ADDENDUM

BAKERSFIELD COLLEGE ARVIN EDUCATIONAL CENTER

ADDENDUM NO. ONE (1)  DATE: August 26, 2022

CLIENT / PROJECT: Kern Community College District Arvin Educational Center

BID OPENING LOCATION: Kern Community College District
2100 Chester Ave, Bakersfield, CA 93301

PROJECT NO. 125951

ARCHITECT: IBI Group
4119 Broad Street Suite 210
San Luis Obispo, CA  93402

BID DATE: September 15, 2022

BID TIME: 2:00 pm

D.S.A. APPLICATION NO. 03-121587

D.S.A. FILE NO. --

NOTICE TO ALL CONTRACTORS SUBMITTING BIDS FOR THIS WORK AND TO ALL PLAN HOLDERS:
You are hereby notified of the following CHANGES, clarifications or modifications to the original Contract Documents, Project Manual, Drawings, Specifications, and subsequent Addenda. This Addendum shall supersede the original Contract Documents and previous Addenda wherein it contradicts the same and shall take precedence over anything to the contrary therein. All other conditions remain UNCHANGED.

I. CHANGES AND/OR CLARIFICATIONS TO THE PROJECT MANUAL AND CONTRACT DOCUMENTS AND SPECIFICATIONS:

ITEM (01) REFER TO PROJECT MANUAL

A. Delete and Replace “Table of Contents” with the attached.

ITEM (02) REFER TO SPECIFICATION


B. Delete Section “33 43 13 Subdrainage,” in its entirety.
ITEM (03) REFER TO SPECIFICATION 01 11 00 – SUMMARY OF WORK

A. Refer to Section 1.3.D

1. **Revise** Construction Manager to be:

   Colombo Construction Company,
   3211 Rio Mirada Drive, Bakersfield, CA 93308-4945

B. Refer to Section “3.2 Schedule of Owner Furnished, Contractor Installed Products; Item A. “Interior Architectural Woodwork”

1. **As Point of Clarification**: All casework will be provided and installed by Owner’s representative (Sierra School Equipment). Contractor to tie in any Electrical, Data, Plumbing, or HVAC as depicted in the Construction Documents.

2. **As Point of Clarification**: Fume Hoods are Owner Furnished, Contractor Installed. See attached Fume Hood Cut Sheets, for reference only.

ITEM (04) REFER TO SPECIFICATION 05 05 00 – METAL FABRICATIONS:

A. **Delete and Replace** per attached Specification 05 50 00 in its entirety.

ITEM (05) REFER TO SPECIFICATION 05 40 00 – COLD FORM METAL FRAMING; 3.3; G

A. **Refer** to Section 3.3; G:

1. **Revise** verbiage “Section 07 21 00 Thermal Insulation,” to read:

   “07 21 16 Blanket Insulation.”

B. **Refer** to Section 2.7; C.

   1. As a point of Clarification: Provide Neoprene foam at all walls.

ITEM (06) REFER TO SPECIFICATION 07 24 19 – WATER-DRAINAGE EXTERIOR INSULATION AND FINISH SYSTEM

A. Refer to Section 2.3; A; 1;a

1. **Revise** verbiage to read:

   “Dryvit System, Inc.; Outsulation HDCI System”

2. **As a point of Clarification**: Special Puncture-Resistance Warranty to be 20 years from date of Substantial Completion per Section 1.12;B.
ITEM (07) REFER TO SPECIFICATION 07 42 13 – METAL WALL AND SOFFIT PANELS
A. Replace Specification in its entirety with attached Specification titled “07 42 13 Metal Wall Panels”
   1. As Point of Clarification: Metal Soffit Panels specified in Section 07 42 93 "Metal Soffit Panels"

ITEM (08) REFER TO SPECIFICATION 09 29 00 – GYPSUM BOARD; 1.2; B; 3
A. Revise verbiage “Section 07 21 00 Building Insulation” to read:
   “Section 09 81 16 Acoustical Blanket Insulation.”

ITEM (09) REFER TO SPECIFICATION 10 14 19 – DIM CHARACTER SIGNAGE:
SECTION 1.2 SUMMARY; B
A. Delete Item 1. referencing “03 48 15 “Precast Concrete Monument Sign.”
   1. As Point of Clarification: Provide Cast-In-Place Monument Sign, per Details 10,11 & 12/A8000

ITEM (10) REFER TO SPECIFICATION 12 35 53.19 – WOOD LABORATORY CASEWORK:
A. Refer to Section 1.0;B:
      As Point of Clarification: Fume Hoods Provided by Owner; Contractor Installed. Refer to Spec Section 01 11 00; 3.2
II. CHANGES AND/OR CLARIFICATIONS TO THE PROJECT DRAWINGS:

ITEM (01) REFER TO SHEET C1.02 – GRADING PLAN ACCESS ROADS & SUMP
A. Replace Sheet in its entirety per attached ADD001-C1.02.

ITEM (02) REFER TO SHEET C2.00 – STORM DRAIN PLAN SUMP & ACCESS ROAD
A. Replace Sheet in its entirety per attached ADD001-C2.00.

ITEM (03) REFER TO SHEET C2.01 – STORM DRAIN PLAN PARKING LOT & BUILDING
A. Replace Sheet in its entirety per attached ADD001-C2.01.

ITEM (04) REFER TO SHEET C3.00 – SEWER & WATER PLAN ACCESS ROAD
A. Replace Sheet in its entirety per attached ADD001-C3.00.

ITEM (05) REFER TO SHEET C3.01 – SEWER & WATER PLAN BUILDING AREA
A. Replace Sheet in its entirety per attached ADD001-C3.01.

ITEM (06) REFER TO SHEET C5.02 – ACSD DETAILS
A. Replace Sheet in its entirety per attached ADD001-C5.02.

ITEM (07) REFER TO SHEET A1000 – OVERALL SITE PLAN DEMOLITION
A. As Point of Clarification: Electrical Power Poles at West side leading into existing oil drilling island to remain.

ITEM (08) REFER TO SHEET A1200 – ENLARGED SITE PLAN
A. As Point of Clarification: Bollard locations shown, per attached ADD001 SK-01.
ITEM (09) REFER TO SHEET A1217 – ENLARGED SCORING PLAN

A. Refer to Legend:

1. **Provide** stamped concrete pattern “Ashlar Roman Slate” by Calico Product, for “2x2 Colored Stamped Concrete Walk” designation at Building Entrance and Courtyard.

B. Refer to Enlarged Site Plan.

1. **Provide** Expansion Joints at “2x2 Colored Stamped Concrete Walk”, per attached ADD001 SK-02.

ITEM (10) REFER TO SHEET A1218 AND 1219 – ENLARGED SCORING PLAN

A. Refer to Legend:

1. **Provide** stamped concrete pattern at street islands to match existing brick pattern.

ITEM (11) REFER TO SHEET A2311 – FLOOR DIMENSION PLAN

A. **Refer** to attached ADD001 SK-03, for additional dimension not shown.

B. **Revise** Door 127 – MDF Room to swing into Hallway, per attached SK-21. Revise Door Hardware to be Hardware Set 02. (Pending DSA review and approval).

ITEM (12) REFER TO SHEET A2710 – REFLECTED CEILING PLAN

A. **Provide** Sub-Framing at Entrance Upper Roof for attachment of Soffit Panels, per attached Detail 1/ADD001 SK-18 AND SK-19.

ITEM (13) REFER TO SHEET A2810 – ROOF PLAN

A. **Provide** Splash Block at downspouts over Standing Seam Metal Roof, per attached Detail 1/ADD001 SK-04.

**Provide** splash block at downspouts over Single Ply Roofing, per attached Detail 2/ADD001 SK-04.
ITEM (14) REFER TO SHEETS A3000 AND A3001 – EXTERIOR ELEVATIONS
A. Refer to General Notes.
   1. Add General Note #3 to read as follows:

   “ALL ARCHITECTURALLY EXPOSED STRUCTURAL STEEL FRAMING TO BE CATEGORY LEVEL PER SHEET S2110, AESS SCHEDULE”

ITEM (15) REFER TO SHEETS A6010 THRU A6022 – INTERIOR ELEVATIONS
A. Refer to General Notes.
   1. Refer to General Note #5. Revise to read as follows:

   “ALL ARCHITECTURALLY EXPOSED STRUCTURAL STEEL FRAMING TO BE CATEGORY LEVEL PER SHEET S2100, AESS SCHEDULE”

   As Point of Clarification: This includes, but not limited to all exposed OWJs, HSS and W-Beams throughout ALL spaces.

ITEM (16) REFER TO SHEET A6013 – INTERIOR ELEVATIONS
A. Refer to elevation 111-D.
   1. As Point of Clarification: Base cabinets for Fume Hoods provided by Sierra School Equipment.

ITEM (17) REFER TO SHEET A8000 – SITE DETAILS
A. Refer to Detail 3:
   1. Provide drilled Dowels at walkway edge, per attached ADD001 SK-05.
B. Refer to Detail 9:
   1. Revise Detail to show drilled dowels into foundation lieu of cast-in, per attached ADD001 SK-06.

ITEM (18) REFER TO SHEET A8003 – SITE DETAILS
A. Refer to Detail 15:
   1. As Point of Clarification, skate deterrents only required on pavement side.
ITEM (19) REFER TO SHEET A8100 – WALL DETAILS EIFS:

A. Refer to Detail 1:

As point of Clarification: Terminate EIFS 2" above finish surface

ITEM (20) REFER TO SHEET A8101 – WALL DETAILS – METAL PANEL:

A. Revise per attached Sheet ADD001 A8101.

B. Add Detail 15 “Metal Wall Panel to EIFS – Inside Corner”, per attached Sheet ADD001 A8101.

ITEM (21) REFER TO SHEET A8400 – ROOF DETAILS

A. Refer to Details 17 and 18:

1. Revise per attached ADD001 SK-07 and ADD001 SK-08.

ITEM (22) REFER TO SHEET A8401 – ROOF DETAILS

A. Refer to Detail 1:

1. Delete Detail in its entirety.

B. Refer to Detail 3:

1. Revise per attached ADD001 SK-09.

C. Refer to Detail 13:

1. Revise per attached ADD001 SK-10.

D. Refer to Detail 15:

1. Revise per attached ADD001 SK-11

ITEM (23) REFER TO SHEET A8500 – CASEWORK DETAILS

A. Refer to Detail 7:

1. Revise Detail per attached ADD001 SK-12.
ITEM (24) REFER TO SHEET A8600 – OPENING DETAILS

A. Refer to Detail 1:

1. **As Point of Clarification:** Provide Thresholds to cover the expansion joint. Field Verify location of door with respect to threshold and slab edge.

B. Refer to Detail 07, 08, 10, 11, and 12.

1. **Revise** per attached ADD001 SK-13, ADD001 SK-14, ADD001 SK-15, ADD001 SK-16, and ADD001 SK-17

ITEM (25) REFER TO SHEET A8601 – OPENING DETAILS - STOREFRONT

A. Refer to Detail 7:

1. **As point of Clarification:** Paint Sheet Metal Jamb Trim Silver color to match Aluminum Window / Storefront.

B. Refer to Detail 7 and 8:

1. **As point of Clarification:** Prevent contact between dissimilar metals per Specification 08 41 13; Section 3.3; Item B “Metal Protection.”

ITEM (26) REFER TO SHEET A8602 – OPENING DETAILS

A. Refer to Detail 20.

1. **Provide** steel angle brace connection at roof deck per Detail ADD001 SK-18.


ITEM (27) REFER TO SHEET A9100 – ROOM FINISH SCHEDULE

A. Refer to Room Finish Schedule:

1. **Revised** Room Finish Schedule per attached A9100.
ADDENDUM

ITEM (28) REFER TO SHEET A9200 – DOOR SCHEDULE AND WINDOW TYPES
A. Refer to Glazing Key:
   1. Delete “FR: FIRE RETAED GLASS”.  
      As Point of Clarification, Fire Rated Glass not applicable.
B. Refer to Door Schedule:
   1. Revise Door 141 (Conference Room) to be Type “A1 – Int. Alum. Storefront”, as part of Aluminum Storefront “Type P”.
   2. Provide Door Louvers at Doors 119 and 120
C. Refer to Window and Storefront Types:
   1. As Point of Clarification, Storefront ‘M’ and ‘R’, require Deferred Approval. Refer to Sheet G000 “Scope of Work”.

ITEM (29) REFER TO SHEET P1200 – ENLARGED PLUMBING SITE PLAN
A. Refer to Enlarged Plumbing Site Plan
   1. Provide bollards around Gas Meter per attached ADD001 P1200.1.

ITEM (30) REFER TO SHEET E0001 – ELECTRICAL SINGLE LINE DIAGRAM
A. Replace Sheet in its entirety per attached ADD001-E0001

ITEM (31) REFER TO SHEET E0003 – ELECTRICAL SCHEDULES
A. Replace Sheet in its entirety per attached ADD001-E0003

ITEM (32) REFER TO SHEET E0004 – ELECTRICAL SCHEDULES
A. Replace Sheet in its entirety per attached ADD001-E0004

ITEM (33) REFER TO SHEET E1000 – ELECTRICAL SITE LIGHTING PLAN
A. Replace Sheet in its entirety per attached ADD001-E1000
ITEM (34) REFER TO SHEET E2001 – ELECTRICAL POWER FLOOR PLAN

1. Replace Sheet in its entirety per attached ADD001-E2001
2. Refer to Lobby 100 – North Wall TV outlet
   
a. As Point of Clarification: Contractor to coordinate final rough-in height w/ Owner

ITEM (35) REFER TO SHEET E2002 – COMMUNICATIONS PLAN

A. Replace Sheet in its entirety per attached ADD001-E2002

ITEM (36) REFER TO SHEET E2003 – COMMUNICATIONS ENLARGED PLANS

A. Replace Sheet in its entirety per attached ADD001-E2003

ITEM (37) REFER TO SHEET E2005 – ELECTRICAL ROOF PLAN

A. Replace Sheet in its entirety per attached ADD001-E2005

CONFORMANCE WITH CONTRACT DOCUMENTS, PROJECT MANUAL, DRAWINGS AND SPECIFICATIONS

All addenda work shall be in strict conformance with the Contract Documents, Project Manual, Drawings and Specifications as they pertain to work of a similar nature.

IBI GROUP, a CALIFORNIA PARTNERSHIP

BY:

RICHARD MELLO, AIA #C-18079
# TABLE OF CONTENTS TO PROJECT MANUAL

## TITLE/SIGNATURE PAGE

## TABLE OF CONTENTS

## ADDENDA (to be inserted)

## BIDDING REQUIREMENTS (to be inserted)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 31 32</td>
<td>Geotechnical Data</td>
</tr>
</tbody>
</table>

## CONTRACTING REQUIREMENTS (to be inserted)

## DIVISION 1 – GENERAL REQUIREMENTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 11 00</td>
<td>Summary of Work</td>
</tr>
<tr>
<td>01 23 00</td>
<td>Alternates</td>
</tr>
<tr>
<td>01 25 00</td>
<td>Substitution Procedures</td>
</tr>
<tr>
<td>01 26 00</td>
<td>Contract Modification Procedures</td>
</tr>
<tr>
<td>01 29 00</td>
<td>Payment Procedures</td>
</tr>
<tr>
<td>01 30 00</td>
<td>Project Management and Coordination</td>
</tr>
<tr>
<td>01 31 00</td>
<td>Construction Progress Documentation</td>
</tr>
<tr>
<td>01 32 00</td>
<td>Photographic Documentation</td>
</tr>
<tr>
<td>01 33 00</td>
<td>Submittal Procedures</td>
</tr>
<tr>
<td>01 41 00</td>
<td>Regulatory Requirements</td>
</tr>
<tr>
<td>01 42 00</td>
<td>Definitions and References</td>
</tr>
<tr>
<td>01 43 00</td>
<td>Quality Assurance</td>
</tr>
<tr>
<td>01 50 00</td>
<td>Temporary Facilities and Controls</td>
</tr>
<tr>
<td>01 56 39</td>
<td>Temporary Tree and Plant Protection</td>
</tr>
<tr>
<td>01 60 00</td>
<td>Product Requirements</td>
</tr>
<tr>
<td>01 70 00</td>
<td>Field Engineering and Execution Requirements</td>
</tr>
<tr>
<td>01 73 29</td>
<td>Cutting and Patching</td>
</tr>
<tr>
<td>01 74 19</td>
<td>Construction Waste Management and Disposal</td>
</tr>
<tr>
<td>01 77 00</td>
<td>Closeout Procedures</td>
</tr>
<tr>
<td>01 78 23</td>
<td>Operation and Maintenance Data</td>
</tr>
<tr>
<td>01 78 39</td>
<td>Project Record Documents</td>
</tr>
<tr>
<td>01 79 00</td>
<td>Demonstration and Training</td>
</tr>
<tr>
<td>01 81 19</td>
<td>Indoor Air-Quality Requirements</td>
</tr>
</tbody>
</table>

## DIVISION 2 – EXISTING CONDITIONS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 41 19</td>
<td>Selective Demolition</td>
</tr>
</tbody>
</table>
**DIVISION 3 - CONCRETE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>03 05 05</td>
<td>Concrete Sealer</td>
</tr>
<tr>
<td>03 05 10</td>
<td>Concrete Hardening Compound</td>
</tr>
<tr>
<td>03 10 00</td>
<td>Concrete Forming</td>
</tr>
<tr>
<td>03 20 00</td>
<td>Concrete Reinforcing</td>
</tr>
<tr>
<td>03 30 00</td>
<td>Cast-In-Place Concrete</td>
</tr>
<tr>
<td>03 30 05</td>
<td>Underslab Vapor Barrier</td>
</tr>
<tr>
<td>03 35 43</td>
<td>Concrete Floor Polishing System</td>
</tr>
</tbody>
</table>

**DIVISION 4 - MASONRY**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>04 22 00</td>
<td>Concrete Unit Masonry</td>
</tr>
</tbody>
</table>

**DIVISION 5 - METALS**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>05 12 00</td>
<td>Structural Steel Framing</td>
</tr>
<tr>
<td>05 12 13</td>
<td>Architecturally Exposed Structural Steel Framing</td>
</tr>
<tr>
<td>05 21 00</td>
<td>Steel Joist Framing</td>
</tr>
<tr>
<td>05 31 00</td>
<td>Steel Decking</td>
</tr>
<tr>
<td>05 40 00</td>
<td>Cold-Formed Structural Metal Framing</td>
</tr>
<tr>
<td>05 50 00</td>
<td>Metal Fabrications</td>
</tr>
<tr>
<td>05 52 00</td>
<td>Metal Railings</td>
</tr>
<tr>
<td>05 73 16</td>
<td>Wire-Rope Decorative Metal Railings</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>06 10 53</td>
<td>Miscellaneous Rough Carpentry</td>
</tr>
<tr>
<td>06 16 43</td>
<td>Glass-Mat Gypsum Sheathing</td>
</tr>
<tr>
<td>06 83 16</td>
<td>Fiberglass-Reinforced Plastic Paneling</td>
</tr>
</tbody>
</table>

**DIVISION 7 - THERMAL AND MOISTURE PROTECTION**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 13 26</td>
<td>Self-Adhering Sheet Waterproofing</td>
</tr>
<tr>
<td>07 21 13</td>
<td>Rigid Foam Board Insulation</td>
</tr>
<tr>
<td>07 21 16</td>
<td>Blanket Insulation</td>
</tr>
<tr>
<td>07 24 19</td>
<td>Water-Drainage Exterior Insulation and Finish System (EIFS)</td>
</tr>
<tr>
<td>07 27 19</td>
<td>Weather-Resistive Sheet Barrier System</td>
</tr>
<tr>
<td>07 41 14</td>
<td>Standing-Seam Metal Roof Panels</td>
</tr>
<tr>
<td>07 42 13</td>
<td>Metal Wall Panels</td>
</tr>
<tr>
<td>07 42 93</td>
<td>Metal Soffit Panels</td>
</tr>
<tr>
<td>07 54 19</td>
<td>Polyvinyl Chloride (PVC) Roofing</td>
</tr>
<tr>
<td>07 62 00</td>
<td>Sheet Metal Flashing and Trim</td>
</tr>
<tr>
<td>07 65 00</td>
<td>Flexible Flashing</td>
</tr>
<tr>
<td>07 72 00</td>
<td>Roof Accessories</td>
</tr>
<tr>
<td>07 84 13</td>
<td>Penetration Firestopping</td>
</tr>
<tr>
<td>07 84 43</td>
<td>Joint Firestopping</td>
</tr>
</tbody>
</table>
DIVISION 8 - OPENINGS

08 11 13 Hollow-Metal Doors and Frames
08 31 13 Access Doors and Frames
08 33 13 Overhead Coiling Counter Doors
08 41 13 Glazed Aluminum Entrances and Storefronts
08 51 13 Aluminum Windows
08 71 00 Door Hardware
08 81 00 Glass Glazing
08 88 13 Fire Rated Glazing

DIVISION 9 - FINISHES

09 05 65 Concrete Moisture-Control System
09 22 16 Cold-Formed Non-Structural Metal Framing
09 29 00 Gypsum Board
09 30 00 Ceramic Tile
09 51 13 Suspended Lay-In Panel Ceilings
09 65 00 Resilient Flooring
09 65 13 Resilient Base and Accessories
09 68 13 Tile Carpeting
09 81 16 Acoustical Blanket Insulation
09 91 00 Painting

DIVISION 10 - SPECIALTIES

10 11 00 Visual Display Units (Owner Furnished; Contractor Installed)
10 14 00 Signage
10 14 19 Dimensional Character Signage
10 21 13 Solid-Plastic Toilet Compartments and Screens
10 22 26 Operable Wall Partitions
10 26 10 Wall Protection
10 28 00 Toilet Accessories
10 41 16 Emergency Key Box
10 44 13 Fire Protection Cabinets
10 44 16 Fire Extinguishers
10 75 00 Flagpole

DIVISION 11 - EQUIPMENT – not used

DIVISION 12 - FURNISHINGS

12 24 13 Roller Shades
12 35 53.19 Wood Laboratory Casework (Owner Furnished; Contractor Installed)
DIVISION 13 – SPECIAL CONSTRUCTION – not used

DIVISION 14 - CONVEYING EQUIPMENT – not used

DIVISION 21 – FIRE SUPPRESSION
21 00 00 Fire Sprinklers

DIVISION 22 – PLUMBING
22 00 00 Plumbing

DIVISION 23 – HVAC
23 00 00 HVAC
23 50 00 Direct Digital Control System

DIVISION 26 – ELECTRICAL
26 05 00 Common Work Results For Electrical
26 05 19 Low Voltage Electrical Power Conductors And Cables
26 05 26 Grounding And Bonding For Electrical Systems
26 05 29 Hangars And Supports For Electrical Systems
26 05 33 Raceways And Boxes For Electrical Systems
26 05 46.13 Electric Utility Systems
26 05 53 Identification Of Electrical Systems
26 05 73 Overcurrent Protective Device Connections
26 08 10 Electrical Acceptance Testing
26 09 00 Controls And Instrumentation
26 09 26 Lighting Control Systems
26 22 00 Low Voltage Transformers
26 24 12 Microprocessor-Based Metering Equipment
26 24 13 Service And Distribution Switchboard
26 24 16 Panelboards
26 27 26 Wiring Devices
26 33 23 Central Inverter System
26 43 00 Surge Protection Devices (SPD)
26 51 00 Interior Lighting
26 56 00 Site Lighting
26 56 70 Lighting Acceptance Testing
26 77 00 Assistive Listening System
26 91 15 Electrical Commissioning Requirements

DIVISION 27 – COMMUNICATIONS
27 13 00 Intercommunication Systems
# DIVISION 28 – FIRE ALARM

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 31 00</td>
<td>Fire Alarm And Detection Systems</td>
</tr>
</tbody>
</table>

# DIVISION 31 – EARTHWORK

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 10 00</td>
<td>Site Clearing - Civil</td>
</tr>
<tr>
<td>31 20 00</td>
<td>Earthwork - Civil</td>
</tr>
<tr>
<td>31 23 33</td>
<td>Utility Trenching and Backfill</td>
</tr>
</tbody>
</table>

# DIVISION 32 – EXTERIOR IMPROVEMENTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 12 16</td>
<td>Asphalt Paving</td>
</tr>
<tr>
<td>32 13 13</td>
<td>Site Concrete</td>
</tr>
<tr>
<td>32 17 13</td>
<td>Wheelstops</td>
</tr>
<tr>
<td>32 17 23</td>
<td>Pavement Markings</td>
</tr>
<tr>
<td>32 17 26</td>
<td>Tactile Warning Surfaces</td>
</tr>
<tr>
<td>32 80 00</td>
<td>Landscape Irrigation</td>
</tr>
<tr>
<td>32 90 00</td>
<td>Planting</td>
</tr>
</tbody>
</table>

# DIVISION 33 – UTILITIES

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>33 11 16</td>
<td>Site Water Distribution</td>
</tr>
<tr>
<td>33 11 19</td>
<td>Site Fire Protection Water Distribution</td>
</tr>
<tr>
<td>33 33 13</td>
<td>Site Sanitary Sewerage</td>
</tr>
<tr>
<td>33 40 00</td>
<td>Site Storm Drainage</td>
</tr>
</tbody>
</table>

End of Table of Contents
Bakersfield College Arvin Center

Specification - Section 10 22 26 (10650) Operable Partitions Acousti-Seal® Encore™

PART 1 - GENERAL

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

1.2 SUMMARY
A. This Section includes the following:
   1. Manually operated, paired panel operable partitions.
B. Related Sections include the following:
   1. Division 03 Sections for concrete tolerances required.
   2. Division 05 Sections for primary structural support, including pre-punching of support members by structural steel supplier per operable partition supplier’s template.
   3. Division 06 Sections for wood framing and supports, and all blocking at head and jambs as required.
   4. Division 09 Sections for wall and ceiling framing at head and jambs.

1.3 QUALITY ASSURANCE
A. Installer Qualifications: An experienced installer who is certified in writing by the operable partition manufacturer, as qualified to install the manufacturer's partition systems for work similar in material, design, and extent to that indicated for this Project.
B. Acoustical Performance: Test operable partitions in an independent acoustical laboratory in accordance with ASTM E90 test procedure and classified in accordance with ASTM E413 to attain no less than the STC rating specified. Provide a complete and unedited written test report by the testing laboratory upon request.
C. Preparation of the opening shall conform to the criteria set forth per ASTM E557 Standard Practice for Architectural Application and Installation of Operable Partitions.
D. The operable wall must be manufactured by a certified ISO-9001-2015 company or an equivalent quality control system.

1.4 REFERENCE STANDARDS
A. ASTM International
   4. ASTM E413 - Classification for Rating Sound Insulation
B. Health Product Declaration Collaborative
   1. Health Product Declaration Open Standard v2.1
C. International Standards Organization
   1. ISO 14021 - Environmental Labels and Declarations - Self-Declared Environmental Claims (Type II Environmental Labeling).
   5. ISO 21930 – Sustainability in Buildings and Civil Engineering Works — Core Rules for Environmental Product Declarations of Construction Products and Services.
D. Other Standards
1. ADA – Americans with Disabilities Act

1.5 SUBMITTALS
A. Product Data: Material descriptions, construction details, finishes, installation details, and operating instructions for each type of operable partition, component, and accessory specified.
B. Shop Drawings: Show location and extent of operable partitions. Include plans, elevations, sections, details, attachments to other construction, and accessories. Indicate dimensions, weights, conditions at openings, and at storage areas, and required installation, storage, and operating clearances. Indicate location and installation requirements for hardware and track, including floor tolerances required and direction of travel. Indicate blocking to be provided by others.
C. Setting Drawings: Show imbedded items and cutouts required in other work, including support beam punching template.
D. Samples: Color samples demonstrating full range of finishes available by architect. Verification samples will be available in same thickness and material indicated for the work.
E. Reports: Provide a complete and unedited written sound test report indicating glass thickness and spacing in test specimen matches product as submitted.
F. Create spaces that are healthy for occupants.
   1. Furnish products and materials with Health Product Declaration (HPD), Manufacturer Inventory, or other material health disclosure documentation. Products without an HPD or other disclosure documentation are not acceptable.
G. Furnish materials that generate the least amount of pollution.
   1. Furnish products and materials that have third party verified environmental product declarations (EPD’s). Consider products and materials that have optimized environmental performance (reduced life cycle impacts). Products without an EPD or other disclosure documentation are not acceptable.

1.6 DELIVERY, STORAGE, AND HANDLING
A. Clearly mark packages and panels with numbering systems used on Shop Drawings. Do not use permanent markings on panels.
B. Protect panels during delivery, storage, and handling to comply with manufacturer’s direction and as required to prevent damage.

1.7 WARRANTY
A. Provide written warranty by manufacturer of operable partitions agreeing to repair or replace any components with manufacturing defects.
B. Partition Warranty period: Three (3) years.
C. Suspension System Warranty:

PART 2 – PRODUCTS

2.1 MANUFACTURERS, PRODUCTS, AND OPERATIONS
A. Manufacturers: Subject to compliance with requirements, provide products by the following:
   1. Modernfold, Inc.
B. Products: Subject to compliance with the requirements, provide the following product:

2.2 OPERATION
A. OP-01-A1: Acousti-Seal Encore - Paired Panel: Series of paired flat panels hinged together in pairs, manually operated, top supported with operable floor seals and automatic top seals.
B. Final Closure:
   1. OP-01-A1: Horizontally expanding panel edge with removable crank
2.3 PANEL CONSTRUCTION
A. Nominal 4.25-inch (108mm) thick panels in manufacturer's standard 51-inch (1295mm) widths. All panel horizontal and vertical framing members fabricated from minimum 16-gage formed steel with overlapped and welded corners for rigidity. Top channel is reinforced to support suspension system components. Frame is designed so that full vertical edges of panels are of formed steel and provide concealed protection of the edges of the panel skin.
B. Panel skin shall be:
   1. OP-01-A1: Roll-formed steel wrapping around panel edge. Panel skins shall be lock formed and welded directly to the frame for unitized construction. Acoustical ratings of panels with this construction minimum:
   a. 56 STC
C. Hinges for Panels, Closure Panels, Pass Doors, and Pocket Doors shall be:
   1. OP-01-A1: Full leaf butt hinges, attached directly to the panel frame with welded hinge anchor plates within panel to further support hinge mounting to frame. Lifetime warranty on hinges. Hinges mounted into panel edge or vertical astragal are not acceptable.
D. Panel Trim: No vertical or horizontal trim required or allowed on edges of panels; minimal groove appearance at panel joints.
E. Panel Weights:
   1. OP-01-A1: 56 STC - 11.9 lbs./square foot

2.4 PANEL FINISH
A. Panel finish shall be factory applied, Class "A" rated material. Finish shall be:
   1. OP-01-A1: Reinforced vinyl with woven backing weighing not less than 21 ounces (595 grams) per lineal yard.
B. Panel Trim: Exposed panel trim of one consistent color:
   1. OP-01-A1: To Be Advised

2.5 SOUND SEALS
A. Vertical Interlocking Sound Seals between panels: Aluminum astragals, with tongue and groove configuration in each panel edge. Rigid plastic astragals are not acceptable.
B. Horizontal Top Seals shall be Modernfold SureSet™ automatic operable top seals, manually operated top seals not required or permitted.
C. Horizontal bottom floor seals shall be Modernfold Sureset™ bottom seal:
   1. OP-01-A1: Modernfold SM2 Bottom Seal. Manually activated seals providing nominal 2" (51mm) operating clearance with an operating range of + 0.50" (13mm) to -1.50" (38mm). Seal shall be operable from panel edge or face. Extended seal shall exert nominal 120 pounds (54 kg) downward force to the floor throughout operating range.

2.6 SUSPENSION SYSTEM
A. OP-01-A1: #17 Suspension System
   1. Suspension Tracks: Minimum 11-gauge, 0.12-inch (3.04mm) roll-formed steel track, suitable for either direct mounting to a wood header or supported by adjustable steel hanger brackets, supporting the load-bearing surface of the track, connected to structural support by pairs of 0.38-inch (10mm) diameter threaded rods. Aluminum track is not acceptable.
   a. Exposed track soffit: Steel, integral to track, and pre-painted off-white.
   2. Carriers: One all-steel trolley with steel tired ball bearing wheels per panel (except hinged panels). Non-steel tires are not acceptable.

2.7 OPTIONS
A. (NONE SELECTED)

PART 3 – EXECUTION
3.1 INSTALLATION
A. General: Comply with ASTM E557, operable partition manufacturer’s written installation instructions, Drawings and approved Shop Drawings.
B. Install operable partitions and accessories after other finishing operations, including painting have been completed.
C. Match operable partitions by installing panels from marked packages in numbered sequence indicated on Shop Drawings.
D. Broken, cracked, chipped, deformed or unmatched panels are not acceptable.

3.2 CLEANING AND PROTECTION
A. Clean partition surfaces upon completing installation of operable partitions to remove dust, dirt, adhesives, and other foreign materials according to manufacturer’s written instructions.
B. Provide final protection and maintain conditions in a manner acceptable to the manufacturer and Installer that ensure operable partitions are without damage or deterioration at time of Substantial Completion.

3.3 ADJUSTING
A. Adjust operable partitions to operate smoothly, easily, and quietly, free from binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Lubricate hardware and other moving parts.

3.4 EXAMINATION
A. Examine flooring, structural support, and opening, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of operable partitions. Proceed with installation only after unsatisfactory conditions have been corrected.

3.5 DEMONSTRATION
A. Demonstrate proper operation and maintenance procedures to Owner’s representative.
B. Provide Operation and Maintenance Manual to Owner’s representative.

Modernfold, Inc.
215 West New Road
Greenfield, IN 46140
Toll Free: 800.869.9685
e-mail: info@modernfold.com
www.modernfold.com
Kewaunee’s Fume Hood Offering

- Traditional Constant Volume
- VAV
- LV - Low Constant Volume
- Dynamic Barrier - Ultra Low Flow
- ADA Accessible
- Full Access Walk-in
- Isotope
- Perchloric Acid
- Distillation
- Demonstration
- Teaching
- Custom Enclosures
- Liners
  - KMER Epoxy Resin
  - Kemglass - FRP
  - Stainless Steel
  - Phenolic Resin

Supreme Air Fume Hoods

- H05 Vertical Rising Sash Bench Hood
- H30 Walk-in Fume Hood

Contents

Fume Hood Construction........... 2
Guide to Fume Hood Selection .................................... 8
Bench Fume Hoods ................. 10
Walk-In Fume Hoods ............... 32
Auxiliary Air Chambers .......... 42
Fume Hood Option Availability 44
Fume Hood Options .............. 45
Fume Hood Worksurfaces ...... 49
Ceiling Enclosures & Trim ...... 51
Pre-Wired and Pre-Piped ........ 52
Cupsinks, Fittings, Fixtures, Sinks, Steam Baths & Alarms ... 53
Base Cabinets ..................... 63
Filters & Canopy Hoods ........ 67
Teaching & Demonstration Hoods .... 68
Technical Data ..................... 74
General Fan Information .......... 82
Fan Recommendation Charts ... 84
V-Belt Fan Charts ................. 88
Fan Dimensions .................... 90
Fan Accessories ................... 91
Recommended Fume Hood Work Practices .................... 92
Glossary of Hood Terms and Definitions ..................... 96
Numerical Index .................. 98
Alphabetical Index .............. 99
Supreme Air LV Fume Hood Features

The Supreme Air LV fume hood, a new generation of fume hood design, combines safe, energy efficient design with a multitude of user-friendly features. The LV fume hood is a high performance, low constant volume design building on the features of Kewaunee’s proven Supreme Air fume hood line. Its updated asthetic design incorporates reduced air volume technologies with more efficient air flow containment to provide unsurpassed safety and barrier-free use.

Based on proven constant volume technology, the Kewaunee Supreme Air LV fume hood avoids the requirements of expensive, high maintenance alternatives. It has been tested using the ANSI/ASHRAE 110-1995 procedures to verify compliance with ANSI/ AIHA Z9.5-2003. In addition, the LV hood has been tested using severe dynamic challenges (including the walk-by simulation apparatus of EN 14175) to confirm its superior containment capability.

Patented Dynamic Barrier Bypass provides safe flow of clean air between experiment and user.

Removable Rear Baffles for easy cleaning and hood maintenance.

Energy Saving Lighting using single bulb, low profile T-5 fluorescent light fixture.

Triangular Shaped Access Panels with staggered service outlets for easy set-up and maintenance.

Unique Interstitial, Vertical Slot Baffles for exceptional turbulence free airflow and minimal upper vortex roll.

Spoiler Shaped Sash Handle directs air away from user.

Flush Sill Airfoil allows obstruction free access to fume hood.

Self-closing Sash to 18” for less exhaust volume and maximum protection. (patent pending)

UL 1805 Classified when specified with Kemglass or Stainless Steel liner

Notched Nylon Sash Belt Stainless steel cable reinforced, notched nylon belt and aluminum sprocket sash counterweight system for level, smooth, quiet sash operation.

35½” High Safety Glass Sash for optimal unobstructed sight into fume hood.

28” Sash Opening with automatic hold-open latch for easy loading and unloading of hood.

Unique Rear Outleted Anti-splash Cupsink mounts at front of hood worksurface without interfering with cabinet storage below. (Order separately with work top)

Notched Sash Handle for neat and easy cord and hose management.

Air Alert 600 Airflow Alarm with digital readout, visual and audible alarms, and onboard data logging.

Recommended Option

UL 61010A-1 Listed when pre-wired
The design is based on rigid frame construction that assures a solid installation and low vibration and sound levels. Access panels are easily removable to access service lines and fittings. Radius corner posts and airfoils, plus, easy operator control of interior baffle settings assure a high level of comfort, safety and efficiency.

Given the variety of models available and the comprehensive option packages to be selected, this new generation of fume hoods can be tailored to the application needs of your modern laboratory. Aesthetically pleasing curved airfoils, vision sash panels, contemporary controls and devices, designer colors and combinations make a hard-working laboratory safety device into an attractive part of the total laboratory environment.

Energy saving lighting with exterior relamping
- Single bulb, low profile T5 fluorescent light fixture
- Optional special purpose lighting

Top front panel available as:
- Solid panel with integral louvers
- Vision panel with integral louvers (shown)
- Solid panel with Sight-tight Chevron by-pass grille
- Vision panel with Sight-tight Chevron by-pass grille

Task specific liner options
- Phenolic resin
- Kemglass
- KMER
- Type 304 Stainless Steel
- Low profile, self-gasketing, interior access panel — removable without tools

Customizable accessory offering
- A full array of service fittings and electrical fixtures
- Monitoring and safety alarms
- Pre-piping and pre-wiring
- UL listed when pre-wired per UL 61010A-1
- UL 1805 classified with Kemglass or Stainless Steel liner

Low profile PVC sash tracks
- Smooth sash operation
- Reduced air turbulence
- Seals the interior side panel

Easy operating full vision sash with:
- Full length painted aluminum handle for neat, clean appearance and streamline air features
- Exclusive sash leveling and alignment features

Independent frame construction
- Rigid structural frame
- Allows liner panel replacement
- Stainless steel fasteners concealed with corrosion resistant caps

Narrow-radiused corner posts
- Enhances aerodynamic air flow
- 4” width creates more interior work space

Radiused air foil
- Streamline air flow — low turbulence
- Heavy gauge steel for durability
- Available painted or in stainless steel

Exclusive Kemresin work tops
- Dished worksurface available in multiple colors
- Many other options, including stainless steel
The Dynamic Barrier fume hood requires over 70 percent less exhaust air volume than a traditional by-pass fume hood. The design conserves natural resources while saving thousands of dollars per fume hood on initial HVAC system requirements and on annual energy consumption.

The Dynamic Barrier fume hood is an ultra low constant volume design based on Kewaunee’s Supreme Air fume hood line. Its basic size, shape, and construction is the same as the standard Supreme Air design; but, it incorporates new and innovative features that reduce exhaust air usage while increasing the ease of use and maintaining unsurpassed containment.

Based on proven constant volume technology, the Kewaunee Supreme Air Dynamic Barrier fume hood avoids the requirements of expensive, high maintenance alternatives. It has been vigorously tested to ANSI/ASHRAE 110-1995 guidelines. In addition, the Dynamic Barrier fume hood has been subjected to stringent dynamic testing including walk-bys, cross-drafts, and multiple breathing zone challenges, while maintaining unsurpassed containment.

Double vertical sash design allows 37” opening height for apparatus setup while projecting only 9” above the hood.

Frameless upper sash for unobstructed view.

Low profile sash frame offers easy access through horizontal panels.

Six-panel combination lower sash provides multiple protective working configurations.

Sash stop at 10” high provides full width work opening while maximizing splatter and fume barrier for user protection.

Aerodynamically shaped lower sash handle provides smooth airflow through vertical opening.

UL 1805 Listed when specified with Kemglass or Stainless Steel liner

Dynamic Barrier by-pass bathes area behind sash with uncontaminated air maximizing user protection.

Static pressure averaging mechanism provides accurate face velocity readings regardless of sash positioning.

Air Alert 600 Fume Hood Monitor provides a visual one-hour timeline of fume hood performance.

Service ports provide convenient, safe passage of wires and tubes for equipment connections.

Flush sill for unobstructed access through vertical opening.

UL 61010A-1 Listed when pre-wired
Guide to Fume Hood Selection

Introduction
Selection of the proper type of fume hood to use in a laboratory should be based upon two interrelated considerations:

1. The hood must allow the user to perform the work in a safe, efficient manner.
2. The need to reduce air conditioning cost.

The hood must be large enough to accommodate the required containers and apparatus within the prescribed safe work area of the hood (6" behind the plane of the sash). The configuration of the hood should be such that containers can be moved in and out of the hood easily. The sash opening of the hood must allow sufficient access for safely manipulating the containers and apparatus within the hood. The interior of the hood must resist the corrosive effects of chemicals. The hood understructure should provide for storage of the required chemicals for the work being done in the hood.

The total cost of a hood is greatly affected by its exhaust air requirements. The annual cost of heating and cooling the air exhausted by the hood can be as high as the initial cost of the hood itself. Choosing the proper hood type and sash configuration can significantly reduce these costs.

Types of Fume Hoods

Open by-pass fume hoods are designed for operation on constant air volume exhaust systems. The air by-pass provides for an alternate route for air to enter the hood as the sash is closed. The size of the by-pass is set so that, as the sash is closed, the velocity of the air increases to no more than three and one half times the velocity with the sash fully open. As a result, the static pressure loss through the front opening of these hoods is insignificant when compared to the pressure loss through the rear baffle and duct entry. Since the hood static pressure and the exhaust volume remain essentially constant, regardless of the sash position these hoods are classified as Constant Volume fume hoods.

Low constant volume fume hoods use a restricted sash opening or a lower face velocity, or both to reduce the exhaust quantity of air, measured in cubic feet per minute (CFM), necessary to contain fumes with a typical face velocity of 80-120 FPM. Traditionally, such fume hoods can reduce the exhaust CFM from 40% to 60% from open by-pass levels. Kewaunee’s Dynamic Barrier and Supreme Air LV fume hoods actually reduce exhaust requirements up to 73%.

Restricted by-pass fume hoods are designed for operation on variable air volume (VAV) exhaust systems when used with a fume hood face velocity controller (not provided with hood). On standard restricted by-pass hoods, the size of the air by-pass provides sufficient area that, with 100 feet per minute by-pass velocity with the sash closed, the exhaust volume will be 25 CFM per square foot of internal hood worksurface. This by-pass size is not appropriate for all VAV applications due to functional differences in face velocity controllers and variations in room exhaust requirements. If a different by-pass size is required, it should be specified at the time the hood is ordered. Hoods with horizontal and combination sashes are only cataloged as restricted by-pass hoods. In these hoods the size of the by-pass required for constant volume operation and for providing a minimum 25 CFM per square foot of internal hood worksurface in VAV operation is the same.

Auxiliary air fume hoods are Constant volume hoods designed for use when it is not feasible to introduce the required make-up air through the room ventilation system. Up to 70% of the exhaust volume can be supplied through an auxiliary air chamber mounted above the hood. These hoods require a separate ducted fan system for the supply of the auxiliary air.

Open by-pass hoods are designated by a dash [-] in the ninth space of the part number. Restricted by-pass hoods are designated by the letter “B” in the ninth space of the part number. As an example H05K5472-00 is an open by-pass hood and H05K5472B00 is a restricted by-pass hood.

An Auxiliary air hood is designated by adding the appropriate auxiliary air chamber to the Open by-pass hood.

For answers to frequently asked questions about Kewaunee fume hoods visit the Kewaunee web site at: http://www.kewaunee.com/lab/knowledge-center/faqs/fume-hoods.aspx
Guide to Fume Hood Selection (continued)

**Face Velocity**
In a laboratory fume hood, the control of contaminants is achieved by drawing air through the face (sash) opening. The face velocity is defined as the average velocity of the air in this opening and is expressed in units of feet per minute (FPM). The Occupational Safety and Health Administration (OSHA) in its Laboratory Standard does not specify a required fume hood face velocity. As a result, hood users must look to published guidelines for recommendations on proper face velocities. The most authoritative of these published guidelines is the ANSI/AIHA Z9.5 American National Standard for Laboratory Ventilation. This publication recommends using an average face velocity of between 80 and 120 feet per minute. Newer technologies (like Kewaunee’s LV series) have allowed face velocities as low as 55 FPM to show good containment. Part of the reasoning for these newer, lower face velocities is that the face velocity by itself does not define the protection level of a fume hood. There are other factors which are as important such as: the design of the hood, the location of the hood within the laboratory, the quality of the supply air distribution, and most importantly the work practices of the user. The ANSI/AIHA Z9.5 recommendation assumes that these factors have been optimized through proper design and work rules.

Where local and state codes require the use of a specific face velocity, these codes should be followed.

**Sash Arrangements**

- **Vertical sash** hoods provide the best horizontal and vertical access to the hood interior but they also have the highest exhaust requirements. The exhaust requirements can be reduced by using gravity sash stops, although, this restricts the vertical access into the work area. Split sash hoods can be used where needed for two work areas.

- **Horizontal sash** hoods provide good access into the hood vertically and allow for lower exhaust requirements. These sashes do restrict the access across the hood for loading of equipment and apparatus. This limitation becomes less significant in larger hoods.

- **Auto-Return Vertical Sash** hoods use a vertical sash that will automatically return to a pre-set position if released from a higher position. A full-open lock-out is provided for set-ups.

- **Combination vertical rising/horizontal sash** hoods, as the name implies, provide the benefits of both the vertical and horizontal sash hoods. For normal operation the sash can be partially raised vertically, or the horizontal panels can be used. The sash can be fully opened vertically for loading equipment into the hood.

**Telescoping combination sash** used on Kewaunee’s Dynamic Barrier fume hood uses an interlocking twin sash mechanism that combines a restricted combination vertical rising/horizontal sash and small vertical rising sash to allow a very large 37” vertical opening. This sash facilitates set-ups while keeping the work opening small.

**Configurations**

- **Bench hoods** are set on a worksurface approximately 36” above the floor and provide a convenient work area for the standing position. A minimum of 42” of interior working height is provided.

- **Walk-in hoods** are used where taller apparatus is required or equipment is rolled into the hood. These hoods provide a minimum 78” of interior working height.

- **Distillation hoods** are used where taller apparatus is required and convenient access to the floor of the hood is needed. These hoods provide a minimum 77” of interior working height.

- **ADA fume hoods** are designed in accordance with the guidelines for the Americans with Disabilities Act. These hoods are also used when a sitting position is desired for work at the hood. They provide the same size work area as the corresponding bench hoods.

- **Special Purpose Fume Hoods**

  - **Isotope hoods** are designed for use with radioactive materials. The Type 304 stainless steel cove corner seamless welded construction eases cleaning and decontamination.

  - **Perchloric Acid hoods** are required when this acid is heated above ambient temperature. The Type 316 stainless steel liner is fabricated to eliminate the possibility of formation of perchloric acid deposits. This hood includes a water wash down feature.

For answers to frequently asked questions about Kewaunee fume hoods visit the Kewaunee web site at: www.kewaunee.com/fume/faq.shtml
Guide to Fume Hood Selection (continued)

Baffle Design

**Fixed baffles** come with fixed slots in the rear baffle. The size of the slots are optimized to provide the best performance for general purpose use. In some instances (e.g. use of large hot plates) it is advantageous to be able to change the air flow patterns within the hood by adjusting the slots in the rear baffle. This adjustment should only be done by someone familiar with hood air flows and performance.

**Internally adjustable baffles** come with movable baffle strips which can adjust the relative size of the top and bottom slots. The middle slot in the baffle is fixed.

**Single point adjustable baffles** are adjustable by moving a selector knob, near the front of the hood, which restricts the flow to the lower slot, thus increasing the flow at the upper baffle slot. This adjustment can be done without disturbing the apparatus within the hood.

The fixed baffle is the default option in the part number. Internally adjustable baffles are chosen by adding the suffix “A” to the part number (H05K5472-00A). Single point adjustable baffles are chosen by adding the suffix “C” to the part number (H05K5472-00C).

Liner Material

**KMER**, **Kemglass**, and **Phenolic Resin** are general purpose liners with very good to excellent chemical resistance. **Type 304 stainless steel** is usually used where cleanability and/or heat resistance are the prime requirements.

**Phenolic Resin (T)** liner is reinforced with cellulose fibers and is surfaced with white melamine material. The brown phenolic resin is visible at the edges of the sheet material.

**Kemglass (G)** is white fiberglass reinforced polyester sheet material.

**KMER (K)** is a white modified epoxy resin sheet, reinforced with glass fibers.

**Type 304 stainless steel (S)** is 14 gauge stainless steel sheet with a No. 4 finish.

### HOOD LINER CHARACTERISTICS

<table>
<thead>
<tr>
<th>LINER MATERIAL</th>
<th>RESISTANCE TO HEAT</th>
<th>CHEMICAL RESISTANCE TO ACIDS</th>
<th>CHEMICAL RESISTANCE TO SOLVENTS</th>
<th>CLEANABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenolic Resin</td>
<td>G</td>
<td>E</td>
<td>E</td>
<td>G</td>
</tr>
<tr>
<td>Kemglass</td>
<td>G</td>
<td>E</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>KMER</td>
<td>G</td>
<td>E</td>
<td>E</td>
<td>G</td>
</tr>
<tr>
<td>Stainless Steel</td>
<td>E</td>
<td>F</td>
<td>E</td>
<td>E</td>
</tr>
</tbody>
</table>

E = Excellent  G = Good  F = Fair  P = Poor

Work Tops

**Epoxy Resin** work tops are available in four colors, have excellent chemical resistance, and good heat resistance. They are the normal choice for general purpose hoods and highly corrosive applications.

**Stainless Steel** work tops are available in Types 304 and 316. They are used where cleanability and heat resistance are important. Type 316 is preferred where improved chemical resistance is desired.

The hood work top is specified by a separate part number from the hood for all hoods except Isotope and Perchloric Acid hoods.

For answers to frequently asked questions about Kewaunee fume hoods visit the Kewaunee web site at: [www.kewaunee.com/fume/faq.shtml](http://www.kewaunee.com/fume/faq.shtml)
## Fume Hood Selection Chart

<table>
<thead>
<tr>
<th>Hood Number</th>
<th>Purpose</th>
<th>Sash Type</th>
<th>By-pass</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Constant Volume</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bench</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H05</td>
<td>General Purpose</td>
<td>Vertical</td>
<td>Open</td>
<td>12-13</td>
</tr>
<tr>
<td>H08</td>
<td>ADA</td>
<td>Vertical</td>
<td>Open</td>
<td>18-19</td>
</tr>
<tr>
<td>H20</td>
<td>Isotope</td>
<td>Vertical</td>
<td>Open</td>
<td>24-25</td>
</tr>
<tr>
<td>H25</td>
<td>Perchloric Acid</td>
<td>Vertical</td>
<td>Open</td>
<td>26-27</td>
</tr>
<tr>
<td><strong>Walk-In</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H30</td>
<td>General Purpose</td>
<td>Vertical</td>
<td>Open</td>
<td>32-33</td>
</tr>
<tr>
<td><strong>Distillation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H36</td>
<td>Distillation</td>
<td>Vertical</td>
<td>Open</td>
<td>40-41</td>
</tr>
<tr>
<td><strong>Low Constant Volume</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bench</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LV05</td>
<td>General Purpose</td>
<td>Vertical</td>
<td>Dynamic Barrier</td>
<td>10-11</td>
</tr>
<tr>
<td>H05</td>
<td>General Purpose</td>
<td>Telescoping</td>
<td>Dynamic Barrier</td>
<td>14-15</td>
</tr>
<tr>
<td>H07</td>
<td>General Purpose</td>
<td>Combination</td>
<td>Restricted</td>
<td>16-17</td>
</tr>
<tr>
<td>H09</td>
<td>ADA</td>
<td>Combination</td>
<td>Restricted</td>
<td>20-21</td>
</tr>
<tr>
<td>H10</td>
<td>General Purpose</td>
<td>Split Vertical</td>
<td>Open</td>
<td>22-23</td>
</tr>
<tr>
<td>H05</td>
<td>General Purpose</td>
<td>Vertical</td>
<td>Open</td>
<td>12-13</td>
</tr>
<tr>
<td>H07</td>
<td>General Purpose</td>
<td>Horizontal</td>
<td>Restricted</td>
<td>28-29</td>
</tr>
<tr>
<td>HOP</td>
<td>General Purpose</td>
<td>Combination</td>
<td>Restricted</td>
<td>30-31</td>
</tr>
<tr>
<td><strong>Walk-In</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H52</td>
<td>General Purpose</td>
<td>Low-flow</td>
<td>Dynamic Barrier</td>
<td>34-35</td>
</tr>
<tr>
<td>H32</td>
<td>General Purpose</td>
<td>Combination</td>
<td>Restricted</td>
<td>36-37</td>
</tr>
<tr>
<td><strong>Variable Air Volume (VAV)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bench</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H05</td>
<td>General Purpose</td>
<td>Vertical</td>
<td>Restricted</td>
<td>12-13</td>
</tr>
<tr>
<td>H07</td>
<td>General Purpose</td>
<td>Combination</td>
<td>Restricted</td>
<td>16-17</td>
</tr>
<tr>
<td>H70</td>
<td>General Purpose</td>
<td>Horizontal</td>
<td>Restricted</td>
<td>28-29</td>
</tr>
<tr>
<td>H20</td>
<td>Isotope</td>
<td>Vertical</td>
<td>Restricted</td>
<td>24-25</td>
</tr>
<tr>
<td>HOP</td>
<td>General Purpose</td>
<td>Combination</td>
<td>Restricted</td>
<td>30-31</td>
</tr>
<tr>
<td>LV05</td>
<td>General Purpose</td>
<td>Vertical</td>
<td>Dynamic Barrier</td>
<td>10-11</td>
</tr>
<tr>
<td><strong>Walk-In</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H30</td>
<td>General Purpose</td>
<td>Vertical</td>
<td>Restricted</td>
<td>32-33</td>
</tr>
<tr>
<td>H32</td>
<td>General Purpose</td>
<td>Combination</td>
<td>Restricted</td>
<td>36-37</td>
</tr>
<tr>
<td>H34</td>
<td>General Purpose</td>
<td>Horizontal</td>
<td>Restricted</td>
<td>38-39</td>
</tr>
<tr>
<td><strong>Distillation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H36</td>
<td>Distillation</td>
<td>Vertical</td>
<td>Restricted</td>
<td>40-41</td>
</tr>
<tr>
<td><strong>Auxiliary Air</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bench</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H05 &amp; H01</td>
<td>General Purpose</td>
<td>Vertical</td>
<td>Open</td>
<td>12-13</td>
</tr>
<tr>
<td>H10 &amp; H01</td>
<td>General Purpose</td>
<td>Split Vertical</td>
<td>Open</td>
<td>22-23</td>
</tr>
<tr>
<td>H08 &amp; H01</td>
<td>ADA</td>
<td>Vertical</td>
<td>Open</td>
<td>18-19</td>
</tr>
<tr>
<td>H20 &amp; H01</td>
<td>Isotope</td>
<td>Vertical</td>
<td>Open</td>
<td>24-25</td>
</tr>
<tr>
<td>H25 &amp; H01</td>
<td>Perchloric Acid</td>
<td>Vertical</td>
<td>Open</td>
<td>26-27</td>
</tr>
<tr>
<td><strong>Walk-In</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H30 &amp; H01</td>
<td>General Purpose</td>
<td>Vertical</td>
<td>Open</td>
<td>32-33</td>
</tr>
<tr>
<td><strong>Distillation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H36 &amp; H01</td>
<td>General Purpose</td>
<td>Vertical</td>
<td>Open</td>
<td>40-41</td>
</tr>
</tbody>
</table>
Guide to Fume Hood Selection (continued)

Supreme Air Fume Hood Catalog Number Explanation

Fume Hood Type
H01 = Auxiliary Air Chamber
H05 = Vertical Sash Bench Hood
H07 = Combination Sash Bench Hood
H08 = ADA Vertical Sash Bench Hood
H09 = ADA Combo Sash Bench Hood
H10 = Split Sash Bench Hood
H20 = Isotope Bench Hood
H25 = Perchloric Acid Bench Hood
H30 = Vertical Sash Walk-In Hood
H32 = Combination Sash Walk-In Hood
H34 = Horizontal Sash Walk-In Hood
H36 = Vertical Sash Distillation Hood
H50 = Dynamic Barrier Bench Hood
H52 = Dynamic Barrier Walk-In Hood
H70 = Horizontal Sash Bench Hood
HOP = HOPEC Bench Hood

Add On Options Lettering Code:
A = Adjustable Baffles
C = Single Point Adjustable Baffles
D = Distillation Rack
F = Two Extra GFI Receptacles (120 VAC 20 amp – replaces bottom fixture holes on each side)
G = Front Load Fittings
H = Pre-wired/UL Listed
I = Safety Shield
J = T8 Fluorescent Light Ballast
K = Vapor Proof Light
L = Explosion Proof Light
M = Air Alert 600 Airflow Alarm
O = Stainless Steel Deflector Vane
Q = Stainless Steel Sash Handle
R = Extra GFI Receptacle on right side (replaces bottom fixture hole)
S = Extra GFI Receptacle on left side (replaces bottom fixture hole)
T = Sight-Tight Chevron Grille
V = Vision Panel
W = Air Alert 300 Alarm (location 1)
Z = Air Alert 300 Alarm (location 2)
1 = Frameless Tempered Glass Sash
2 = Framed Safety Glass Sash
3 = Framed Tempered Glass Sash
4 = St. Steel Safety Glass Sash
5 = St. Steel Tempered Glass Sash
6 = Tissue Screen
7 = Type 316 Stainless Steel Duct Collar
8 = Gravity Sash Stop
9 = Work Shelf Supports

Hood Length
48 = 4'-0" / 48"
60 = 5'-0" / 60"
72 = 6'-0" / 72"
96 = 8'-0" / 96"
20 = 10'-0" / 120"
44 = 12'-0" / 144"

Hood Height
13 = Air Chamber
54 = Bench Hood
90 = Walk-In Hoods & Distillation Hoods

Interior Liner Material
G = Kemglass (fiberglass reinforced polyester)
K = KMER (Kewaunee Modified Epoxy Resin)
L = Type 316 Stainless Steel
S = Type 304 Stainless Steel
T = Phenolic Resin

Supreme Air LV Fume Hood Catalog Number Explanation

LV05 = Vertical Sash Bench Hood

Add On Options Lettering Code:
A = Adjustable Baffles
C = Single Point Adjustable Baffles
D = Distillation Rack
F = Two Extra GFI Receptacles (120 VAC 20 amp – replaces bottom fixture holes on each side)
G = Front Load Fittings
H = Pre-wired/UL Listed
I = Safety Shield
J = T8 Fluorescent Light Ballast
K = Vapor Proof Light
L = Explosion Proof Light
M = Air Alert 600 Airflow Alarm
O = Stainless Steel Deflector Vane
Q = Stainless Steel Sash Handle
R = Extra GFI Receptacle on right side (replaces bottom fixture hole)
S = Extra GFI Receptacle on left side (replaces bottom fixture hole)
T = Sight-Tight Chevron Grille
V = Vision Panel
W = Air Alert 300 Alarm (location 1)
Z = Air Alert 300 Alarm (location 2)
1 = Frameless Tempered Glass Sash
2 = Framed Safety Glass Sash
3 = Framed Tempered Glass Sash
4 = St. Steel Safety Glass Sash
5 = St. Steel Tempered Glass Sash
6 = Tissue Screen
7 = Type 316 Stainless Steel Duct Collar
8 = Gravity Sash Stop
9 = Work Shelf Supports

Hood Length
48 = 4'-0" / 48"
60 = 5'-0" / 60"
72 = 6'-0" / 72"
84 = 7'-0" / 84"
96 = 8'-0" / 96"

Hood Height
54 = Bench Hood

Hood Depth
34 = 34 1/2"
Supreme Air LV Fume Hood

Specifications:
Supreme Air LV Bench Hoods are furnished with a choice of liner and baffles, and each fume hood is complete with a lower deflector vane, counterbalanced, self-closing (to 18”), frameless sash of 1/4” combination safety glass and interior plumbing access panels. Hood exteriors are fabricated of cold rolled steel, phosphate coated with a baked chemical resistant, synthetic resin finish. The exhaust duct collar is polyethylene, 1115/16” O.D. (8 foot hoods are furnished with two duct collars.) Supreme Air LV Bench Hoods are not designed for use with auxiliary air chambers.

Accessories Include:
Two 120 volt AC 20 amp GFI receptacles, single-tube, T-5 fluorescent light fixture with bulb and 20 amp light switch. No wiring for the electrical fixtures is included unless H-Option is added to part number. Hoods with H-Option are UL listed.

Optional Accessories:
Each front post and interior end liner is punched for up to five (5) remote control service fittings. The right hand post is punched for a second electrical fixture at the top which may be used for a fan switch or other electrical device. Service fittings, fan, fan switch, work top, cupsink, and base units must be ordered separately.

Additional Parts Required to Make Up a Complete Fume Hood Assembly

| Work Top | see page 49 |
| Base Cabinets | see page 63 |
| Service Fittings | see page 57 |
| Cupsink | see page 53 |
| Fan/Blower | see page 82 |

Liner Options:

| T = Phenolic Resin |
| G = Kemglass Fiberglass reinforced polyester |
| K = KMER Kewaunee Modified Epoxy Resin |
| S = Type 304 Stainless Steel |

The blank left in the fume hood catalog numbers is for designating the desired lining.

Example: LV05T543448-00 would designate a 4’ hood with a Phenolic Resin lining.

Airflow Requirements

<table>
<thead>
<tr>
<th>Overall Hood Width</th>
<th>Sq. Ft. Opening at 28” Sash Opening</th>
<th>Sq. Ft. Opening at 18” Sash Opening</th>
<th>HIGH SETTING 100 FPM at 18”</th>
<th>66 FPM at 28”</th>
<th>MEDIUM SETTING 84 FPM at 18”</th>
<th>55 FPM at 28”</th>
<th>LOW SETTING 55 FPM at 18”</th>
</tr>
</thead>
<tbody>
<tr>
<td>4’-0” / 48”</td>
<td>7.85</td>
<td>5.15</td>
<td>0.20</td>
<td>430</td>
<td>0.15</td>
<td>285</td>
<td>0.10</td>
</tr>
<tr>
<td>5’-0” / 60”</td>
<td>10.27</td>
<td>6.73</td>
<td>0.20</td>
<td>565</td>
<td>0.15</td>
<td>370</td>
<td>0.12</td>
</tr>
<tr>
<td>6’-0” / 72”</td>
<td>12.69</td>
<td>8.31</td>
<td>0.20</td>
<td>700</td>
<td>0.20</td>
<td>460</td>
<td>0.15</td>
</tr>
<tr>
<td>7’-0” / 84”</td>
<td>15.10</td>
<td>9.90</td>
<td>0.33</td>
<td>830</td>
<td>0.25</td>
<td>545</td>
<td>0.18</td>
</tr>
<tr>
<td>8’-0” / 96”</td>
<td>17.52</td>
<td>11.49</td>
<td>0.20</td>
<td>965</td>
<td>0.15</td>
<td>630</td>
<td>0.10</td>
</tr>
</tbody>
</table>

* Includes free area contributions from sash clearance spaces and bypass opening.

Static pressures shown are for the pressure drop through the hoods only. The total pressure drop through the hood and the duct system must be calculated to select the proper exhaust fan.

Accessories Include:
Two 120 volt AC 20 amp GFI receptacles, single-tube, T-5 fluorescent light fixture with bulb and 20 amp light switch. No wiring for the electrical fixtures is included unless H-Option is added to part number. Hoods with H-Option are UL listed.

Optional Accessories:
Each front post and interior end liner is punched for up to five (5) remote control service fittings. The right hand post is punched for a second electrical fixture at the top which may be used for a fan switch or other electrical device. Service fittings, fan, fan switch, work top, cupsink, and base units must be ordered separately.

High Performance Low Velocity Bench Fume Hoods — Self-closing Vertical Rising Sash

<table>
<thead>
<tr>
<th>Overall Height</th>
<th>Dimensions</th>
<th>Opening at 28” Sash Opening</th>
<th>Opening at 18” Sash Opening</th>
<th>HIGH SETTING 100 FPM at 18”</th>
<th>66 FPM at 28”</th>
<th>MEDIUM SETTING 84 FPM at 18”</th>
<th>55 FPM at 28”</th>
<th>LOW SETTING 55 FPM at 18”</th>
</tr>
</thead>
<tbody>
<tr>
<td>89 7/8”</td>
<td>4'-0”</td>
<td>30 sq ft</td>
<td>24 sq ft</td>
<td>0.20</td>
<td>430</td>
<td>0.15</td>
<td>285</td>
<td>0.10</td>
</tr>
<tr>
<td>94”</td>
<td>5'-0”</td>
<td>36 sq ft</td>
<td>28 sq ft</td>
<td>0.20</td>
<td>565</td>
<td>0.15</td>
<td>370</td>
<td>0.12</td>
</tr>
<tr>
<td>99”</td>
<td>6'-0”</td>
<td>42 sq ft</td>
<td>32 sq ft</td>
<td>0.20</td>
<td>700</td>
<td>0.20</td>
<td>460</td>
<td>0.15</td>
</tr>
<tr>
<td>104”</td>
<td>7'-0”</td>
<td>48 sq ft</td>
<td>36 sq ft</td>
<td>0.33</td>
<td>830</td>
<td>0.25</td>
<td>545</td>
<td>0.18</td>
</tr>
<tr>
<td>109”</td>
<td>8'-0”</td>
<td>54 sq ft</td>
<td>40 sq ft</td>
<td>0.20</td>
<td>965</td>
<td>0.15</td>
<td>630</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Not Recommended

CFM SP CFM SP CFM SP

4'-0” / 48”   7.85  5.15 515 0.20 430 0.15 285 0.10
5’-0” / 60”  10.27  6.73 675 0.20 565 0.15 370 0.12
6’-0” / 72”  12.69  8.31 830 0.20 700 0.20 460 0.15
7’-0” / 84”  15.10  9.90 990 0.33 830 0.25 545 0.18
8’-0” / 96”  17.52 11.49 1150 0.20 965 0.15 630 0.10

Note: See page 44 for chart of available options.
ADA Bench Fume Hood
with Vertical Rising Sash

Available Models:
Open By-Pass
Restricted By-Pass
Auxiliary Air

Features:
- Designed to meet guidelines of the Americans with Disabilities Act (ADA)
- Complete with Gravity Sash Stop.
- Fixtures and service fittings moved down to within reach of wheelchair bound operator.
- Radiused corner posts and airfoils for smooth air movement assures high level of comfort, safety and efficiency.
- 4” thick endwalls provide more interior work space and clean-lined uncluttered design.
- Interior baffles designed to minimize turbulence and optimize containment.
- Frameless sash with full-length formed steel handle for neat, clean appearance and streamline air features.
- Low profile PVC sash tracks and exclusive sash leveling and alignment features assure easy-smooth sash operation.
- Large friction-fit interior access panels provide easy access to piping and service fittings.
- Heavy gauge cold rolled steel exterior panels with independent rigid structural frame.
- Designed and tested using ASHRAE 110-1995, BS 7258, and DIN 12 924 standards.

Available Options:
- Adjustable Baffles
- Air Flow and Static Pressure Alarms
- Service Fittings and Piping
- Electrical Fixtures and Wiring
- UL listed when pre-wired per UL 61010A-1
- 1805 UL classified with Kemglass or Stainless Steel liner
- Vapor Proof and Explosion Proof Lighting
- Stainless Steel Deflector Vane
- Alternate Sash Handles
- Sash Frames
- Tempered Sash Glass
- Tissue Screen
- Fire Extinguisher
- Distillation Rack
- Stainless Steel Duct Collar
Supreme Air Fume Hood

**Specifications:**
Supreme Air Vertical Rising Sash ADA Bench Fume Hoods are furnished with a choice of liner and baffles with upper, center, and lower exhaust slots. Each fume hood is complete with a lower deflector vane, counterbalanced, frameless sash with 1/4” combination safety glass, and interior plumbing access panels. Hood exteriors are fabricated of cold rolled steel, phosphate coated with a baked chemical resistant, synthetic resin finish. The exhaust duct collar is polyethylene, 111/2” O.D. Each hood is furnished with a sash stop mounted at 14” above the lower deflector to keep the sash from rising above the operators reach.

**DIMENSIONS**

<table>
<thead>
<tr>
<th>Overall Dimension</th>
<th>HEIGHT</th>
<th>LENGTH</th>
<th>DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sash Opening</td>
<td>48&quot;</td>
<td>60&quot;</td>
<td>72&quot;</td>
</tr>
<tr>
<td>Work Top</td>
<td>31 1/4&quot;</td>
<td>52&quot;</td>
<td>64&quot;</td>
</tr>
<tr>
<td>Clearance (sash up)</td>
<td>91&quot;</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

**Accessories Include:**
120 volt AC 20 amp GFI duplex receptacle, combination 20 amp light switch—120 volt receptacle, and single-tube, T-5 fluorescent light fixture with bulb. No wiring for the electrical fixtures is included unless H-Option is selected.

**Optional Accessories:**
Each front post and interior end liner is punched for up to two (2) remote control service fittings. The right hand post is punched for a second electrical fixture at the bottom which may be used for a fan switch or other electrical device.

**Liner Options:**
- T = Phenolic Resin
- G = Kemglass
- K = KMER
- S = Type 304 Stainless Steel

The blank left in the fume hood catalog numbers is for designating the desired lining.

**Example:** H08T5448-00 would designate a 4’ hood with a Phenolic Resin lining.

**ADA Bench Fume Hoods — Vertical Rising Sash**

<table>
<thead>
<tr>
<th>4'-0&quot;</th>
<th>5'-0&quot;</th>
<th>6'-0&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>H08__5448B00</td>
<td>H08__5460B00</td>
<td>H08__5472B00</td>
</tr>
</tbody>
</table>

**Auxiliary Air**
All Open By-Pass hoods can be Auxiliary Air hoods by adding an Auxiliary Air Chamber. See page 43 for catalog numbers.

**Note:** See page 44 for chart of available options.

**Note:** Open By-Pass Fume Hood shown. Restricted By-Pass Fume Hoods do not have louvered top front panel.
ADA Bench Fume Hood
with Combination Vertical Rising/Horizontal Sash

Available Models:
Restricted By-Pass
Open By-Pass
(by special request only)

Features:
• Designed to meet guidelines of the Americans with Disabilities Act (ADA)
• Complete with Air Alert 300 Alarm and Gravity Sash Stop.
• Fixtures and service fittings moved down to within reach of wheelchair bound operator.
• Radiused corner posts and airfoils for smooth air movement assures high level of comfort, safety and efficiency.
• 4” thick endwalls provide more interior work space and clean-lined uncluttered design.
• Interior baffles designed to minimize turbulence and optimize containment.
• Narrow framed sash with four horizontal glass panels on two tracks for neat clean appearance and improved exhaust efficiency.
• Low profile PVC sash tracks and exclusive sash leveling and alignment features assure easy-smooth sash operation.
• Large friction-fit interior access panels provide easy access to piping and service fittings.
• Heavy gauge cold rolled steel exterior panels with independent rigid structural frame.
• Designed and tested using ASHRAE 110-1995, BS 7258, and DIN 12 924 standards.

Available Option:
Adjustable Baffles
Service Fittings and Piping
Electrical Fixtures and Wiring
UL listed when pre-wired per UL 61010A-1
1805 UL classified with Kemglass or Stainless Steel liner
Vapor Proof and Explosion Proof Lighting
Stainless Steel Deflector Vane
Stainless Steel Sash Frame
Tempered Sash Glass
Tissue Screen
Fire Extinguisher
Stainless Steel Duct Collar
Supreme Air Fume Hood

Specifications:
Supreme Air Combination Sash ADA Bench Fume Hoods are furnished with a choice of liner and baffles with upper, center, and lower exhaust slots. Each fume hood is complete with a lower deflector vane, counterbalanced, narrow framed sash with ¼" combination safety glass horizontal panels and interior plumbing access panels. Hood exteriors are fabricated of cold rolled steel, phosphate coated with a baked chemical resistant, synthetic resin finish. The exhaust duct collar is polyethylene, 11 ½" O.D. Each hood is furnished with an Air Alert 300 Alarm and a sash stop mounted at 14° above the lower deflector.

ADA Combination Sash Hoods are furnished with a Restricted By-Pass to match the restricted sash opening. They are designed for use with both constant volume and VAV applications. An Open By-Pass is available on request for applications where the hood is operated with the sash fully open. Combination Sash Bench Hoods are not designed for use with Auxiliary Air Chambers.

DIMENSIONS

<table>
<thead>
<tr>
<th>Overall Dimension</th>
<th>HEIGHT</th>
<th>LENGTH</th>
<th>DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sash Opening</td>
<td>29°</td>
<td>40°</td>
<td>52°</td>
</tr>
<tr>
<td>Work Top</td>
<td>31 ⅛&quot;</td>
<td>40&quot;</td>
<td>52°</td>
</tr>
<tr>
<td>Clearance (sash up)</td>
<td>91°</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

Overall Hood Sash Opening   Total CFM and Static Pressure

<table>
<thead>
<tr>
<th>Length</th>
<th>Sq. Ft.</th>
<th>80 FPM</th>
<th>100 FPM</th>
<th>120 FPM</th>
<th>S.P.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4'-0&quot;</td>
<td>4.8</td>
<td>380</td>
<td>0.05&quot;</td>
<td>480</td>
<td>0.10&quot;</td>
</tr>
<tr>
<td>5'-0&quot;</td>
<td>6.3</td>
<td>500</td>
<td>0.10&quot;</td>
<td>630</td>
<td>0.15&quot;</td>
</tr>
<tr>
<td>6'-0&quot;</td>
<td>7.8</td>
<td>620</td>
<td>0.10&quot;</td>
<td>780</td>
<td>0.15&quot;</td>
</tr>
</tbody>
</table>

* Maximum sash opening with vertical sash down and horizontal panels fully open. Includes By-Pass opening and 1° below deflector vane. Static pressures shown are for the pressure drop through the hoods only. The total pressure drop through the hood and the duct system must be calculated to select the proper exhaust fan.

Accessories Include: 120 volt AC 20 amp GFI duplexer receptacle, combination 20 amp light switch—120 volt receptacle, single-tube, T-5 fluorescent light fixture with bulb, and an Air Alert 300 Airflow Alarm. No wiring for the electrical fixtures is included unless H-Option is selected.

Optional Accessories: Each front post and interior end liner is punched for up to two (2) remote control service fittings. The right hand post is punched for a second electrical fixture at the bottom which may be used for a fan switch or other electrical device. Service fittings, fan, fan switch, work top, cupsink, and base units must be ordered separately.

ADA Bench Fume Hoods — Combination Vertical Rising/Horizontal Sash

Open By-Pass available by special request.

Note: See page 44 for chart of available options.

Note: Restricted By-Pass Fume Hood shown. Open By-Pass Fume Hoods have louvered top front panel.

Liner Options:

T = Phenolic Resin
G = Kemglass
K = KMER
S = Type 304 Stainless Steel

The blank left in the fume hood catalog numbers is for designating the desired lining.

Example: H09T5448-00 would designate a 4' hood with a Phenolic Resin lining.

Additional Parts Required to Make Up a Complete Fume Hood Assembly

- Work Top — see page 49
- Base Cabinets* — see page 63
- Service Fittings — see page 54
- Cupsink — see page 53
- Fan/Blower — see page 82
- *ADA guidelines require a space 30" wide by 30" high by 25" deep for a wheelchair to roll beneath a fume hood.

ADA guidelines require a space 30" wide by 30" high by 25" deep for a wheelchair to roll beneath a fume hood.

Cupsink

see page 53

Base Cabinets*

see page 63

Service Fittings

see page 54

Fan/Blower

see page 82

Note: See page 44 for chart of available options.

Note: Restricted By-Pass Fume Hood shown. Open By-Pass Fume Hoods have louvered top front panel.

Service Fittings

see page 54

Cupsink

see page 53

Fan/Blower

see page 82

T = Phenolic Resin
G = Kemglass
K = KMER
S = Type 304 Stainless Steel

The blank left in the fume hood catalog numbers is for designating the desired lining.

Example: H09T5448-00 would designate a 4' hood with a Phenolic Resin lining.

Restricted By-Pass

Open By-Pass available by special request.
SECTION 05 50 00
METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes:
   1. Steel framing and supports for operable partitions.
   2. Steel framing and supports for overhead coiling doors.
   3. Steel framing and supports for mechanical and electrical equipment.
   4. Steel pipe downspouts.
   5. Steel pipe bollards.
   6. Steel ladders.
   7. Steel swinging drive gates
   8. Manufactured metal items:
      a. Aluminum parapet access ladders.
      b. Wall brackets for handrails.
      c. Metal gate hinges.
      d. Aircraft cable and fittings.

B. Products furnished, but not installed, under this Section include:
   a. Loose steel lintels.
   b. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
   c. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.

C. Related Sections include:
   1. Section 04 20 00 “Concrete Unit Masonry” for installing loose steel lintels, anchors bolts, and other items built into concrete masonry.
   2. Section 05 12 00 “Steel Joist Framing” for structural steel framing, including exterior canopy framing.
   3. Section 05 52 00 “Metal Railings” for metal railings.
   4. Section 07 72 00 “Roof Accessories” for telescoping safety posts for roof access ladders.
5. Section 09 91 00 “Painting” for field painting of metal fabrications.

1.3 REFERENCES

A. Aluminum Association (AA).

B. American Architectural Manufacturers Association (AAMA):

C. American Concrete Institute (ACI):
   1. ACI 318: Building Code Requirements for Structural Concrete.

D. American National Standards Institute (ANSI):
   3. ASME B18.2.1: Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws.
   7. ASME B18.22.1: Plain Washers.

E. American Society of Mechanical Engineers (ASME):
   2. ASME B18.2.1: Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws.

F. American Welding Society (AWS):
   1. AWS D1.1: Structural Welding Code - Steel.
   2. AWS D1.2: Structural Welding Code – Aluminum.

G. ASTM International:
14. ASTM A500: Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
17. ASTM A653: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
18. ASTM A666: Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.

H. Federal Specifications:


J. International Organization for Standardization (ISO):
   1. ISO 14021: Environmental Labels and Declarations – Self-Declared Environmental Claims (Type II Environmental Labeling).

K. Metal Framing Manufacturers Association (MFMA):
   1. MFMA-4: Metal Framing Standards Publication.

L. Society for Protective Coatings (SSPC):
   2. SSPC-PA 1: Shop, Field, and Maintenance Painting of Steel.
   3. SSPC-SP 3: Power Tool Cleaning.

1.4 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers’ written instructions to ensure that shop primers and topcoats are compatible with one another.

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

1.5 ACTION SUBMITTALS

A. Product Data: For each manufactured item specified, including:
   1. Aluminum ladders.
   2. Gate hinges.
   3. Ladder security panel.
   4. Slotted channel framing.
   5. Grout.
B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide shop drawings for the following:
   1. Steel ladders.
   2. Steel framing and supports.

1.6 INFORMATIONAL SUBMITTALS
A. Welding Certificates.
B. Research Reports: For post-installed anchors.

1.7 QUALITY ASSURANCE
A. Welding Qualifications: Qualify procedures and personnel according to the following:
   1. AWS D1.1, “Structural Welding Code - Steel.”
   3. AWS D1.6, “Structural Welding Code - Stainless Steel.”

1.8 FIELD CONDITIONS
A. Field Measurements: Verify actual locations of walls, floor slabs, decks, and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS
2.1 PERFORMANCE REQUIREMENTS
A. Thermal Movements: Metal fabrications shall allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
   1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

2.2 METALS
A. Metal Surfaces, General: Provide materials with smooth flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
B. Steel:
   1. Steel Plates, Shapes, and Bars: ASTM A36.
   2. Steel Tubing: ASTM A500, cold-formed steel tubing.
3. Steel Pipe: ASTM A53, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.

4. Rolled-Steel Floor Plate: ASTM A786, rolled from plate complying with ASTM A36 or ASTM A283, Grade C or D.

C. Stainless-Steel:
   1. Stainless-Steel Wire-Rope: Wire rope manufactured from stainless-steel wire complying with ASTM A492, Type 316.
      a. Wire-Rope Fittings: Stainless-steel connectors, Type 316, with capability to sustain, without failure, a load equal to minimum breaking strength of wire rope with which they are used.

D. Aluminum:
   1. Aluminum Plate and Sheet: ASTM B209, Alloy 6061-T6, unless indicated otherwise.
   2. Aluminum Extrusions: ASTM B 221, Alloy 6063-T6, except as noted otherwise.
   3. Aluminum Castings: ASTM B26, Alloy 443.0-F, except as noted otherwise.

2.3 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941, Class Fe/Zn5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum and stainless steel. Select fasteners for type, grade, and class required.

B. Steel Bolts, Threaded Rods, and Nuts: Regular hexagon-head bolts and threaded rods, ASTM A307, Grade A; with hex nuts, ASTM A563; and, where indicated, flat washers.

C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F593; with hex nuts, ASTM F594; and, where indicated, flat washers; Alloy Group 1 (A1).

D. Anchor Bolts: ASTM F1554, Grade 36, of dimensions indicated; with nuts, ASTM A563; and, where indicated, flat washers.
   1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.

E. Eyebolts: ASTM A489.
   1. Closed eye with shoulder; lag screw, where indicated.

F. Machine Screws: ASME B18.6.3.

G. Lag Bolts: ASME B18.2.1.

H. Wood Screws: Flat head, ASME B18.6.1.


K. Post-Installed Anchors: Fastener systems with working capacity calculated according to ICC-ES Acceptance Criteria indicated and ACI 318, greater than or equal to design load, as determined by testing according to ASTM E488, conducted by a qualified independent testing agency, and according to evaluation report acceptable to authorities having jurisdiction, based on applicable substrate type.

1. At Concrete: One of the following:
   a. Torque-Controlled Expansion Anchors: Working capacity calculated according to ICC-ES AC193.
      i) Product: Subject to compliance with requirements, provide one of the following:
         a) Hilti, Inc.; Kwik-Bolt TZ (KB-TZ), sizes as indicated on Drawings.
         b) Simpson Strong-Tie Company; Strong-Bolt 2, sizes as indicated on Drawings.
         c) Equal product in accordance with Division 1 requirements for product substitutions.
      ii) Expansion Anchor Material: As indicated in referenced Product Report, and as follows:
         a) Exterior: Stainless-steel, Alloy Group 1 (Type 304), ASTM F 593 and ASTM F594.
         b) Interior: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941, Class Fe/Zn5, unless otherwise indicated.
   b. Adhesive Anchors: Working capacity calculated according to ICC-ES AC308.
      i) Product: Subject to compliance with requirements, provide one of the following:
         a) Hilti, Inc.; HY 200, with HAS anchor rod, sizes as indicated on Drawings.
         b) Simpson Strong-Tie Company; ET-HP, with anchor rod sizes as indicated on Drawings.
         c) Equal product in accordance with Division 1 requirements for product substitutions.
      ii) Anchor Rod and Nut Material: As indicated in referenced Product Report, and as follows:
         a) Exterior: Stainless-steel, Alloy Group 1 (Type 304), ASTM F593 and ASTM F594.
2. At Masonry: Adhesive anchors. Working capacity calculated according to ICC-ES AC58.
   
a. Product: Subject to compliance with requirements, provide one of the following:
      
      i) Hilti, Inc.; HY 70, with HAS anchor rod, sizes as indicated on Drawings.
      
      ii) Simpson Strong-Tie Company; SET, with anchor rod sizes as indicated on Drawings.
      
      iii) Equal product in accordance with Division 1 requirements for product substitutions.

b. Anchor Rod and Nut Material: As indicated in referenced Product Report, and as follows:
   
i) Exterior: Stainless-steel, Alloy Group 1 (Type 304), ASTM F593 and ASTM F 594.
   
   ii) Interior: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941, Class Fe/Zn5, unless otherwise indicated.

2.4 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
   
   1. For stainless-steel fabrications, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

B. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

C. Shop Primers: As specified in Section 09 91 00 “Painting.”

D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187

E. Shrinkage-Resistant Grout: Factory-packaged, nonmetallic, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.5 MANUFACTURED ITEMS

A. Gate Hinges: Weld-on two-piece steel hinge with case-hardened steel pin and brass washer; teardrop profile (in plan view) with tapered welding tabs.
   
   1. Product: Subject to compliance with requirements, provide the following:
      
      a. Intercon Enterprises, Inc./Baer Hardware; FES150.
2. Finish: Galvanized, suitable for painting.
3. Range of Rotation: 360 degrees.
4. Weight Capacity: 650 lbs per pair of hinges.

B. Aircraft Cable: Stainless steel, Type 304; flexible wire cable; 7 x 7 construction; meeting Military Specification MIL-W-83420 and Federal Spec. RR-W-410.
   1. Diameter: 1/4 inch as specified in Drawings.
   2. Nominal Breaking Strength: 1,700 lbs.
   3. Fittings: Properly sized for cable being secured as specified in Drawings.
      a. Oval Swaging Sleeves: Stainless steel, meeting Military Standard MS-51844; sized for cable being secured.
      b. Aircraft Cable Eye and Fork: Stainless steel, meeting Military Standard MS-20667.
      c. Clevis/Tensioning Device: Type 316 stainless steel; clevis-style fitting with threaded adjustable tensioning barrel and integral locknut; include stainless steel screw for securing clevis to eyebolt, and stainless steel ferrule for securing aircraft cable inside clevis fitting.
         i) Product: Wagner/Braun; #CRAJ62.
      d. Clevis Fixed End Fitting: Type 316 stainless steel; clevis-style fitting for securing fixed end of aircraft cable; include stainless steel screw for securing clevis to eyebolt, and stainless steel ferrule for securing aircraft cable inside clevis fitting.
         i) Product: Wagner/Braun; #CRFJ62.
      e. Eyebolt: Type 304 stainless steel lag eyebolt, compatible with clevis fitting.
         i) Product: Wagner/Braun; #CRLE6.

C. Pipe Bollard Cap: Steel domed cap designed for snug friction fit over top of pipe bollard.
   1. Product: Subject to compliance with requirements, provide bollard caps by one of the following:
      a. Barnes Steel Pipe Bollards.
      b. Manufacturer of equal product in accordance with Division 1 requirements for product substitutions.
   2. Finish: Powder Coated Yellow.

2.6 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to the greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.

E. Weld corners and seams continuously and cope components at connections to provide close fit. Comply with the following:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove welding flux immediately.
   4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.

G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

J. Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

2.7 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.

C. Fabricate supports for operable partitions from continuous steel beams or channels of sizes indicated with attached bearing plates, anchors, and braces as indicated. Drill bottom flanges of beams to receive partition track hanger rods; locate holes where indicated on operable partition Shop Drawings.

D. Galvanize items occurring at exterior locations.
2.8 LOOSE BEARING AND LEVELING PLATES
   A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts or post-installed anchors, and for grouting.
   B. Galvanize plates after fabrication.

2.9 STEEL WELD PLATES AND ANGLES
   A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete or masonry construction as needed to complete the Work. Provide each unit with integrally welded anchors for embedding in concrete or masonry as indicated on Drawings.

2.10 MISCELLANEOUS STEEL TRIM
   A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
   B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
      1. Provide with integrally welded steel anchors as indicated on Drawings for embedding in concrete or masonry construction.
   C. Galvanize exterior miscellaneous steel trim.

2.11 METAL LADDERS
   A. General:
      1. Comply with ANSI A14.3, unless otherwise indicated.
      2. For elevator pit ladders, comply with ASME A17.1.
      3. Space siderails 20 inches apart, unless otherwise indicated.
      4. Support each ladder at top and bottom and not more than 60 inches on center with welded or bolted brackets, made from same metal as ladder.
   B. Steel Ladders:
      1. Siderails: Continuous, 1/2-inch by 2-1/2-inch steel flat bars, with eased edges.
      2. Rungs: 1 inch diameter steel bars.
      3. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
      4. Galvanize all steel ladders exterior and interior, including brackets and fasteners.
   C. Aluminum Ship’s Ladder: N/A
   D. Aluminum Parapet Access Ladder With Handrail Extension at Top:
1. **Product:** Subject to compliance with requirements, provide one of the following:
   a. Alaco Company; Model 561.
   c. Equal product in accordance with Division 1 requirements for product substitutions.

2. Space siderails 20 to 24 inches apart unless otherwise indicated.

3. **Siderails:** Continuous extruded aluminum channels or tubes, not less than 2-1/2 inches deep, 3/4 inch wide, and 1/8 inch thick.

4. **Rungs:** Extruded aluminum tubes, with serrated stepping surface.

5. Fit rungs in centerline of siderails, fasten by welding or with stainless-steel fasteners or brackets and aluminum rivets.

6. Provide siderail extensions with handrails at top of ladder.
   a. **Extension Above Parapet:** 42 inches.

7. Support each ladder at top and bottom and not more than 60 inches on center with welded or bolted aluminum brackets for anchorage to building.

### E. Aluminum Parapet Access Ladder With Platform and Handrail Extension at Top:

1. **Product:** Subject to compliance with requirements, provide one of the following:
   a. Alaco Company; Model 564.
   b. O'Keeffes, Inc.; Model 503.
   c. Equal product in accordance with Division 1 requirements for product substitutions.

2. Space siderails 20 to 24 inches apart unless otherwise indicated.

3. **Siderails:** Continuous extruded aluminum channels or tubes, not less than 2-1/2 inches deep, 3/4 inch wide, and 1/8 inch thick.

4. **Rungs:** Extruded aluminum tubes, with serrated stepping surface.

5. Fit rungs in centerline of siderails, fasten by welding or with stainless-steel fasteners or brackets and aluminum rivets.

6. Provide siderail extensions, platform fabricated from aluminum grating, supported by extruded aluminum framing, and ladder extension down backside of parapet wall. Limit openings in platform grating to no more than 1/2 inch in the least dimension.
   a. **Height of Handrails Above Platform:** 42 inches.

7. Support each ladder at top and bottom and not more than 60 inches on center with welded or bolted aluminum brackets for anchorage to building.

---

**2.12 ORNAMENTAL METAL SITE FENCING AND GATES – N/A**

**2.13 GENERAL FINISH REQUIREMENTS**

A. Finish metal fabrications after assembly.
B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.14 STEEL FINISHES

A. Finish steel and iron items as follows:
   1. Hot-dip galvanize after fabrication, all items occurring at exterior locations.
      a. Steel pipe and tube downspouts to receive galvanized coating on both inner and outer surfaces.
   2. Shop prime all items occurring at interior locations, except those items indicated to be galvanized or left unprimed.

B. Galvanizing: Hot-dip galvanize items as indicated.
   1. Comply with applicable standard listed below:
      a. ASTM A123, for galvanizing steel products.
      b. ASTM A153, for galvanizing steel and iron hardware.
   2. Do not quench or apply post-galvanizing treatments that might interfere with paint adhesion.
   3. Fill vent and drain holes that will be exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
   4. Rain downspouts fabricated from steel pipe or tube are to receive galvanized coating on both inner and outer surfaces.
   5. If necessary, secure woven-wire fabric within frames after hot-dip galvanizing, in order to maintain flatness of fabric within frame.

C. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
   1. Interiors (SSPC Zone 1A): SSPC-SP 3, “Power Tool Cleaning.”

D. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications of steel, except those with galvanized finishes and those to be embedded in concrete or masonry, or receive sprayed-on fireproofing, unless otherwise indicated. Comply with SSPC-PA 1, “Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel,” for shop painting.
   1. Shop prime uncoated metal railings with primer specified in Section 09 91 00 “Painting.”
   2. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2.15 STAINLESS-STEEL FINISHES

A. Remove tool and die marks and stretch lines, or blend into finish.

B. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.

C. Stainless-Steel Tubing Finish:

D. Stainless-Steel Sheet and Plate Finish:
   1. Directional Satin Finish: ASTM A480, No. 4.

E. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

2.16 ALUMINUM FINISHES

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


PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove welding flux immediately.
   4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

G. Install manufactured items in accordance with written instructions of manufacturer.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturer’s written instructions and requirements indicated on Shop Drawings.

B. Anchor supports for operable partitions overhead doors securely to and rigidly brace from building structure.

C. Install steel columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified in “Installing Bearing and Leveling Plates” Article.
   1. Grout baseplates of columns supporting steel girders after girders are installed and leveled.

3.3 INSTALLING BEARING AND LEVELING PLATES


B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.
   1. Use nonshrink grout, either metallic or nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations, unless otherwise indicated.
   2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.4 INSTALLING AIRCRAFT CABLE

A. Install aircraft cable as shown and in accordance with manufacturer’s written instructions. Cut all ends clean without frayed ends.

B. Install fittings in accordance with written instructions of fitting manufacturer.
   1. Use fittings properly sized for diameter of cable.
   2. Swage fittings and ferrules onto cable as required to achieve full tension strength.
   3. After swaging, verify that outer diameter of fitting meets manufacturer’s written recommendations, using gauge measuring tool.
3.5 ADJUSTING AND CLEANING

A. Touchup Painting of Nongalvanized Steel and Iron Items: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
   a. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

C. Clean aluminum and stainless steel by washing thoroughly with clean water and soap and rinsing with clean water.

D. Check and adjust all operating hardware and moving parts for proper operation.

END OF SECTION 05 50 00
SECTION 07 42 13
METAL WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes:
   1. Factory-formed and field-assembled metal panels:
      a. Concealed-fastener, lap-seam metal wall panels.
      b. Exposed-fastener, lap-seam metal wall panels.
      c. Foamed-insulation-core metal wall panels.
      d. Metal-plate wall panels.
   2. Copings and miscellaneous flashings and trim occurring as part of metal wall and soffit panel system.
   3. Weather-resistive barrier behind metal wall panels.

B. Related Sections include:
   1. Section 05 12 00 "Structural Steel" for steel framing supporting metal wall and soffit panels.
   2. Section 05 41 00 "Cold-Formed Metal Framing" for secondary support framing supporting metal wall and soffit panels.
   3. Section 07 41 13 "Metal Roof Panels" for metal roof panels, and metal soffit panels not specified in this Section.
   4. Section 07 62 00 “Sheet Metal Flashing and Trim” for flashings and other sheet metal work not part of metal wall and soffit panel assemblies.
   5. Section 07 92 00 “Joint Sealants” for field-applied sealants not otherwise specified in this Section.
   6. Section 07 42 93 “Metal Soffit Panels” for exterior metal soffit panels.

1.3 DEFINITION

A. Metal Wall Assembly: Metal wall attachment system components, miscellaneous metal framing, thermal insulation, and accessories necessary for a complete weathertight system.
1.4 PERFORMANCE REQUIREMENTS

A. General: Provide metal wall panel assemblies that comply with performance requirements specified as determined by testing manufacturer’s standard assemblies similar to those indicated for this Project, by a qualified testing and inspecting agency.

B. Air Infiltration: Air leakage through assembly of not more than 0.06 cfm/sq ft of wall area when tested according ASTM E 283 at static-air-pressure differences as follows:
   1. Concealed-Fastener, Lap-Seam Metal Wall Panels: 1.57 lbf/sq ft.
   2. Exposed-Fastener, Lap-Seam Metal Wall Panels: 1.57 lbf/sq ft.

C. Water Penetration: No water penetration when tested according to ASTM E 331 at a minimum differential pressure of 20 percent of inward-acting, wind-load design pressure of not less than 6.24 lbf/sq ft whichever is greater.
   2. Exposed-Fastener, Lap-Seam Metal Wall Panels: 6.24 lbf/sq ft.
   3. Foamed-Insulation-Core Metal Wall Panels: 12 lbf/sq ft.

D. Structural Performance: Provide metal wall panel assemblies capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
   1. Wind Load: Uniform pressure, acting inward and outward, as calculated based on requirements of the California Building Code using factors defined therein and applicable to local site conditions.
      a. Wind Speed: 85 miles per hour.
   2. Deflection Limits: Engineer metal wall panel assemblies to withstand test pressures with deflection no greater than 1/180 of the span and no evidence of material failure, structural distress, or permanent deformation exceeding 0.2 percent of the clear span.
      a. Test Pressures: 150 percent of inward and outward calculated wind-load design pressures.

E. Seismic Performance: Provide metal wall panel assemblies capable of withstanding the effects of earthquake motions determined according to requirements of the applicable building codes for this Project.

F. Thermal Movements: Provide metal wall panel assemblies that allow for noiseless thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
   1. Temperature Change (Range): 120 F, ambient; 180 deg F, material surfaces.
G. Thermal Performance: Provide insulated metal wall panel assemblies with thermal-resistance value (R-value) indicated when tested according to ASTM C 236.

H. Story Drift: Provide metal wall panel systems that accommodate differential movement of adjacent stories and roof.

I. Install sheet metal flashing and trim occurring as part of metal wall panel system to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.

1.5 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal panel and accessory.

B. Shop Drawings: Show fabrication and installation layouts of metal wall panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details. Distinguish between factory- and field-assembled work.
   1. Accessories: Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches (1:10).
      a. Flashing and trim.
   2. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

C. Coordination Drawings: Exterior elevations drawn to scale and coordinating penetrations and wall-mounted items. Show the following:
   1. Wall panels and attachments.
   2. Underlying framing layouts.
   3. Penetrations and wall-mounted items including doors, windows, louvers, and lighting fixtures.

D. Samples for Initial Selection: For each type of metal wall panel indicated with factory-applied color finishes. Submit manufacturer’s full range of colors, for selection by Architect.

E. Samples for Verification: For each type of metal wall panel and exposed finish and color required, prepared on Samples of size indicated below.
   1. Metal Wall Panels: 12 inches by 12 inches.
      a. Include typical wall panel edge profiles.
      b. Include the following accessories:
         i) Fasteners.
         ii) Anchorage clips.
iii) Each type of metal and foam closure piece.

F. Qualification Data: For Installer and professional engineer.

G. Compatibility and Adhesion Test Reports: From sealant manufacturer indicating the following:
   1. Materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants.
   2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for the following:
   1. Metal Wall Panels: Include reports for air infiltration, water penetration, and structural performance.
   2. Insulation and Vapor Retarders: Include reports for thermal resistance, fire-test-response characteristics, water-vapor transmission, and water absorption.

I. Maintenance Data: For metal wall panels to include in maintenance manuals.

J. Warranties: Special warranties specified in this Section.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm with minimum of 10 years of experience in manufacturing metal wall and soffit panels, and with a record of successful in-service performance, as well as sufficient production capacity to produce required quantities.

B. Installer Qualifications: An employer of workers trained and approved by manufacturer.

C. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in California and who is experienced in providing engineering services of the kind indicated.

D. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.

E. Source Limitations: Obtain each type of metal wall panel through one source from a single manufacturer.

F. Preconstruction Compatibility and Adhesion Testing: Submit to joint sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
   1. Use manufacturer’s standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
2. Submit no fewer than nine pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
4. For materials failing tests, obtain joint sealant manufacturer’s written instructions for corrective measures, including the use of specially formulated primers.

G. **Fire-Resistance Ratings:** Where indicated, provide metal wall panels identical to those of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
   2. Fire-Resistance Ratings: Indicated by design designations from UL’s “Fire Resistance Directory” or from listings of another testing and inspecting agency.
   3. Metal wall panels shall be identified with appropriate markings of applicable testing and inspecting agency.

H. **Surface-Burning Characteristics:** Provide insulated metal wall panels having insulation-core materials with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
   1. Flame-Spread Index: 25 or less, unless otherwise indicated.
   2. Smoke-Developed Index: 450 or less, unless otherwise indicated.

I. **Mockups:** Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.
   1. Build mockup of typical bay or portion of building, which includes insulation, supports, attachments, and accessories. Mockup to include the following typical conditions:
      a. Outside and inside corner.
      b. Door opening.
      c. Window opening.
      d. Base.
      e. Parapet.
      f. Four-way joint for metal-plate wall panels.
   2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

J. **Preinstallation Conference:** Conduct conference at Project site to comply with requirements in Division 1 Section for project meetings. Review methods and procedures related to metal wall panel assemblies including, but not limited to, the following:
1. Meet with Owner, Architect, Owner’s insurer if applicable, testing and inspecting agency representative, metal wall panel installer, metal wall panel manufacturer’s representative, structural-support installer, and installers whose work interfaces with or affects metal wall panels including installers of doors, windows, and louvers.

2. Review and finalize construction schedule and verify availability of materials, Installer’s personnel, equipment, and facilities needed to make progress and avoid delays.

3. Review methods and procedures related to metal wall panel installation, including manufacturer’s written instructions.

4. Examine support conditions for compliance with requirements, including alignment between, and attachment to structural members.

5. Review flashings, special siding details, wall penetrations, openings, and condition of other construction that will affect metal wall panels.

6. Review governing regulations and requirements for insurance, certificates, and testing and inspecting if applicable.

7. Review temporary protection requirements for metal wall panel assembly during and after installation.

8. Review wall panel observation and repair procedures after metal panel installation.

9. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, sheets, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal wall panels for protection during transportation and handling.

B. Unload, store, and erect metal wall panels in a manner to prevent bending, warping twisting, and surface damage.

C. Except as noted otherwise below, stack metal wall panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

1. Store metal-faced composite wall panels vertically, covered with suitable weathertight and ventilated covering. Store metal-faced composite wall panels to ensure dryness, with positive slope of drainage of water. Do not store metal-faced composite wall panels in contact with other materials that might cause staining, denting, or other surface damage. Do not allow storage space to exceed 120 deg F.

D. Protect strippable protective covering on metal wall panels from exposure to sunlight and high humidity, except to extent necessary for period of metal wall panel installation.
E. Protect foam-plastic insulation as follows:
   1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
   2. Protect against ignition at all times. Do not deliver foam-plastic insulation materials to Project site before installation time.
   3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal wall panels to be performed according to manufacturer’s written instructions and warranty requirements.

B. Field Measurements: Verify locations of structural members and wall opening dimensions by field measurements before metal panel fabrication and indicate measurements on Shop Drawings.

1.9 COORDINATION

A. Coordinate metal wall panel assemblies with rain drainage work, flashing, trim, and construction of girts, studs, soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.10 WARRANTY

A. Special Warranty: Manufacturer’s standard form in which manufacturer agrees to repair or replace components of metal wall panel assemblies that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Structural failures, including rupturing, cracking, or puncturing.
      b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   2. Warranty Period: 2 years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer’s standard form in which manufacturer agrees to repair finish or replace metal panels 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: 20 years from date of Substantial Completion.
PART 2 - PRODUCTS

2.1 PANEL MATERIALS

A. Metallic-Coated Steel Sheet Prepainted with Coil Coating: Steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755.
   1. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792, Class AZ50 coating designation, Grade 40 (Class AZM150 coating designation; Grade 275); structural quality.
   2. Surface smooth, flat finish.
   4. Concealed Finish: Apply pretreatment and manufacturer’s standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

B. Aluminum Sheet: Coil-coated sheet, ASTM B 209, clad alloy 3003 for painted finishes, with temper as required to suit forming operations and structural performance required.
   1. Alternative alloys include the following:
      b. Alloy 3105: H14 temper.
   2. Surface: Smooth finish.
   4. Concealed Finish: Apply pretreatment and manufacturer’s standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

C. Aluminum Extrusions: ASTM B 221, alloy and temper as recommended by manufacturer for type of use and finish indicated.

2.2 THERMAL INSULATION FOR FACTORY-ASSEMBLED METAL WALL PANELS

A. Isocyanurate Insulation: Modified isocyanurate foam using a non-CFC blowing agent, foamed-in-place type as indicated, with maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E 84.
   1. Closed-Cell Content: 90 percent when tested according to ASTM D 2856.
   2. Density: 2.7 lb/cu ft minimum when tested according to ASTM D 1622.
   3. Compressive Strength: Minimum 20 psi when tested according to ASTM D 1621.
   4. Shear Strength: 26 psi when tested according to ASTM C 273.
2.3 MISCELLANEOUS METAL FRAMING

A. Steel Sheet Components, General: Complying with ASTM C 645 requirements for metal and with ASTM A 653, G60 (Z180), hot-dip galvanized zinc coating.

B. Subgirts: C- or Z-shaped sections fabricated from 0.0566-inch (16 gage) bare steel thickness, shop-painted, cold-formed, metallic-coated steel sheet.

C. Zee Clips: 0.0713-inch (14 gage) bare steel thickness, cold-formed, galvanized steel sheet.

D. Base or Sill Angles: 0.0713-inch (14 gage) bare steel thickness, cold-formed, galvanized steel sheet.

E. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
   1. Minimum Base Metal Thickness: 0.0312-inch (20 gage).
   2. Depth: 7/8-inch, unless indicated otherwise.

F. Cold-Rolled Furring Channels: 0.0566-inch (16 gage) bare steel thickness, with minimum 1/2-inch-wide flange.
   1. Depth: As indicated.

G. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4-inches, wall attachment flange of 7/8 inch minimum bare metal thickness of 0.0566-inch (16 gage), and depth required to fit insulation thickness indicated.

H. Fasteners for Metal Framing: Of type, size, corrosion-resistance, holding power and other properties required to fasten steel members to substrates.

2.4 MISCELLANEOUS MATERIALS

A. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide concealed fasteners wherever possible. Where exposed fasteners are necessary, provide fasteners with heads matching color and finish of metal wall panels by means of factory-applied coating.
   1. Fasteners for Concealed-Fastener Wall Panels: Self-drilling or self-tapping zinc-plated, hex-head carbon-steel screws.
   2. Fasteners for Exposed-Fastener Wall Panels: Self-drilling or self-tapping 300 Series stainless-steel hex washer head, with EPDM or PVC washer under heads of fasteners bearing on weather side of metal wall panels.
   3. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws with hex washer head.

B. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

C. Panel Sealants:
1. **Sealant Tape**: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

2. **Joint Sealant**: ASTM C 920; elastomeric polyurethane, polysulfide, or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal wall panels and remain weathertight; as recommended in writing by metal wall panel manufacturer.

3. **Butyl-Rubber-Based, Solvent Release Sealant**: ASTM C 1311.

### 2.5 FOAMED-INSULATION-CORE METAL WALL PANELS

**A. General**: Provide factory-formed and –assembled metal wall panels fabricated from two metal facing sheets and insulation core foamed-in-place during fabrication with joints between panels designed to form weathertight seals. Include accessories required for weathertight installation.

1. Design of horizontal panel joints shall incorporate pressure equalization principals to effectively prevent water from migrating to interior side of panels.

**B. Metal Wall Panel Type MWP-4**: Concealed-fastener, foamed-insulation-core metal wall panel with integral reveal profiles as indicated.

1. **Product**: Subject to compliance with requirements, provide the following:
   a. CENTRIA Architectural Systems; Formawall Dimension Series.

2. **Facings**: Fabricate panel with exterior and interior facings of zinc-coated (galvanized) steel sheet, thickness as follows:
   a. Exposed (Weather) Side: 0.0269 inch (22 gage).
   b. Backside (Non-weather): 0.0179 inch (26 gage).

3. **Exposed Side Facing Finish**: Fluoropolymer.
   a. **Color**: As selected by Architect from manufacturer’s full range.

4. **Backside Facing Finish**: Manufacturer’s standard siliconized polyester.

5. **Exposed Side Facing Surface**: Smooth.

6. **Color[s]**: As selected by Architect from manufacturer’s full range.
   a. For bidding purposes, assume two separate colors, in equal quantities for each color.

7. **Panel Coverage**: 36 inches.

8. **Panel Joint Design**: Trimless edges with exterior facing wrapping over edge of panel.
   a. **Horizontal Joints**: Positive drip edge (at lower edge of upper panel), sloped drain shelf (at upper edge of lower panel), and integral venting to the exterior with baffle interlock along panel length to create pressure equalized chamber to prevent intrusion of water behind panel system.
   b. **Vertical Joints**: Gasketed dry seal for weathertight installation.

9. **Reveal Width**:
   a. **Horizontal**: 1 inch and 1/4 inch, in layout as indicated on Drawings.
b. Vertical: 1 inch.

10. Overall Panel Thickness: 2 inches.
12. Attachment: Concealed clips designed to engage both exterior and interior facing for mechanical attachment to supports.
13. Prefabricated Corners: Unless indicated otherwise, provide manufacturer’s factory-notched corner panel for field-bending to corner profile prior to installation. Corner panel to match material, profile, and finish of wall panels for a trimless, continuous horizontal profile appearance at both inside and outside corners.

C. Extruded Trim: Manufacturer’s extruded aluminum trim for use with concealed-fastener, foamed-insulation-core metal wall panels. Provide as indicated at panel joints, corners, wall openings, and other locations as detailed; designed to be compatible with wall panel depths and profiles; profiles and dimensions as indicated; provide watertight gasketing and two-piece extrusions with snap-in covers where indicated.

1. Product: Subject to compliance with requirements, provide the following:
   a. CENTRIA Architectural Systems; MicroLine.

2. Fabricate extruded trim components as follows:
   a. Form profiles that are sharp, straight, and free of defects or deformations.
   b. Accurately fit joints with ends coped or mitered.
   c. Fasteners, anchors, and connection devices are to be concealed from view.

   a. Color: Match color of adjacent wall panels.

D. Panel Gaskets: Manufacturer’s standard compression types, replaceable, molded or extruded, that maintain uniform pressure and watertight seal.

1. Color: Match color of wall panel as closely as possible.

2.6 ACCESSORIES

A. Wall Panel Accessories: Provide components required for complete metal wall panel assemblies, including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material, finish, and color of metal wall panels, unless otherwise indicated.

1. Closures: Provide closures at eaves and rakes, fabricated of same metal as metal wall panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch-thick,
flexible closure strips; cut or premolded to match metal wall panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

B. Flashing and Trim: Formed from same material as metal wall and soffit panels, matching adjacent panels in thickness, finish, and color, unless indicated otherwise. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal wall and soffit panels.

C. Decorative Trim: Manufacturer’s preformed and extruded aluminum trim for use at panel joints, wall openings, and other locations as indicated; designed to be compatible with wall panel depths and profiles; profiles and dimensions as indicated.
   1. Product: Subject to compliance with requirements, provide the following:
      a. CENTRIA Architectural Systems; MicroLine.
   2. Fabricate decorative trim components as follows:
      a. Form profiles that are sharp, straight, and free of defects or deformations.
      b. Accurately fit joints with ends coped or mitered.
      c. Fasteners, anchors, and connection devices are to be concealed from view.
      a. Color: Match color of adjacent wall panels.

2.7 FABRICATION

A. General: Fabricate and finish metal wall and panels and accessories at the factory to the greatest extent possible, by manufacturer’s standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
   1. Form panel lines, breaks, and angles to be sharp and true with surfaces free from warp and buckle.
   2. Fabricate wall and panels with panel stiffeners as required to maintain fabrication tolerances and to withstand design loads.

B. Fabricate metal wall panels in a manner that eliminates condensation on interior side of panel and with joints between panels designed to form weathertight seals.

C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

D. Where indicated, fabricate metal wall panels with factory-installed captive gaskets or separator strips that provide a tight seal and prevent metal-to-metal contact, in a manner that will minimize noise from movements within panel assembly.
E. Provide factory-applied sealant in the interlocking side-lap joint between panels.

F. Metal-Plate Wall Panels: Fabricate panels with panel stiffeners as required to comply with deflection limits. Weld and grind panel corners smooth. Fabricate panels to the following dimensional tolerances:
   1. Length and Width: Plus or minus 0.032-inch (1/32) up to 48 inches; 0.064-inch (1/16) more than 48 inches.
   2. Diagonal: Plus or minus 0.1875 inch (3/16).
   3. Panel Bow: Not more than 0.2 percent of panel width or length up to 0.1875-inch (3/16) maximum.
   4. Thickness: Plus or minus 0.008 inch (1/128).
   5. Squareness: 0.1875 inch (3/16) difference between diagonal measurements.
   6. Camber: 0.032 inch (1/32).

G. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA’s “Architectural Sheet Metal Manual” that apply to the design, dimensions, metal, and other characteristics of item indicated.
   1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
   2. Seams: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
   3. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
   4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
   5. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended by metal panel manufacturer.
      a. Size: As recommended by SMACNA’s “Architectural Sheet Metal Manual” or metal panel manufacturer for application but not less than thickness of metal being secured.

2.8 FINISHES, GENERAL

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

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

C. Finish System for Steel: Coil Coating.
   1. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer’s written instructions.
a. Fluoropolymer Two-Coat System: Manufacturer’s standard two-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with physical properties and coating performance requirements of AAMA 2605.

D. Finish System for Aluminum: Coil coating.
   1. High-Performance Organic Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer’s written instructions.

a. Fluoropolymer Two-Coat System: Manufacturer’s standard two-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with physical properties and coating performance requirements of AAMA 2605.

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

F. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within 1/2 of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal wall and soffit panel supports, and other conditions affecting performance of work.
   1. Examine primary and secondary wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal panel manufacturer.
   2. Examine solid wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal panel manufacturer.

B. Examine roughing-in for components and systems penetrating metal wall panels to verify actual locations of penetrations relative to seam locations of metal wall and soffit panels before metal panel installation.

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

A. Clean substrates of substances harmful to insulation, including removing projections capable of interfering with insulation attachment.

B. Install flashings and other sheet metal to comply with requirements specified in Section 07 62 00 “Sheet Metal Flashing and Trim.”

C. Miscellaneous Framing: Install subgirts, base angles, sills, furring, and other miscellaneous wall panel support members and anchorage according to ASTM C 754 and metal wall and soffit panel manufacturer’s written recommendations.

3.3 METAL WALL PANEL INSTALLATION, GENERAL

A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts and subgirts, unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
   1. Field cutting of metal panels by torch is not permitted.
   2. Shim or otherwise plumb substrates receiving metal wall and soffit panels.
   3. Rigidly fasten base end of metal wall panels and allow eave end free movement due to thermal expansion and contraction. Predrill panels.
   4. Flash and seal metal wall and soffit panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until weather-resistive barrier and flashings that will be concealed by metal panels are installed.
   5. Install screw fasteners in predrilled holes.
   6. Locate and space fastenings in uniform vertical and horizontal alignment.
   7. Install flashing and trim as metal wall and soffit panel work proceeds.
   8. Locate lap-seam panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
   9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated or, if not indicated, as necessary for waterproofing.
  10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
  11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

B. Fasteners:
   1. Steel Panels: use stainless-steel fasteners for surfaces exposed to the exterior and galvanized steel fasteners for surfaces exposed to the interior.
   2. Aluminum Panels: Use aluminum or stainless-steel fasteners for surfaces exposed to the exterior and aluminum or galvanized steel fasteners for surfaces exposed to the interior.
C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal panel manufacturer.
   1. Coat back side of aluminum panels with bituminous coating where panels will contact wood, ferrous metal, or cementitious construction.

D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal wall and soffit panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not indicated, types recommended by metal panel manufacturer.
   1. Seal metal panel end laps with double beads of tape or sealant, full width of panel. Seal side joints where recommended by metal panel manufacturer.

E. Fascia Panels: Align bottom of panels and fasten with blind rivets, bolts, or self-tapping screws. Flash and seal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.4 FIELD-ASSEMBLED METAL WALL PANEL INSTALLATION

A. Concealed Fastener and Exposed Fastener, Lap-Seam Metal Wall Panels: Fasten metal wall panels to supports with clips or fasteners at each lapped joint at location and spacing recommended by manufacturer.
   1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply panels and associated items for neat and weathertight enclosure. Avoid “panel creep” or application not true to line.
   2. Concealed-Fastener Wall Panels: Fasten panels to supports with clips or fasteners, in accordance with manufacturer’s written instructions.
   3. Exposed-Fastener Panels: Fasten panels to supports with fasteners.
      a. Provide metal-backed washers under heads of exposed fasteners bearing on weather side of metal wall panels.
      b. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.
      c. Install screw fasteners with power tools having controlled torque adjusted to compress washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
   4. Provide sealant tape at lapped joints of metal wall panels and between panels and protruding equipment, vents, and accessories.
   5. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps, and on side laps of nesting-type panels; on side laps of corrugated nesting-type, ribbed, or fluted panels; and elsewhere as needed to make panels weatherproof to driving rains.
6. At panel splices, nest panels with minimum 6-inch end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.

3.5 FACTORY-ASSEMBLED METAL WALL PANEL INSTALLATION

A. General: Apply continuous ribbon of sealant to panel joint on concealed side of insulated metal wall panels as vapor seal; apply sealant to panel joint on exposed side of panels for weather seal.
   1. Fasten insulated metal wall panels to supports with fasteners at each lapped joint at location, spacing, and with fasteners recommended by manufacturer.

B. Foamed-Insulation-Core Metal Wall Panels: Fasten metal wall panels to supports with concealed clips at each joint at location, spacing, and with fasteners as recommended by manufacturer. Fully engage tongue and groove of adjacent panels.
   1. Install clips to supports with self-tapping fasteners.

3.6 METAL SOFFIT PANEL INSTALLATION

A. Provide metal soffit panels full width of soffits. Install panels perpendicular to support framing.
   1. Flash and seal panels with weather closures where metal soffit panels meet walls and at perimeter of all openings.

3.7 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
   1. Install components required for a complete metal wall and soffit panel assembly including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.

B. Flashing and Trim: Comply with performance requirements, manufacturer’s written installation instructions, and SMACNA’s “Architectural Sheet Metal Manual.” Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather-resistant.
   1. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
   2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).
3.8 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align metal wall panel units within installed tolerance of 1/4 inch in 20 feet, nonaccumulative, on level, plumb, and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.9 FIELD QUALITY CONTROL

A. Manufacturer’s Field Service: Engage a factory-authorized service representative to inspect completed metal wall and soffit panel installation, including accessories. Report results in writing.

B. Remove and replace applications of metal wall and soffit panels where inspections indicate that they do not comply with specified requirements.

C. Additional tests and inspections, at Contractor’s expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.10 CLEANING AND PROTECTION

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

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

C. Replace metal wall and soffit panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07 42 13
1. BOLLARD SPACING - ROUNDABOUT
   1" = 10'-0"

2. BOLLARD SPACING - PARKING LOT
   1" = 10'-0"
2. BLDG. ENTRANCE EXPANSION JOINTS
1" = 10'-0"

1. COURTYARD EXPANSION JOINTS
1" = 10'-0"

NOTE: REFER TO SHEET A1217 FOR ADDITIONAL INFORMATION NOT SHOWN
CONCRETE WALK - BUILDING EDGE

NOTES:
FOR TYPICAL NOTES AND DIMENSIONS REFER TO DETAIL

COMPACTED SUBGRADE

#3 CONTINUOUS

#3 DOWEL AT 24" O.C. MIN. 6" EMBEDMENT DRILLED INTO FOOTING.

REFER TO STRUCTURAL DRAWINGS FOR PERIMETER FOUNDATION AND REINFORCEMENT

EXH. WALL FRAMING PER STRUCTURAL DRAWINGS AND SPECS. SEE EXH ELEVATIONS FOR FINISH MATERIAL DESIGNATIONS

CONT. NEOPRENE STRIP

CONT. 1/2" EXPANSION MATERIAL WITH ELASTOMERIC SEALANT

CONC. PAVING. WITH REINF., SEE DETAIL

1 1/2" = 1'-0"

CONCRETE WALK - BUILDING EDGE

ARCHITECTURE PLANNING

IBI

LICENSLED ARCHITECT

RICHARD MELLO

REN. 10/23

STATE OF CALIFORNIA

ARCHITECTURE PLANNING

San Luis Obispo

4119 Broad Street, Suite 210
San Luis Obispo, California 93401
805.546.0433 fax 805.546.0504

KERN COMMUNITY COLLEGE

School District

ARVIN EDUCATIONAL CENTER

Bakersfield

CA

ADD001

SK-05

I 1

CONCRETE WALK - BUILDING EDGE

1

A8000

A8000

No. DESCRIPTION DATE

1 ADDENDUM 001 08/26/2022

A8000
#3 DOWEL AT 24" O.C.
MIN. 6" EMBEDMENT
DRILLED INTO FOOTING.

EXT. WALL FRAMING, PER STRUCTURAL DRAWINGS AND SPECS. SEE EXT. ELEVATIONS FOR FINISH MATERIAL DESIGNATIONS

CONT. NEOPRENE STRIP
1/2" EXPANSION MATERIAL WITH ELASTOMERIC SEALANT
CONCRETE MOW STRIP; TROWEL FINISH
FINISH GRADE

1 1/2" = 1'-0"

COMPACTED SUBGRADE

#3 CONTINUOUS
#3 DOWEL AT 24" O.C.
MIN. 6" EMBEDMENT
DRILLED INTO FOOTING.

REFER TO STRUCTURAL DRAWINGS FOR PERIMETER FOUNDATION AND REINFORCEMENT

CONCRETE MOWSTRIP
1 1/2" = 1'-0"
FLAShING MEMBRANE

SINGLE PLY ROOFING OVER COVER BOARD AND RIGID INSULATION, REFER TO DETAIL

FASTENERS @ 3” TO 6” O.C. STAGGERED

22GA SM DRIP EDGE (PAINT) PROVIDE CONT CLEAT WITH #8 SMS AT 12" O.C.

1" WIDE x 20 GA. S.M. GUTTER STRAP AT 48”oc, FASTEN TO ROOF NAILER WITH 2-#10 SMS

CONT 20 GA SM GUTTER, INTERNALLY LINED WITH SLOPING GUTTER TO DRAIN (PAINT) DASHED LINE INDICATES HIGH POINT OF INTERNAL GUTTER

PLASTIC SHIM @ PANEL ATTACHMENT

METAL DECK, REFER TO STRUCTURAL DRAWINGS

16 GA BENT STEEL ANGLE GUTTER SUPPORT. WRAP AROUND STEEL BEAM. PAINT TO MATCH

STEEL OVERHANG BEAM, SEE STRUCTURAL DRAWINGS FOR SIZES

CENTRIA IW-15A METAL PANEL ATTACHED WITH #12 SMS @ 16" O.C.

POP RIVET PER MANUFACTURER

LOBBY ROOF EAVE

3" = 1'-0"

GUTTER @ LOBBY EAVE

ARVIN EDUCATIONAL CENTER

KERN COMMUNITY COLLEGE DISTRICT

IBI
ARCHITECTURE PLANNING
San Luis Obispo, California 93401
805.546.0433 fax 805.546.0504
aluminum parapet access ladder w/ platform and handrail extension

refer to fastener notes below

parapet framing see structural

roofing, for typical notes, refer to

set base bracket in full bead of sealant. provide attachment per mfr’s recommendation. min. 1 1/2" embedment into metal deck

fastener notes:
metal stud framing
two 3/8" diameter tek screws
with 1" min. penetration into 16 gauge metal backing. refer to detail

roof ladder

1 1/2" = 1'-0"
CONT SHEET METAL CLOSURE ANGLE, WITH #8 SELF-TAPPING SMS AT 12"oc (PAINT) NOTCH AROUND TOP OF CURVED BEAM AS REQUIRED

CONT SHAPED NEOPRENE CLOSURE AT CURVED BEAM LOCATIONS

CONT METAL ROOF CLEAT, FASTEN TO ROOF NAILER WITH #10 SMS AT 16"oc

1" WIDE x 20 GA. S.M. GUTTER STRAP AT 48"oc, FASTEN TO ROOF NAILER WITH 2#10 SMS

NOTE: SOLDER ALL GUTTER SEAMS AND WIRE BALL STRAINER

14 GA STEEL ANGLE

5" x 4" x 1/8" STEEL DOWNSPOUT, FASTEN TO DOWNSPOUT STRAINER WITH #10 SMS (SEAL JOINTS AND SCREW HEADS) PAINT

CONT REMOVABLE LEAF SCREEN WITH SHEET METAL FRAME AND HARDWARE CLOTH SCREEN

CONT 20 GA SM GUTTER, INTERNALLY LINED WITH SLOPING GUTTER TO DRAIN (PAINT) DASHED LINE INDICATES HIGH POINT OF INTERNAL GUTTER

WIRE BALL DOWNSPOUT STRAINER

GUTTER & DOWNSPOUT - CURVED ROOF
CONT METAL ROOF CLEAT, FASTEN TO ROOF NAILER WITH #10 SMS AT 16"oc.

1" WIDE x 20 GA. S.M. GUTTER STRAP AT 48"oc, FASTEN TO ROOF NAILER WITH 2 #10 SMS

CONT 20 GA SM GUTTER, INTERNALLY LINED WITH SLOPING GUTTER TO DRAIN (PAINT) DASHED LINE INDICATES HIGH POINT OF INTERNAL GUTTER

NOTE: SOLDER ALL GUTTER SEAMS AND WIRE BALL STRAINER

22GA SM DRIP EDGE (PAINT)

PROVIDE CONT CLEAT WITH #8 SMS AT 12"oc

CONT METAL ROOF CLEAT, FASTEN TO ROOF NAILER WITH #10 SMS AT 16"oc

WIRE BALL DOWNSPOUT STRAINER

5" x 4" x 1/8" STEEL DOWNSPOUT, FASTEN TO DOWNSPOUT STRAINER WITH #10 SMS (SEAL JOINTS AND SCREW HEADS,) PAINT SEE DETAIL FOR SECTION

CONT SEALANT AT NOTCHED SHEET METAL ANGLE

RIVET AND SHIM

STANDING SEAM METAL ROOF, REFER TO DETAIL

METAL DECK, REFER TO STRUCTURAL DRAWINGS

STEEL OVERHANG BEAM, SEE STRUCTURAL DRAWINGS FOR SIZES

PLASTIC SHIM @ PANEL ATTACHMENT

FACTORY APPLIED NON-CURING BUTYL

METAL SOFFIT PANEL ATTACHED WITH #12 SMS @ 16" O.C., NOTE: INSTALL PANEL PER EVALUATION REPORT FL3174

CONT SEALANT AT NOTCHED SHEET METAL ANGLE
**BASE CABINET ANCHORAGE - COUNTERTOP**

- **Description:** 3" = 1'-0"

**SPLASH WHERE OCCURS, SEE INTERIOR ELEVATINGS**
- 5/8" GYPSUM BOARD, TYP.
- LABORATORY GRADE EPOXY RESIN COUNTERTOP AND BACKSPLASH

**COUNTERTOP - EPOXY RESIN W/ 6" CHASE OPTION**
- 3" = 1'-0"

**PLASTIC LAMINATE OVER ALL EXPOSED SURFACES & EDGES**
- SELF EDGE W/ 3/4" RADIUS

**CONSTRUCTION SPECIFICATIONS**
- #14 PAN SCREW, 2-1/2" MIN. PENETRATION INTO BLOCKING
- 1/4" x 1-1/4" FLAT WASHER @ 16" O.C. 2" FROM ENDS. (MIN. 2 PER CABINET)

**CABINET TOP**
- 1/32" CHAMFERED EDGE
- CONTINUOUS 1/8"W x 1/8"D DRIP GROOVE 5/16" FROM OUTSIDE EDGE OF COUNTERTOP

**CABINET DOOR/ DRAWER**
- 1/32" CHAMFERED EDGE
- CONTINUOUS 1/8"W x 1/8"D DRIP GROOVE 5/16" FROM OUTSIDE EDGE OF COUNTERTOP
INSULATED METAL WALL PANEL. SEE DETAIL

HOLLOW METAL FRAME, SEE DETAIL FOR ANCHORAGE

CONTINUOUS SEALANT

CONTINUOUS SEALANT OVER BACKER ROD

METAL STUDS

INT FINISH PER SCHEDULE

DASHED LINE INDICATES FACE OF INTERSECTING WALL, WHERE OCCURS

BATT INSULATION

EXT. DOOR JAMB - METAL PANEL

3" = 1'-0"

No. C18079

Ren. 10/23

LICENSED ARCHITECT

RICHARD MELLO

ARCHITECTURE PLANNING

San Luis Obispo, California 93404

4119 Broad Street, Suite 210

805.546.0433  fax 805.546.0504

ARCHITECTURE PLANNING

SAN LUIS OBISPO

4119 Broad Street, Suite 210

805.546.0433  fax 805.546.0504

KERN COMMUNITY COLLEGE DISTRICT

BAKERSFIELD CA

STATE OF CALIFORNIA
EXT. DOOR HEAD - METAL PANEL

1/2"

INT. FINISH PER SCHEDULE
BATT INSULATION
INSULATED METAL WALL PANEL. SEE DETAIL

SP 4732 HEAD EXTRUSION WITH WEEP HOLES
SHEET METAL HEAD TRIM
CONTINUOUS SEALANT OVER BACKER ROD
HOLLOW METAL FRAME, SEE DETAIL FOR ANCHORAGE

DOOR, SEE SCHEDULE

3" = 1'-0"

EXT. DOOR HEAD - METAL PANEL
EXT. DOOR JAMB - EIFS

3" = 1'-0"

DASHED LINE INDICATES FACE OF INTERSECTING WALL FRAMING, WHERE OCCURS

EXTERIOR INSULATION FINISH SYSTEM OVER WEATHER RESISTIVE BARRIER COATING OVER FIBERGLASS MAT GYP PANEL, TYP

CONT SEALANT OVER CONT BACKER ROD

HOLLOW METAL FRAME, SEE DETAIL FOR ANCHORAGE

METAL STUDS

BATT INSULATION

INT FINISH PER SCHEDULE

1/2"

10'/ 1/2' AT 6' STUDD WALL

11/2' AT 8' STUDD WALL

1/2"
EXTERIOR INSULATION FINISH SYSTEM OVER WEATHER RESISTIVE BARRIER COATING OVER FIBERGLASS MAT GYP PANEL, TYP

METAL BOX HEADER, REFER TO FLOOR PLAN FOR WALL TYPE DESIGNATIONS, VERIFY WITH STRUCTURAL DRAWINGS FOR HEADER CONFIGURATION

INT FINISH PER SCHEDULE

CONT SEALANT OVER CONT BACKER ROD

HOLLOW METAL FRAME, SEE DETAIL FOR ANCHORAGE

NOTE:
PROVIDE CONTINUOUS SEALANT AT DOOR FRAME RETURN AND WALL FINISH

<table>
<thead>
<tr>
<th>SPAN</th>
<th>DESCRIPTION DIMENSION A</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-0&quot; - 4'-0&quot;</td>
<td>16 GAUGE 1 1/2&quot; METAL TRACK</td>
</tr>
<tr>
<td>4'-0&quot; - 8'-0&quot;</td>
<td>DOUBLE 16 GAUGE METAL STUDS</td>
</tr>
<tr>
<td>8'-0&quot; - 14'-0&quot;</td>
<td>16 GAUGE 8&quot; METAL STUDS (SHOWN)</td>
</tr>
<tr>
<td>14'-0&quot; - 20'-0&quot;</td>
<td>14 GAUGE 8&quot; METAL STUDS (SIM)</td>
</tr>
</tbody>
</table>

EXT. DOOR HEAD - EIFS
A8600
3" = 1'-0"

EXT. DOOR HEAD - EIFS

KERN COMMUNITY COLLEGE DISTRICT

ARVIN EDUCATIONAL CENTER

IBI
LICENSED ARCHITECT
ARCHITECTURE PLANNING
San Luis Obispo
4119 Broad Street, Suite 210
San Luis Obispo, California 93401
805.546.0433 fax: 805.546.0504

BAKERSFIELD
CA
ADD001
SK-16
VARIATES PER EXT. FINISH

Provide return on exterior door frames, at exterior side header & jambs. Flange wraps continuously at upper corner between head and jambs.

Contractor must field verify all wall thickness prior to purchase of door frames.

Profile - Exterior Frame - Hollow Metal

3" = 1'-0"

Profile No. A8600

Arvin Educational Center
Kern Community College District

REP. 10/23

Richard Mello
Ren. 10/23
No. C18079
California Licensure
License No. 08/26/2022
401 504

Architect: Richard Mello
Address: 4119 Broad Street, Suite 210
San Luis Obispo, California 93401
Telephone 805.546.0433 Fax 805.546.0504

Profile - Exterior Frame - Hollow Metal

Redwood Building No. 2

Revised 08/26/2022

IBI
Licensed Architect

Prepared By: Richard Mello
Project: Arvin Educational Center
Kern Community College

Add: 001

Sheet: SK-17

Reference Sheet No.: A8600

Project No.: 125951

DSA File No.: 15-C1

DSA App. No.: 03-121587

Arkansas
Bakersfield
California

Date: 08/26/2022

Profile - Exterior Frame - Hollow Metal

Provide return on exterior door frames, at exterior side header & jambs. Flange wraps continuously at upper corner between head and jambs.
NOTES:
1. SEE A8602 FOR INFORMATION NOT SHOWN

ATTACH TO VERTICAL STUD FLANGE W/ 3 #10 SMS TYP. EA. SIDE

CUT FLANGES AND BEND WEB W/ 3 #10 SMS TO ANGLE

(3) #14 SMS TO L4x4

CUT LEG AND BEAR L4x4 HORIZONTAL LEG ON JOIST. ALIGN ANGLE TO ANGLE

ATTACH TO VERTICAL STUD FLANGE W/ 3 #10 SMS TYP. EA. END

(3) #14 SMS EA. END TYP.

CONT. 362T150-43 W/ 2 #10SMS AT EA. CONTACT

(3) #14SMS TO L4x4

L4x4@ 4'-0"o.c.

W21 PER PLAN

PARTITION WALL

BOLT TO PARTITION WALL

BOLT LEG AND BEND FLANGE.

L4x4@ 4'-0"o.c.

CUT VERTICAL LEG AND BEAR L4X4 WITH JOIST PANEL POINT

STEEL JOIST PER PLAN

ROOF DECK

CUT VERTICAL LEG AND BEAR L4X4 HORIZONTAL LEG ON JOIST. ALIGN ANGLE TO JOIST

PARTITION BRACING AND SOFFIT FRAMING

BAKERSFIELD COLLEGE ARVIN EDUCATIONAL CENTER

KERN COMMUNITY COLLEGE DISTRICT

PROJECT NO. 125951

DSA FILE NO. DSA APP. NO. 03-121587

REFERENCE SHEET NO. 20/A8602

DATE 08/26/2022

RICHARD MELLO

STATE OF CALIFORNIA

LICENSED ARCHITECT

ARCHITECTURE PLANNING

PROJECT NO. 125951

DSA FILE NO. DSA APP. NO. 03-121587

REFERENCE SHEET NO. 20/A8602

DATE 08/26/2022
REFLECTED CEILING PLAN - ENTRANCE
UPPER ROOF FRAMING

1/8" = 1'-0"

NOTE: REFER TO SHEET A2710 AND S2811 FOR ADDITIONAL INFORMATION NOT SHOWN
STEEL OVERHANG BEAM, SEE STRUCTURAL DRAWINGS FOR SIZES

6" C CHANNEL PANEL SUPPORT @ EVERY 5' - 0" ATTACHED TO OVERHANG STRUCTURE W/ SIMPSON A23 ANGLE.

# 12 S.M.S. STAGGERED

PLASTIC SHIM @ PANEL ATTACHMENT

CENTRIA IW-15A METAL PANEL ATTACHED WITH #12 SMS @ 16" O.C.

METAL AND COMPOSITION CLOSURE AS REQUIRED BY MANUFACTURER

CLOSURE FLASHING ATTACHED W/ POP RIVETS @ 16" O.C. @ EACH END

INSULATED METAL WALL PANEL. SEE DETAIL

WALL FRAMING PER STRUCTURAL DRAWINGS

SOFFIT - METAL PANEL

3" = 1'-0"
FLOOR DIM PLAN - MDF DOOR 127

1/8" = 1'-0"

REVISE DOOR SWING TO OPEN OUTWARD
REVISE DOOR HARDWARE TO BE HARDWARE SET 02
ABBREVIATIONS

ROOM SCHEDULE REMARKS

ROOM - GENERAL NOTES

NOTES:
1. Bowls are to be located within the designated areas.
2. Bowl trim shall be finished to match the adjacent finish.
3. Bowls shall be drained to the appropriate drainage system.
4. Bowls shall be finished to match the adjacent finish.
5. Bowls shall be drained to the appropriate drainage system.

ABBREVIATIONS

1. Where more than one floor finish material is indicated in a room, take precedence over those abbreviations listed on sheet A0.01.
2. The finish floor transition between spaces is to occur at the location indicated on the floor plan. See 1/A9100 for transition materials and finish information and color schedule.
3. The finish floor transition between spaces is to occur at the location indicated on the floor plan. See 1/A9100 for transition materials and finish information and color schedule.
4. The finish floor transition between spaces is to occur at the location indicated on the floor plan. See 1/A9100 for transition materials and finish information and color schedule.
5. The finish floor transition between spaces is to occur at the location indicated on the floor plan. See 1/A9100 for transition materials and finish information and color schedule.

FLOOR MATERIAL DESIGNATIONS

TAKE PRECEDENCE OVER THOSE ABBREVIATIONS LISTED ON SHEET A0.01.
ENLARGED PLUMBING SITE PLAN

P.O.C. (N) GAS SERVICE MAIN TO (E) GSM AND EXTENSION TO THE GAS METER BY SO. CAL. GAS CO.

NEW 2 PSI GAS METER AND SERVICE BY SO. CAL. GAS. CONTRACTOR AND OWNER TO ARRANGE FOR INSTALLATION AND PAY ALL COSTS.

GAS DEMAND: 1,680 CFH
FUTURE GAS DEMAND: 3,000 CFH
TOTAL NEW AND FUTURE GAS: 4,680 CFH
2 PSI TOTAL DEVELOPED LENGTH: 2200 LF
PE PIPE (2019 CALIFORNIA PLUMBING CODE TABLE 1215.2.21)

PROVIDE 3" 2 PSI GAS B.G.G. ON DROP TO BELOW GRADE FROM GAS HEADER, STUB AND CAF FOR FUTURE EXTENSION.

4" GALV. SCHED. 40 PIPE BOLLARD, TYP. B, 49° H x 49° BURY. FILL w/ SLURRY.

SCALE: 1" = 20'-0"
### Panel Schedule Notes

1. **Long Continuous Load (LCL)**: Additional 25% added at the bottom of the panel. Feeder calculated at 125% of total connected load.

2. Route branch circuit through lighting controls, see Lighting Control Diagram on Sheet E3006.

3. Provide red handle and locking device on this circuit breaker for all fire alarm and all emergency circuits.

4. Verify circuit breaker size and load with serving equipment approved submittals, prior to purchasing equipment.

5. Route branch circuit through lab station emergency controls, see Detail 8/E3003.
1. LONG CONTINUOUS LOAD (LCL). ADDITIONAL 25% ADDED AT BOTTOM OF PANEL. FEEDER CALCULATED AT 125% OF TOTAL CONNECTED LOAD.
2. ROUTE BRANCH CIRCUIT THROUGH LIGHTING CONTROLS, SEE LIGHTING CONTROL DIAGRAM ON SHEET E3006.
3. PROVIDE RED HANDLE AND LOCKING DEVICE ON THIS CIRCUIT BREAKER, FOR ALL FIRE ALARM AND ALL EMERGENCY CIRCUITS.
4. VERIFY CIRCUIT BREAKER SIZE AND LOAD WITH SERVING EQUIPMENT APPROVED SUBMITTALS, PRIOR TO PURCHASING EQUIPMENT.
5. ROUTE BRANCH CIRCUIT THROUGH LAB STATION EMERGENCY CONTROLS, SEE DETAIL 8/E3003.
6. PROVIDE SHUNT TRIP CIRCUIT BREAKER. REFER TO PLUMBING PLANS.
REFERENCE NOTES:

1. **11" X 17" CONCRETE PULLBOX.**
2. **ELECTRICAL PANEL 'H1' FORUREMENT AND REFER TO SHEET E2000 FOR ADDITIONAL DEMONSTRATE COMPLIANCE WITH EMERGENCY EGRESS LIGHTING TO THE PUBLIC WAY, REFER TO SHEET E2000 FOR ADDITIONAL INSTRUCTIONS ON S2 LIGHTING FIXTURES.**
3. **LIGHTING CONTROL PANEL 'LCP1', SEE LIGHTING CONTROL DIAGRAM ON SHEET E3006.**
4. **ROUTE BRANCH CIRCUITS THROUGH LIGHTING CONTROL PANEL 'LCP1', SEE LIGHTING CONTROL DIAGRAM ON SHEET E3006.**
5. **ROUTE 1" C.O. TO PANEL 'H1' FOR FUTURE MONUMENT SIGN LIGHTING, ROUTE CONDUIT THROUGH LIGHTING CONTROL PANEL 'LCP1', SEE LIGHTING CONTROL DIAGRAM ON SHEET E3006.**
6. **LOCATIONS AND DEPTHS OF PIPING. AND STORM DRAIN PIPING. REFER TO CIVIL PLANS FOR EXACT LOCATIONS UNDERGROUND GAS AND ELECTRIC LINES OR EQUIPMENT. PRIOR TO EXCAVATION (WEEKENDS EXCLUDED) FOR THE LOCATION OF CONTACT UNDERGROUND SERVICE ALERT (USA) AT LEAST 48 HOURS WHEN PLANNING UNDERGROUND WORK, AND BEFORE YOU DIG, BE DETERMINED BY CALLING UNDERGROUND SERVICE ALERT (USA).**
7. **INFORMATION ON S2 LIGHTING FIXTURES.**
8. **IS CONNECTED TO INVERTER AND USED TO PROVIDE EMERGENCY LIGHTING TO THE PUBLIC WAY.**
9. **IS A MEMBER OF THE IBI GROUP OF COMPANIES.**

GENERAL SITE PLAN NOTES:

1. **'LCP1', SEE LIGHTING CONTROL DIAGRAM ON SHEET E3006.**
2. **ELECTRICAL PANEL 'H1', SEE SINGLE LINE DIAGRAM AND REFER TO PANEL SCHEDULES.**
3. **11" X 17" CONCRETE PULLBOX.**
4. **ROUTING BRANCH CIRCUITS THROUGH LIGHTING CONTROL PANEL 'LCP1', SEE LIGHTING CONTROL DIAGRAM ON SHEET E3006.**
5. **IS USED TO PROVIDE EMERGENCY LIGHTING TO THE PUBLIC WAY.**
6. **IS CONNECTED TO INVERTER AND USED TO PROVIDE EMERGENCY LIGHTING TO THE PUBLIC WAY.**
7. **IS A MEMBER OF THE IBI GROUP OF COMPANIES.**
REFERENCE NOTES

1. DRY TYPE STEP DOWN TRANSFORMERS, SEE SINGLE LINE DIAGRAM
2. LOCATION FOR DISTRIBUTION PANEL FEEDER CONNECTIONS. SEE SINGLE LINE DIAGRAM
3. ELECTRICAL PANELS ARE SINGLE UNIT UNIONS AND POWER TO PANEL AS SHOWN
4. MOUNT OUTLET TO CAB IN寬 IN EDGE ROOM
5. LIGHTING CONTROL PANEL
6. EMERGENCY LIGHTING MARKET W/VID, SEE SINGLE LINE DIAGRAM AND REFER TO SPECIFICATIONS
7. MOUNT OUT TO CAB IN EDGE ROOM AS SHOWN IN LEGEND.
8. PUMP HOSE HOOK TO ANTI-SEP/ALT PLAN
9. PROVIDE GFI CONNECTION TO FIRE SPRINKLER W/H AS PER FIRE PROTECTION SYSTEM.
10. PROVIDE FUSE BLOCK FEEDER CONNECTIONS TO FURNACE, COORDINATE WITH FURNACE MANUFACTURER.
11. BROWN COLOR TRACING/INSTALLATION, REFER TO LEGEND.
12. PROVIDE GFI CONNECTION TO MECHANICAL, HOSPITAL, AND BONFIRE CONTROL PANEL.
13. EMERGENCY PUSH BUTTON CONTROL, SEE SINGLE LINE DIAGRAM
14. VARIOUS COLORS THROUGHOUT THE BUILDING, COORDINATE WITH MFG.
15. PROVIDE CONNECTION TO PLACER POLICE, AS PER ARCHITECTURAL PLANS.
16. PROVIDE CONNECTION TO AUTOMATIC DOOR/OPERATOR AS PER ARCHITECTURAL PLANS.
17. PROVIDE CONNECTION TO MILITARY LAMP LEDER,
18. CONNECTS TO AUTOMATIC DOOR/OPERATOR AS PER ARCHITECTURAL PLANS.
19. PROVIDE CONNECTION TO MILITARY LAMP LEDER
20. PROVIDE CONNECTION TO MILITARY LAMP LEDER

GENERAL POWER PLAN NOTES

3. PROVIDE VALVE BLOCKING, SEE SINGLE LINE DIAGRAM
4. FUSES AS PER AUTOMATIC DOOR/OPERATOR AS PER ARCHITECTURAL PLANS
5. FIRE PROTECTION SYSTEM DEVICES AS PER AUTOMATIC DOOR/OPERATOR AS PER ARCHITECTURAL PLANS
6. VALVES INSTALL AS PER AUTOMATIC DOOR/OPERATOR AS PER ARCHITECTURAL PLANS
7. MECHANICAL AIR HANDLING UNITS TO INSTALL AS PER AUTOMATIC DOOR/OPERATOR AS PER ARCHITECTURAL PLANS
8. ELECTRICAL 2

FIRE RATED WALLS/ASSEMBLIES

1. FIRE RATED WALLS/ASSEMBLIES
2. FIRE RATED WALLS/ASSEMBLIES
3. FIRE RATED WALLS/ASSEMBLIES
4. FIRE RATED WALLS/ASSEMBLIES
5. FIRE RATED WALLS/ASSEMBLIES
REFERENCE NOTES

1. 12" WIDE OVERHEAD CABLE RUNWAY FOR STATION CABLING.
2. 6" WIDE VERTICAL WIRE MANAGER.
3. TWO-POST 19" WIDE, 84" TALL TELECOMMUNICATIONS RACK. SEE 3/E3005 FOR ANCHORAGE DETAIL.
4. 3/4" FIRE RATED PLYWOOD ON ALL INTERIOR WALLS OF TELECOM ROOM.
5. UNDERGROUND CONDUITS TO IDF ROOM.
6. INCOMING UNDERGROUND CONDUITS FROM UTILITY.
7. MAIN TELECOMMUNICATIONS GROUND BUS BAR.
8. TELECOMMUNICATIONS GROUND BUS BAR.
9. INCOMING UNDERGROUND CONDUITS FROM MDF.
10. (4) +44EZ PATH FIRE RATED SLEEVES (2X2 CONFIGURATION) FOR TELECOMMUNICATIONS CABLING. SLEEVES SHALL ENTER ROOM AT SAME LEVEL ABOVE CABLE TRAY IN CORRIDOR AND LADDER RACK IN TELECOM ROOM.
11. SPACE DESIGNATED FOR FLOOR MOUNTED UPS.
REFERENCE NOTES

1. APPROACH TO CENTER OF ROOF IS RESERVOIR WITHIN BUILDING.
2. APPROACH TO ELECTRICAL PANELS, SEE SINGLE LINE DIAGRAM AND REFER TO PANEL SCHEDULE.
3. MOUNT BEATTY PREPARED TO SIDE OF WALL OR TUB.
4. HPP, 1000 VOLT CABLE STAYS THROUGH ROOF TO ACCESSIBLE CLOSET TO CONNECT TO (
5. APP. FOR ELECTRIC ENTRANCE TO BOX IN PLUMBING CONNECTION TO (
6. APP. FOR ELECTRIC ENTRANCE TO BOX IN PLUMBING CONNECTION TO (
7. APP. FOR ELECTRIC ENTRANCE TO BOX IN PLUMBING CONNECTION TO (
8. APP. FOR ELECTRIC ENTRANCE TO BOX IN PLUMBING CONNECTION TO (
9. APP. FOR ELECTRIC ENTRANCE TO BOX IN PLUMBING CONNECTION TO (

ROOF PLAN GENERAL NOTES

1. VERIFY EXACT EQUIPMENT LOCATIONS AND POINTS OF CONNECTION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
2. PROVIDE SEALTITE POWER & CONTROL CONNECTIONS TO ALL AC UNITS.
3. SINGLE LINE DIAGRAM SHOWN IS ROUTED IN CEILING SPACE BELOW ROOF DECK.
4. CONDUIT STUBS FROM MAIN SWITCHBOARD FOR FUTURE PV UNITS.
5. NO ROOF MOUNT CONDUIT IS ALLOWED UNLESS OTHERWISE NOTED.
6. FUSE DISCONNECT SWITCHES PER EQUIPMENT NAMEPLATE RATING.
7. SEE ARCHITECTURAL FOR ROOF PENETRATION AND FLASHING DETAIL.
8. FUSE DISCONNECT SWITCHES PER EQUIPMENT NAMEPLATE RATING.
9. VERIFY EXACT EQUIPMENT LOCATIONS AND POINTS OF CONNECTION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.

COPIED BY:

THOMA ELECTRIC, INC.
San Luis Obispo, CA 93406
Phone: (805) 543-3850
Fax: (805) 543-3829
cad@thomaelec.com

THOMA #20-8096
EXPIRES: 06/30/23

KERN COMMUNITY COLLEGE DISTRICT
2100 CHESTER AVE.
BAKERSFIELD, CA 93301

THOMA ELECTRIC, INC.
is a member of the IBI Group of companies

IBI Group - A California Partnership