DALLAS INDEPENDENT SCHOOL DISTRICT
CONSTRUCTION SERVICES

Project Manual

VOLUME 1 OF 2

CSP 250077

DISD CI East - Adelio Williams Career Institute

Addendum No. 01

A/E FIRM
Corgan

CONSTRUCTION MANAGER: TBD
STRUCTURAL: PONCE-FUESS ENGINEERING
LANDSCAPE ARCHITECT: LATERRA STUDIO
PROGRAM MANAGER: DIKITA
MEPT: B&H ENGINEERS

EQUIPMENT: WRIGHTSON, JOHNSON, HADDON & WILLIAMS, INC
ROOFING: ARMKO INDUSTRIES
CIVIL: GLENN ENGINEERING CORPORATION

23 March 2026

DALLAS INDEPENDENT SCHOOL DISTRICT
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CONSTRUCTION MANAGER: ~~THE BECK GROUP~~TBD
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23 March 2026

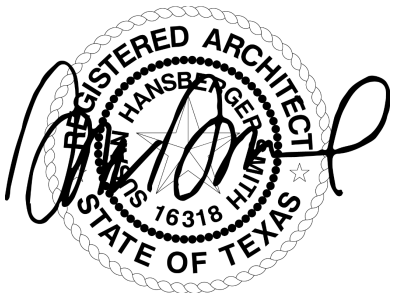
DOCUMENT 00 01 07

SEALS PAGE

PROJECT: DISD CI East - Adelio Williams Career Institute
2801 Park Row Ave.
Dallas, TX. 75215

ARCHITECT:
Corgan
401 N. Houston Street
Dallas, TX 75201

1. Architect of Record is responsible for Specification Sections in Divisions 01-33 except where indicated as prepared by other design professionals of record on the following Seals Pages.



Architect of Record — 13 November 2025 Date

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PROJECT: DISD CI East - Adelio Williams Career Institute
2801 Park Row Ave.
Dallas, TX. 75215

STRUCTURAL ENGINEER

Ponce-Fuess Engineering
3333 Lee Pkwy, Suite 350
Dallas, TX 75219

1. Structural Engineer of Record is responsible for Specification Sections listed below.

03 11 13 Structural Concrete Forming
03 15 00 Cast-In Anchors and Embeds
03 20 00 Concrete Reinforcing
03 31 00 Structural Concrete
03 41 13 Precast Concrete Hollow Core Planks
03 62 14 Grouting Steel Base Plates
05 12 00 Structural Steel Framing
05 21 00 Steel Joists
05 31 13 Steel Composite Floor Decking
05 31 23 Steel Roof Decking
31 63 29 Drilled Concrete Piers

Structural Engineer of Record — 13 November 2025 Date

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PROJECT: DISD CI East - Adelio Williams Career Institute
2801 Park Row Ave.
Dallas, TX. 75215

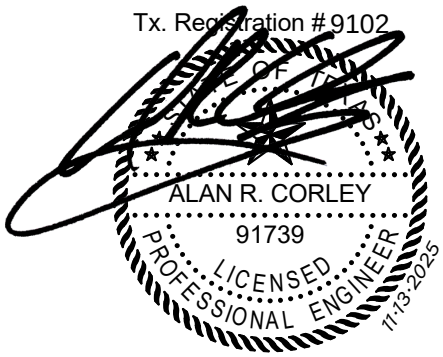
PLUMBING ENGINEER

B&H Engineers
511 East John W. Carpenter Fwy
Suite 250
Irving, TX 75062

1. Plumbing Engineer of Record is responsible for Specification Sections listed below.

Alan R. Corley, P.E. 13 November 2025
Plumbing Engineer of Record Date

Tx. Registration # 9102



DIVISION 21 SPECIFICATION SECTIONS

210000	Fire Protection
210201	Coordination Drawings
210529	Hangers and Supports for Fire Suppression Piping and Equipment
211313	Wet-Pipe Sprinkler Systems
211316	Preaction Sprinkler Systems

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PROJECT: DISD CI East - Adelio Williams Career Institute
2801 Park Row Ave.
Dallas, TX. 75215

BUILDING ENCLOSURE DESIGNER

Armko Industries
1320 Spinks Road
Flower Mount, TX 75028

1. Building Enclosure Designer of Record is responsible for Specification Sections listed below.

11/13/25

Building Enclosure Designer of Record — 13 November 2025 Date

DIVISION 00		BID DOCUMENTS
	01 10	Table of Contents
DIVISION 01		GENERAL
	43 39	Mock-Up Wall Construction
DIVISION 04		MASONRY
	05 23	Through-Wall and Wall Substrate Flashing System
DIVISION 07		THERMAL AND MOISTURE PROTECTION
	22 16	Roof Board Insulation
	52 16	Torch Applied Modified Asphalt Bituminous Roofing
	53 29	Split Slab Membrane Roofing System
	62 00	Sheet Metal and Miscellaneous Accessories
	62 13	Gutters & Downspouts
	72 00	Roof Accessories

END OF SECTION

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PROJECT: DISD CI East - Adelio Williams Career Institute
2801 Park Row Ave.
Dallas, TX. 75215

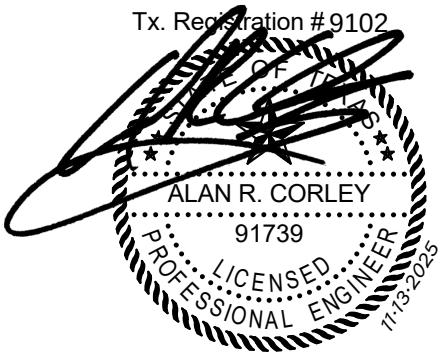
PLUMBING ENGINEER

B&H Engineers
511 East John W. Carpenter Fwy
Suite 250
Irving, TX 75062

1. Plumbing Engineer of Record is responsible for Specification Sections listed below.

Alan R. Corley, P.E. 13 November 2025
Plumbing Engineer of Record Date

Tx. Registration # 9102



DIVISION 22 SPECIFICATION SECTIONS

220200	Basic Materials and Methods for Plumbing
220201	Coordination Drawings
220513	Common Motor Requirements for Plumbing Equipment
220516	Expansion Fittings and Loops for Plumbing Piping
220529	Hangers And Supports For Plumbing Piping And Equipment
220553	Identification For Plumbing Piping And Equipment
220716	Plumbing Equipment Insulation
220719	Plumbing Piping Insulation
220800	Commissioning Of Plumbing Systems

221000	Plumbing Piping
221119	Plumbing Specialties
221121	Natural Gas Piping Systems
221316	Sanitary Waste And Vent Piping
221319	Sanitary Waste Piping Specialties
221423.13	Roof Drainage Piping Systems
223000	Plumbing Equipment
223500	Gas Fired Domestic Water Heaters
224000	Plumbing Fixtures
226100	Compressed Air Systems

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PROJECT: DISD CI East - Adelio Williams Career Institute
2801 Park Row Ave.
Dallas, TX. 75215

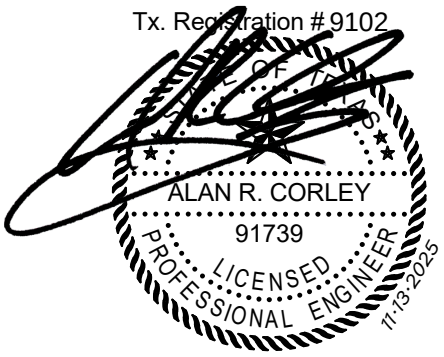
MECHANICAL ENGINEER

B&H Engineers
511 East John W. Carpenter Fwy
Suite 250
Irving, TX 75062

1. Mechanical Engineer of Record is responsible for Specification Sections listed below.

Alan R. Corley, P.E. 13 November 2025
Mechanical Engineer of Record Date

Tx. Registration # 9102



DIVISION 23 SPECIFICATION SECTIONS

230010	Mechanical General Provisions
230201	Coordination Drawings
230513	Common Motor Requirements for HVAC Equipment
230523	General-Duty Valves for HVAC Piping
230526	Variable Frequency Motor Speed Control for HVAC Equipment
230529	Hangers And Supports for Piping and Equipment
230548	Vibration Isolation for HVAC Piping and Equipment
230553	Identification for HVAC Piping and Equipment
230593	Testing, Adjusting, and Balancing

230713	Duct Insulation
230716	HVAC Equipment Insulation
230719	HVAC Piping Insulation
230800	Commissioning Of HVAC Systems
230963	Energy Management and Control System (EMCS)
232300	Refrigerant Piping
233113	Metal Ductwork
233300	Ductwork Accessories
233400	HVAC Fans
233723	HVAC Gravity Ventilators
234100	Air Filters
235100	Breechings, Chimneys, and Stacks
236213	Air Cooled Condensing Units
237416	Rooftop Heating and Cooling Units (Electric Cooling – Gas Heating)
237433	100% Outside Air Rooftop Unit with Gas Heat
238126	Split System Air-Conditioners
238129	Variable Refrigerant Flow HVAC Systems
238239	Electric Unit Heaters

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PROJECT: DISD CI East - Adelio Williams Career Institute
2801 Park Row Ave.
Dallas, TX. 75215

ELECTRICAL ENGINEER

B&H Engineers
511 East John W. Carpenter Fwy
Suite 250
Irving, TX 75062

1. Electrical Engineer of Record is responsible for Specification Sections listed below.

Laura Cowley _____ 13 November 2025
Electrical Engineer of Record Date

DIVISION 26 SPECIFICATION SECTIONS

260200	Basic Materials and Methods for Electrical
260500	Common Work Results for Electrical
260519	Low-Voltage Electrical Power Conductors and Cables
260526	Grounding and Bonding for Electrical Systems
260529	Hangers and Supports for Electrical Systems
260533	Raceway and Boxes for Electrical Systems
260543	Underground Ducts and Raceways for Electrical Systems
260544	Sleeves and Sleeve Seals for Electrical Systems
260553	Identification for Electrical Systems
260572	Overcurrent Protective Device Short-Circuit Study
260573	Overcurrent Protective Device Coordination Study

260574	Overcurrent Protective Device Arc-Flash Study
260800	Commissioning of Electrical Systems
260913	Electrical Power Monitoring System
260923	Lighting Control Devices
260941	Lighting Controls
262200	Low-Voltage Transformers
262413	Switchboards
262416	Panelboards
262500	Enclose Busways
262501.02	Low-voltage Busways – Powerbus Plug-in Busway
262726	Wiring Devices
262813	Fuses
262816	Enclosed Switches and Circuit Breakers
262913	Enclosed Controllers
263324	Central Battery Equipment (Storm Shelters)
264113	Lightning Protection for Structures
264313	Surge Protective Devices for Low-Voltage Circuits
265119	Led Interior Lighting
265219	Emergency And Exit Lighting
265613	Lighting Poles and Standards
265619	Led Exterior Lighting

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PROJECT: DISD CI East - Adelio Williams Career Institute
2801 Park Row Ave.
Dallas, TX. 75215

CIVIL ENGINEER

Glenn Engineering
4500 Fuller Drive, Suite 220
Irving, TX 75038

1. Civil Engineer of Record is responsible for Specification Sections listed below.

Civil Engineer of Record — 13 November 2025 Date

List of Sections by Civil Engineer:

DIVISION 01 – GENERAL REQUIREMENTS
01 57 23 SWPPP- Storm Water Pollution Prevention Plan

DIVISION 02 – EXISTING CONDITIONS
02 41 20 Selective Site Demolition
02 41 21 Existing Asphalt Removal

DIVISION 03 – CONCRETE
03 30 01 Cast in Place Concrete

DIVISION 31 – EARTHWORK
31 10 00 Site Clearing
31 23 00 Earthwork
31 23 08 Geotextile Fabric
31 23 10 Flexible Base and Subgrade Material
31 23 12 Select Material Fill
31 23 14 Subgrade Preparations
31 23 33 Trenching, Embedment, Backfilling
31 32 00 Lime Soil Stabilization
31 41 33 Trench Safety-Sheeting and Shoring

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY CHERALYN ARMIJO, PE 84568 ON 11/13/2025

DIVISION 32 – EXTERIOR IMPROVEMENTS

32 12 16 Hot Mixed Asphalt Paving
32 13 13 Portland Cement Concrete Paving
32 13 14 Wheelchair Ramp
32 13 15 Concrete Curb and Gutter
32 14 00 Unit Pavers
32 17 22 Traffic Control
32 17 23 Pavement Markings
32 17 33 Joint Sealer
32 18 32 Liner Spec
32 31 14 Steel Fencing
32 80 01 Tree Protection and Trimming

DIVISION 33 – UTILITIES

33 11 00 Water Pipe and Fittings
33 11 01 Gate Valves and Butterfly Valves
33 11 02 Wet Connections
33 11 03 Fire Hydrants
33 13 00 Water Pipe Test
33 13 01 Water Dechlorination
33 13 02 Cutting Plugging and Blocking Existing Water Mains
33 39 10 Sanitary Sewer Mains
33 39 11 Sanitary Sewer Manholes
33 39 12 Sanitary Sewer Testing
33 42 16 Reinforced Concrete Pipe Culverts
33 42 17 Drainage Structures
33 42 18 Polyethylene Storm Drainage Pipe
33 42 20 French Drains

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PROJECT: DISD CI East - Adelio Williams Career Institute
2801 Park Row Ave.
Dallas, TX. 75215

LANDSCAPE ARCHITECT

La Terra Studio
12001 N. Central Expressway
Suite 1170
Dallas, TX 75243

1. Landscape Architect of Record is responsible for Specification Sections listed below.

01 56 39 - Temporary Tree and Plant Protection
03 30 00 - Cast In Place Concrete
12 93 00 - Site Furnishings
31 22 19 - Finish Grading
32 13 13 - Concrete Paving
32 14 13 - Concrete Unit Paving
32 15 00 - Aggregate Surfacing
32 92 00 - Permanent Sod Lawns
32 92 13 - Permanent Hydromulch Lawns
32 93 00 - Planting
32 94 40 - Belowground Staking

Michael Black, RLA _____ 13 November 2025
Landscape Architect of Record Date

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DIVISION 00 — PROCUREMENT AND CONTRACTING REQUIREMENTS			
00 01 01	Project Manual Cover Volume 1 **Add #01**	02/05/2026	**03/23/2026**
00 01 03	Project Directory	02/05/2026	
00 01 07	Seals Page – Architectural **Add #01**	02/05/2026	**03/23/2026**
00 01 07.03	Seals Page - Structural **Add #01**	02/05/2026	**03/23/2026**
00 01 07.07	Seals Page - Building Enclosure **Add #01**	02/05/2026	**03/23/2026**
00 01 07.21	Seals Page - Fire Suppression **Add #01**	02/05/2026	**03/23/2026**
00 01 07.22	Seals Page - Plumbing **Add #01**	02/05/2026	**03/23/2026**
00 01 07.23	Seals Page - Mechanical **Add #01**	02/05/2026	**03/23/2026**
00 01 07.26	Seals Page - Electrical **Add #01**	02/05/2026	**03/23/2026**
00 01 07.31	Seals Page - Civil **Add #01**	02/05/2026	**03/23/2026**
00 01 07.32	Seals Page - Landscape Architect **Add #01**	02/05/2026	**03/23/2026**
00 01 10	Table of Contents **Add #01**	02/05/2026	**03/23/2026**
00 31 32	Geotech Data Preamble	02/05/2026	
00 31 32.10	Geotechnical Report	02/05/2026	
DIVISION 01 — GENERAL REQUIREMENTS			
01 10 00	Summary of Work	02/05/2026	
01 21 00	Allowances **Add #01**	02/05/2026	**03/23/2026**
01 22 00	Unit Prices	02/05/2026	
01 23 00	Alternates	02/05/2026	
01 25 00	Substitution Procedures	02/05/2026	
01 29 00	Payment Procedures	02/05/2026	
01 29 73	Schedule of Values	02/05/2026	
01 31 00	Project Management & Coordination	02/05/2026	
01 32 00	Construction Progress Documentation	02/05/2026	
01 32 16	Construction Progress Schedule	02/05/2026	
01 32 33	Photographic Documentation	02/05/2026	
01 33 00	Submittal Procedures	02/05/2026	
01 40 00	Quality Requirements	02/05/2026	
01 41 00	Regulatory Requirements	02/05/2026	
01 42 00	References	02/05/2026	
01 43 39	Mock-up Wall Construction	02/05/2026	
01 45 23	HVAC Testing Adjusting Balancing	02/05/2026	
01 45 36	Concrete Imaging	02/05/2026	
01 50 00	Temporary Facilities & Controls	02/05/2026	
01 56 39	Temporary Tree and Plant Protection	02/05/2026	
01 57 20	Construction Indoor Air Quality (IAQ)	02/05/2026	
01 57 20.01	Attachment IAQ Checklist Template For City Of Dallas Projects	02/05/2026	
01 57 20.02	Attachment IAQ Plan Template For City Of Dallas Projects	02/05/2026	
01 57 23	Erosion And Sediment Control Plan	02/05/2026	
01 58 13	Temporary Project Signage	02/05/2026	
01 60 00	Product Requirements	02/05/2026	

01 71 23	Field Engineering	02/05/2026	
01 73 00	Execution	02/05/2026	
01 73 29	Cutting and Patching	02/05/2026	
01 74 19	Construction Waste Management	02/05/2026	
01 77 00	Closeout Procedures	02/05/2026	
01 78 23	Operation & Maintenance Data	02/05/2026	
01 78 30	Warranties	02/05/2026	
01 78 39	Project As-Builts & Record Documents	02/05/2026	
01 78 46	Extra Materials	02/05/2026	
01 79 00	Demonstration & Training	02/05/2026	
01 81 13	Sustainable Design Requirements	02/05/2026	
01 81 13.01	Attachment Dallas BI Chapter 61 Commercial Checklist	02/05/2026	
01 91 00	General CX Requirements	02/05/2026	

DIVISION 02 — EXISTING CONDITIONS

~~02 41 19~~	~~Architectural Selective Demolition~~ **Add #01**	02/05/2026	**03/23/2026**
02 41 20	Selective Demolition	02/05/2026	
02 41 21	Existing Asphalt Removal	02/05/2026	

DIVISION 03 — CONCRETE

03 11 13	Structural Concrete Forming	02/05/2026	
03 11 19	Insulating Concrete Forming	02/05/2026	
03 15 00	Cast-in Anchors And Embeds	02/05/2026	
03 15 26	Under-Slab Sheet Vapor Retarders	02/05/2026	
03 20 00	Concrete Reinforcing	02/05/2026	
03 30 00	Cast In Place Concrete	02/05/2026	
03 30 01	Cast In Place	02/05/2026	
03 31 00	Structural Concrete	02/05/2026	
03 33 00	Architectural Concrete	02/05/2026	
03 41 13	Precast Concrete Hollow Core Planks	02/05/2026	
03 54 16	Hydraulic Cement Underlayment	02/05/2026	
03 62 14	Grouting Steel Base Plates	02/05/2026	

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04 20 00	Unit Masonry	02/05/2026	

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05 12 00	Structural Steel Framing	02/05/2026	
05 12 13	Architecturally Exposed Structural Steel Framing	02/05/2026	
05 21 00	Steel Joists	02/05/2026	
05 31 13	Steel Composite Floor Decking	02/05/2026	
05 31 23	Steel Roof Decking	02/05/2026	
05 40 00	Cold Formed Metal Framing	02/05/2026	
05 43 00	Slotted Channel Framing	02/05/2026	
05 50 00	Metal Fabrications	02/05/2026	
05 51 13	Metal Pan Stairs	02/05/2026	
05 52 13	Pipe and Tube Railings	02/05/2026	
05 53 13	Bar Gratings	02/05/2026	
05 73 13	Glazed Decorative Metal Railings	02/05/2026	
05 75 00	Decorative Formed Metal	02/05/2026	

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06 16 63	Moisture Resistant Sheathing	02/05/2026	
06 20 23	Interior Finish Carpentry	02/05/2026	
06 41 16	Plastic-Laminate-Clad Fabrications	02/05/2026	
06 61 16	Solid Surfacing Fabrications **Add #01**	02/05/2026	**03/23/2026**
06 64 00	Plastic Paneling (FRP)	02/05/2026	

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07 16 16	Crystalline Waterproofing	02/05/2026	
07 21 00	Thermal Insulation	02/05/2026	
07 21 19	Foamed-in-Place Insulation	02/05/2026	
07 22 16	Roof Board Insulation	02/05/2026	
07 27 26	Fluid Applied Membrane Air Barriers **Add #01**	02/05/2026	**03/23/2026**
07 42 15	Metal Plate Wall Panels	02/05/2026	
07 42 16	Metal Composite Material Wall Panels	02/05/2026	
07 42 17	Metal Plate Wall Panels	02/05/2026	
07 52 16	Torch Applied Modified Asphalt Bituminous Roofing	02/05/2026	
07 53 29	Split Slab Membrane Roofing System	02/05/2026	
07 62 00	Sheet Metal & Misc. Accessories	02/05/2026	
07 62 13	Gutters & Downspouts	02/05/2026	
07 72 00	Roof Accessories	02/05/2026	
07 72 16	Roof Portals	02/05/2026	
07 84 13	Penetration Firestopping	02/05/2026	
07 84 46	Fire-resistive Joint Systems	02/05/2026	
07 92 00	Joint Sealants	02/05/2026	
07 95 00	Exterior Expansion Control	02/05/2026	
07 95 13	Interior Expansion Joint Cover Assemblies	02/05/2026	

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08 14 16	Flush Wood Doors	02/05/2026	
08 31 13	Access Doors	02/05/2026	
08 33 26	Overhead Coiling Grilles	02/05/2026	
08 35 15	Panel Folding Glass Doors	02/05/2026	
08 36 13	Sectional Overhead Doors	02/05/2026	
08 39 23	Tornado Resistant Door Assemblies	02/05/2026	
08 41 13	Aluminum-Framed Entrances & Storefronts	02/05/2026	
08 55 13	Tornado-Resistant Windows	02/05/2026	
08 71 00	Door Hardware	02/05/2026	
08 80 00	Glazing **Add #01**	02/05/2026	**03/23/2026**
08 91 19	Fixed Louvers and Equipment Screens	02/05/2026	

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~~09 05 61~~	~~Moisture Vapor Emission and Alkalinity Control~~ **Add #01**	02/05/2026	**03/23/2026**
09 21 16	Gypsum Board Assemblies	02/05/2026	
09 21 19	Gypsum Board Shaft Wall Assemblies	02/05/2026	
09 30 00	Tiling	02/05/2026	
09 51 13	Acoustical Panel Ceilings **Add #01**	02/05/2026	**03/23/2026**
09 61 16	Concrete Floor Sealing	02/05/2026	
09 65 13	Resilient Base and Accessories	02/05/2026	
09 65 20	Vinyl Composition Tile Flooring	02/05/2026	

09 68 13	Tile Carpeting	02/05/2026	
09 72 18	Digital Image Wall Coverings	02/05/2026	
09 84 33	Sound-Absorbing PET Wall Units **Add #01**	02/05/2026	**03/23/2026**
~~09 84 34~~	~~Fabric-Wrapped Sound Absorbing Wall Units~~ **Add #01**	02/05/2026	**03/23/2026**
09 91 13	Exterior Painting	02/05/2026	
09 91 23	Interior Painting	02/05/2026	
09 96 00	High-Performance Coatings	02/05/2026	
~~09 96 23~~	~~Antigraffiti Coating~~ **Add #01**	02/05/2026	**03/23/2026**
09 96 53	Elastomeric Coatings	02/05/2026	

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10 11 00	Visual Display Units	02/05/2026	
10 14 16	Plaques	02/05/2026	
10 14 19	Dimensional Letter Signage	02/05/2026	
10 14 23	Panel Signage	02/05/2026	
10 14 25	Exterior First Responder Panel Signage	02/05/2026	
10 14 30	Digital Marquee	02/05/2026	
10 21 17	Plastic Toilet Compartments **Add #01**	02/05/2026	**03/23/2026**
10 21 23	Cubicle Curtains and Track	02/05/2026	
10 26 00	Wall And Door Protection	02/05/2026	
10 28 13	Toilet Accessories	02/05/2026	
10 41 16	Emergency Key Cabinets	02/05/2026	
10 43 00	Safety Equipment	02/05/2026	
~~10 43 13~~	~~Defibrillator Cabinets~~ **Add #01**	02/05/2026	**03/23/2026**
10 44 13	Fire Protection Cabinets	02/05/2026	
10 44 16	Fire Extinguishers	02/05/2026	
10 51 13	Metal Lockers	02/05/2026	
10 73 17	Metal Shade Canopies **Add #01**	02/05/2026	**03/23/2026**
10 73 26	Walkway Coverings **Add #01**	02/05/2026	**03/23/2026**
10 75 00	Flagpoles	02/05/2026	

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11 11 36	Vehicle Charging Equipment (Add03)	02/05/2026	
11 30 00	Appliances **Add #01**	02/05/2026	**03/23/2026**
11 40 00	Foodservice Equipment **Add #01**	02/05/2026	**03/23/2026**
11 54 10	CTE Equipment	02/05/2026	
11 66 67	Drone Arena Curtains	02/05/2026	

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12 24 13	Roller Window Shades **Add #01**	02/05/2026	**03/23/2026**
12 93 00	Site Furnishings	02/05/2026	
12 93 13	Bicycle Racks	02/05/2026	

DIVISION 13 — SPECIAL CONSTRUCTION

~~13 48 23~~	~~Sound and Vibration Control~~ **Add #01**	02/05/2026	**03/23/2026**

DIVISION 14 — CONVEYING EQUIPMENT

14 21 23	MRL Electric Traction Passenger Elevators	02/05/2026	

END OF VOLUME 1

VOLUME 2

00 01 01	Project Manual Cover Volume 2 **Add #01**	02/05/2026	**03/23/2026**
00 01 10	Table of Contents	02/05/2026	

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21 00 00	Fire Protection	02/05/2026	
21 02 01	Coordination Drawings	02/05/2026	
21 05 29	Hangers And Supports For Fire Suppression Piping And Equipment	02/05/2026	
21 13 13	Wet Pipe Sprinkler System	02/05/2026	
21 13 19	Preaction Sprinkler Systems	02/05/2026	

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22 02 00	Basic Materials And Methods For Plumbing	02/05/2026	
22 02 01	Coordination Drawings	02/05/2026	
22 05 13	Common Motor Requirements For Plumbing Equipment	02/05/2026	
22 05 16	Expansion Fittings And Loops For Plumbing Piping	02/05/2026	
22 05 29	Hangers And Support For Plumbing Piping And Equipment	02/05/2026	
22 05 53	Identification For Plumbing Piping And Equipment	02/05/2026	
22 07 16	Plumbing Equipment Insulation	02/05/2026	
22 07 19	Plumbing Piping Insulation	02/05/2026	
22 08 00	Commissioning Of Plumbing Systems	02/05/2026	
22 10 00	Plumbing Piping	02/05/2026	
22 11 19	Plumbing Specialties	02/05/2026	
22 11 21	Natural Gas Piping Systems	02/05/2026	
22 13 16	Sanitary Waste And Vent Piping	02/05/2026	
22 13 19	Sanitary Waste Piping Specialties	02/05/2026	
22 14 23.13	Roof Drainage Piping Systems	02/05/2026	
22 30 00	Plumbing Equipment	02/05/2026	
22 35 00	Gas Fired Domestic Water Heaters	02/05/2026	
22 40 00	Plumbing Fixtures	02/05/2026	
22 61 00	Compressed Air Systems	02/05/2026	

DIVISION 23 — HEATING VENTILATING AND AIR CONDITIONING

23 00 10	Basic Mechanical Requirements	02/05/2026	
23 02 01	Coordination Drawings	02/05/2026	
23 05 13	Common Motor Requirements For HVAC Equipment	02/05/2026	
23 05 26	Variable Frequency Motor Speed Control For HVAC Equipment	02/05/2026	
23 05 29	Hangers And Supports For Piping And Equipment	02/05/2026	
23 05 48	Vibration Isolation For HVAC Piping And Equipment	02/05/2026	
23 05 53	Identification For HVAC Piping And Equipment	02/05/2026	
23 05 93	Testing, Adjusting, And Balancing For HVAC	02/05/2026	
23 07 00	Insulation - General	02/05/2026	
23 07 13	Duct Insulation	02/05/2026	
23 07 19	HVAC Piping Insulation	02/05/2026	
23 08 00	HVAC Systems Technical Commissioning Requirements	02/05/2026	
23 08 00.13	Mechanical Systems Readiness Testing	02/05/2026	
23 09 63	Energy Management And Control System (EMCS)	02/05/2026	

23 21 13 Hydronic Piping And Fittings 02/05/2026
23 23 00 Refrigerant Piping 02/05/2026
23 31 13 Metal Ductwork 02/05/2026
23 33 00 Ductwork Accessories 02/05/2026
23 34 00 Fans 02/05/2026
23 34 39 High-volume , Low- Speed Propeller Fans 02/05/2026
23 37 00 Air Outlets And Inlets 02/05/2026
23 40 00 Filters 02/05/2026
23 43 16 Intelligent Clean Air Systems 02/05/2026
23 55 23 Gas-fired, Low Intensity, Infrared Radiant Heaters 02/05/2026
23 62 00 Condensers-condensing Units 02/05/2026
23 73 10 Indoor Air Handling Units 02/05/2026
23 74 17 High Performance Rooftop Units 02/05/2026
23 81 26 Split System Air-conditioners 02/05/2026
23 81 29 Variable Refrigerant Flow HVAC Systems 02/05/2026
23 82 39 Electric Unit Heaters 02/05/2026

DIVISION 26 — ELECTRICAL

26 02 00 Basic Materials And Methods For Electrical 02/05/2026
26 05 00 Common Work Results For Electrical 02/05/2026
26 05 19 Low-voltage Electrical Power Conductors And Cables 02/05/2026
26 05 26 Grounding And Bonding For Electrical Systems 02/05/2026
26 05 29 Hangers And Supports For Electrical Systems 02/05/2026
26 05 33 Raceway And Boxes For Electrical Systems 02/05/2026
26 05 43 Underground Ducts And Raceways For Electrical Systems 02/05/2026
26 05 44 Sleeves And Sleeve Seals For Electrical Raceways And Cabling 02/05/2026
26 05 53 Identification For Electrical Systems 02/05/2026
26 05 72 Overcurrent Protective Device Short-circuit Study 02/05/2026
26 05 73 Overcurrent Protective Device Coordination Study 02/05/2026
26 05 74 Overcurrent Protective Device Arc-flash Study 02/05/2026
26 08 00 Commissioning Of Electrical Systems 02/05/2026
26 09 13 Electrical Power Monitoring System 02/05/2026
26 09 23 Lighting Control Devices 02/05/2026
26 09 41 Lighting Controls 02/05/2026
26 22 00 Low-voltage Transformers 02/05/2026
26 24 13 Switchboards 02/05/2026
26 24 16 Panelboards 02/05/2026
26 25 01.02 Low-voltage Busways – Powerbus Plug-in Busway 02/05/2026
26 27 26 Wiring Devices 02/05/2026
26 28 13 Fuses 02/05/2026
26 28 16 Enclosed Switches And Circuit Breakers 02/05/2026
26 29 13 Enclosed Controllers 02/05/2026
26 33 24 Central Battery Equipment (Storm Shelters) 02/05/2026
26 41 13 Lightning Protection For Structures 02/05/2026
26 43 13 Surge Protective Devices For Low-voltage Circuits 02/05/2026
26 51 19 Led Interior Lighting 02/05/2026
26 52 19 Emergency And Exit Lighting 02/05/2026
26 56 13 Lighting Poles And Standards 02/05/2026
26 56 19 Led Exterior Lighting 02/05/2026

DIVISION 27 — COMMUNICATIONS

27 05 00	Common Work Results For Communications	02/05/2026	
27 05 26	Grounding And Bonding For Communications Systems	02/05/2026	
27 05 28	Pathways For Communications Systems	02/05/2026	
27 05 29	Hangers And Supports For Communications Systems	02/05/2026	
27 05 36	Cable Trays For Communications Systems	02/05/2026	
27 05 53	Identification For Communications Systems	02/05/2026	
27 11 00	Communications Equipment Room Fittings	02/05/2026	
27 15 01	Premise Wiring	02/05/2026	
27 15 13	Communications Copper Horizontal Cabling	02/05/2026	
27 41 00	Integrated Audio-video Systems	02/05/2026	
27 45 00	District-wide Emergency Communications And Master Clock Systems **Add #01**	02/05/2026	**03/23/2026**
27 51 23	Ip Integrated Electronic Communications Network	02/05/2026	
27 51 29	Emergency Two-way Communication System	02/05/2026	
27 53 33	Emergency Radio Communication Enhancement System	02/05/2026	
27 62 00	Security Systems Requirements	02/05/2026	
~~27 90 00~~	~~Cafetorium Audio Visual System (elem School)~~ **Add #01**	02/05/2026	**03/23/2026**

DIVISION 28 — ELECTRONIC SAFETY AND SECURITY

28 05 00	Common Work Results For Electronic Safety And Security	02/05/2026	
28 05 13	Conductors And Cables For Electronic Safety And Security	02/05/2026	
28 05 28	Pathways For Electronic Safety And Security	02/05/2026	
28 31 00	Intrusion Detection System	02/05/2026	
28 31 49	Carbon Monoxide Detection System	02/05/2026	
28 46 21	Addressable Fire-alarm And Voice Evacuation Systems	02/05/2026	

DIVISION 31 — EARTHWORK

31 10 00	Site Clearing	02/05/2026	
31 22 19	Finish Grading	02/05/2026	
31 23 00	Earthwork	02/05/2026	
31 23 08	Geotextile Fabric	02/05/2026	
31 23 10	Flexible Base And Subgrade Material	02/05/2026	
31 23 12	Select Material Fill	02/05/2026	
31 23 14	Subgrade Preparation	02/05/2026	
31 23 33	Trenching Embedment Backfill	02/05/2026	
31 31 16	Termite Control	02/05/2026	
31 32 00	Lime Soil Stabilization	02/05/2026	
31 41 33	Trench Safety Sheeting And Shoring	02/05/2026	
31 63 29	Drilled Concrete Piers	02/05/2026	

DIVISION 32 — EXTERIOR IMPROVEMENTS

~~32 12 16~~	~~Hot Mixed Asphalt Paving~~ **Add #01**	02/05/2026	**03/23/2026**
32 13 13	Portland Cement Concrete Paving	02/05/2026	
32 13 14	Wheelchair Ramp	02/05/2026	
32 13 15	Concrete Curb And Gutter	02/05/2026	
32 14 00	Unit Pavers	02/05/2026	
32 14 13	Concrete Unit Paving	02/05/2026	

32 15 00	Aggregate Surfacing	02/05/2026	
32 17 22	Traffic Control Spec	02/05/2026	
32 17 23	Pavement Markings	02/05/2026	
32 17 33	Joint Sealer	02/05/2026	
32 18 13	Synthetic Grass Surfacing	02/05/2026	
~~32 18 14~~	~~Non-Athletic Synthetic Grass Surfacing~~ **Add #01**	02/05/2026	**03/23/2026**
~~32 18 32~~	~~Liner Spec~~ **Add #01**	02/05/2026	**03/23/2026**
32 31 11	Gate Operators	02/05/2026	
~~32 31 13~~	~~Chain Link Fence~~ **Add #01**	02/05/2026	**02/23/2026**
32 31 19	Decorative Metal Motorized Gates	02/05/2026	
32 80 01	Tree Protection And Trimming	02/05/2026	
32 92 00	Permenant Sod Lawns	02/05/2026	
32 92 13	Permanent Hydromulch Lawns	02/05/2026	
32 93 00	Planting	02/05/2026	
32 94 40	Belowground Staking	02/05/2026	

DIVISION 33 — UTILITIES

33 11 00	Water Pipe And Fittings	02/05/2026	
33 11 01	Gate Valves And Butterfly Valves	02/05/2026	
33 11 02	Wet Connections	02/05/2026	
33 11 03	Fire Hydrants	02/05/2026	
33 13 00	Water Pipe Test	02/05/2026	
33 13 01	Water Dechlorination	02/05/2026	
33 13 02	Cutting Plugging And Blocking Existing Water Mains	02/05/2026	
33 39 10	Sanitary Sewer Mains	02/05/2026	
33 39 11	Sanitary Sewer Manholes	02/05/2026	
33 39 12	Sanitary Sewer Testing	02/05/2026	
33 42 16	Reinforced Concrete Pipe Culverts	02/05/2026	
33 42 17	Drainage Structures	02/05/2026	
33 42 18	Polypropylene Storm Drainage Pipe	02/05/2026	
33 42 20	French Drain	02/05/2026	

END OF VOLUME 2

END OF DOCUMENT

SECTION 01 21 00 - ALLOWANCES

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 governing allowances.

1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to the Contractor. Refer to the AIA 201 General conditions for additional requirements concerning allowances,
2. All lump-sum and Owner Controlled Allowances are within the Contract Sum, and shall be covered by the bonds, insurance, general conditions, overhead, profit and all other costs so that the totals represented by the Allowances are available without additional charge or cost to the Owner.

B. Types of allowances include the following:

1. Lump-sum allowances.
2. Owner Controlled Contingency allowances.

C. Related Sections:

1. Division 00, File 00 41 11 - Proposal Form - Base Bid.
2. Division 01, File 01 22 00 - Unit Prices (for procedures for using unit prices)
3. Divisions 02 through 49 (or as applicable) Sections for items of Work covered by allowances.

1.3 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, Contractor shall advise Architect and Program Manager of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Architect's or Program Manager’s request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Once the proposal is approved by the Owner, purchase products and systems selected by Architect from the designated supplier.

1.4 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Allowance Expenditure Request Authorization (AERA).

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

C. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

D. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include freight, insurance, and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials under allowance shall be included as part of the Contract Sum and not part of the allowance.

1.7 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, prepare a proposal based on the difference between purchase amount and the allowance.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
3. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. Included in Document 00 41 11 as issued by DISD.

~~A.~~**B. Include Allowance for $1,100,000 Work of Division 28 - Electronic Safety & Security including Access Control and PA System**

END OF SECTION 01 21 00

SECTION 06 61 16

SOLID SURFACING FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid surface material countertops, backsplashes, end splashes, and aprons.
2. Solid surface material window sills.

B. Related Requirements:

1. Section 05 50 00 “Metal Fabrications” for countertop supports.
2. Section 06 41 16 “Plastic-Laminate-Clad Fabrications.”

1.2 ACTION SUBMITTALS

A. Coordination: Submit related Shop Drawings, specified in another Section simultaneously for approval.

1. Cabinet Shop Drawings, showing dimensions and indicating how countertops are to be mounted to cabinets.

B. Product Data: For solid surface materials.

C. Shop Drawings: For fabrications. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.

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

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

E. Samples for Verification: For the following products:

1. Countertop material, 6 inches (150 mm) square.
2. Window sill material, 6 inches (150 mm) square.
3. One full-size solid surface material countertop, with front edge, 8 by 10 inches (200 by 250 mm), of construction and in configuration specified.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

1.4 CLOSEOUT SUBMITTALS

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

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate countertops similar to that required for this Project, and whose products have a record of successful in-service performance.

B. Installer Qualifications: Fabricator of countertops.

C. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for fabrication and execution.

1. Build mockup of typical countertop as shown on Drawings or as directed by Architect.
2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.

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

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

1.7 COORDINATION

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

PART 2 - PRODUCTS

2.1 SOLID SURFACE MATERIALS, SSM-1**, SSM-2** AND SSM-~~3~~2

A. Solid Surface Material: Homogeneous-filled plastic resin complying with ICPA SS-1.

1. Basis of Design Manufacturer: As indicated in Interior Finish Schedule on Drawings.
2. Type: Provide Standard type unless Special Purpose type is indicated.
3. Colors and Patterns: As indicated in Interior Finish Schedule on Drawings.

B. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.

C. 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. Front Edge Configuration: As indicated on Drawings

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

C. Countertops: 1/2-inch- (12.7-mm-) thick, solid surface material laminated to 3/4-inch- (19-mm-) thick particleboard with exposed edges built up with 3/4-inch- (19-mm-) thick, solid surface material.

D. Backsplashes: 1/2-inch- (12.7-mm-) thick, solid surface material.

E. Fabricate tops with shop-applied edges 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.

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

1. Joint Locations: Not within 18 inches (450 mm) of a sink or cooktop and not where a countertop section less than 36 inches (900 mm) long would result, unless unavoidable.
2. Splined Joints: Accurately cut kerfs in edges at joints for insertion of metal splines to maintain alignment of surfaces at joints. Make width of cuts slightly more than thickness of splines to provide snug fit. Provide at least three splines in each joint.

2.3 SOLID-SURFACE-MATERIAL FABRICATIONS

A. **Reception Desk, Guardrail Base/Stairwell Trim, and** Window Sills, SSM-1**, SSM-2, and SSM-3**: 1/2-inch- (12.7-mm-) thick, solid surface material with beveled edges. Refer to Drawings for sizes.

B. Fabrication: Fabricate items 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.

2.4 INSTALLATION MATERIALS

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

1. Adhesives shall have a VOC content of 70 g/L or less.
2. Adhesive shall comply with the testing and product 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."

B. Sealant for Countertops: Comply with applicable requirements in Section 07 92 00 "Joint Sealants."

2.5 ACCESSORIES

A. Grommets for Cable Passage through Countertops:

1. Manufacturer: Doug Mockett and Company.
2. EDP3 Flip-Top Series 2-1/2 inch Grommet.
3. RG Rectangular Grommet.
4. Color: As selected by Architect from manufacturer’s full range of colors.

B. Countertop Support Brackets: Flush Mount, minimum 400 lb. load limit.

1. Basis of Design: Rakks Corporation; EH-1212FM.

2. Provide manufacturer’s standard factory-applied primer. Refer to Division 09 Section “Painting” for finish coat.
3. Paint to match wall finish or solid surface material.

PART 3 - EXECUTION

3.1 EXAMINATION

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

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

3.2 INSTALLATION

A. Install countertops level to a tolerance of 1/8 inch in 8 feet (3 mm in 2.4 m), 1/4 inch (6 mm) maximum. Do not exceed 1/64-inch (0.4-mm) difference between planes of adjacent units.

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

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

D. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.

1. Install metal splines in kerfs in countertop edges at joints. Fill kerfs with adhesive before inserting splines and remove excess immediately after adjoining units are drawn into position.
2. Clamp units to temporary bracing, supports, or each other to ensure that countertops are properly aligned and joints are of specified width.

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

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

G. 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.

1. Seal edges of cutouts in particleboard subtops by saturating with varnish.

H. Apply silicone sealant to gaps at walls; comply with Section 07 92 00 "Joint Sealants."

END OF SECTION

SECTION 07 27 26

FLUID APPLIED MEMBRANE AIR BARRIERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. At gypsum sheathing and masonry substrates: Vapor permeable, fluid applied air barriers with extruded silicone detailing tape for silicone-based systems and with stainless steel foil-faced butyl-based sheet detailing tape at STPE air barrier systems.
2. At insulated concrete forming (ICF) surfaces using expanded or extruded polystyrene (EPS or XPS), provide vapor permeable, fluid-applied air barriers tested for adhesion on, and compatibility with, ICF boards. Provide with butyl-based detailing tape.

B. For sealants, refer to Section 07 92 00 “Joint Sealants.”

1.2 DEFINITIONS

A. Air Barrier Material: A primary element that provides a continuous barrier to the movement of air.

B. Air Barrier Accessory: A transitional component of the air barrier that provides continuity.

C. Air Barrier Assembly: The collection of air barrier materials and accessories applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review air-barrier requirements and installation, special details, mockups, air-leakage and bond testing, air-barrier protection, and work scheduling that covers air barriers.

1.4 ACTION SUBMITTALS

A. Product Data: Technical data for each type of product including manufacturer's written instructions for evaluating, preparing, and treating each substrate; technical data; dry film thickness; and tested physical and performance properties of products.

B. Shop Drawings: Submit plans and details for air barrier assemblies.

1. Show locations and extent of air barrier materials, accessories, and assemblies specific to conditions.
2. Include details for substrate joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie ins with adjoining construction.
3. Include details of interfaces with other materials that form part of air barrier system.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: Submit data for Installer.

B. Product Certificates: From air barrier manufacturer, certifying compatibility of air barriers and accessory materials with Project materials that connect to or that come in contact with the barrier.

C. Product Test Reports: Submit report for each air barrier assembly for tests performed by a qualified testing agency.

D. Field quality control reports.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Entity having minimum 5 years documented experience that employs installers and supervisors who are trained and approved by manufacturer.

1. Installer shall be licensed by ABAA according to ABAA's Quality Assurance Program and shall employ ABAA certified installers and supervisors.

B. Source Limitations: Obtain primary air-barrier materials and air barrier accessories from single source from single manufacturer.

C. Mockups: Build mockups to set quality standards for materials and execution.

1. Build integrated mockups of exterior wall assembly, not less than 150 sq. ft. (14 sq. m), incorporating backup wall construction, external cladding, window, storefront, door frame and sill, insulation, ties and other penetrations. Demonstrate use of sheet membrane and tape flashing including surface preparation, crack and joint treatment, application of air barriers, coordination with flashing and weeps, and sealing of gaps, terminations, transitions, and penetrations of air barrier assembly.

a. Coordinate construction of mockups to permit inspection of air barrier before insulation and cladding are installed.
b. Include junction with roofing membrane, building corner condition, and foundation wall intersection.
c. If Architect determines mockups do not comply with requirements, reconstruct mockups and apply air barrier and detailing membranes and tapes until mockups are approved.

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. Remove and replace liquid materials that cannot be applied within their stated shelf life.

B. Protect stored materials from direct sunlight.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended in writing by air barrier manufacturer.

1. Protect substrates from environmental conditions that affect air barrier performance.
2. Do not apply air barrier to a damp or wet substrate or during snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Source Limitations: Obtain primary air-barrier materials and air-barrier accessories from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Air Barrier Performance: Air barrier assembly and seals with adjacent construction shall be capable of performing as continuous air barrier and as a liquid water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, tie ins to installed waterproofing, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.

B. Air-Barrier Assembly Air Leakage: Maximum 0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft., when tested according to ASTM E 2357.

2.3 MEDIUM BUILD AIR BARRIERS, VAPOR PERMEABLE

A. Medium Build, Vapor Permeable Air Barrier at Gypsum Sheathing and Masonry Surfaces: Silicone or STPE with an installed dry film thickness, according to manufacturer's written instructions over smooth, void free substrates.

1. Products: Subject to compliance with requirements, provide one of the following or equivalent by manufacturers and systems approved by Architect.

a. DuPont de Nemours, Inc.; DuPont Tyvek Fluid Applied WB with Duragard-CM butyl flashing tape and Sika Master Building Solutions MasterSeal NP 150 sealant.
b. GCP; Grace Perm-A-Barrier VPL 50RS UV Stable STPE Membrane with Perm-A-Barrier Aluminum Flashing and GCP Perm-A-Barrier Universal (STPE) Flashing & Sealant.
c. Henry/Carlisle; Henry Air-Bloc All Weather STPE Air Barrier with Carlisle AlumaGard 701 aluminum-faced detail tape with butyl adhesive or York Fabric Transition Membrane by York Flashing and Henry Air-Bloc LF or Heny 925 BES STPE sealant.
d. Siplast: WALLcontrol STPE Liquid AWB Air Barrier with WALLcontrol Stainless Flashing membrane with butyl adhesive and WALLcontrol STPE Liquid Flashing/Sealant.
~~d.~~ **e. TK: TK Airmax 2105 STPE Air/Weather Barrier with TK Climate Flash butyl detailing tape and Super Seal PE polyether sealant as manufactured by TK Products Construction Coatings; An Operating Unit of Sierra LLC.**
~~e.~~ **f.** GE/Momentive; GE Elemax 2600 AWB with RF100 Reinforcing Fabric, Elemax SS Self-Adhering Flashing with Butyl Adhesive, Elemax 5000 Liquid Flashing/Sealant, and factory-extruded Ultraspan silicone detailing membranes and accessories.

2. At Contractor’s option provide York Fabric Transition Membrane with fabric facer and butyl adhesive as detailing tape and membrane in lieu of products listed above.
3. Systems using liquid flashings in lieu of butyl-adhesive based detailing and flashing sheet or tape: Not permitted

4. Physical and Performance Properties:
    a. Air Permeance: Maximum 0.004 cfm/sq. ft. of surface area at 1.57-lbf/sq. ft. (0.02 L/s x sq. m of surface area at 75-Pa) pressure difference; ASTM E 2178.
    b. Vapor Permeance: Minimum 10 perms (580 ng/Pa x s x sq. m); ASTM E 96/E 96M, Desiccant Method, Procedure A or B.
    c. Ultimate Elongation: Minimum 250 percent; ASTM D 412, Die C.
    d. Adhesion to Substrate: Minimum 16 lbf/sq. in. (110 kPa) when tested according to ASTM D 4541.
    e. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
    f. UV Resistance: Can be exposed to sunlight for 150 days according to manufacturer's written instructions.

B. Medium Build, Vapor Permeable Air Barrier at ICF Polystyrene Surfaces: Synthetic air barrier with an installed dry film thickness, according to manufacturer's written instructions over smooth, void free substrates.
    1. Products: Subject to compliance with requirements, provide one of the following or equivalent by manufacturers and systems approved by Architect.
        a. ExoAir 230/230LT by Tremco with ExoAir 110AT self-adhering detailing membrane based on HDPE membrane with butyl backing adhesive and Dymonic 100 sealant.

C. Confirm compatibility of air barrier system with insulated concrete forming system.

D. Systems using liquid flashings or rubberized asphalt based sheet in lieu of butyl-based detailing and flashing sheet or tape not permitted:

2.4 ACCESSORY MATERIALS

A. Provide primers, transition strips, termination strips, joint reinforcing fabric and strips, joint sealants, counterflashing strips, flashing sheets and metal termination bars, termination mastic, substrate patching materials, adhesives, tapes, foam sealants, lap sealants, and accessory materials recommended in writing by air barrier manufacturer to produce a complete air barrier assembly and compatible with primary air barrier material and adjacent construction to which they may seal.

B. Primer: Liquid primer recommended for substrate by air barrier material manufacturer.

C. Polyester-film with butyl adhesive:
    1. Basis of Design: Wicked Flashing by York Flashing.
    2. Rubberized asphalt based sheet not permitted.

D. Stainless Steel Flashing and Detailing Tapes:
    1. Sheet: ASTM A 240/A 240M or ASTM A666, Type 304, 0.0187 inch (0.5 mm) thick, and Series 300 stainless steel fasteners.
    2. Self-Adhering Fabric Flashing: Composite, flashing product consisting of 2-mil of Type 304 stainless steel sheet, bonded to a layer of polymeric fabric, to produce an overall thickness of 40-mil.
        a. 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:

1) York 304 SA; York Flashing.
2) Mighty-Flash SS SA; Hohmann & Barnard

E. Drainage Plane Flashing: Fabricate from stainless steel and drainage membrane to shapes indicated, including weep tabs, termination bar, and drip edge. Provide flashing materials as follows:

a. 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:

1) Flash Vent SS; York Flashing.

F. Engineered Transition Assembly (ETA): Pre-engineered assembly of extruded aluminum adapters and cured, extruded silicone, sized to fit opening widths and glazing pockets, with a single-component, neutral-curing, Class 100/50 (low-modulus) silicone sealant for bonding silicone extrusions to substrates.

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. Tremco Incorporated; ETA Proglaze

G. Preformed Silicone Extrusion: System consisting of cured low modulus silicone extrusion, sized to fit opening widths, with single component, neutral curing, Class 100/50 (low modulus) silicone sealant for bonding extrusions to substrates.

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

a. Dow Corning Corporation; 123 Silicone Seal.
b. Momentive Performance Materials Inc.; US11000 UltraSpan.
c. Pecora Corporation; Sil-Span.
d. Tremco Incorporated, an RPM company; Spectrem Simple Seal.

H. Roof Cements, asphalt-based materials, and rubberized asphalt products: Not permitted.

I. Joint Sealants: Refer to Section 07 92 00 “Joint Sealants.”

1. Acrylic based sealants: Not permitted for exterior assemblies.

PART 3 - EXECUTION

3.1 EXAMINATION

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

1. Verify substrates are sound and free of oil, grease, dirt, excess mortar, or contaminants.
2. Verify substrates have cured and aged for minimum time recommended in writing by air barrier manufacturer.
3. Verify substrates are visibly dry and free of moisture. Test concrete substrates for capillary moisture by plastic sheet method according to ASTM D 4263.
4. Verify that masonry joints are flush and filled with mortar.

B. Proceed with installation after correcting unsatisfactory conditions.

3.2 SURFACE PREPARATION

A. Clean, prepare, treat, fill, and seal substrate and joints and cracks in substrate according to manufacturer's written instructions and details. Provide clean, dust free, and dry substrate for air barrier application.

B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.

C. Remove grease, oil, bitumen, form release agents, paints, curing compounds, and penetrating contaminants or film forming coatings from concrete.

D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and voids in concrete or masonry substrates with patching material.

E. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.

F. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

G. Bridge isolation joints, expansion joints, and discontinuous wall to wall, deck to wall, and deck to deck joints with air barrier accessory material that accommodates joint movement according to manufacturer's written instructions and details.

3.3 ACCESSORIES INSTALLATION

A. Allow air barrier membrane to cure at least 24 hours before applying detailing tapes, membranes, and sealants.

B. Allow sealants to skin over at least 3 hours after application before applying air barrier membrane to ensure proper adhesion.

C. Install accessory materials according to air barrier manufacturer's written instructions and details to form a seal with adjacent construction and ensure continuity of air and water barrier.

1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
2. Install transition strip on roofing membrane or base flashing so that a minimum of 3 inches (75 mm) of coverage is achieved over each substrate.
3. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
4. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by air barrier material on same day. Reprime areas exposed for more than 24 hours.

D. Connect and seal exterior wall air barrier material continuously to roofing membrane air barrier, concrete below grade structures, floor to floor construction, exterior glazing and window systems, glazed curtain wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.

1. Wall Openings: Prime concealed, perimeter frame surfaces of window systems, glazed curtain-wall systems, storefront systems, exterior louvers, and exterior door framing. Apply engineered transition assembly (ETA) or preformed silicone-sealant extrusion so that a minimum of 3 inches of coverage is achieved over

each substrate. Maintain 3 inches of full contact over firm bearing to perimeter frames with not less than 1 inch of full contact.

a. Engineered Transition Assembly (ETA): Set in full bed of silicone sealant applied to walls, frame, and membrane.
b. Preformed Silicone-Sealant Extrusion: Set in full bed of silicone sealant applied to walls, frame, and membrane.

E. At end of each day, seal top edge of strips and transition strips to substrate with termination mastic.

F. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

G. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air barrier material with foam sealant.

H. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic or sealant.

I. Seal top of through wall flashings to air barrier with an additional 6 inch (150 mm) wide, transition strip.

J. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic or sealant.

K. Repair punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches (150 mm) beyond repaired areas in strip direction.

3.4 PRIMARY AIR BARRIER MATERIAL INSTALLATION

A. Apply air barrier material to form a seal with strips and transition strips and to achieve a continuous air barrier according to air barrier manufacturer's written instructions and details. Apply air barrier material within manufacturer's recommended application temperature ranges.

1. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
2. Limit priming to areas that will be covered by air barrier material on same day. Reprime areas exposed for more than 24 hours.
3. Where multiple prime coats are needed to achieve required bond, allow adequate drying time between coats.

B. Medium Build Air Barriers: Apply continuous unbroken air barrier material to substrates according to the specified thickness. Apply an increased thickness of air barrier material in full contact around protrusions such as masonry ties.

1. Vapor Permeable, Medium Build Air Barrier: Total dry film thickness recommended in writing by manufacturer to comply with performance requirements, but not less than 22 mils, applied in one or more equal coats to achieve manufacturer’s tested thickness. Apply additional material as needed to achieve void and pinhole free surface, but do not exceed thickness on which required vapor permeability is based.

C. Do not cover air barrier until it has been tested and inspected by testing agency.

D. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air barrier components.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Inspections: Air barrier materials, accessories, and installation are subject to inspection for compliance with requirements. Inspections may include the following:

1. Continuity of air barrier system has been achieved throughout the building envelope with no gaps or holes.
2. Air barrier dry film thickness.
3. Continuous structural support of air barrier system has been provided.
4. Masonry and concrete surfaces are smooth, clean, and free of cavities, protrusions, and mortar droppings.
5. Site conditions for application temperature and dryness of substrates have been maintained.
6. Maximum exposure time of materials to UV deterioration has not been exceeded.
7. Surfaces have been primed, if applicable.
8. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.
9. Termination mastic has been applied on cut edges.
10. Strips and transition strips have been firmly adhered to substrate.
11. Compatible materials have been used.
12. Transitions at changes in direction and structural support at gaps have been provided.
13. Connections between assemblies (air barrier and sealants) have complied with requirements for materials, cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
14. All penetrations have been sealed.

C. Tests: Determined by testing agency from among the following tests:

1. Air Leakage Location Testing: Air barrier assemblies will be tested for evidence of air leakage according to ASTM E 1186, chamber pressurization or depressurization with smoke tracers.
2. Air Leakage Volume Testing: Air barrier assemblies will be tested for air leakage rate according to ASTM E 779.
3. Adhesion Testing: Air barrier assemblies will be tested for required adhesion to substrate according to ASTM D 4541 for each 600 sq. ft. (56 sq. m) of installed air barrier or part thereof.

D. Air barriers are considered defective if they do not pass tests and inspections.

1. Apply additional air barrier material, according to manufacturer's written instructions, where inspection results indicate insufficient thickness.
2. Remove and replace deficient air barrier components for retesting as specified above.

E. Repair damage to air barriers caused by testing; follow manufacturer's written instructions.

F. Prepare test and inspection reports.

3.6 CLEANING AND PROTECTION

A. Protect air barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.

1. Protect air barrier from exposure to UV light and harmful weather exposure as recommended in writing by manufacturer. If exposed to these conditions for longer than recommended, remove and replace air barrier or install additional, full thickness, air barrier application after repairing and preparing the overexposed materials according to air barrier manufacturer's written instructions.
2. Protect air barrier from contact with incompatible materials and sealants not approved by air barrier manufacturer.

B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

C. Remove masking materials after installation.

END OF SECTION

SECTION 08 80 00

GLAZING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Insulated and monolithic glass for windows, doors, borrowed lites, curtain wall, and storefront framing.
2. Laminated glass including clear and printed interlayers
3. ~~Clear security film~~ **Spandrel glass**
4. Glazing sealants and accessories.

1.2 REFERENCES

A. American Architectural Manufacturers Association

1. AAMA 800: Voluntary Specifications and Test Methods for Sealants

B. American National Standard Institute:

1. ANSI Z97.1 - Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test.

C. ASTM International

1. ASTM C 509 - Specification for Elastomeric Cellular Preformed Gasket and Sealing Material
2. ASTM C 920 - Specification for Elastomeric Joint Sealants
3. ASTM C 1036 - Flat Glass.
4. ASTM C 1048 - Heat Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.
5. ASTM C 1087 - Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems.
6. ASTM C 1115 - Specification for Dense Elastomeric Silicone Rubber Gaskets and Accessories.
7. ASTM C 1281 - Specification for Preformed Tape Sealants for Glazing Applications
8. ASTM C 1376 - Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass.
9. ASTM E 1300 - Practice for Determining the Minimum Thickness of Annealed Glass Required to Resist a Specified Load.
10. ASTM E 1996 - Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
11. ASTM E 2188 - Standard Test Method for Insulating Glass Unit Performance.
12. ASTM E 2189 - Standard Test Method for Testing Resistance to Fogging in Insulating in Insulating Glass Units.
13. ASTM E 2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.

D. Code of Federal Regulations

1. 16 CFR 1201: Safety Standard for Architectural Glazing Materials

2. 40 CFR 59, Subpart D-2006: National Volatile Organic Compound Emission Standards for Architectural Coatings.

E. Glass Association of North America:

1. Engineering Standards Manual.
2. Glazing Manual.

F. Texas Department of Insurance Evaluation Report: For exterior fenestrations.

G. Insulating Glass Manufacturers Alliance

1. IGMA TB-3001: Guidelines for Sloped Glazing.
2. SIGMA TM-3000: North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use

H. Sealed Insulated Glass Manufactures Association:

1. SIGMA TM-3000 - Vertical Glazing Guidelines.

I. Structural Engineering Institute/American Society of Civil Engineers:

1. SEI/ASCE 7 - Minimum Design Loads for Buildings and Other Structures

J. Underwriters Laboratories:

1. UL 972 – Burglary-Resisting Glazing Material.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Glass: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
2. Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements.
3. Identify available colors; indicate special precautions required.

B. Shop Drawings:

1. Sections and details of glass installation at framing members including head, mullions, transoms, jambs and sills.
2. Submit engineered shop drawings for back-painted glass and mounting systems showing fabrication and installation requirements to ensure installation and removal of individual glass units without requiring removal of adjacent units.

a. Show transitions

C. Samples: Submit 12" x 12" samples of each type and thickness of tint, patterned, coated, and back-painted glass.

1.4 INFORMATIONAL SUBMITTALS

A. Certificates: Submit glass and glazing manufacturer's certifications that materials meet Specification requirements and are compatible with each other.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved and certified by coated-glass manufacturer.

B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.

C. Regulatory Requirements: Comply with ANSI Z97.1 and CPSC 16 CFR Part 1201 break safe characteristics.

D. Heat-Strengthened and Fully-Tempered Glass:

1. Fabrication Process: By horizontal (roller-hearth) process.
2. For uncoated glass, comply with requirements for Condition A.
3. For coated vision glass, comply with requirements for Condition C (other coated glass).
4. Orientation: Orient roller-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.

a. If width of any glass units indicated on Drawings exceeds fabrication limits, roller-wave distortion shall be oriented in a consistent direction for the entire project.

E. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

F. Mock-Ups:

1. Erect mock-ups to demonstrate aesthetic effects and quality of materials and execution using materials indicated for final unit of work.
2. Accepted mock-ups in undisturbed condition at time of Substantial Completion may become part of completed Work.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver glass to job in original containers bearing manufacturer's label indicating quality of contents of each package.

B. Store glass under cover at site and protect from edge and surface damage.

C. Do not remove labels until glass has been installed. Keep glass free from contamination by materials capable of staining glass. Do not apply marking materials to either side of glass.

1.7 PROJECT CONDITIONS

A. Environmental Requirements:

1. Do not install glazing materials when ambient temperature is less than 50 degrees F. unless recommended by glazing material manufacturer.
2. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.
3. Do not install glazing materials when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1.8 SEQUENCING AND SCHEDULING

A. Coordinate Work with glazing frames, wall openings, and perimeter air and vapor seal to adjacent Work.

1.9 WARRANTY

A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.

1. Warranty Period: 10 years from date of Substantial Completion.

B. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers/Fabricators, Glass Products: Subject to compliance with requirements, provide products by one of the following:

1. Cardinal Glass
2. Guardian Industries Corp.
3. Oldcastle Building Envelope.
4. Pilkington North America.
5. Schott North America, Inc.
6. Viracon, Inc.
7. Vitro Glass

B. Source Limitations for Glass: Obtain from single source from single manufacturer for each glass type.

1. Obtain tinted glass from single source from single manufacturer.
2. Obtain coated glass from single source from single manufacturer.

C. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

2.2 PERFORMANCE REQUIREMENTS

A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 45 00 "Quality Requirements," to design glazing including impact-resistant glazing at alternates complying with Texas Department of Insurance requirements.

C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the IBC and ASTM E 1300.

1. Wind Loads: Design and size components of glazing systems to withstand loads caused by positive and negative wind pressure acting normal to plane of wall as calculated in accordance with SEI/ASCE 7 to establish wind pressure based on the criteria listed on Structural Drawings.
2. Probability of Breakage for Sloped Glazing: For glass surfaces sloped more than 15 degrees from vertical, design glass for a probability of breakage not greater than 0.001.
3. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch (25 mm), whichever is less.
4. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.

D. Safety Glazing: Where safety glazing is required, provide glazing that complies with 16 CFR 1201, Category II.

E. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:

1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
3. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F (W/sq. m x K).
4. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
5. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.3 GLASS PRODUCTS, GENERAL

A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA: "GANA Glazing Manual."
2. IGMA TM-3000: "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
3. IGMA TM-3100: "Voluntary Guidelines for the Identification of Visual Obstructions in the Air Space of Insulating Glass Units."

B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction or manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

C. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

D. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.

1. Minimum Glass Thickness for Interior and Exterior Monolithic Lites: 6 mm.
2. Minimum Glass Thickness and Type at Interior Doors: 6 mm (nominal 1/4- inch) tempered glass.

a. Provide 1/4-inch thick laminated security glass at new security doors.
b. Provide1/4-inch thick tempered glass with security film at existing glass designated as security glass.

E. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.

F. Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened float glass is indicated, provide heat-strengthened float glass or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where fully tempered float glass is indicated, provide fully tempered float glass.

2.4 GLASS - FLOAT GLASS

A. Float Glass: ASTM C 1036, Type I (transparent glass, flat), Quality-Q3 (glazing select), Class 1 (clear) or Class 2 (tinted, heat-absorbing and light-reducing).

B. Glass Types:

1. Type 0A - Clear.

2.5 GLASS - HEAT-STRENGTHENED GLASS

A. Heat-Strengthened Glass: ASTM C 1048, Type I (transparent glass, flat), Quality-Q3 (glazing select), Class 1 (clear) or Class 2 (tinted, heat-absorbing and light-reducing), Kind HS (heat-strengthened), Condition A (uncoated).

B. Glass Types:

1. Type 1A - Clear. Provide where shown and in lieu of 0A when required by performance requirements.
2. Type 1B – Ultraclear.

2.6 GLASS - FULLY TEMPERED

A. Fully Tempered Glass: ASTM C 1048, Type I (transparent glass, flat), Quality-Q3 (glazing select), Class 1 (clear) or Class 2 (tinted, heat-absorbing and light-reducing), Kind FT (fully tempered), Condition A (uncoated).

B. Glass Types:

1. Type 2A – Fully tempered clear glass.
2. Type 2B – Fully tempered ultraclear glass

2.7 COATED GLASS - HEAT-STRENGTHENED GLASS

A. Coated Heat-Strengthened Glass: ASTM C 1376 and ASTM C 1048, Type I (transparent glass, flat), Quality-Q3 (glazing select), Class 1 (clear) or Class 2 (tinted, heat-absorbing and light-reducing), Kind HS (heat-strengthened), Condition C (other coated glass).

B. Basis-of-Design Product, Clear Exterior Vision Lite: Subject to compliance with requirements, provide **Vitro** Solarban ~~6~~**9**0 (2) ~~Starphire~~ **Acuity** Ultraclear exterior lite + **Acuity** Ultraclear inner-lite to form insulated glass unit (IGU) configuration resulting in comparable appearance and performance characteristics as follows:

1. Performance Requirements:

a. Visible Light Transmittance: **53**~~70~~ percent minimum.

b. Winter Nighttime U-Factor: 0.29 (Btu/hr*ft2*°F) maximum.
c. Solar Heat Gain Coefficient: 0.**2**~~39~~ maximum.
d. Outdoor Visible Light Reflectance: 1**2**~~1~~ percent maximum.

C. Glass Types:

1. Type 3A – Ultraclear, Low-E

2.8 COATED GLASS - FULLY TEMPERED

A. Fully Tempered Glass: ASTM C 1376 and ASTM C 1048, Type I (transparent glass, flat), Quality-Q3 (glazing select), Class 1 (clear) or Class 2 (tinted, heat-absorbing and light-reducing), Kind FT (fully tempered), Condition C (other coated glass).

B. Basis-of-Design Product, Clear Exterior Vision Lite: Subject to compliance with requirements, provide **Vitro** Solarban ~~6~~**9**0 (2) ~~Starphire~~ **Acuity** exterior lite + ~~Starphire~~ **Acuity** inner-lite to form insulated glass unit (IGU) configuration resulting in comparable appearance and performance characteristics as follows:

1. Performance Requirements:

a. Visible Light Transmittance: ~~70~~**53** percent minimum.
b. Winter Nighttime U-Factor: 0.29 (Btu/hr*ft2*°F) maximum.
c. Solar Heat Gain Coefficient: 0.**2**~~39~~ maximum.
d. Outdoor Visible Light Reflectance: 1**2**~~1~~ percent maximum.

C. Glass Types:

1. Type 4 – Ultraclear, Low-E

2.9 LAMINATED GLASS

A. Laminated Glass: ASTM C1172. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.

1. Construction: Laminate glass with polyvinyl butyral interlayer or ionoplast interlayer to comply with interlayer manufacturer's written instructions.

B. For security glass, comply with Texas Education Agency (TEA) requirements and the following:

1. Provide TEA compliant glass meeting ASTM F3561 Forced Entry and Ballistic Resistance Rated, Level ~~XXX~~ **2** or better, or equivalent **as certified by PVB interlayer manufacturer**.
2. Laminated Glass Kind,

a. Kind LHS (two lites of heat strengthened flat glass)

3. Interlayer Thickness: Provide thickness not less than 0.060 and as needed to comply with requirements.
4. Interlayer Color: Clear

C. Glass Type 7-2 with clear interlayer: **Ultra**Clear, Low-Iron Laminated Security Glass; ASTM C1172.

~~1. Basis of Design: School Safe Premium Ballistic Glazing as manufactured by Ballistic Glass & Armor Solutions.~~

1. Nominal Thickness: 1/4-inch

2. Composition: Two lites of 3 mm thick ultraclear heat-strengthened glass with 0.060 inch thick PVB interlayer.

~~2.~~**3.** For use as follows:

a. Locations scheduled for Glass Type 7-2
b. At Inboard lite in Glass Type 7-1
~~c. Thickness: 9/16 inch; tested to the following:~~

~~1) ASTM F3561 Level 82~~
~~2) UL 752 Level 1~~
~~3) ASTM F1233~~
~~4) HP White 5-aa1: 13 minutes and 53 seconds~~

~~3. Glass and Interlayer configuration as required to comply with testing requirements specified.:~~

D. Note: At typical, non-security **interior** door lites provide nominal 1/4-inch thick (6 mm) clear tempered glass, Glass Type 2A.

2.10 SPANDREL GLASS

A. Silicone Coated Spandrel Glass: ASTM C1048, Type I, Condition C, Quality-Q3.

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

a. ICD High Performance Coatings.

2. Type 2S: Applied to Glass Type 2A, Clear Tempered; 100% opaque silicone coating on #4 (exposed inner) surface.

a. Opacifier color: As selected by Architect from manufacturer’s full range.
b. Insulated Spandrel Glass Units: Glass Types 8-3 when paired with Glass Type 4A or Type 4B exterior lite as scheduled.

2.11 INSULATED GLASS

A. Insulated Glass: Sealed units of glass lites separated by dehydrated air spaces complying with ASTM E 2188, ASTM E 2189, and ASTM E 2190, with the following indicated requirements:

1. For types, classes, kinds, and conditions of each glass lite refer to specified glass types.
2. Sealing System: Dual seal, primary and secondary using manufacturer's standard sealants.
3. Spacer: Manufacturer's standard metal.
4. Air Space Width: Nominal 1/2 inch measured perpendicularly from surfaces of glass lites at unit edge.

B. Insulated Glass Unit (IGU) Types:

1. Type 7-1: 1-inch ~~tinted~~**ultraclear**, laminated security IGU

a. Outer Lite: Type 4A ultraclear tempered Low-E glass
b. Air Space: 3/8- inch air
c. Inner Lite: Type 7-2 ultraclear laminated security glass

2. Type 8-1: 1-inch ultraclear, heat-strengthened IGU

a. Outer Lite: Type 3A ultraclear heat-strengthened Low-E glass

b. Air Space: ½ inch air
c. Inner Lite: Type 1B ultraclear heat-strengthened glass

3. Type 8-2: 1-inch **ultra**clear, tempered IGU

a. Outer Lite: Type 4A ultraclear tempered Low-E glass
b. Air Space: ½ inch air
c. Inner Lite: Type 2B ultraclear tempered glass

4. Type 8-3: 1-inch tinted, tempered spandrel IGU

a. Outer Lite: Type 4A ultraclear tempered Low-E glass
b. Air Space: ½ inch air
c. Inner Lite: Type 2S tempered spandrel glass

~~5. Type 8-4: 1-inch tinted tempered security IGU with security film~~

~~a. Outer Lite: Type 4A ultraclear tempered Low-E glass~~
~~b. Air Space: ½ inch air~~
~~c. Inner Lite: Type 2A ultraclear tempered glass with security film WF-1~~

~~2.12 SECURITY FILM FOR USE AT EXISTING GLASS~~

~~A. Safety and Security Window Film, WF-1: Optically clear microlayered polyester film, nominally 8 mils (0.008") thick, with a durable acrylic abrasion resistant coating over one surface and a pressure sensitive adhesive on the other. The adhesive is pressure-activated, not water-activated, and forms a mechanical bond, not chemical bond, to the glass. Provide microlayered film with plastic and ductile polyester layers for tear resistance.~~

~~1. Physical / Mechanical Performance Properties (nominal):~~

~~a. Film Color: Clear~~
~~b. Film Thickness: Nominal 8 mils~~

~~2. Uniformity: No noticeable pin holes, streaks, thin spots, scratches, banding or other optical defects.~~
~~3. Variation in Total Transmission across the width: Less than 2 percent over the average at any portion along the length.~~
~~4. Impact Resistance for Safety Glazing: Tested on 1/4 inch (6.4 mm) annealed glass.~~

~~a. Safety Rating (CPSC 16 CFR, Part 1201): Category II (400 ft.-lbs).~~
~~b. Safety Rating (ANSI Z97.1): Class A, Unlimited Size.~~

~~5. Forced Entry Protection: Independent lab testing according to UL 972 protocol (Multiple Impact Test).~~

~~a. Annealed Glass (1/4 inch) - Pass~~
~~b. Tempered Glass (1/4 inch) - Pass~~

~~6. Use: At locations noted on Drawings.~~
~~7. Acceptable Products:~~

~~a. 3M™ Scotchshield™ Ultra 800 Safety and Security Window Film with 3M Impact Protection Adhesive Attachment System.~~
~~b. Security 8 Mil Clear View Plus as manufactured by XPEL, Inc.~~

~~2.13~~**2.12** GLAZING SEALANTS

A. General:

1. Compatibility: Compatible with one another and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.

B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Dow Corning Corporation; Dow Corning® 790 Silicone Building Sealant.
b. GE Construction Sealants; Momentive Performance Materials Inc.; SCS2700 SilPruf LM.
c. Pecora Corporation; 890NST.
d. Tremco Incorporated; Spectrem 1.

C. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Dow Corning Corporation; Dow Corning® 795 Silicone Building Sealant.
b. GE Construction Sealants; Momentive Performance Materials Inc.; Silpruf SCS200.
c. Pecora Corporation; 895NST.
d. Tremco Incorporated; Spectrem 2.

~~2.14~~**2.13** GLAZING TAPES

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:

1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

~~2.15~~**2.14** FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written

instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
    a. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surface.

B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep systems.
3. Minimum required face and edge clearances.
4. Effective sealing between joints of glass-framing members.

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

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.3 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.

C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

F. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm).

1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

L. Tempered Safety Glazing:

1. Do not cut, seam, nip or abrade tempered safety glass.
2. Set tempered safety glass with tong marks completely concealed or in as inconspicuous a location as possible.
3. Install tempered safety glass in hazardous locations:
    a. Ingress and egress doors.
    b. Operable or inoperable panels adjacent to a door in building and within same wall plane as door whose nearest vertical edge is within 24" of door in closed position and whose bottom edge is less than 60" above floor or walking surface.
    c. Fixed panels which have glazed area in excess of 9 sq. ft. and lowest edge is less than 18" above finished floor level or walking surface within 36" of such glazing where panels are not protected with horizontal member not less than 1-1/2" in width located between 24" and 36" above walking surface.
    d. Other locations required by building code.

3.4 TAPE GLAZING

A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.

C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until right before each glazing unit is installed.

F. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

3.5 GASKET GLAZING (DRY)

A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.

B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.

C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

E. Install gaskets so they protrude past face of glazing stops.

3.6 SEALANT GLAZING (WET)

A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.

C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

~~3.7 SECURITY FILM~~

~~A. Comply with manufacturer's printed instructions for surface preparation, installation, cleaning, and protection.~~

~~B. Clean glass surfaces and apply film free of bubbles, voids, or gaps.~~

~~C. Extend film to fully cover glass surface to edge of frames.~~

~~D. Apply continuous filet bead of silicone structural glazing sealant to bond film to frame.~~

~~3.8~~**3.7** CLEANING AND PROTECTION

A. Immediately after installation remove nonpermanent labels and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.

1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.

C. Remove and replace glass that is damaged during construction period.

D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION

SECTION 09 51 13

ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Acoustical ceiling panels and suspension system.
2. Perimeter trim.
3. Cove with integral lighting.

1.2 ACTION SUBMITTALS

A. Product Data: Technical data for each ceiling panel and gird component with installation instructions indicating special procedures and perimeter conditions requiring special attention conditions.

B. Shop Drawings: Submit grid layout and related dimensioning, splicing, junctions with adjacent work or ceiling finishes, interrelation of mechanical and electrical items related to system.

C. Samples: Submit 12 inches by 12 inches (300 mm by 300 mm) samples illustrating material and finish of acoustical units; submit 12 inch (300 mm) long sample of each suspension system main runner, cross runner, edge trim, and retention clips.

1. Acoustical Panels: Set of 12 inches by 12 inches (300 mm by 300 mm) Samples of each type, color, pattern, and texture.
2. Exposed Suspension System Members, Moldings, and Trim: Set of 12 inch (300 mm) long Samples of each type, finish, and color.

D. Certificate: Submit manufacturer's certification that suspension system is capable of supporting light fixtures, grilles, and acoustical panels.

1.3 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

B. Product Test Reports: Submit for each acoustical panel ceiling, for tests performed by manufacturer and witnessed by a qualified testing agency or a qualified testing agency.

1.4 QUALITY ASSURANCE

A. Qualifications:

1. Grid Manufacturer: Entity having minimum 5 years documented experience who specializes in manufacturing ceiling grids.
2. Acoustical Unit Manufacturer: Entity having minimum 5 years documented experience who specializes in manufacturing acoustical units.
3. Installer: Entity having minimum 5 years documented experience who employs trained and experienced installers.

B. Source Limitations:

1. Acoustical Ceiling Panel: Obtain each type through one source from a single manufacturer.
2. Suspension System: Obtain each type through one source from a single manufacturer.

C. Preinstallation Conference: Conduct conference at site.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical panels, suspension system components, and accessories to site and store 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.

C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.6 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.

B. Coordinate layout and installation of acoustical ceiling units and suspension system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire suppression system components (if any) and partition system (if any).

1.7 EXTRA MATERIALS

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

1. Acoustical Ceiling Units: Full size panels equal to 2 percent of quantity installed.
2. Suspension System Components: Quantity of each exposed component equal to 2 percent of quantity installed.
3. Hold Down Clips: Equal to 2 percent of quantity installed.
4. Impact Clips: Equal to 2 percent of quantity installed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Acoustical Panel Standard: Provide ceiling panels complying with ASTM E 1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.

B. Surface Burning Characteristics: Ceiling panels with surface burning characteristics complying with IBC Chapter 8 and ASTM E 1264 for Class A materials determined by testing identical products in accordance with ASTM E 84.

2.2 ACOUSTICAL PANELS

A. Manufacturer: Subject to compliance with requirements, provide ceiling panels and grid systems by one of the following:

1. Acoustic Ceiling Panel:

a. Armstrong World Industries, Inc.
b. CertainTeed Corporation.
c. USG Interiors.

B. Acoustical Panel, ACT-1:

1. Nominal Size: 24 inch by 24 inch by 3/4 inch
2. Composition: Wet formed mineral fiber, ASTM E 1264, Class A.
3. Finish: Factory applied vinyl latex paint.
4. Color: White.
5. Ceiling Attenuation Class: 40 db.
6. Noise Reduction Coefficient: 0.70.
7. Light Reflectance: LR-1, 82 percent.
8. Edge: Stepped.
9. Pattern: Type A, Form A1.2, Pattern C & E
10. Basis of Design:

a. School Zone Fine Fissured High NRC Model 17**28**~~13~~ by Armstrong
b. Radar ~~High-NRC~~ Acoustical Panel Model ~~22421~~ **2210** by USG.
c. Fine Fissured ~~High NRC~~ HHF- **157**~~457 HNRCX~~ by CertainTeed.

C. Acoustical Panel ACT-2:

1. Nominal Size: 24 inch by 24 inch by 3/4 inch
2. Composition: Wet formed mineral fiber, ASTM E 1264, Class A.
3. Finish: Factory applied vinyl latex paint.
4. Color: White.
5. Ceiling Attenuation Class: 33 db.

6. Noise Reduction Coefficient: 0.70.
7. Light Reflectance: LR-1, 82 percent.
8. Edge: Stepped.
9. Classification: ASTM E1264. Type IX, Form 2, Pattern G;
10. Fire Class A.
11. USDA/FSIS compliant
12. Basis of Design:

    a. Model 673 Kitchen Zone, square edge panels by Armstrong in 15/16 inch wide grid.
    b. Model 3210 Kitchen Lay-In-Panels by USG Ceilings
    c. Model 1142-CRF-1 VinylRock by CertainTeed

2.3 METAL SUSPENSION SYSTEM

A. Manufacturer: Subject to compliance with requirements, provide ceiling panels and grid systems by one of the following:

1. Concealed and Exposed Suspension Grid:

    a. Armstrong World Industries, Inc.
    b. CertainTeed Corporation.
    c. Chicago Metallic; Rockfon (Roxul Inc.).
    d. Hunter Douglas.
    e. USG Interiors.

B. Metal Suspension System Standard: Provide direct hung, metal suspension system and accessories according to ASTM C 635/C 635M and designated by type, structural classification, and finish indicated.

C. Standard Exposed Tee Grid: ASTM C 635, nonfire rated.

1. Structural Classification: Intermediate duty system.
2. End Condition of Cross Runners: Override (stepped) or butt edge type.
3. Face Design: Flat, flush.
4. Cap Material: Commercial quality cold rolled steel with galvanized coating.
5. Face Flange Width: 15/16 inch (23.5 mm)
6. Exposed Finish: Baked on enamel, white satin finish
7. Products: Subject to compliance with requirements, provide products of one of the following:

    a. Prelude XL by Armstrong World Industries.
    b. Classic Stab System by CertainTeed Corp.
    c. Donn Suspension System DX by USG Interiors, Inc.

D. Rough Suspension: Galvanized steel carrying channels and hangers, sized and type to suit application and to rigidly secure complete acoustic unit ceiling system, with maximum deflection of L/360.

E. Grid Accessories: Stabilizer bars, furring clips, splices, retention clips, and edge moldings as required to complete and compliment suspended ceiling grid system.

2.4 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.

B. Wire Hangers, Braces, and Ties: Provide wires:

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. 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 (2.69 mm) diameter wire.

C. Hanger Rods: Mild steel, zinc coated or protected with rust inhibitive paint.

D. Flat Hangers: Mild steel, zinc coated or protected with rust inhibitive paint.

E. Angle Hangers: Angles with legs not less than 7/8 inch (22 mm) wide; formed with 0.04 inch (1 mm) thick, galvanized steel sheet complying with ASTM A 653/A 653M, G90 (Z275) coating designation; with bolted connections and 5/16 inch (8 mm) diameter bolts.

F. Hold Down Clips: Standard hold down.

G. Impact Clips: Impact clip system designed to absorb impact forces against acoustical panels.

H. Acoustical Sealant: Comply with ASTM C 834 and effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Exposed and Concealed Joints: Nonsag, paintable, nonstaining latex sealant.
2. Concealed Joints: Nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic rubber sealant.

2.5 METAL EDGE MOLDINGS AND TRIM

A. Roll Formed, Sheet Metal Edge Moldings and Trim: Type and profile necessary for edges and penetrations that comply with design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.

1. Edge moldings shall fit acoustical panel edge details and suspension systems indicated and match width and configuration of exposed runners unless otherwise indicated.
2. For lay in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
3. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

B. Indirect Light Cove Perimeter System: Extruded aluminum light cove system, fully concealed and integrated design to create a light cove profile with integrated lighting fixtures.

1. Basis of Design, Perimeter System: Axiom Indirect Light Cove Perimeter System as manufactured by Armstrong World Industries.
    a. Baked Enamel or Powder Coat Finish: Minimum dry film thickness of 1.5 mils (0.04 mm). Comply with ASTM C 635/C 635M and coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish. Match adjacent ceiling grid system.
2. Basis of Design, Lighting Fixture: As shown or scheduled in Division 26.

C. Extruded Aluminum Edge Moldings and Trim: Provide extruded aluminum edge moldings and trim of profile indicated or referenced by manufacturer's designations, including splice plates, corner pieces, and attachment and other clips, complying with seismic design requirements.

1. Baked Enamel or Powder Coat Finish: Minimum dry film thickness of 1.5 mils (0.04 mm). Comply with ASTM C 635/C 635M and coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
2. Basis of Design: Axiom Classic Trim as manufactured by Armstong World Industries or equivalent product by USG Ceilings or CertainTeed.
3. Provide as shown or scheduled.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut for compliance with requirements 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 after correcting unsatisfactory conditions.

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.

B. Exposed Grid Suspension System: Suspend ceiling hangers from building's structural members:

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. 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.
7. Do not attach hangers to steel deck tabs.
8. Do not attach hangers to steel roof deck. Attach hangers to structural members.
9. Space hangers not more than 48 inches (1220 mm) o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches (200 mm) from ends of each member.
10. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

C. Edge Moldings: 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 (400 mm) o.c. and not more than 3 inches (75 mm) from ends. Miter corners accurately and connect securely.
3. Do not use exposed fasteners, including pop rivets, on moldings and trim.

D. Install suspension system runners to be square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

E. Acoustical Panels: 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. For square edged panels, install panels with edges fully hidden from view by flanges of suspension system runners and moldings.

3.4 ERECTION TOLERANCES

A. Suspended Ceilings: Install main and cross runners level to a tolerance of 1/8 inch in 12 feet (3 mm in 3.6 m), noncumulative.

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 (3 mm in 3.6 m), noncumulative.

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

SECTION 09 84 34

SOUND-ABSORBING PET WALL UNITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes shop-fabricated, sound absorbing acoustical wall panel units tested for acoustical performance.

1.2 DEFINITIONS

A. NRC: Noise Reduction Coefficient.

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 panel and mounting indicated.

B. Shop Drawings: For unit assembly and installation.

1. Include plans, elevations, sections, and mounting devices and details.
2. Include details at cutouts and penetrations for other work.

C. Samples for Verification: For the following products:

1. Panel: 12-inch-square sample(s) showing each edge profile, corner, and finish.
2. Mounting Devices: Full-size Samples.
3. Assembled Panels: Approximately 36 by 36 inches, including joints and mounting methods.

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 units including the following:

a. Lighting fixtures.
b. Air outlets and inlets.
c. Speakers.
d. Alarms.
e. Sprinklers.
f. Access panels.

B. Product Certificates: For each type of unit.

C. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of unit to include in maintenance manuals. Include fabric manufacturers' written cleaning and stain-removal instructions.

1.7 MAINTENANCE MATERIAL SUBMITTALS

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

1. Mounting Devices: Full-size units equal to 5 percent of amount installed, but no fewer than five devices, including unopened adhesives.

1.8 QUALITY ASSURANCE

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

1. Build mockup of one typical panel.
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.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Comply with fabric and 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.

1.10 FIELD CONDITIONS

A. Environmental Limitations: Do not install 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 units until a lighting level of not less than 50 fc is provided on surfaces to receive the units.

C. Air-Quality Limitations: Protect 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 unit locations and actual dimensions of openings and penetrations by field measurements before fabrication, and indicate them on Shop Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain wall units specified in this Section from single source from single manufacturer.

B. Basis of Design: ~~Mur Felt Acoustic Wall Mounted Panels, MPS 9 mm Acoustical Panels, as manufactured by MPS Acoustics LLC~~**kleen acoustical PET wall pensls as manufactured by Kinetics Noise Control, A Catalyst Acoustic Group Brand**.

C. Other Acceptable Manufacturers: Provide basis of design products or equivalent products by one of the following:

1. Acoustical Solutions
2. Armstrong World Industries, Inc.
3. Frasch
~~2.~~**4. MPS Acoustics**
~~3.~~**5.** Polysorb

2.2 **ACOUSTICA**L PANELS

A. Acoustical Panels:

1. Material: Pre-fabricated panels composed of PET using no binding agents.
2. Acoustical Absorption: NRC range of 0.85 for 3/8-inch thickness.
3. Sizes: As shown on Construction Drawings.
4. Modifications: Knife cut patterned face or other custom shapes indicated on Drawings; and Custom colors.

B. Acoustical Wall Panel Accessories:

1. Z-clips or other Mounting: Back mounted with manufacturer's standard metal clips or bar hangers, secured to substrate.
2. Edge Profile: Beveled.
3. Corner Detail in Elevation: Beveled with continuous edge profile indicated.
4. Reveals between Panels: Flush reveals as indicated on Drawings.
5. Panel Dimensions: As indicated on Drawings.

C. Core Materials:

1. PET; mildew and moisture resistant.

D. Acoustical Wall Panel Accessories:

1. Mounting:

a. Manufacturer’s Standard Z-Clip Mounting Method A: Attachment through gypsum board direct to studs.

2.3 FABRICATION

A. Standard Construction: Use manufacturer's standard construction unless otherwise indicated; with panel face, edges, and back reinforced against warpage and damage.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine panels, mounting devices, substrates, areas, and conditions for compliance with requirements, installation tolerances, and other conditions affecting unit performance.

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

3.2 INSTALLATION

A. Install units in locations indicated. Unless otherwise indicated, install units 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 manufacturer's written instructions for installation of units using type of mounting devices indicated. Mount units securely to supporting substrate.

3.3 INSTALLATION TOLERANCES

A. Variation from Plumb and Level: Plus or minus 1/16 inch in 48 inches, noncumulative.

B. Variation of Joint Width: Not more than 1/16-inch variation from hairline in 48 inches, noncumulative.

3.4 CLEANING

A. Clean panels on completion of installation to remove dust and other foreign materials according to manufacturer's written instructions.

END OF SECTION

SECTION 10 21 17

PLASTIC TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid-plastic toilet compartments configured as toilet enclosures and urinal screens.

B. Related Requirements:

1. Section 06 10 53 "Miscellaneous Rough Carpentry" for in-wall blocking.
2. Section 10 28 13 "Toilet Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories mounted on toilet compartments.

1.2 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 toilet compartments.

B. Shop Drawings: For toilet compartments.

1. Include plans, elevations, sections, details, and attachment details.
2. Show locations of cutouts for compartment-mounted toilet accessories.
3. Show locations of centerlines of toilet fixtures.
4. Show locations of floor drains.
5. Show ceiling grid, and overhead bracing locations.

C. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:

1. Each type of material, color, and finish required for toilet compartments, prepared on 6-inch- (152-mm-) square Samples of same thickness and material indicated for Work.
2. Each type of hardware and accessory.

D. Product Schedule: For toilet compartments, prepared by or under the supervision of supplier, detailing location and selected colors for toilet compartment material.

1.3 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of toilet compartment.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For toilet compartments to include in maintenance manuals.

1.5 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 and source.

1. Door Hinges: One hinge(s) with associated fasteners.
2. Latch and Keeper: One latch(es) and keeper(s) with associated fasteners.
3. Door Bumper: One bumper(s) with associated fasteners.
4. Door Pull: One door pull(s) with associated fasteners.
5. Fasteners: Ten fasteners of each size and type.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication. Show field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. 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: 25 or less.
2. Smoke-Developed Index: 450 or less.

B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for toilet compartments designated as accessible.

2.2 SOLID-PLASTIC TOILET COMPARTMENTS

A. Manufacturers: Subject to compliance with requirements, provide Class A toilet compartment products by one of the following:

1. AJW Architectural Products.
2. American Sanitary Partition Corporation.
3. Columbia Lockers; Partition Systems International of South Carolina.
4. General Partitions Mfg. Corp.
5. ~~Metpar Corp.~~**Scranton Products**

B. Toilet-Enclosure Style: Floor-supported, overhead or ceiling braced.

1. Extend pilasters from floor to ceiling assembly.

C. Door, Panel, Screen, and Pilaster Construction: Solid, high-density polyethylene (HDPE) panel material, not less than 1 inch (25 mm) thick, seamless, with eased edges, no-sightline system, and with homogenous color and pattern throughout thickness of material.

1. Integral Hinges: Configure doors and pilasters to receive integral hinges.
2. Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum or stainless-steel strip fastened to exposed bottom edges of solid-plastic components to hinder malicious combustion.
3. Color and Pattern: As selected by Architect from manufacturer's full range.

D. Pilaster Shoes and Sleeves (Caps): Manufacturer's standard design; stainless steel.

E. Brackets (Fittings):

1. Full-Height (Continuous) Double-Ear Type: Manufacturer's standard design; stainless steel.

2.3 HARDWARE AND ACCESSORIES

A. Hardware and Accessories: Manufacturer's heavy-duty operating hardware and accessories.

1. Hinges: Manufacturer's minimum 0.062-inch- (1.59-mm-) thick stainless-steel continuous, cam type that swings to a closed or partially open position, allowing emergency access by lifting door. Mount with through-bolts.
2. Latch and Keeper: Manufacturer's heavy-duty surface-mounted cast-stainless-steel latch unit designed to resist damage due to slamming, with combination rubber-faced door strike and keeper, and with provision for emergency access. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible. Mount with through-bolts.
3. Coat Hook: Manufacturer's heavy-duty combination cast-stainless-steel hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories. Mount with through-bolts.
4. Door Bumper: Manufacturer's heavy-duty rubber-tipped cast-stainless-steel bumper at out-swinging doors. Mount with through-bolts.
5. Door Pull: Manufacturer's heavy-duty cast-stainless-steel pull at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible. Mount with through-bolts.

B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.

C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless-steel, hot-dip galvanized-steel, or other rust-resistant, protective-coated steel compatible with related materials.

2.4 MATERIALS

A. Aluminum Castings: ASTM B 26/B 26M.

B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M).

C. Brass Extrusions: ASTM B 455.

D. Stainless-Steel Sheet: ASTM A 666, Type 304, stretcher-leveled standard of flatness.

E. Stainless-Steel Castings: ASTM A 743/A 743M.

F. Zamac: Not permitted.

2.5 FABRICATION

A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.

B. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.

C. Door Size and Swings: Unless otherwise indicated, provide 24-inch- (610-mm-) wide, in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide, out-

swinging doors with a minimum 32-inch- (813-mm-) wide, clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for fastening, support, alignment, operating clearances, and other conditions affecting performance of the Work.

B. Confirm location and adequacy of in-wall blocking and supports required for installation of the following items and applications:

1. Toilet partitions, pilasters, and urinal screens.
2. Brackets for overhead bracing.
3. Impact zone of toilet partition door stops.

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

3.2 INSTALLATION

A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.

1. Maximum Clearances:

a. Pilasters and Panels: 1/2 inch (13 mm).
b. Panels and Walls: 1 inch (25 mm).

2. Full-Height (Continuous) Brackets: Secure panels to walls and to pilasters with full-height brackets.

a. Locate bracket fasteners so holes for wall anchors occur in masonry or tile joints.
b. Align brackets at pilasters with brackets at walls.

B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches (44 mm) into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners.

1. Hang doors to align tops of doors with tops of panels, and adjust so tops of doors are parallel with overhead brace when doors are in closed position.

3.3 ADJUSTING

A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION

SECTION 10 73 17

METAL SHADE CANOPIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Design, engineer, fabricate, supply, deliver, and install manufactured extruded aluminum shade canopies, foundations, aluminum plate panels, framing, shade foils, reinforcing, and cantilevered structural attachment to vertical surfaces.

B. See Section 10 73 26 “Walkway Coverings” for free-standing canopies.

1.2 COORDINATION

A. Coordinate sizes and locations of base plates anchored into concrete footings.

B. Supply inserts and anchoring devices for building into concrete and instruct other trade of proper location and position.

1.3 SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and description of finishes for aluminum members.

B. Shop Drawings: Include plans, elevations, sections, details, accessories, and fastening and anchorage details, including mechanical fasteners and foundations.

1. Foundations: Plans and sections.
2. Column Anchorage Plans: Submit anchorage plans and templates.
3. Framing Drawings: Show complete fabrication of canopy framing. Indicate welds and bolted connections.
4. Include section module of wind loadbearing members, calculations for stresses and deflections under design loading.

C. Samples for Verification: Submit 12 inch (305 mm) long section with finish of aluminum canopy in thickness indicated.

1.4 INFORMATIONAL SUBMITTALS

A. Delegated Design Submittal: Submit analysis data indicating compliance with performance requirements and design data signed and sealed by the qualified professional engineer responsible for their preparation.

B. Research/Evaluation Reports: ICC-ES reports for post installed anchors.

C. Qualification Data: For fabricator and installer.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Welding: Qualify procedures and personnel according to the following:

a. AWS D1.2/D1.2 M Structural Welding Code - Aluminum.

b. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

B. Manufacturer Qualifications: A qualified manufacturer with at least 15 years' experience in the design, engineering, manufacturing, and installation of shade structures.

1. Engineering Responsibility: Preparation of comprehensive engineering analysis and Shop Drawings by a professional engineer who is legally qualified and licensed to practice in jurisdiction where Project is located.

C. Erector / Installer Qualifications: An experienced erector having minimum 10 years' documented experience, and who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is approved by canopy manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver canopy components to prevent damaged or deformation. Package metal canopy for protection during transportation and handling.

B. Unload, store, and erect metal canopy components to prevent bending, warping, twisting, and surface damage.

C. Set metal canopy horizontally on platforms or pallets, covered with weathertight and ventilated covering. Store to ensure dryness, with positive slope for drainage of water. Do not store metal canopy in contact with materials that stain, dent, or cause surface damage.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify location and elevation of footings relative to finished grade, columns, and adjacent construction contiguous with manufactured canopy by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the work, establish dimensions and proceed with fabricating metal canopies without field measurements.

1.8 WARRANTY

A. Metal Canopy Finishes: Written warranty signed by manufacturer in which manufacturer agrees to repair finish or replace metal canopy components that show evidence of deterioration of factory applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Entry Canopies, Cantilevered Design, by AVAdek.

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

1. Austin Mohawk and Company, Inc.
2. Mapes Canopies, LLC.
3. Peachtree Protective Covers.
~~3.~~**4. Architectural Fabrications**

C. Source Limitations: Obtain exterior manufactured canopy and components from a single manufacturer.

D. Subject to compliance with requirements, provide products and services from the basis of design manufacturer, or from another manufacturer with comparable experience; comparable history of successful projects; turn-key design, fabrication, and installation capabilities; and follow-up maintenance service; as determined and approved by the Architect.

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design shade canopy system and foundations.

B. Structural Performance: Metal canopy shall withstand the effects of gravity loads and the indicated loads and stresses within limits and under conditions indicated.

1. Wind Loads: Determine wind loads based on minimum design speed indicated:

a. Design Wind Speed: As indicated on Drawings.
b. Exposure: As indicated on Drawings.
c. Wind Pressures: As calculated based on design wind speed.

2. Point Loads: 300 pounds or 20 pounds per square foot.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 degrees F (67 degrees C), ambient; 180 degrees F (100 degrees C), material surfaces.

2.3 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish specified

1. Aluminum Extrusions: ASTM B 221, alloy 6063-T5 or T-52

a. Thickness: Thickness necessary to comply with design calculations.

2. Aluminum Sheet: ASTM B 209, alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish.
3. Aluminum Castings: ASTM B 26/B 26M, alloy 319.

B. Framing: Extruded aluminum tube columns and beams for structural support, sized to comply with design calculations and withstand required loads.

1. Columns: Shape and size as indicated on Drawings.
2. Beams: Shape and size as indicated on Drawings.

3. Elliptical Sunshade Louvers: Shape and size as indicated on Drawings.
4. Sub-Framing: Provide additional members as required to support electrical service and junction boxes for lights and ceiling fan. Conceal conduit inside of columns, beams, and elliptical louvers.
5. Weatherproof Cover: Provide minimum 18 inches by 18 inches (457 mm by 457 mm) aluminum sheet of same material, thickness, and finish as canopy members, mounted to top of framing above ceiling fan location.

C. Perforated Aluminum Panels: Aluminum panels, 3/8-inch thick, with perforation pattern as selected by Architect.

1. Fasteners: Self-taping screws for attaching panels to steel framing.

D. Wood Look Louvers: 2 by 4 inch "trellis tube", spaced 6 inches O.C.

1. AAMA 2605 FEVE powder coating.
2. Color: As selected by Architect.

E. Fasteners: Of same basic metal and alloy as fastened metal or 300 series stainless steel, unless otherwise indicated. Do not use metals incompatible with joined materials.

1. Use type and size suitable for installation conditions.
2. Use Phillips flat head screws for exposed fasteners, unless otherwise indicated.

F. Anchors and Inserts: Stainless steel, of type and size required for loading and installation indicated.

G. Bituminous Paint: Cold applied asphalt mastic complying with SSPC-Paint 12 but containing no asbestos fibers, or cold applied asphalt emulsion complying with ASTM D 1187.

2.4 FABRICATION

A. Configuration: Custom, as indicated on Drawings.

B. Comply with indicated profiles, dimensioned requirements and structural requirements.

C. Use sections true to details with clean, straight, sharply defined profiles and smooth surfaces of uniform color and texture, free from defects impairing strength and durability.

D. Coordinate dimensions and attachment methods of aluminum canopy with those of adjoining construction to produce integrated assemblies with closely fitting joints and with edges and surfaces aligned unless otherwise indicated.

E. Form metal to profiles indicated, in maximum lengths to minimize joints. Produce flat, flush surfaces without cracking or grain separation at bends.

F. Coordinate location of penetrations for fire suppression system piping and electrical conduit concealed inside of columns, beams, and elliptical louvers.

G. Bolted Connections: All bolts, nuts, washers, and screws used in joining the members shall be stainless steel up to 3/8” diameter. Over 3/8” diameter may be hot-dipped galvanized.

1. Fasten blades to structure with concealed stainless steel screws.

2.5 FINISHES

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

B. Aluminum Finishes: Finish designations prefixed by AA comply with system established by the Aluminum Association for designating aluminum finishes.

1. Two Coat Mica Fluoropolymer: AAMA 2605. FEVE powder coating or liquid applied PVDF mica fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

a. Pretreat aluminum with chromium phosphate based pretreatment.

2. Color and Gloss: As selected by Architect.
3. Apply a coat of bituminous paint to concealed aluminum surfaces in contact with cementitious or dissimilar materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions for compliance with requirements for installation tolerances, metal canopy supports, and conditions affecting performance of the work.

1. Examine framing to verify that angles, channels, studs, and structural panel support members and anchorage have been installed within alignment tolerances required by manufacturer.

B. Examine embedded supports for components and system to verify actual locations of penetrations relative to seam locations of metal canopy before installation.

C. Proceed with installation after correcting unsatisfactory conditions.

3.2 INSTALLATION

A. Design and provide foundations to suit canopy requirements based on loads listed in Structural Drawings for site.

B. Install metal canopy in accordance with manufacturer’s written instructions on prepared concrete slabs and foundations.

C. Install metal canopy plumb and level. Anchor metal canopy and components securely in place, with provisions for thermal and structural movement.

1. Install screw fasteners in predrilled holes.
2. Locate and space fastenings in uniform vertical and horizontal alignment.

D. Fasteners:

1. Aluminum Framing: Use stainless steel fasteners.

E. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

3.3 CLEANING AND PROTECTING

A. Remove temporary protective coverings and strippable films, if any, as metal canopy is installed unless otherwise indicated in manufacturer's written installation instructions. On completion of installation, clean finished surfaces as recommended by metal canopy manufacturer. Maintain in a clean condition during construction.

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

C. 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.

D. Replace metal canopy components damaged or deteriorated beyond repair.

E. Protect finishes from damage during remainder of construction period. Remove temporary protective coverings at time of Substantial Completion.

END OF SECTION

SECTION 10 73 26

WALKWAY COVERINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Design, engineering, fabrication, supply, delivery, and installation of complete walkway cover system, including the following:

1. Walkway cover foundation system, including excavation and backfill.
2. Framing, decking, reinforcing, structural anchors, integral gutters and drains, accessories, and attachments.

1.2 COORDINATION

A. Supply inserts and anchoring devices for building into concrete and instruct other trade of proper location and position.

B. Coordinate excavation, construction of concrete foundations, backfilling, and erection of structural steel framing with subgrade preparation and grading operations required for placement of cast-in-place concrete paving.

C. Coordinate sizes and locations of concrete foundations and casting of anchor-bolt inserts into foundations. Anchor bolt installation, concrete, reinforcement, and formwork requirements are specified in Section 03 15 19 "Cast-in Anchors and Embeds."

1. For concrete foundations, comply with provisions of Section 03 30 13 “Concrete Footings.”

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site. Review methods and procedures related to shade walkway cover system, including but not limited to the following:

1. Construction of foundations and other preparatory work.
2. Methods and procedures related to erection of walkway cover system.
3. Methods and procedures related to installation of metal deck.
4. Interface with existing walkway covers.
5. Required tests, inspections, and certifications.
6. Construction schedule. Verify availability of materials and erector's personnel, equipment, and facilities needed to make progress and avoid delays.
7. Temporary protection requirements for walkway cover system during and after installation.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, description of finishes, and field installation instructions.

B. Shop Drawings: Include plans, elevations, sections, details, accessories, and fastening and anchorage details, including mechanical fasteners, and attachment to other work.

1. Indicate foundations, footings, and structural supports of walkway cover, including reinforcing, supplementary framing, and temporary structural supports.

C. Samples for Initial Selection: For units with factory-applied finishes:

1. Frame Finish: Color chart showing full range of colors available.

D. Samples for Verification: For the following products:

1. Samples: Submit 12 inches (305 mm) long section with finish of corrugated aluminum roof panel, gutters, and posts.
2. Submit samples of interlocking deck joint, roof deck expansion joint, welded column or beam corner, beam cap, and rain cap.
3. Frame Finish: Minimum 6-inch (150 mm) lengths in selected color.

1.5 INFORMATIONAL SUBMITTALS

A. Delegated-Design Submittal: For walkway cover structure and foundation systems.

1. Include analysis data indicating compliance with performance requirements and design data signed and sealed by the qualified professional engineer responsible for their preparation.

B. Qualifications Data: For fabricator and installer.

C. Welding certificates.

D. Mill test reports for structural-steel materials, including chemical and physical properties.

E. Design Mixtures: For concrete mixture employed for walkway cover foundations.

F. Evaluation Reports:

1. Research Reports: For post-installed anchors, from ICC-ES.

G. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Welding: Qualify procedures and personnel according to the following:

a. AWS D1.1/D1.1M Structural Welding Code - Steel.
b. AWS D1.2/D1.2 M Structural Welding Code - Aluminum.
c. AWS D1.6/D1.6M Structural Welding Code - Sheet Steel.
d. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

B. Manufacturer Qualifications: A qualified manufacturer with at least 15 years' experience in the design, engineering, manufacturing, and installation of shade structures.

1. Engineering Responsibility: Preparation of comprehensive engineering analysis and Shop Drawings by a professional engineer who is legally qualified and licensed to practice in jurisdiction where Project is located.

C. Installer Qualifications: An experienced erector having minimum 10 years' documented experience, and who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project, and that employs installers and supervisors who are trained and approved by manufacturer.

D. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.

1. Build mockups of typical corner section of walkway covers including structure, deck, fascia, rain drainage, and finishes.
2. 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. Deliver components packaged and wrapped to prevent damaged or deformation. Package walkway cover for protection during transportation and handling.

B. Unload, store, and erect walkway cover components to prevent bending, warping, twisting, and surface damage.

C. Set walkway cover components horizontally on platforms or pallets, covered with weathertight and ventilated covering. Store to ensure dryness, with positive slope for drainage of water. Do not store walkway cover components in contact with materials that stain, dent, or cause surface damage.

1.8 FIELD CONDITIONS

A. Field Measurements: Verify location and elevation of footings relative to finished grade, columns, and adjacent construction contiguous with walkway cover by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the work, establish dimensions and proceed with fabricating walkway cover without field measurements.

1.9 WARRANTY

A. Walkway Cover Finish: Written warranty signed by manufacturer in which manufacturer agrees to repair finish or replace walkway cover components that show evidence of deterioration of factory applied finishes within specified warranty period.

1. Exposed Metal Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design metal walkway cover system and foundations.

B. Structural Performance: Metal walkway cover shall withstand the effects of gravity loads and the indicated loads and stresses within limits and under conditions indicated.

1. Design Loads: As indicated on Structural Drawings.
2. Ultimate Design Wind Speed: As indicated on Structural Drawings

3. Nominal Design Wind Speed: As indicated on Structural Drawings
4. Wind and Snow Loads: As indicated on Structural Drawings.
5. Design structural members to comply with deflection criteria no greater than L/180.
6. Design footings for maximum soil bearing pressure as indicated in Civil Drawings.

C. Seismic Performance: Capable of withstanding the effects of earthquake motions determined according to ASCE/SEI 7.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 degrees F (67 degrees C), ambient; 180 degrees F (100 degrees C), material surfaces.

E. Electrical Devices: Devices UL listed with wiring bearing UL classification and conforming to the current NEC,

2.2 MANUFACTURERS

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

1. Avadek Walkway Cover Systems.
2. American Walkway Covers, LLC.
3. Mapes Industries.
4. Sightline Commercial Solutions
5. US Sunguard.
6. **Architectural Fabrications**

B. Source Limitations: Obtain walkway cover and associated components and accessories from a single manufacturer.

2.3 WALKWAY COVER FRAMING MATERIALS

A. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements.

1. Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide frame span and spacing indicated.
2. Slight variations in span and spacing may be acceptable if necessary to comply with manufacturer's standard, as approved by Architect.

2.4 ALUMINUM MATERIALS

A. Roof Beams: 4-inch by 6-inch (100 mm by 150 mm), 4-inch by 8-inch (100 mm by 200 mm), and 6-inch by 10-inch (250 mm) extruded aluminum channel beams providing structural support and conductance for rainwater.

B. Columns: 6-inch by 10-inch (150 mm by 250 mm) extruded aluminum tubular posts 0.125 inch (3 mm) thick.

C. Aluminum Panel: Extruded aluminum, alloy 6063-T6, 0.078-inch (22 mm) thick, nominal 2-3/4 inch by 6 inches (70 mm by 150 mm) channel with interlocking joints to form corrugated roof deck panels.

D. Gutter and Fascia: Extruded aluminum alloy 6063-T6 0.125 inch (3mm) thick, nominal 3 inch (75 mm).

2.5 STEEL MATERIALS

A. Architecturally Exposed Structural Steel: Where exposed steel members are shown on Drawings provide metal fabrications comply with Work of Section 05 50 00 with joints, bolted connections, and welds complying with requirements of ANSI/AISC 303 for AESS Category 1.

1. Cold Rolled Steel Sheet: ASTM A 1008/A, Commercial Steel (CS), Type B.
2. Zinc Coated (Galvanized) Steel Sheet: ASTM A 653/A, commercial quality, G90 (Z275) coating designation; mill phosphatized.
3. Steel Tubing: ASTM A 513, welded steel mechanical tubing.

2.6 CONCRETE MATERIALS

A. Prepare design mixtures for each type and strength of concrete, proportioned based on laboratory trial mixture or field test data, or both, in accordance with ACI 301 (ACI 301M).

1. Minimum Compressive Strength: As required by design, but not less than 3000 psi (20.7 MPa) at 28 days.
2. Slump Limit: 4 inches (102 mm), plus or minus 1 inch (25 mm).

B. Concrete Mixtures: Provide one of the following:

1. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M, and furnish batch ticket information.
2. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete in accordance with ASTM C94/C94M. Mix concrete materials in appropriate drum-type batch machine mixer.

a. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

2.7 MISCELLANEOUS MATERIALS

A. Fasteners: Stainless steel, of type and size required for loading and installation indicated.

B. Bituminous Paint: Cold applied asphalt mastic complying with SSPC-Paint 12 but containing no asbestos fibers, or cold applied asphalt emulsion complying with ASTM D 1187.

C. Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and non-staining, mixed with water to consistency suitable for application and a 30-minute working time. Provide grout specifically recommended by manufacturer for exterior applications.

2.8 FABRICATION, GENERAL

A. Design components and field connections required for erection to permit easy assembly.

1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instructions.
2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.

2.9 FABRICATION OF WALKWAY COVER FRAME

A. Configuration: Refer to Drawings.

B. Factory fabricate walkway cover components for field assembly. Include necessary attachment devices and accessories.

1. End Closures: Welded at cover terminations.

C. Rain Drainage: Fabricate framing system to drain water from fascia gutter, to support columns, and provide discharge spouts for designated columns at ground level.

D. Apply protective coating to aluminum in contact with grout.

2.10 FINISH

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

B. Aluminum Finishes:

1.

2. Two Coat Mica Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
3. Color and Gloss: As selected by Architect.

C. Steel, Panels, and Accessories:

1. Two Coat Mica Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
2. Concealed Steel Items: Galvanized in accordance with ANSI/ASTM A 123 to 2.0 oz/sq.ft..

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions for compliance with requirements for installation tolerances, walkway cover supports, and conditions affecting performance of the Work.

1. Examine framing to verify that angles, channels, studs, and structural panel support members and anchorage have been installed within alignment tolerances required by manufacturer.
2. Examine walkway cover deck panels to verify that joints are supported by framing or blocking and that installation is within flatness tolerances required by manufacturer.

B. Examine embedded supports for components and system to verify actual locations of penetrations relative to seam locations of walkway cover before installation.

C. Survey elevations and locations of concrete-bearing surfaces and locations of anchor rods, bearing plates, and other embeds to receive structural framing, with erector present, for compliance with requirements and walkway cover system manufacturer's tolerances.

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

3.2 PREPARATION

A. Erect walkway cover after concrete and masonry work in vicinity is completed and washed down.

B. Provide temporary shores, guys, braces, and other supports during erection to keep structural framing secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural framing, connections, and bracing are in place unless otherwise indicated.

C. Apply a coat of bituminous paint to concealed aluminum surfaces in contact with cementitious or dissimilar materials.

3.3 INSTALLATION

A. Erect shade walkway cover framing according to manufacturer's written instructions and approved Shop Drawings.

B. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

C. Do not field cut, drill, or alter structural members without written approval from walkway cover system manufacturer's professional engineer.

D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

E. Set posts at no greater than 10 feet (3.1 m) on center in concrete footings. Ensure drainage is constructed so standing water will not discharge at downspout post bottoms.

F. Erect walkway cover in accordance with manufacturer's instructions including related flashings, concealed gutters and drains, fasteners, hardware, sealants and material necessary for complete weathertight installation.

G. Align and adjust various members that form part of complete frame or structure before permanently fastening. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.

H. Weld beams and columns either into one piece rigid bents or shop build as mechanical joint. Install structural ties in tops of beams for rigidity and to serve as closures between draining deck sections.

I. Interlock sections in structural unit with joint fabricated into rigid shape which is self-flashing. Fasten interlocking joints rigidly with fastenings 8" on center. Assemble roof deck on simple spans of 15 feet (5m) or more with camber sufficient to neutralize deflection caused by dead load of material and to provide positive drainage from center of deck. No protruding ribs on underside of deck are permissible.

J. Form expansion joints with no metal to metal contact between deck and beam or clamps.

K. Fill downspout columns with grout to discharge level to prevent standing water. Vibrate with small rod to fill voids. Install downspout deflectors after grouting.

3.4 REPAIR

A. Touchup Painting:

1. Immediately after erection, clean exposed areas where primer is damaged or missing, and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

B. Galvanizing Repair: ASTM A780.

C. Replace walkway cover components damaged or deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

3.5 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films as walkway cover is installed unless otherwise indicated in manufacturer's written installation instructions. On completion of installation, clean finished surfaces as recommended by manufacturer. Maintain in a clean condition during construction.

B. Damaged Units: Replace damaged and deteriorated components that cannot be successfully repaired or touched up.

C. Cleaning: Remove protective coverings at time in project construction sequence that provide greatest protection of Work. Clean finished surfaces to comply with recommendations of manufacturer.

D. Protection: Protect completed work ensuring fabric structure will be without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 11 30 00

APPLIANCES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Commercial washing machine and clothes dryer, and undercounter ice maker.
2. Residential refrigerator/freezer
3. Undercounter refrigerator.

1.2 ACTION SUBMITTALS

A. Product Data: Submit descriptive literature, rough-in requirements, installation instructions and maintenance instructions for each type of appliance accepted.

1.3 QUALITY ASSURANCE

A. Energy Ratings: Provide residential appliances that carry labels indicating energy cost analysis (estimated annual operating costs) and efficiency information as required by the FTC Appliance Labeling Rule.

1. Provide appliances that qualify for the EPA/DOE ENERGY STAR product labeling program.

1.4 PRODUCT HANDLING

A. Deliver products to project site in manufacturer's undamaged protective containers, after utility rough-ins are complete and construction is substantially complete and ready for installation.

1.5 WARRANTY

A. Ice Maker:

1. Compressor and Condenser: Five years.
2. All Other Parts and Labor: Three years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design Appliance Manufacturers:

1. Speed-Queen.
2. Manitowac.
3. Whitehall Manufacturing
4. General Electric

B. Substitutions: Comply with Section 01 25 00.

2.2 APPLIANCES

A. Residential Refrigerator/Freezer:

1. Capacity: 18 cubic feet with top freezer ~~and integral ice maker~~.

2. Provide lockable units in clinics

B. Refrigerator, Undercounter:

1. Capacity: 5.6 cubic feet total with 0.49 cubic feel freezer capacity
2. ADA compliant

C. Washer/Extractor: Softmount washer/extractor with vibration isolation. Inverter drive provides low energy use, high extraction speed, and reduced vibration.

1. Capacity: 70 pounds
2. Nominal Washer Speed: 42 RPM
3. Nominal Extractor Speed: 915 RPM
4. Color: Stainless steel
5. Power: 200-240V/60 Hz/ single phase
6. Nominal Dimensions: 38.1 W by 46.65 D by 55.51 H inches
    a. Door bottom to floor: 18.7 inches
    b. Door Opening: 18.1 inches
7. Basis of Design: Model SYN-070 as manufactured by Speed Queen by Alliance Laundry Systems, LLC.
8. Unit does not bolt to floor; provide with vibration isolation and suspension features.

D. Commercia Clothes Washing Machine: 60 pound capacity

1. Motor: 3 HP
2. Cylinder Volume: 9 cubic feet.
3. Color: Stainless steel
4. Power: 200-240V/50-60 Hz/ single phase
5. Nominal Dimensions: 34.1 W by 44.7 D by 49.9 H inches
    a. Door bottom to floor: 14.9 inches
6. Basis of Design: Model SCT060 Hardmount Washer Extractor by Speed Queen

E. Ice Maker, Undercounter:

1. Unit height, plus levelers: 31.5 inches (80 cm).
2. Maximum undercounter clearance available: Less than 2’-10”
3. Basis of Design, Model: Sotto Series UG-50 Ice Machine with levelers, as manufactured by Manitowoc.
    a. Ice Production, Daily: 125 pounds (57 kg)
    b. Ice Storage Capacity: 55 pounds (25 kg)

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install in accordance with manufacturer's recommendations and written instructions.

B. Securely anchor units to supporting cabinets or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and rough openings are completely concealed.

3.2 ADJUSTING

A. Test each item of equipment to verify proper operation. Make necessary adjustment.

3.3 CLEANING

A. Remove packing material from equipment items and leave units in clean condition, ready for operation.

END OF SECTION

SECTION 11 40 00

FOODSERVICE EQUIPMENT

PART 1 - - GENERAL

WORK INCLUDED:

The work covered includes the furnishing of all labor, materials, accessories, and special services necessary to complete the Foodservice Equipment Work as specified herein and where shown and scheduled on the drawings.

It is the intent of the Contract Documents for each and every item and/or component to be complete with all necessary devices for the Item and/or component to properly function and perform in a manner equal to the manufacturer's stipulations.

The applicable provisions of Division 22 and 26 are a part of this specification; the Contractor shall consult them in detail for instructions pertaining to this work, together with all other Divisions relative hereto.

The work shall include, but not be limited to, the following:

1. The purchase and/or fabrication, delivery, unpacking and setting up of all items in the correct locations and make ready for final utility connections.

2. Removal and disposal of all crating and packing materials.

3. Furnishing Division 26 with all controls for items requiring electrical connections including as hereinafter noted, or shown on the Contract Drawings.

4. Furnishing Division 22 with the control valves, pressure reducing valves, faucets, and specialty fittings as hereinafter noted, or shown on the Contract Drawings.

5. Supervising the mechanical and electrical connections and testing each item for performance, and the replacement of any item, which fails to perform as claimed by the manufacturer.

6. Start-up and Demonstrations are to be conducted in the proper operation and maintenance of each piece of equipment by Manufacturer’s Representative and Equipment Supplier. When possible and available by the manufacturer, training videos are to be provided at no charge to the Owner.

RELATED WORK SPECIFIED ELSEWHERE:

All plumbing, electrical and ventilation work required in connection with this equipment will be done by Contractors under Division 22 and 26 unless specifically called for otherwise in the Item Specifications. The work to be done by these Contractors shall include roughing-in to points indicated on dimensioned utility requirements rough-in plans, mounting of trim items such as faucets, sink wastes, pre-rinse sprays, syphon breakers, and the final connecting from the roughing-in point to the various pieces of equipment requiring such connections, and the supplying of all necessary materials and labor for this work except as hereinafter noted.

Refrigeration work shall be done by the Food Service Equipment Supplier as hereinafter listed in the Item Specifications, except for electrical and plumbing connections to compressors, blower coils, controls, etc. These final connections will be made by Contractors under Divisions 22 and 26. Drain lines from Walk-In Cooler/Freezer blower coils and heat tap on freezer drain to be furnished and installed by Refrigeration System Installer.

All traps, grease traps, line strainers, valves, stops, shut-offs and fittings necessary for equipment specified will be furnished and installed under the Mechanical Contractors under Division 22, unless specifically called for otherwise under each item.

All line and disconnect switches, safety cut-offs and fittings, convenience outlets, outlet boxes, wiring, conduit, control panels, fuse boxes or other electrical controls, fittings and connections will be furnished and installed under Electrical Contractors under Division 26. Starting switches are to be provided by the Food Service Equipment Supplier. Those starting switches furnished loose as standardized by Food Service Equipment Manufacturers (other than fabricated items) shall be mounted and wired complete by Contractors under Division 26.

Any sleeves or conduit required for installation of refrigeration lines, syrup lines or CO_2 tubing will be furnished and installed by Mechanical Contractors under Division 22.

Necessary stainless steel seamless exhaust ducts of size and capacity required to operate fixtures specified, together with final approved connection between roughed-in vent openings and the ceiling connection will be furnished and installed by Food Service Equipment Supplier unless otherwise noted in the Itemized Specifications.

Ventilating fans and all duct work between same and the exhaust hood duct collars and from same to discharge opening in building will be furnished and installed by Contractors under Division 22.
Division 22 Contractor is to see that all plumbing lines are flushed free of foreign matter before connecting to foodservice fixtures.

Water inlets shall be located above the positive level to prevent syphoning of liquids into the potable water system. Wherever conditions shall require submerged inlet, a suitable approved type of check valve, vacuum breaker and/or RPZ shall be placed on the fixture by the Contractor under Division 22 to form part of same to prevent syphoning. If exposed and design dictates, piping and fittings shall be chrome plated.

Contractor under Division 26 shall inter-wire fire protection system, walk-in coolers and freezers, exhaust ventilators, lights, exhaust fans, as required for complete operation as designed, and furnish wall mounted light and exhaust fan switches.

QUALITY ASSURANCE:

Qualification of Suppliers: Commercial foodservice equipment suppliers shall submit satisfactory evidence of compliance with the following qualifications and conditions to be approved.

Successful completion of jobs of comparable scope.

Have manufacturer's authorization to distribute and install specified factory items of equipment.

Maintain a permanent staff experienced in the installation of foodservice equipment and preparation of professional style shop drawings and brochures.

Maintain or have access to fabrication shop meeting all requirements of the section “Qualified Fabricators”.

Maintain or have access to a readily available stock of repair and replacement parts, together with authorized service personnel.

Operation/Maintenance Manuals: Foodservice equipment supplier shall furnish three (3) bound sets (unless specified otherwise by Division 1) of dimensional prints, data sheets, spare parts lists, and operating instructions for each piece of mechanical equipment. These are to be prepared and submitted to the Consultant for review and approval before demonstration of equipment to the Owner.

All brochures shall be bound in hard durable covers bearing the job name and date of submission.

PLANS AND SPECIFICATIONS:

Specifications and drawings have been prepared to form the basis for procurement, erection, start-up and adjustment of all equipment in this contract. Plans and specifications shall be considered as mutually explanatory and work required by one, but not by the other, shall be performed as though required by both. Items required by one, but not by the other should be provided as though required by both. Work shall be accomplished as called for in specifications and shown on drawings, so that all items of equipment shall be completely functional for purpose for which they were designed. When there is any discrepancy between drawings and specifications, bidders should seek clarification of any discrepancies from the Architect/Consultant prior to bidding.

Should the drawings disagree in themselves, or the specifications with the drawings, the better quality, more stringent, and/or greater quantity of the work or materials shall be completed without additional costs to the Owner.

SUBMITTALS:

Submittals shall be sent to the General Contractor/Construction Manager for review, coordination and processing completely in Adobe PDF format with one (1) printed copy for the consultant. Submittals shall be complete including all drawings and documentation necessary for a complete review. Partial submittals will not be accepted. This submittal is to be within terms set by Architect and to coincide with job conditions and is to include the following items:

A. Equipment arrangement plan

B. Plumbing plan

C. Electrical plan

D. Ventilation plan

E. Special conditions plan

F. Shop drawings

All drawings to be original prepared detailed arrangement plans from Architect's dimensioned plans (not reproduced from the Food Service Contract Documents) and rough-in plans showing dimensioned locations, sizes, elevations and capacities of all utility services required for each item of equipment. Also, provide utilities listed per Contract Documents for general use. All responsibility for correct voltage, locations, capacities and quantities of all utility services resides with the Food Service Equipment Supplier in the preparation of these submittals.

Items A through E above shall be prepared at ¼" to 1'-0" scale.

Item F shall be prepared 3/4" to 1'-0" scale with sections at 1-1/2" to 1'-0" scale.

It is advised that Foodservice Equipment not be ordered until submittals have been reviewed and stamped by Foodservice Equipment Consultant.

Product data brochures complete with:

Cover Page listing name of project, Architect, General Contractor/Construction Manager, Food Service Equipment Consultant and Food Service Equipment Supplier and bound in loose-leaf manner such as three ring binder or spiral back brochure.

Index of Items.

Individual descriptive cover sheet to include Item #, manufacturer, description, accessories and options, finishes, and notes for Architect/Owner to select any color, finish, lettering etc. required. Include color charts if color selection is required.

Manufacturer specification sheet complete with dimensions, options, and complete description of utility options and requirements.

For custom fabricated items, list name of Qualified Fabricator selected for project.

Cover sheet must be included for Items that are Owner or Vendor furnished and Spare Numbers.

Buy out items such as walk-in cooler/freezer, exhaust hood, sneeze guards, serving counters, and floor troughs shall be prepared on sheet sizes and in the same manner as custom fabricated equipment.

All data shall be submitted in quantities as described in Division 1.

PRODUCT DELIVERY, STORAGE AND HANDLING:

Delivery: Equipment shall be delivered only after the building is weather and vandal safe.

Storage: Store equipment in an area convenient to the point of installation in such a way that it can be protected from the weather and job hazards.

Protection: Wrapping and protective coverings shall remain on all items until ready for use and in the case of stainless steel items, until installation is complete and the job is ready for cleaning.

JURISDICTION TRADE AGREEMENTS AND RESTRICTIONS:

Include the work specified, shown or reasonably inferable as part of foodservice equipment. Portions of this work may be sub-contracted to those qualified to do such work, as may be necessary because of jurisdictional trade agreements and restrictions.

REGULATIONS AND CODES:

In addition to complying with applicable laws, statutes, building codes and regulations of local public authorities, comply with the following:

National Sanitation Foundation (to bear label)

Underwriters' Laboratories, Inc.

American Gas Association Laboratories

National Fire Protection Association

Occupational Safety and Health Act

Americans with Disabilities Act

Texas Accessibility Standards

Current Applicable Building Code

Current Applicable Plumbing Code

Current Applicable Mechanical Code

Current Applicable Electrical Code

WARRANTIES:

Warrantee in writing all equipment and fabrication against defects and workmanship for a period of one (1) year from date of acceptance.

Each piece of mechanical equipment shall be listed, together with the authorized service and repair agency, which the Owner should call should malfunctions occur within the one (1) year guarantee period.

Refrigeration system compressors shall be CFC free and warranted for five (5) years by the manufacturer. Free refrigeration service, including parts and labor, to be furnished for one (1) year from date of acceptance.

PART 2 – - PRODUCTS

MATERIALS:

Refrigeration Systems: Self-contained refrigerators: Whether the units are top mounted or cabinet mounted, they shall be started by Food Service Equipment Supplier and shall be tested for maintenance of temperature.

Fractional-horsepower compressors remotely installed within a fabricated closed base body fixture shall be located in a partitioned compartment fitted with a louvered door. The compressor shall be securely anchored to #14 gauge galvanized steel channels positioned 4" above the bottom of the fixture body and fitted with sound absorbing isolation pads.

A cord and cap assembly pre-wired to a control switch installed near the front of the compressor compartment shall be provided.

MOTORS AND HEATING ELEMENTS:

Motors: Up to and including 1/2 H.P. shall be wired for 120 volt, single-phase service. Motors larger than 1/2 H.P. shall be wired for 208 volt, single or three phase as indicated.

Heating elements having a connected load up to and including 1000 watts shall be wired for 120 or 208 volt, single phase service, or as indicated on the design drawings.

Any heating element larger than 1000 watts or any combination of elements in one fixture totaling more than 1000 watts shall be wired for 208 volt, single or three phase service, as indicated on the design drawings.

Fixtures having multiple heating elements may be wired for three (3)-phase service with the load balanced as equally as possible within the fixture.

Wiring shall be properly protected in NEMA and UL approved metal enclosures.

Switches and Controls:

Each motor driven appliance or electrically heated unit shall be equipped with a suitable control switch or starter of a type meeting the requirements of NEMA and UL codes.

All controls mounted on vertical surfaces of fixtures shall be set into recessed die stamped stainless cups or other approved indentations.

Faucets, Valves and Fittings:

All sinks shall be equipped with chromium plated, swing spout faucets equal to T. & S. Brass and Bronze Works, Inc., #B-0231-EE*J088 or #B-0290-LL*J088 units for splash mounted or #B-0221-EE*J088 deck mounted, unless otherwise specified in the Item Specifications.

Specialty faucets will be listed under Item Specifications.

For all other fittings, refer to Division 22.

Comply with ANSI / NSF Standard 61 Requirements.

METALS AND ALLOYS:

Non-corrodible Alloy: Shall be stainless steel, Type #304, U.S. standard gauges as indicated. All exposed surfaces shall have a #4 finish. Surface finish marred by manufacture shall be ground smooth, polished and restored to match original finish.

Galvanized Metal: Where galvanized metal is specified, it shall be copper-bearing galvanized iron, Armco, Toncan, or equal, re-rolled for smoothness and used in the largest possible sizes with as few joints as necessary.

Hardware and Casters:

All hardware shall be of a heavy-duty type, satin finished chromium plated brass, cast or forged or hi-lited stainless steel of uniform design. All hardware shall be a well-known brand, and shall be identified by the manufacturer's name and number for easy replacement of broken or worn parts.

Casters on custom-built equipment shall be heavy-duty type, ball bearing, and solid or disc wheel, with grease-proof rubber, neoprene, or polyurethane tire. Wheel shall be 5" diameter, minimum width of tread 1-3/16", minimum capacity per caster 250 pounds, unless otherwise noted.

Solid material wheels are to be provided with stainless steel rotating wheel guard.

All casters shall have sealed wheel and swivel bearings, polished plated finish and be N.S.F. approved.

Tempered Glass:

Fully tempered glass to be used in place of other glass products on all manufactured and custom fabricated equipment. All tempered glass to bear the etched logo indicating tempered glass and the manufacturer’s number. The manufacturer to meet the requirements of ANSI Z97.1 standard and federal standard CPSC16CFR 1201, as well as state and local codes, safety glazing material where the glazing might reasonably be exposed to human impact. Applicable codes should be checked for specific information and requirements.

Handling and installation of tempered glass should receive the same as annealed glass. Careless handling and improper installation sometimes produces edge damage. The tempered glass should be replaced if there is such damage. Tempered glass cannot be cut or modified following heat treatment.

Provide a beveled or radius edge around the parameter of the tempered glass to eliminate all sharp areas that may cause injury to a person.

Laminated Plastic:

Wherever laminated plastic materials are specified for cabinetwork, counter or top facings, they shall be Formica, Parkwood, Nevamar, or approved equal. All material to be veneered with Urea based cement, waterproof and heatproof.

Material to be applied directly over ¾" marine grade plywood or close-grained plywood such as solid Mahogany or solid Birch, of selected smooth sanded stock to ensure a smooth ripple-free laminated surface where approved by Consultant.

Exposed faces and edges faced with 1/16" material and corresponding back faced with approved backing and balancing sheet material. Top sheet shall be placed on and over finished edge.

Rubber based adhesives are not acceptable.

Standard Fir plywood is not acceptable.

Thermometers:

All fabricated refrigerated compartments shall be fitted with dial type thermometers with chrome plated flush bezels. Thermometers shall be adjustable and shall be calibrated after installation.

Water Piping:

All manufactured and fabricated items having internal or external water piping are to be copper with welded connections or connections using lead free solder except for ice bins which are to be PVC.

All exposed copper supply and drain lines unless specified otherwise, shall be painted with chrome or aluminum paint.

FABRICATION AND MANUFACTURE:

Materials and Workmanship: Unless otherwise specified or shown on drawings, all material shall be new, of best quality, perfect and without flaws. Material shall be delivered and maintained on job in an undamaged condition.

Fabrication shall be equal to the standards of manufacture used by all first class equipment manufacturers, performed by qualified, efficient and skilled mechanics of the trades involved.

All items of standard equipment shall be the latest model at the time of delivery.

All fabricated work shall be the product of one manufacturer of uniform design and finish.

Sanitary Construction:

All fabricated equipment is to be constructed in strict compliance with the standards of the National Sanitation Foundation as outlined in their bulletin on Food Service Equipment entitled "Standard No. 2" dated October, 1952, and in full compliance with the local and State Public Health Regulations in which the installation is to be made.

All fabricated equipment shall bear the seal of approval of the National Sanitation Foundation.

Construction Methods:

Welding:

Stainless steel shall be arc welded with stainless steel electrodes. Welds shall be non-porous, free of pits and flaws, peened to remove flux and other impurities and ground smooth. Field joints necessary for delivery and assembly are to be solid welded by using the same materials and method as for shop welding. Field welded joints shall be ground smooth without dips and irregularities and finished to match original finish.

Bolt, Screw and Rivet Construction:

Wherever bolts are used to fasten trim to the paneling and body of equipment or to secure any exposed sheet metal surface, such bolts shall be of the concealed type.

Stainless steel bolts and screws of the same alloy composition, as the metal to which they are fastened shall be used.

Wherever threads of bolts and screws occur on the inside of fixtures and are either visible or might come in contact with a wiping cloth, such bolt or screw threads shall be capped with a suitable washer and stainless steel or chrome acorn cap nut.

If rivets are used to fasten rear paneling to the body of the fixture, such rivets shall be stainless steel. In no case shall iron or aluminum rivets be used.

Sound deadening:

Schnee Butyl-Sealant 1/2" wide rope continuously between all frame members and underside of stainless steel table tops, over shelves and under shelves.

Tighten stud-bolts for maximum compression of sealant.

Hi-Liting:

When hi-lited finish is specifically indicated on Elevations, Details and/or Item Specifications for horizontal edges of stainless steel tops, splashes, raised rolled rims, shelf edges, exposed doors, and handles, the Standard #4 finish shall be ground to #240 grit and shall be polished with compound to ensure mirror finish.

Painting:

All fixtures, unless made of stainless steel, shall be finished in gray hammertone enamel, glossy and without blemish.

All materials shall be of the highest quality, air dried and applied in accordance with manufacturer's directions.

Where baked enamel finishes are specified, they shall be oven baked on the fixtures for a minimum of 1-1/2 hours at a minimum temperature of 300 degrees Fahrenheit.

Construction:

Table Frames:

All tubular stands for open base tables or dishtables shall be constructed of 1-5/8" O.D. stainless steel tubing, with stringers and cross braces of the same material.

All joints between legs and cross braces shall be welded and ground smooth, full 360 degree.

The top end of legs shall be closely fitted into fully enclosed gusset no less than 3" high, Component Hardware Group, Inc., model #A20-0206*J088 stainless steel or approved equal.

Gussets to be fully welded to top hat channel reinforcing members, turned so set screw is not visible from the front.

Crossrails must be supplied to reinforce each leg on all tables not having stainless steel undershelves.

Legs anchored to gussets at top only and without crossrails are not acceptable except in the case of sinks.

Feet and Counter Legs:

All tubular legs will be swedged for appearance and close fit to United Show Case model #BF-158*J088, or approved equal, stainless steel bullet shaped foot having a slightly rounded bottom to protect the floor.

Top of feet to be fitted with a male threaded stem to fit into the legs and provide a total adjustment of 2" without threads being exposed.

Bottom of tubular leg to be finished off smoothly to provide a sanitary fitting and prevent the accumulation of grease or other debris at this joint.

Cabinet type fixtures, unless otherwise specified, shall be mounted on 6" high die-stamped sanitary two (2) piece stainless steel counter legs not less than 2-3/4" diameter at top.

The upper part shall be stamped in a neat design with a flared inverted shoulder and shall be welded to a base plate designed for anchoring to the channel braces below cabinet type fixtures.

Counter legs shall have an adjustment of 5” to 7" height.

All legs are to have one (1) piece die-stamped closed 1-3/8" diameter bottoms to ensure sanitation. To be Deering Fabricators, 196 Asa Cash Road, Breman, Georgia 30110 model #DF6HGR*J088 or approved equal.

Table Tops (Metal):

Metal tabletops shall have all shop seams and corners welded, ground smooth and polished. All back welds to be peened and ground smooth.

All working tops on closed base fixtures shall be reinforced on the underside with a framework of 1-1/2" x 4" x 1-1/2" galvanized hat channels.

Cross channel closed end members shall be placed at each pair of legs. One angle or channel runner, running lengthwise, shall be provided below tops up to 30" wide.

All tops shall be reinforced so that there will not be any noticeable deflection and all reinforcements shall be stud welded to the underside of the top.

No rivets or bolts to be used through tops.

Field joints shall be provided in tops where necessary and are to be located for practical construction, consistent with sizes convenient for shipping and accessibility into the building.

All metal tops shall be of #14 gauge stainless steel of the quality hereinbefore specified.

All metal tops shall be turned down as required by uniform design except where adjacent to walls or other pieces of equipment The wall side shall be turned up a minimum of 8" and back 2-1/2" as required by uniform project design or as otherwise specified.

Ends of these splashes shall be closed.

Enclosed Bases:

All enclosed bases or cabinet bodies shall be of seamless #18 gauge stainless steel construction, enclosed on the ends and sides as required and called for under each particular item.

Ends of body to terminate at front or operator's side in a 2" wide mullion, vertical, completely enclosed. All intermediate mullions shall be completely enclosed.

The bases shall be reinforced at the top with a framework of 1-1/2" x 1-1/2" x 1/8" galvanized angles, with all corners of said framework mitered and welded solid.

Bottom of tabletop shall be reinforced with channels and gussets where necessary. Additional angles and channel cross members shall be provided to reinforce shelves and support tops.

Where sinks or other drop-in equipment occur, bottom sides of such equipment shall be reinforced with an angle crosswise of the table.

In the case of fixtures fitting against or between walls, the bodies shall be set in 1" or 2" from the wall line, but the tops will extend back to the wall line. This will permit adjustment to wall irregularities.

A vertical trim strip of the same material as the body shall be provided at each end of the fixture to close the gap between the back edge of the body and the wall or preferably the end of the body shall extend back to the wall line.

All free vertical corners of enclosed bodies shall be rounded on 3/4" radius and all corners against walls and other fixtures to be square.

These fixtures shall be fitted with 6" high counter style stainless steel legs as hereinbefore specified.

Sliding Doors

Sliding doors shall be constructed of #18 gauge stainless steel. These shall be made pan-shaped, of double thickness, and without trim. Sliding doors shall have 3/4" thick sound deadening fiberglass or celotex between the two thicknesses of metal and shall operate on quiet top-hung ball bearing rollers. Bottom edge of doors shall be square and fitted with a guide groove that rides in a nylon clip at the center point.

All doors shall be fitted with stops. Doors shall be fitted with pin tumbler type locks, master keyed to other fabricated items if specified under Item Specifications.

Hinged Doors:

All hinged doors for cabinet bodies and enclosed bases shall be constructed of #18 gauge stainless steel. They shall be of double pan construction with sound deadening insulation between the two pans. Doors shall be flush mounted without overlap and shall be fitted with semi-concealed stainless steel hinges or concealed torque-spring self-closing hinge assembly.

Drawers:

All drawer bodies shall be die-stamped out of one (1) piece of #18 gauge steel material of the type and in the size called for in the Item Specifications. Each drawer body shall sit loosely in a channel frame so it can be lifted out for cleaning.

All top edges shall be flanged out 1/2".

All interior horizontal corners are rounded on a 1" radius and all interior vertical corners on a 2" radius.

The supporting frame shall be of welded channel, or material called for in Item Specifications. Drawer face shall be welded to frame so that no screws or rivets will be exposed on the face.

The face shall be of #16 gauge stainless steel insulated die-formed with full-length sanitary handle.

Drawer slides to be Component Hardware Group, Inc., model #S52-series heavy-duty stainless steel full extension type and are to be mounted on the channel frame and fitted with ball bearing stainless steel rollers. Slides and frame shall be reinforced such that the drawer will support a dead weight of 200 pounds when fully extended.

Adjustable stops shall be provided for each drawer at the fully opened position.

Drawers on open base tables shall be fully enclosed in #18 gauge steel housing of material as identified in the Item Specifications.

Locks, where required, shall be cylinder lock assembly. No screws, bolts, or fastening devices penetrating the sides or bottom of the drawer body will be permitted.

Drawer constructed similar to Component Hardware Group, Inc. model #S90-0020-N*J088.

Undershelves:

Unless otherwise specifically called for to be removable, all open base table undershelves to be #16 gauge stainless steel, notched around table legs and fully welded. All edges to have 1-1/2” straight turn down with 1/2” turn back on 15-degree angle, at bottom edge. Underside of shelf to have #12 gauge galvanized hat channel bracing.

Undershelves specified to be removable shall be #18 gauge stainless steel, built in such a way as to be easily removable, using rolled turn down at front and back and at end section so that shelving will fit perfectly over the tubular frame. At end sections or otherwise where table legs occur, corners at legs are to be notched out to form a perfect fit around legs. At intersections of shelving, not over 28” long, shelving to run straight down 1” for strength. If required by width, shelves to have additional angle bracing. All outside turn down corners of removable undershelves to have rounded edges.

Interior Shelves:

Removable interior shelves in cabinet bodies, enclosed bases and overhead cabinets, shall be of #18 gauge stainless steel. Such shelves as called for shall be made in removable sections and rest in 1-1/2” x 1-1/2” x 1/8” stainless steel angle frame, having all horizontal corners coved and constructed in full accordance with N.S.F. requirements.

Stationary interior shelves shall have 2" turn-up on back and ends and shall have joint between shelf turn-up and the body sealed and ground smooth to form a one-piece interior free of any crevices. The front edge shall be flanged down 1-1/2" and under 1/2" and finished with "Z" bar forming completely enclosed edge for maximum strength and sanitation. Shelves further braced with longitudinal centered 1-1/2" x 1-1/2" x 1/8" angle.

Elevated Shelves:

All elevated shelves shall be of #18 gauge stainless steel. All edges shall be rolled or turned down 1-1/2", except where shelves are adjacent to walls or other fixtures where they shall be coved up 1-1/2". All outside corners of rolled edged shelves shall be spherical. All exposed ends and backs of shelves shall be capped.

Shelves shall be mounted on stainless steel wall brackets of tubular, gusset or angle construction as called for in the item specifications.

Shelves may be mounted on 1" O.D. tubular stainless steel tubing with one upright at each corner of the shelf and in center where necessary. Uprights to be fastened to underside of shelf by means of stud-welded bolts and tabletops with concealed fasteners.

Cantilever supports when called for shall have brackets secured to 1-5/8" O.D. stainless steel tubular standards at the back edge of the fixture. These standards are to be carried through the top and are to be securely anchored to the lower framework. Where indicated on drawings, provide Component Hardware #A16-0206*J088 welded sleeves where standards penetrate backsplashes.

Sinks:

All sinks shall be of the size and shape as per plan and constructed of #14 gauge stainless steel. The backs, bottoms and fronts shall be formed on one continuous sheet with the ends

welded into place. Partitions for compartment sinks shall be of the same material, electrically welded in place.

Sinks shall have all corners both vertical and horizontal coved on a 3/4" radius electrically welded, ground smooth and polished. Solder in filleted corners will not be acceptable.

Unless otherwise specified or detailed, partitions in coved corner sinks shall be of double thickness with a half round 1-1/2" top edge.

Top edges of sinks at front and ends, except where fitted with integral type drainboards, shall be furnished with a 1-1/2" die-formed integral sanitary semi-roll rim.

Across the back of all sinks, unless otherwise specified, there shall be a 10" high splash back measured from rolled edge or approximately 12" from working surface, turned back across the top 2", with ends enclosed.

Unless otherwise specified, two (2) faucet holes on 8" centers are to be provided over the centerline of partitions between compartments, 2-1/2" down from the top of the splash.

Bottom of each compartment shall be pitched or creased to the center drain, and shall be provided with cast brass quick opening drain valve with removable stainless steel strainer equal to Fisher #10707*J088 twist handle drain. Handle to have front stainless steel welded clip support to sink.

Sinks shall be mounted on 1-5/8" O.D. stainless steel tubing legs, and fitted with stainless steel bullet shaped adjustable feet. Legs shall be fitted with die-formed enclosed sanitary closed stainless steel gussets welded to the underside of the sink.

All freestanding sinks shall be 37" high to the top of the front edge and 47" high to the top of the splash. Sink depth from top of front edge to bottom of tub shall be 14" or as otherwise specified. Lengths and widths given shall be overall.

Sink Inserts:

Sink inserts shall be of one (1) piece deep-drawn construction in the size, material and gauge called for in the Item Specifications.

Sinks shall be welded integral with counter tops with no lap between.

Sink will be fitted with a cast brass quick opening drain valve with removable stainless steel strainer as specified or crumb cup drain (Component Hardware #E38-1012*J088) as specified in Item Specifications.

Where sink bowls are exposed, the exterior shall also be polished to a #4 finish.

Sink Drainboards:

Sink drainboards shall be constructed of same material as the sinks and shall be welded integral to same.

Drainboards shall have 2-1/2" high rims with die-formed integral rolled edges to match sink edges.

Front, end, and corners shall be coved on 3/4" radius, as called for in sink specifications, electrically welded, ground, and polished smooth. Solder filleting of these corners will not be accepted.

Drainboards shall be pitched approximately 1/8" per foot to properly drain into the sink.

Dishtable Tops:

These tops shall be #14 gauge stainless steel with all free edges rolled up 3" and finished with 1-1/2" diameter rolled rim and having rounded corners. Edges of dishtables next to high fixtures or walls shall cove up 10" and roll back 2" on 3/4" radius (or as design dictates).

All tables shall slope, and slope shall be built in maintaining vertical crown where adjustable slope is not possible.

All corners of tops shall be coved on 3/4" radius.

Tables to be braced with 1" x 4" x 1" x #12 gauge galvanized hat channels with stainless steel exposed closed ends, between each pair of legs and down center line of top.

Leg gusset to weld to this hat channel and so masked off when sound-deadening material is applied. Gussets to be positioned so that "set-screw" hole is not visible.

Where tops fit to and into dish machines, they shall turn down into, extend up to, and fit watertight thereto.

On exit side of conveyor machines, tables to be provided with 10" high x 12" long sloping integral splashguard constructed of #14 gauge stainless steel (or as design dictates).

Silicon filling of gaps caused by poor fit will not be acceptable.

Counter Style Enclosed Units:

Where these custom fabricated units occur, framing is to be of 1-1/2" x 1-1/2" x 1/8" galvanized angles.

At corners, metal is to be mitered; at other meeting points, metal is to be butted and will conform to the shape of the top and bottom frame metal and then to be solid welded, ground and polished smooth, and repainted as specified.

Provide top and bottom framing for each counter food pan, cold pan, coffee urn, ice cream unit, ice bin, dish dispenser, whether a drop-in unit or a cutout for a portable unit.

Where plate shelves occur, frame horizontally 8-1/2" back from counter edge or as design dictates, and at bottom of shelf at counter edge.

At cut-outs for roll-in equipment, provide top and bottom angles crosswise of the counter 8" above the finished floor.

Base of counter shall be as specified with stainless steel interior shelving constructed as specified.

Counter shall be mounted on approved stainless steel feet as specified.

Top of counter to be of #14 gauge Type #304 stainless steel as called for in these specifications. Metal is to turn down at front and back a full 2" from the top of the top metal or as design dictates.

Such units as are to built in, as an integral part of the counter top will be shown in the Item Specifications. Wherever openings occur for roll-in equipment, the sizes of such openings are to be such as will accommodate the portable equipment plus such protective bumpers as will be required.

Unless counters are specified with plate shelves, metal on working side of counter is to be turned down flush with the bottom of built-in units and back a minimum of 1-1/2" to cover such structural angles as are required.

Front of counter and ends (where exposed) shall be stainless steel, laminated plastic, or other material as required by the Item Specifications.

All display glass shelving shall be set into #18 gauge stainless steel formed channels. Top shelves shall be of the same width as the shelf below. All shelves shall be provided with appropriate sneeze or breath guards having stainless steel protective edges.

The shelves over bread and or pastry sections shall be glass. (All shelving shall be 1/4" polished tempered glass and protected with stainless steel channel edging where specified). The shelves over salad sections shall be glass.

The supporting channels for all glass shelving shall have rubber isolation "buttons" secured to framework of supporting angles.

Serving shelf over hot food sections and/or bread sections shall be #18 gauge stainless steel with lights for the length of the sections.

All display shelving will have lights controlled by switch mounted in base of counter on operator's side. Lights to be of manufacturer and design approved by Consultant and located as design dictates. All lights are to have bulbs covered with plastic shields to meet requirements of local health department.

Such changes as are required in this general counter specification are described in the Item Specifications. The counter or counters shall be internally wired complete by the Food Service Equipment Supplier.

Electric wiring as required shall be installed in such a way as to meet requirements of the Electrical Code of the job location.

Equipment Contractor is cautioned that it will be his responsibility to ascertain requirements of the city and local governing codes that will govern the requirements as described in the specifications:

Trim Strips:

Trim is not an acceptable substitute for accuracy and neatness. When the Consultant elects to accept a trim strip in lieu of rebuilding an item, it is the responsibility of the Food Service Equipment Supplier to provide same at no cost to the Owner.

PART 3 - - EQUIPMENT

Manufacturer's names and model numbers are for establishing standards of quality, size and finish required, representing Owner's preference and basis of bid. Alternate Manufacturer's listed are acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents. Bidders are cautioned to examine the electrical and mechanical Contract Documents plans to determine if equipment other than prime, require changes in utilities, space, etc. If changes are required, the bidder shall pay all Architectural, Engineers and Food Facilities Consultant additional cost of necessary changes to Construction Documents that may occur due to accepted alternate. Equipment is listed hereinafter with same Item numbers as shown on the Contract Drawings:

ITEM #1 REFRIGERATED MILK CABINET: Provide one (1) Traulsen, model ~~RMC58D6*J088~~ **RMC58D4 *J088** dual sided, forced air refrigerated cabinets, each including:

A. 6" factory mounted adjustable casters, cord and plug.
B. Stainless steel exterior body and doors with adjustable hinges and door latches. Locking mechanism equipped with cylinder locks on each door. Stainless interior with heavy duty dunnage racks.
C. Bottom drain with plug.
D. Forced air design R450A refrigeration system.
E. Three (3) years parts and labor warranty. Five (5) year compressor parts warranty.

***Acceptable alternate for serving counters is CounterCraft**

ITEM #2.1 HOT FOOD COUNTER: Provide one (1) Mod-U-Serve model #MCT-HF6-MOD*J088, including:

A. Stainless steel top, modular design, 1-1/4" stainless steel welded frame construction. Size and configuration per drawings. Tile front panels provided by Mod-U-Serve. Tile panels raised to cover stainless steel mullions.
B. Module at 34" AFF. Trayslide at 32" AFF.
C. 12" wide, Corian trayslide with 3" turndown. Trayslides on fixed stainless steel welded brackets. Trayslides provided with LED trayslide lights.
D. Six (6) 12" x 20" pan capacity, hot wells. Unit provided with one (1) cold water fill faucet. Hot wells manifolded with common drain and individual drain valves.
E. One (1) Mod-U-Serve single-tier Elite food shield with full height front glass, LED light and heat strip. specifications
F. Line up locks
G. Module provided with 6" stainless stee legs with adjustable bullet feet for leveling, due to Electrical Code Requirements. Module provided with stainless steel Kickplate. One (1) UL Listed 120/208 Volt, 3

Phase, 60 Amp Interconnect Box Provided to supply electrical for all serving line modules.

ITEM #2.2 REFRIGERATED SHEET PAN COUNTER: Provide one (1) Mod-U-Serve model #MCT-FT4-MOD*J088, including:

A. Stainless steel top, modular design, 1-1/4" stainless steel welded frame construction. Size and configuration per drawings. Tile front panels provided by Mod-U-Serve. Tile panels raised to cover stainless steel mullions.
B. Module at 34" AFF. Trayslide at 32" AFF.
C. 12" wide, Corian trayslide with 3" turndown. Trayslides on fixed stainless steel welded brackets. Trayslides provided with LED trayslide lights.
D. One (1) MCT-DI-CFSP1, 18" x 26" pan capacity, ½" recessed, mechanically refrigerated sheet pan frost top
E. One (1) MCT-DI-H/CFSP1, 18" x 26" pan capacity, ½" recessed, mechanically refrigerated & heated sheet pan unit.
F. One (1) Mod-U-Serve double-tier Elite food shield with LED lights and front glass over each tier.
G. Line up locks
H. Module provided with 6" adjustable locking casters and stainless steel Kickplate. Module electrical to daisy chain to Hot Food Module Interconnect Box.

ITEM #2.3 CASHIER COUNTER: Provide one (1) Mod-U-Serve model # MCT-CRSG-MOD*J088, single cashier counter with additional flat top space, including:

A. Stainless steel top, modular design, 1-1/4" stainless steel welded frame construction. Size and configuration per drawings. Tile front panels provided by Mod-U-Serve. Tile panels raised to cover stainless steel mullions.
B. Module at 34" AFF. Trayslide at 32" AFF.
C. 12" wide, Corian trayslide with 3" turndown. Trayslides on fixed stainless steel welded brackets. Trayslides provided with LED trayslide lights.
D. One (1) stainless steel cash drawer on stainless steel glides with a cylinder lock provided
E. Grommetted holes for P.O.S Cord & Plugs. P.O.S. by others. One (1) additional 120 volt convenience outlet at flat top space concealed under counter top with grommetted hole.
F. Removable stainless steel CPU shelves
G. Line up locks
H. Module provided with 6" adjustable locking casters and stainless steel Kickplate. Module electrical to daisy chain to Hot Food Module Interconnect Box.

ITEM #3.1 SPARE NUMBER

ITEM #3.2 REFRIGERATED SHEET PAN COUNTER: Provide one (1) Mod-U-Serve model #MCT-FT4-MOD*J088, including:

A. Stainless steel top, modular design, 1-1/4” stainless steel welded frame construction. Size and configuration per drawings. Tile front panels provided by Mod-U-Serve. Tile panels raised to cover stainless steel mullions.
B. Module at 34” AFF. Trayslide at 32” AFF.
C. 12” wide, Corian trayslide with 3” turndown. Trayslides on fixed stainless steel welded brackets. Trayslides provided with LED trayslide lights.
D. One (1) MCT-DI-CFSP1, 18” x 26” pan capacity, ½” recessed, mechanically refrigerated sheet pan frost top
E. One (1) MCT-DI-H/CFSP1, 18” x 26” pan capacity, ½” recessed, mechanically refrigerated & heated sheet pan unit.
F. One (1) Mod-U-Serve double-tier Elite food shield with LED lights and front glass over each tier.
G. Line up locks
H. Module provided with 6” adjustable locking casters and stainless steel Kickplate. Module electrical to daisy chain to Hot Food Module Interconnect Box.

ITEM #3.3 CASHIER COUNTER: Provide one (1) Mod-U-Serve model # MCT-CRSG-MOD*J088, single cashier counter with additional flat top space, including:

A. Stainless steel top, modular design, 1-1/4” stainless steel welded frame construction. Size and configuration per drawings. Tile front panels provided by Mod-U-Serve. Tile panels raised to cover stainless steel mullions.
B. Module at 34” AFF. Trayslide at 32” AFF.
C. 12” wide, Corian trayslide with 3” turndown. Trayslides on fixed stainless steel welded brackets. Trayslides provided with LED trayslide lights.
D. One (1) stainless steel cash drawer on stainless steel glides with a cylinder lock provided
E. Grommetted holes for P.O.S Cord & Plugs. P.O.S. by others. One (1) additional 120 volt convenience outlet at flat top space concealed under counter top with grommetted hole.
F. Removable stainless steel CPU shelves
G. Line up locks
H. Module provided with 6” adjustable locking casters and stainless steel Kickplate. Module electrical to daisy chain to Hot Food Module Interconnect Box.

ITEM #4 HAND SINK: Provide five (5) Advance Tabco model #~~7-PS-70~~*J088 **7-PS-68** sinks, each including:

A. Hand sink, wall model with 5” deep bowl, 20 gauge stainless steel construction, wall bracket.
B. 7-3/4” fully welded splash guards on each side.
C. Provide faucet with 4” wrist blade handles.
D. Soap and towel dispenser by Owner, installed by Contractor.
E. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Eagle

ITEM #5 UTILITY CART: Provide three (3) Lakeside, model 558*J088 mobile carts, with the following options:

A. 100% stainless steel construction.
B. Two shelves.
C. Two (2) fixed casters and two (2) swivel casters.

ITEM #6 SPARE NUMBER

ITEM #7 SPARE NUMBER

ITEM #8 WORK TABLE W/ SINK: Provide one (1) custom fabricated table, size and shape as per plan, elevation, sections, details and general specifications, including:

A. #14 gauge stainless steel top with 2" turn down front and back. Splash to be 8" high at both sides, and fully capped on left side adjacent to equipment.
B. Table to be mounted on 1-5/8" O.D. stainless steel legs and crossrails with stainless #16 gauge stainless steel fully welded undershelves.
C. One (1) 20” x 20” x 5” deep stainless steel drawer.
D. One (1) 18" x 20" x 10" deep coved, #14 gauge stainless steel sink inset with stainless steel apron on all exposed side of sinks mounted on stainless steel legs and crossrails with T. & S. Brass and Bronze Works, Inc., model #B-0230-EE-061X*J088 deck mounted faucet and lever drain with overflow.
E. Provide unit with two (2) prewired D.C.O. receptacle, per details and plans so final connection by Electrician is all that is needed.

ITEM #9 POINT OF SALE SYSTEM: Provided by Owner

ITEM #10 SPARE NUMBER

ITEM #11 PASS-THRU HEATED CABINET: Provide two (2) Traulsen model #RHF132W cabinets, each including:

A. Glass, half height doors on the kitchen side and stainless steel, half doors on the serving side. All doors are to be hinged as indicated on plan.
B. Junction box to be top located for electrical connection.
C. Intela-Traul Controller with thermometer on kitchen side and interior light with bulb.
D. Locking hardware, Omit standard shelves and provide universal tray slides for
18” X 26” pans and/or 12” X 20” pans in top and bottom sections-4” Spacing.
E. Mount on 6” high adjustable stainless steel legs.
F. Kool Klad option. Plastic laminate selection to be provided by Owner.
G. One-year parts and labor warranty.
H. Unit to be trimmed out with 18 gauge stainless steel as shown on plans.
I. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Delfield, True or Utility.

ITEM #12 PASS-THRU REFRIGERATED CABINET: Provide two (2) Traulsen model #RHT132- WPUT*J088 refrigerator, including:

A. Glass, half height doors on the kitchen side and stainless steel, half doors on the serving side. All doors are to be hinged as indicated on plan.
B. Digital thermometer.
C. Twelve sets universal pan guides.
D. Controls on kitchen side.
E. Top mounted electrical connection.
F. Kool Klad option. Plastic laminate selection to be provided by Owner.
G. Stainless steel adjustable legs.
H. Start-up and three (3) year free service, including parts and labor.
I. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Delfield, True or Utility.

ITEM #13 WORK TABLE: Provide one (1) custom fabricated table, size and shape as per plan, elevation, sections, details and general specifications, including:

A. #14 gauge stainless steel top with 2" turn down front and back. Splash to be 8" high at both sides, and fully capped on right side adjacent to equipment.
B. Table to be mounted on 1-5/8" O.D. stainless steel legs and crossrails with stainless #16 gauge stainless steel fully welded undershelves.
C. One (1) 20” x 20” x 5” deep stainless steel drawer.
D. Provide unit with two (2) prewired D.C.O. receptacle, per details and plans so final connection by Electrician is all that is needed.

ITEM #14 WALK-IN COOLER/FREEZER COMPARTMENT: Provide one (1), two (2) compartment pre-fabricated ThermoKool factory installed complete working assembly, including:

A. Special sized, 4” thick sections assembled as indicated on drawings, 8’-6” high above finished floor. Corner and “T” panels shall be matching one-piece construction including 1/2” minimum radius at all inside vertical corners. Assemble using standard cam fasteners and sealed with PVC double bubble gasket at interior and exterior of panel edges.
   1. Interior face of wall panels shall be clad with stucco white aluminum.
   2. Interior face of ceiling panels shall be clad with 0.040” smooth white finish.
   3. Exterior exposed face of wall panels shall be clad with stucco white aluminum and having 1/8” aluminum treadplate to 48” above finished floor.
   4. Exterior unexposed face of panels shall be clad with 0.40” smooth aluminum finish.
   5. Trim to walls and ceiling where required, with same material as exposed exterior, using hidden fasteners per detail on drawings. Pop rivets will not be accepted.
   6. Integrated bumper rail in cooler compartment per plan.
B. Doors shall be 36” x 80” high with heated triple pane view ports. Exterior to match exterior finish and interior to match interior finish. Metal joints

to be welded, ground, and polished. Interior and exterior jamb guards of 1/8" aluminum tread plate 48" high. Interior and exterior kickplates of 1/8" tread plate 48" high. Cooler and Freezer doors to be provided with 120 volt dedicated circuit heater cable around parameter including heated threshold. Provide three (3) chrome-plated hinges, (one springloaded) latch with interior safety release and cylinder lock. Doors to have Kason model #1094 heavy-duty door closers. Provide Berner Artic swinging door assembly on both cooler and freezer door.

~~C. Walk-in compartments to be less floors with walls to be installed in recessed pit as shown on plans and details. Kitchen Equipment Contractor to furnish insulation and vapor barrier film to Floor Contractor for installation. Finished floor and waterproofing to be by General Contractor. When coved base comprised of the specified flooring material is not provided,~~
~~K.E.C. shall provide and install New Age aluminum coved base at all interior and exterior walls where they meet the finished floor. All coved base is to be installed with approved mastic and all sealed to all adjacent surfaces with clear silicone.~~

C. Vault shall have 4" thick factory floor sections with integral ramp. Both the floor panels and ramp are to be covered with 1/8" aluminum treadplate. All corners are to be coved to meet NSF requirements. (see details on drawings). Kitchen Equipment Contractor to furnish vapor barrier film to General Contractor for installation. K.E.C. shall provide and install New Age aluminum coved base at all interior and exterior walls where they meet the finished floor. All coved base is to be installed with approved mastic and all sealed to all adjacent surfaces with clear silicone.

D. Provide Kason, model 1809LED, L.E.D. vapor proof lights located in each compartment (See Electrical Requirements Plan for quantity). Provide two (2) factory installed Modularm model #75LC multi-monitors located as per drawings mounted at 54" A.F.F. on the strike side of each door complete with model IP-1 timed lighting and panic alarm control modules with illuminated push buttons mounted at 48" A.F.F. on the strike side of the door on the interior of each compartment with flush mounted dial thermometers above the Modularm modules for back-up. Also provide model MD-1 motion detectors at 88" A.F.F. above the door on the interor of each compartment to automate light control functions. All conduit is to be imbedded in vault walls and/or ceiling panels. Exposed conduit will NOT be accepted. Extend conduit to J-Box located on top of ceiling.

1. Factory mount in head section, electrically heated vacuum pressure relief vent, dedicated circuit. Kason model #1832 (or approved equal) flush mounted. Mount away from direct air stream of coil.
2. Furnish sufficient quantity of 3/8" and/or ½" diameter nylon threaded
   rods with stainless steel nuts and washers to support refrigeration coils.
3. Furnish sufficient quantity of 5-inch diameter stainless steel escutcheon plates to dress off utility penetrations by other trades.

4. 5” Dial thermometers (or equal size), flush mounted for back up.

E. PVC plastic conduit between interior and exterior of vaults. Pre-wire door defrosters to top of Cooler/Freezer vaults for final connection by the Electrician.

F. Delivery and erection of assembly shall be preformed by a Factory approved and supplied installer ONLY. Kitchen Equipment Contractor must submit a list to the Foodservice Consultant of qualified installers for approval by the owner previous to installation of vaults. Manufacturer to check the finished work of the Electrician and Refrigeration Installer, in particular the vault wall penetration and sealing of light fixtures.

G. Provide one (1) year free service including parts, labor and a minimum of ten (10) year warranty on walk-in panels.

H. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: **ThermalRite**, American Panel Corporation, Imperial Brown or Masterbilt.

I. **Refrigeration system shall be installed by factory certified installers from the list shown in Part 4, Execution. Submit name, address and phone number of installer as part of the item description in the equipment brochure during submittal phase for approval.**
Under Part 4, Execution Spec: QUALIFIED REFRIGERATION SYSTEM INSTALLERS:
Refrigeration systems shall be furnished, installed, and guaranteed by one of the following named installers:
1. **Belk Refrigeration - 972/686-8916**
2. **Boyd Refrigeration, LLC - 512/832-9235**
3. **Cooler's Inc. - 713/665-8886**
4. **I.M.S. - 210/825-9900**
5. **Liberty Ice Machine - 972/983-1757**
6. **R.S.I. - 972/279-3800**
7. **Horton Commercial Refrigeration - 903/455-1798**

ITEM #15 WALK-IN COOLER/FREEZER SHELVING: Provide one (1) lot of InterMetro MetroMax IQ shelving, with the following options:

A. Sizes, widths and lengths as per plan.

B. Four tiers high, each section with (4) MX74P*J088 posts. Verify shelf heights with Owner.

C. Confirm vault sizes and provide the maximum amount of shelving that will fit into the space.

D. **A specific product manufactured by any of the following listed manufacturers is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Cambro**

ITEM #16 DUNNAGE RACK: Provide two (2) New Age Industrial model #2009*J088 and two (2) New Age Industrial model #2008*J088 racks for a total of six (6) units, including:

A. Heavy duty all welded aluminum dunnage rack.

B. 2500 pound capacity each.

C. 12” above finished floor.

D. Lifetime guarantee against rust and corrosion. Five year guarantee against material defects and workmanship.

E. A specific product manufactured by any of the following listed manufacturers is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Winholt

ITEM #17 REMOTE REFRIGERATION SYSTEM: Provide two (2) complete Refrigerated Design Technologies remote refrigeration systems model ZS1-01Z-CT3-AST*J088 outdoor refrigeration systems having the following features:

A. RDT Remote Refrigeration Systems to install one (1) RDT model #KLP211LE coil with 208 volt, 1 phase defroster and fan motors in freezer. Freezer coil to be controlled and demand defrosted by RDT “Eco-Smart” controller. RDT Remote Refrigeration Systems cooled condensing unit model #YF10KAE with 208 volt, 3 phase, scroll compressor to be connected to freezer coil from roof location.
B. RDT Remote Refrigeration Systems to install two (2) RDT model #KTM313MA coil with 120 volt, 1 phase fan motors in cooler. air cooled condensing unit model #YS11KAE with 208 volt, 3 phase, scroll compressor to be connected to cooler coil from roof location.
C. Pre-wired controls and pre-piped refrigeration accessories. Stainless steel exterior weather removable housing. At each evaporator, Kitchen Equipment Supplier is to provide electrical disconnect on interior of vaults. Plumber to provide a tee fitting with cleanout plug and
brass union fitting on each evaporator. Do not reduce fittings at drain pan connection. Compressors to have crankcase heaters, main power fused disconnects and winter controls, including fan cycling switches.
D. Size each circuit to balance condensing units and connect to condensing units and coils. Pressure stabilizing valve and by-pass manifold on each refrigeration circuit.
E. Electronic defrost controls on freezer compressor. Walk-ins are to be running and adjusted a minimum of 24 hours prior to the loading of product. Freezer shall be cooled down in stages over 12-hour period. First 6 hour stage to 32□ F., then 6 hours to 0□ F., finally to – 10□ F.
F. Type "K" or Type "L" copper refrigerant lines with brazed silver solder joint fittings as required by application. Run refrigerant lines from condensing units to coil penetrations in top of vaults. All to be neat and of highest caliber workmanship. Seal all penetrations as detailed on drawings to seal air out. See escutcheon and penetration details.
G. R-454A refrigerant charge for freezer and cooler.
H. Armstrong Armaflex 1" insulation to prevent condensation on all refrigeration lines. All joints to be taped and glue sealed. No slit tubing to be used. Fiberglass insulation to be provided if lines are run in air return plenums or if required by local codes. Armstrong Armaflex line insulation on exterior of buildings to be covered with ITW Pabco/Childers (or equal) Aluminum Roll Jacketing manufactured from alloys 3105 and 3003, conforming to ASTM B-209 designation with a minimum thickness of .016”. This is to help prevent deterioration due to sun exposure.
I. Type "L" supported hard copper drain lines with brazed silver solder

joints sized as per plan from drain pans below coils to drains, as per plans, furnished and run by Refrigeration System Installer. Provide "Tee" fittings with cleanout plug and brass union fitting on each evaporator. Do not reduce fittings at drain pan connection. Paint all exposed interior drain lines using "All-Weather" aluminum paint. Exterior exposed lines and "P" trap to be chromed. Drain line from freezer coil shall be wrapped with "EZ" heat cable of length as required, provided and installed by Refrigeration Systems Installer and final electrical connection Electrical Contractor.

J. Electrical Contractor shall wire through defrost control between condensing units and coils and heater cables in freezer. He will connect all light and power connections to controls, motors and lights from rough-in connecting locations on top of vaults. No conduit shall be run on interior of vaults except that required for connection. Electrician to seal all conduit interiors with DuroLast, Caulk Parasealant 626 sealant or equal after wires are run, to seal out air.

K. RDT Refrigeration Company to check the work of the Electrician and Plumber, in particular the vault wall penetrations and light fixture sealing, and provide one (1) year free service, including parts and labor on refrigeration system and five (5) year warranty on condensing units.

L. Refrigeration system shall be installed by factory experienced mechanics subject to approval of Consultant.

M. System must be installed by the same Factory supplied Installer as Item No. 101, Walk-In Cooler/Freezer.

ITEM #18 EXHAUST HOOD W/FIRE PROTECTION SYSTEM: Provide one (1) LOT Avtec Eco-Arch model # EA2*J088 ventilator, including:

A. Unit shall be 22'-10" wide x 66" deep (plus 16" MUA) x 30" tall. K.E.C. shall verify size and shape per plan, elevations, sections and details. Entire unit shall be constructed of 18 gauge 304 stainless steel with a No. 4 finish having a three inch rear air space. Top of the canopy to be constructed to incorporate the exclusive Avtec aerodynamic arch. Unit is constructed using the standing seam method for optimum strength. All external seams and joints to be welded and liquid tight, all exposed welds to be ground and polished. Continuous capture areas without transverse interior partitions. Double walled stainless steel end panels.

B. Connecting ductwork above ceiling to be by the Mechanical Contractor to connection collars of the stainless steel exhaust plenums and supply air plenums built into ventilators. Final connection to ducts to be made in an approved manner by the HVAC Contractor. Ventilators to have adjustable make-up air damper which must remain accessible for adjustment.

C. Grease extraction is accomplished by way of a front located high velocity exhaust slot running the full length at the top of the hood trough grease filters with full length concealed grease trough pitched to a removable grease cup. Grease filters are removable though exhaust plenum access doors. Provide #18 gauge stainless steel (Type #304) filter rack with model 1616L low volume filter modules. Return air to be model PBB, make-up air plenum running full length of hood.

D. Finished backs where exposed and horizontal trim between hoods where applicable. #18 gauge stainless steel (Type #304) filler panels to

ceiling wherever required.

E. UL listed LED lights (with bulbs by Kitchen Equipment Supplier), pre-wired to final connection point (junction box) on top of hood. See Electrical Requirements Plan for quantity of lights.
F. 1/2" diameter steel hanger rods attached to factory, pre-drilled hanger brackets to be by Kitchen Equipment Supplier, but they are to be anchored to supporting structure (or slab) by the General Contractor in the locations required by exhaust hood shop details.
G. Provide U.L. approved wet chemical hood and duct fire extinguishing system in hood with one (1) year warranty on the cylinder and hardware. Provide nozzles where required for surface protection of equipment and entire system to be in compliance with NFPA pamphlet #96, U.L. Standard #300 and local governing code authorities.
H. A manual fire pull station shall be included by the fire protection installer and installed by Electrician, per coordination, and with the approval from local governing code authorities in the path of egress. The fire pull station location is to be coordinated by the Kitchen Equipment Supplier and inter-wiring shall be done by the Electrician. All exposed fire control piping to be chrome plated and all hood penetrations are to be sealed with U.L. listed stainless steel penetration fittings. Also, provide one (1) type “K” hand extinguisher for the kitchen area with mounting bracket and locate in accordance with local code.
I. Provide fire dampers in supply air collars and fire blanket if required by local code.
J. Provide one (1) per hood section ASTS-90 heat sensor per IMC 2006.
K. Provide #18 gauge stainless steel (Type #304) filler panels to ceiling wherever required
L. One year parts and labor warranty.
M. Manufacturer to check out system after installation to verify actual exhaust and supply air quantities and certify that performance is as designed and provide written report.

ITEM #19 DOUBLE STEAMER: Provide one (1) Groen model ~~SSB-10GF*J088~~ **(2)GSSP-BL-10GS*J088** steamer (total of two compartments), each including:

A. Groen SmartSteam™ Convection Steamer, double-stacked using optional factory stacking kit and mounted on one (1) stainless steel support stand w/bullet feet.
B. Ten (10) 18 x 26 sheet pan or ten (10) 12 x 20 x 2-1/2" pans capacity per compartment,
C. Natrual gas, 100,000 BTU for each boilerless unit with doors hinged per plan and having stainless steel interior and exterior and single water connection.
D. Provide two (2) 3M Model No. SF165 water filtration/scale control system. One (1) for each cavity.
E. One (1) Dormont Model 1675KITBS48, 48" Gas connector kit, ¾" inside diameter, 48" long, with Supr-swivel couplings for each unit complete with one-year parts and labor warranty. Two (2) hose kits total.

ITEM #20 STAINLESS STEEL WALL CAP: Provide three (3) custom fabricated 16 gauge stainless steel wall caps full length of low wall where indicated on drawings and elevations. Provide 2” square drop edge with slight tuck. Butt

to ends of walls where applicable with 1” turn up with 3/8” minimum radius. Trim turn up to fit wall thickness and finish

ITEM #21 STAINLESS STEEL WALL PANELING: Provide one (1) lot custom f abricated table, size and shape as per plan, elevation, sections, details, and general specifications, including:

A. Install from floor to ceiling behind cooking equipment and from top edge of Item #41 Mop Sink to 48” above finished floor.
B. Contain all raw edges in stainless steel trim strips.

ITEM #22 2 BURNER INDUCTION RANGE W/ SINK: Provide one (1) custom fabricated assembly, size and shape as per plan, elevation, sections, details and general specifications, including:

A. #14 gauge stainless steel top with 1" radius on outside corners and 8" high splash on rear with closed stainless steel rear splash.
B. Table to be mounted on 1-5/8" O.D. stainless steel legs and crossrails. Having fully welded #16 gauge stainless steel shelving.
C. One (1) 12" x 20" x 10" deep sink insert of #14 gauge stainless steel coved construction with T. & S. Brass and Bronze Works, Inc., deck style # B-0220-EE- 060X*J088 faucet having a swing spout. Sink to have lever drain with connected overflow. All drain lines are to be soldered copper pipe. All exposed copper to be painted with aluminum paint. Stainless steel apron under entire table top encasing sink and controls for Induction top per elevations and details.
D. One (1) CookTek model MCD-3502F*J088 double HOB cooktop. Install controls in apron of table as detailed and specified.

ITEM #23 DOUBLE CONVECTION OVEN: Provide one (1) Blodgett model #~~DFG-200*J088~~ **Zephaire-200G** “Double” oven, including:

A. Six (6) racks per oven cavity.
B. Fan Delay / Pulse Plus
C. Stainless steel fronts, sides, tops and enclosed backs. Porcelain interiors.
D. Under hood flue diverter kit.
E. Electric continuous sounding buzzer with timers.
F. Doors to have dual pane thermal windows.
G. Casters with brakes.
H. Two (2) T&S Brass #HG-4D-48SK 48" flexible gas disconnect hoses to Plumber for installation. One (1) hose per section. DO NOT MANIFOLD OVENS.

ITEM #24 KETTLE ON STAND: Provide one (1) Groen, model #TDB-40*J088 kettle, including:

A. Stainless steel self-contained steam jacketed unit, with an electric heated steam source.
B. Kettle shall be of 304 stainless steel, one-piece construction. Interior of kettle shall be polished to a 180 emery grit finish. Exterior of kettle shall be finished to a bright high buff finish.

C. Controls shall include a thermostat, built-in contactor, pressure gauge, front mounted water sight glass and heating indicator lamp.
D. Safety tilt-cut-off, pressure relief valve, high limit pressure switch and low water cut-off.
E. Lift off cover and kettle brush kit.
F. Provide stand model #TS/9 with optional drain cart. Indirect drain to be connected by Plumbing Contractor.
G. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Vulcan or Cleveland

ITEM #25 UTILITY FAUCETS W/WALL BRACKET: Provide one (1) custom fabricated stainless steel wall bracket size and shape as per plan, elevation, sections, details and general specifications, including:

A. Provide T&S Brass Special Model No. 43-042-MOD*J088 Assembly with two (2) vacuum breaker hose assemblies. Provide Model B-0100 Spray Rinse with 68" braided S/S hose and Model B-0102-A Pot Filler with 68" braided S/S hose.
B. Provide T&S Brass model B-0166 hook assemblies.
C. Do not reference T&S detail for bracket construction. Reference detail ~~17 on sheet 801~~ **14/QF151** for construction of bracket.
D. All plumbing connections to be copper. All exposed copper to be painted with aluminum paint.

ITEM #26 FLOOR TROUGH W/GRATE: Provide one (1) IMC Teddy model # ASFT*J088 Floor Trough, including:

A. Anti-spill design, size and shape per plan constructed of #14 gauge 18-8 type #304 stainless steel, fully welded, coved-corner construction.
B. Trough will be fitted with stainless steel waste cup with removable basket for 3½"
waste pipe.
C. Provide Manchester Associates model #FRP, cut to size and shape as per plan, (sections not to exceed 18" in length), 1-1/2 square mesh grating, stainless steel grate color. Contact information Mr. Steve Manchester, 214-357-3978. Chemgrate heavy duty model FS series removable grates are an acceptable alternate.
D. To be provided by KEC., installed by G.C. KEC to verify and coordinate with site conditions and general contractor. Verify with the pour path and placements of item #27,
Tilt Skillet All troughs are to be flush with finished floor, reference details on drawings for installation.
E. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Kelley Products, BSI or Advance Tabco.

ITEM #27 TILT SKILLET: Provide one (1) Groen Division/Dover Corporation model #BPM-30E*J088 Tilting Skillet, including:

A. Manual tilting electrically heated unit.

B. Stainless steel exterior and stainless steel legs.
C. Coordinate placement of unit with ~~Item #18~~ **Item #26**, Floor Trough w/ Grate to insure that legs do not rest on grate.

ITEM #28 DOUBLE CONVECTION OVEN: Provide one (1) Blodgett model #~~DFG-200*J088~~ **Zephaire-200G** "Double" oven, including:

I. Six (6) racks per oven cavity.
J. Fan Delay / Pulse Plus
K. Stainless steel fronts, sides, tops and enclosed backs. Porcelain interiors.
L. Under hood flue diverter kit.
M. Electric continuous sounding buzzer with timers.
N. Doors to have dual pane thermal windows.
O. Casters with brakes.
P. Two (2) T&S Brass #HG-4D-48SK 48" flexible gas disconnect hoses to Plumber for installation. One (1) hose per section. DO NOT MANIFOLD OVENS.

ITEM #29 WORK TABLE W/OVERSHELF: Provide one (1) custom fabricated table, size and shape as per plan, elevation, sections, details and general specifications, including:

A. #14 gauge stainless steel top with 2" turn down front and sides. Splash to be 8" high at wall as detailed on drawings.
B. Table to be mounted on 1-5/8" O.D. stainless steel legs and crossrails with stainless #16 gauge stainless steel fully welded undershelves.
C. One (1), #18 gauge stainless steel, 12" wide, table mounted overshelf.
D. Two (2) 20" x 20" x 5" deep stainless steel drawer.

ITEM #30 SPARE NUMBER

ITEM #31 FIRE PROTECTION SYSTEM: Provide one (1) lot fully functional system by Ansul or approved equal including the following:

A. 304 stainless steel cabinet enclosure with doors to be mounted in the in the kitchen area as indicated on drawings.
B. Provide U.L. listed, automatic, wet chemical hood and duct fire suppression system for kitchen ventilator with one (1) year warranty on the cylinder and hardware. System to include hood, duct and surface protection in compliance with NFPA 96, State and Local codes, and to be completely installed by a factory authorized, licensed mechanic. The contractor shall furnish mechanical gas valve to the Plumbing Contractor for installation as required for fire fuel shut-off. In addition, the system shall be equipped with electrical micro switches for inter- wiring with fire/fuel shut-off shunt trip breakers or contactors in the electrical supply for all equipment served by the suppression system, micro switches are to be provided for interconnection by the alarm contractor. A manual fire pull station shall be included per details on drawings and located by fire protection installer. Fire protection equipment installer shall qualify the location for all pull stations shown on drawings in the path of egress to meet with local code by the local authority having jurisdiction. Installation shall be completed by Kitchen Equipment Supplier except for inter-wiring, which shall be done by Electrician. All exposed fire control piping to

be chrome plated and all hood penetrations sealed with U.L. listed stainless steel penetration fittings.

C. All chemical piping shall be Schedule 40, black pipe, chrome or stainless steel. Where piping penetrates hood capture area, exhaust duct and plenum, UL listed grease tight seals or liquid tight welded fittings shall be used. In addition, all exposed piping shall have tight fitting, sealed, chrome plated sleeves or fittings where exposed. All cable where used shall be contained within electrical “EMT” or conduit. Further, all piping or conduit shall be installed within walls or above ceilings wherever possible.

D. The purveying contractor shall be responsible for providing a complete and working system having the appropriate quantity of full chemical cylinders for the system, surface mounting the systems on the wall where appropriate, properly testing the system, providing the proper certification to the State Fire Marshal’s office.

E. Provide one (1) type “K” hand extinguishers per fire system, per code for each system with mounting bracket and locate in accordance with local code.

ITEM #32 WORK TABLE W/OVERSHELF: Provide one (1) custom fabricated table, size and shape as per plan, elevation, sections, details and general specifications, including:

E. #14 gauge stainless steel top with 2" turn down front and sides. Splash to be 8" high at wall as detailed on drawings.

F. Table to be mounted on 1-5/8" O.D. stainless steel legs and crossrails with stainless #16 gauge stainless steel fully welded undershelves.

G. One (1), #18 gauge stainless steel, 12" wide, table mounted overshelf.

H. One (1) 20” x 20” x 5” deep stainless steel drawer.

ITEM #33 MOBILE PROOFER/HEATED CABINET: Provide one (1) Food Warming Equipment Company model # PHU-12*J088 cabinet, each including:

A. Full Perimeter Bumper. 5” diameter polyurethane tired casters with Chrome plated, welded steel disc hub. Two (2) swivel casters with brakes and two (2) fixed casters on rear. Casters equipped with Zerk grease fittings.

B. Push/pull handles.

C. Universal adjustable tray slides on 3” centers. Humidity pan. Drip trough with removable pan.

D. Door to be hinged per plan.

E. Cord and plug.

F. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Cres-cor, Wittco or Piper Products

ITEM #34 STAINLESS STEEL WALL END CAP: Provide two (2) custom fabricated wall end caps, size and shape as per plan, elevation, sections, details and general specifications, including:

A. To be constructed of 14-gauge stainless steel per detail.

B. Unit shall cover the entire end of wall per plans, elevations and detail

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ITEM #35 STAINLESS STEEL CORNER GUARD: Provide twenty (20) custom fabricated corner guards, size and shape as per plan, elevation, sections, details, and general specifications, including:

A. #14 gauge stainless steel construction per detail.
B. Install with approved mastic and seal all exposed edges to wall with clear silicone. Do not use screws or bolts to secure to wall.

ITEM #36 WORK TABLE W/2 COMPARTMENT SINK: Provide one (1) custom fabricated table, size and shape as per plan, elevation, sections, details and general specifications, including:

A. #14 gauge stainless steel top with 2" turndown on open sides having 1" radius on outside corners. 8" high backsplash on rear. ¾" Marine front and open ends.
B. Base to be open style 1-5/8" O.D. stainless steel legs and crossrails, with #16 gauge stainless steel fully welded undershelves where shown and adjustable bullet feet.
C. Two (2) 18" x 20" x 10" deep sink insets of #14 gauge stainless steel coved construction with lever drains with connected overflow. Stainless steel apron on all exposed side of sinks. All drain lines are to be soldered copper pipe. All exposed copper to be painted with aluminum paint.
D. Provide one (1) T. & S. Brass and Bronze Works, Inc., model #B-0133*J088 pre- rinse spray with model #B-0156-ADF swing faucet, model #B-0109 wall bracket and model #B-0970- FEZ, in-line vacuum breaker.
E. Two (2) #18 gauge stainless steel 12" wide overshelf, with rear and ends coved up and capped, mounted to utensil rack support on each side of the sink per elevations and details. Flat area to be provided on backsplash for sleeves of utensil rack supports.
F. Table to have one (1) 20" x 20" x 6" deep all stainless steel tool drawer enclosed in #18 gauge stainless steel common housing.
G. Unit to have pad for can opener located as per plans and details.
H. Provide two (2) 18" x 21" x ¾" cutting boards on stainless steel slides below table, refer to elevations and details.

~~ITEM #37 ELECTRIC CAN OPENER: Provide one (1) Edlund Company model #270 electric can opener and set in place per plan.~~

ITEM #37 SPARE NUMBER

~~ITEM #38 FOOD PROCESSOR: Provide one (1) Berkel model #M3000 cutter with following plates and accessories:~~
~~A. One (1) #S3 slicer.One (1) #S5 slicer.~~
~~B. One (1) #S11 slicer.~~
~~C. One (1) #J4X4 slicer plate with #D1 dicer.~~
~~D. One (1) #SH3 shredder.~~
~~E. One (1) #D8 dicing plate.~~
~~F. One (1) Six plate storage rack.~~

ITEM #38 SPARE NUMBER

ITEM #39 MANUAL CAN OPENER: Provide one (1) Edlund Corporation model #S-11*J088 can opener and install on Item #36 Work Table, where shown on plan.

ITEM #40 SPARE NUMBER

ITEM #41 WORKTABLE W/SINK: Provide one (1) custom fabricated assemblies, size and shape as per plan, elevation, sections, details and general specifications, including:

A. #14 gauge stainless steel top with 2" turn down front and sides. Splash to be 8" high at walls as detailed on drawings.
B. Table to be mounted on 1-5/8" O.D. stainless steel legs and crossrails with stainless #16 gauge stainless steel fully welded undershelves.
C. One (1), #18 gauge stainless steel, 12" wide, table mounted overshelf. Stop shelf short per plan for Item #42, Hot Water Dispenser.
D. One (1) 20” x 20” x 5” deep stainless steel drawer.
E. One (1) 18" x 20" x 10" deep coved, #14 gauge stainless steel sink inset with stainless steel apron on all exposed side of sinks mounted on stainless steel legs and crossrails with T. & S. Brass and Bronze Works, Inc., model #B-0230-EE-061X*J088 splash mounted faucet and lever drain with overflow.

ITEM #42 HOT WATER DISPENSER: Provide One (1) Hatco, model #AWD-12*J088, Hot water Dispenser, complete with Nema 6-30P. Provide inline water filter for installation in the water line.

ITEM #43 30 QUART MIXER: Provide one (1) Hobart Corporation model #HL300*J088 Mixer, floor model including:

A. Two (2) each 30-quart stainless steel bowls, one (1) standard beater, dough hook, whip, and bowl scraper.
B. One (1) stainless steel product chute.
C. Rubber foot pads.

ITEM #44 UTENSIL RACK: Provide one (1) custom fabricated utensil rack, size and shape as per plan, elevation, sections, details and general specifications, including:

A. Provide 2" x 1/4" stainless steel band constructed utensil rack as per detail 16/QF151. Unit to be fitted with Component Hardware stainless steel sliding pot hooks on approximately 8" centers. Bolt to wall as required using stainless steel bolts and seal to all adjacent surfaces with clear silicone. K.E.C. to verify the need for wall backing.

ITEM #45 FLOOR TROUGH W/GRATE: Provide one (1) IMC Teddy Model SFT*J088, including:

A. Provide IMC Teddy SFT “Shallow” floor trough to be constructed of 14-gauge 18-8 type #304 stainless steel with fully welded and coved-corners that have been smooth polished, size and shape per plans.
B. Built-in pitch toward waste, and includes anchor straps for securing

within floor

C. Unit to be fitted with stainless steel wasted cup with removable stainless steel basket for up to 3" waste pipe.
D. Provide Manchester Associates model #FRP, cut to size and shape as per plan, **(sections not to exceed 18" in length)**, 1-1/2 square mesh grating, stainless steel grate color. Contact information Mr. Steve Manchester, 214-357-3978. Chemgrate heavy duty model FS series removable grates are an acceptable alternate.
E. To be provided by KEC., installed by G.C. KEC to verify and coordinate with site conditions and general contractor. Verify clearance with Item #29, Ice Machine. **All troughs are to be flush with finished floor, reference details on drawings for installation.**
F. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Kelley Products, BSI or Advance Tabco.

ITEM #46 ICE MACHINE W/ BIN: Provide one (1) Manitowoc model #IYT-0500A*J088, Indigo Series Ice Cube Machine mounted on bin as indicated below, including:

A. Modular, half-dice machine with production capacity of 440 pounds of ice per 24 hour period at 90 degree air and 70 degree water.
B. Condenser to be air-cooled.
C. Machine to use R-410A CFS-free refrigerant.
D. Energy and water usage per 100 pounds of ice as rated by ARI not to exceed 4.58 KWH and 20.0 gallons.
E. Unit to include optional Bin Level Control.
F. One (1) Manitowoc, model No. D-570 Ice Bin. Omit standard legs and mount on adjustable stainless steel legs.
G. Three (3) year parts and labor warranty on ice machine, five (5) year parts and labor warranty on the evaporator and five (5) year parts, three (3) year labor warranty on the compressor.
H. Optional Luminice Growth Inhibitor and bin level control.
I. Everpure, InsurIce 2000 single with one (1) model #K-10 coarse filter. Provide one (1) six pack of replacement cartridges for each filter and deliver to Dallas I.S.D. Foodservice Department.

ITEM #47 MOBILE DRYING RACK: Provide three (3) Intermetro Corporation model #PR48VX3*J088 mobile drying rack, including:

A. MetroMax® Mobile Drying Rack Unit, 4 tier, includes (2) drop-ins and (1) cutting board/tray drying rack, built in Microban® antimicrobial product protection
B. 5" diameter heavy duty, N.S.F. approved polyurethane tired swivel casters. Brakes on two (2) casters.
C. Rotating, non-marking neoprene bumpers with stainless steel hubs, mounted just above the casters

ITEM #48 POT AND PAN COLLECTORW/ SPRAY RINSE: Provide one (1) Salvajor model P914*J088, Scrapping, Pre- Flushing and Food Waste Collecting System with one (1) additional scrap basket and fully weld into Item #49, Powersoak 3 Compartment Sink per plans. Provide spray rinse faucet

mounted to backsplash at collector as shown, T&S Brass and Bronze works Inc., model #B-0113 pre-rinse spray with model #B-0109 wall bracket. Delete standard vacuum breaker and provide T&S Brass and Bronze works Inc., model #B-0456-04 vacuum breaker assembly.

ITEM #49 POWERSOAK 3 COMPARTMENT SINK: Provide one (1) Metcraft, PowerSoak model # PS-G3- LRG-JBZ-34LM*J088 sink unit, including:

Description:

A. Unit length and work flow per plans x 34.5" Front to Back as follows.
B. Backsplash to be 12” Over All Height – 10.5” Vertical with 45 Degree Angle to Wall w/ 1 ½” turn up.
C. Backsplash to run full length of back of unit. Soiled Drain Board with Pot/Pan Collector Collar (Collar by Others) Welded Integral.
D. Soiled Drain Board plus end splash, per plans.
E. Clean Drain Board plus end splash, per plans.
F. Wash Tank shall be 60” L to R, 28 ¾” I.D. Front to Back by 21” Deep, with Removable Sheet Pan Racks.
G. Rinse Sink shall be 24” L to R X 14" Deep.
H. Sanitizer Sink shall be 24” L to R X 14” Deep.
I. All tanks, 14 gauge, 304 S/S
J. System conforms to ANSI/NSF Standard 2 with all welds to be Heliarc (TIG) welds
K. Includes (3) Component Hardware #DBN-9100-PS, 1 ½ “ IPS Rear Exit Ball Valve Drains (With Overflows for Rinse and Sanitize), (2) T&S #B-0290-PS 3/4" High Flow Faucet to Fill Wash, Rinse & Sanitizer Bowl. Also Includes (1) Utensil Basket and PS-200 Control Package.

Wash Tank:

L. Low Profile Wash jets spaced every 6” flush along the back wall of wash tank &
above the wash pump intake.
M. SST Wash Pump Intake to run full length of the rear of the tank below wash jets.
N. SST Wash Pump Housing fully self-draining with no use on drain line or valve.
O. (1) - Utensil Basket powered by one dedicated wash jet.
P. Dual liquid high & low water level sensors.
Q. Bottom of wash tank to be creased to facilitate draining.
R. 3 HP Wash Pump Motor with S/S impeller, pump housing and wash manifold.
S. A 7000 watt wash tank heater. Maintain wash tank temperature at 115˚ +/- ½ ˚ F.
T. Chemical injection point pre-drilled at factory.
U. Wash Tank to have ¼” Plate S/S hooks welded to the rear of the tank with dimples on front channel enabling optional Sheet Pan Racking System to be installed where sheet pans are loaded and stand vertically from the front to the back of the wash tank.

Sanitizer Tank:

V. Chemical sanitizer injection point pre-drilled at factory.
W. Dual liquid high & low water level sensors.

PS- 200 Control Panel:

X. Four hour wash timer.
Y. Low voltage power is supplied to all operator controls and sensors.
Z. Operator controls - Green (ON) / Red (OFF) buttons.
AA. Automatically monitors and regulates the wash water temp.
BB. Monitors high and low liquid levels in both the wash tank and sanitizer tank.
CC. Meets UL 50, category 4X specifications.
DD. Wash Cycle to Shut Off for 10 minutes then Run for 5 minutes until manually shut off.
EE. Wash Tank Temperature not to drop below 115˚ +/- ½ ˚ F when running.
FF. Sanitizer Tank in Normal Wash Mode to Shut-Down System if not drained & refilled GG. every programmable 2-4 Hour period to insure proper sanitation.

Field Joint:
GG. Provisions for (1) JBZ Non-welded Field Joint.

Warranty:
HH. Three Year Parts and Labor from Date of Shipping.

Options:
II. Dual Peristaltic Pump Chemical Dispenser Integrally wired to Control Panel.
JJ. Unit shall include over shelf with pot rack, length per drawing.
KK. Stationary undershelf located under soiled & clean drain boards, per plans.
LL. Removable Sheet Pan Racks for wash tank.

ITEM #50 SPARE NUMBER

ITEM #51 SPARE NUMBER

ITEM #52 DUNNAGE RACK: Provide two (2) New Age Industrial model #2009*J088 rack, including:

A. Heavy duty all welded aluminum dunnage rack.
B. 2500 pound capacity.
C. 12” above finished floor.
D. Lifetime guarantee against rust and corrosion. Five year guarantee against material defects and workmanship.

ITEM #53 DRY STORAGE SHELVING: Provide one (1) lot of InterMetro MetroMax IQ shelving, with the following options:

A. Sizes, widths and lengths as per plan.
B. Five tiers high, each section with (4) MX86P posts. Verify shelf heights with Owner.
C. Confirm room size and provide the maximum amount of shelving that will fit into the space.
D. **A specific product manufactured by any of the following listed manufacturers is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Cambro**

ITEM #54 MOBILE PAN RACK: Provide six (6) New Age, model 1335*J088 pan racks, with the following options:

A. Refrigerator height with universal slides for 12"x20" or 18"x26" pans on 3" centers.
B. N.S.F. approved 5" all swivel casters, two (2) on short side to have brakes.
C. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Win-holt, Piper or Cres-cor

ITEM #55 FLY FAN: Provide one (1) Mars model #STD248-1UA*J088 Fly Fan, including:

A. To be controlled by Electrician installed door operated Micro switch furnished with fan.
B. Door micro switch
C. One ½ H.P. motor
D. Verify indoor or outdoor installation.
E. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Berner

ITEM #56 MOP SINK & FAUCET: Provide one (1) IMC/TEDDY model #FS-L*J088 unit, including:

A. Provide and install one (1) T & S Brass model #B-0665-BSTP faucet. K.E.C. to verify the need for wall backing required for faucet support bracket and provide adequate information to the Contractor to properly facilitate the entire installation of the unit.
B. Provide and install optional, model FL48, wall flashing and seal at all adjacent surfaces with clear silicone.
C. A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Advance/Tabco

ITEM #57 MOP & BROOM HOLDER: Provide two (2) Carlisle model #4073100*J088 holder. Provide and install at 70” A.F.F with stainless steel bolts. Kitchen Equipment Contractor is to coordinate any wall backing required.
A specific product manufactured by the following listed manufacturer is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Rubbermaid

ITEM #58 STACKED WASHER/DRYER: Provide one (1) lot Whirlpool model #WETLV27HW, 27”, high efficiency, super capacity stacked washer/dryer in the color white, including water hoses, cord with plug and dryer vent kit. Set unit in place per plans and make final connections to utilities per manufacturer’s specifications.
Note: Model number given are current for reference only. Models at the time of delivery shall be the current models.

ITEM #59 STORAGE SHELVING: Provide one (1) of InterMetro MetroMax IQ shelving, with the following options:

A. Sizes, widths and lengths as per plan.
B. Four tiers high, each section with (4) MX74P*J088 posts. Verify shelf heights with Owner.
C. **A specific product manufactured by any of the following listed manufacturers is acceptable only if the specific product can evidence compliance with the specified Item and the Contract Documents: Cambro**

PART 4 – - EXECUTION

INSPECTION:

Before beginning the installation of foodservice equipment, the spaces and existing conditions shall be examined by the foodservice equipment supplier and any discovered deficiencies or discrepancies noted shall be reported to the Architect in writing.

Beginning installation shall constitute acceptance of the area.

PREPARATION:

Foodservice equipment drawings are diagrammatic and intended to show layout, arrangement, mechanical and electrical requirements.

Make and check all measurements at the building before beginning fabrication. Coordinate measurements and dimensions with rough-in and space requirements.

INSTALLATION:

Equipment shall be uncrated, fully assembled and set level in position for final connections. Parts shipped loose but required for connection shall be properly tagged and shall be accompanied by the necessary installation instructions.

Provide a competent, experienced foreman to supervise installation and final connections.

Division 22 shall clean and flush all supply and drain lines before final connections.

Water inlets shall be located above the positive water level. Where conditions require submerged inlets, fixtures shall be equipped with vacuum breaker and approved check valve by Division 22.

REMOTE REFRIGERATION SYSTEMS:

The systems as indicated shall be complete and shall include all necessary labor to make a first-class installation. Contractor shall provide all necessary expansion valves, hand shut-off valves, dryers, sight glasses, thermostats, solenoid valves, high and low pressure controls, heat exchangers, line vibration eliminators and tubing. Provide schematic of proposed hookup to Consultant prior to installation for approval.

Heat exchangers are to be furnished and installed for all direct installations. Crankcase heaters to be provided in compressors for outside installation.

Furnish and install at each unit a liquid and suction line shut-off valve as closely as practical to the equipment. Install in each system a pump down valve take-off connection.

Expansion valves shall be thermostatic type, adjustable super-heat. Backpressure regulating valves shall be used on multi-plexed systems.

All refrigerant lines shall be type "L" hard copper tubing as required by approved installation practices. Where conduits are provided by others, the tubing shall be soft copper pulled through this conduit. For exposed areas, hard copper tubing shall be run in such a manner as to not subject it to undue damage. All refrigerant lines in pipe sleeves, or conduits shall be effectively caulked at ends to prevent entrance of water or vermin. All lines not in conduit shall be insulated with Armstrong Armaflex foamed plastic 1" insulation, which is to be taped and glued at joints. No slit insulation will be accepted. All refrigerant piping shall be joined by use of Sil-Foz high temperature silver solder with proper fittings.

Finish exposed refrigerant lines within refrigerated compartments with “All Weather Aluminum” paint.

Armstrong Armaflex line insulation on exterior of buildings to be covered with ITW Pabco/Childers (or equal) Aluminum Roll Jacketing manufactured from alloys 3105 and 3003, conforming to ASTM B-209 designation with a minimum thickness of .016”. This is to help prevent deterioration due to sun exposure.

Sizing of liquid and suction lines shall be according to ACRMA standards. All systems shall be subjected to a 20" vacuum for a period of 24 hours with no regain. Support all suspended lines with adjustable hangers 6'-0" o.c. maximum.

Contractor shall provide CFC free refrigerant and oil, charge the system and run an operational check of three (3) days duration and provide oil separators in all instances where the condensing units are located above the refrigerating coil. Warranty shall be as hereinbefore described.

FIELD QUALITY CONTROL:

Inspection: Provide access to shop fabrication areas during regular working hours to facilitate inspection of the equipment, during construction, by the Architect or his authorized representative. Errors found during these inspections shall be corrected to the extent required within the scope of the plans, specifications and reviewed drawings.

Testing: After completion of final connections, thoroughly test all equipment for proper operation.

Repair or replace any equipment producing objectionable noise.

Finishes marred during installation shall be repaired to the Consultant's satisfaction or replaced.

Start-up and Demonstration: Provide a start-up and operating demonstration of all equipment at a time of Owner's convenience.

Arrange for the demonstration to be held in the presence of authorized representatives of the Architect and the Owner.

Demonstrations to be conducted by Manufacturer's Representative and Equipment Supplier in the proper operation and maintenance of the equipment. When possible and available by the manufacturer, training videos are to be provided at no charge to the Owner.

One (1) copy of Operation and Maintenance Manuals as outlined in section marked "Quality Assurance" to be delivered to the Kitchen Manager at the time of demonstration for use on-site. Foodservice Equipment Supplier is to furnish to the Owner, Architect and Foodservice Equipment Consultant confirmation of demonstration and delivery of Operation and Maintenance Manuals in the form of "A Letter" including a "Receipt" for the Manual and a copy of "Sign-In" Sheet signed by all Demonstrators and Attendees.

ADJUST AND CLEAN:

Upon completion of installation and tests, remove all protective coverings and clean and service all equipment.

Make and check final adjustments required for proper operation of the equipment.

Cleanup: Clean up all debris by the work of this section, keeping the premises clean and neat at all times.

QUALIFIED KITCHEN SUPPLIERS:

Kitchen and food serving equipment shall be furnished, installed, and guaranteed by one of the following named kitchen suppliers:

1. Amundsen Commercial Kitchens, Mr. Cary Amundsen, 1740 W. Main Street, Oklahoma City, Oklahoma 73106 405/236-5961, E-mail: Cary@afeok.com

2. Bargreen-Ellingson, LLC., Mr. Dustin Kennedy, 2521 East Loop 820 North, Bldg. 13, Fort Worth, Texas 76118, 817/732-6200, FAX 817/732-6210, E-mail: d.kennedy@bargreen.com

3. Edward Don & Co., Mr. Scott Jost, 36 W. Beauregard, Ste. 504, San Angelo, Texas, 76903, 325/658-5878, FAX 325/658-7920, E-mail: scottjost@don.com

4. Jean's Restaurant Supply, Mr. Bobak Mostaghasi, 426 South Staples, Corpus Christi, Texas 78401 361/884-9800, FAX 361/888-7602, Cell 361/549-7818, E-mail: bobak@jeansrestaurantsupply.com

5. Kirby Restaurant Supply, Mr. Billy Anderson, 809 S. Eastman Road, Longview, Texas 75602, 903/757-2723, FAX 903/757-9519, E-mail: michaelp@kirbyrestaurantsup.com

6. Kommercial Kitchens, Mr. Terry Woodard, 1100 Freeway Blvd., Rose City, Texas 77622, 800/962-1555, FAX 409/769-8800, E-mail: Shannon@kommercialkitchens.com

7. Kitchen Resources, Mr. Bill Youngblood or Mike Mattar, 806 W Harrison,Harlingen,Texas 78550, 956-423-2491, FAX 956-423-3088

8. Lafayette Restaurant Supply, Inc., Mr. Scott Spurlock, 1103 Hugh Wallis Road S., Lafayette, LA 70508 337/235-4534, FAX 337/234-1803, E-mail:

scott@lafrest.com

9. LoneStar Restaurant Supply, Inc., 8131 I-35N, Austin, Texas, 78753, 512/633-3446, FAX 512/467-9757

10. Mission Restaurant Supply Company, Mr. Bruce Walker, 6509 North Lamar Street, Austin, Texas, 78752, 512/389-1705, FAX 512/389-1746, E-mail: brucew@missionrs.com

11. Pasco Brokerage, Inc., Ms. Kathryn Hollon or Ms. Emily Hart, 6465 Chase Oaks Blvd., Plano, Texas 75023, 972/596-3350, FAX 972/596-2817 E-mail: kathollon@pascoinc.net or ehart@pascoinc.net

12. Stafford-Smith, Inc., Mr. Mark Burden, 13370 Branch View Lane, Suite 160, Farmers Branch, TX 75234, 972/800-5269, email: mburden@staffordsmith.com

13. Supreme Fixtures Co., Inc. Mr. Tim Hampel, 11470 Hillguard Rd., Dallas, TX 75243, 501/455-2552, FAX 501/455-0802 email: tim@supremefixture.com

14. Texas Metal Equipment Company, Mr. Stephen Trawnik, 8704 Royal Lane, Irving, Texas 75063, 214/446-7206, FAX 214/446-7209, E-mail: strawnik@txmetalequip.com

15. Waco Hotel Supply Company, Inc., Shaleen Tillman, 308 Lake Air Drive, Waco, Texas 76714-7933, 254/772-8600, FAX 254/772-1158, E-mail: whsc@advanceone.net

QUALIFIED FABRICATORS:

All fabricated Items described in the specifications, other than by the catalog numbers shall be manufactured by an N.S.F. approved Foodservice Equipment Fabricator who has the plant, personnel and engineering facilities to properly design, detail and produce high quality foodservice equipment. All fabrication shall have N.S.F. labels and be by one (1) manufacturer and be of uniform design and finish.

The Foodservice Equipment Contractor shall, if requested, submit a list of at least three (3) comparably-sized projects for which the intended Foodservice Equipment Fabricator has furnished custom fabricated equipment.

END OF SECTION 11 40 00

SECTION 12 24 13

ROLLER WINDOW SHADES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes light blocking and light filtering roller window shades:

1. RS-1: Manually operated roller shades with single rollers; door and wall mount at sidelites, with fascia.
2. RS-2: Not Used.
3. RS-3: ~~Motorized, recessed dual roller shade with light filtering and Blackout shadebands~~**Not used**.
4. RS-4: Manually operated single roller shades at typical storefront framing; recessed box mount.
5. RS-5: ~~Manually operated blackout roller shades with single rollers and fascia~~**Not used**.

1.2 ACTION SUBMITTALS

A. Product Data: Technical data including construction details, material descriptions, 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 shadeband materials, their orientation to rollers, and their seam and batten locations.

~~1. Motor Operated Shades: Include details of installation and diagrams for power, signal, and control wiring.~~

C. Samples for Verification: Submit for each type of roller shade.

1. Shadeband Material: Not less than 10 inches (250 mm) square. Mark interior face of material if applicable.
2. Roller Shade: Full size operating unit, not less than 16 inches (400 mm) wide by 36 inches (900 mm) long for each type of roller shade indicated.
3. Installation Accessories: Full-size unit, not less than 10 inches (250 mm) long.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: Submit data for Installer.

B. Product Certificates: Submit certificates for each type of shadeband material.

C. Product Test Reports: Submit reports for each type of shadeband material, for tests performed by manufacturer and witnessed by a qualified testing agency or a qualified testing agency.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit data for roller shades to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Fabricator of products.

B. Source Limitations: Obtain roller shades from single source from single manufacturer.

C. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.

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

1.6 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.

1.7 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.

1. 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.

1.8 EXTRA MATERIAL

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

1. Roller Shades: Full size units equal to 5 percent of quantity installed for each size, color, and shadeband material indicated, but no fewer than two units.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Draper Inc.
2. Mecho
3. Lutron
4. Silent Glis

B. Source Limitations: Obtain roller shades from single source from single manufacturer.

2.2 MANUALLY OPERATED SHADES WITH SINGLE ROLLERS

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. Basis of Design Product: Clutch Operated FlexShade as manufactured by Draper.
2. Drive Chain: Continuous loop T304 stainless steel beaded ball chain, 100 pound (45 kg) minimum breaking strength warranted from breaking for the life of the shade system hardware under prescribed operation. Provide upper and lower limit stops.

a. Chain Tensioner: Chain tensioning device complying with ANSI/WCMA A100.1-2022.
b. Limit stops: Bead stops affixed to the chain maintain consistent shadeband alignment at the top and bottom of shade travel across multiple shades, and help prevent shade damage resulting from unmanaged user control.

3. Pull Force: Maximum 5 pounds in accordance with 2010 ADA Standards for Accessibly Design, Section 309.

a. Spring Lift Assist Mechanisms: Manufacturer's standard for balancing roller shade weight and for lifting heavy roller shades.
b. Provide for shadebands required to comply with ADA requirements or that weigh more than 10 lb (4.5 kg), and for shades as recommended by manufacturer, whichever criterion is more stringent.

B. Rollers: Corrosion resistant steel or extruded aluminum tubes of diameters and wall thickness required to accommodate operating mechanisms and weights and widths of shadebands indicated without deflection. Provide with permanently lubricated drive end assemblies and idle end assemblies designed to facilitate removal of shadebands for service.

1. Roller Drive End Location: As indicated on Drawings or as directed by Architect.
2. Direction of Shadeband Roll: Regular, from back (exterior face) of roller.
3. Shadeband to Roller Attachment: Adhesive strip or other attachment as standard with roller shade manufacturer.

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. Shadebands:

1. Shadeband Material, ~~RS-1 and~~ RS-4: Light filtering fabric.
2. Shadeband Material, RS-**1**~~5~~: Light blocking (Blackout) fabric.
3. Shadeband Bottom (Hem) Bar: Steel or extruded aluminum.

a. Color and Finish: Selected by Architect.

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: Height required to conceal roller and shadeband assembly when shade is fully open, but not less than.

2. Recessed Shade Pocket: Rectangular, extruded aluminum enclosure designed for recessed ceiling installation; with front, top, and back formed as one piece, end plates, and removable bottom closure panel.

a. Height: Height required to enclose roller and shadeband assembly when shade is fully open, but not less than height indicated on Drawings.
b. Provide pocket with lip at lower edge to support acoustical ceiling panel.

3. Closure Panel and Wall Clip: Removable aluminum panel designed for installation at bottom of site-constructed ceiling recess or pocket and for snap-in attachment to wall clip without fasteners.

a. Closure-Panel Width: 2 inches (51 mm).

4. Side Channels at Light Blocking Shadebands: With light seals and designed to eliminate light gaps at sides of shades as shades are drawn down. Provide side channels with shadeband guides or other means of aligning shadebands with channels at tops.

5. Bottom (Sill) Channel or Angle: With light seals and designed to eliminate light gaps at bottoms of shades when shades are closed.

~~3.~~**6.** Installation Accessories Color and Finish: Selected by Architect.

~~2.3 MOTOR OPERATED, DOUBLE ROLLER SHADES~~

~~A. Motorized Operating System: Provide factory assembled, shade operator system of size and capacity and with features, characteristics, and accessories suitable for conditions indicated, complete with electric motor and factory prewired motor controls, power disconnect switch, enclosures protecting controls and operating parts, and accessories required for reliable operation without malfunction. Include wiring from motor controls to motors. Coordinate operator wiring requirements and electrical characteristics with building electrical system.~~

~~1. Electrical Components: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.~~
~~2. Electric Motor: Tubular, enclosed in roller.~~

~~a. Electrical Characteristics: 120V, 3 Phase. Coordinate with Work of Division 26.~~
~~b. Maximum Total Shade Width: Required to operate roller shades indicated.~~
~~c. Maximum Shade Drop: Required to operate roller shades indicated.~~
~~d. Maximum Weight Capacity: Required to operate roller shades indicated.~~
~~e. Controls: Electric controls with NEMA ICS 6, Type 1 enclosure.~~

~~1) Mounting and locations of momentary switches as directed by Architect or as shown.~~

~~f. Colors: Selected by Architect.~~

~~3. Limit Switches: Adjustable switches interlocked with motor controls and set to stop shades automatically at fully raised and fully lowered positions.~~
~~4. Operating Features:~~

~~a. Group switching with integrated switch control; single faceplate for multiple switch cutouts.~~

b. Capable of interface with audiovisual or multiroom control system.
c. Capable of accepting input from building automation control system.
d. Override switches at locations noted on Drawings or as directed by Architect.

B. Rollers: Corrosion resistant steel or extruded aluminum tubes of diameters and wall thickness required to accommodate operating mechanisms and weights and widths of shadebands indicated without deflection. Provide with permanently lubricated drive end assemblies and idle end assemblies designed to facilitate removal of shadebands for service.

1. Roller Drive End Location: As indicated on Drawings or as directed by Architect.
2. Direction of Shadeband Roll: Regular, from back (exterior face) of roller.
3. Shadeband to Roller Attachment: Adhesive strip or as standard with roller shade manufacturer.

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 that are operated by one roller drive end assembly where shown or as applicable for conditions shown.

E. Inside Shadebands:

1. Shadeband Material: Light filtering fabric.
2. Shadeband Bottom (Hem) Bar: Steel or extruded aluminum.

a. Type: Enclosed in sealed pocket of shadeband material.
b. Color and Finish: Selected by Architect.

F. Outside Shadebands:

1. Shadeband Material: Light-blocking fabric.
2. Shadeband Bottom (Hem) Bar: Steel or extruded aluminum.

a. Type: Exposed with endcaps and integral light seal at bottom where it meets the sill.
b. Color and Finish: Selected by Architect.

G. 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: Height required to conceal roller and shadeband assembly when shade is fully open, but not less than 4 inches (102 mm).

2. Recessed Shade Pocket: Rectangular, extruded aluminum enclosure designed for recessed ceiling installation; with front, top, and back formed as one piece, end plates, and removable bottom closure panel.

a. Height: Height required to enclose roller and shadeband assembly when shade is fully open, but not less than height indicated on Drawings.
b. Provide pocket with lip at lower edge to support acoustical ceiling panel.

3. Endcap Covers: To cover exposed endcaps.

~~4.~~**1.** ~~Closure Panel and Wall Clip: Removable aluminum panel designed for installation at bottom of site-constructed ceiling recess or pocket and for snap-in attachment to wall clip without fasteners.~~

~~a. Closure-Panel Width: 2 inches (51 mm).~~

~~5.~~**1.** ~~Side Channels at Light Blocking Shadebands: With light seals and designed to eliminate light gaps at sides of shades as shades are drawn down. Provide side channels with shadeband guides or other means of aligning shadebands with channels at tops.~~

~~6.~~**1.** ~~Bottom (Sill) Channel or Angle: With light seals and designed to eliminate light gaps at bottoms of shades when shades are closed.~~

~~7. Installation Accessories Color and Finish: Selected by Architect.~~

~~2.4~~**2.3** SHADEBAND MATERIALS

A. Shadeband 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.
2. Type: PVC coated fiberglass.
3. Weave: As selected by Architect.
4. Thicknesses and Weights: As scheduled or as selected by Architect.
5. Openness Factor: 1 percent unless otherwise directed by Architect.
6. Colors: Selected by Architect.

C. Light-Blocking Fabric: Opaque fabric, stain and fade resistant.

1. Source: Roller shade manufacturer.
2. Type / Weave: As indicated in Interior Finish Schedule on Drawings.
3. Openness Factor: 0%.
4. Orientation on Shadeband: Up the bolt unless otherwise indicated on Drawings.
5. Color: As selected by Architect from manufacturer’s full range.

~~2.5~~**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 degrees F (23 degrees 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. Shadeband Fabrication: Fabricate shadebands without battens or seams to extent possible, except as follows:

1. Vertical Shades: Where width to length ratio of shadeband is equal to or greater than 1:4, provide battens and seams at uniform spacings along shadeband length to ensure shadeband tracking and alignment through its full range of movement without distortion of the material.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions for compliance with requirements for installation tolerances, operational clearances, locations of connections to building electrical system, and other conditions affecting performance of the work.

B. Proceed with installation after correcting unsatisfactory conditions.

3.2 ROLLER SHADE INSTALLATION

A. Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions.

1. Opaque Shadebands: Located so shadeband is not closer than 2 inches (51 mm) to interior face of glass. Allow clearances for window operation hardware.

~~B. Electrical Connections: Connect motor operated roller shades to building electrical system.~~

~~C.~~**B.** Roller Shade Locations: Indicated on Drawings.

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.

3.5 DEMONSTRATION

A. Engage a factory authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain ~~motor operated~~ roller shades.

END OF SECTION

SECTION 27 45 00

DISTRICT-WIDE EMERGENCY COMMUNICATIONS AND MASTER CLOCK SYSTEMS

PART 1 - GENERAL

1.1 GENERAL

A. Coordinate incorporation of the Work specified herein with other project work so as to facilitate a cohesive final product.

1.2 SUMMARY

A. Provide a complete turnkey Electronic Communications Interface integrated with the existing Dallas ISD District-Wide Emergency Communication System.

B. All bids shall be based on the equipment as specified herein. Catalog numbers and model designations are that of the Rauland-Borg Emergency Communications, Public Address and Master Clock System which constitutes the standard of quality, functions and features set forth in these specifications.

C. This section includes a fully operational IP platform for district-wide internal and school communications system incorporating school safety notifications and general communications including but not limited to the following:

1. The platform shall provide complete internal communications and employing state of the art IP Technology including the minimum functions listed:

    a. Two-way internal intercommunications between staff locations and classrooms.

    b. Scheduled bell events

    c. Emergency announcement that will override any pre-programmed zones assuring that all Emergency/Lockdown etc., are heard at each and every speaker location.

    d. Capability of prerecording emergency announcements that can simply be activated by a simple Soft Key or via a dedicated push button.

    e. Atomic Time Synchronization with Class Change Tones utilizing multiple, programmable schedules for each zone.

    f. District wide, Emergency, group, all school and zone live voice paging

    g. District wide, emergency, group, all school and zone paging for pre-recorded audio tones, music and voice.

h. Web-based user interface.

2. The system shall support a minimum of 1000 level priorities which shall be user definable, allowing each end point to place a minimum of 5 different priority calls at the same time.

3. Any authorized administrator shall be able to call from outside the school into any classroom, zone or entire school directly via the School District supplied SIP enabled Telephone Network. This shall allow remote monitoring, call-in annunciation and two-way conversation from outside the facility as well as paging into the system. (Compliance with NEMA Standard SB-40 for emergency communications in K-12 Schools)

4. Authorized system users shall be able to create a minimum of twenty (20) automated sequences with emergency instructions, tones, and emails and relay activations and replay them.

5. Automated message strings shall be manually initiated from a single-button access on the console, on a SIP connected telephone, a panic button, from the web interface or via interface with third party systems.

6. Paging and two-way intercom features shall be accessible from any system console or SIP connected telephone for each campus.

7. The platform shall synchronize its system time to the network timeserver or a web-based time server.

8. Each single campus installation shall be locally survivable for intercom, paging, bells, and emergencies such as lockdown, even when the district connection is unavailable.

9. This specification establishes a minimum level of quality, features, and performance for individual components as well as the integrated system.

10. System is to be overridden by the fire alarm system. Fire alarm contractor is to provide dry contacts to emergency communications system contractor for installation.

1.3 REFERENCE STANDARDS

A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

B. TIA-569 - Telecommunications Pathways and Spaces; 2019e, with Addendum (2022).

C. TIA-606 - Administration Standard for Telecommunications Infrastructure; 2021d.

D. TIA-607 - Telecommunications Bonding and Grounding (Earthing) for Customer Premises; 2024e.

1.4 DEFINITION OF TERMS

A. Installer(s): Shall refer to the person, persons, or company who or which contracts to perform the work specified herein.

1.5 SUBMITTALS

A. Product data for each component.

B. Shop Drawings: Prior to proceeding with the work provide detailed equipment assemblies and indicate dimensions, weights, required clearances, method of field assembly, components, and location of each field connection, and a complete schedule of all equipment and materials with associated manufacturers cuts sheets which are to be used.

1. Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer-installed and field-installed wiring. Identify terminals to facilitate installation, operation, and maintenance. Include a single-line diagram showing cabling interconnection of components and levels throughout system and impedances.

2. Artwork drawings and lists indicating proposed nameplate nomenclature and arrangements for control panels and plug panels prior to fabrication reflecting equipment used.

3. Each drawing shall have a descriptive title and all sub-parts of each drawing shall be labeled. All drawings shall have the name and locations of the project, Systems

a. Contractor’s name in the title block.

4. Details and descriptions of any other aspect of the system, which must differ from the contract documents due to field conditions or equipment, furnished.

C. FCC Approval: The system shall be approved for direct interconnection to the telephone utility under Part 68 of FCC rules and regulations. Systems, which are not FCC approved or utilize an intermediary device for connection, will not be considered. Provide the FCC registration number of the system being proposed as part of the submittal process.

D. Product Certificates: Signed by manufacturers of equipment certifying that products furnished comply with specified requirements.

E. Installer Certificates: Signed by manufacturer certifying that installers comply with requirements.

F. Manufacturer Certificates: Signed by manufacturers certifying that they comply with requirements.

G. Field Test Reports: Indicate and interpret test results for compliance with performance requirements. Include record of final matching transformer-tap settings, and signal ground- resistance measurement certified by Installer.

H. Maintenance Data: For equipment to be included in maintenance manuals specified in Division 1.

1. Record of Owners equipment-programming option decisions.

2. All instructions necessary for proper operation and manufacturer's instructions.

3. "Proof of Performance" information.

4. Manufacturer's maintenance information.

5. Copies of non-proprietary computer programs and system set up disks documenting all programmable features of the installed system.

I. Record Drawings: Prior to final acceptance, provide three (3) complete sets of drawings indicating all cable numbers and construction details in accordance with the actual system installation. Revise all shop drawings to represent actual installation conditions. These Record Drawings will be used during "Final Acceptance Testing".

J. System Training: Submit the following information describing the training programs and system trainers as outlined in paragraph 1.6 of this specification and in accordance with Division 1 specifications.

1. Include with the submittal a preliminary staff development training program in outline form

a. for review and approval by the owner's representative.

2. Include with the submittal a current copy of the trainer's certification from the manufacturer that certifies and identifies the trainer(s) who are eligible to provide training and support for the project.

3. Include with the submittal a current copy of trainer's need's assessment form which will be reviewed with the owner's designated representative for the system's preliminary system programming and configuration.

4. Include with the submittal copies of all documentation used to identify for the owner those participants attending and completing the training programs.

K. A copy of the manufacturer's standard statement of warranty proving all equipment provided for the school communications network is covered with the required five-year warranty shall be included with the project submittal. This statement of warranty shall be provided on the manufacturer's stationary.

L. Closet Out Drawings

1. System Wiring Diagrams: Updated shop drawings showing connections, components, auxiliary components, device room location, circuit numbers and cable numbers.

2. Provide floor plans with device locations, circuits numbers and cable numbers.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is an authorized representative of equipment manufacturer for both installation and maintenance of equipment required for this Section. Provide the following with in thirty (30) days after notification to proceed:

1. Provide a list of installations that the Installer has specifically installed for verification by the Owner. Random installations from other vendors and/or Installers shall not be accepted. The Installer, not its employees, must meet these qualifications.

2. The Installer shall be bondable.

3. The Installer shall demonstrate to the satisfaction of the Owner or his representative that he has:

a. Adequate plant and equipment to pursue the work properly and expeditiously.

b. Adequate staff and technical experience to implement the work.

c. Suitable financial status to meet the obligations of the work.

d. Technically capable and factory trained service personnel at a local service facility to provide routine and emergency service for all products used in this project.

B. Any Contractor, who intends to bid on this work and does not meet the requirements of the “Quality Assurance” paragraph(s), shall employ the services of a “Installer” who does meet the requirements and who shall provide the equipment, make all connections and continuously supervise the installation. A subcontractor so employed as the “Installer” must be acceptable to the Architect/ Engineer. The “Installer” shall be identified within thirty (30) days of notification to proceed for acceptance by the Architect/Engineer

C. Because the life expectancy of this type of communications structure normally exceeds 10 years, the owner expects continuity from the service provider. If the installing/servicing company has not been an authorized provider of the manufacturers product for at least 20 years, the following is required:

1. A list of (2) systems manufacturers of which they currently are authorized service providers where the relationship exceeds 10 years

2. A letter from the manufacturer outlining the details of changes in service providers over the last 20 years and what actions they will take to ensure continuity of service to the customer.

D. Each major component of equipment shall have the manufacturers name, address and model number on a plate securely affixed in a conspicuous place. NEMA code ratings, UL Label, or other data that is die-stamped into the surface of the equipment shall be easily visible.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

F. Comply with NFPA 70

G. Comply with NEMA Standard SB-40 for Emergency Communications in K-12 schools.

H. Comply with UL 60950.

1.7 IN-SERVICE TRAINING

A. The contractor shall provide and implement a complete and comprehensive staff training program for all administrators, facility staff members, and teachers. This mandatory training program will provide school staff a complete understanding of how to utilize and properly operate all functions

B. The training program shall be implemented by a staff member/trainer employed by the contractor. The trainer must be factory certified to provide training on their product.

C. All staff development training is to be coordinated through the owner’s designated representative. As training sessions are completed, the trainer will provide the school’s administrative staff and school district’s staff a document listing all of the staff and faculty members who attended, received, and completed the training program.

1.8 WARRANTY

A. Provide a manufacturer’s five-year warranty of the school communications network equipment against defects in material and workmanship. This warranty will cover all electronic equipment, as well as analog clocks, speakers, and call-in switches. If any defects are found within the warranty period, the defective equipment shall be replaced at no cost (equipment only); a one year warranty shall be provided for labor.

B. A copy of the manufacturer’s standard statement of warranty proving all equipment provided for the school communications network is covered with the required five-year warranty shall be included with the project submittal. This statement of warranty shall be provided on the manufacturer’s stationary. The standard five-year warranty is an important element in establishing a standard in quality. Manufacturers who circumvent the five-year warranty by

1. offering special “extended warranties” that are not part of their normal published warranty will not be accepted.

C. Contractor shall respond, excluding weekends and holidays, within 24 hours to any warranty service calls. If equipment cannot be repaired within 24 hours of service visit, the contractor shall provide “loaner” equipment to the facility at no charge.

D. Make available a service contract offering continuing factory authorized service of the system after the initial warranty period.

1.9 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide the following system:

1. IP 6000 manufactured by Valcom

a. Authorized Valcom Distributor contact: Tim Hager – (314) 33-.8999

PART 2 - PRODUCTS

2.1 SYSTEM REQUIREMENTS

A. The platform shall utilize state of the art IP Technology for Call-in Notification, School Safety Paging and Evacuation tones, Atomic Time Synchronization, Class Change Tones utilizing multiple, programmable schedules for each zone, Two-way hands-free Internal Intercommunications and Paging, and Program Distribution. The system shall be easy to learn and operate. All standard programming shall be web based and user friendly to allow the system administrator the ability to easily program system features.

B. Provide complete and satisfactorily operating district/school communications and district/school safety as described herein, using materials and equipment of types, sizes, ratings, and performances as indicated. Use materials and equipment that comply with referenced standards

1. and manufacturers’ standard design and construction, in accordance with published product information. Coordinate the features of all materials and equipment so they form an integrated system, with components and interconnections matched for optimum performance of specified functions.

C. The platform shall be a single electronic system consisting of a minimum of 10 intercom channels for each campus, (classroom) IP speaker modules and calls switches, IP Zone Modules connecting corridor speakers, inside and outside horns, IP Administrative Consoles, SIP enabled PBX integration and district wide integration for paging, emergency notifications, calendar scheduling and configuration.

D. Each Classroom shall be provided with an IP Speaker module interface and up to 5 different call-in switches, each with their own annunciation path and priority.

E. Call-ins may automatically annunciate (display of priority and location) to administrative consoles, SIP enabled phones, and outside phones.

F. Call-ins shall be programmed to automatically change priority and annunciation route based on age of call-in and original priority.

G. Call-ins may have priority (and annunciation route) changed by user action from a console or SIP enabled phone.

H. Call-in annunciation route shall include playing pre-recorded audio over speakers, sending a pre-configured email, and activating relays.

I. The platform shall lend itself to expansion by simple addition of hardware modules.

J. The platform shall directly connect to the WAN/LAN without the need for a separate server at each school location. Configuration, including bell schedules, calendars, and emergency sequences can remotely be created, changed, stored and downloaded to the system by an authorized user from a browser-based interface.

K. The platform shall provide the ability to initiate school safety paging announcements, evacuation tones and take cover tones from any telephone or connected web-browser within the facility or outside the facility to any other location within the facility or district.

L. The platform shall provide the ability to selectively communicate or monitor individual classrooms in emergency situations from any telephone within the facility or outside the facility to any other location within the facility; all communication within the classroom shall be hands free and will not require any interaction by the classroom user.

M. The platform shall provide classroom users the ability to confirm that they have safely secured their classrooms during lockdown with a single button press.

N. IP-addressable and POE powered speaker modules for individual rooms shall be system programmable and may be assigned any two, three, four, five or six-digit number as well as name and description. Any extension may be reassigned at any time.

O. IP-enabled two-way voice communication shall be available from any provided telephone or administrative console through any speaker in a campus. This shall allow hands-free communication to any classroom or any individual loudspeaker unit. A programmable pre- announce tone shall sound immediately before the intercom path is opened and a supervisory tone shall continue to sound at regular intervals when speaker monitoring is active, complying

    1. fully with all privacy legislation. Pre-announce tone and supervisory tones shall be disabled during designated emergencies automatically.

P. The platform shall allow users to configure multiple schedules per school, with a minimum of 500 unique events per schedule, and automatic Daylight Savings time correction. A minimum of 5 schedules may be active on any given day for each campus. User shall be able to select from 25 standard included tones as well as unlimited user created and uploaded audio files for class change signaling and messaging. In addition scheduled events shall include relay actions, email notifications, paging exclusions as system configuration changes. The platform shall allow control of the bell schedules via the district WAN/LAN without the need for a separate server at each school location. Bell

schedules can remotely be created, changed, stored and assigned to calendar days for the local school by an authorized user from a browser-based interface.

2.2 EQUIPMENT AND MATERIAL

2.3 SYSTEM REQUIREMENTS

A. Acceptable Manufacturers

1. The equipment model numbers specified herein are that of the “Valcom Safety Communications”. The system shall be a “Valcom IP6000 Emergency Communications System”.

2. Due to district wide implementation and complete integration with the District Wide Controller, as well as Administrative Assistant Emergency Features and V-Alert/eLaunch Emergency Features, no other manufacturers will be considered.

B. Industry Standards Compliance

1. Complete installation shall meet or exceed the latest edition of following standards.

a. EIA/TIA-568: Commercial building telecommunications wiring standard.

b. EIA/TIA-569: Commercial building standard for telecommunications pathways and spaces.

c. EIA/TIA-606: Administration standard for telecommunications infrastructure of commercial buildings.

d. EIA/TIA-607: Commercial building grounding and bonding requirements for telecommunications.

e. ANSI, ASTM, UL, NEMA, IEEE and FCC standards as applicable.

f. BICSI Telecommunications Distribution Methods Manual, current edition.

C. Product Specifications and Requirements

1. Work includes the following systems:

a. IP6000 Communication Controller (one per campus, scaled to support all IP end- points.

b. Administrative Telephone (located as directed by DISD Technology)

c. Emergency Touch Screen Administrative Console (Preferred) (located as directed by DISD Technology)

d. Cisco IP-Telephone System Interface for Call Manager/Router FXO Port(s)

e. Wireless Clock Transmitter for Secondary Clock System

f. Wireless Secondary Clocks

g. Enclosed Surface Mount Vandal-Resistant Outdoor Horns

h. Surface Mount Gymnasium Paging Horns

i. Classroom, Library, Kitchen, Cafetorium, Commons and Hallway Ceiling Speakers

j. Classroom Call Buttons

k. Programmed Music Distribution

l. Manual and Automatic WAV File Distribution

m. Wiring

n. Installation

o. Training

p. Warranty Service

2. The Communications Integrator shall provide the following pieces of software to the Technical Staff of DISD at no additional charge, along with any software updates by the manufacturer for the life of the system at no additional charge to DISD:

a. Valcom Administrative Console (include one per site).

b. Valcom V-Alert / eLaunch

D. The Valcom IP6000 Emergency Communications and Master Clock System shall consist of the following qualifications and provide the following features and functions as set forth in the specifications. Any system that does not meet all design requirements listed below shall not be considered.

1. Designed primarily as an Emergency Communications and Master Clock System with priority-based access to voice functions, district-wide emergency notification, emergency call-in, DISD custom pre-recorded emergency WAV announcements, external and internal telephone access, integrated video surveillance, and optional district wide communication functions using eLaunch. Paging systems, traditional school intercom systems, or any system that does not include the above minimum features shall not be considered.

2. The Emergency Communications and Master Clock System shall be of a core design vintage dating from the year 2015 or later. Systems that use designs dating

from before the year 2015 shall not be considered. Currently installed clock systems may be utilized as directed by DISD Technology.

3. The Emergency Communications and Master Clock System shall be an event driven design. Systems using a polling method design shall not be considered.

4. The Emergency Communications and Master Clock System shall be designed, manufactured and supported in the United States of America.

5. Direct dialed, hands-free, two-way communication from all designated telephones to locations equipped with a talkback speaker.

6. Call button initiated hands-free, two-way communication from all locations equipped with a talkback speaker to a designated authorized telephone.

7. Microprocessor based PoE system capable of handling unlimited end-points. An end- point is defined as a device with an IP address. The system IP speakers must be SIP compliant.

8. System shall be a VoIP system compatible with 45-ohm 2-way speakers, 25v 2-way speakers, self- amplified one-way speakers and VoIP speakers. The system should also have 1, 2 and 4 zone one- way gateways for common area announcements.

9. System shall interface with any SIP capable VoIP telephone system, analog telephone system, or single line telephone, thus allowing the facility(s) to upgrade or replace their telephone system without suffering a requirement to replace, or lose any feature of, their internal communications (intercom) system. Any system that limits system features based upon any selected telephone system, and/or is proprietary to one or only a few telephone systems shall not be acceptable.

10. System shall be capable of converting, recording and loading WAV files used for bells, announcements or music.

11. System shall be capable of initiating emergency notifications by internet browser from any designated location on the network.

12. System shall be capable of increasing volume by event. An event is defined as any WAV file or tone with a destination.

13. System shall be capable of downloading a graphic (site, building, etc.) and arranging icons on it to play emergency announcements, facility announcements and messages from any authorized person.

14. System shall automatically sound a tone over any loudspeaker connected for two-way communication to alert individuals at the speaker location a two-way call has been established. This is intended to prevent unauthorized monitoring. The privacy tone must repeat every 15 (fifteen) seconds.

15. System shall be capable of distribution of emergency or general announcement(s) from any authorized telephone/cell phone to all areas furnished with a loudspeaker. Emergency announcements shall have the highest system priority.

16. Individual zones shall be software assignable to an unlimited number of audio groups.

17. Provide the ability to define and archive unlimited time tone schedules with unlimited events per schedule. Each scheduled event shall be capable of controlling any internal tone, user selected custom WAV files, audio from any auxiliary source or up to 40 relays for building control. Each scheduled audio event shall be distributable to any of the audio groups. The system shall feature the ability to automatically initiate unlimited schedules per day, based upon the day of the week or calendar dates up to one year in advance. The system shall feature the ability to operate 25 or more schedules simultaneously. Schedule administration, modification and creation functions must be available through an Internet browser. Systems that do not allow the facility to manage their own schedules with an Internet browser do not offer calendar-based scheduling up to one year in advance or require separate page and time groups shall not be acceptable.

18. Provide 1 to 11 digits numbering plan.

19. Programmable features shall be stored in non-volatile memory and shall not be lost due to power failures.

20. Call button-initiated intercom calls must be able to be assigned to ring at specific telephones. These telephone calls shall have the flexibility to be forwarded to other telephones should a call go unanswered or should the assigned telephone be busy.

21. System functionality must include the capability to manually activate an unlimited number of chained events via browser-based device, pushbuttons, contact closure, or dial code from any authorized telephone. These events shall be customizable with respect to volume levels, cadence, priority, type and duration. Browser access must password controlled.

22. The system must be capable of providing an unlimited number of connections to the telephone system via SIP or FXS Port integration from the intercom system. These ports shall provide built-in enhanced caller identification, which will visually announce the name of the caller or location, the architectural number. Systems that require integration to a specific telephone system or systems in order to offer this feature, or any system feature, shall not be acceptable.

23. The system shall have the ability to control all system relays. Relays shall be controlled through the browser, DTMF controlled, automatically cycle at a programmed time of day, or follow time schedule events. All relays must be software programmable with the flexibility to change as required.

24. The system shall provide at least three simultaneously operating, non-restrictive program distribution channels. The system administration shall be browser based allowing simple and easy changes.

25. The system shall have the ability to store up to 25000 seconds of WAV files directly onto the Application Server and shall not be lost due to power outage.

26. The WAV files shall be capable of being activated via any computer on the LAN/Wan, Telephone and/or Telephone system, and push buttons.

27. The WAV files shall be programmable as to what level of priority they can be broadcast. They shall be programmable as to override any scheduled tones, normal all call, music, and intercom in the event of an emergency.

28. The WAV files shall have the ability to be broadcast into any and all of the audio groups.

29. The WAV files shall have the ability to be broadcast via a schedule for any day of the week or time of the day. They shall have the ability to be broadcast for any duration of time and repeat number of plays with the ability to select how long the duration is between each repeated broadcast.

30. The WAV files shall be able to be broadcast via a pushbutton. When this pushbutton is activated it shall be programmable to select which WAV file is broadcast, the priority level, where it is broadcast, and how many times it shall play.

31. The WAV files shall have the ability to be a part of the class change tones within the system. These files shall be able to replace any tone within the class change schedules as to offer the flexibility of customizable tones and or phrases in this class change mode.

32. The Emergency Communications and Master Clock System equipment shall be either wall or rack mounted at the discretion of DISD Technology.

33. The Emergency Communications and Master Clock System shall contain no moving parts that suffer from wear or that require maintenance.

34. The Emergency Communications and Master Clock System shall filter all voice signals through a Digital Signal Processor (DSP) to maximize voice intelligibility.

35. The Valcom IP6000 and Master Clock Systems shall provide all controls necessary for two-way intercom communication with any classroom, communication with any classroom, distribution of general announcements or program material to any or all classrooms, and transmission of emergency announcement to all classrooms. Provisions shall be included to permit emergency paging from a remote telephone, or microphone, which shall capture system priority and override all functions except for the emergency page feature.

36. The Valcom IP6000 and Master Clock Systems shall provide at least 25 factory provided WAV file tones available for bells, reminders, and other events.

37. The Valcom IP6000 and Master Clock Systems shall support 25 additional USER recorded WAV type audio files. The user shall be able to add 25 additional custom WAV files for use as emergency announcements, class bells, reminders, pre-announce tones, or any other system tone.

38. It shall be possible to network The Valcom IP6000 and Master Clock Systems with additional systems using copper wire, single mode or multimode fiber optic cables.

39. The Valcom IP6000 and Master Clock Systems shall support up to eight FXS/FXO Caller-ID enabled telephone ports. FXS/FXO ports shall be added as needed in single port configurations. FXS/FXO ports shall be used to interface with system Administrative phones, standard telephones, and PBX/KSU/iPBX/VoIP telephone systems.

40. The Valcom IP6000 and Master Clock Systems shall contain an integral computer-based master clock.

41. The Valcom I.P. based P.A. and Master Clock System shall correct Sapling secondary clocks, analog or digital or both, using contact closure correction.

42. The Valcom IP6000 and Master Clock Systems shall be capable of being synchronized by a Network Time Sever (NTP). Systems.

43. The Valcom IP6000 and Master Clock Systems shall provide for automatic daylight- saving time adjustment with leap year programming.

44. The Valcom IP6000 and Master Clock Systems shall support unlimited schedules with unlimited events on said schedules.

45. The Valcom IP6000 and Master Clock Systems shall be calendar based capable of future event programming at least 10 years in the future.

46. The Valcom IP6000 and Master Clock Systems shall allow for scheduling WAV files, tone events, output events, program source events, and video camera events.

47. The Valcom IP6000 and Master Clock Systems shall not require an Administrative console to operate. All system functions shall be accessible via telephone codes from any internal or external telephone.

48. The Valcom IP6000 and Master Clock Systems Administrative Telephone shall have the following features.

    a. Desk & wall mountable

    b. Minimum 8 line by 20 character back lit display

    c. Wizard driven menu system for ease of use

    d. 200 speed dials

e. Head set compatible

f. Integrated speaker phone for hands free use

49. The Valcom IP6000 and Master Clock Systems shall allow for the integration of motion sensors, glass break sensors, and door contacts in parallel with call buttons. Events from these sensors shall be capable of being programmed to activate pre-recorded WAV files, outputs, and cameras.

50. The Valcom IP6000 and Master Clock Systems shall allow for user-programmable room number assignment in the form of 3, 4, 5 or 6-digit alphanumeric format for architectural room numbering and a 60-character alphanumeric caller ID description associated with each audio port.

51. The Valcom IP6000 and Master Clock Systems shall allow for unlimited page/time/program zones that can be assigned and configured as desired.

52. The Valcom IP6000 and Master Clock Systems Administrative Telephone shall allow for the user to view the alphanumeric room address and the caller-ID information of the calling station and the call priority (e.g., emergency, normal) on the display.

53. The Valcom IP6000 and Master Clock Systems shall receive call-ins simultaneously without data collisions or loss of any call-ins. Call-ins shall remain in the system call queue until answered. Emergency Call-ins shall automatically move to the top of the call- in queue and annunciated in the in-use telephone earpiece to notify the user of an emergency call.

54. The Valcom IP6000 and Master Clock Systems shall communicate with each classroom loudspeaker hands-free. The staff member or occupant in the classroom need not operate any buttons to reply to a call. The Administrative telephone operator shall be able to use the hands-free speaker phone or handset on an Administrative telephone.

55. The Valcom IP6000 and Master Clock Systems shall operate under the following audio priority scheme.

    a. An emergency page suspends all other audio

    b. An emergency tone suspends all other audio except the above

    c. A normal page suspends all other audio except the above

    d. A tone suspends all other audio except the above

    e. A program source audio event suspends nothing

    f. Interrupted lower priority functions shall be restored after conclusion of the higher priority function.

56. The Valcom IP6000 and Master Clock Systems shall allow a call-in to be escalated from a normal call- in, to an emergency call-in at any time by pressing the Emergency Call button.

57. The Valcom IP6000 and Master Clock Systems shall allow for any connected telephone to place an emergency voice paging announcement.

58. The Valcom IP6000 and Master Clock Systems shall allow the activation of connected IP cameras based on an emergency call-in, security sensor activation, or telephone code.

59. The Valcom IP6000 and Master Clock Systems shall allow for operation via a WEB based GUI. The WEB based GUI shall allow for emergency paging, normal paging,

    a. intercom, activation of any system/user tone, schedule changes, program distribution, call-in management, and on the fly room exclusion.

60. The Valcom IP6000 and Master Clock Systems shall use a WEB based GUI scheduling tool for schedules and WAV file management. This tool shall not allow access to any system configuration controls. This tool shall not prevent the Emergency Communications and Master Clock System from operating when being used. This tool shall allow the user to schedule events and manage WAV files over the local LAN/WAN and the Internet. It shall not be required to be directly connected to the central system to use this tool.

61. The Valcom IP6000 and Master Clock Systems shall have a built-in 30-day log of every system function and access.

62. The Valcom IP6000 and Master Clock Systems shall have a built-in real-time system diagnostics application.

63. The Valcom IP6000 and Master Clock Systems shall allow for system diagnostics, system log access firmware updates, and programming over the local LAN/WAN or over the Internet.

E. Minimum Design Requirements. In addition to all other requirements of this specification, and as noted on the construction drawings, as a minimum, the system shall provide the following equipment:

1. The Valcom IP6000 and Master Clock Systems located in the MDF as directed by DISD Technology Network Infrastructure Department containing:

    a. IP6000 Controller

        1) Valcom Server VE-IP6K

    b. Telephone Interface Modules for Administrative Telephones and Cisco Call Manager/Router Interfaces

    c. IP Speaker Modules

d. IP Gateways

e. Power Supply(s)

1) Switching Power Supply Valcom VC-6124P

(a) Power Supply Shelf Valcom CP-9202

f. Network Page Zone Expander

1) Valcom VE8004BR

g. Network Station Port

1) Valcom VE8014B

h. Sapling Wall Mount Wireless Clock Transmitter

2. Materials required in the Main Office (as directed by DISD Technology Department)

a. Administrative LCD Speakerphone, locate at the front receptionist, desk principal's office, and office manager.

1) Valcom Veadp4 – Reception Desk.

2) Valcom VE-8092 – Principal Office and Office Manager.

b. Desktop Push to Talk Microphone

1) Microphone: Valcom V-400

2) Microphone adaptor: Valcom V-9939C

c. Touchscreen/Interactive Console with:

1) Manual Bell

2) Emergency

3) Tornado

4) All-Clear

5) Hold in place

6) Shelter

7) Evacuate

8) Secure lock out

3. Media Player
    a. Denon DN-300Z CD/Media Player
4. Classrooms, Labs, Music
    a. Speaker: Valcom VL-520BK-F (Type S1 Speaker/Clock)
    b. Call Button: Valcom V-2972 (CB)
5. Band, Orchestra, Choir
    a. Speaker: Valcom VL-520BK-F (Type S1 Speaker/Clock)
    b. Call Button: Valcom V-2972 (CB)
6. Break rooms, Conference rooms, Reception and Workrooms
    a. Speaker: Valcom VL-550BK-F (Type S3 Speaker/Clock)
    b. Volume Control: Valcom VE-2973 (VC)
7. Auditorium, Cafeteria, Library and Theater
    a. Speaker: Valcom VL-550BK-F (Type S4 Speaker/Clock)
    b. Call Button: Valcom V-2972 (CB)
    c. Volume Control: Valcom VE-2973 (VC)
8. Collaboration areas, Corridors, Hallways, Locker rooms, and Support areas
    a. Speakers: Valcom VL-522 (Type S2 Speaker/Clock)
9. Principal’s Office
    a. Speaker: Valcom VL-520BK-F (Type S1 Speaker/Clock)
    b. Volume Control: Valcom VE-2973 (VC)
10. Offices and Administration
    a. Speaker: Valcom VL-520BK-F (Type S1 Speaker/Clock)
    b. Volume Control: Valcom VE-2971 (VC)
11. Ceiling speakers
    a. Speaker: Valcom VE9022A Lay-In Ceiling (Type S1 Speaker)
    b. Speaker: Valcom V-1020C Sheetrock Ceiling (Type S3 Speaker)

c. Backbox: Valcom V-9915M

12. Restrooms and Janitor closets

a. Speaker: Valcom V-1020C (Type S2 Speaker)

b. Backbox: V-9916M

13. Wall-mounted locations

a. Speaker: Valcom V1016W

b. Recessed mount: Valcom VB-R12 (Type S51 Speaker)

c. Surface mount: Valcom VB-S11 (Type S52 Speaker)

d. Angled mount: Valcom VB-A13 (Type S53 Speaker)

14. Vandal Resistant

a. Speaker: Valcom V98552C

1) Valcom VE160A IP Ceiling Speaker

15. Gymnasiums

a. Speaker: Valcom V1080 Vandal Resistant Flex Horn. Qty: Horns – (4) per gym (Type S4 Speaker).

b. Wire Guard for Flex Horn.

16. Outdoor Horns

a. Speaker: Valcom A-1030M (PH).

b. Enclosure: Valcom V9805

c. Located on exterior walls in/around outdoor assembly areas, playgrounds, bus stops, or areas requiring emergency notifications.

17. Large Displays

a. Display: Valcom VL-580-IP (Exterior) (Type S6 Speaker/Clock)

18. Wired Digital Secondary Clocks (as specified on the drawings) (C1)

a. Sapling SBL-3200S-404-4R, 4-inch, 4-digit LED single face clock face w/ surface mount housing

1) Sapling SAB-1B-00S-0 double mount housing assembly for two-SBL clocks

2) Sapling SDG-2017 Wire guard for single face clock

3) Sapling SCB-000-000-1 Power Supply for SBL-3200S-404-4R Digital Clocks (24Vdc, 5.5A)

19. Wireless Analog Secondary Clocks (as specified on the drawings) (C2)

a. SMA-1SW-0000-1 Wireless Network Repeater (as required)

b. Single Face Surface Wall Mount

1) Hallways, Corridors and Library as shown on drawings

(a) SAL-2BS-12R-0, Wireless, 12” Round Analog Surface Mount, Battery Operated.

2) Cafeteria, Gymnasiums, Auditoriums and Theaters as shown on drawings

(a) SAL-2BS-16R-0, Wireless, 16” Round Analog Surface Mount, Battery Operated (for Gymnasiums, Auditoriums and Theaters)

(b) SAG-1500, Wire guard, 16” per clock (for Gymnasiums)

c. Double Face Surface Wall Mount

1) Two (2) SAL-2BS-12R-0, Wireless, 12” Round Analog Surface Mount, Battery Operated with SAB-4BD-12R-0, Double Mount 12” Black Housing

20. In addition to all other requirements of this specification, and as noted on the construction drawings, as a minimum, the system shall provide the following minimum base configuration:

a. All components and quantities as specified above and shown on the construction drawings

b. Middle/Junior High Schools -

1) Qty-2, Telephone Interface Ports

2) QTY- IP Speakers, TBD determined by FWISD Technology

3) Outdoor IP Paging Horns as required

c. Circuits as a minimum:

1) Office Areas Circuits

2) Nurse Office Circuit with Call Button

3) Custodian Room(s) – connect to hallway circuits

4) Conference Room(s) – connect to hallway circuits

5) Library Circuit with Call Button

6) Cafeteria Circuit

7) Theater/Auditorium Circuit

8) Gymnasium Circuits

9) Hallway Circuits

10) Classroom Circuits with Call Button (1-circuit per classroom)

11) Athletics Circuits

12) Outside Speaker Circuits

13) Spare Circuits (20% of overall system capacity to allow for future expansion)

F. Equipment Racks (if required)

1. All equipment racks shall provide 44 spaces (77”) minimum for mounted system

   a. equipment.

2. All equipment racks shall be multi-rack format (“gangable”) style, bolted together, and

   a. open cavity.

3. All equipment racks will be provided with lockable rear doors.

4. Equipment rack(s) shall be located in climate-controlled areas/rooms as shown on drawings.

5. All head-end, distribution, and source equipment, including data and power, shall be located in racks configured as approved by the Engineer.

6. Rack mounted equipment shall be accessible from front and rear.

7. All unused rack spaces will be covered with appropriate blank/vent panels

8. Acceptable product

   a. Lowell Manufacturing LFR-4427 or approved equal.

9. Data Station cable A. Solid copper, 24 AWG, 100 Ω balanced twisted-pair (UTP) Category 5e/6 cable with four (4) individually twisted-pairs, which meet or exceed the mechanical and transmission performance specifications in ANSI/TIA-568-C.2

up to 100 MHz for Category 5e: Product Description: Data Gain Category 6+ UTP, Plenum, Cable- Yellow Part Numbers: 66-240-6B.

a. Acceptable product:

1) Faceplate: Ortronics Series II OR-40300158 (quantity 1)

2) Data Modules: Ortronics Series II OR-S22600 (quantity 2)

3) Blank Modules: Ortronics Series II OR-40300164 (quantity 2)

10. Patch Panel

a. Acceptable product:

1) OR-PHA66U48 OR-PHA66U2

PART 3 - EXECUTION

3.1 GENERAL

A. Reference 27 51 01 Premise Wire for more detail information as needed to complete turnkey project.

3.2 INSTALLATION

A. General: Install system in accordance with NFPA 70 and other applicable codes. Install equipment in accordance with manufacturer's written instructions.

B. Furnish and install all material, devices, components and equipment for a complete operational system.

C. Impedance and Level Matching: Carefully match input and output impedance’s and signal levels

1. at signal interfaces. Provide matching networks where required.

D. Control Circuit Wiring: Install control circuits in accordance with NFPA 70 and as indicated. Provide number of conductors as recommended by system manufacturer to provide control functions indicated or specified.

E. All housings are to be located as indicated.

F. The contractor shall provide necessary transient protection on the AC power feed, all copper station lines leaving or entering the building, and all central office trunks. All protection shall be as recommended by the equipment supplier and referenced to earth ground.

G. Wiring within Enclosures: Provide adequate length of conductors. Bundle, lace, and train the conductors to terminal points with no excess. Provide and use lacing bars.

H. Provide physical isolation from speaker-microphone, telephone, line-level wiring, and power wiring. Run in separate raceways, or where exposed or in same enclosure, provide 12 inch minimum separation between conductors to speaker-microphones, telephone wiring and adjacent parallel power. Provide physical separation as recommended by equipment manufacturer for other system conductors.

I. Identification of Conductors and Cables: Use color coding of conductors and apply wire and cable marking tape to designate wires and cables so all media are identified in coordination with system wiring diagrams.

J. Weatherproofing: Provide weatherproof enclosures for items to be mounted outdoors or exposed to weather.

3.3 GROUNDING

A. Provide equipment grounding connections for Integrated Electronic Communications Network systems as indicated. Tighten connections to comply with tightening torques specified in UL Standard 486A to assure permanent and effective grounds.

B. Ground equipment, conductor, and cable shields to eliminate shock hazard and to minimize to the greatest extent possible, ground loops, common mode returns, noise pickup, cross talk, and other impairments. Provide 5-ohm ground at main equipment location. Measure, record, and report ground resistance.

C. Provide all necessary transient protection on the AC power feed and on all copper station lines leaving or entering the building. Note in system drawings, the type and location of these protection devices as well as all wiring information.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Provide services of a duly factory authorized service representative for this project location to supervise the field assembly and connection of components and the pre-testing, testing, and adjustment of the system.

B. Inspection: Make observations to verify that units and controls are properly labeled and interconnecting wires and terminals are identified. Provide a list of final tap settings of paging speaker line matching transformers.

C. Testing: Rectify deficiencies indicated by tests and completely re-test work affected by such deficiencies at

D. Contractor's expense. Verify by the system test that the total system meets the Specifications and complies with applicable standards.

3.5 FINAL ACCEPTANCE TESTING

A. The Final Acceptance Testing shall be provided to the Owner or the Owners designated representative only. Final acceptance testing to any other trade or service provider for the project will not comply with the requirements of this section.

B. The contractor will provide a Final Acceptance Test record document signed by both the contractor and the Owner or designated Owner's Representative establishing the "In Warranty" date. The warranty period will not commence until the Final Acceptance Test is completed.

C. Be prepared to verify the performance of any portion of the installation by demonstration, listening and viewing test, and instrumented measurements. Make additional adjustments

1. within the scope of work and which are deemed necessary by the Owner because of the acceptance test.

3.6 COMMISSIONING

A. The contractor shall train the Owner's maintenance personnel in the procedures and schedules involved in operating, troubleshooting, servicing, and preventative maintenance of the system. This training will be in accordance with the training as outlined in Section 1.6, paragraphs 3, 5 & 6 of these specifications. In addition to the Training Materials provided, the contractor will also furnish Operators Manuals and Users Guides at the time of this training.

B. Schedule training with Owner through the owners representative, with at least seven days advance notice.

3.7 OCCUPANCY ADJUSTMENTS

A. The contractor shall provide Occupancy Adjustments in accordance with Section 1.6, paragraph 9 of these specifications. A response scenario amenable to both the owner and the contractor will be established and followed for the first year of service.

3.8 CLEANING AND PROTECTION\]

A. Prior to final acceptance, the contractor shall vacuum and clean all system components and protect them from damage and deterioration. all blank spaces in equipment cabinets will be covered with blank panels. top and side panels, and all cabinet doors will be installed. all general areas within and around all equipment rack/cabinets in the facility will be swept, vacuumed, and cleaned up. no cabinets will be left unlocked and all cabinet keys will be turned over to the owner or designated owner's representative.

END OF SECTION