G. static pressure. Leakage and flow characteristic charts must be submitted to the Engineer prior to approval of dampers. Replaceable rubber seals are to be provided with the damper. Seals are to be installed along each blade edge. Independent self-compensating stainless steel and seals shall be installed between the blade ends and the damper frame to provide a tight closing, low leakage damper.
- C. Damper operators shall be electronic type.
2.10 SMOKE DETECTORS

A. Smoke detectors shall be furnished and installed under Division 26 – Electrical. Provide equipment control interlock wiring.

2.11 ON-OFF CONTORL

- A. Equipment on/off control shall use either momentary pulsed relays or magnetically latched relays as appropriate for the equipment's control starter.
- B. Hand-off-auto switches or parallel on/off push buttons shall be provided where required to permit local override.

2.12 CENTRAL PROCESSING UNIT SOFTWARE

- A. Provide and make fully operational the necessary software programs and hardware to support the functions described below and/or identified under the Point/Function Schedule.
- B. The system shall store the current value or state of each connected sensor/controller in memory, and shall make this data available to the operator via the display terminal and printer. Each point shall be identified by an English language descriptor. Display of a point shall also include an alpha/numeric point identifier, engineering units, alarm/normal indication, hardware status alarm enabled/disabled status, and control enabled/disabled status.
- C. Points shall be grouped for display purposes into a system format, such that all points associated with a building system spear together on the display or printed log. Assignment of points to a group shall not be restricted by hardware configuration. It shall be possible to assign a point to appear in more than one system. Each system shall be identified by an English descriptor and an alpha/numeric identifier.
- D. The types of points as identified under the Point/Function Schedule and their characteristics are as follows:
 - 1. Binary status points shall show the current contact condition of a binary input device in English units such as ON, OFF, ALM, NOR, etc.
 - 2. Analog points shall show the current value together with units of measurement (DEG, BTU, %RH, etc.), plus sigh and decimal point. The operator shall be capable of assigning individual high and low limits to each analog point for alarming purposes. Each limit shall also be assigned a differential in order to provide a deadband to prevent repetitious alarms from analog values cycling near a limit.
 - 3. Start/stop control points shall permit a device to be placed in the on/off, open/closed, day/night, seven day holiday, etc. condition by both operator commands through the terminal and by automatic program control. An alarm shall be output for any controlled device when fails to respond to its commanded condition within an adjustable time period. The operator shall be capable of locking out control of any individual start/stop point.
 - 4. Control Point Adjust (CPA) shall provide the capability of output control signals for the purpose of remotely adjusting setpoint temperatures, damper positions, etc. Adjust commands shall be issued to point both by manual keyboard entry and by automatic program control.
 - 5. Where temperature indication is specified for CPA points under the Point/Function Schedule, the actual value of the controlled variable shall be monitored.
- E. Alarm Reporting: The system shall visually and audibly annunciate any point which goes into its alarm state. Each alarm occurrence shall cause a display of the point to appear on the terminal and printer.

- F. Time Scheduled Programs: The system shall have the capability to automatically execute commands on a time-of-day, day-of-week basis. There shall be eight (8) separate day types, Sunday through Saturday plus Holiday. Each time program shall specify the time-of-day in one minute resolution, the day(s) of week, plus the function to be executed.
- G. Trend Analysis: The system shall have the capability to sample, print and display point trend data.
- H. Point Totalization: Provide a program which totalized equipment runt time in hours and tenths of hours. The totalized value shall have an operator assigned alarm limit. When any totalized value reaches its alarm limit, a message shall be output to the operator's terminal. An operator command shall be provided to manually reset and totalized value. A command shall also be provided to allow automatic reset of totalized values after they exceed their assigned alarm limits.
- I. Optimal Start: Provide a program which delays the morning start-up of each HVAC system until the last possible moment and still allow the building space to reach occupant comfort levels by occupancy time. In addition, the feature shall advance the evening shutdown to the earliest possible moment which shall not cause occupant discomfort prior to vacancy. Both the warm-up and cool-down calculations shall use an adaptive modeling algorithm such that it automatically adjusts the start time calculation for each fan system. The adjustments shall be made based on the monitored rate-of-change of building mass temperature for various inside and outside temperature conditions. The adjustments shall account for variations in heating/cooling equipment sizes, building U-factors, changes in internal building load, changes in equipment efficiency, and other thermodynamic characteristics of each fan system. Provide an Optimal Start/Stop summary on operator request to the CRT and/or printer.
- J. Heavy Equipment Delays: System to provide equipment delays when starting successive loads to minimize peak demand changes and excessive surges on incoming power.
- K. Dial Out Alarms: Provide dial out feature allowing two-way communications over telephone lines. Dial-out shall call one of three (3) telephone numbers when a point goes into alarm. A remote terminal can dial-in to command points or request summaries. Capabilities shall be provided for up to three (3) operator-enterable telephone numbers. Provide the capability to define the number of attempts that the System should try an enabled phone number before dialing the next enabled number, and a time-out value. The time-out value shall determine how long the System shall wait for an operator to log on before hanging up.

2.13 SEQUENCE OF OPERATION – DX SPLIT SYSTEM AIR HANDLING UNITS

- A. Unit shall include BACNet interface. The building automation system (BAS) shall send the controller occupied bypass, pre-cool, occupied/unoccupied and heat/cool modes. Touchscreen panel shall provide time of day schedule for all units. The BAS shall also send the discharge air temperature setpoint and the duct static pressure setpoint. If a BAS is not present, or communication is lost with the BAS the controller shall operate using default modes and setpoints.
- B. Occupied: During occupied periods, the supply fan shall run continuously and the mixed air dampers shall open to maintain minimum ventilation requirements. The unit controller shall control the supply fan speed to maintain the current supply duct static pressure setpoint (adj.). If economizing is enabled, the outdoor air or mixed air dampers shall open to set maximum position to maintain the discharge air temperature setpoint. If the discharge air temperature sensor fails, the dx cooling shall be disabled and an alarm shall annunciate at the BAS.

- C. Unoccupied: when the space temperature is above the unoccupied cooling setpoint of 85.0 deg. F (adj.) The supply fan shall be commanded on, the outside air damper shall open if economizing is enabled and remain closed if economizing is disabled and the dx cooling shall be enabled. When the space temperature falls below the unoccupied cooling setpoint of 85.0 deg. F minus the unoccupied differential of 4.0 deg. F (adj.) The supply fan shall stop, the dx cooling shall be disabled and the outside air damper shall close.
- D. Optimal start: the BAS shall monitor the scheduled occupied time, occupied space setpoints and space temperature to calculate when the optimal start occurs.
- E. Pre-cool mode: during optimal start, if the average space temperature is above the occupied cooling setpoint, pre-cool mode shall be activated by BAS. When pre-cool is initiated the unit shall enable the fan and cooling or economizer. The outside air damper shall remain closed, unless economizing. When the space temperature reaches occupied cooling setpoint (adj.), the unit shall transition to the occupied mode.
- F. Optimal stop: the BAS shall monitor the scheduled unoccupied time, occupied setpoints and space temperature to calculate when the optimal stop occurs. When the optimal stop mode is active the unit controller shall maintain the space temperature to the space temperature offset setpoint. Outside air damper shall remain enabled to provide minimum ventilation.
- G. Occupied bypass: the BAS shall monitor the status of the on and cancel buttons of the space temperature sensors. When an occupied bypass request is received from a space sensor, the unit shall transition from its current occupancy mode to occupied bypass mode and the unit shall maintain the space temperature to the occupied setpoints (adj.).
- H. Cool mode:
 - a) cooling: the unit controller shall use the discharge air temperature sensor and discharge air temperature cooling setpoint to determine when to initiate requests for cooling. Discharge air setpoint shall be maintained by controlling the cooling as required.
 - b) economizer: enable (comparative enthalpy): outside air (oa) enthalpy shall be compared with return air (ra) enthalpy point. The economizer shall enable when oa enthalpy is less than ra enthalpy - 2.0 btu/lb. The economizer shall disable when oa enthalpy is greater than ra enthalpy.
 - c) operation: the supply air sensor shall measure the dry bulb temperature of the air leaving the evaporator coil while economizing. When economizing is enabled and the unit is operating in the cooling mode, the economizer damper shall be modulated between its minimum position and 100% to maintain the discharge air temperature setpoint. The economizer damper shall modulate toward minimum position in the event the discharge air temperature falls below the discharge low limit temperature setpoint. Compressors shall be delayed from operating until the economizer has opened to 100%.
 - d) Supply fan: the supply fan shall be enabled while in the occupied mode and cycled on during the unoccupied mode.
- I. Supply duct static pressure control: during the occupied mode the unit controller shall modulate the output to the variable speed drive as required to maintain the supply duct static pressure setpoint of 1.5 inches of w.c. (adj.). If the supply duct static pressure falls below 1.3 inches of w.c. (adj.) The unit controller shall increase the output to the variable speed drive to maintain setpoint. If the supply duct static pressure rises above 1.7 inches of w.c. (adj.) The unit controller shall below to the variable speed drive to maintain setpoint. If the supply duct static pressure rises above 1.7 inches of w.c. (adj.) The unit controller shall be drive to maintain setpoint. Upon a call for heating or cooling in the unoccupied mode the unit controller shall modulate the speed of the variable speed drive to 100%.

- J. Static pressure high limit: if for any reason the supply air pressure exceeds the supply air pressure high limit, the supply fan shall shut down. The unit shall be allowed to restart three times after a 15 minute off period. If the over-pressurization condition occurs on the fourth restart, the unit shall shut down and a manual reset diagnostic is displayed at the remote panel and/or the BAS system.
- K. Condensate overflow shutdown: the unit shall shut down in response to a signal from the condensate overflow sensor. The sensor shall be interlocked to the unit cooling controller for immediate shutdown of cooling.
- 2.14 SEQUENCE OF OPERATION SINGLE DUCT VAV TERMINAL UNITS
 - A. Each terminal unit shall consist of:
 - 1. Primary supply air damper.
 - 2. Electric reheat coil.
 - 3. DDC Controls: A complete system furnished, mounted, and tested by the terminal unit manufacturer. Provide a temperature sensor for each terminal unit. Interconnect all terminal units to the DDC.
 - B. Each terminal unit shall be activated and deactivated by the DDC optimal start/stop program\ so that the terminal unit is activated and its controls energized when its primary air handling unit is running.
 - C. Upon a rise in space temperature, the space thermostat shall, through a pressure independent volume regulator, modulate the primary air damper open to maintain desired space conditions. Upon a fall in space temperature, the volume regulator shall modulate the primary damper closed to its minimum air flow. Upon a continued drop in space temperature, the thermostat shall cycle the stages of electric heat to maintain its setpoint.
 - D. Electrical heat shall be positively locked out until an air flow switch has proven air flow.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Wiring: Comply with all local and state codes. The term wiring is constructed to include furnishing of wire, conduit, miscellaneous material and labor to install a working system. Outdoor installations shall be of weatherproof construction or in NEMA 3R or 4 enclosures. All wiring shall be concealed in the construction if possible. Where wiring must be exposed, route in conduit adjacent to existing exposed conduit and/or as approved by the Architect. All exposed conduit in finished spaces shall be painted to match adjacent surface.
- B. Permanently mark terminal blocks for identification. Protect all circuits to avoid interruption of service due to short-circuiting or other conditions. Line-protect all wiring that comes from external sources to the site from lightning and static electricity.
- C. Label or code each field wire at each end. Permanently label or code each point of all field terminal strips to show the instrument or item served. Color-coded cable with cable diagrams may be used to accomplish cable identification.
- D. Temperature sensor assemblies shall be readily accessible and adaptable to each type of application in such a manner as to permit or quick, easy replacement and servicing without special tools or skills.

- E. Mount room temperature sensors 54 inches above finished floor unless noted elsewhere.
- F. Mount duct sensors in locations to sense the correct temperature of the air only, within the vibration and velocity limits of the sensing element. Mount extended surface element, when used, securely within the duct and position to measure the best average temperature. Thermally isolate elements from brackets and supports to respond to air temperature only. Securely seal duct penetrations.
- G. Mount water sensors in immersion wells in locations to sense the fluid media. All pipe insulation shall be completely repaired and returned to its original condition to the satisfaction of the Architect.
- H. Mount all flow switches, flow sensors and pressure sensors in locations to sense the correct flow or pressure. Install pipe taps for sensor pickup. Use existing pipe taps on pumps for differential pressure sensors if available.
- I. Signal Transmission System Equipment shall be installed as follows:
 - 1. Splices in shielded and coaxial cables shall consist of terminations and the use of shielded cable couplers. Terminations shall be in accessible locations. Cables shall be harnessed with cable ties.
 - 2. Fit all equipment contained in cabinets or panels with service loops, each loop being at least 12 inches long. Equipment for fiber optics system shall be rack mounted, as applicable, in ventilated, self-supporting, code gauge steel enclosure. Cables shall be supported for minimum sag.
 - 3. Keep cable runs as short as possible. Allow extra length for connecting to the terminal board.
 - 4. Do not bend flexible coaxial cables in a radius less than ten times the cable outside diameter.
 - 5. Use vinyl tape, sleeves, or grommets to protect cables from vibration at points where they pass around sharp corners, through walls, panel cabinets, etc.
 - 6. Grounding shall be in accordance with NFPA 70. All ground wire shall be bare copper.
 - 7. MCR Grounding: Resistance to solid earth shall not exceed 3 ohms for signal and shall be demonstrated by the Contractor.

3.2 FIELD TEST AND INSPECTIONS

- A. Upon completion of installation of each piece of equipment, field inspect and test equipment for proper function.
- B. Test and test report shall indicate setpoints and verify performance of HVAC components in response to variance from setpoints. This test shall be performed in conjunction with Mechanical Contractor's component/system test to assure that discrepancies in function will be verified and connected by Contractor responsible for component or system malfunctioning.

END OF SECTION

SECTION 233616 - AIR TERMINAL UNITS

PART 1- GENERAL

1.1 SECTION INCLUDES

- A. Fan Induction Terminal Units.
- B. Single Duct VAV Terminal Units.

1.2 QUALITY ASSURANCE

- A. Variable volume terminal units shall be tested and rated in accordance with ARI Standard 880.
- B. Insulation shall have UL or E.T.L. approval meeting NFPA 90A.
- C. Electric Heating Coils shall include all safety devices as approved by UL or E.T.L.

1.3 SUBMITTALS

- A. Submit products data showing unit sizes, inlet and discharge information, scheduled air volume and box pressure drops.
- B. Submit sound power levels in decibels re 10⁻¹²W in each octave band for discharge and casing radiation.
- C. Submit heating capacity, motor data and sound attenuator data.
- D. Submit dimensional data (include attenuator dimensions if attenuators are furnished).
- E. Submit manufacturer's installation instructions and maintenance and operating procedures.

PART 2- PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

The products of the manufacturers listed below are of acceptable quality and may be substituted for the item scheduled, provided the substituted manufacture's device complies with all physical and performance characteristics of the scheduled device. Performance characteristics are those scheduled on the drawings or listed in the scheduled manufacture's literature for the device schedule.

Refer to specifications Section 230500 for additional requirements.

- A. Air Devices, Inc.
- B. Anemostat.
- C. Carnes.
- D. Carrier.
- E. Environmental Technologies.
- F. Krueger.

- G. Metalaire.
- H. Nailor.
- I. Price.
- J. Titus.
- K. Trane.
- L. Tempmaster.
- M. Tuttle & Bailey.

2.2 PERFORMANCE

- A. Terminal units shall be of sized and capacities scheduled on the Drawings.
- B. The terminal unit shall be designed to maintain essentially constant primary air flow regardless of inlet duct connection configuration or upstream duct static pressure fluctuations. A hard duct elbow connected at an angle up to 90 degrees to assembly shall not alter the maximum or the minimum factory air flow setting by more than plus or minus 5%.

2.3 FAN POWERED TERMINAL UNITS

- A. Casing: Casing shall be factory fabricated of not lighter than 22-gauge, zinc coated steel. Casing shall be internally insulated with a minimum of 1/2-inch thick, 1-1/2 lb. density fiberglass with no raw or exposed edges. The surface of the insulation shall be treated to prevent erosion and shall conform to UL Test 181 and meet NFPA requirements, certification shall be provided. Air volume dampers, fan, controls and the heater shall be factory assembled into a single cabinet.
- B. Fan Assembly: Fans shall be forward curved centrifugal type with direct drive permanent split capacitor type motor. Fan/motor assembly shall be isolated from the casing to minimize vibration transmission. The fan section shall have a backdraft damper securely mounted and have a maximum leakage of 2% at a two-inch pressure differential.
- C. Air Volume Damper: Control damper shall be located inside the unit casing and shall be constructed of extruded aluminum or galvanized steel components. The control damper shall be designed to provide linear control throughout its operating range. Control damper shall seal against the gasketed stops and total leakage of the casing and damper shall not exceed 5% at three-inch inlet static pressure.

2.4 SINGLE DUCT VAV TERMINAL UNITS

A. Casing: Casing shall be factory fabricated of not lighter than 22-gauge, zinc coated steel. Casing shall be internally insulated with a minimum of 1/2-inch thick 1-1/2 lb. density fiberglass with no raw or exposed edges. The surface of the insulation shall be treated to prevent erosion and shall conform to UL Test 181 and meet NFPA requirements, certification to be provided. Terminal units to be provided for use in hospitals shall have insulation that meets all applicable codes. Foil backed insulation will not be allowed. B. Air Volume Damper: Control damper shall be located inside the unit casing and shall be constructed of extruded aluminum or galvanized steel components. The control damper shall be designed to provide linear control throughout its operating range. Control shall be proportional to the actuator movement regardless of the valve opening. Control damper shall seal against the gasketed stops and total leakage of the casing and damper shall not exceed 5% at three-inch inlet static pressure.

2.5 ELECTRIC COILS

- A. Open type 80% nickel, 20% chromium wire.
- B. Insulated by ceramic bushings and supported in a galvanized steel frame with intermediate supports 4-inch on center.
- C. Integral control panel with primary and secondary overtemperature protections, fuses, airflow switch, control transformer and step controls.

2.6 ELECTRONIC CONTROLS

- A. Provide Terminal units with factory mounted controllers
- B. Refer to specification Section 230923 DDC System for additional requirements.

2.7 ELECTRICAL

- A. Furnish with 24V transformer for control power on all fan powered and single duct terminal units.
- B. Terminal units when supplied to the site shall be suitable for a single power connection.
- C. Provide enclosures for control devices and power transformer.

2.8 WIRING

- A. Provide 120V to 24V transformer for control power.
- B. Terminal units when supplied to the site shall be suitable for a single power connection.
- C. Provide enclosures for control devices and power transformer.

PART 3- EXECUTION

3.1 INSTALLATION

- A. Install items in accordance with manufacturer's instructions and as shown on the Drawings.
- B. Terminal unit manufacturer's flow charts and instructions for field balancing shall be attached to each unit.
- C. Terminal units shall have flow measuring taps installed by the unit manufacturer.
- D. Provide temporary filters on all fan powered terminal units for use during construction. Remove filters prior to building occupancy.

END OF SECTION

SECTION 32 31 14 - CHAIN LINK SWING GATES & 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. Chain-link swing gates. For pair of vehicular swing gates at plan Southeast side of the building on Sheet AS-102.
 - 2. Gate operators, including controls. For pair of vehicular swing gates at plan Southeast side of the building on Sheet AS-102.
 - B. Related Requirements:
 - 1. Section 033000 "Cast-in-Place Concrete" for cast-in-place concrete and post footings.
 - 2. Section 281500 "Access Control Hardware Devices" for gate controls.
- 1.3 PREINSTALLATION MEETINGS
 - A. Preinstallation Conference: Conduct conference at Project site .
 - 1. Inspect and discuss electrical roughing-in, equipment bases, and other preparatory work specified elsewhere.
 - 2. Review coordination of interlocked equipment specified in this Section and elsewhere.
 - 3. Review required testing, inspecting, and certifying procedures.
 - 4.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
 - a. Gate posts, rails, and fittings.
 - b. Chain-link fabric, reinforcements, and attachments.
 - c. Accessories: .
 - d. Gates and hardware.
- B. Shop Drawings: For each type of gate assembly.
 - 1. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Include accessories, hardware, gate operation, and operational clearances.
 - 3. Wiring Diagrams: For power, signal, and control wiring.
- C. Samples for Initial Selection: For each type of factory-applied finish.
- D. Delegated-Design Submittal: For structural performance of chain-link gate frameworks, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- 1.5 INFORMATIONAL SUBMITTALS
 - A. Qualification Data: For .
 - B. Product Certificates: For each type of chain-link gate.
 - C. Product Test Reports: For framework strength according to ASTM F 1043, for tests performed by manufacturer and witnessed by a qualified testing agency.
 - D. Sample Warranty: For special warranty.

1.6 FIELD CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.7 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure to comply with performance requirements.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:
 - 1. Fabric Height: As indicated on Drawings.
 - 2. Steel Wire for Fabric: Wire diameter of 9 gauge .
 - a. Mesh Size: 2.0 inches.
 - b. Zinc-Coated Fabric: ASTM A 392, Type II, Class 1, 2.0 oz./sq. ft. with zinc coating applied before weaving.
 - c. Coat selvage ends of metallic-coated fabric before the weaving process with manufacturer's standard clear protective coating.
 - 3. Selvage: Knuckled at both selvages .

2.2 SWING GATES

- A. General: ASTM F 900 for gate posts and single swing gate types.
 - 1. Gate Leaf Width: As indicated on drawings .
 - 2. Framework Member Sizes and Strength: Based on gate fabric height of 72 inches or less .

Gate fabric height up to and including 6 ft. (1.2m)			
Gate leaf width	Post Outside Diameter		
up to 4 ft. (1.2 m)	2.375 in. (60.3 mm)		
over 4 ft. to 10 ft. (1.2 to 3.05 m)	2.875 in. (73.0 mm)		
over 10 ft. to 18 ft. (3.05 to 5.5 m)	4.000 in. (101.6 mm)		
Gate fabric height over 6 ft. to 12 ft. (1.2 to 2.4m)			
Gate leaf width			
up to 6 ft. (1.8 m)	2.875 in. (73.0 mm)		
over 6 ft. to 12 ft. (1.8 to 3.7 m)	4.000 in. (101.6 mm)		
over 12 ft. to 18 ft. (2.4 to 5.5 m)	6.625 in. (168.3 mm)		
over 18 ft. to 24 ft. (5.5 to 7.3 m)	8.625 in. (219.1 mm)		

- B. Pipe and Tubing:
 - 1. Zinc-Coated Steel: ASTM F 1043 and ASTM F 1083; protective coating and finish to match fence framework .
 - 2. Gate Posts: Round tubular steel .
 - 3. Gate Frames and Bracing: Round tubular steel .
- C. Frame Corner Construction: Welded .
- D. Hardware: (Provide the following at all swing gates)
 - 1. Hinges: Malleable steel butt hinges (box hinges), Model # CL-BUTT-HINGE-MAL by Hoover Fence Co. or equal. Two hinges per gate.
 - 2. Stainless steel panic bar premium kit # D-10045 with 48" panic bar width and full width 24" high mounting plate by DAC Industries, Inc. or equal. Finish: Silver.
 - 3. Outside lever handle D-6100-P by DAC Industries, Inc.
 - 4. Heavy Duty Adjustable Hydraulic Gate Closer #LUS-TB650-P by Lockey USA or equal.
 - 5. Full width x 12" high kick plate on panic bar side of gate per 2012 TAS (ADA). Material and finish of kick plate to match the panic bar's mounting plate.
 - 6. Gate latch protector # LAB-D-6015 by Hoover Fence Co. or equal.
 - 7. Chain link bracket for Mammoth gate closer, #CLB-MAMMOTH by Locinox or equal.
 - 8. Cane Bolts: Provide for inactive leaf of pairs of gates.

2.3 VEHICULAR GATE OPERATORS FOR SWING GATES

- A. Vehicular Gate Operators for Swing Gates:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Doorking 6550 or comparable product by one of the following:
 - a. Eagle Access Control Systems, Inc.
 - b. HySecurity.
- B. Provide factory-assembled automatic operating system designed for gate size, type, weight, and operation frequency. Provide operation control system with characteristics suitable for Project conditions, with remote-

control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.

- 1. Provide operator designed so motor may be removed without disturbing limit-switch adjustment and without affecting auxiliary emergency operator.
- 2. Provide operator with UL approval.
- 3. Provide electronic components with built-in troubleshooting diagnostic feature.

4. Provide unit designed and wired for both right-hand/left-hand opening, permitting universal installation.

- C. Comply with NFPA 70.
- D. UL Standard: Manufacturer and label gate operators to comply with UL 325.
- E. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for automatic gate operators on gates that must provide emergency access.
- F. Motor Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, within installed environment, with indicated operating sequence, and without exceeding nameplate rating or considering service factor. Comply with NEMA MG 1 and the following:
 - 1. Voltage: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
 - 2. Horsepower: Not less than 1 HP.
 - 3. Enclosure: Totally enclosed.
 - 4. Duty: Continuous duty at ambient temperature of 105 deg F and at altitude of 3300 feet above sea level.
 - 5. Service Factor: 1.15 for open drip proof motors; 1.0 for totally enclosed motors.
 - 6. Phase: One.
- G. Gate Operators: Concrete base mounted and as follows:
- 1. Swing Gate Operators:
 - a. Duty: Heavy duty, commercial/industrial.
 - b. Rotation Time from 0 to 90 degrees: 12-14 seconds.
 - c. Maximum Gate Weight: 1500 lb.
 - d. Frequency of Use: Continuous duty.
 - e. Operating Type: Pulley & belt drive with manual release.
 - f. Drive Type: Enclosed 60:1 worm gear reduction system running in a continuous oil bath.
- H. Remote Controls: Electric controls separated from gate and motor and drive mechanism, with enclosure for mounting, and with space for additional optional equipment. Provide the following remote-control device(s):
 - Digital Keypad Entry Unit: Programmable, multiple-code capability of not less than 500 possible individual codes, consisting of 1 to 7-digit codes, and permitting four different access periods.
 a. Face-lighted unit with keypad fully visible at night.
 - Card Reader: Functions only when authorized card is presented. Programmable, multiple-code system, permitting four different access periods; face-lighted unit fully visible at night.
 - a. Reader Type: Proximity.
 - b. Features: Timed anti-pass back, Capable of monitoring and auditing gate activity.
- I. Vehicle Presence Detector: System includes automatic closing timer with adjustable time delay, timer cutoff switch, and presence detector designed to open and close gate hold gate open until traffic clears reverse gate. System includes retroreflective emitter/receiver detector with adjustable detection zone pattern and sensitivity, designed to detect the presence or transit of a vehicle in gate pathway when infrared beam in zone pattern is interrupted, and to emit a signal activating the gate operator.
- J. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately function as follows:
 - 1. Action: Reverse gate in both opening and closing cycles, and hold until clear of obstruction.
 - 2. Action: Stop gate in opening cycle and reverse gate in closing cycle, and hold until clear of obstruction.
 - 3. Internal Sensor: Built-in torque or current monitor senses gate is obstructed.
 - 4. Sensor Edge: Contact-pressure-sensitive safety edge, profile, and sensitivity designed for type of gate and component indicated, in locations as follows. Connect to control circuit using .
 - a. Along entire gate leaf leading edge.
 - b. Along entire gate leaf trailing edge.
 - 5. Photoelectric/Infrared Sensor System: Designed to detect an obstruction in gate's path when infrared beam in the zone pattern is interrupted.
- K. Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop gate at fully retracted and fully extended positions.
- L. Emergency Release Mechanism: Quick-disconnect release of operator drive system of the following type, permitting manual operation if operator fails. Design system so control-circuit power is disconnected during manual operation.
 - 1. Type: Mechanical device, key, or crank-activated release.
- M. Operating Features:

- 1. Digital Microprocessor Control: Electronic programmable means for setting, changing, and adjusting control features. Provide unit that is isolated from voltage spikes and surges.
- 2. Automatic Closing Timer: With adjustable time delay before closing.
- 3. Clock Timer: 24-hour programmable for regular events.
- N. Accessories:
 - 1. Warning Module: Audio and Visual, strobe-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving; compliant with the United States Access Board's ADA-ABA Accessibility Guidelines.
 - 2. Battery Backup System: Battery-powered drive and access-control system, independent of primary drive system.
 - a. Fail-Safe: Gate opens and remains open until power is restored.
 - b. Fail-Secure: Gate cycles on battery power, then fail-safe when battery is discharged.
 - 3. External electric-powered solenoid lock with delay timer allowing time for lock to release before gate operates.
 - 4. Fire box.
 - 5. Instructional, Safety, and Warning Labels and Signs: In accordance with UL 325.
 - 6. Equipment Bases/Pads: Precast concrete, depth not less than 12 inches, dimensioned and reinforced in accordance with gate operator component manufacturer's written instructions and as indicated on Drawings.

2.4 FITTINGS

- A. Provide fittings according to ASTM F 626.
- B. Post Caps: Provide for each post.
 - 1. Provide line post caps with loop to receive tension wire or top rail.
- C. Rail and Brace Ends: For each gate, corner, pull, and end post.
- D. Rail Fittings: Provide the following:
 - 1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.
 - 2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails to posts.
- E. Tension and Brace Bands: Pressed steel.
- F. Tension Bars: Steel , length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.
- G. Tie Wires, Clips, and Fasteners: According to ASTM F 626.
 - 1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, according to the following:
 - a. Hot-Dip Galvanized Steel: 0.148-inch- diameter wire ; galvanized coating thickness matching coating thickness of chain-link fence fabric.

H. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 2.0 oz./sq. ft. of zinc.

2.5 CONCRETE

- A. Concrete for post footings shall have a 28-day compressive strength of 2,500 psi. (17.2MPa).
- 2.6 GROUT AND ANCHORING CEMENT
 - A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout, recommended in writing by manufacturer, for exterior applications.
 - B. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating, and that is recommended in writing by manufacturer for exterior applications.

PART 3 - EXECUTION

- 3.1 EXAMINATION
 - A. Examine areas and conditions, with Installer present, for compliance with requirements for a certified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
 - 1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
 - B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.
- 3.3 CHAIN-LINK FENCE INSTALLATION
 - A. Install chain-link fencing according to ASTM F 567 and more stringent requirements specified.
 - 1. Install fencing on established boundary lines inside property line.
 - B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
 - C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Concealed Concrete: Place top of concrete 2 inches below grade to allow covering with surface material.
 - D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 30 degrees or more . For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.
 - E. Line Posts: Space line posts uniformly at 96 inches o.c.
 - F. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
 - 1. Locate horizontal braces at midheight of fabric 72 inches or higher, on fences with top rail, and at twothird fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
 - G. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch- diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:
 - 1. Shall be installed 4 in. (101.6 mm) up from the bottom of the fabric. Fences without top rail shall have a tension wire installed 4 in. (101.6 mm) down from the top of the fabric. Tension wire to be stretched taut, independently and priorto the fabric, between the terminal posts and secured to the terminal post using a brace band. Secure the tension wire to the chain link fabric with a 9 gauge hog rings18 in. (457.2 mm) on center and to each line post with a tie wire..
 - H. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.
 - I. Intermediate and Bottom Rails: Secure to posts with fittings.
 - J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1-inch bottom clearance between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
 - K. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.
 - L. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
 - 1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.
 - M. Fasteners: Install nuts for tension bands and carriage bolts on the side of fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
- 3.4 GATE INSTALLATION
 - A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

3.5 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Lubricate hardware and other moving parts.

END OF SECTION 32 31 14

SECTION 32 31 19 - DECORATIVE PEDESTRIAN EGRESS GATE SYSTEM

PART 1 - GENERAL

1.01 WORK INCLUDED

The contractor shall provide all labor, materials, and appurtenances necessary for installation of the egress gate system with pedestrian automatic gate operator defined herein. For pedestrian swing gate at plan West side of the building on Sheet AS-102, reference spec section 32 31 19.

1.02 RELATED WORK
Section 31 22 00 - Earthwork
Section 03 30 00 - Concrete
Section 32 31 19.13 - Decorative Metal Fence & Gates (Steel)

1.03 SYSTEM DESCRIPTION

The manufacturer shall supply a total egress gate system of the Ameristar[®] Exodus[®] with automatic gate operator with Surface Plate Mount installation method and 1" picket w/ expanded metal infill. The system shall include all components (i.e., gate, jamb frame, infill, and hardware) required.

1.04 QUALITY ASSURANCE

Pre-hung gate system produced by a manufacturer with minimum 10 years' experience in gate manufacturing. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES

- ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
- ASTM B117 Practice for Operating Salt-Spray (Fog) Apparatus.
- ASTM D523 Test Method for Specular Gloss.
- ASTM D714 Test Method for Evaluating Degree of Blistering in Paint.
- ASTM D822 Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
- ASTM D1654 Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- ASTM D2244 Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
- ASTM D2794 Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- ASTM D3359 Test Method for Measuring Adhesion by Tape Test.
- ASTM F2408 Ornamental Fences Employing Galvanized Steel Tubular Pickets.
- IBC Group I-2 Egress Requirements

1.06 SUBMITTAL

The manufacturer's submittal package shall be provided prior to installation.

1.07 PRODUCT HANDLING AND STORAGE

Upon receipt at the job site, all materials shall be checked to ensure that no damages occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism, and theft.

1.08 PRODUCT WARRANTY

Gate system (i.e., gate, jamb frame, and infill) shall be warranted within specified limitations, by the manufacturer for a period of three (3) years from date of original purchase. Warranty shall cover any defects in workmanship and material finish, including cracking, peeling, chipping, blistering, or corroding. See full product warranty online or request from Ameristar.

PART 2 - MATERIALS

2.01 MANUFACTURER

The gate system shall conform to the Ameristar Exodus Egress Gate with Surface Plate Mount installation method and 1" picket w/ expanded metal infill, manufactured by Ameristar Perimeter Security or equivalent product from a different approved manufacturer through the substitution procedures SECTION 01 25 00.

2.02 MATERIAL

A. Steel material for gate framework (i.e., jamb frame & gate), shall be galvanized prior to forming in accordance with the requirements of ASTM A653/A653M, with minimum yield strength of 45,000 psi (310 MPa). The steel shall be hot-dip

galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft² (276 g/m²), Coating Designation G-90.

B. Infill frame shall be 12ga steel.

C. Ornamental picket infill material shall consist of 1" square x 14 Ga. tubing for pickets. Pickets shall be spaced no greater than 5" o.c. Infill frame shall be 12ga steel. Expanded metal mesh shall be $\frac{3}{4}$ " x #9 flattened.

D. Gate shall be 1.75" x 14ga steel reinforced structural design with ¹/₄" plate reinforced hinge mounting.

E. Hinges shall be stainless steel five knuckle bearing hinges with non-removable pin and stainless-steel fasteners.

F. Pedestrian gate opener shall comply with ANSI A156.19 and UL325 standards. Gate operator shall be outdoor rated, continuous duty, and manufacturer tested to 75,000 cycles without fail. Automatic pedestrian gate operator shall have 316 stainless steel cover, wind load compensation, multi-speed, time adjustment, push-n-go feature, and capable of gate swing up to 105 degrees. Operator shall be pre-installed to gate and gate frame by manufacturer. Gate to have caution sign mounted with exterior rated adhesive, sign shall be 0.040" thick aluminum. Signage and placement to be compliant with ANSI A156.19 standards. Gate shall have integrated terminal box for site specific low voltage connections including power and non-powered door access switch push button options. Internal wiring shall be UL compliant and weather resistant.

2.03 FABRICATION

A. Gate shall be pre-drilled to accept appropriate hardware set. Infill frames shall be fabricated as a single unit. Frame shall be of welded construction inset with mesh filler, attachment to gate frame by means of security fasteners.

B. Gate jamb frame shall be fully welded consisting of 3" x 12ga square tubing for main jamb, 1" square gate stop, and strike mounting block, with gate stop bumpers. Jamb to include an electrical access point with conduit point of connection. Electrical connection to gate by means of Power Transfer connection mounted in jamb and gate. Gate shall be pre-assembled.

C. Gate threshold to be mounted with fasteners allowing for placement below grade or removal after gate installation.

D. Gate shall have minimum clear opening (from gate stop to face of gate open to 90 degrees) of 41.5" meeting IBC Group I-2 Egress requirements.

E. Gate hardware to consist of exterior rated devices. Gate and hardware to be pre-assembled prior to shipping.

F. The manufactured galvanized gate shall be subjected to a multi-stage pretreatment/wash, followed by a dual stage coating process consisting of a cathodic electro-coat epoxy primer base coat and an electrostatic spray topcoat application, a PermaCoat[®] powder coat system. Steel framework is subjected to a six-stage pretreatment/wash followed by an electrostatic spray application of PermaCoat Color System, a two-coat powder system. The base coat is a thermosetting epoxy powder coating (gray in color). The topcoat is a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2.

PART 3 - EXECUTION

3.01 PREPARATION

All new installation shall be laid out by the contractor in accordance with the construction plans.

3.02 GATE INSTALLATION

Post installation for flange mount systems shall be spaced according to Table 1. Posts set in concrete footers shall have a minimum depth of 36". The "Earthwork" and "Concrete" sections of this specification shall govern material requirements for the concrete footer. Posts setting by other methods such as flanged, plated posts or grouted core-drilled footers are permissible only if shown by engineering analysis to be sufficient in strength for the intended application.

3.03 GATE INSTALLATION MAINTENANCE

When cutting/drilling gate components or posts adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Ameristar spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-Ameristar parts or components will negate the manufactures' warranty.

3.05 CLEANING

The contractor shall clean the jobsite of excess materials.

Table 1 – Exodus Egress Gate – Flange Mounting Option					
Post Type	Square				
Post Size	2.5" 3" 4" 6" 8"				
Post Setting on Center	58.5"	59 <i>"</i>	60"	62"	64"
Inside Post Spacing	56"	56"	56"	56"	56"
Post Type	I-Beam				
Post Size	3" 4"				
Post Setting on Center	60.25" 60.25"				
Inside Post Spacing	58.75" 58.75"				

Table 2 – Coating Performance Requirements			
Quality	ASTM Test Method	Performance Requirements	
Characteristics			
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area	
		(Tape and knife test).	
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 3,500 hours (Scribed per	
		D1654; failure mode is accumulation of 1/8" coating loss	
		from scribe or medium #8 blisters).	
Impact Resistance	D2794	Impact Resistance over 60-inch lb. (Forward impact using	
		0.625" ball).	
Weathering	D822 D2244, D523 (60°	Weathering Resistance over 1,000 hours (Failure mode is	
Resistance	Method)	60% loss of gloss or color variance of more than 3 delta-E	
		color units).	

END OF SECTION 32 31 19

SECTION 32 31 19.13 - DECORATIVE METAL FENCES AND GATES (STEEL)

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:
 - A. Decorative Steel Fences For fencing at plan West side of the building on Sheet AS-102 adjacent to the vehicular and pedestrian swing gates below.
 - B. Vehicular Swing Gates For pair of vehicular swing gates at plan West side of the building on Sheet <u>AS-102.</u>
 - C. Pedestrian Swing Gates For pedestrian swing gates at Dumpster Enclosure and Emergency Generator Enclosure. For pedestrian swing gate at plan West side of the building on Sheet AS-102, reference spec section 32 31 19.
 - D. Gate Operators, including controls. For pair of vehicular swing gates at plan West side of the building on Sheet AS-102.
 - B. Related Requirements:
 - A. Section 03 30 53 "Miscellaneous Cast-in-Place Concrete" for concrete bases for gate operators, drives, and controls and post concrete fill.
 - B. Division 26 Sections for electrical service and connections for system disconnect switches and powered devices including, but not limited to, motor operators, controls, and limit switches.
 - C. Section 32 31 19 "Decorative Egress Gate System".
- 1.3 PREINSTALLATION MEETINGS

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For fencing and gates.
 - A. Include plans, elevations, sections, gate locations, post spacing, and mounting attachment details.
 - B. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.
 - C. Wiring Diagrams: Include diagrams for power, signal, and control wiring.
- C. Samples: For each fence material and for each color specified.
 - A. Provide Samples 12 inches in length for linear materials.
 - B. Provide Samples 12 inches square for bar grating.
- 1.5 INFORMATIONAL SUBMITTALS
- A. Product Test Reports: For decorative metallic-coated-steel tubular picket fences, including finish, indicating compliance with referenced standard and other specified requirements.
- 1.6 CLOSEOUT SUBMITTALS
 - A. Maintenance Data: For gate operators to include in maintenance manuals.
- 1.7 QUALITY ASSURANCE
- PART 2 PRODUCTS
- 2.1 PERFORMANCE REQUIREMENTS
 - A. Wind Loading:
 - A. Fence Height: 0 to 15 feet.
 - B. Wind Exposure Category: C.
 - C. Design Wind Speed: 120 mph .
 - D. Design Wind Pressure: as indicated on drawings .
- 2.2 DECORATIVE STEEL FENCES
 - A. Decorative Steel Fences: Fences made from steel tubing bars and shapes , hot-dip galvanized.
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide Ameristar Fence Products; an ASSA ABLOY company, Aegis II, Majestic Style, 3-Rail System or comparable product by one of the following:
 - a. Ametco Manufacturing Corporation.
 - b. Metalco Fence & Railing Systems; Atlantis Products, Inc.
 - B. Posts: Square steel tubing.
 - A. Line Posts: 3 by 3 inches with 1/8-inch wall thickness.
 - B. End and Corner Posts: 4 by 4 inches with 3/16-inch wall thickness.
 - C. Swing Gate Posts: 4 by 4 inches with 3/16-inch wall thickness.
 - D. Horizontal-Slide Gate Post, Openings Wider Than 12 Feet: 4 by 4 inches with 3/16-inch wall thickness.
 - E. Guide Posts for Class 1 Horizontal-Slide Gates: 4 by 4 inches with 3/16-inch wall thickness; installed adjacent to gate post to permit gate to slide in space between.
 - C. Post Caps: Formed from steel sheet and hot-dip galvanized after forming.
 - D. Rails:

- A. Steel Channel Rails: Steel channels 1-1/2 by 3/4 inch.
- E. Pickets: 1 inch square by 0.065-inch steel tubes.
 - A. Extend pickets beyond top rail as indicated and mill ends to pyramid-shaped points Extend pickets beyond top rail as indicated and press flat and trim to produce spear point shape.
 - B. Picket Spacing: 4 inches clear, maximum.
- F. Fasteners: Stainless-steel carriage bolts and tamperproof nuts.
- G. Fabrication: Assemble fences into sections by welding pickets to rails.
 - A. Fabricate sections with clips welded to rails for field fastening to posts.
 - B. Drill posts and clips for fasteners before finishing to maximum extent possible.
- H. Finish exposed welds to comply with NOMMA Guideline 1, Finish #2 completely sanded joint, some undercutting and pinholes okay.
- I. Galvanizing: For items other than hardware that are indicated to be galvanized, hot-dip galvanize to comply with ASTM A 123/A 123M. For hardware items, hot-dip galvanize to comply with ASTM A 153/A 153M.
 - A. Hot-dip galvanize posts and rails.
 - B. Hot-dip galvanize rail and picket assemblies after fabrication.
 - Finish for Metallic-Coated-Steel Items: High-performance coating.
- J. Finish for Metallic-Coated-Stee 2.3 VEHICULAR SWING GATES
 - A. Decorative Steel Gates: Gates made from steel tubing bars and shapes , hot-dip galvanized.
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide Ameristar Fence Products; an ASSA ABLOY company, Aegis II, Majestic Style, 3-Rail System or comparable product by one of the following:
 - a. Ameteo Manufacturing Corporation.
 - b. Metalco Fence & Railing Systems; Atlantis Products, Inc.
 - B. Gate Configuration: Majestic Style, 3-Rail.
 - C. Gate Frame Height: match height of adjacent fence.
 - D. Gate Opening Width: As indicated on drawings.
 - E. Galvanized-Steel Frames and Bracing: Fabricate members from square tubes 2 by 2 inches formed from 0.108-inch nominal-thickness, metallic-coated steel sheet or formed from 0.105-inch nominal-thickness steel sheet and hot-dip galvanized after fabrication.
 - F. Frame Corner Construction: Welded or assembled with corner fittings and 5/16-inch- diameter, adjustable truss rods for panels 5 feet wide or wider.
 - G. Additional Rails: Provide 3-rail system.
 - H. Infill: Comply with requirements for adjacent fence.
 - I. Picket Size, Configuration, and Spacing: Comply with requirements for adjacent fence.
 - J. Hardware:
 - A. Type and quantity of gate hinges shall be based on the application; weight, height, and number of gate cycles. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacture of the gate and shall be installed per manufacturer's recommendations.
 - B. Cane Bolts: Provide for inactive leaf of pairs of gates. Fabricated from 3/4-inch-(19-mm-) diameter, round steel bars, hot-dip galvanized after fabrication. Finish to match gates. Provide galvanized-steel pipe strikes to receive cane bolts in both open and closed positions.
 - K. Finish exposed welds to comply with NOMMA Guideline 1, Finish #2 completely sanded joint, some undercutting and pinholes okay.
 - L. Galvanizing: For items other than hardware that are indicated to be galvanized, hot-dip galvanize to comply with ASTM A 123/A 123M. For hardware items, hot-dip galvanize to comply with ASTM A 153/A 153M.
 - M. Metallic-Coated-Steel Finish: High-performance coating.
- 2.4 PEDESTRIAN SWING GATES
- A. Reference Section 32 31 19 "Decorative Pedestrian Egress Gate System".
- 2.5 VEHICULAR GATE OPERATORS FOR SWING GATES
- A. Vehicular Gate Operators for Swing Gates:
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide Doorking 6550 or comparable product by one of the following:
 - a. Eagle Access Control Systems, Inc.
 - b. HySecurity.
 - B. Provide factory-assembled automatic operating system designed for gate size, type, weight, and operation frequency. Provide operation control system with characteristics suitable for Project conditions, with remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.
 - A. Provide operator designed so motor may be removed without disturbing limit-switch adjustment and without affecting auxiliary emergency operator.
 - B. Provide operator with UL approval.

- C. Provide electronic components with built-in troubleshooting diagnostic feature.
- D. Provide unit designed and wired for both right-hand/left-hand opening, permitting universal installation.
- C. Comply with NFPA 70.
- D. UL Standard: Manufacturer and label gate operators to comply with UL 325.
- E. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for automatic gate operators on gates that must provide emergency access.
- F. Motor Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, within installed environment, with indicated operating sequence, and without exceeding nameplate rating or considering service factor. Comply with NEMA MG 1 and the following:
 - A. Voltage: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
 - B. Horsepower: Not less than 1 HP.
 - C. Enclosure: Totally enclosed.
 - D. Duty: Continuous duty at ambient temperature of 105 deg F and at altitude of 3300 feet above sea level.
 - E. Service Factor: 1.15 for open drip proof motors; 1.0 for totally enclosed motors.
 - F. Phase: One.
- G. Gate Operators: Concrete base mounted and as follows:
 - A. Swing Gate Operators:
 - a. Duty: Heavy duty, commercial/industrial.
 - b. Rotation Time from 0 to 90 degrees: 12-14 seconds.
 - c. Maximum Gate Weight: 1500 lb.
 - d. Frequency of Use: Continuous duty.
 - e. Operating Type: Pulley & belt drive with manual release.
 - f. Drive Type: Enclosed 60:1 worm gear reduction system running in a continuous oil bath.
- H. Remote Controls: Electric controls separated from gate and motor and drive mechanism, with enclosure for mounting, and with space for additional optional equipment. Provide the following remote-control device(s):
 - A. Digital Keypad Entry Unit: Programmable, multiple-code capability of not less than 500 possible individual codes, consisting of 1 to 7-digit codes, and permitting four different access periods.
 - a. Face-lighted unit with keypad fully visible at night.
 - B. Card Reader: Functions only when authorized card is presented. Programmable, multiple-code system, permitting four different access periods; face-lighted unit fully visible at night.
 - a. Reader Type: Proximity.
 - b. Features: Timed anti-pass back, Capable of monitoring and auditing gate activity.
- I. Vehicle Presence Detector: System includes automatic closing timer with adjustable time delay, timer cutoff switch, and presence detector designed to open and close gate hold gate open until traffic clears reverse gate. System includes retroreflective emitter/receiver detector with adjustable detection zone pattern and sensitivity, designed to detect the presence or transit of a vehicle in gate pathway when infrared beam in zone pattern is interrupted, and to emit a signal activating the gate operator.
- J. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately function as follows:
 - A. Action: Reverse gate in both opening and closing cycles, and hold until clear of obstruction.
 - B. Action: Stop gate in opening cycle and reverse gate in closing cycle, and hold until clear of obstruction.
 - C. Internal Sensor: Built-in torque or current monitor senses gate is obstructed.
 - D. Sensor Edge: Contact-pressure-sensitive safety edge, profile, and sensitivity designed for type of gate and component indicated, in locations as follows. Connect to control circuit using .
 - a. Along entire gate leaf leading edge.
 - b. Along entire gate leaf trailing edge.
 - E. Photoelectric/Infrared Sensor System: Designed to detect an obstruction in gate's path when infrared beam in the zone pattern is interrupted.
- K. Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop gate at fully retracted and fully extended positions.
- L. Emergency Release Mechanism: Quick-disconnect release of operator drive system of the following type, permitting manual operation if operator fails. Design system so control-circuit power is disconnected during manual operation.
 - A. Type: Mechanical device, key, or crank-activated release.
- M. Operating Features:
 - A. Digital Microprocessor Control: Electronic programmable means for setting, changing, and adjusting control features. Provide unit that is isolated from voltage spikes and surges.
 - B. Automatic Closing Timer: With adjustable time delay before closing.
 - C. Clock Timer: 24-hour programmable for regular events.
- N. Accessories:

- A. Warning Module: Audio and Visual, strobe-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving; compliant with the United States Access Board's ADA-ABA Accessibility Guidelines.
- B. Battery Backup System: Battery-powered drive and access-control system, independent of primary drive system.
 - a. Fail-Safe: Gate opens and remains open until power is restored.
 - b. Fail-Secure: Gate cycles on battery power, then fail-safe when battery is discharged.
- C. External electric-powered solenoid lock with delay timer allowing time for lock to release before gate operates.
- D. Fire box.
- E. Instructional, Safety, and Warning Labels and Signs: In accordance with UL 325.
- F. Equipment Bases/Pads: Precast concrete, depth not less than 12 inches, dimensioned and reinforced in accordance with gate operator component manufacturer's written instructions and as indicated on Drawings.
- 2.6 STEEL AND IRON

F.

- A. Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Bars (Pickets): Hot-rolled, carbon steel complying with ASTM A 29/A 29M, Grade 1010.
- C. Tubing: ASTM A 500/A 500M, cold-formed steel tubing.
- D. Bar Grating: NAAMM MBG 531.
 - A. Bars: Hot-rolled steel strip, ASTM A 1011/A 1011M, Commercial Steel, Type B.
 - B. Wire Rods: ASTM A 510/A 510M.
- E. Galvanized-Steel Sheet: ASTM A 653/A 653M, structural quality, Grade 50, with coating.
 - Castings: Either gray or malleable iron unless otherwise indicated.
 - A. Gray Iron: ASTM A 48/A 48M, Class 30.
 - B. Malleable Iron: ASTM A 47/A 47M.
- 2.7 MISCELLANEOUS MATERIALS
 - A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
 - A. For aluminum, provide type and alloy as recommended by producer of metal to be welded and as required for strength and compatibility in fabricated items.
 - B. Concrete: Normal-weight, air-entrained, ready-mix concrete complying with requirements in Section 033000 "Cast-in-Place Concrete" with a minimum 28-day compressive strength of 3000 psi, 3-inch slump, and 1-inch maximum aggregate size or dry, packaged, normal-weight concrete mix complying with ASTM C 387/C 387M mixed with potable water according to manufacturer's written instructions.
 - C. Non-shrink Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M and specifically recommended by manufacturer for exterior applications.
- 2.8 STEEL FINISHES
 - A. Surface Preparation: Clean surfaces according to After cleaning, apply a conversion coating compatible with the organic coating to be applied over it.
 - B. Powder Coating: Immediately after cleaning, apply manufacturer's standard two-coat finish consisting of epoxy primer and TGIC polyester topcoat to a minimum total dry film thickness of not less than 8 mils. Comply with coating manufacturer's written instructions.
 - A. Color and Gloss: As selected by Architect from manufacturer's full range.
- 2.9 METALLIC-COATED-STEEL FINISHES
 - A. Galvanized Finish: Clean welds, mechanical connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.
 - B. Surface Preparation: Clean surfaces of oil and other contaminants. Use cleaning methods that do not leave residue. After cleaning, apply a conversion coating compatible with the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas and apply galvanizing repair paint, complying with SSPC-Paint 20, to comply with ASTM A 780/A 780M.
 - C. Powder Coating: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat finish consisting of epoxy prime coat and TGIC polyester topcoat to a minimum dry film thickness of 2 mils. Comply with coating manufacturer's written instructions to achieve a minimum total dry film thickness of 4 mils.
 - A. Color and Gloss: .
 - B. Comply with surface finish testing requirements in ASTM F 2408.
- PART 3 EXECUTION
- 3.1 EXAMINATION
 - A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, construction layout, and other conditions affecting performance of the Work.
 - B. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
 - C. Proceed with installation only after unsatisfactory conditions have been corrected.

- 3.2 PREPARATION
 - A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.
 - A. Construction layout and field engineering are specified in Section 017300 "Execution."

3.3 DECORATIVE FENCE INSTALLATION

- A. Install fences according to manufacturer's written instructions.
- B. Install fences by setting posts as indicated and fastening rails and infill panels to posts. Peen threads of bolts after assembly to prevent removal.
- C. Post Excavation: Drill or hand-excavate holes for posts in firm, undisturbed soil. Excavate holes to a diameter of not less than 4 times post size and a depth of not less than 24 inches plus 3 inches for each foot or fraction of a foot that fence height exceeds 4 feet.
- D. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - A. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - B. Concrete Fill: Place concrete around posts and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Exposed Concrete: Extend 2 inches above grade. Finish and slope top surface to drain water away from post.
 - b. Concealed Concrete: Top 2 inches below grade to allow covering with surface material. Slope top surface of concrete to drain water away from post.
 - C. Posts Set in Concrete: Extend post to within 6 inches of specified excavation depth, but not closer than 3 inches to bottom of concrete.
 - D. Posts Set into Concrete in Sleeves: Use galvanized-steel pipe sleeves with inside diameter at least 3/4 inch larger than outside diagonal dimension of post, preset and anchored into concrete for installing posts.
 - a. Extend posts at least 5 inches into sleeve.
 - b. After posts have been inserted in sleeves, fill annular space between post and sleeve with nonshrink grout, mixed and placed to comply with grout manufacturer's written instructions; shape and smooth to shed water. Finish and slope top surface of grout to drain water away from post.
 - E. Space posts uniformly at 6 feet o.c.

3.4 GATE INSTALLATION

A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

3.5 GATE OPERATOR INSTALLATION

- A. General: Install gate operators according to manufacturer's written instructions, aligned and true to fence line and grade.
- B. Excavation for Concrete Bases: Hand-excavate holes for bases in firm, undisturbed soil to dimensions and depths and at locations as required by gate operator component manufacturer's written instructions and as indicated.
- C. Concrete Bases: Cast-in-place or precast concrete, depth not less than 12 inches, dimensioned and reinforced according to gate operator component manufacturer's written instructions and as indicated on Drawings.
- D. Vehicle Loop Detector System: Cut grooves in pavement and bury and seal wire loop according to manufacturer's written instructions. Connect to equipment operated by detector.
- E. Comply with NFPA 70 and manufacturer's written instructions for grounding of electric-powered motors, controls, and other devices.

3.6 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Automatic Gate Operators: Energize circuits to electrical equipment and devices. Adjust operators, controls, safety devices, alarms, and limit switches.
 - A. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 - B. Test and adjust controls , alarms, and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Lubricate hardware , gate operators, and other moving parts.

3.7 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's personnel to adjust, operate, and maintain gates.

END OF SECTION 32 31 19.13

SECTION 32 31 29 - WOOD FENCES & GATES

PART 1 GENERAL

- 1.1 SECTION INCLUDES
 - A. Wood fences and gates. Heights: As indicated on drawings.
- 1.2 ACTION SUBMITTALS
 - A. Product Data: For each type of product.
 - B. Shop Drawings: For fencing and gates.
 - 1. Include plans, elevations, sections, gate locations, post spacing, and mounting attachment details.
 - 2. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.
 - 3. Wiring Diagrams: Include diagrams for power, signal, and control wiring.
 - C. Delegated-Design Submittal: For structural performance of chain-link fence and gate frameworks, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- PART 2 PRODUCTS
- 2.1 GENERAL
 - A. All wood materials shall be treated wood, or cedar wood. Materials shall be free from loose knots, cracks, and other imperfections.
- 2.2 PERFORMANCE REQUIREMENTS
 - D. Wind Loading:
 - 1. Fence Height: 0 to 15 feet.
 - 2. Wind Exposure Category: B.
 - 3. Design Wind Speed: 110 mph.
 - 4. Design Wind Pressure: As indicated on Sheet S1.1.
- 2.3 WOOD BOARDS OR SLATS
 - A. Wood boards or slats shall be <u>cedar</u> wood.
 - B. Wood boards or slats shall be between 3/8 inches and 5/8 inches thick and be no greater than 6 inches wide.
- 2.4 POSTS
 - A. Posts shall be pressure treated wood for severe weather.
 - B. Line posts shall be 4-inch by 4-inch nominal.
 - 1. Line post spacing shall not exceed 72 inches.
 - C. Man Gate posts shall be 4-inch by 4-inch nominal.
 - D. Drive Gate posts shall be at minimum dual 6-inch by 6-inch nominal.
- 2.5 RAILS
 - A. Rails shall be pressure treated wood for severe weather.
 - B. Top, bottom and intermediate rails shall be 2-inch by 4-inch nominal.
 - C. Attached top, bottom and intermediate rails with galvanized nails or coated screws for exterior use.
- 2.6 GATES
 - A. Provide additional horizontal, vertical, and diagonal members to ensure proper gate operation and for attachment of wood, hardware and accessories. Consult manufacturer as necessary.
 - B. Accessibility: Gate stops, latches and locks shall be accessible from either side of gate.
 - C. Types: Man Gates and Truck Gates
 - 1. Man Gates
 - a. Openings shall be a minimum of 3 feet wide clear.
 - Heights:6'-0".
 - 2. Vehicle Gates
 - a. Openings shall be a minimum of 12 feet wide. Heights: 6'-0".
- 2.7 GATE HARDWARE
 - A. Gate hardware including, but not limited to, latches, hinges, stops and bolts shall be galvanized.
 - B. Hinges and Pins shall be heavy duty and sized as per manufacturer's recommendations.
 - C. For drive gates (double-leaf), a drop rod or stop shall be installed on one leaf, include at least one guide and shall extend into concrete base or similarly solid base.
 - D. Dual access (accessible and lockable from either side) latch and lock systems are required on all gates.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
 - 1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
 - Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION.

Β.

A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet (152.5 m) or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 LAYOUT OF WORK

- A. Insure that in no circumstance shall a fence or gate be located outside the property line.
- B. Gate location shall be as indicated on the drawings.

3.4 INSTALLATION OF POSTS

- A. Post Excavation: Drill or hand-excavate 12 inch dimeter holes for posts and at spacing indicated, in firm, undisturbed soil.
- B. Provide 3 inches of dry gravel at bottom of the hole. Maintain minimum 36 inches of post embedment.
- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
- D. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect above ground portion of posts from concrete splatter.
- E. Line Posts: Space line posts uniformly at maximum 72 inches o.c.
- F. Top, Bottom and Intermediate Rails: Install maintaining plumb position and alignment of fencing.
- 3.5 INSTALLATION OF FENCE SLATS
- A. Install wood fence slats vertical with maximum 1/32 inch gap between each slat.
- B. Attached fence slats to top, bottom and intermediate rails with galvanized nails or coated screws for exterior use.
- 3.6 INSTALLATION OF GATES
 - A. Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage as recommended by the fence manufacturer. Adjust hardware for smooth operation.
 - B. Man Gates:
 - 1. Shall be installed as indicated on drawings.
 - 2. Shall open/close in direction as indicated on drawings.
 - B. Truck Gates:
 - 1. Shall be installed as indicated on drawings.
 - 2. Shall open/close in direction as indicated on drawings.

END OF SECTION 32 31 29

SECTION 32 33 13 – BIKE RACKS – Addendum-03

PART 1 - GENERAL

- 1.1 SUMMARY
 - A. Section Includes:
 - 1. Bicycle racks.
- 1.2 ACTION SUBMITTALS
- A. Product Data: For each type of product.
 - B. Samples: For each exposed product and for each color and texture specified.
- 1.3 CLOSEOUT SUBMITTALS
- A. Maintenance data.
- PART 2 PRODUCTS
- 2.1 BICYCLE RACKS
 - A. Basis-of-Design Product: Subject to compliance with requirements, provide a stainless steel round tube wave bike rack (7 waves/9 bikes), model # CBBR-9UR-SS by Belson Outdoors or comparable product by one of the following:
 - 1. Madrax; Graber Manufacturing, Inc.
 - B. Bicycle Rack Construction:
 - 1. U/2 Round: 1 7/8" O.D. Stainless Steel Pipe 1. 2. 3.
 - 2. Material: 1.5" ASTM A312 Schedule 40 Type 304 Stainless Steel Pipe.
 - 3. Construction: Rolled 180 degree 10 5/16 inch IR bend x 36 inches high.
 - 4. Installation Method: Surface mounted.

2.2 MATERIALS

- A. Stainless Steel: Free of surface blemishes and complying with the following:
 - 1. Sheet, Strip, Plate, and Flat Bars: ASTM A240/A240M or ASTM A666.
 - 2. Pipe: Schedule 40 steel pipe complying with ASTM A312/A312M.
 - 3. Tubing: ASTM A554.
- B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound; resistant to erosion from water exposure without needing protection by a sealer or waterproof coating; recommended in writing by manufacturer, for exterior applications.

2.3 FABRICATION

- A. Metal Components: Form to required shapes and sizes with true, consistent curves, lines, and angles. Separate metals from dissimilar materials to prevent electrolytic action.
- B. Welded Connections: Weld connections continuously. Weld solid members with full-length, full-penetration welds and hollow members with full-circumference welds. At exposed connections, finish surfaces smooth and blended, so no roughness or unevenness shows after finishing and welded surface matches contours of adjoining surfaces.
- C. Pipes and Tubes: Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces.
- D. Exposed Surfaces: Polished, sanded, or otherwise finished; all surfaces smooth, free of burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.
- E. Factory Assembly: Factory assemble components to greatest extent possible to minimize field assembly. Clearly mark units for assembly in the field.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.
- B. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.
- C. Install site furnishings level, plumb, true, and positioned at locations indicated on Drawings.
- D. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.

END OF SECTION 32 33 13

SECTION 32 35 00 - DUMPSTER ENCLOSURE SCREENING GATES

PART 1 - GENERAL

- 1.1 SUMMARY
 - A. Section Includes:
 - 1. Pre-formed painted metal for screening or buffering trash enclosures.
 - 2. Aluminum support gate framing for direct attachment of gate support columns.
 - 3. Galvanized & painted steel support posts with concrete piers or footings.
- 1.2 REFERENCES
 - A. American Society for Testing and Materials: Standard Specifications for
 - 1. ASTM B 221-13 Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire Profiles, and Tubes.
 - B. The Aluminum Association, Inc.
 - 1. AA ADM-1516166 (1994) Aluminum Design Manual
 - C. American Society of Civil Engineers.
 - 1. ASCE 7-95 Minimum Design Loads for Buildings and Other Structures.
- 1.3 SYSTEM DESCRIPTION
- A. Design Criteria:
 - 1. Manufacturer is responsible for the structural design of all materials (including posts), assembly and attachments to resist snow, wind, suction and uplift loading at any point without damage or permanent set.
 - 2. Framing shall be designed in accordance with the Aluminum Design Manual to resist the wind loads as indicated on drawings.
 - a. ASCE 7-95 Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers.
- 1.1 SUBMITTALS
 - A. Product Data: Submit manufacturer's catalog data, detail sheets, specification and other data sufficient to indicate compliance with these specifications.
 - B. Shop Drawings: Delegated-Design Submittal: For structural performance of screening, gate frameworks and posts, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation. Include plans, elevations, sections, gate locations, post spacing, and mounting attachment details.

Indicate layouts heights, component connection details, and details of interface with adjacent construction.

- C. Samples:
 - 1. Color Selection: Full range of colors available (including custom options) for Architect's selection.
- D. Certification: Manufacturer's Certificate of Compliance certifying that panels supplied meet or exceed requirements specified.
- E. Closeout Submittals: Warranty documents, issued and executed by manufacturer, countersigned by Contractor.
- 1.2 QUALITY ASSURANCE
 - A. Regulatory Requirements: Comply with requirements of building authorities having jurisdiction in Project location.
 - B. Manufacturer Qualifications: Minimum five (5) years documented experience producing systems specified in this section.
- 1.04 DELIVERY, STORAGE AND HANDLING
- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.
- B. Storage and Handling: Protect materials and finishes during handling and installation to prevent damage.
- 1.4 PROJECT CONDITIONS
 - A. Field Measurements: Take measurements of supporting paving, footings, or piers. Indicate measurements on shop drawings fully documenting any field condition that may interfere with the screen system installation.
- 1.5 COORDINATION
- A. Installer for work under this Section shall be responsible for coordination of panel and framing sizes and required options with the Contractor's requirements.

- 1. Request information on sizes and options required from the Contractor.
- B. Submit shop drawings to the Contractor and obtain written approval of shop drawing from the Contractor prior to fabrication.
- C. Confirm size, type, and location of supporting construction as adequate to resist column supports.
- 1.6 WARRANTY
- A. If any part of the screen system fails because of a manufacturing defect within one year from the date of substantial completion, the manufacturer will furnish without charge the required replacement part(s). Any local transportation, related service labor or diagnostic call charges are not included.
- PART 2 PRODUCTS
- 2.1 MANUFACTURERS
- A. Acceptable Products: Toughgate Gates by CityScapes International Inc, 4200 Lyman Ct. Hilliard, OH 43026. 1-877-727-3367 www.cityscapesinc.com www.covrit.com.
- B. Substitutions: Submit in accordance with Section 01 25 00.
- 2.2 MATERIALS
 - A. 7.2 Rib Metal Infill by CityScapes.
 - 1. Minimum thickness: .050" Precoated Aluminum.
 - B. Framing: Aluminum Plate, Shapes and Bar: ASTM B 221, alloy6005-T5, 6061-T5 or 6063-T5.
 - C. In-Ground Posts, 5" SCH 40 Round Steel Pipe. 5.563" Outside Diameter.
 - D. Threaded Fasteners: All screws, bolts, nut and washers shall be Stainless steel.
 - 1. Corner assembly fasteners shall be #10-16 x stainless steel TEK screws.
 - 2. Provide lock washer or other locking device at all bolted connections.
- 2.3 FABRICATION
 - A. Provide factory-formed panel systems with continuous interlocking panel connections and indicated or necessary components: Form all components true to shape, accurate in size, square and free from distortion or defects. Cut panels to precise lengths indicated on approved shop drawings.
 - B. Fabricate products to the following configurations:
 - 1. Panel Style: 7.2 Rib Metal Panels Vertical Orientation.
 - 2. Panel and Gate Height: to match height of adjacent screen walls, as indicated on drawings.
 - 3. Gate Width: As indicated on drawings.
 - 4. Decorative Top Rail Trim Profile: Boxed
 - 5. Dumpster Layout: As indicated on drawings
 - C. Trim and Closures: Fabricated and finished with the manufacturers standard coating system, unless shown otherwise on drawings.
 - D. Framing: Fabricate and assemble components in largest practical sizes, for delivery to the site.
 - 1. Construct corner assemblies to required shape with joints tightly fitted.
 - 2. Supply components required for anchorage of framing. Fabricate anchors and related components of material and finish as required, or as specifically noted.
 - E. Gate Hardware:
 - 1. Provide manufacturer's standard adjustable hinges to allow for 180 degree swing out, and of size required to fit support pipe provided.
 - 2. Manufacturer's standard color-matched lockable latches.
 - 3. Manufacturer's standard color-matched ½" diam stainless steel drop pins, with adjustable mounting hardware. One drop pin per gate panel.
- 2.4 FINISHES
 - A. Aluminum Framing: Mill finish.
 - B. Panel Coating: Manufacturer's standard coating system, factory-applied.
 - 1. Color: Selected from full range of manufacturer's standard colors.

PART 3 - EXECUTION

- 3.1 EXAMINATION
- A. Installer's Examination: Examine conditions under which construction activities of this section are to be performed.
 - 1. Submit written notification to Architect and Screen manufacturer if such conditions are unacceptable.
 - 2. Beginning erection constitutes installer's acceptance of conditions.
- 3.2 INSTALLATION
- A. Install units in accordance with the manufacturer's instructions and approved shop drawings. Keep perimeter lines straight, plumb, and level. Provide brackets, anchors, and accessories necessary

for a complete installation.

- B. Fasten structural supports to paving, footings, or piers at spacing as indicated on approved shop drawings.
- C. Insert thermoplastic panels into structural supports, except where fixed attachment points are indicated. Butt thermoplastic panels to adjacent panels for uniform fit. Fasten fixed panels in accordance with the shop drawings.
- D. Metal Separation: Where aluminum materials would contact dissimilar materials, insert rubber grommets at attachment points, thus eliminating where dissimilar metals would otherwise be in contact.
- E. Do not cut or abrade finishes which cannot be restored. Return items with such finishes to shop for required alterations.
- 3.3 ERECTION TOLERANCES
- A. Maximum misalignment from true position: ¹/₄ inch (6.35 mm).
- 3.4 CLEANING AND PROTECTION
- A. Remove all protective masking from material immediately after installation.
- B. Protection:
 - 1. Ensure that finishes and structure of installed systems are not damaged by subsequent construction activities.
 - 2. If minor damage to finishes occurs, repair damage in accordance with manufacturer's recommendations; provide replacement components if repaired finishes are unacceptable to Architect.
- C. Prior to Substantial Completion: Remove dust or other foreign matter from component surfaces; clean finishes in accordance with manufacturer's instructions.
 - 1. Clean units in accordance with the manufacturer's instructions.

END OF SECTION 32 35 00





FEMA NOTES:

ך SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

THE 1% ANNUAL CHANCE FLOOD (100-YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. AREAS OF SPECIAL FLOOD HAZARD INCLUDE ZONES A, AE, AH, AO, AR, A99, V, AND VE. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

ZONE AE BASE FLOOD ELEVATIONS DETERMINED.

	1% ANNUAL CHANCE FLOODPLAIN BOUNDARY.
ZONE X	AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD. AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
	BOUNDARY DIVIDING SPECIAL FLOOD HAZARD AREA ZONES AND BOUNDARY DIVIDING SPECIAL FLOOD HAZARD AREAS OF DIFFERENT BARE FLOOD ELEVATIONS, FLOOD DEPTHS OR FLOOD VELOCITIES.

GENERAL NOTES:

- 1.) GRID BEARINGS AND DISTANCES SHOWN HEREON ARE REFERENCED TO THE TEXAS COORDINATE SYSTEM OF 1983, TEXAS SOUTH ZONE 4205, AND ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (2011) EPOCH 2010.00. (RECORD BEARING/DISTANCE)
- 2.) ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE ONRTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), GEOID 12A.
- 3.) SOME FEATURES SHOWN ON THIS SURVEY MAY BE OUT OF SCALE FOR CLARITY.
- $^{4.)}$ this survey was prepared from field data obtained ON XX

NOTE:

THIS TOPOGRAPHIC MAP WAS PREPARED FOR DESIGN PURPOSES ONLY.

THIS MAP WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE COMMITMENT. THE SURVEYOR HAS MADE NO INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP OF TITLE EVIDENCE OR ANY OTHER FACTS THAT AN ACCURATE TITLE SEARCH MAY DISCLOSE.













LEGEND

C	CONTRACTOR TO MAKE CONNECTION UNDER CITY SUPERVISION. CONTRACTOR TO MATCH LINE AND GRADE OF EXISTING WATER PIPE AND SUPPLY ALL MATERIALS AND LABOR.
EX. PROP. RCP MH HDPE PVC DIP W W W W SS SS SS SS SS SS SS SS GAS GAS GAS GAS GAS GAS GAS CAS CAS CAS CAS CAS CAS CAS C	EXISTING PROPOSED REINFORCED CONCRETE PIPE MANHOLE HIGH DENSITY POLYETHYLENE PIPE POLYVINYL CHLORIDE PIPE DUCTILE IRON PIPE EXISTING WATER LINE PROPOSED WATER LINE EXISTING SANITARY SEWER PROPOSED SANITARY SEWER EXISTING STORM SEWER EXISTING GAS LINE PROPOSED GAS LINE UTILITY EASEMENT (U.E.) WATER SERVICE PROPOSED SANITARY SEWER SERVICE EXISTING SANITARY SEWER MANHOLE PROPOSED SANITARY SEWER MANHOLE
3 3 3 3 3 3 3 3 3 3 3 3 3 3	EXISTING FIRE HYDRANT PROPOSED FIRE HYDRANT EXISTING WATER VALVE PROPOSED WATER VALVE WATERLINE DEFLECTION GAS METER FENCE LINE PROPOSED STORM WATER LINE (RCP)

GENERAL NOTES:

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- 2.) ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE ONRTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), GEOID 12A.
- 3.) SOME FEATURES SHOWN ON THIS SURVEY MAY BE OUT OF SCALE FOR CLARITY.
- 4.) THIS SURVEY WAS PREPARED FROM FIELD DATA OBTAINED ON XX

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Know what Cal	rs below. before you dig.	PART HOI YI BLAS	icipants r urs notice ou dig, dr st – stop 81 300–34	EQUEST E BEFOR AND CA 1 4-83





GENERAL NOTES

Guarantee the irrigation system for one year from date of acceptance.

2. VERIFICATION:

1. GUARANTEE:

The design pressure is 49.4 P.S.I. System design is based on 50 P.S.I. and 50 G.P.M. available at discharge outlet of meter. Verify same and notify Landscape Architect if such data adversely affects the operation of the system. Such notice shall be made in writing and prior to commencing any irrigation work.

3. UTILITIES:

Verify location of all on-site utilities. Restoration of damaged utilities shall be made to the satisfaction of the Owner, and at no additional cost to the Owner.

4. SCHEMATIC:

System features are shown schematically for graphic clarity. Install all piping and valves in common trenches where feasible and inside planting areas adjacent to walkways and inside medians whenever possible.

5. STANDARDS & CODES:

Irrigation system shall be installed in accordance with TCEQ Standards and all local codes and manufacturer's specifications. Notify Landscape Architect by telephone and in writing of any conflicts prior to installation.

6. QUICK COUPLING VALVES:

Install on double swing joint. Locate 12" away from edge of walks, walls, curbs, and headerboards within planting areas. Provide one swivel, hose ell.

7. SLEEVING:

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Adequately size Sch. 40 pipe for all wiring and irrigation lines installed under paving areas and that pass through drainage trenches with drain rock. Install (with ends clearly marked above grade) at the necessary depth prior to the construction of paving areas or field bases. Sleeving to extend 12" from edge of paving or drainage trench into adjacent subgrade. No unsleeved piping, angle-bends, 90-degree bends, or joints shall be allowed under paving.

8. HEAD ALLOWANCE:

Allow in bid price an amount sufficient to provide and install an additional 5 sprinkler heads of each type specified on plan to accommodate field changes. These heads shall be located as directed by the Landscape Architect. Deliver to the owner any unused additional heads at the end of the maintenance period.

9. FIELD VERIFICATION:

Field verify dimensions of all planting areas to receive irrigation. Determine nozzle pattern (1/2 head, 1/4 head, Adjustable Arc nozzle, etc.) based on field conditions. Adjust all nozzles in field for optimal coverage and to prevent overspray onto walks, paved areas, building, etc.

10. CONTROLLER:

Install controller as shown on the Drawings. All above-grade conduit, either 24v. or 110v., shall be rigid galvanized steel securely fastened to structure and to controller.

11. POP-UP HEIGHT:

Use 6" pop-up sprinklers in the turf areas

12. POP-UP LOCATION: Distance of pop-up sprinkler from paving or headerboard is equal to riser height.

13. SCHEDULING:

Prior to the end of the maintenance period, schedule the controller for repeat cycle irrigation and multiple programming. Provide at least three start times for turf and two start times for shrubs if over 5 minutes in length for any one station. Turf and shrubs shall be on separate programs. Shrubs shall be separated into two programs, one for sun valves, one for partial shade to shade valves.

14. PRESSURE REGULATION

All sprays shall be installed with pressure regulating screens (PRS).

15. REVIEWS:

Landscape Architect to approve mainline layout & observe pressure test BEFORE backfilling. Landscape Architect to approve irrigation coverage BEFORE plant layout commences. Landscape Architect to approve overall layout & operation BEFORE granting substantial completion.

16. SUBMITTALS:

Submit mainline pressure test to Architect.

Submit product data on all irrigation equipment specified, including any proposed substitutions.

REFERENCE NOTES

 $\langle 1 \rangle$ Mount Sensor in Area of Unobstructed Rainfall.

Plumbing Contractor to Provide Two 1.5" Conduits Sweeping Through to Outside Landscape Area. Fasten Conduit to Wall. Seal All Penetrations.

PRESSURE LOSS CALCULATION

Static Pressure: 50 lbs.

- Zone #6: 21.9 g.p.m.
- 1" Meter: 2.8 lbs.
- 1.5" Control Valve: 3 lbs.
- 1.5" Backflow: 3 lbs.
- Mainline (size varies): 6.5 lbs.

Lateral Line (size varies): 2.8 lbs. Elevation Loss: 1.3 lbs.

- Head Operating Pressure: 30 lbs.
- Design Pressure: 49.4 p.s.i.
- Residual Pressure: 0.6 lbs.







PLANT LEGEND

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ím./Ae	BRE	BOTANICAL NAME	COMMON NAME	SIZE	
ees					
		Chamaerops humilis	Med. Fan Palm	See Plan	
		Sabal texensis	Texas Sabal	10' Trunk	
	-	Prosopis glandulosa	Thornless Mesquite	2" Cal./Multi.	
••		Quercus virginiana	Live Oak	2" Cal./Multi.	
rubs					
	Dt	Dianella t. 'Variegata'	Variegated Dianella	3 Gal.	
	Db	Dietes bicolor	Yellow African Iris	3 Gal.	
	Нр	Hesperaloe parviflora	Red Yucca	3 Gal.	
	Ма	Malvaviscus a.drummondii	Turk's Cap	3 Gal.	
	Мс	Muhlenbergia capillaris	Gulf Muhly	3 Gal.	
	No	Nerium o. 'Carnival'	Carnival Oleander	3 Gal.	
	Ri	Rhaphiolepis i. 'Clara'	Hawthorne	3 Gal.	
	Sm	Sabal minor	Dwarf Palmetto	30 Gal.	
oundc	overs	3			
		Lantana montevidensis	60/40 Lav./White	1 Gal./36" o.c.	
		Trachelospermum asiaticum	n Asian Jasmine	1 Gal./30" o.c.	
		Solid Sod: Common Bermuda			
		Decomposed Granite (DG):	See 6/L-3.2		
		Rock: See <u>9/L-3.2</u>			
HDR		Edging: See 7/L-3.2			

Boulders: See 6/L-3.2 SA B

GENERAL NOTES

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- 1. Contractor shall guarantee all trees/plant material for one year from date
- of final acceptance.
- 2. Contractor shall spray all landscape areas with an approved herbicide. After minimum one week, dead vegetation shall be removed.
- 3. Excavate and remove base material and/or lime stabilized soil from landscape areas. Fill with topsoil to within subgrade limits for Rock, DG, or Grass. See Plan.
- 4. All planting areas to receive pre-emergent herbicide Ronstar G or equal. 5. Prepare, amend, and fertilize existing soil. Pre-mix amendments into soil before backfilling plant pits - do not mix inside pits. Break large clods into small pieces. Amend plant pits per detail 1/L-3.2 or 2/L-3.2.
- 6. For sod areas, till subgrade minimum 4" deep. Place and till in Milorganite fertilizer at 72 lbs./2,500 SF to a depth of 4". All sod areas shall be uniformly graded for positive drainage, and all rocks and clods shall be removed. The soil surface for sod areas shall be rolled to resist impressions over 1/4" deep. Finish grade all sod areas leaving room for sod thickness to leave sod flush with adjacent curbs/pavements. Solid sod pieces shall be uniformly sized, and tightly laid in rows with staggered ends and no overlap. Trimming shall be performed with sharp tools, and carefully fitted around structures. Water top immediately for optimum moisture content.
- Weed Mat to be placed under DG and Rock areas only. See 8/L-3.2. Jute Netting to be installed under asian jasmine per Mfrs' instructions.
- Install Edging per Detail 7/L-3.2.
- 10. Install 24" Root Barrier for trees located w/in 5 feet of curbs/pavements. 11. Landscape Architect to approve edging board layout BEFORE plant
- layout commences.
- 12. Landscape Architect to approve plant material BEFORE plant layout
- commences. 13. Landscape Architect to approve layout of all plants BEFORE planting
- commences 14. Submittals: Submit all landscape product data, including any proposed
- substitutions. 15. Plant shrubs and groundcover per detail (1/L-3.2) or (2/L-3.2). Rootball shall be 2" above finish grade. Distance of plantings from adjacent walks, curbs, walls etc. shall be equal to the plant spacing, min.
- See 1/L-2.0 for Groundcover Spacing Diagram. 14. Plant trees per detail 3/L-3.2 or 4/L-3.2. 16. Install Rock or DG as shown on plan. Install DG flush with edging and
- curbs per detail 6/L-3.2. Surface of Rock shall be 1/2" below pavements/edging. Install 3" layer of brown shredded hardwood mulch to asian jasmine areas. Leave no bare dirt.

REFERENCE NOTES

- $\langle 1 \rangle$ Visibility Triangle
- $\langle 2 \rangle$ Overhead Electrical Wires
- $\langle 3 \rangle$ Existing Sidewalk
- $\langle \mathbf{4} \rangle$ Existing Structure
- $\langle 5 \rangle$ Proposed Structure: Height Varies, See Architectural Drawings
- $\langle 6 \rangle$ Drainage Flume: See 5/L-3.2











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NUMBER	ROOM NAME	FLOOR FINISH	BASE FINISH	NORTH	EAST	SOUTH	WEST	CEILING FINISH	HEIGHT	REMARKS
A100	MUNICIPAL CLERK	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A101	FILES	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A102	JURY	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A103	MUNIC. JUDGE	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A104	CORRIDOR	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A105	EOC STORAGE	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A106									9'-0"	
A107 A108			GLAZED CMU					2x2 ACT	<u> </u>	
A109		STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A110	COUNTY CLERKS	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A111	CORRIDOR	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A112	ALCOVE	CONCRETE		PAINT	PAINT	PAINT		P.C.P.	9'-0"	
A113	LOBBY	LVT	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A114	CORRIDOR	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	3
A115	CORRIDOR	STAINED CONCRETE	GLAZED CMU	PAINT		PAINT	PAINT		9'-0"	3
A110 A117									9-0"	
A117 A118		STAINED CONCRETE						2x2 ACT	9-0	
A119	CHIEF DEPUTY	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A120	CORRIDOR	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	3
A121	IT	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A122	DEPUTIES ROOM	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
A123	ALCOVE	CONCRETE		PAINT	PAINT		PAINT	P.C.P.	9'-0"	
A124	CONSTABLE	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
B100	ALCOVE	CONCRETE			PAINT	PAINT	PAINT	P.C.P.	9'-0"	
B101		STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	12'-0"	
B102	MUNICIPAL RECORDS	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
B103			GLAZED CMU						9'-0"	
B104 B105									9-0"	
B105		STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT 2x2 ACT	9-0	
B100	CID DET.	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
B108	TOILET	MOSAIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	MOISTURE RESISTANT GYP. BD.	9'-0"	
B109	SHWR	MOSAIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	MOISTURE RESISTANT GYP. BD.	9'-0"	
B110	SHWR	MOSAIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	MOISTURE RESISTANT GYP. BD.	9'-0"	
B111	MEN'S TOILET	MOSAIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	MOISTURE RESISTANT GYP. BD.	9'-0"	
B112	WOMEN'S TOILET	MOSAIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	MOISTURE RESISTANT GYP. BD.	9'-0"	
B113	CORRIDOR	STAINED CONCRETE	GLAZED CMU	PAINT		PAINT	PAINT	2x2 ACT	9'-0"	3
B114	STORAGE	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT		
B115			GLAZED CMU						9'-4"	1
B110 B117									9-4	
B118	CORRIDOR				PAINT		ΡΔΙΝΤ		9'_0"	3
B119	SHWR	MOSAIC TILE		CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	MOISTURE RESISTANT GYP_BD	9'-0"	
B120	SHWR	MOSAIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE		MOISTURE RESISTANT GYP. BD.	9'-0"	
B121	TOILET	MOSAIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	MOISTURE RESISTANT GYP. BD.	9'-0"	
B122	FEMALE LOCKERS	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	MOISTURE RESISTANT GYP. BD.	9'-0"	
B123	MALE LOCKERS	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	MOISTURE RESISTANT GYP. BD.	9'-0"	
B124	ARMORY	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	MOISTURE RESISTANT GYP. BD.	9'-0"	
B125	LAUNDRY	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	2
B126	CUST. / MECH	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	EXPOSED STRUCTURE		
B127	UNISEX TOILET	MOSAIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	CERAMIC TILE	MOISTURE RESISTANT GYP. BD.	9'-4"	1
B128		STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT		2x2 AC1	9'-4"	1
B129					PAINI		PAINI		9'-0"	
B130 B131									9-0	3
B132	WOMEN 2	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	RUBBED CONCRETE	10'-0"	
B134	FEMALE	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	GYP. BD.	9'-6"	-
B135	FEMALE DETOX	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	RUBBED CONCRETE	10'-0"	
B136	BOOKING	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	GYP. BD.	9'-6"	
B138	UNISEX ADA	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	RUBBED CONCRETE	10'-0"	
B139	VIOLENT	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	RUBBED CONCRETE	10'-0"	
B140	MEN 3	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	RUBBED CONCRETE	10'-0"	
B141	MALE	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	GYP. BD.	9'-6"	
B142	MEN 4	STAINED CONCRETE	GLAZED CMU						10'-0"	
B143 B144									10'-0"	
B144		STAINED CONCRETE		ΡΑΙΝΤ	PAINT	PAINT				
C100	KITCHEN	STAINED CONCRETE					PAINT / CERAMIC TIL	NON-PERFORATED CEILING THE	10'-0"	
C100	CID SGT.	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
C102	CORRIDOR	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT		2x2 ACT	9'-0"	3
C103	IT OFFICE	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
C104	BREAKOUT	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
C105	OUTDOOR STOR.	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
C106	ALCOVE	CONCRETE		PAINT		PAINT	PAINT	P.C.P.	9'-0"	
C107	INTERV.	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
C108	EVIDENCE	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
C109	PATROL SGTS.	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT		9'-0"	
C110	WUKKKOOM		GLAZED CMU	PAINT	PAINT		PAINT		9'-0"	
C112									9 ⁻ -0"	3
C112								2X2 AU I 2v2 ACT	ອ -ປິ ຊະ ດະ	<u>J</u>
C.11/	STORAGE			ΡΔΙΝΤ	ΡΔΙΝΤ	ΡΔΙΝΤ	ΡΔΙΝΤ	2λ2 ΑΟΤ 2χ2 ΔΩΤ	9-0 Q'_N"	
C115	FI FCTRICAI	SEALED CONCRETE	GI AZED CIVIO	PAINT	PAINT	PAINT	PAINT	EXPOSED STRUCTURE		
C116	RISER	SEALED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	EXPOSED STRUCTURE		+
C117	PATROL	STAINED CONCRETE	GLAZED CMU	PAINT	PAINT	PAINT	PAINT	2x2 ACT	9'-0"	
			_	DAINIT	DAINIT		DAINT	РСР	0' 0"	
C118	ALCOVE	CONCRETE		PAINI	PAINI			F.O.F.	9-0	
C118 D100	ALCOVE EQUIPMENT PLATFORM	SEALED CONCRETE	RESILIENT BASE	PAINT	PAINT	PAINT	PAINT	EXPOSED STRUCTURE	9-0	

ROOM SCHEDULE REMARKS:

- CEILING HEIGHTS ARE FROM FOUNDATION.
 PROVIDE MOISTURE RESISTANT GYP BOARD @ WALLS
- 2. PROVIDE MOISTORE RESISTANT GTP BOARD & WALLS & CEILING.
 3. PROVIDE CRASH RAILS ALONG WALLS (BOTH SIDES) & CORNERS EQ. TO CONSTRUCTION SPECIALTIES, ACROVYN CRASH RAILS, MODEL SCR-48, WOOD GRAIN FINISH AS SELECTED BY ARCH., MOUNT AS DIRECTED BY ADOUTEOT
- ARCHITECT. 4. ON ACCESS FLOORING.







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10. ALL ELECTRICAL DEVICE COVERS ARE TO BE WHITE UNLESS NOTED

11. CARPET PATTERNS TO RUN PARALLEL TO CORRIDOR, UNLESS NOTED

12. ALL HOLLOW METAL DOOR FRAMES TO BE PAINTED TO MATCH

1. ALL FINISH MATERIALS MUST MEET THE FLAME SPREAD RATINGS PER

2. REFER TO INTERIOR ELEVATIONS FOR SPECIFIC MATERIAL LOCATIONS.

5. REFER TO TYPICAL FLOORING TRANSITION DETAILS FOR ALL FLOORING

6. FLOORING TRANSITIONS AT DOORS SHOULD BE LOCATED UNDER THE DOOR IN THE CLOSED POSITION, UNLESS NOTED OTHERWISE.

7. CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING FINISHED

FLOORING SURFACES FROM DAMAGE DURING ALL CONSTRUCTION

8. PROVIDE BULLNOSE TRIM AT TRANSITIONS FROM CERAMIC WALL TILE

9. REFER TO REFLECTED CEILING PLANS FOR CEILING HEIGHTS.





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ELECTRICAL LIGHTING PLAN - AREA B 3/16" = 1'-0"

LIGHTING CONTROLS LEGEND:

\$	LOW-VOLTAGE SINGLE POLE SWITCH
_{\$} κ	KEYED SWITCH
_{\$} KD	KEYED DIMMING SWITCH
₅OS	OCCUPANCY SWITCH DUAL-TECH, AUTO-ON/AUTO-OFF
$_{\DOS	OCCUPANCY SWITCH DUAL-TECH, AUTO-ON/AUTO-OFF DIMMING
v	VACANCY SWITCH DUAL-TECH, MANUAL-ON/AUTO-OFF
_{\$} DV	VACANCY DIMMING SWITCH DUAL-TECH, VACANCY DIMMING SWITCH
\$ ^D	LOW VOLTAGE DIMMING SWITCH.
OS	OCCUPANCY SENSOR LOW-CEILING.
()	OCCUPANCY SENSOR HIGH-CEILING.
₩	*ALTERNATE LIGHTING CONTROLS SHALL BE TOUCHE LIGHTING CONTROLS SYSTEM.

LIGHTING PLAN GENERAL NOTES:

- A. ALL 2x4 FIXTURES ARE TYPE "A1" UNLESS NOTED OTHERWISE.
- ALL 2x2 FIXTURES ARE TYPE "B1" UNLESS NOTED OTHERWISE. Β.
- LIGHTING CIRCUIT NUMBERS ARE INDICATED IN EACH ROOM. C.
- ALL CEILING MOUNTED DEVICES LOCATED IN LAY-IN CEILINGS D. SHALL BE CENTERED IN THE CEILING TILE.
- MULTIPLE SWITCHES SHOWN TOGETHER SHALL BE GANGED E. TOGETHER UNDER A COMMON COVER PLATE.
- PROVIDE UNSWITCHED POWER TO ALL EXIT SIGNS FROM EMERGNECY PANEL. COORDINATE THE EXACT EXIT SIGN LOCATION/PLACEMENT WITH THE BUILDING INSPECTOR PRIOR TO ROUGH-IN.
- CONTRACTOR SHALL INDICATE LIGHTING CIRCUIT CONTROLLED G. BY EACH SWITCH BY PROVIDING TYPE WRITTEN VINYL LABELING LOCATED ON EACH SWITCH COVER PLATE.
- CONTRACTOR SHALL INDICATE LIGHTING CIRCUIT CONTROLLED Η. BY EACH SWITCH BY PROVIDING TYPE WRITTEN LABELING LOCATED EACH SWITCH COVER PLATE.
- SPRINKLER CONTRACTOR SHALL COORDINATE SPRINKLER HEAD LOCATIONS WITH CEILING MOUNTED LIGHTING FIXTURES.
- HALL LIGHTING AND ALL COMMON AREA CIRCUITS NOT J. CONTROLLED BY OCCUPANCY SENSORS SHALL BE CIRCUITED THROUGH A LIGHTING CONTACTOR PANEL AND SHALL BE TURNED OFF BASED ON A TIME OF DAY SCHEDULE THROUGH THE TIME SWITCH. WITH OVERRIDE DEVICES LOCATED AT EACH MAIN ENTRANCE.
- MINIMUM CIRCUIT SIZE IS 2 #12 AND 1 #12 GROUND IN 1/2" Κ. CONDUIT.
- COORDINATE LIGHT LOCATIONS WITH OTHER CEILING ITEMS OR L. JOIST ITEMS PRIOR TO INSTALLATION. LIGHT LOCATIONS TAKE PRECEDENCE OVER AIR DEVICES.
- PROVIDE SECONDARY SUPPORT WIRES FROM ALL TWO (2) Μ CORNERS OF THE LAY-IN FIXTURES TO THE STRUCTURE ABOVE. DO NOT SUPPORT FIXTURES FROM CEILING GRID WIRE SUPPORTS, PIPING, CONDUIT, SIDE WALLS, OR MECHANICAL EQUIPMENT. CEILING SPECIFICATIONS DO NOT SUPERCEDE THIS REQUIREMENT.
- FIRESTOP ALL CONDUIT PENETRATIONS IN RATED WALLS. SEE N. ARCHITECTURAL FOR WALL RATINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO SHEET ROCK AND REPAIR. PROVIDE FIRE RATED SLEEVES IN ALL FLOOR PENETRATIONS.
- 0 REFER TO RESPECTIVE SIDE OF THE BOUNDARY MATCHLINE FOR THE APPROPRIATE FLOOR PLAN KEYED NOTES.
- PROVIDE GENERATOR TRANSFER DEVICE (GTD) FOR THE EMERGENCY FIXTURES IN EACH LIGHTING CONTROL ZONE. SEE GTD DETAIL.

LIGHTING CONTROLS SEQUENCE OF OPERATIONS:

INTERIOR

CLASSROOMS/LABS: ·MANUAL ON/VACANCY SENSOR OFF IN 20MINS OR LESS. ·DIMMER SWITCH, CEILING MOUNTEDDUAL TECH VACANCY SENSORS.

ADMIN/OFFICES: MANUAL ON/VACANCY SENSOR OFF IN 20MINS OR LESS.

·DIMMER SWITCH, DUAL TECH VACANCY SENSOR SWITCH IN INDIVIDUAL OFFICES. ·CEILING MOUNTED DUAL TECH VACANCY SENSOR IN OPEN OFFICES.

CAFETERIA/GYMNASIUM: ·TIMER OFF AFTER HOURS WITH OVERRIDE SWITCH(ES) AT MAIN ENTRANCE(S). VACANCY SENSOR OFF. ·DIMMER SWITCHES, CEILING MOUNTED DUAL TECH VACANCY SENSORS.

CORRIDORS/EGRESS TIMER OFF AFTER HOURS WITH OVERRIDE SWITCH(ES) AT MAIN ENTRANCE(S). EMERGENCY FIXTURES SHALL FUNCTION AS "NIGHT LIGHTS".

·TIME SWITCH SHALL RETAIN ITS PROGRAMMING AND TIME SETTING DURING A POWER INTERRUPTION FOR AT LEAST 10 HOURS.

·CONTACTORS/RELAY PANEL. STORAGE/JANITORIAL

MANUAL ON/VACANCY SENSOR OFF IN 20MINS OR LESS. ·PIR VACANCY SWITCH. RESTROOMS

·OCCUPANCY SENSOR ON/AUTO-OFF IN 20MINS OR LESS. ·DUAL TECH CEILING MOUNTED SENSORS.

DAYLIGHT ZONES ·REDUCE LIGHT LEVELS IN ALL FIXTURES CONTAINED WITHIN THE DAYLIGHT ZONE IN RESPONSE TO DAYLIGHTING. ·UTILIZE CEILING MOUNTED DAYLIGHT SENSOR CENTERED WITHIN THE DAYLIGHT ZONE.

EXTERIOR

WALL MOUNTED/FAÇADE LIGHTING PHOTOCELL ON/PHOTOCELL OFF. TIMER SWITCH OFF FROM MIDNIGHT-6AM. ·TIME SWITCH SHALL RETAIN ITS PROGRAMMING AND TIME SETTING DURING A POWER INTERRUPTION FOR AT LEAST 10 HOURS.

POLE LIGHTS ·PHOTOCELL ON/PHOTOCELL OFF. REDUCE LIGHTING POWER BY AT LEAST 30% FROM MIDNIGHT-6AM. ·TIME SWITCH SHALL RETAIN ITS PROGRAMMING AND TIME SETTING DURING A POWER INTERRUPTION FOR AT LEAST 10 HOURS.

LIGHTING CONTROL/COMMISSIONING PLAN:

CONTRACTOR SHALL COMPLETE THE TASKS BELOW TO VERIFY THE LIGHTING CONTROLS ARE OPERATING AS PRESCRIBED BY THE PROJECT DOCUMENTS AND APPLICABLE CODES. WRITTEN DOCUMENTATION SHALL BE PROVIDED TO THE ARCHITECT UPON COMPLETION AND SHALL INCLUDE THE FOLLOWING INFORMATION FOR EACH TASK: DATE PERFORMED, PERSON COMPLETING THE TASK, INITIAL SETTINGS OBSERVED, AND FINAL SETTING UPON COMPLETION.

CONTRACTOR SHALL COMPLETE AND DOCUMENT THE FOLLOWING TASKS:

- ENSURE LIGHT FIXTURES ARE INSTALLED AND • OPERATIONAL.
- PERFORM OPERATIONAL TESTING OF EMERGENCY • EXIT AND EGRESS LIGHTING COMPONENTS AS REQUIRED BY NFPA 101 FOR ANNUAL TESTING.
- ENSURE OCCUPANCY SENSORS ARE INSTALLED AND OPERATIONAL.
- ENSURE DAYLIGHT PHOTOSENSORS ARE INSTALLED • AND OPERATIONAL

TEST OF OCCUPANCY SENSOR DEVICES SHALL ENSURE THE FOLLOWING: LOCATION AND AIMING ARE SET PER

- MANUFACTURER'S INSTRUCTIONS, DEVICE STATUS INDICATORS ARE FUNCTIONING,
- FIXTURES ARE SWITCHED OR DIMMED AS INDICATED • IN THE DRAWINGS, • TIME DELAYS ARE SET APPROPRIATELY, AND
- MOVEMENT OUTSIDE OF THE SPACE DOES NOT CAUSE THE SENSOR TO OPERATE.

TEST OF DAYLIGHT PHOTOSENSOR DEVICES SHALL ENSURE THE FOLLOWING: LOCATION AND AIMING ARE SET PER •

- MANUFACTURER'S INSTRUCTIONS, DEVICE STATUS INDICATORS ARE FUNCTIONING, FIXTURES ARE DIMMED AS INDICATED IN THE •
- DRAWINGS, TIME DELAYS AND RATE OF DIMMING ARE SET •
- APPROPRIATELY TO AVOID ABRUPT LIGHT LEVEL CHANGES, AND
- FEEDBACK FROM ARTIFICIAL LIGHTING WITHIN THE • SPACE DOES NOT CAUSE UNNECESSARY OPERATION.

IN CORRIDOR, OCCUPANCY SENSOR CONTROL SHALL TURN LIGHTING ON TO FULL LIGHT OUTPUT UPON DETECTION OF OCCUPANT. ALL OTHER AREAS, OCCUPANCY SENSOR CONTROL SHALL TURN LIGHTING ON TO NOT MORE THAN 50 PERCENT OF LIGHTING POWER.

TEST ON/OFF SYSTEM WHERE APPLICABLE FOR CORRECT OPERATION.

CONTRACTOR SHALL ENSURE THE STEPS ABOVE ARE COMPLETED PRIOR TO SUBSTANTIAL COMPLETION TO AVOID POTENTIAL DELAYS IN OBTAINING CERTIFICATE OF OCCUPANCY.



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E-301 ELECTRICAL POWER PLAN - AREA A 3/16" = 1'-0"





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POWER PLAN GENERAL NOTES:

A. SEE ALL OTHER PLANS FOR ADDITIONAL DEVICES. SOME POWER CIRCUITING MAY BE ON OTHER PLANS. COORDINATE THE LOCATIONS OF DATA/CATV JACKS WITH THE RECEPTACLES. MOUNT ADJACENT TO EACH OTHER.

B. WHEN LOCATING SYSTEMS NEXT TO DOORS, LOCATE 8 INCHES OFF DOOR JAMB TO CENTER OF DEVICE. WHEN MULTIPLE DEVICES ARE TOGETHER, STACK BUT NO MORE THAN 72 INCHES AFF.

C. MINIMUM CIRCUIT SIZE IS 2 #12 AND 1 #12 GROUND IN 3/4" CONDUIT. D. PROVIDE #10 AWG MIN NEUTRAL FOR ALL MUTLIWIRE

CIRCUIT BREAKERS AS REQUIRED BY NEC 210.4 E. COORDINATE RECEPTACLE LOCATIONS WITH MILLWORK AND COUNTERS. DO NOT LOCATE RECEPTACLES BEHIND DRAWERS OR HIDDEN IN MILLWORK UNLESS SPECIFICALLY DIRECTED BY OWNER/ARCHITECT. REVIEW ARCHITECTURAL ELEVATIONS PRIOR TO RECEPTACLE ROUGH-INS. SEE ARCH. ELEVATIONS IN BREAKROOMS FOR APPLIANCES AND RECEPTACLE MOUNTING LOCATIONS.

BRANCH CIRCUITS AND PROVIDE HANDLE TIES FOR

F. PROVIDE GFI RECEPTACLES WITHIN 6' OF ALL SINKS, AND AT ALL ROOFTOP RECEPTACLES, KITCHEN RECEPTACLES, BATHROOM/TOILET ROOMS, EXTERIOR RECEPTACLES, UNDERCOUNTER EQUIPMENT, AND ALL RECEPTACLES SERVING DRINKING FOUNTAINS.

G. ALL EQUIPMENT SHALL HAVE A LOCAL DISCONNECTING MEANS, EITHER CORDED PLUG AND RECEPTACLE OR SWITCHED DISCONNECT. VERIFY FROM EQUIPMENT SUBMITTED OR RELOCATED IF DIRECT CONNECT OR RECEPTACLE. IF DIRECT CONNECT, PROVIDE SWITCH AS PER NEC OTHERWISE, PROVIDE RECEPTACLE, CORD PLUG AS REQUIRED BY EQUIPMENT SUBMITTAL.

H. PROVIDE INDIVIDUAL DISCONNECTS FOR ALL SMOKE FIRE DAMPERS AND VAV'S. NO EXCEPTIONS. I. FIRESTOP ALL CONDUIT PENETRATIONS IN RATED

WALLS. SEE ARCHITECTURAL FOR WALL RATINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO SHEET ROCK AND REPAIR.

J. PROVIDE FIRE RATED SLEEVES IN ALL FLOOR PENETRATIONS.

K. ALL ISOLATED GROUND RECEPTACLES SHALL BE ORANGE IN COLOR AND HAVE ISOLATED GROUND FEEDER IG0020.

L. PROVIDE TAMPER PROOF RECEPTACLES FOR ALL TOILET ROOMS AND LOCKER ROOMS.

(#) ELECTRICAL KEYED NOTES

- 1 4' X 8' X 3/4" FIRE RATED PLYWOOD INSTALLED VERTICALLY STARTING AT 24" ABOVE FINISHED FLOOR. 2 PROVIDE GFI BREAKER.
- 3 PROVIDE 120V TO JUNCTION BOX FOR WIRELESS INTERCOM.
- 4 WATER-PROOF LOW VOLTAGE JUNCTION BOX @ 24" AFF FOR SATALITE CABLE. VERIFY MOUNTING HEIGHT WITH OWNER. ROUTE 1-1/4" CONDUIT WITH PULL STRING TO NEAREST ACCESSIBLE CEILING.
- 5 WATER-PROOF LOW VOLTAGE JUNCTION BOX @ 24" AFF FOR (4) NETWORK JACKS. VERIFY MOUNTING HEIGHT WITH OWNER. ROUTE 1-1/4" CONDUIT WITH PULL STRING TO NEAREST ACCESSIBLE CEILING.
- 6 GROUND BUS BAR MOUNTED AT 84" ABOVE FINISHED FLOOR BY DIVISION 27. <u>/2</u>___
 - EMPTY LOW VOLTAGE OUTLET FOR AUDIO/VISUAL CABLE. SEE DETAIL. PROVIDE 2" CONDUIT WITH PULL STRING UP TO ACCESSABLE CEILING. TYPICAL.





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E-302 ELECTRICAL POWER PLAN - AREA B

POWER PLAN GENERAL NOTES:

A. SEE ALL OTHER PLANS FOR ADDITIONAL DEVICES. SOME POWER CIRCUITING MAY BE ON OTHER PLANS. COORDINATE THE LOCATIONS OF DATA/CATV JACKS WITH THE RECEPTACLES. MOUNT ADJACENT TO EACH OTHER.

B. WHEN LOCATING SYSTEMS NEXT TO DOORS, LOCATE 8 INCHES OFF DOOR JAMB TO CENTER OF DEVICE. WHEN MULTIPLE DEVICES ARE TOGETHER, STACK BUT NO MORE THAN 72 INCHES AFF.

C. MINIMUM CIRCUIT SIZE IS 2 #12 AND 1 #12 GROUND IN 3/4" CONDUIT.

D. PROVIDE #10 AWG MIN NEUTRAL FOR ALL MUTLIWIRE

BRANCH CIRCUITS AND PROVIDE HANDLE TIES FOR CIRCUIT BREAKERS AS REQUIRED BY NEC 210.4 E. COORDINATE RECEPTACLE LOCATIONS WITH MILLWORK AND COUNTERS. DO NOT LOCATE RECEPTACLES BEHIND DRAWERS OR HIDDEN IN MILLWORK UNLESS SPECIFICALLY DIRECTED BY OWNER/ARCHITECT. REVIEW ARCHITECTURAL ELEVATIONS PRIOR TO RECEPTACLE ROUGH-INS. SEE ARCH. ELEVATIONS IN BREAKROOMS FOR APPLIANCES AND RECEPTACLE MOUNTING LOCATIONS.

F. PROVIDE GFI RECEPTACLES WITHIN 6' OF ALL SINKS, AND AT ALL ROOFTOP RECEPTACLES, KITCHEN RECEPTACLES, BATHROOM/TOILET ROOMS, EXTERIOR RECEPTACLES, UNDERCOUNTER EQUIPMENT, AND ALL RECEPTACLES SERVING DRINKING FOUNTAINS.

G. ALL EQUIPMENT SHALL HAVE A LOCAL DISCONNECTING MEANS, EITHER CORDED PLUG AND RECEPTACLE OR SWITCHED DISCONNECT. VERIFY FROM EQUIPMENT SUBMITTED OR RELOCATED IF DIRECT CONNECT OR RECEPTACLE. IF DIRECT CONNECT, PROVIDE SWITCH AS PER NEC OTHERWISE, PROVIDE RECEPTACLE, CORD PLUG AS REQUIRED BY EQUIPMENT SUBMITTAL.

H. PROVIDE INDIVIDUAL DISCONNECTS FOR ALL SMOKE FIRE DAMPERS AND VAV'S. NO EXCEPTIONS. I. FIRESTOP ALL CONDUIT PENETRATIONS IN RATED

WALLS. SEE ARCHITECTURAL FOR WALL RATINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO SHEET ROCK AND REPAIR.

J. PROVIDE FIRE RATED SLEEVES IN ALL FLOOR PENETRATIONS.

K. ALL ISOLATED GROUND RECEPTACLES SHALL BE ORANGE IN COLOR AND HAVE ISOLATED GROUND FEEDER IG0020.

L. PROVIDE TAMPER PROOF RECEPTACLES FOR ALL TOILET ROOMS AND LOCKER ROOMS.

(#) ELECTRICAL KEYED NOTES

- 1 PROVIDE GFI BREAKER. 2 PROVIDE 120V TO JUNCTION BOX FOR
- WIRELESS INTERCOM GROUND BUS BAR MOUNTED AT 84" ABOVE 3
- FINISHED FLOOR BY DIVISION 27. 4 PROVIDE L6-30R TWIST LOCK RECEPTACLE MOUNTED TO LADDER RACK AT REAR SIDE OF EQUIPMENT RACK. COORDINATE EXACT LOCATION WITH EQUIPMENT/LADDER RACK
- INSTALLER. 5 RECEPTACLE MOUNTED TO LADDER RACK AT REAR SIDE OF EQUIPMENT RACK. COORDINATE EXACT LOCATION WITH EQUIPMENT/LADDER RACK INSTALLER. 6 4' X 8' X 3/4" FIRE RATED PLYWOOD INSTALLED VERTICALLY STARTING AT 24"
- ABOVE FINISHED FLOOR. 7 PROVIDE CONNECTION TO ACCESS CONTROL SECURITY PANEL. COORDINATE EXACT
- LOCATION WITH EQUIPMENT INSTALLER. 8 EMPTY LOW VOLTAGE OUTLET FOR AUDIO/VISUAL CABLE. SEE DETAIL. PROVIDE

2" CONDUIT WITH PULL STRING UP TO ACCESSABLE CEILING. TYPICAL. 2

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ELECTRICAL POWER PLAN - FIRST C 3/16" = 1'-0"

A. SEE ALL OTHER PLANS FOR ADDITIONAL DEVICES. SOME POWER CIRCUITING MAY BE ON OTHER PLANS. COORDINATE THE LOCATIONS OF DATA/CATV JACKS WITH THE RECEPTACLES. MOUNT ADJACENT TO EACH OTHER.

B. WHEN LOCATING SYSTEMS NEXT TO DOORS, LOCATE 8 INCHES OFF DOOR JAMB TO CENTER OF DEVICE. WHEN MULTIPLE DEVICES ARE TOGETHER, STACK BUT NO MORE THAN 72 INCHES AFF.

C. MINIMUM CIRCUIT SIZE IS 2 #12 AND 1 #12 GROUND IN 3/4" CONDUIT.

D. PROVIDE #10 AWG MIN NEUTRAL FOR ALL MUTLIWIRE

BRANCH CIRCUITS AND PROVIDE HANDLE TIES FOR CIRCUIT BREAKERS AS REQUIRED BY NEC 210.4 E. COORDINATE RECEPTACLE LOCATIONS WITH MILLWORK AND COUNTERS. DO NOT LOCATE RECEPTACLES BEHIND DRAWERS OR HIDDEN IN MILLWORK UNLESS SPECIFICALLY DIRECTED BY OWNER/ARCHITECT. REVIEW ARCHITECTURAL ELEVATIONS PRIOR TO RECEPTACLE ROUGH-INS. SEE ARCH. ELEVATIONS IN BREAKROOMS FOR APPLIANCES

AND RECEPTACLE MOUNTING LOCATIONS.

F. PROVIDE GFI RECEPTACLES WITHIN 6' OF ALL SINKS, AND AT ALL ROOFTOP RECEPTACLES, KITCHEN RECEPTACLES, BATHROOM/TOILET ROOMS, EXTERIOR RECEPTACLES, UNDERCOUNTER EQUIPMENT, AND ALL RECEPTACLES SERVING DRINKING FOUNTAINS.

G. ALL EQUIPMENT SHALL HAVE A LOCAL DISCONNECTING MEANS, EITHER CORDED PLUG AND RECEPTACLE OR SWITCHED DISCONNECT. VERIFY FROM EQUIPMENT SUBMITTED OR RELOCATED IF DIRECT CONNECT OR RECEPTACLE. IF DIRECT CONNECT, PROVIDE SWITCH AS PER NEC OTHERWISE, PROVIDE RECEPTACLE, CORD PLUG AS REQUIRED BY EQUIPMENT SUBMITTAL.

H. PROVIDE INDIVIDUAL DISCONNECTS FOR ALL SMOKEFIRE DAMPERS AND VAV'S. NO EXCEPTIONS.I. FIRESTOP ALL CONDUIT PENETRATIONS IN RATED

WALLS. SEE ARCHITECTURAL FOR WALL RATINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO SHEET ROCK AND REPAIR.

J. PROVIDE FIRE RATED SLEEVES IN ALL FLOOR PENETRATIONS.

K. ALL ISOLATED GROUND RECEPTACLES SHALL BE ORANGE IN COLOR AND HAVE ISOLATED GROUND FEEDER IG0020.

L. PROVIDE TAMPER PROOF RECEPTACLES FOR ALL TOILET ROOMS AND LOCKER ROOMS.

(#) ELECTRICAL KEYED NOTES

- PROVIDE RECEPTACLE AT CEILING FOR CEILING MOUNTED PROJECTOR. COORDINATE EXACT LOCATION WITH OWNER.
 PROVIDE GFI BREAKER.
- 3 WATER-PROOF LOW VOLTAGE JUNCTION BOX @ 24" AFF FOR SATALITE CABLE. VERIFY MOUNTING HEIGHT WITH OWNER. ROUTE 1-1/4" CONDUIT WITH PULL STRING TO NEAREST ACCESSIBLE CEILING.
- NEAREST ACCESSIBLE CEILING.
 WATER-PROOF LOW VOLTAGE JUNCTION BOX
 @ 24" AFF FOR (4) NETWORK JACKS. VERIFY MOUNTING HEIGHT WITH OWNER. ROUTE 1-1/4" CONDUIT WITH PULL STRING TO NEAREST ACCESSIBLE CEILING.
- 5 MOUNT TRANSFORMER TLEM FROM CEILING. SEE DETAIL.
 6 EMPTY LOW VOLTAGE OUTLET FOR AUDIO/VISUAL CABLE. SEE DETAIL. PROVIDE 2" CONDUIT WITH PULL STRING UP TO ACCESSABLE CEILING. TYPICAL.

											FOI			ONNECTION SCHEDULE
														ONNECTION SCHEDOLE
Unit Mark	Equipment Type	HP	Level	FLA	MCA	MOCP	Panel	Circuit	Electrical Data	Starter	Disconnect	Wire	Condu	uit
AHU-1	AIR HANDLING UNIT	2.3	MEZZANINE	19.0 A	24.0 A	25 A	HM	2,4,6	480 V/3-15778 VA	W/UNIT	30A-3P NEMA1	10	0.75	
AHU-2	AIR HANDLING UNIT	(2) 2	MEZZANINE	5.0 A	20.0 A	15 A	HM	8,10,12	480 V/3-4152 VA	W/UNIT	30A-3P NEMA1	12	0.5	
AHU-3	AIR HANDLING UNIT	(2) 2	MEZZANINE	5.0 A	20.0 A	15 A	HM	14,16,18	480 V/3-4152 VA	W/UNIT	30A-3P NEMA1	12	0.5	
BLS-1	BACKLIT SIGN		GRADE	10.0 A	20.0 A	20 A	LA	43	120 V/1-1200 VA			12	0.5	LED LIGHTS AND DRIVER PROVIDED BY OTHERS. ROUTE CIRCUIT THROUGH LIGHTING RELAY I
2 BP-1	BOOSTER PUMP	(2) @ 5	FIRST FLOOR	14.8 A	20.0 A	20 A	HM	52,54,56	480 V/3-12290 VA	W/UNIT	W/UNIT	12	0.5	
 CU-1	CONDENSING UNIT		MEZZANINE	21.0 A	23.0 A	30 A	НМ	20.22.24	480 V/3-17438 VA	W/UNIT	W/UNIT	10	0.75	
CU-2	CONDENSING UNIT		MEZZANINE	52.0 A	56.0 A	70 A	НМ	26.28.30	480 V/3-43181 VA	W/UNIT	W/UNIT	4	1.25	
CU-3			MEZZANINE	37 0 A	41 0 A	50 A	НМ	32 34 36	480 V/3-30725 VA	W/UNIT	W/UNIT	6	1	
				16.0 A	20.0 4	0.4		30	120 V/1-1920 V/A			12	0.5	
				16.0 A	20.0 A	20.0		11	120 V/1-1920 VA			12	0.5	
		0.1		10.0 A	20.0 A	20 A		20	120 V/1-1920 VA	MDTS		12	0.5	
		0.1		0.3 A	20.0 A	15 A		29	120 V/1-30 VA	MRIS	MRIS	12	0.5	
EF-2		0.1		0.3 A	20.0 A	15 A	LA	31	120 V/1-36 VA	MRIS	MRIS	12	0.5	
		1/2		4.9 A	20.0 A	15 A	LA	25,27	208 V/2-1019 VA	MRIS	MRIS	12	0.5	
EF-4	EXHAUST FAN	1/3	MEZZANINE	3.6 A	20.0 A	15 A	LA	13,15	208 V/2-749 VA	MRIS	MRIS	12	0.5	
EF-5	EXHAUST FAN	1/2	MEZZANINE	4.9 A	20.0 A	15 A	LA	17,19	208 V/2-1019 VA	MRTS	MRTS	12	0.5	
GCD-1	GAS CLOTHES DRYER		FIRST FLOOR	13.8 A	20.0 A	15 A	LA	37	120 V/1-1656 VA	W/UNIT	30A-1P NEMA1	12	0.5	
GO-1	GATE OPERATOR	1	GRADE	16.0 A	20.0 A	40 A	LA2	45	120 V/1-1920 VA	MRTS	MRTS	10	0.75	VERIFY LOCATION. ROUTE ADDITIONAL CONDUIT TO KEYPAD, SENSORS, AND OTHER DEVICES
GO-2	GATE OPERATOR	1	GRADE	16.0 A	20.0 A	40 A	LA2	47	120 V/1-1920 VA	MRTS	MRTS	10	0.75	VERIFY LOCATION. ROUTE ADDITIONAL CONDUIT TO KEYPAD, SENSORS, AND OTHER DEVICES
H-1	KITCHEN EXHAUST HOOD		FIRST FLOOR	12.0 A	20.0 A	15 A	LA	45	120 V/1-1440 VA	W/UNIT	W/UNIT	12	0.5	PROVIDE CONDUITS & JUNCTION BOXES FOR MANUAL PULL STATION, CAS DISCONNECT CABL
	^													HEIGHTS WITH ARCHITECT. INSTALL PER MANUFACTURES INSTRUCTIONS. HOOD POWERS FA
GHD-1			FIRST FLOOR	9.0 A	20.0 A	20 A	LA2	53	120 V/1-1080 VA			12	0.5	
HD-2	HAND DRYER		FIRST FLOOR	9.0 A	20.0 A	20 A	LA2	55	120 V/1-1080 VA			12	0.5	
HD-3	AND DRYER		FIRST FLOOR	9.0 A	20.0 A	20 A	LA2	57	120 V/1-1080 VA			12	0.5	
\ HD-4	AND DRYER		FIRST FLOOR	9.0 A	20.0 A	20 A	LA3	41	120 V/1-1080 VA			12	0.5	
HD-5			FIRST FLOOR	9.0 A	20.0 A	20 A	LA3	43	120 V/1-1080 VA			12	0.5	
HD-6	HAND DRYER		FIRST FLOOR	9.0 A	20.0 A	20 A	LA2	59	120 V/1-1080 VA			12	0.5	
HD-7			FIRST FLOOR	9.0 A	20.0 A	20 A	LA2	61	120 V/1-1080 VA			12	0.5	
MPS-1	MOTORIZED PROJECTION SCREEN		FIRST FLOOR	1 0 A	20 0 A	15 A		2	120 V/1-120 VA	W/UNIT		12	0.5	INSTALL CONTROLS PROVIDED WITH UNIT
Man Marine			FIRST FLOOR	0.0 A	20.0 A	0.4	LB	- 1.3	208 V/2-0 VA	W/UNIT		12	0.5	
MS-2				0.0 /	20.0 /	0 4	IB	5.7	208 1/2-0 1/4			12	0.5	
MS 2				0.0 A	20.0 A	0 4		50.61	200 V/2-0 VA			12	0.5	
IVIS-3				0.0 A	20.0 A	0 4		09,01	208 V/2-0 VA			12	0.5	
M3-4				0.0 A	20.0 A	0 A		03,05	208 V/2-0 VA			12	0.5	
MSCU-01				15.2 A	19.0 A	30 A	LB	1,3	208 V/2-3162 VA	W/UNIT	30A-2P NEMA3R	12	0.5	
MSCU-02	MINI-SPLIT CONDENSING UNIT		MEZZANINE	7.4 A	10.0 A	15 A	LB	5,7	208 V/2-1539 VA	W/UNIT	30A-2P NEMA3R	12	0.5	
MSCU-03	MINI-SPLIT CONDENSING UNIT		MEZZANINE	7.4 A	10.0 A	15 A	LA	59,61	208 V/2-1539 VA	W/UNIT	30A-2P NEMA3R	12	0.5	
MSCU-04	MINI-SPLIT CONDENSING UNIT		MEZZANINE	15.2 A	19.0 A	3 A	LA	63,65	208 V/2-3162 VA	W/UNIT	30A-2P NEMA3R	12	0.5	CONNECT TO INDOOR UNIT
PTP-1	P-TRAP PRIMER		MEZZANINE	2.0 A	20.0 A	15 A	LA	21,23	208 V/2-416 VA	MRTS	MRTS	12	0.5	
PTP-2	P-TRAP PRIMER		MEZZANINE	2.0 A	20.0 A	15 A	LA	21,23	208 V/2-416 VA	MRTS	MRTS	12	0.5	
RCP-1	RECIRCULATING PUMP	1/6	MEZZANINE	4.2 A	5.3 A	15 A	LA	3	120 V/1-504 VA	MRTS	MRTS	12	0.5	
RT-1	RADIO TOWER		GRADE	16.0 A	20.0 A	20 A	LA2	43	120 V/1-1920 VA			10	0.75	VERIFY LOCATION.
RVP-1	RV PEDESTAL		GRADE	80.0 A	100.0 A	100 A	LA2	49,51	208 V/2-16640 VA		PANEL	1	2	PROVIDE MIDWEST PARKMATE RV PEDESTAL VPKJHAAT WITH GALVANIZED STAND. INSTALL P
UH-1	ELECTRIC UNIT HEATER		FIRST FLOOR	12.0 A	20.0 A	20 A	HA	1	277 V/1-3324 VA		W/UNIT	12	0.5	
VAV 2-1	FAN POWERED VAV	1/3	FIRST FLOOR	7.5 A	11.8 A	15 A	НМ	1	277 V/1-2078 VA	W/UNIT	W/UNIT	12	0.5	
VAV 2-2	FAN POWERED VAV	1/3	FIRST FLOOR	13.4 A	18.5 A	20 A	HM	3	277 V/1-3712 VA	W/UNIT	W/UNIT	12	0.5	
VAV 2-3	FAN POWERED VAV	1/3	FIRST FLOOR	13.5 A	18.5 A	20 A	НМ	5	277 V/1-3740 VA	W/UNIT	W/UNIT	12	0.5	
VAV 2-4	FAN POWERED VAV	1/3	FIRST FLOOR	56A	95A	15 A	HM	7	277 V/1-1551 VA	W/UNIT	W/UNIT	12	0.5	
VAV 2-5	FAN POWERED VAV	1/3	FIRST FLOOR	56A	9.5 A	15 A	НМ	9	277 V/1-1551 VA	W/UNIT	W/UNIT	12	0.5	
VAV 2-6		1/3	FIRST FLOOR	0.0 / (0.3 A	14 0 A	15 A	нм	11	277 \//1-2576 \/A		W/UNIT	12	0.5	
		1/3		12.0 A	16.9.4	20 A		13 15 17	480 V/3 10712 V/			12	0.5	
VAV 2-7		1/3		12.9 A	10.0 A	20 A		10,10,17	400 V/3-107 12 VF			12	0.5	
VAV 2-0		1/3		9.3 A	14.0 A	15 A		19	277 V/1-2576 VA			12	0.5	
VAV 2-9		1/3		5.0 A	9.3 A	15 A		∠ I 22	211 V/1-1001 VA			12	0.0	
VAV 2-10		1/3		5.6 A	9.5 A			23	211 V/1-1551 VA			12	0.5	
VAV 2-11		1/3		11.4 A	16.3 A	20 A	HM	25	2// V/1-3158 VA			12	0.5	
VAV 2-12		1/3		9.3 A	14.0 A	15 A	HM	27	2// V/1-2576 VA	VV/UNIT		12	0.5	
VAV 2-13		1/3		5.6 A	9.5 A	15 A	HM	29	2// V/1-1551 VA	W/UNIT	VV/UNI I	12	0.5	
VAV 2-14	FAN POWERED VAV	1/3	FIRST FLOOR	11.6 A	16.0 A	20 A	HM	31,33,35	480 V/3-9633 VA	W/UNIT	W/UNIT	12	0.5	
VAV 3-1	FAN POWERED VAV	1/3	FIRST FLOOR	5.6 A	9.5 A	15 A	HM	37	277 V/1-1551 VA	W/UNIT	W/UNIT	12	0.5	
VAV 3-2	FAN POWERED VAV	1/3	FIRST FLOOR	7.5 A	11.8 A	15 A	HM	39	277 V/1-2078 VA	W/UNIT	W/UNIT	12	0.5	
VAV 3-3	FAN POWERED VAV	1/3	FIRST FLOOR	5.6 A	9.5 A	15 A	HM	41	277 V/1-1551 VA	W/UNIT	W/UNIT	12	0.5	
VAV 3-4	FAN POWERED VAV	1/3	FIRST FLOOR	7.4 A	11.8 A	15 A	HM	43	277 V/1-2050 VA	W/UNIT	W/UNIT	12	0.5	
VAV 3-5	FAN POWERED VAV	1/3	FIRST FLOOR	16.6 A	23.0 A	25 A	НМ	45	277 V/1-4598 VA	W/UNIT	W/UNIT	10	0.75	
VAV 3-6	FAN POWERED VAV	1/3	FIRST FLOOR	5.6 A	9.5 A	15 A	HM	47	277 V/1-1551 VA	W/UNIT	W/UNIT	12	0.5	
VAV 3-7	FAN POWERED VAV	1/3	FIRST FLOOR	16.7 A	23.0 A	25 A	HM	49	277 V/1-4626 VA	W/UNIT	W/UNIT	10	0.75	
VAV 3-8	FAN POWERED VAV	1/3	FIRST FLOOR	5.6 A	9.5 A	15 A	HM	51	277 V/1-1551 VA	W/UNIT	W/UNIT	12	0.5	
VAV 3-9	FAN POWERED VAV	1/3	FIRST FLOOR	7.5 A	11.8 A	15 A	HM	53	277 V/1-2078 VA	W/UNIT	W/UNIT	12	0.5	
VAV 3-10	FAN POWERED VAV	1/3	FIRST FLOOR	13.5 A	19.5 A	20 A	НМ	55.57.59	480 V/3-11210 VA	W/UNIT	W/UNIT	12	0.5	
VAV 3-11	FAN POWERED VAV	1/3	FIRST FLOOR	7 5 A	11.8 A	15 A	НМ	38	277 V/1-2078 V/A	W/UNIT	W/UNIT	12	0.5	
VAV 3-12	FAN POWERED VAV	1/3	FIRST FLOOR	564	95A	15 A	НМ	40	277 \//1_1551 \/A	W/LINIT	W/UNIT	12	0.5	
/Δ\/ 3_13		1/3	FIRST FLOOR	561	9.5 A	15 Δ	нм	42	277 \//1_1551 \/A		W/LINIT	12	0.5	
V/Δ\/ 2_1/		1/3	FIRST FLOOR	5.0 A	9.5 A	15 Δ	нм	4Δ	277 \//1_1551 \/A		W/LINIT	12	0.5	
VAV 3-14		1/0		J.0 A	9.0 A	20.4		+ + 46	277 V/1-1001 VA			12	0.5	
VAV 3-15		1/3		11.4 A	10.3 A	20 A		40	211 V/1-3158 VA			12	0.0	
VAV 3-10		1/3		1.4 A	11.0 A			40	211 V/1-2050 VA			12	0.5	
VAV 3-17		1/3		1.5 A	11.8 A	10 A		50	2// V/1-20/8 VA	vv/UNIT		12	0.5	
VVH-1				2.0 A	20.0 A	15 A	LA	1	120 V/1-240 VA	1.0.1.0	PLUG	12	0.5	
VVIM-1	WASHING MACHINE		FIRST FLOOR	11.0 A	20.0 A	15 A	LA	33,35	208 V/2-2288 VA	∣W/UNIT	JUA-2P NEMA1	12	0.5	

NOTES: MRTS = MOTOR RATED TOGGLE SWITCH. WIRE SIZES: -1 = 1/0, -2 = 2/0, -3 = 3/0, -4 = 3/0. ALL WIRES ARE TO BE COPPER. •

PROVIDE APPROPRIATE COPPER EQUIPMENT GROUNDING CONDUCTOR ACCORDING TO NEC. • COORDIANTE LOCATION AND INSTALLATION REQUIREMENTS WITH RESPECTIVE TRADES & •

SUBMITTALS/SHOP DRAWINGS PRIOR TO ROUGH-IN. • DISCONNECT SWITCHES ARE TO BE NON-FUSED UNLESS OTHERWISE NOTED.

LIGHT FIXTURE SCHEDULE NOTES:

- 1. THE LISTED FIXTURES ARE THE BASIS OF DESIGN AND LAYOUTS. ALL SUBSITUTIONS SHALL BE APPROVED BY ARCHITECT/ENGINEER AND SHALL MATCH LUMEN OUTPUT, CONTROLLABILITY AND DISTRIBUTION OF THE LISTED FIXTURES. SUBMITTALS SHALL INCLUDE PHOTOMETRIC REPORT WITH ALL RELEVANT DESIGN INPUTS LISTED.
- FIXTURES INDICATED WITH SUBSCRIPT 'E' SHALL BE PROVIDED WITH AN INTEGRAL EMERGENCY BATTERY & TEST SWITCH. IF INTEGRAL TEST SWITCH IS NOT AN OPTION, PROVIDE WITH REMOTE TEST SWITCH WITH LEAD LENGTH SUFFICIENT TO PROVIDE ACCESSIBLE OPERATION OF TEST SWITCH WITHIN SIGHT OF THE FIXTURES. ARCHITECT SHALL APROVE FINAL LOCATIONS OF TEST SWITCHES.
- 3. ALL COLORS AND FINISHES SHALL BE SELECTED/APPROVED BY ARCHITECT.
- 4. VERIFY FINAL MOUNTING HEIGHT FOR ALL WALL SCONCES AND PENDANTS WITH OWNER/ARCHITECT. COORDINATE FINAL LOCATION WITH STRUCTURAL JOISTS, DUCTWORK AND CEILING/WALL MOUNTED 5.
- DEVICES. 6. ALL RECESSED FIXTURES SHALL BE MOUNTED FLUSH WITH SUSPENDED CEILING. VERIFY FINAL

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						COLOR	
TAG	Model	LUMENS	VOLTAGE	WATTAGE	Apparent Load	TEMPERATURE	
A	METALUX 24CZ2-45-UNV-L835-CD-1-U	4602	UNV	35 W	35 VA	3500K	2'X4' RECE
В	METALUX 22CZ2-34-UNV-L835-CD-1-U	3598	UNV	35 W	35 VA	3500K	2'X2' RECE
С	METALUX 4SNX-48SL-LN-UNV-L835-CD-1-U-AYC-CHAIN/SET-U	5015	UNV	32 W	32 VA	3500K	4' LED STF
D	METALUX 4WPLD435C	4557	UNV	39 W	39 VA	3500K	SURFACE
E	INTENSE LIGHTING GD4DR-L3-35-D101-27-FL-IRD402-HZ-SL	1900	UNV	20 W	20 VA	3500K	6" RECESS
F	FCC-S-4-LD4-2-LO-40-UNV-80-88-EDD-1	5129	UNV	47 W	47 VA	3500K	4' CORNEF
G	FAILSAFE FCT-S-4-LD4-1-LO-2-LO-35-UNV-80-88-EDD-1-SF3	8477	UNV	71 W	71 VA	3500K	4' SURFAC
Н	METALUX 8TSNLED-LD5-60SL-LN-UNV-L835-CD1-SCA	5900	UNV	42 W	31 VA	3500K	8' LED STF
J	LIGMAN URA-40531-4W-COB-W35-XX-120/277V-NAT	133	UNV	4 W	4 VA	3500K	LED STEP
K	MCGRAW-EDISION TT-D1-835-QC-BK-SPB2	5595	UNV	49 W	49 VA	3500K	SURFACE
L	BIRCHWOOD NOL-LED-325-HLO-35-4-MW-FW-277-EB-S	2689	277V	49 W	54 VA	3500K	4' WALL M
M	BIRCHWOOD NOL-LED-325-HLO-35-2-MW-FW-277-EB-S	2000	277V	15 W	28 VA	3500K	2' WALL M
$\overset{\texttt{w}}{\longrightarrow}$	CORELITE SQ4-F-075U-050D-835-2-D-UNV-STD-W-AC48-UM-8	1250/FT	120V	8.6 W/FT	69 VA	3500K	4" WIDE SI
S	TECHLIGHT SSP-25-4-7-11-GLVP-DM1				0 VA		25FT SQU/ SHALL BE
S2 .	MCGRAW-EDISION GLEON-SA4C-735-U-T2-XX-AHD145	30000	UNV	225 W	364 VA	3500K	POLE-MOL
S4	CGRAW-EDISION GLEON-SA4C-735-U-T4W-XX-HSS-AHD145	30000	UNV	225 W	364 VA	3500K	POLE-MOL
street and the second s	COOPER NFFLD-S-C70-D-UNV-33-S-BZ-7030	2700	UNV	20 W	20 VA	3500K	FLAG POL
W	MCGRAW-EDISON IST-AF-350-LED-E1-T3-BK-7030	2000	MVOLT	20 W	22 VA	3500K	WALL PAC
Х	SURE-LITES CX-6-1-WH		UNV	5 W	5 VA		LED EXIT S
Y	FAILSAFE EXL-6-X-RW-VRSD		UNV	5 W	5 VA		CORRECT

E-501 POLE FOOTING DETAIL NOT TO SCALE

-

. INSTALL PER MANUFACTURERS INSTRUCTIONS. PROVIDE NEUTRAL WIRE.

NECT CABLES, USER INTERFACE CABLE, SHUT OFF ASSEMBLY VALVE POWER, & GASS SHUT OFF ASSEMBLY BOX. COORDINATE MOUNTING OWERS FAN.

STRUCTIONS.

NG RELAY PANEL WITH PHOTOCELL CONTROL AND TIMECLOCK.

REPLACE SIDEWALK -

OR BITUMINOUS WHERE APPLICABLE

E-501

E-501

NOT TO SCALE

GRADE

CONDUIT

ADAPTER.

RIGID GALVANIZED

CONDUIT TO PVC

THREADED FEMALE ____

PVC CONDUIT. SIZE AS

NOT TO SCALE

THREADED COUPLER —

CONCRETE SLAB

ER DEVICES AS REQUIRED. ER DEVICES AS REQUIRED.

Comments

					Pane	elboard l	-IN	1					22kA X		Rating v	
480/27	7 Wye V 1 S 1 -I	/olt, 3 Section Nema F	Phase, 4 W	'ire Ma	ains Type:	400 A N 400 A E	/LO BUS) (Cc	opper)			X Single Double Feed - Thru			Moun X Surfa Flush	iting ice
NOTE	Load (VA		D	escriptior	n l	СВ	l c	KT	СВ			Description	Τv		ad (VA)	NO
-	2078 VA	Λ H	VA	/ 2-1 - A1	102	15 A	1	2	_			I			/	<u> </u>
	3712 VA	ιн	VA	/ 2-2 - A1	100	20 A	3	4	25 A		AHU-	-1 - MEZZANINE	м	т 15	5778 VA	
	3740 VA	ιн	VA	/ 2-3 - B1	101	20 A	5	6								
	1551 VA	ιн	VA	/ 2-4 - A1	104	15 A	7	8								
	1551 VA	Тн	VA	/ 2-5 - A1	103	15 A	9	10	15 A		AHU-	-2 - MEZZANINE	М	т 4	152 VA	
	2576 VA	Тн	VAV	/ 2-6 - A1	109	15 A	11	12								
	10712 V/	A H	VAV	/ 2-7 - A1	108	20 A	13 15 17	14 16 18	15 A		AHU-3 - MEZZANINE		м	т 4	152 VA	
	2576 VA	Н	VAV	/ 2-8 - A1	118	15 A	19	20								<u> </u>
	1551 VA	Н	VAV	/ 2-9 - A1	117	15 A	21	22	30 A		CU-	1 - MEZZANINE	М	т 17	7438 VA	
	1551 VA	ТН	VAV	2-10 = A	124	15 A	23	24			00				100 171	
	3158 VA	Н	VAV	2-11 - A	122	20 A	25	26								<u> </u>
	2576 VA	Тн	VAV	2-12 - A	110	15 A	27	28	70 A		CU-3	2 - MEZZANINE	М	т 43	8181 VA	
	1551 VA	Тн	VAV	2-12 /	129	15 A	29	30	1011		001					
	9633 VA	АН	VAV	2-14 - B	117	20 A	31 33 35	32 34 36	50 A		CU-(3 - MEZZANINE	М	тзо)725 VA	
	1551 VA	ΝН	VAV	/ 3-1 - B1	106	15 A	37	38	15 A		VA	V 3-11 - B123	F	1 2	078 VA	
	2078 VA	ΝН	VAV	/ 3-2 - B1	107	15 A	39	40	15 A		VA	V 3-12 - B122	Н	1 1	1551 VA	
	1551 VA	ΝН	VAV 3-3 - C101	15 A	41	42	15 A		VA	V 3-13 - B111	F	1 1	551 VA			
	2050 VA	ΝН	VAV	/ 3-4 - C1	100	15 A	43	44	15 A		VA	V 3-14 - B118	F	1 1	551 VA	
	4598 VA	ΝН	VAV	/ 3-5 - C1	103	25 A	45	46	20 A		VA	V 3-15 - B113	F	I 3	158 VA	
	1551 VA	ΝН	VAV	/ 3-6 - C1	110	15 A	47	48	15 A		VA	V 3-16 - B105	F	1 2	050 VA	
	4626 VA	ΝН	VAV	/ 3-7 - C1	109	25 A	49	50	15 A		VA	V 3-17 - B104	F	1 2	078 VA	
	1551 VA	ΝН	VAV	/ 3-8 - C1	108	15 A	51	52								
	2078 VA	A H	VAV	/ 3-9 - C1	112	15 A	53 55	54 56	20 A		E	3P-1 - C116	М	T 12	2290 VA	
	11210 V/	A H	VAV	3-10 - C	117	20 A	57	58	20 A			SPARE		-	0 VA	-
							59	60	20 A			SPARE		-	0 VA	-
							61	62	20 A			SPARE		-	0 VA	-
	0 VA			SPD		60 A	63	64	20 A			SPARE		-	0 VA	
							65	66	20 A			SPARE		-	0 VA	
N.E.C.	(2020)	Load	Type C	onn.	Fct.	Diversity	y	N.	.E.C. (2020)	Load	а Туре	Conn.	Fct.		Dive	rsity
220 220 220 220 220	0.44 (0.56 (0.60 (0.60 (0.60 ((R)Rec (K)Kitcl (C)Coo (H)Hea (F)Fans (M)Mise	eptacle hen ling ting 953 s c.	76 VA	100.00%	0 VA 95376 V	A		210.20(a) 620.14 220.5	(L)Ligh (EL)Ex (E)Elev (WH)W (MT)Lr (SP)Su	nting tt. Ltg. vators Vat. Htr. rg. Motor ub Pnl.	127716 VA	108.45	%	13851	11 V.
030	Total Connected Load: 223092 VA Total Load (Diversified): 233887 VA					268 A 281 A			Lo	cation o	of Panel:	Space 105				

					Pane	elboard	LA	3	2			10kA /	AIC Rating New	
120/2	08 Wve V	olt. 3	Phase, 4 W	ire Mai	ns Type:		MLO)			X Single	E	=xisting Mour	ntir
	1 S	ection				225 A	BUS	(Co	(rega		Double		X Surfa	ace
	1 -1	Nema F	Rating					(FF)		Feed - Thru		Flust	n
NOTE	Load (VA) Type	D	escription		СВ	С	KT	CB		Description	Туре	Load (VA) N
	720 VA	R	RC	PT - A12	2	20 A	1	2	20 A		RCPT - COPIER - A101	R	180 VA	Т
	900 VA	R	RC	PT - A12	2	20 A	3	4	20 A	F	RCPT - COUNTER - A104	R	180 VA	Т
	720 VA	R	RC	PT - A12	2	20 A	5	6	20 A	F	RCPT - COUNTER - A104	R	180 VA	Т
	720 VA	R	RC	PT - A12	2	20 A	7	8	225 A	F	RCPT - A105, A111, A104	R	540 VA	Т
	180 VA	R	RCPT - C	OUNTER	- A122	20 A	9	10	20 A		RCPT - A100	R	900 VA	Т
	180 VA	R	RCPT -	FRIDGE ·	A122	20 A	11	12	20 A		RCPT - A100	R	900 VA	T
	720 VA	R	RCPT - A12	, A122, A	116, B130	20 A	13	3 14	20 A		RCPT - A108	R	540 VA	T
	180 VA	R	RCPT	- EXTER	IOR	20 A	15	5 16	20 A	R	CPT - FLOOR BOX - A108	R	360 VA	T
	900 VA	R	RC	PT - A12	4	20 A	17	18	20 A	R	CPT - FLOOR BOX - A108	R	360 VA	t
	900 VA	R	RC	PT - A11	9	20 A	19	20	20 A	R	CPT - FLOOR BOX - A108	R	360 VA	t
	720 VA	R	RC	PT - A11	8	20 A	21	22	20 A		RCPT - A108	R	1080 VA	t
	900 VA	R	RC	PT - A11	8	20 A	23	24	20 A		RCPT - TVS - A108	R	360 VA	╈
	360 VA	R	RCPT	- A117, A	120	20 A	25	26	20 A		RCPT - TVS - A108	R	540 VA	┢
	180 VA	R	RCPT	- EXTER	IOR	20 A	27	28	20 A		RCPT - TVS - A108	R	540 VA	╈
	900 VA	R	RC	PT - A11	0	20 A	29	30	20 A		SPARE		0 VA	╈
	1080 VA	R	RC	PT - A11	0	20 A	31	32	20 A		SPARE		0 VA	╈
	900 VA	R	RC	PT - A10	9	20 A	33	3 34	20 A		SPARE		0 VA	╈
	900 VA	R	RC	PT - A10	3	20 A	35	36	20 A		SPARE		0 VA	╈
	1080 VA	R	RC	PT - A10	2	20 A	37	38	20 A		SPARE		0 VA	╈
	720 VA	R		PI- A10	2000	20 A	39	40	20 A		SPARE O O			┢
<u>~ ~</u>	1080 VA	M		0-4 - A117	, ~ ~ ~	20 A	41	42	20 A	n p r	SPARE	<u> </u>	0 VA	f
	1080 VA	M	НГ)-5 - A107	7	20 A	43	3 44			SPACE		0 VA	╈
	0 VA			SPARE		20 A	45	6 46			SPACE		0 VA	+
	0 VA			SPARE		20 A	47	48			SPACE		0 VA	-
	0 VA			SPARE		20 A	49	50			SPACE		0 VA	-
	0 VA			SPARE		20 A	51	52			SPACE		0 VA	-
	0 VA			SPARE		20 A	53	54			SPACE		0 VA	+
N.E.C	. (2020)	Load			لمبهد				E.C. (2020)	Load	Type Conn.		Line	5
22	0.44 (R)Rece	eptacle 208	80 VA	73.95%	15440	VA		210.20(a)	(L)Lighti	ng			
22	0.56 (K)Kitch	en						()	(EL)Ext.	Ltg.			
22	0.60 (C)Cool	ing			0 V A	4		620.14	(E)Eleva	tors			
22	0.60	H)Heat	ing			0 VA	4			(WH)Wa	ıt. Htr.			
22	0.60	F)Fans	-						220.5	(MT)Lrg.	Motor			
	(M)Misc	. 216	60 VA	100.00%	2160	VA			(SP)Sub	Pnl.			
63	630.00 (W)Welder													
Total Connected Load: 23040 VA VA =						64 A	Location of Panel Space 105							
	Total Loa	d (Dive	rsified): 1	7600 VA	VA =	49 A								
No	otes:													

6/19/2023 11:14:27 AM	

																			<u>_</u>					35kA	AIC Ratin	ig
																		Pane	lboard I	DP				Х	New	0
																									Existing	
						:				0014	<u>/2\</u>	<u> </u>	480/2	277 Wye	Volt, 3	Phase	e, 4 Wire Ma	ins Type:	600 A N	/LO			X Single		Мо	Junting
				Dono	Iboord					ZZKA AI				1	Section				600 A E	SUS (Co	pper)		Double		X Su	rface
				Fane	ipoaru	ПА					ew			3R/5/12	-Nema	Rating							Feed - Thru		Flu	ish
480/277 W/vo	Volt 3	Dhase 1	Wire Mair			MCB			X Single		Mounting	_	NOTE	E Load (V	/A) Type		Description		СВ	СКТ	СВ	[Description	Туре	e Load (V	A) NOTE
400/277 Wye	Section	- Hase, 4		is type.	125 A		Conner)		Double		X Surface			22200	Spai	r				1 2				Othe	17062	1
1	-Nema R	atina			123 A	<u>ыоз (с</u>	opper)		Feed - Thru		Flush			VA	² e; H	;	HM		400 A	3 4	225 A		TLA	r;	VA	1
NOTE Load (V	(A) Type	anng	Description		CB	Скт	СВ		Description		Load (VA) NOT	F			MI					56				Sp.,		
3324 \	/A H		EUH-1 - C116	3	15 A	1	2 20 A		SPARE		0 VA	_			Spa	r				78				Spa	r	
1248 \	/A L	INTERI	OR LIGHTING	G - EAST	20 A	3 4	4 20 A		SPARE		0 VA	_		11147	VA e; L;	;	HA		100 A	9 10	50 A		HEM	e; L	; 4223 V	A
375 V	A L	INTERI		G - JAIL	20 A	5.6	5 20 A		SPARE		0 VA	-			H;					11 12				EL.		
1252 \	/A I			- WEST	20 A	7 8	3 20 A		SPARE		0 VA	-								13 14						
735 V			TING - CORRI	DORS	20 A	9 1	0 20 A		SPARE		0 VA	_		0 VA	.		SPARE		200 A	15 16	100 A		SPARE		0 VA	
484 V		FXT			20 A		2 20 A		SPARE			_								17 18	1					
3364 \		Δ			20 A	13 1	4		OI / II L		0 1/1									19 20						
					20 /	15 1	- 		SPD		0.1/4			0 VA	.		SPD		60 A	21 22			SPACE		0 VA	
196 V					20 A	17 1	• 50 7		51.0											23 24	1					
NEC (2020)				Ect	20 A	ity I			Conn	Ect	Diversity	_	N.E.C	C. (2020)	Load	l Type	Conn.	Fct.	Diversit	/ N.	E.C. (2020)	Load Type	Conn.	Fct.	Di	versity
220 44		ntacle	Conn.	1 01.	Diversi	ity i	210 20(2)	(L)Lighting	4086 \/A	125.00%	5108 V/A		22	20.44	(R)Rec	eptacle	e 104300 VA	54.79%	57150 V	A :	210.20(a) (L)Lighting	7918 VA	125.00%	98	397 VA
220.44	(K)Kitch	an					210.20(a)	(E)Eighting	3840 \/A	125.00%	1811 VA		22	20.56	(K)Kitc	hen	11980 VA	65.00%	7787 VA			EL)Ext. Ltg.	5155 VA	125.00%	64	144 VA
220.50		na			0.\/A		620 14	(E)Elevators	0040 VA	120.0070	4011 VA		22	20.60	(C)Coc	oling	9402 VA	100.00%	0 VA		620.14 (E)Elevators				
220.00		ng	2224 \/A	100 00%	2224 \		020.14						22	20.60	(H)Hea	ating	98700 VA	100.00%	98700 V	A	C	, WH)Wat. Htr.	240 VA	100.00%	2	.40 VA
220.00	(F)Fars	''Y	5524 VA	100.0070	5524 V		220 5	(MT) ra Motor					22	20.60	(F)Fan	s	2531 VA	100.00%	2531 VA		220.5	, MT)Lrg. Motor	135868 VA	107.95%	146	3663 VA
220.00							220.0								(M)Mis	C.	33116 VA	100.00%	33116 V	A		SP)Sub Pnl.				
630.00	(W)Weld	ler											6	30.00	(W)We	lder					l`	,				
Total C	Connected	Load:	11196 VA	VA =	13 A			ļ	I	I	!			Total C	Connecte	ed Load	d: 409085 VA	VA =	492 A			ation of Danali				
Total Lo	ad (Diver	sified):	13168 VA	VA =	16 A		L	ocation of Panel:	Space 105					Total Lo	ad (Dive	ersified): 362374 VA	VA =	436 A							
Notes:	. (=	/-									;		N	lotes:												

//2

					Pane	lboard I	_A	L					10kA >	λ Al ΚΝ∉	C Rating ew	
120/2	08 Wye V	olt, 3	Phase, 4 Wire	Mains T	ype:	500 A N	/LO	(Co)	ppor)			X Single		X	Kisting Mount	ting
	1 -N	Vema F	Rating			000 A E	503	(Cop	pper)			Feed - Thru			A Sunac Flush	ce
NOTE	Load (VA) Type	Desci	ription		СВ	C	KT	СВ		C	Description	Ty	/pell	Load (VA)	NO
	240 VA	WH	RCPT - W	H-1 - D100		20 A	1	2	20 A		R	CPT - C117	Ó	t	1200 VA	
	504 VA	MT	RCPT - RC	CP-1 - D100)	15 A	3	4	20 A		R	CPT - C116		2	360 VA	
	360 VA	R	RCPT	- D100		20 A	5	6	20 A		RCP	T - EXTERIOR		र	180 VA	
	360 VA	R	RCPT	- D100		20 A	7	8	20 A		R	CPT - C115		र	180 VA	
	360 VA	R	RCPT	- D100		20 A	9	10	20 A		R	CPT - C114		2	900 VA	
	180 VA	R	RCPT	- D100		20 A	11	12	20 A	R	CPT - (C112, C111, C113	3 Г	2	540 VA	
	740.1/4			D400			13	14	20 A	RCF	PT - 12	3, C106, EXTERI	OR I	२	540 VA	
	749 VA		EF-4 -	- D100		ID A	15	16	20 A		R	CPT - C109		۲ (720 VA	
	1010.1/4	Мт		D100			17	18	20 A		R	CPT - C109		۲ (1080 VA	
	1019 VA		EF-0 -	- D100		ID A	19	20	20 A		R	CPT - C109		٦ ا	720 VA	
	022.1/4				<u></u>	20.4	21	22	20 A		R	CPT - C110		२	720 VA	
	032 VA		PIP-I&P	1P-2 - D100		20 A	23	24	20 A		R	CPT - C110		۲ (720 VA	
	1010.1/4			D400			25	26	20 A		R	CPT - C107		र	540 VA	
	1019 VA		EF-3 -	- B123		15 A	27	28	20 A		R	CPT - C103		र	1260 VA	
	36 VA	F	EF-1 -	- A107		15 A	29	30	20 A		R	CPT - C104		2	720 VA	
	36 VA	F	EF-2 -	- A117		15 A	31	32	00.4					$ \top $	0000.1/4	
	0000.1/4			D404			33	34	30 A		RCP	I - EXTERIOR		۲	3600 VA	
	2288 VA		VVIVI-1	- B124		15 A	35	36	20 A		R	CPT - C100		2	360 VA	
	1656 VA	M	GCD-1	- B124		15 A	37	38	20 A		R	CPT - C100		र	180 VA	
	1920 VA MT DWE-1 -			- B126		20 A	39	40	20 A	RC	PT - G	AS STOVE - C10	00		180 VA	
	1920 VA M EEW-1 - EX		XTERIOR		20 A	41	42	00.4		ГОТП						
	1200 VA	EL	BLLS-1 - E	EXTERIOR		20 A	43	44	20 A	EL	LECIR	IC RANGE - C10		S	10000 VA	
	1440 VA	F	KEH-1	- C100		15 A	45	46	20 A	SPARE					0 VA	
	900 VA	R	RCPT	- C117		20 A	47	48	20 A	RCPT - MICROWAVE - C100			00	K	180 VA	1
	720 VA	R	RCPT	- C117		20 A	49	50	20 A	RC	PT - M	ICROWAVE - C10	00 I	Κ.	180 VA	1
	720 VA	R	RCPT	- C117		20 A	51	52	20 A		R	CPT - C100	H	<	180 VA	
	720 VA	R	RCPT	- C117		20 A	53	54	20 A	RCPT	- GAR	BAGE DISPOSA	.L I	<	180 VA	
	180 VA	R	RCPT - C11	7 - PRINTE	R	20 A	55	56	20 A		R	CPT - C100	H	<	180 VA	
	1260 VA	R	RCPT - COU	NTER - C1	17	20 A	57	58	20 A	RCF	PT - DI	SHWASHER - C1	00	۲	180 VA	1
	1539 VA	C	MSCU-03 - I	ME77ANIN		15 A	59	60	20 A		R	CPT - C100	F	२	180 VA	
						1077	61	62	20 A		R	CPT - C100		۲	180 VA	
	3162 VA	c	MSCU-04 - I	MF77ANIN	IF	30 A	63	64	20 A	R	CPT - IO	CE MAKER - C10	0	<	180 VA	1
	0102 17						65	66	20 A	R	CPT -	FREEZER - C100)	<	180 VA	1
							67	68	20 A	I	RCPT -	FRIDGE - C100		۲	180 VA	1
	0 VA		SF	PD		30 A	69	70	20 A		R	CPT - C101	F	२	1260 VA	
							71	72					Sp	bar		
		Spar					73	74	200 A			LB	e;	R; 4	44201 VA	
	50120 VA	A e; R;	LA	42		200 A	75	76								
							77	78								
		Spar					79	80	200 A			SPARE	-	-	0 VA	
	23040 VA	Ae; R;	LA	43		200 A	81	82								
			T			D: 1	83	84	20 A	· · · -		SPARE		-	0 VA	
N.E.C	. (2020)		Type Conn).	+ct.	Diversity	<u>y</u>	N.E	E.C. (2020)	Load I	уре	Conn.	Fct.		Diver	rsity
22	0.44 (R)Rece			04.79%	5/150 V	A \	2	210.20(a)		g	1200 \/A	105.00	\ 0/	1500	
22						0402 \//	۰ ۱		620 14	(EL)EXI. L	_ig.	1200 VA	125.00	70	1500	VA
22			ing 9402 V	/A 1	00.00%	9402 VF	٦		020.14			240.1/4	100.00	10/_	240	\/^
22	0.00 (F)Fane	2531 V	/Δ 1	00 00%	0 VA 2531 \//	7		220 5	(WT) ra	. nu. Motor	240 VA 8152 \/A	100.00	0 20 20	240 8632	
	0.00	M)Misc	32816		00.00%	32816 V	A		220.0	(SP)Sub I	Pnl.		100.08	/0	0032	. v.A
63	0.00	W)Wel	der				-									
	Total Co	nnecte	d Load: 17062	21 VA	VA =	474 A			1 -	-	Danch (Space 105				
	Total Load	d (Dive	rsified): 12005	58 VA	VA =	333 A			L0							
No	otes: F	ROVID	DE PANEL WITH I	FEED THR	U LUGS.	1. PROVIDE	GFI	BR	EAKER.							

						Pane	elboard L	B		22				1	OkA A X N	AIC Rating New	
120/20	18 11/100	/olt 3	Dhase	1 Wire	Mai	ne Type				"/			X Single			_xisting Moun	ting
120/20	1 S	Section	Filase,	4 1116	Iviai	ns rype.	225 A B		(C)	onner)			Double			X Surfa	ren en e
	1 -	Nema F	Rating				223 A D	,00	(0)	opper)			Feed - Thru			Flush	00
NOTE	Load (VA	A) Type		Descr	iption		СВ	С	KT	СВ			Description			Load (VA)	NOTE
	3162 V	A C	MS	SCU-01 - N	MEZZ/	ANINE	30 A	1 3	2 4	- 30 A		RCPT - I	DATA RACK - B	129	R	4400 VA	
	1520 \//				4577			5	6	20 A		F	CPT - B129		R	180 VA	
	1539 VF	` `		5CU-UZ - IN	VIEZZ/		15 A	7	8	20 A		F	CPT - B129		R	360 VA	
	4400.10					< D100	20.4	9	10) 20 A		F	CPT - B129		R	360 VA	
	4400 V <i>F</i>			T - DATA	RAU	- БІ29	30 A	11	12	2 20 A		F	CPT - B129		R	180 VA	
	4400.14					6 D400	00.4	13	14	4 20 A		RCPT - ACCESS CONTROL		JL	R	360 VA	
	4400 VA			'I - DATA	RACI	(- B129	30 A	15	16	6 20 A		RCPT - DATA CABINET - A105		A105	R	360 VA	
	800 VA	R	PT - DATA	K - B129	20 A	17	18	3 30 A		RCPT - D/	ATA CABINET -	A105	R	4400 VA			
	4400 VA	A R	RCF	T - DATA	RAC	< - B129	30 A	19	20)					_		
								21	22	2 20 A	20 A		J BOX - INTERCOM			0 VA	
	4400 VA R RCPT - DATA				RAC	< - B129	30 A	23	24	4 20 A			SPARE			0 VA	
							25 26			6 20 A			SPARE			0 VA	
	800 VA	R	RCF	YT - DATA	RAC	< - B129	20 A	27	28	8 20 A SPARE					0 VA		
	4400 V	A R	RCF	T - DATA	RAC	< - B129	30 A	29	30) 20 A			SPARE			0 VA	
								31	32	2 20 A			SPARE			0 VA	
	360 VA	R		RCPT ·	- B129	9	20 A	33	34	4 20 A			SPARE			0 VA	
	360 VA	R	RCPT	- DATA C	ABIN	ET - A121	20 A	35	36	6 20 A			SPARE			0 VA	
	4400 VA	A R	RCPT	- DATA C	ABIN	FT - A121	30 A	37	38	3 20 A			SPARE			0 VA	
								39	40) 20 A			SPARE			0 VA	
	180 VA	R		RCPT ·	- A12′	1	20 A	41	42	2 20 A			SPARE			0 VA	
N.E.C.	. (2020)	Load	Туре	Conn.		Fct.	Diversity	/	N	I.E.C. (2020)	Lo	oad Type	Conn.	F	ct.	Dive	rsity
220	0.44	(R)Rece	eptacle	39500 \	/A	62.66%	24750 V	A		210.20(a)	(L)L	ighting					
220	0.56	(K)Kitch	ien								(EL))Ext. Ltg.					
220	220.60 (C)Cooling 4701 VA				'A	100.00%	4701 VA	۱		620.14	(E)E	Elevators					
220	220.60 (H)Heating						0 VA				(WF	H)Wat. Htr.					
220	220.60 (F)Fans									220.5	(MT)Lrg. Motor					
630	(M)MISC. 630.00 (W)Welder										(SP)Sub Phl.					
	Total Co	onnecte	d Load:	4420	1 VA	VA =	123 A			1		n of Donali				•	
	Total Loa	d (Dive	rsified):	2945	1 VA	VA =	82 A			LC	ocatio	on of Panel:	TI ROOM B129				
No	tes:																

				Pa	nelboard	LA	2	2			1	0ka a X N	IC Rating	
120/20)8 Wye \ 1 S	/olt, 3 Section	Phase, 4 Wire	Mains Type:	2 225 A	MLC BUS) (C	Copper)		X Single Double		E	ixisting Mour X Surfa	nting Ice
NOTE	- 1	Nema	Rating	· • • • • • •						Feed - Thru		1	Flush	
NOTE	Load (VA	4) I YP					T	I 655→				Туре	Load (VA)	NOTE
	720 \/A			- B107	20 A	12	ť	2 20 A		T D114, D110			000 VA	
	120 VA		RCPT	- B107	20 A	5	ť	4 20 A	RCI				900 VA	
	720 \/A		RCPT	- B100	20 A	5		0 20 A		RCPT - DT13			900 VA	
	720 VA		RCPT	- B105	20 A	$\frac{1}{2}$		8 20 A			47		720 VA	
	900 VA		RCPT	- B105	20 A	9		0 20 A	RCPT	- COUNTER - BI	17		360 VA	
	720 VA		RCPT	- B104	20 A	11		2 20 A		- COUNTER - BT	17		360 VA	
	540 VA		RCPT	- B103	20 A	13		4 20 A	RC	PT - TVS - B117			540 VA	
	540 VA		RCPT	- B102	20 A	15		6 20 A	RC	PT - TVS - B117			540 VA	
	900 VA		RCPT	- B102	20 A	1/	1	8 20 A	RC	PT - TVS - B117			540 VA	
	360 VA	K R		111, B113	20 A	19	2	20 20 A	RC	PT - TVS - B117			540 VA	
	360 VA	R	RCPT	- B122	20 A	21	2	22 20 A	RCPT - F	LOOR BOXES - E	3117	R	720 VA	
	360 VA	R	RCPT	- B123	20 A	23	2	24 20 A	RCPT - F	LOOR BOXES - E	3117	R	720 VA	
	360 VA	R	RCPT - B	124, B125	20 A	25	2	20 A	RCPT - F	LOOR BOXES - E	3117	R	720 VA	
	360 VA	R	RCPT - B'	111, B112	20 A	27	2	28 20 A		RCPT - B117		R	360 VA	
	540 VA	R	RCPT	- B126	20 A	29	3	0 20 A	RCPT - DF		AIN	R	180 VA	1
	180 VA	R	RCPT - COF	PIER - B118	20 A	31	3	2 20 A		RCPT - B101		R	360 VA	
	360 VA	R	RCPT - COUI	NTER - B118	20 A	33	3	4 20 A	RCPT -	MICROWAVE - B	136	R	360 VA	
	360 VA	R	RCPT - B	127, B118	20 A	35	3	6 20 A	RCP	F - FRIDGE - B13	6	R	180 VA	
	180 VA	R	RCPT - MICRC	WAVE - B128	20 A	37	3	8 20 A		RCPT - B136		R	180 VA	
	180 VA	R	RCPT - COUI	NTER - B128	20 A	39	4	0 20 A		RCPT - B136		R	360 VA	
	180 VA	R	RCPT - GEN	NERATOR	20 A	41	4	2 20 A		RCPT - B136		R	720 VA	
	1920 VA	A M	RT-1 - EX	TERIOR	20 A	43	4	4 20 A	RC	PT - EXTERIOR		R	180 VA	
	1920 VA	A MT	GO-1 - Ελ	KTERIOR	40 A	45	4	6 20 A	RC	PT - EXTERIOR		R	180 VA	
	1920 VA	A MT	GO-2 - Ελ	KTERIOR	40 A	47	4	8 20 A		SPARE			0 VA	
	16640.1/			VTERIOR	100 4	49	5	50 20 A		SPARE			0 VA	
						51	5	52 20 A		SPARE			0 VA	
	1080 VA	A M	HD-1 -	· B112	20 A	5 3	5	64 20 A		SPARE			0 VA	
	1080 VA	A M	HD-2 -	· B111	20 A	55	5	6 20 A		SPARE			0 VA	
3	1080 VA	A M	HD-3 -	· B127	20 A	57	5	68 20 A		SPARE			0 VA	
}	1080 VA	A M	HD-6 -	· B123	20 A	3 9	6	60 20 A		SPARE			0 VA	
2	1080 VA	A M	HD-7 -	B122	20 A) 1	6	20 A		SPARE			0 VA	
ميں		بلي	here and the second second		LIZEA	63	6	64 20 A		SPARE			0 VA	
	0 VA		SPA	ARE	20 A	65	6	6 20 A		SPARE			0 VA	
	0 VA		SPA	RE	20 A	67	6	68 20 A		SPARE			0 VA	
	0 VA		SPA	ARE	20 A	69	7	'0 20 A		SPARE			0 VA	
	0 VA		SPA	ARE	20 A	71	7	2 20 A		SPARE			0 VA	
N.E.C	(2020)	Load	d Type Conn.	. Fct.	Diversi	ty	1	N.E.C. (2020)	Load Type	Conn.	F	ct.	Dive	rsity
22).44	(R)Red	ceptacle 22320 \	VA 72.40	% 16160 \	/A		210.20(a)	(L)Lighting					
22	0.56	(K)Kitc	hen						(EL)Ext. Ltg.					
22	0.60	(C)Cod	oling		0 VA			620.14	(E)Elevators					
220	0.60	(H)Hea	ating		0 VA				(WH)Wat. Htr.					
22	0.60	(F)Fan	s					220.5	(MT)Lrg. Moto	r 3840 VA	112	.50%	4320	AV C
		(M)Mis	c. 23960 \	VA 100.00	0% 23960 \	/A			(SP)Sub Pnl.					
63	0.00	(W)We							1					
	I OTAL CO				= 139 A			Lo	ocation of Panel	Space 105				
No	tes				- 123 A									
	103.	1. F N		_1 \										

						Pan	elbo	oard I	ΗE	M	2				2	2kA A X N E	IC Rating lew xisting	2	
480/27	77 Wye V	/olt, 3	Phase,	4 Wire	Mai	ns Type:		50 A N	/CB					X Single			Moun	iting	1
	1 5	Section					\wedge	125 A E	US	(Co	pper)			Double			X Surfa	се	1
	1 -	Nema F	Rating				Z							Feed - Thru			Flush		
NOTE	Load (VA	A) Type		Descr	iption			СВ	С	KΤ	CB			Description		Туре	Load (VA)	NOTE]
	927 VA	L		EM - I	EAST			20 A	1	2									1
	778 VA	L		EM -	JAIL		2	20 A	3	4	20 A			TLEM		Spar	300 VA		
	590 VA	L		EM - \	NEST			20 A	5	6	1					e, w			
	1009 VA	A L		EM - COF	RRIDC	RS	2	20 A	7	8	20 A			SPARE			0 VA		1
	226 VA	L:		EM - EX	TERIC	DR		20 A	9	10	20 A			SPARE			0 VA		1
	40 VA	FL	RAME		G - E)	TERIOR		20 A	11	12	20 A			SPARE			0 VA		1
	260 VA			EXIT	IGHTS	3		20 A	13	14							• • • •		1 /
	93 V/A			EM - ME	77ANI	NF		20 4	15	16	20 4			SPD			0 VA		†/2
									17	10				OF D			0 1/1		
	(2020)		Type	Conn		Ect	4		<u>, , , , , , , , , , , , , , , , , , , </u>	N			ad Type	Conn		l ict	Divo	reity	4
11				CONT		1 61.		Diversit	/	IN.	210.20(a)		iabting	2944 \/A	125	0.00%	1006	5 1/A	1
220	56		eplacie							·	210.20(a)		Evt Lta	109 V/A	120		4000		
220	0.50							0.1/4			000 4 4		EXI. LIY.	100 VA	120	.00%	135	VA	
220	0.60		ing								620.14								
220	0.60	(H)Heat	ling					0 VA			000 5		i)Wat. Htr.						
220	0.60	(⊢)⊦ans		000.14		400.000/		000.14			220.5)Lrg. Motor						
0.04		(IVI)IVIISC). Jan	300 V	۹ ^۱	100.00%)	300 VA				(SP) ∎	SUD PNI.						
630		(vv)vvel	aer	105)// -		^		-									4
	Total Loo		u Load:	425		VA =	ວ. ເ	A A			Lo	ocatior	n of Panel:	Space 105					
N I -	TOIAI LOA	iu (Dive	rsmea):	523	ονΑ	VA =	0	А											4

																2	
					Don		1 I E	- •	л	^			:	1()ka a	IC Rating	
					Pane	elboard			/1	/2					X N F	iew xistina	
Wye \	/olt, 3	Phase,	4 Wire	Mair	ns Type:	50 /	A MC	3					X Single			Mour	iting
1 5	Section					. 100 /	A BUS	G ((Coj	oper)			Double			X Surfa	се
1 -	Nema R	ating				2							Feed - Thru			Flush	
oad (VA	 Type 		Descr	iption		СВ	(CK	Т	CB			Description		Туре	Load (VA)	NOTE
100 VA	M		FAG	CP		20 A	1		2	20 A			SPARE			0 VA	
100 VA	M	FLOW	/ & TAMPE	ER SV	VITCHES	20 A	3		4	20 A			SPARE			0 VA	
100 VA	М	FIRE	E ALARM N	NAC C	CIRCUIT	20 A	5	5	6	20 A			SPARE			0 VA	
0 VA			SPA	RE		20 A	7	'	8	20 A			SPARE			0 VA	
0 VA			SPA	RE		20 A	Ģ	1	10	20 A			SPARE			0 VA	
0 VA			SPA	RE		20 A	1	1 1	12	20 A			SPARE			0 VA	
0 VA			SPA	RE		20 A	1	3 1	14	20 A			SPARE			0 VA	
0 VA			SPA	RE		20 A	1	5 1	16	20 A			SPARE			0 VA	
0 VA			SPA	RE		20 A	1	7 1	18	20 A			SPARE			0 VA	
2020)	Load	Туре	Conn.		Fct.	Dive	rsity		N.E	E.C. (2020)	Lo	ad Type	Conn.	F	ct.	Dive	rsity
4	(R)Rece	ptacle							2	210.20(a)	(L)Li	ghting					
56	(K)Kitch	en									(EL)I	Ext. Ltg.					
60	(C)Cooli	ing				0 \	/A			620.14	(E)E	levators					
60	(H)Heat	ing				0 \	/A				(WH)Wat. Htr.					
60	(F)Fans									220.5	(MT)	Lrg. Motor					
	(M)Misc	.	300 VA	۹	100.00%	300	VA				(SP)	Sub Pnl.					
00	(W)Weld	der															
otal Co	onnected	d Load:	30	0 VA	VA =	1 A				Lo	catior	n of Panel:	Space 105				
otal Loa	ad (Diver	sified):	30	0 VA	VA =	1 A							•				

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FA-101 FIRE ALARM PLAN - FIRST FLOOR

GENERAL FIRE ALARM NOTES:

IT IS THE INTENT OF THE CONSTRUCTION DOCUMENTS TO REQUIRE A FIRE DETECTION AND ALARM SYSTEM IN ACCORDANCE WITH APPLICABLE CODES, ORDINANCES AND REGULATIONS. IN ACCORDANCE WITH THE TEXAS BOARD OF PROFESSIONAL ENGINEERS, POLICY ADVISORY APPROVED APRIL 22, 2004: "PLANNING OF FIRE ALARM SYSTEMS". THE SYSTEM IS SPECIFIED IN WRITING BY PERFORMANCE SPECIFICATION. THE PRESCRIPTIVE CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THE PROJECT ARE CONTAINED IN THE CONSTRUCTION SPECIFICATIONS.

- THE SYSTEM PROVIDER(CONTRACTOR/INSTALLER): A. MUST BE LICENSED BY THE STATE OF TEXAS AS "FIRE ALARM PLANNING SUPERINTENDENT" AND A CERTIFIED NICET LEVEL III (MINIMUM).
- TECHNICIAN; B. IS RESPONSIBLE FOR THE PLANNING, DESIGN, INSTALLATION, TESTING AND CERTIFICATION OF THE SYSTEM IN ACCORDANCE WITH THE
- SPECIFICATIONS;
 C. IS RESPONSIBLE FOR COORDINATING THE DESIGN, PLANNING AND INSTALLATION OF THE SYSTEM WITH THE WORK OF THE CONTRACT AND FOR PROVIDING THE LABOR, EQUIPMENT, MATERIALS, HARDWARE AND SOFTWARE REQUIRED TO COMPLY WITH AND PERFORM THE FUNCTIONS REQUIRED BY THE APPLICABLE CODES, ORDINANCES AND REGULATIONS AND THE SPECIFICATIONS; AND
 D. IS RESPONSIBLE FOR EXAMINING THE CONSTRUCTION SPECIFICATIONS
- AND CONSTRUCTION DRAWINGS TO DETERMINE THE CHARACTERISTICS, QUANTITY AND LOCATION OF THE EQUIPMENT, SYSTEMS, DEVICES AND APPLIANCES REQUIRED TO BE SUPERVISED, MONITORED AND CONTROLLED BY THE FIRE ALARM SYSTEM.
- REVIEW THE DRAWINGS AND SPECIFICATIONS FOR IDENTIFICATION AND DESCRIPTION OF SYSTEM EQUIPMENT, COMPONENTS, MATERIALS, DEVICES, APPLIANCES AND FUNCTIONS REQUIRED BY THESE DOCUMENTS AND NOT REQUIRED BY APPLICABLE CODES. INCLUDE IN THE DESIGN, PLANNING, INSTALLATION, TESTING AND CERTIFICATION OF THE SYSTEM AS IF SO REQUIRED. MAKE SUBMISSION OF INSTALLATION DRAWINGS AND OBTAIN PERMITS AND
- INSPECTIONS AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. FIRE ALARM CONTRACTOR SHALL PERFORM A FIRE ALARM RADIO TEST AND INCLUDE AN ALLOWANCE FOR ADDING AN EMERGENCY RESPONDER DAS SIGNAL BOOSTER.

ELECTRICAL KEYED NOTES

1 PROVIDE VANDAL RESISTANT FIRE ALARM DEVICE DESIGNED FOR CORRECTIONAL FACILITIES.

FOR COORDINATION ONLY

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GENERAL PLUMBING NOTES:
ALL PLUMBING WORK SHALL BE INSTALLED IN COMPLIANCE WIT ALL LOCAL CODES AND AMENDMENTS.

- ALL PLUMBING WORK SHALL BE INSTALLED SO AS TO AVOID CONFLICT WITH THE WORK OF OTHER TRADES. COORDINATE 2. WITH MECHANICAL, ELECTRICAL AND STRUCTURAL FOR PROPER CLEARANCES.
- 3. SLEEVE ALL OUTSIDE WALLS, FOUNDATION GRADE BEAMS, INTERIOR WALL PENETRATIONS, AND FIRE SEAL ALL PENETRATIONS THROUGH FIRE WALLS AND FLOOR.
- PROVIDE MINIMUM 20 FEET OF SEPERATION BETWEEN HVAC 4. INTAKES AND VENT THROUGH ROOFS.
- PROVIDE SHOCK ARRESTORS ANS INDICATED ON THE DRAWINGS. 5. PROVIDE TRAP SEAL DEVICE FOR DRAINS NOT RECEIVING WATER 6. FROM MECHANICAL TRAP PRIMER.

PLUMBING KEYED NOTES:

1. 1-1/2" VENT THROUGH ROOF.

1.

- 2. 3" VENT THROUGH ROOF.
- 3. 4" VENT THROUGH ROOF SERVING COMBINATION WASTE AND VENT SYSTEM.
- 4. 6" PRIMARY STORM DRAIN DOWN TO BELOW FINISHED FLOOR.\
- 5. 6" STORM DRAIN OVERFLOW TO DAYLIGHT.
- 6. 2" CONDENSATE FROM ROOFTOP RECEPTOR DOWN TO BELOW FINISHED FLOOR.
- 7. PROVIDE TYPE "B" SHOCK ARRESTOR.

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ALL PLUMBING WORK SHALL BE INSTALLED IN COMPLIANCE WITH ALL LOCAL CODES AND AMENDMENTS.
ALL PLUMBING WORK SHALL BE INSTALLED SO AS TO AVOID CONFLICT WITH THE WORK OF OTHER TRADES. COORDINATE WITH MECHANICAL, ELECTRICAL AND STRUCTURAL FOR PROPER CLEARANCES.
SLEEVE ALL OUTSIDE WALLS, FOUNDATION GRADE BEAMS, INTERIOR WALL PENETRATIONS, AND FIRE SEAL ALL PENETRATIONS THROUGH FIRE WALLS AND FLOOR.
PROVIDE MINIMUM 20 FEET OF SEPERATION BETWEEN HVAC INTAKES AND VENT THROUGH ROOFS.
PROVIDE SHOCK ARRESTORS ANS INDICATED ON THE DRAWING
PROVIDE TRAP SEAL DEVICE FOR DRAINS NOT RECEIVING WATE FROM MECHANICAL TRAP PRIMER.

PLUMBING KEYED NOTES:

1. 2-1/2" DOMESTIC WATER UP FROM BELOW FLOOR TO BOOSTER PUMP.

2-1/2" DOMESTIC COLD WATER FROM BOOSTER PUMP TO SERVE BUILDING.

3. GAS METER. REFER TO P-206 FOR GAS PIPE DIAGRAM.

- 4. 1-1/2" VENT THROUGH ROOF.
- 5. 2" VENT THROUGH ROOF.
- 6. 6" PRIMARY STORM DRAIN TO BELOW FINISHED FLOOR.
- 7. 6" STORM DRAIN OVERFLOW TO DAYLIGHT.
- 8. 6" FIRE PIPE UP FROM BELOW FINISHED FLOOR.
- 9. 3/4" GAS PIPE TO SERVE FUTURE GAS RANGE FIXTURE. REFER TO P-206 FOR GAS PIPE DIAGRAM.

