



Addendum No. 3

Corporate Headquarters
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PROJECT:

West Hills College Lemoore
Instructional Center Phase 1
555 College Ave.
Lemoore, CA 93245

Date : April 18, 2023

TETER Project No.: 20-11900

CLIENT:

West Hills Community
College District
275 Phelps Ave.
Coalinga, CA 93210

Client Project No.: N/A
DSA File No.: 10-C1
DSA Appl. No.: 02-119458

The following additions, deletions and revisions to the plans, specifications and Addenda shall become a part of the plans and specifications. It is the responsibility of the General Contractor to submit the information contained in this addendum to all subcontractors and suppliers. The Bidder shall acknowledge receipt of the Addendum in the Bid Proposal. (Addendum number of pages: 8 pages + 47 attachments = 55 total pages).

PROJECT MANUAL:

3 – 01: PROJECT MANUAL, SPECIFICATION SECTION 00 0110 – “TABLE OF CONTENTS”, revise as follows:

A. Refer to Specification Section 00 01 10 – TABLE OF CONTENT, add the following:

- 1. Add Specification Section 48 14 00 – SOLAR ENERGY ELECTRIC POWER GENERATION to the Table of Contents.

3 – 02: PROJECT MANUAL, DIVISION 00 – “BIDDING AND CONTRACT REQUIREMENTS – 03A BASE BID FORM”, revise as follows:

A. Remove 03A BASE BID FORM and replace with attached 03A BASE BID FORM. (5 pages)

3 – 03: PROJECT MANUAL, DIVISION 00 – “BIDDING AND CONTRACT REQUIREMENTS – 03B BID ALTERNATES FORM”, revise as follows:

A. Remove 03B BID ALTERNATES FORM and replace with attached 03B BID ALTERNATES FORM. (10 pages)

3 – 04: PROJECT MANUAL, DIVISION 00 – “BIDDING AND CONTRACT REQUIREMENTS – 10-GENERAL CONDITIONS”, revise as follows:

- A. Refer to 10 - General Conditions, Article 58 Insurance Requirements, clarify as follows:
1. Flood and Earthquake coverage are not required as part of the COC/Builder's Risk Insurance.
 2. Asbestos Abatement Insurance is not required.

3 – 05: PROJECT MANUAL, DIVISION 00 – “BIDDING AND CONTRACT REQUIREMENTS – 11-SUPPLEMENTAL GENERAL CONDITIONS NO.3”, revise as follows:

- A. Delete 11 – Supplemental General Conditions, No. 3 in its entirety.

3 – 06: PROJECT MANUAL, SPECIFICATION SECTION 01 91 13 – “GENERAL COMMISSIONING REQUIREMENTS”, revise as follows:

- A. Refer to SPECIFICATION SECTION 01 91 13 - GENERAL COMMISSIONING REQUIREMENTS, add the following:
1. Add attached Commissioning Cx Plan at the end of Specification Section 01 91 13 – GENERAL COMMISSIONING REQUIREMENTS. (13 Pages)

3 – 07: PROJECT MANUAL, SPECIFICATION SECTION 08 51 13 – “ALUMINUM WINDOWS”, revise as follows:

- A. Refer to Specification Section 08 51 13 – ALUMINUM WINDOWS, revise as follows:
1. “1.2 SUMMARY
 - A.1.a. Glass for aluminum windows located at the clerestory is specified in Division 08 Section ‘Light Diffusing Insulating Glass Panels.’
 - A.1.b. Glass for all other aluminum windows is specified in Division 08 Section ‘Glazing.’ Refer to Window Schedule on Sheet A710.”

3 – 08: PROJECT MANUAL, SPECIFICATION SECTION 08 81 23 – “LIGHT DIFFUSING INSULATING GLASS PANELS”, revise as follows:

- A. Refer to Specification Section 08 51 13 – ALUMINUM WINDOWS, revise as follows:
1. “1.2 SUMMARY
 - A.1. Light diffusing insulating glass panels for installation in aluminum framed windows at clerestory.”

3 – 09: PROJECT MANUAL, SPECIFICATION SECTION 10 11 16 – “MARKERBOARDS”, revise as follows:

- B. Refer to Specification Section 10 11 16 – MARKERBOARDS, add the following:

1. "2.2 MARKER BOARD ASSEMBLIES
 - A. Manufactures
 1. e. Nelson Adams NACO"

3 – 10: PROJECT MANUAL, SPECIFICATION SECTION 10 2113 – “TOILET COMPARTMENTS”, revise as follows:

A. Refer to Specification Section 10 21 13 – TOILET COMPARTMENTS, add the following:

1. "2.2 STAINLESS STEEL PANEL TOILET COMPARTMENTS AND SCREENS
 - A. Manufacturers
 4. Scranton Products"

3 – 11: PROJECT MANUAL, SPECIFICATION SECTION 10 4116 – “EMERGENCY KEY CABINETS”, clarify as follows:

A. Mount Knox Box on exterior wall adjacent to entry Door 301A at +9'- 0" as directed by local Fire Marshall.

3 – 12: PROJECT MANUAL, SPECIFICATION SECTION 26 61 00 – “LIGHTING CONTROL SYSTEMS”, revise as follows:

A. Refer to Specification Section 26 61 00 Lighting Control Systems, Part 2 Products, 2.1 MANUFACTURERS, add the following:

1. "C. Equivalent lighting control systems equipment manufactured by Acuity nLight, will be considered as an acceptable alternative to the Wattstopper DLM lighting control system equipment used for the basis of design. Provide shop drawings with the lighting control submittal illustrating required lighting control cabling."

3 – 13: PROJECT MANUAL, SPECIFICATION SECTION 27 41 00 – “AUDIO-VIDEO SYSTEMS”, revise as follows:

A. Delete Specification Section 27 41 00 – AUDIO-VIDEO SYSTEMS replace with attached Specification Section 27 41 00 – AUDIO-VIDEO SYSTEMS. (6 Pages)

3 – 14: PROJECT MANUAL, SPECIFICATION SECTION 28 46 00 – “FIRE ALARM SYSTEM”, revise as follows:

A. Strike Specification Section 28 46 00 – FIRE ALARM SYSTEM, Article 2.1, revise as follows:

1. "2.1 Manufacturers
 - A. This fire alarm system design for the new building is based on the use of microprocessor-based addressable fire alarm control equipment, initiation devices and notifications appliances equipment manufactured by Edwards EST 4. Equivalent fire alarm equipment manufactured by

Gamewell-FCI, Simplex or Notifier will be considered as an acceptable alternative to the Edwards EST4 fire alarm equipment basis of design. Provide shop drawings with the fire alarm submittal including batter calculations, voltage drop calculations, CSFM listings and equipment cut sheets demonstrating equivalent performance."

3 – 15: PROJECT MANUAL, SPECIFICATION SECTION 48 14 00 – “SOLAR ENERGY ELECTRIC POWER GENERATION”, revise as follows:

- A. Add attached Specification Section 48 14 00 – SOLAR ENERGY ELECTRIC POWER GENERATION to the Project Manual. (7 Pages)

DRAWINGS:

3 – 16: DRAWINGS, SHEET C601 - “UTILITY PLAN”, revise as follows:

- A. Refer to Sheet C601 – UTILITY PLAN – UTILITY LEGEND, NOTE 3, revise as follows:
1. “Connect the fire hydrant to the 10” water main as shown on attached Supplemental Drawing AD-C02”. (1 page)

3 – 17: DRAWINGS, SHEET C201 - “DEMOLITION PLAN”, revise as follows:

- A. Refer to Sheet C201 – DEMOLITION PLAN – DEMOLITION LEGEND, revise as follows:
1. Remove note PT – PROTECT TREE TO REMAIN
- B. Refer to Sheet C201 – DEMOLITION PLAN – GENERAL DEMOLITION NOTES, revise as follows:
1. Add Note 11: REFER TO L100 FOR DEMOLITION OF EXISTING TREES

3 – 18: DRAWINGS, SHEET A220 - “SECOND FLOOR PLAN” AND SHEET A914 – “INTERIOR ELEVATIONS”, revise as follows:

- A. Refer to Keynote 11.11 on Sheets A220 – Second Floor Plan and Sheet A914 – Interior Elevations, and all other locations where Headwall Units are noted, revise as follows:
1. “Headwall (TYP.), Furnish and install Headwall units indicated on plans. Connect to power as indicated on Electrical drawings. Provide Infinity Training Headwall with Chase, Hardwired, Part No. 1901822 as manufactured by HIS, Hospital Systems, Inc., Pittsburg, CA, Phone (925) 427-0800, website www.HSIheadwalls.com.”

3 – 19: DRAWINGS, SHEET A300 - “EXTERIOR ELEVATIONS”, revise as follows:

- A. Revise EXTERIOR FINISH SCHEDULE, MARK 3, as follows:

1. "Exterior wall tile is nominal 12"x12"x 3/8" porcelain ceramic tile installed thin set over scratch and brown 3/4" plaster coat. Tile and grout color as selected by Architect from at least 6 different manufacturers, each with multiple options."

3 – 20: DRAWINGS, SHEET A301 - "EXTERIOR ELEVATIONS", revise as follows:

A. Revise EXTERIOR FINISH SCHEDULE, MARK 3, as follows:

1. "Exterior wall tile is nominal 12"x12"x 3/8" porcelain ceramic tile installed thin set over scratch and brown 3/4" plaster coat. Tile and grout color as selected by Architect from at least 6 different manufacturers, each with multiple options."

3 – 21: DRAWINGS, SHEET A403 - "BUILDING SECTIONS", revise as follows:

A. Delete Keynote 5.51 in detail 10 and replace with the following:

1. "Steel stair system with shop-formed precast high strength colored concrete treads, sealed, with medium broom finish."

3 – 22: DRAWINGS, SHEET A721 - "FIRST FLOOR FINISH PLAN", revise as follows:

A. Refer to Sheet A721 – FIRST FLOOR FINISH PLANS, LEGEND – "SEALED CONCRETE", revise as follows:

1. Remove the following: (1 PASS EA. DIRECTION WITH GRINDER AND POLISHER, SEAL).
2. Add the following: "THOROUGHLY CLEAN AND CLEAR SEAL"

3 – 23: DRAWINGS, SHEET A722 - "SECOND FLOOR FINISH PLAN", revise as follows:

A. Refer to Sheet A722 – SECOND FLOOR FINISH PLANS, LEGEND – "SEALED CONCRETE", revise as follows:

1. Remove the following: (1 PASS EA. DIRECTION WITH GRINDER AND POLISHER, SEAL).
2. Add the following: "THOROUGHLY CLEAN AND CLEAR SEAL"

3 – 24: DRAWINGS, SHEET A843 - "VERTICAL SYSTEMS DETAIL", revise as follows:

A. Refer to Detail 22/A843 – GUARDRAIL AT LOBBY STAIRS, add the following:

2. "PROVIDE TREAD NOSING AT TOP AND BOTTOM TREADS OF EACH RUN (SEE 9/A221). NOSING SHALL BE AMERICAN SAFETY TREAD TYPE 911, BF-311D OR APPROVED EQUAL. SET NOSING IN CONCRETE TREAD FLUSH WITH TOP AT TIME OF CASTING. SUBMIT PROPOSED TREAD TO ARCHITECT FOR SELECTION OF GRIT COLOR AND TREAD NOSING APPROVAL."

3 – 25: DRAWINGS, SHEET S803 - “STAIR FRAMING DETAILS”, revise as follows:

- A. Refer to Detail 3/S803, 4/S803, 5/S803, 12/S803, 13/S803, 14/S803, and 19/S803, revise as follows:
 - 1. Delete the following note:
 - a. “CONC. FILLED STAIR TREAD(S).”
 - 2. Replace with the following note:
 - a. “CUSTOM PRE-FORMED/PRE-CAST EXPOSED CONCRETE STAIR TREADS (COLORED) PER DETAILS, 17, 22 AND 24 ON SHEET A843.”
- B. Lobby stairs do not have concrete metal pan treads as indicated for stair 317/368 and stair 306/360.

3 – 26: DRAWINGS, SHEET E220 - “POWER PLAN SECOND FLOOR”, revise as follows:

- A. Delete Detail 2/E220 – ENLARGED POWER PLAN – IT ROOM, replace with Supplemental Drawing AD-E01. (1 Page)

3 – 27: DRAWINGS, SHEET E410 - “SIGNAL PLAN – FIRST FLOOR”, revise as follows:

- A. Delete Sheet E410 – SIGNAL PLAN – FIRST FLOOR in its entirety and replace with attached Sheet E410 – SIGNAL PLAN – FIRST FLOOR. (1 Page)

3 – 28: DRAWINGS, SHEET E420 - “SIGNAL PLAN – SECOND FLOOR”, revise as follows:

- A. Delete Sheet E420 – SIGNAL PLAN – SECONDFLOOR in its entirety and replace with attached Sheet E420 – SIGNAL PLAN – SECOND FLOOR. (1 Page)

3 – 29: DRAWINGS, SHEET E602 - “ELECTRICAL DETAILS”, revise as follows:

- A. Delete Sheet E602 – ELECTRICAL DETAILS in its entirety and replace with attached Sheet E602 – ELECTRICAL DETAILS. (1 Page)

3 – 30: DRAWINGS, SHEET E710 - “FIRE ALARM RISER DIAGRAM”, revise as follows:

- A. Delete Sheet E710 – FIRE ALARM RISER DIAGRAM in its entirety and replace with attached Sheet E710 – FIRE ALARM RISER DIAGRAM. (1 Page)

GENERAL CLARIFICATIONS:

3 – 31: District will maintain its right to award bid alternates for up to six (6) months after the award of contract.

3 – 32: Bids are to be held for 120 days after bid opening.

- 3 – 33:** Per the Structural Drawings and Geotechnical Engineering Investigation Report, Part 3.6, paragraph 4., sand under the SOG is not required. Place concrete slab directly over vapor barrier.
- 3 – 34:** Unless factory finished, all exposed exterior steel framing shall be prepared, primed and painted per specification section 099100 Painting.
- 3 - 35:** Markerboards, clarify as follows:
- A. All classrooms to have one (1) 4' x 8' markerboard with a 4' x 4' markerboard on each side. Markerboards in non-classrooms or at locations in addition to primary teaching wall shall be 4' x 8' with the exception for Room 373. Room 373 – HEALTH DEMONSTR. shall have markerboard that is 4' x 5'.
- 3 - 36:** Owner provided equipment and cabling, clarify as follows:
- A. Owner provided AV equipment and AV cabling will be furnished and installed by the Owner. The data cabling will be installed by the Contractor under this contract.
 - B. Configuration, programming, and testing of Owner provided AV equipment shall be by the Owner/Owner's integrator.
- 3 - 37:** Underground Utilities:
- A. All underground utilities are assumed to be non-hazardous.

END OF ADDENDUM NO. 3

Robert C. Siegrist
Architect of Record



Attachments: 47 SHEETS

03A-BID FORM (BASE BID) (5 SHEETS)
03B-BID ALTERNATES FORM (10 SHEETS)
AD3-C02 – FIRE HYDRANT CONNECTION (1 SHEET)
COMMISSIONING CX PLAN (13 SHEETS)
27 41 00 – AUDIO-VIDEO SYSTEM (6 SHEETS)
48 14 00 – SOLAR ENERGY ELECTRIC POWER GENERATION (7 SHEETS)
AD-E01 – ENLARGE POWER PLAN – IT ROOM (1 SHEET)
E410 – SIGNAL PLAN FIRST FLOOR (1 SHEET)
E420 – SIGNAL PLAN SECOND FLOOR (1 SHEET)
E602 – ELECTRICAL DETAILS (1 SHEET)
E710 – FIRE ALARM RISER DIAGRAM (1 SHEET)

03A-BID FORM (BASE BID)

Name of Bidder:

Project: West Hills College Lemoore – Instructional Center Phase 01

Project #: 20-11900

To: West Hills Community College District, referred to as "OWNER."

A. In compliance with your Notice to Contractors Calling for Bids and related documents, the undersigned bidder, having familiarized itself with the terms of the contract, the local conditions affecting the performance of the contract, the cost of the work at the place where the work is to be done, and the drawings and specifications and other contract documents, proposes and agrees to perform the contract within the time stipulated, including all of its component parts and everything required to be performed, and to provide and furnish any and all of the labor, materials, tools, expendable equipment, and all applicable taxes, utility, and transportation services necessary to perform the contract and complete in a workmanlike manner all of the work required in connection with the above-referenced project, including sheeting, shoring, and bracing, or equivalent method for protection of life and limb in trenches and open excavation in conformance with applicable safety orders, within the time limits set for completion of all work, all in strict conformity with the drawings and specifications and other contract documents, including Addenda Nos. _____ on file at the office of OWNER for the Base Bid sum of:

_____ dollars.
[written in words]

\$ _____
[written in numbers]

This Bid Form is 1 of 2 sealed documents considered as part of the "Bid" for this project. Bidders are to refer to the Notice Inviting Bids and the Instructions to Bidders for additional information.

B. The Bidder agrees that upon written notice of acceptance of this bid, he will execute the contract and provide all bonds and other required documents within ten (10) working days after contract award.

C. Attached is bid security not less than 10 percent of the bid, in the amount of \$ _____, in the form of (cash) (bid bond) (certified check) (cashier's check).
[check one]

D. The Bidder acknowledges that OWNER reserves the right to accept or reject any and/or all Base Bids and alternate bids. This entire bid shall remain open and active for one hundred twenty (120) days after bid opening, and any alternate bids not initially awarded shall remain active, as an irrevocable offer by the Bidder to enter into either a change order or separate contract, for up to six months after award of the contract.

E. It is understood and agreed that if written notice of the acceptance of this bid is mailed, telegraphed, or delivered to the Bidder after the opening of the bid, and within the time this bid is required to remain open, or at any time after that before this bid is withdrawn, the Bidder will execute and deliver to OWNER the Agreement and will also furnish and deliver to OWNER the Performance Bond and a separate Payment Bond as specified, certificates of insurance, and other required documents.

F. It is understood and agreed that should the Bidder fail or refuse to return executed copies of the Construction Agreement, bonds, insurance certificates, and other required documents to OWNER within the time specified, the bid security shall be forfeited to OWNER.

G. In submitting this bid, the Bidder offers and agrees that if the bid is accepted it will assign to OWNER all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Business & Professions Code Section 16700 and following sections) arising from purchases of goods, materials, or services by the Bidder for sale to OWNER pursuant to the bid. Such assignment shall be made and become effective at the time OWNER tenders final payment under the contract. (Public Contract Code Section 7103.5; Government Code Section 4552.)

*By: _____, Partner

Print Name:

Business Address:

Date: Telephone:

Names of Other Partners:

CORPORATION

Corporation Name: _____, a Corporation.
(State of Incorporation)

Business Address:

Date: Telephone:

*By: _____ [Required] [Seal]
(President/Chief Executive Officer/Vice President) [Circle One]

Print Name:

*By: _____ [Required]
(Secretary/Treasurer/Chief Financial Officer/Assistant Treasurer) [Circle One]

Print Name:

JOINT VENTURE

Joint Venturer Name:

*Signed by: _____ (Joint Venturer)

Print Name:

Business Address:

Date: Telephone:

Other Parties to Joint Venture:

If an individual joint venturer:

*By: _____ (Signature)

Print Name:

If a DBA joint venturer:

*By: _____ (Signature)

Print Name:

If a partnership joint venturer:

*By: _____ (Signature)

Print Name:

If a Corporation joint venturer:

[Seal]

(Name)

a _____ Corporation.
(State of Incorporation)

*By: _____

Print Name:

Title:

***Important Notice:** Labor Code § 1771.1(a) provides that “A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.” Please go to <http://www.dir.ca.gov/Public-Works/PublicWorks.html> for more information and to register. This project is subject to monitoring by the Department of Industrial Relations.

03B-BID ALTERNATES FORM

Name of Bidder:

Project: West Hills College Lemoore – Instructional Center Phase 01

Project #: 20-11900

To: West Hills Community College District, referred to as "OWNER."

A. In compliance with your Notice to Contractors Calling for Bids and related documents, the undersigned bidder, having familiarized itself with the terms of the contract, the local conditions affecting the performance of the contract, the cost of the work at the place where the work is to be done, and the drawings and specifications and other contract documents, proposes and agrees to perform the contract within the time stipulated, including all of its component parts and everything required to be performed, and to provide and furnish any and all of the labor, materials, tools, expendable equipment, and all applicable taxes, utility, and transportation services necessary to perform the contract and complete in a workmanlike manner all of the work required in connection with the above-referenced project, including sheeting, shoring, and bracing, or equivalent method for protection of life and limb in trenches and open excavation in conformance with applicable safety orders, within the time limits set for completion of all work, all in strict conformity with the drawings and specifications and other contract documents, including Addenda Nos. _____ on file at the office of OWNER for the Alternates Bid sums.

This Bid Form is 2 of 2 sealed documents considered as part of the "Bid" for this project. Bidders are to refer to the Notice Inviting Bids and the Instructions to Bidders for additional information.

B. If any of the following alternate bids are accepted by Owner, the Bidder agrees to make applicable price adjustments to the proposed Base Bid and to execute contract.

ALTERNATE BID 1: Acoustic ceiling enhancements

Delete all standard acoustical ceiling panels Type ACP-1, throughout project, and replace with acoustically enhanced Type ACP-4. Refer to specification section 095113.

State the amount to be **added** **deducted** to/from the Base Bid for Alternate Bid 1.

_____ dollars.
[written in words]

\$ _____.
[written in numbers]

ALTERNATE BID 2: Acoustic wall treatment (classrooms)

Add sixteen (16)- 2' x 2' sound-absorbing wall units in each of Rooms 308, 309, 311, 318, 319, 320, 322, 324, 326, 361, 363A, 363B, 369, 374, 377. Locations to be designated by Architect via Supplemental Drawings if alternate is accepted. Refer to specification section 098433.

State the amount to be **added** **deducted** to/from the Base Bid for Alternate Bid 2.

_____ dollars.
[written in words]

\$ _____.
[written in numbers]

ALTERNATE BID 3: Enhanced Roofing System and Warranty

Delete standard roofing cap sheet, Garland Company StressPly Plus FR Mineral or equivalent, 30-year Special Warranty; and replace with Garland Company OptiMax FR Mineral or equivalent, 40-year Special Warranty. Refer to specification section 075216.

State the amount to be **added** **deducted** to/from the Base Bid for Alternate Bid 3.

_____ dollars.

[written in words]

\$ _____.

[written in numbers]

ALTERNATE BID 4: Extended General Contractor Warranty

Increase duration of General Contractor Warranty for the project from 1 year to 2 years from project Substantial Completion.

State the amount to be **added** **deducted** to/from the Base Bid for Alternate Bid 4.

_____ dollars.

[written in words]

\$ _____.

[written in numbers]

ALTERNATE BID 5: Enhanced EMS

Provide additional EMS monitoring points and interactive display. Refer to Sheet M600.

State the amount to be **added** **deducted** to/from the Base Bid for Alternate Bid 5.

_____ dollars.

[written in words]

\$ _____.

[written in numbers]

ALTERNATE BID 6: Landscape and Irrigation

- a. Refer to Plan Sheet L201 – Landscape Planting Plan: Delete all 24” and 48” box trees and replace with 15 gallon size of the same species. Palm trees remain unchanged.
- b. Refer to Plan Sheets L201 – Landscape Planting Plan and Plan Sheet L202 – Landscape Irrigation Plan: Delete all shrubs and associated irrigation bubbler valves to include the following remote control valves to be deleted (G1-09 (2 locations), G1-10 (2 locations), G1-11 (2 locations), G1-14, G1-15 (2 locations), G2-08, G1-32 (2 locations)). Trees to remain.
- c. Refer to Plan Sheet L200 – Landscape Mulching Plan: Delete all boulders and replace with 3” layer of 1 1/2” – 2” Maple Creek gravel mulch.
- d. Refer to Plan Sheet L200 – Landscape Mulching Plan: Delete synthetic turf area south of proposed building and associated concrete mow strip and replace with 3” layer of 1 1/2” – 2” Maple Creek gravel mulch.

State the amount to be **added** **deducted** to/from the Base Bid for Alternate Bid 6.

_____ dollars.
[written in words]

\$ _____.
[written in numbers]

ALTERNATE BID 7: Window Coverings

Delete window coverings and associated controls. Wall boxes and conduits to accessible attic spaces for future controls shall remain in scope. Refer to Sheets A720, A722, E211, E221

State the amount to be **added** **deducted** to/from the Base Bid for Alternate Bid 7.

_____ dollars.
[written in words]

\$ _____.
[written in numbers]

ALTERNATE BID 8: Solar Canopy - partial

Delete 3 bays of solar canopy structure, lighting and associated solar photovoltaic system. Concrete flatwork to remain in project. Refer to A101, CP100-CP103 and E701.

State the amount to be **added** **deducted** to/from the Base Bid for Alternate Bid 8.

_____ dollars.
[written in words]

\$ _____.
[written in numbers]

ALTERNATE BID 9: Solar Canopy - complete

Delete solar canopy structure and associated solar photovoltaic system in its entirety, 7 bays. Concrete flatwork to remain in project. Refer to A101, CP100-CP103 and E701.

State the amount to be **added** **deducted** to/from the Base Bid for Alternate Bid 9.

_____ dollars.
[written in words]

\$ _____.
[written in numbers]

ALTERNATE BID 10: Tubular Skylights

Delete tubular skylights and associated controls entirely. Replace with acoustical ceiling tiles, gypsum board ceilings/soffits and roofing system to match adjacent systems. Refer to Sheets A500 and A620.

State the amount to be **added** **deducted** to/from the Base Bid for Alternate Bid 10.

_____ dollars.
[written in words]

\$ _____.
[written in numbers]

ALTERNATE BID 11: Groundwater Dewatering

Delete in its entirety, scope related to continuous groundwater dewatering for 180 LF of new 6" sewer line. Refer to AD2-C01 Addendum 2.

State the amount to be **added** **deducted** to/from the Base Bid for Alternate Bid 11.

_____ dollars.
[written in words]

\$ _____.
[written in numbers]

REFER TO ANY ATTACHMENTS TO THIS BID FORM FOR ADDITIONAL ALTERNATES

C. The Bidder agrees that upon written notice of acceptance of Base and Alternate Bids, he will execute the contract and provide all bonds and other required documents within ten (10) working days after contract award.

D. Attached is bid security not less than 10 percent of the Additive Alternate bids, in the amount of \$ _____, in the form of (cash) (bid bond) (certified check) (cashier's check).

[check one]

E. The Bidder acknowledges that OWNER reserves the right to accept or reject any and/or all Base Bids and alternate bids. This entire bid shall remain open and active for one hundred twenty (120) days after bid opening, and any alternate bids not initially awarded shall remain active, as an irrevocable offer by the Bidder to enter into either a change order or separate contract, for up to six months after award of the contract.

F. It is understood and agreed that if written notice of the acceptance of this bid is mailed, telegraphed, or delivered to the Bidder after the opening of the bid, and within the time this bid is required to remain open, or at any time after that before this bid is withdrawn, the Bidder will execute and deliver to OWNER the Agreement and will also furnish and deliver to OWNER the Performance Bond and a separate Payment Bond as specified, certificates of insurance, and other required documents.

G. It is understood and agreed that should the Bidder fail or refuse to return executed copies of the Construction Agreement, bonds, insurance certificates, and other required documents to OWNER within the time specified, the bid security shall be forfeited to OWNER.

H. In submitting this bid, the Bidder offers and agrees that if the bid is accepted it will assign to OWNER all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Business & Professions Code Section 16700 and following sections) arising from purchases of goods, materials, or services by the Bidder for sale to OWNER pursuant to the bid. Such assignment shall be made and become effective at the time OWNER tenders final payment under the contract. (Public Contract Code Section 7103.5; Government Code Section 4552.)

I. The Bidder hereby certifies that it is, and at all times during the performance of work under the Contract Documents shall be, in full compliance with the provisions of the Immigration Reform and Control Act of 1986 ("IRCA") in the hiring of its employees, and the Bidder shall indemnify, hold harmless, and defend OWNER against any and all actions, proceedings, penalties, or claims arising out of the Bidder's failure to comply strictly with the IRCA.

J. The Bidder understands that a licensed contractor shall not submit a bid to a public agency unless the Bidder's contractor's license number appears clearly on the bid, the license expiration date is stated, and the bid contains a statement that the representations made therein are made under penalty of perjury. Any bid not containing this information, or a bid containing information which is subsequently proven false, may be considered non-responsive and may be rejected by the public agency.

K. Bidder's contractor's license is:

[number] [class] [expires]

[DIR registration number] [expires]

L. Attached is Bidder’s AB 1565 Prequalification Questionnaire Validation Form (if required by the Notice to Contractors Calling for Bids, paragraph 20, and the Instructions to Bidders, paragraph 36).

M. The undersigned hereby declares that all of the representations of this bid, including all documents comprising the bid package, are true and are made under penalty of the perjury laws of the State of California.

INDIVIDUAL/DBA

*Signature: _____

Print Name:

Business Address:

Date: Telephone:

PARTNERSHIP

Partnership Name:

*By: _____, Partner

Print Name:

Business Address:

Date: Telephone:

Names of Other Partners:

CORPORATION

Corporation Name: _____, a Corporation.
(State of Incorporation)

Business Address:

Date: Telephone:

*By: _____ [Required] [Seal]
(President/Chief Executive Officer/Vice President) [Circle One]

Print Name:

*By: _____ [Required]
(Secretary/Treasurer/Chief Financial Officer/Assistant Treasurer) [Circle One]

Print Name:

JOINT VENTURE

Joint Venturer Name:

*Signed by: _____ (Joint Venturer)

Print Name:

Business Address:

Date: Telephone:

Other Parties to Joint Venture:

If an individual joint venturer:

*By: _____ (Signature)

Print Name:

If a DBA joint venturer:

*By: _____ (Signature)

Print Name:

If a partnership joint venturer:

*By: _____ (Signature)

Print Name:

If a Corporation joint venturer:

[Seal]

(Name)
a Corporation.
(State of Incorporation)

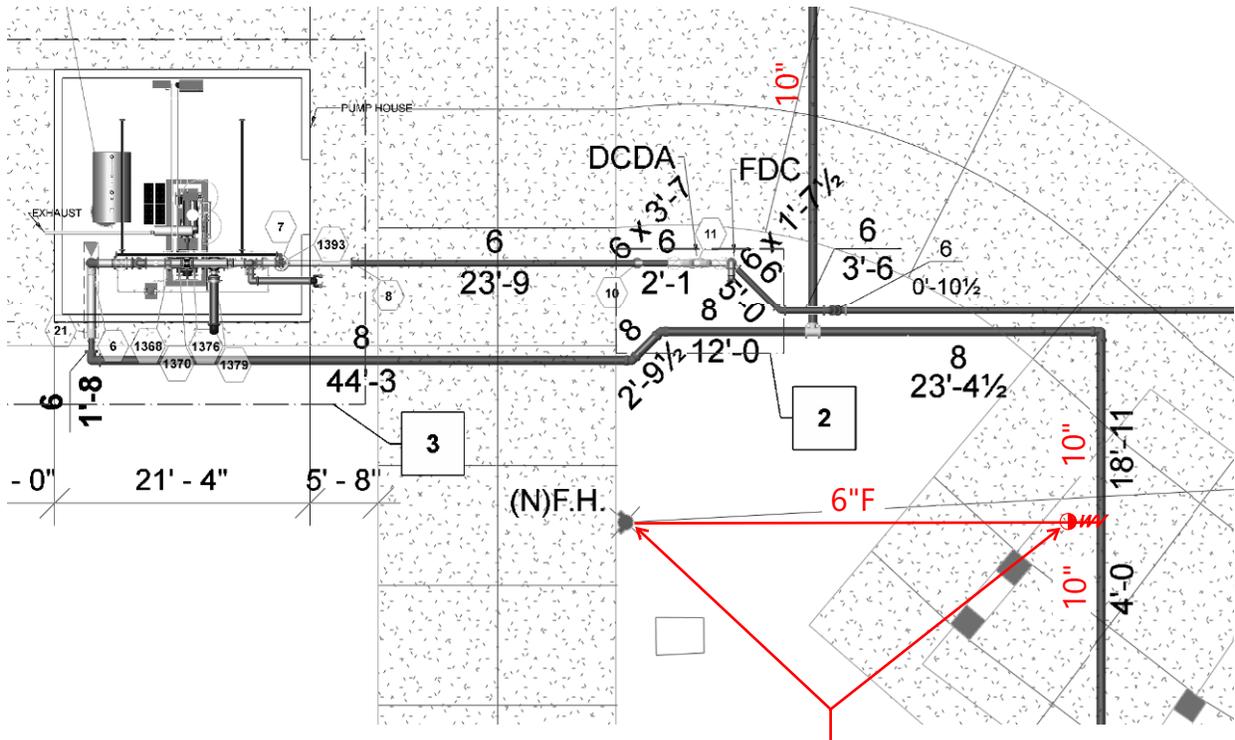
*By: _____

Print Name:

Title:

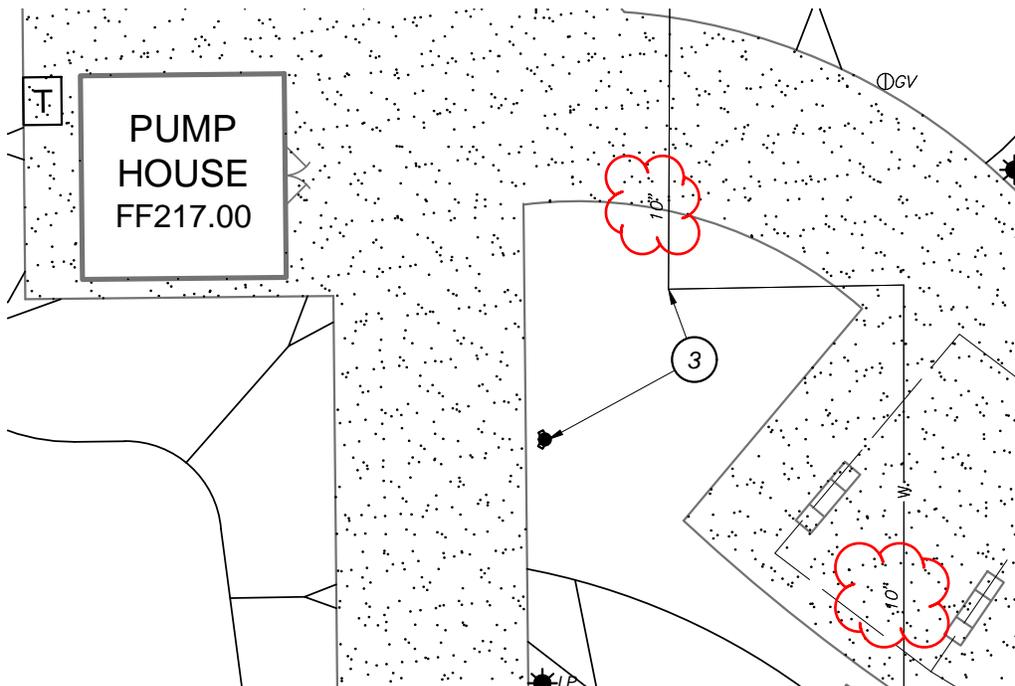
***Important Notice:** Labor Code § 1771.1(a) provides that “A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.” Please go to <http://www.dir.ca.gov/Public-Works/PublicWorks.html> for more information and to register. This project is subject to monitoring by the Department of Industrial Relations.

FP002 - FIRE PROTECTION - SITE PLAN



CONNECT NEW FIRE HYDRANT TO THE 10" MAIN LINE WITH A 6" FIRE LATERAL. INSTALL THE LATERAL AND NEW WATER VALVE PER DETAIL [F/X102]

C601 - UTILITY PLAN





Cx Plan

WEST HILLS COLLEGE - LEMOORE

Instructional Center Phase 01

PREPARED FOR:
West Hills Community College District

PREPARED BY:
Galloway & Company, Inc.
9477 N. Ft. Washington Rd. #105
Fresno, CA 93730

DATE:
April 13th, 2023

Revision	Date
Rev0	7/10/22
Rev1	4/10/23
Rev2	4/13/23



West Hills Community College District
 Lemoore – Instructional Center
 April 13th, 2023

TABLE OF CONTENTS

Overview	3
Commissioning Process Outline	3
Design Phase	3
Construction Phase	3
Acceptance Phase	4
Purpose of the Commissioning Plan	4
Commissioning Goals and Objectives	4
Systems to be Commissioned	5
Commissioning Team Information	5
Roles and Responsibilities	6
Owner (w/ Assistance from Architect & Engineer Upon Request)	6
Commissioning Authority (CxA)	6
General Contractor (GC)	7
Mechanical Contractor	7
Test, Adjust and Balance (TAB) Contractor	7
Controls Contractor	8
Electrical Contractor	9
Plumbing Contractor	9
Commissioning Process	9
Commissioning Kick-Off Meeting	9
Final Commissioning Plan	9
Submittals	9
Site Observation	9
Pre-functional Checklists and Startup Procedures	10
Development of Functional Test and Verification Procedures	10
Execution of Functional Testing Procedures	10
Operation and Maintenance Manuals	10
Training and Orientation of Owner Personnel and Occupants	11
Warranty Period	11
Commissioning Report	11
General Issues	12
Schedule	12
Abbreviations and Definitions	13

West Hills Community College District
 Lemoore – Instructional Center
 April 13th, 2023

General Building Information

Project Name:	WHCL – Instructional Center
Project Address:	555 College Avenue Lemoore, CA 93245
Building Type:	II-B w/ Type E Occupancy
Building Description:	Instructional Space
Owner Agency:	West Hills Community College - Lemoore
Estimated Completion Date:	10/1/24 (Subject to change; contingent upon Notice to Proceed)

Overview

This commissioning (Cx) plan provides the details for the implementation of the Cx process for the New Instructional Center in Lemoore, California based on 2019 CalGreen Building Code requirements for commissioning of building energy systems.

- This Cx Plan outlines and describes the Cx process that will be used for this project.
- This Cx plan identifies the specific members of the Cx team.
- This Cx Plan includes specific details required to implement the various Cx activities.

This Cx plan does not include the details of the required testing procedures; rather, it outlines the scope of responsibilities for development and application of the testing. Testing procedures and assignment of responsibilities shall be clearly presented in the project specifications. The entire Cx process to be used for the New Instructional Center Project is provided in outline form following this summary.

Commissioning Process Outline

Design Phase

1. Cx objectives are developed and define in the Owner's Project Requirements (OPR).
2. A Cx plan is finalized.
3. The Basis of Design (BOD) is compiled.
4. Cx specifications are created.
5. Design review of design development submittal
6. Design review of construction documents submittal.

Construction Phase

1. Cx kickoff meeting is held.
2. Submitted Operation & Maintenance (O&M) manual is reviewed.
3. Pre-functional / startup SOP's reviewed by Cx Authority (CxA).
4. Cx meetings are scheduled with general contractor and the Cx team as needed.

West Hills Community College District
 Lemoore – Instructional Center
 April 13th, 2023

5. Site observations are scheduled, focusing on pre-functional checklist.
6. Startup request submitted by contractors.
7. Startups scheduled and witnessed by CxA.
8. Review TAB Report.
9. Functional testing and verification procedures are developed and implemented as systems become ready for demonstration.

Acceptance Phase

1. In-service training of owner and building personnel. A written summary of the training has to be submitted to the Commissioning Authority and Owner for approval. Provide sign-in sheet w/ signatures of all personnel present during the training.
2. Systems are accepted, and warranty period begins.
3. Transition responsibility of building operation from contractor to owner.
4. Final Cx report and O&M manual reviewed and issued to owner.

Purpose of the Commissioning Plan

The purpose of the commissioning plan is to provide direction for the commissioning process during constructions, providing resolution for issues such as scheduling, roles and responsibilities, lines of communication and reporting, approvals, and coordination.

Commissioning Goals and Objectives

Commissioning is a systematic process of ensuring that the building systems perform according to the design intent and the owner's operational requirements. All equipment and systems should be installed according to manufacturer's recommendations and the best practices and standards of the industry.

Commissioning will include document the design intent, followed by activities in the construction, acceptance, and warranty phases of the project. The participation of the contractors in the commissioning activities will follow the requirements defined in the specifications. The three main goals of the commissioning process are:

1. Facilitate the final acceptance of the projects at the earliest possible date.
2. Facilitate the transfer of the project to the owner's maintenance staff.
3. Ensure that the comfort systems meet the requirements of the occupants.

Commissioning is also intended to achieve the following specific objectives:

- Document that equipment is installed and started per the manufacturer's recommendations.
- Document that equipment and systems receive complete operational checkout by installing contractors.
- Document system performance with thorough functional performance testing.
- Verify the completeness of operations and maintenance materials.
- Ensure that the owner's operating personnel are adequately trained on the operation and maintenance of building equipment.

West Hills Community College District
 Lemoore – Instructional Center
 April 13th, 2023

Systems to be Commissioned

The following is a list of systems to be commissioned at the New Instructional Center Project. The project specific list of equipment to be commissioned will be included in the construction specifications. Major equipment associated with each system is identified. Commissioning of each system includes all major equipment, unless noted otherwise.

HVAC Systems

1. Air distribution systems
 - Dedicated Outside Air Systems (DOAS)
 - Variable Refrigerant Flow (VRF) Equipment
 - Electric Baseboard Heater
2. Exhaust systems
 - Fans and duct system
3. Energy management control system
 - Control devices, general building controls and system integration

Electrical Systems

1. Lighting controls
 - Scheduled controlled lighting systems
 - Occupancy sensors
2. Power systems

Plumbing Systems

1. Hot water – Tank(less) water heaters, piping, pumps, expansion tanks

Commissioning Team Information

Team Member	Company & Contact Names	Phone, fax, email address
Owner	West Hill Community College Kristin Clark	Phone: (559) 934-2100 E-mail: kristinclark@whccd.com
Commissioning Authority (CxA)	Galloway & Company David Boynton	Phone: (559) 721-5030 E-mail: DaveBoynton@GallowayUS.com
Architect	TETER A/E Robert Siegrist	Phone: (559) 437-0887 E-mail: bob.siegrist@teterae.com
General Contractor	TBD	Phone: E-mail:
Mechanical	TBD	Phone: E-mail:
Electrical	TBD	Phone: E-mail:
Plumbing	TBD	Phone: E-mail:
Fire Protection	TBD	Phone:

West Hills Community College District
 Lemoore – Instructional Center
 April 13th, 2023

		E-mail:
Controls	TBD	Phone: E-mail:
Test, Adjust and Balance	TBD	Phone: E-mail:

Roles and Responsibilities

The following is a listing of commissioning (Cx) responsibilities. The list is not intended to capture all the tasks of an associate, owner, or contractor on this project; just the task associated with the Cx process.

Owner (w/ Assistance from Architect & Engineer Upon Request)

1. Provides Basis of Design (BOD) documents.
2. Provides design intent clarification to CxA as needed.
3. Provides written responses to design review comments
4. Make periodic site visits to assure that installation of widespread systems (i.e. duct work, conduit, wiring, and piping) are meeting contract requirements.
5. All communication from CxA shall go thru the owner who will then communicate w/ the Architect.

Commissioning Authority (CxA)

The CxA is contracted by the owner as a third-party commissioner of the mechanical, electrical, plumbing, building automation system and air test/ balance tasks. The CxA may request that the GC stop the construction of the project and/or withhold final payment, if any listed sub-contracting disciplines not following the specific Cx pre-function or function tasks or Cx plan as approved for the New Instructional Center Project.

The CxA shall be responsible for the following:

1. CxA shall lead, review and oversee the completion of the commissioning process activities.
2. CxA shall report results, findings, and recommendations directly to the building owner and copy the GC and architect of record.
3. CxA shall schedule within the schedule requirements of the GC, all commissioning activities.
4. CxA shall create and distribute a Cx plan providing guidance in the execution of the Cx process.
5. Should a conflict arise between the specifications and the Cx plan, the CxA is responsible to provide the details to the building owner who shall be notified and render a decision regarding the conflict.
6. CxA shall hold a Cx “kick-off” meeting to review the pre-function matrix and function tests associated with the commissioned equipment. The following shall attend
 - a. The General Contractor
 - b. The Mechanical Contractor
 - c. The Controls Contractor
 - d. The Test and Balance Contractor
 - e. The Electrical Contractor

*Kick-off meeting attendees shall be individual responsible for this specific Project and know specific day to day details of the work being performed by the represented entity.

West Hills Community College District
 Lemoore – Instructional Center
 April 13th, 2023

7. Perform site visits, as necessary, to observe component and system installations.
8. Review Test, Adjust and Balance (TAB) execution plan and oversee sufficient functional testing of the control system and approve it to be used for the TAB process before the TAB process is started.
9. Approve air balance by spot checking. CxA will provide all of his own test equipment that meets the calibration requirements as specified in the TAB contractors responsibilities section.
10. Oversee and approve the training of the building users operating personnel.
11. Review contractor provided O&M manual.
12. Provide a final Cx report at the end of the project.
13. CxA shall create a Pre-Function Plan and a Function Plan for the testing and commissioning of the mechanical, electrical, plumbing, controls and test and balance systems. The preliminary draft of the pre-function and function plans shall be submitted to the General Contractor for distribution to the sub-contractors for review and comment.
14. Approve system startup by reviewing start-up reports and by selected site observation.

General Contractor (GC)

1. Facilitate the coordination of the Cx work by the CxA and facilitate the Cx activities into the project master schedules.
2. Provide a copy of all construction documents, addenda, change orders, requests for information, approved submittals and shop drawings relating to the commissioned equipment and/or systems to the CxA.
3. The GC shall direct all sub-contractors to attend all Cx meetings as scheduled by the CxA. The attendee representing the sub-contracting company shall be a field superintendent responsible for the specific New Instructional Center project and know specific day to day details of the work being performed by the represented company.
4. Catalog all O&M catalogs, equipment manuals; start up reports, manufacturer's data and addenda as provided by the sub-contractor.
5. The GC shall require that the mechanical contractor provide all as-built drawings per the installed configurations. This includes any changes discovered by the TAB contractor and any changes to the sequence of operations or hardware of the heating ventilation and air conditioning systems by the controls contractor.

Mechanical Contractor

1. Accumulates all the manufactures startup procedures for the equipment they purchased
2. Perform startup of equipment and provide binder that would include the manufacturer's startup procedure for each piece of equipment installed.
3. The Mechanical Contractor shall assist in coordinating their Controls Contractor and the Test and Balance Agency w/ the commissioning activities.
4. All ductwork brought to the sight must be clean per Sheet Metal and Air-Conditioning Contractors' National Association guidelines and mechanical specifications.
5. Training shall be performed by controls sub-contractor. All training agendas and Outlines of training subject matter shall be given to the CxA and the Owner for approval and inclusion into the Cx report.

Test, Adjust and Balance (TAB) Contractor

West Hills Community College District
 Lemoore – Instructional Center
 April 13th, 2023

1. Qualification and Equipment Calibration Requirements
 - a. See mechanical specification. Certificates of calibration shall be forwarded to the CxA for all digital TAB instruments prior to use at the New Instructional Center Project. TAB test equipment tolerances need to be equal to or greater than specified in specifications.
2. The TAB contractor shall be responsible for submitting a completed project TAB report less the actual numbers within 2 weeks of notice to proceed from the mechanical contractor. Boiler plate copies of the Associated Air Balance Council (AABC), National Environmental Balancing Bureau (NEBB) or Testing, Adjusting Balancing Bureau (TABB) sample sheets are not acceptable and will be rejected. The TAB report shall be submitted on the TAB contractor's standard TAB report forms less final test data. Included in this TAB report, but not limited to, shall be:
 - a. All heating and cooling units. This will include the specific filter data and a filter cut sheet of the filter to be used in the units.
 - b. All economizer units. The economizers shall be capable of delivering max outside air values indicated on mechanical drawings.
 - c. All water heaters and pumps are to be included in the water balance report including flow rates and pump curves.
 - d. TAB of all units shall be done at 50% of the loading of the package unit filter capacity curve. Submit a procedure of how the filters will be loaded to 50% of the filter capabilities. i.e. perforated board, extra filter media etc...
 - e. Airflow report sheets which will include specified airflow rates in all standard modes of operation (i.e. cooling, heating, economizer etc.)
 - f. All specified heating, ventilation and air conditioning equipment listed in the schedules of the mechanical drawings shall be included in the report.
 - g. A completed floor plan layout of all the registers to be tested.
 - h. TAB procedures of the different modes of operation based on the controls "Sequence of Operation" as specified on Mechanical Sheets are:
 - i. Occupied Mode
 - ii. Economizer
 - iii. Demand Control Ventilation Mode
 - iv. Cooling Mode
 - v. Heating Mode
 - vi. Unoccupied Mode
 - vii. Smoke detector shutdown Mode

Controls Contractor

1. Controls contractor shall be responsible for submitting a full Cx plan as to the methods and point listing that is to be installed. This plan will include the complete point list with a description and location of the control points.
2. Controls contractor shall cooperate with the CxA in the verifying and completing the pre-function and functional testing.
3. Provides trend data to CxA to demonstrate functionality of system.
4. Provides training of the control system to owner personnel after project end.
5. Any field changes made to the control systems shall be approved by the mechanical engineer of record and a copy of the approved changes sent to the CxA.

West Hills Community College District
Lemoore – Instructional Center
April 13th, 2023

Electrical Contractor

1. Electrical contractor shall provide test reports as listed in the pre-function testing matrix.
2. Electrical contractor shall be present at the final Cx date if needed.

Plumbing Contractor

1. Plumbing contractor shall provide test reports as listed in the pre-function testing matrix.
2. Plumbing contractor shall be present at the final Cx date if needed.

Commissioning Process

The section sequentially details the commissioning process by commissioning task or activity.

Commissioning Kick-Off Meeting

The scoping meeting brings together all members of the construction, and operations team that will be involved in the commissioning process. Each building system to be commissioned is addressed, including commissioning requirements, and completion and start-up schedules. During the scoping meeting, all parties agree on the scope of work, tasks, schedules, deliverables, and responsibilities for implementation of the Commissioning Plan.

Final Commissioning Plan

The commissioning agent finalizes the draft Commissioning Plan using the information gathered from the scoping meeting. The initial commissioning schedule is also developed along with a detailed timeline. The timeline is fine-tuned as construction progresses.

Submittals

The general contractor will provide the commissioning agent with a set of equipment and system submittals. This equipment data includes installation and start-up procedures, O&M data, performance data and temperature control drawings. The subcontractors, general contractor or A/E notify the commissioning agent of any new design intent or operating parameter changes, added control strategies and sequences of operation, or other change orders that may affect commissioned systems.

Site Observation

The commissioning agent makes periodic site visits to witness equipment and system installations. Each site visit will have a specific agenda and will be coordinated with the general contractor site supervisor. The commissioning agent attends selected planning and job-site meetings in order to remain informed on construction progress and to update parties involved in commissioning. The general contractor provides the commissioning agent with information regarding substitutions or change orders that may affect commissioned equipment or the commissioning schedule.

West Hills Community College District
Lemoore – Instructional Center
April 13th, 2023

Pre-functional Checklists and Startup Procedures

A Pre-Functional Inspection Checklist are developed and completed for all mechanical equipment being commissioned. The checklist captures equipment nameplate and characteristics data and confirms the as-built status of the equipment or system. The checklists ensure that the systems are complete and operational and document the installation of components and completion of systems.

The checklists are prepared by the commissioning agent from manufacturer's data, drawings and specifications to include the required installation, checkout, and start up procedures. The installing subcontractors date and initial the checklists as the construction and start-up is completed. The commissioning agent reviews and verifies the completed checklists before scheduling the functional performance testing.

Development of Functional Test and Verification Procedures

Functional performance testing verifies the intended operation of individual components and system interactions under various conditions and modes of operation. The systems are run through all of the sequences of operation and the response of components is verified. Testing proceeds from components to subsystems to systems, and finally to interlocks and connections between systems.

The commissioning agent prepares functional performance test plans so that the complete sequence of operations is included. The commissioning agent obtains all documentation, including an updated points list, control sequences, and setpoints. If necessary, the commissioning agent may request clarifications from contractors and the design team regarding sequences and operation. Prior to execution, the commissioning agent provides a copy of the primary equipment tests to the installing subcontractor and general contractor who can review the tests for feasibility, safety, warranty and equipment protection.

Execution of Functional Testing Procedures

The commissioning agent schedules functional tests through the general contractor and subcontractors. Under the supervision of the commissioning agent, the installing subcontractor performs the hardware and/or software manipulations required for the testing. Owner maintenance staff may also be present in order to assist in system observations. The commissioning agent witnesses and records the results of functional performance testing.

Any deficiencies found from functional performance testing will be documented in a Deficiency Report. The report will include all details of the components or systems found to be non-compliant with the parameters of the functional performance test plans and design documents. The deficiency report will become part of the punch list. The report will detail the adjustments or alterations required to correct the system operation and identifies the responsible party. The deficiency report will be continuously updated. The commissioning agent schedules any required retesting through the general contractor. Decisions regarding deficiencies and corrections are made at as low a level as possible, preferably between commissioning agent, sub-contractor, and general contractor.

Operation and Maintenance Manuals

The operation and maintenance manuals prepared by the contractors for the owner's maintenance personnel are reviewed for completeness. The contractors are encouraged to submit O&M manuals at

West Hills Community College District
 Lemoore – Instructional Center
 April 13th, 2023

the earliest possible date. Materials may be added, or requested from the contractors, to stress and enhance the importance of system interactions, troubleshooting, and long-term preventative maintenance and operation. A database of preventative maintenance information may also be created from the materials in the O&M manuals.

Training and Orientation of Owner Personnel and Occupants

Effective maintenance personnel training is critical to the long-term performance of the new building. The commissioning agent will assist the owner and general contractor in organizing the training sessions by identifying the appropriate staff for each session and creating an overall training plan.

For each training session, the contractors provide a detailed agenda for each piece of equipment or system for which training is required. The agenda describes the training scope, duration, and methods, along with the name and qualifications of the trainers. The commissioning agent develops a plan for including in the training session contractors / trainers from different disciplines, when appropriate. The trainer documents each training session (duration, general subjects covered, and attendees). The commissioning agent may witness any of the training sessions.

Warranty Period

Seasonal variation in operations or control strategies may require additional testing during peak cooling and heating seasons to verify system performance. During the warranty period, seasonal testing and other deferred testing is completed as required to fully test all sequences of operation. The commissioning agent coordinates this activity. Tests are executed and deficiencies corrected by the appropriate subcontractors, witnessed by facilities staff and the commissioning agent. Any final adjustments to the O&M manuals and as-builts due to the testing are made.

The commissioning agent will request input from the owner's operations staff and occupants about the performance of the building systems. The commissioning agent also supports the general contractor's troubleshooting process during the warranty period. The general contractor's warranty team will first try and resolve the issues before requesting assistance from the commissioning agent.

Commissioning Report

A final Commissioning Report will be compiled which summarizes all of the tasks, findings, and documentation of the commissioning process. The report will address the actual performance of the building systems in reference to the design documents. All test reports by various sub-contractors, manufacturers and controlling authorities will be incorporated into the final report.

The commissioning report includes:

- An evaluation of the operating condition of the systems at the time of functional test completion,
- Deficiencies that were discovered and the measures taken to correct them,
- Functional test procedures and results,
- Reports that document all commissioning field activities as they progressed, and
- A description and estimated schedule of required deferred testing.

West Hills Community College District
 Lemoore – Instructional Center
 April 13th, 2023

General Issues

The following sequential priorities are followed:

1. Equipment is not “temporarily” started (for heating or cooling), until pre-start checklist items and all manufacturer’s pre-start procedures are completed and moisture, dust and other environmental and building integrity issues have been addressed.
2. Functional performance testing does not begin until pre-functional, start-up and TAB is completed for a given system.
3. The controls system and equipment it controls are not functionally tested until all points have been calibrated and pre-functional checklists are completed.

Schedule

The commissioning work will be integrated into the master project schedule. Approximately 2 months prior to the start-up TAB work, the commissioning authority shall begin scheduling and conducting Commissioning Meetings with the Commissioning Team consisting of:

1. Commissioning authority
2. General contractor representative
3. Mechanical contractor representative
4. Control contractor representative
5. TAB contractor representative
6. Electrical contractor representative (if necessary)
7. Plumbing contractor representative (if necessary)
8. Mechanical engineers’ representative (if necessary)
9. Electrical engineers’ representative (if necessary)

When possible, the Commissioning Authority shall arrive on site when TAB work commences to complete the Pre-Commissioning activities and checklists. A commissioning meeting will be scheduled after pre-commissioning activities are completed to present the findings of the Commissioning Authority and punch items

Items that need to be completed prior to the start of Functional Testing:

- Test, Adjusting and Balance (TAB) – TAB work completed, and preliminary TAB report submitted to the Mechanical Engineer and CxA
- Start Up and Test Reports for all equipment / systems submitted to the Commissioning Authority

Commissioning Schedule

- | | |
|--|-------------|
| - Preliminary Commissioning Plan | Complete |
| - Complete Pre-Functional Test Checklist | ½ day - TBD |

West Hills Community College District
 Lemoore – Instructional Center
 April 13th, 2023

- | | |
|--|-------------|
| - Perform Functional Performance testing | 1 day - TBD |
| Cx of HVAC System | ½ day – TBD |
| Cx of Lighting System | ½ day – TBD |
| - Test and Balance (TAB) | ½ day - TBD |
| - Air Side | |
| - Systems Training | ½ day – TBD |

Items that need to be completed after project commissioning:

- | | |
|--------------------------------------|--------------|
| - Prepare Final Commissioning Report | 3 days – TBD |
| - Prepare Systems Manual | 3 days – TBD |
| - Submit Final Cx Report | 2 days - TBD |

Abbreviations and Definitions

The following are common abbreviations used in this document.

A/E	Architect and design engineers	FPT	Functional performance test
CP	Commissioning provider	GC	General contractor
CC	Controls contractor	MC	Mechanical contractor
Cx	Commissioning	PF	Pre-functional checklist
EM	Energy Manger	PM	Project Manger
Cx Plan	Commissioning Plan Document	Subs	Subcontractor to General
EC	Electrical contractor	TAB	Test and balance contractor
MM	Maintenance Manager	STAFF	Maintenance Staff

SECTION 274100
AUDIO-VIDEO SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. To allow for presentations within the classroom A/V infrastructure will be installed to provide the following functionality:
1. Projectors and Displays to display content within the room.
 2. Wall mount storage enclosures for A/V equipment

1.2 SECTION INCLUDES:

- A. Provisioning of all labor, materials, equipment, accessories, services, and tests necessary to complete and make ready for operation, by the owner, the audiovisual system requirements for the space in accordance with this specification and the "E" series drawings.
- B. Equipment to be provided under this Specification Section includes:
1. Projector and Mounts
 2. Electric Projector Screens
 3. Recessed Wall Mount AV Cabinets
 4. LCD Displays and Mounts
- C. Notwithstanding the detailed information in this specification, it is the responsibility of the contractor for verifying the completeness of the parts list, the correctness of the type numbers, and to supply a fully working system meeting these specifications.
- D. Items to be furnished and installed by Contractor under other Specification Sections:
1. Blocking for all displays and screens shall be furnished and installed by the general contractor.
 2. All conduit, backboxes, floor boxes and power connections shall be provided under Division 26.
- E. Equipment to be provided by owner:
- a. A/V matrix
 - b. Microphone mixer
 - c. Control Touch Panels
 - d. Speakers

- e. A/V cabling
- f. A/V input plates
- g. Freestanding AV Rack

1.3 QUALITY ASSURANCE

- A. All equipment rooms shall be installed in a neat and workmanlike manner. All methods of construction that are not specifically described or indicated in the Contract Documents shall be subject to the control and approval of the Owners representative. Equipment and materials shall be of the quality and manufacturer indicated. The equipment specified is based on the acceptable manufacturers listed. Where "approved equal" is stated, equipment shall be equivalent in every way to that of the equipment specified, and subject to approval.
- B. Materials and work specified herein shall comply with the applicable requirements of:
 - 1. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for the intended use.
 - 2. Comply with NFPA 70.
 - 3. Comply with UL 50.

1.4 SUBSTITUTIONS

- A. Substitutions: Substitutions will only be allowed by substitution requests submitted in accordance with Division 01 Section "Substitution Procedures" before the bid date.
 - 1. In Part 2 Articles where manufacturers are listed for various product types and only one manufacturer is listed with no alternate manufacturers indicated, manufacturer listed is an established Owner standard and substitutions will not be allowed.

1.5 SUBMITTALS

- A. Qualifications: To be considered technically qualified for this project, the contractor shall submit proof of the following:
 - 1. A minimum of 5 years with professional video system integration.
 - 2. A qualified project engineer on staff. Engineer shall be an InfoComm certified CTS-I. Provide the number of years of experience with professional video systems.
- B. Pre-installation:
 - 1. Equipment List: Submissions shall include a list of major equipment and a specification sheet for each major component that differs from those specified, showing it's the satisfaction of specified requirements.
 - a. The list of major equipment shall include; Manufacturer, Model, Quantity.

- b. Alternative equipment and methods will be reviewed; however, it is the responsibility of the contractor to demonstrate the alternate meets or exceeds the performance specified. Product details for any voluntary alternates or product substitutions.

C. Post-installation:

1. Final Equipment List: Details on all equipment including manufacturer, model, serial number, & warranty duration.
2. O&M Manual: Provide an electronic copy of all equipment specification sheets, owner's manuals.
3. As-Built Drawings: The contractor shall provide the Owner with as-built drawings reflecting the layout and labeled wiring diagrams of the completed system. Drawings to be submitted in PDF format.
4. Warranty Statement: Provide the terms and conditions of the one-year warranty covering all parts and labor starting upon system acceptance.
5. Service Contract Proposal: Provide a proposal to extend the system warranty for an additional year.

1.6 COORDINATION

- A. Coordinate layout and installation of system components with other construction trades.

PART 2 - PRODUCTS

2.1 EQUIPMENT AND MATERIALS

- A. General: Major equipment is specified in this section. Note the following:
 1. Equipment shall have an equal or better performance to units described as "Design Make".
 2. Minor material not specified below shall be of professional quality.
- B. Coordinate features to form an integrated system. Match components and interconnections for optimum performance of specified functions.
- C. Equipment: Modular type using solid-state components, fully rated for continuous duty, unless otherwise indicated. Select equipment for normal operation on input power usually supplied at 110 to 130 V, 60 Hz.

2.2 RECESSED WALL MOUNT AV CABINET, 3RU (V.50)

- A. Description: EIA compliant 19" wall mount cabinet. Cabinet shall be constructed to swing open for component cabling access.

B. Design Make: Middle Atlantic – TOR-3-20RP

C. Include accessories:

1. Recessed kit: Middle Atlantic – TOR-PRT

2.3 PROJECTOR, WUXGA (V.01)

A. Description: WUXGA 3LCD Projector. 6000 lumens. 1920 x 1200 native resolution. VGA, HDMI, DVI-D inputs. HDBaseT connection for audio and video, Ethernet, and RS-232 control. IR remote is included.

B. Design Make: NEC – VPL-PHZ60

2.4 UNIVERSAL PROJECTOR MOUNT, WHITE(V.02)

A. Design Make: Chief – RPMAUW

B. Include accessories:

1. Above Tile Suspended Ceiling Kit: Chief – CMS440 (V.04)
2. Adjustable Column, 12": Chief - CMS012W (V.03)

2.5 ELECTRIC SCREEN RECESSED, 16:10

A. Recessed Electric Screen without door. Size as called for on drawings.

1. Provide 24" of black masking at top of projected image.

B. Design Make: Da-Lite - Tensioned Advantage Electrol

2.6 ELECTRIC SCREEN SURFACE MOUNT, 16:10

A. Recessed Electric Screen without door. Size as called for on drawings.

B. Design Make: Da-Lite - Tensioned Contour Electrol

2.7 LCD DISPLAY, 65" (V.10)

A. Description: 4K UHD Display. VGA, HDMI, DVI-D inputs. HDBaseT connection for audio and video, Ethernet, and RS-232 control. IR remote is included.

B. Design Make: LG – 65US340C0UD

2.8 LCD DISPLAY, 75" (V.11)

- A. Description: 4K UHD Display. VGA, HDMI, DVI-D inputs. HDBaseT connection for audio and video, Ethernet, and RS-232 control. IR remote is included.
- B. Design Make: LG – 75US340C0UD

2.9 LCD DISPLAY, 85" (V.12)

- A. Description: 4K UHD Display. VGA, HDMI, DVI-D inputs. HDBaseT connection for audio and video, Ethernet, and RS-232 control. IR remote is included.
- B. Design Make: LG – 85US340C0UD

2.10 UNIVERSAL LARGE FIXED DISPLAY MOUNT (V.15)

- A. Description: Ultra-thin flat panel wall display mount. Mounting pattern compatibility from 200 x 200mm to 800 x 500mm. Typical screen size from 42" to 86". Maximum weight capacity 125 lbs.
- B. Design Make: Chief – LSTU

2.11 UNIVERSAL MEDIUM FIXED DISPLAY MOUNT (V.16)

- A. Description: Ultra-thin flat panel wall display mount. Mounting pattern compatibility from 100 x 100mm to 600 x 400mm. Typical screen size from 32" to 65". Maximum weight capacity 125 lbs.
- B. Design Make: Chief – MSTU

2.12 UNIVERSAL LARGE TILTING DISPLAY MOUNT (V.17)

- A. Description: Tilting flat panel wall display mount. Mounting pattern compatibility from 200 x 200mm to 910 x 500mm. Typical screen size from 55" to 100". Maximum weight capacity 175 lbs.
- B. Design Make: Chief – RXT2

2.13 UNIVERSAL LARGE ARTICULATING DISPLAY MOUNT (V.18)

- A. Description: Swing arm flat panel wall display mount. Mounting pattern compatibility from 200 x 200mm to 862 x 517mm. Typical screen size from 32" to 65". Maximum weight capacity 100 lbs.
- B. Design Make: Chief – PWRSKUB

PART 3 - EXECUTION

3.1 COORDINATION:

- A. Coordinate final mounting requirements for AV equipment with field conditions.
- B. PRIOR TO INSTALLATION:
 - 1. Refer to section 1.4B for all pre-installation submittal requirements.

3.2 LABELING AND IDENTIFICATION

- A. Labeling requirements shall comply with INFOCOMM F501.01:2015 Cable Labeling for Audiovisual Systems.
- B. Provide pre-printed labels at all faceplates and equipment clearly indicating connection and function.
- C. Labels shall meet the legibility, defacement, exposure, and adhesion requirements of UL 969.
- D. All labels shall be preprinted or laser printed type.
- E. All cables shall be labeled at both ends. Provide a vinyl substrate with a white printing area and a clear "tail" that self laminates the printed area when wrapped around the cable. If cable jacket is white, provide cable label with printing area that is any other color than white, preferably orange or yellow – so that the labels are easily distinguishable.
- F. At project closeout provide as-built drawings showing all connections using the same labeling convention as the installed system. See section 1.4C.3 for additional details.

3.3 TESTING

- A. Perform basic tests on projectors, screens and LCD displays to verify the equipment is operational.

3.4 WARRANTY

- A. Provide a minimum 1-year parts and labor warranty on the system and wiring.
- B. The warranty will not begin until the equipment has been tested and accepted by the owner.
- C. Include in your submittal the duration and terms of the manufacturer's warranty.

END OF SECTION 27 41 00

SECTION 481400
SOLAR ENERGY ELECTRIC POWER GENERATION

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Furnish and install the complete solar energy electric power generation system.

1.2 REFERENCES

- A. The solar photovoltaic system and overcurrent protection devices referenced herein shall be designed and manufactured according to the following appropriate specifications.
1. 2019 California Electrical Code (CEC)
 2. California Public Utilities Commission Rule 21 Interconnection
 3. UL 1741 and UL 1741-SA
 4. UL 62109-1
 5. UL 1703
 6. UL 489 - Molded Case Circuit Breakers

1.3 SUBMITTALS

- A. Submittals for this Section shall be made according to the Conditions of the Contract, Division 01 Specification Sections and Specification Section 260100.
- B. Shop Drawings
1. Submit Shop Drawings for the complete solar energy electric power generation system including all equipment solar photovoltaic modules and inverters, supports and anchorage, cabling and connectors elevations with overall dimensions, conduit entrance locations and requirements, nameplate legends, one-line diagrams, equipment schedule, switchboard instrument details and labeling details.
- C. Test Reports
1. Record the solar PV energy production for 24-hours and submit a report indicating power produced (kW) and energy produced (kWh) during each 15-minute increment over the 24-hour period. Provide a general statement of the weather conditions with high and low temperatures during the 24-hour period.
- D. Operation and Maintenance Data
1. Submit operation and maintenance data for the solar energy electric power generation system to include in "Operations and Maintenance Instructions" manuals specified in Division 01 and Specification Section 260100 including

detailed manufacturer's written instructions on adjusting overcurrent protective devices.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products in conformance with manufacturer's recommended practices as outlined in applicable Installation and Maintenance Manuals.
- B. Inspect and report concealed damage to carrier within their required time period.
- C. Store in a clean, dry space. Maintain factory protection and/or provide an additional heavy canvas or heavy plastic cover to protect equipment from dirt, water, construction debris, and traffic.
- D. Handle equipment carefully to avoid damage to equipment internal components, enclosure, and finish.

1.5 PROJECT CONDITIONS

- A. Verify dimensions by field measurements.
- B. Determine suitable path for moving switchboard into place considering project conditions.
- C. Verify clearance requirements. Locate equipment to meet installation tolerances.
- D. Revise locations and elevations from those indicated as required to suit project conditions.

1.6 WARRANTY

- A. Manufacturer shall warrant equipment to be free from defects in materials and workmanship for the lesser of one (1) year from date of installation or eighteen (18) months from date of purchase.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. This design is based on the use of equipment manufactured by Enphase and Panasonic. Subject to compliance with project requirements, equivalent products by one of the following manufacturers may be considered:
 - 1. Sunpower;
 - 2. LG Solar;
 - 3. Panasonic;

2.2 SOLAR PHOTOVOLTAIC MODULES

A. Solar photovoltaic modules

1. Manufacturer: Panasonic
2. Model: HIT AC model #VBHN330SA17
3. Internal Bypass Diodes: 4 Bypass Diodes
4. Dimensions: 62.6"L x 41.5"W x 1.6"H
5. Weight: 42.99 lbs
6. Cable Length +Male/-Female: 40.2/40.2 inches
7. Cable Size / Type: No. 12 AWG / PV cable
8. Connector Type: Multi-Contact type IV [MC4]
9. Static Wind/Snow Load: 112PSF
10. Rated Power: 330W
11. Maximum Power Voltage: 58.0V
12. Maximum Power Current: 5.70A
13. Open Circuit Voltage: 69.7V
14. Short Circuit Current: 6.07A
15. Temperature Coefficients [Pmax]; [Voc]; [Isc]: -0.258%/deg C; -0.16V/deg C; 3.34mA/deg C
16. NOTC: 44.0deg C
17. CEC PTC Rating: 311.7W
18. Cell Efficiency: 22.09%
19. Module Efficiency: 19.7%
20. Watts per SF: 18.3W
21. Maximum System Voltage: 600V
22. Series Fuse Rating: 15A
23. Warranted Tolerance [+/-]: +10%/-0%

2.3 SOLAR PHOTOVOLTAIC INVERTERS

A. Solar photovoltaic inverters shall be microinverters approved for wet location installation with MC4 type connectors mounted at each solar photovoltaic module. Solar photovoltaic inverters shall be UL listed as PV rapid shut down equipment.

1. Manufacturer: Enphase
2. Model: IQ 7X Microinverter

3. Dimensions: 8.35"W x 6.89"H x 1.19"D
4. Weight: 2.38 lbs
5. Commonly used module pairings: 320W-460W
6. Module Compatibility: 96-cell PV modules
7. Maximum Input DC voltage: 79.5 V
8. Peak Power Tracking Voltage: 53V-64V
9. Operating Range: 25V-79.5V
10. Min/Max start voltage: 33V / 79.5V
11. Max DC short circuit current (module Isc): 10A
12. Overvoltage class DC port: II
13. DC port backfeed current: 0A
14. PV array configuration: 1 x 1 ungrounded array; No additional DC protection required; AC side protection requires max 20A overcurrent protection per branch.
15. Peak Output Power: 320VA
16. Maximum Continuous Output Power: 315VA
17. Nominal (L-L) voltage / range: 208V / 183-229V
18. Maximum continuous output current: 1.51 A (at 208 VAC)
19. Nominal Frequency: 60Hz
20. Extended Frequency Range: 47-68Hz
21. AC short circuit fault current over 3 cycles: 5.8 Arms
22. Overvoltage class AC port: III
23. AC port backfeed current: 18 mA
24. Power factor setting: 1.0
25. Power factor (adjustable): 0.85 leading...0.85 lagging
26. CEC weighted efficiency at 208VAC: 97.0%

2.4 SOLAR PHOTOVOLTAIC COMMUNICATION GATEWAY AND MONITORING SOFTWARE

- A. The solar photovoltaic system shall be provided with the Enphase IQ Envoy communication gateway and Enphase Enlighten monitoring and analysis software including revenue grade production metering and consumption monitoring.
- B. The solar photovoltaic monitoring software shall be web-based and make the solar energy production statistics accessible to the Owner through the internet for the life of the system at no additional cost.

2.5 SOLAR PHOTOVOLTAIC SYSTEM LABELING AND IDENTIFICATION

- A. Plaque: Provide a permanent plaque identifying location of all electric power sources, complying with CEC Article 705.10.
- B. Solar Photovoltaic Disconnecting Means: Provide a permanent marking at each solar photovoltaic disconnecting means complying with CEC Article 690.13(B).
- C. System Rating: Provide a permanent label at the point of interconnection indicating the rated AC output current and the nominal operating voltage complying with CEC Article 690.54.
- D. Rapid Shutdown: Provide a permanent label complying with CEC Article 690.56(C) for rapid shutdown.
- E. Solar PV Circuits: Provide permanent labels to identify conduits, raceways, pullboxes associated with the solar PV system. Comply with CEC Article 690.31(D)(2).
- F. DC PV Circuits: Provide a permanent readily visible label indicating the highest maximum DC voltage in the PV system. Comply with CEC Article 690.53.
- G. Warning Labels: Provide permanent orange warning labels on all electrical solar PV distribution equipment and disconnecting means complying with CEC Articles 690.13(B) and 705.12

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine area to receive the solar photovoltaic system to provide adequate clearance for the solar photovoltaic system installation.
- B. Check that concrete pads are level and free of irregularities.
- C. Start work only after unsatisfactory conditions are corrected.

3.2 INSTALLATION

- A. Install the solar photovoltaic system in accordance with manufacturer's written guidelines, the CEC, and local codes.
- B. Securely support and anchor solar photovoltaic modules to rails and solar canopy using S-5 clamps per manufacturer's instructions and structural details.
- C. Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from switchboard units and components.

3.3 CONNECTIONS

- A. Connect solar photovoltaic inverter and solar photovoltaic module system components to solar photovoltaic DC and AC cabling and wiring systems using appropriate system cable connectors as indicated and instructed by manufacturer.
- B. Connect solar photovoltaic inverters, solar photovoltaic modules, and metal rack system components to ground as indicated and instructed by manufacturer.
- C. Tighten electrical connectors and terminals, including screws and bolts, according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 786A and UL 486B.

3.4 ADJUSTING

- A. Adjust all operating mechanisms for free mechanical movement per manufacturer's specifications.
- B. Tighten bolted bus connections in accordance with manufacturer's instructions.
- C. Adjust circuit breaker trip and time delay settings to values as instructed by the Engineer.

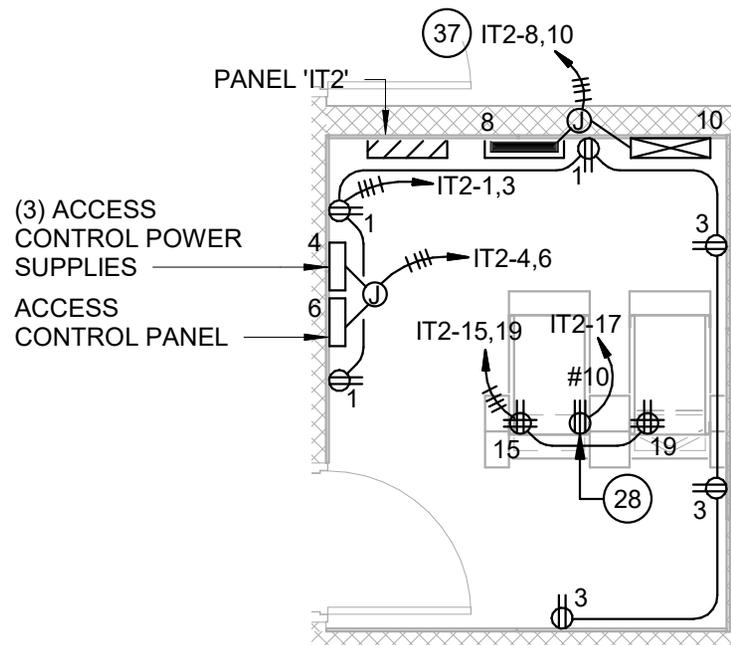
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- F. DC PV Circuits: Install a permanent readily visible label indicating the highest maximum DC voltage in the PV system. Comply with CEC Article 690.53.
- G. Warning Labels: Install permanent orange warning labels on all electrical solar PV distribution equipment and disconnecting means complying with CEC Articles 690.13(B) and 705.12

3.6 CLEANING

- A. Upon completion of installation, inspect solar PV installation for cleanliness. Rinse solar panels with clean water to clear away any loose dirt.

END OF SECTION 481400



ENLARGED POWER PLAN - IT ROOM

1/4" = 1'-0"

2

REFER TO 2/E220



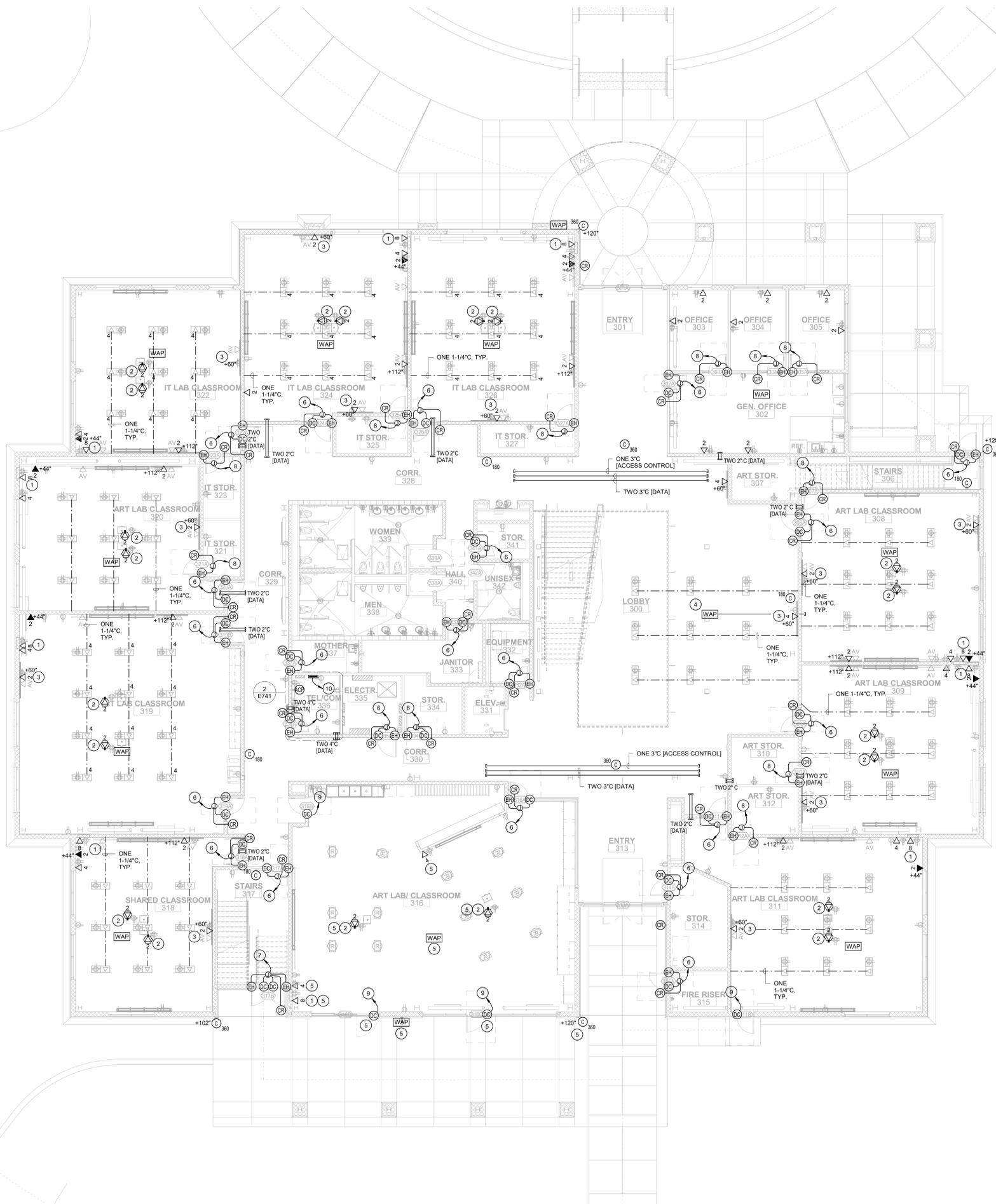
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INSTRUCTIONAL CENTER PHASE 01
WEST HILLS COLLEGE LEMOORE
 WEST HILLS COMMUNITY COLLEGE DISTRICT
 LEMOORE, CA

JOB NUMBER:
 20-11900

DWG. DATE:
 4/14/2023

AD-E01



SIGNAL PLAN - FIRST FLOOR

1/8" = 1'-0" 1



KEYNOTES

- 1 PROVIDE DATA FACEPLATE WITHIN RECESSED WALL MOUNT AV CABINET.
- 2 PROVIDE DATA FACEPLATE AT PROJECTOR CEILING MOUNTING PLATE. SEE DETAIL 22/E602.
- 3 PROVIDE DATA FACEPLATE WITHIN RECESSED HUBBLE PREMISE #NSAV62M FPTV 2-GANG ENCLOSURE.
- 4 PROVIDE DATA FACEPLATE AND BACKBOX AT WIRELESS ACCESS POINT LOCATION ON EXPOSED BEAM WITH 1" CONDUIT TO ACCESSIBLE ATTIC SPACE OF ADJACENT ROOM.
- 5 EXTEND CONDUITS TO ACCESSIBLE ATTIC SPACE IN CORRIDOR.
- 6 PROVIDE ONE 4/8 CABLE TO ACCESS CONTROL SYSTEM POWER SUPPLY AND PROVIDE ONE 2/8 CABLE AND ONE BELDEN 3107A CABLE TO ACCESS CONTROL SYSTEM CONTROL PANEL.
- 7 PROVIDE TWO 4/8 CABLES TO ACCESS CONTROL SYSTEM POWER SUPPLY AND PROVIDE TWO 2/8 CABLES AND ONE BELDEN 3107A CABLE TO ACCESS CONTROL SYSTEM CONTROL PANEL.
- 8 PROVIDE ONE 4/8 CABLE TO ACCESS CONTROL SYSTEM POWER SUPPLY AND PROVIDE ONE BELDEN 3107A CABLE TO ACCESS CONTROL SYSTEM CONTROL PANEL.
- 9 PROVIDE ONE 2/8 CABLE TO ACCESS CONTROL SYSTEM CONTROL PANEL.
- 10 PROVIDE ONE PAIR OPTICAL FIBER PATCH CABLE FROM FIRE ALARM CONTROL PANEL TO FIBER PATCH PANEL AT BUILDING MDF.

TELECOMMUNICATION PATHWAY NOTES

- A. CONDUIT AND CABLES FOR TELECOMMUNICATION OUTLETS SHALL BE CONCEALED WITHIN WALLS AND ABOVE CEILINGS.
- B. TELECOMMUNICATION OUTLET BOXES SHALL BE 5" SQUARE BY 2-7/8" DEEP WITH A SINGLE-GANG BOX EXTENSION THAT IS MOUNTED FLUSH WITH THE FINISHED WALL.
- C. PROVIDE ONE 1" C STUBBED FROM EACH TELECOMMUNICATION OUTLET BOX INTO THE ACCESSIBLE ATTIC SPACE TO FACILITATE TELECOMMUNICATION CABLE INSTALLATION.
- D. PROVIDE THREADED SET SCREW CONNECTORS WITH POLYPROPYLENE BUSHINGS AT EACH END OF CONDUIT SYSTEMS USED FOR TELECOMMUNICATION CABLE INSTALLATION. BUSHINGS SHALL BE INSTALLED AND INSPECTED PRIOR TO CABLE INSTALLATION.
- E. CABLE TRAYS SHALL COMPLY WITH NEMA VE 1 STANDARDS AND SHALL BE INSTALLED IN ACCORDANCE WITH NEMA VE 2 INSTALLATION GUIDELINES.

TELECOMMUNICATION CABLING NOTES

- A. EACH TELECOMMUNICATION CABLE SHALL BE HOMERUN FROM THE TELECOMMUNICATION OUTLET TO A PATCH PANEL LOCATED IN THE TELECOMMUNICATION ROOM.
- B. TELECOMMUNICATION CABLES SHALL BE NEATLY BUNDLED WITH VELCRO STRAPS AT 36" O.C.
- C. TELECOMMUNICATION CABLES SHALL BE INDEPENDENTLY SUPPORTED FROM J-HOOKS WITHIN THE ACCESSIBLE ATTIC SPACE WHERE THEY ARE NOT WITHIN CONDUIT OR SUPPORTED ON CABLE TRAY.
- D. TELECOMMUNICATION CABLES SHALL BE TERMINATED WITH MODULAR JACKS ON PATCH PANELS IN THE TELECOMMUNICATION ENCLOSURE AND ON MODULAR JACKS AT THE TELECOMMUNICATION OUTLETS.
- E. TELECOMMUNICATION CABLE SERVING WIRELESS ACCESS POINTS SHALL BE TERMINATED WITH PLUG TYPE CONNECTORS AT THE LOCATION OF THE WIRELESS ACCESS POINT.

SECURITY AND ACCESS CONTROL NOTES

- A. REFER TO DETAIL 16/E602 FOR ACCESS CONTROL FOR DEVICE ELEVATION AND CABLING AND CONDUIT REQUIREMENTS.
- B. SECURITY AND ACCESS CONTROL SYSTEM REQUIREMENTS:
 - a. AT DOOR CONTACT LOCATIONS - DRILL 1/2" HOLE IN STRIKE SIDE OF DOOR FRAME AND THROUGH HEADER, INSTALL DOOR CONTACT AND WIRING PER DETAIL 16/E602.
 - b. AT CARD READER LOCATIONS - INSTALL A SINGLE-GANG OUTLET BOX WITH A SINGLE-GANG TRIM-RING IN WALL AT 48" A.F.F. TO TOP OF BOX, INSTALL ONE 3/4" C TO JUNCTION BOX IN ACCESSIBLE ATTIC SPACE. INSTALL CARD READER AND WIRING PER DETAIL 16/E602.

MARK	DATE	DESCRIPTION	ADDENDUM #3
D	4/14/2023		

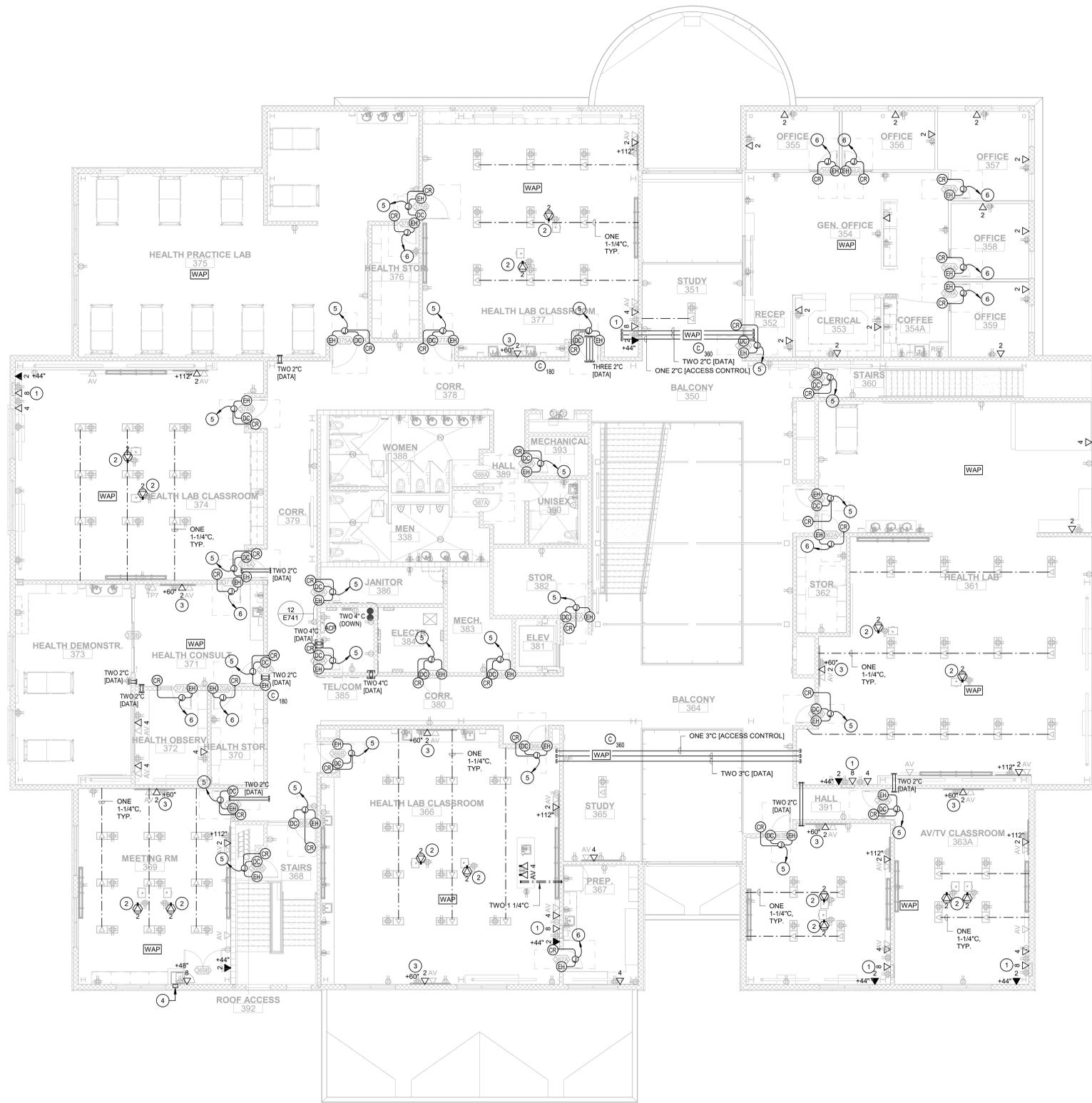


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 LEMOORE, CA
 DRAWING TITLE
 SIGNAL PLAN - FIRST FLOOR

PROJECT NO.
 20-11900
 DRAWING
E410



SIGNAL PLAN - SECOND FLOOR

KEYNOTES

- 1 PROVIDE DATA FACEPLATE WITHIN RECESSED WALL MOUNT AV CABINET.
- 2 PROVIDE DATA FACEPLATE AT PROJECTOR CEILING MOUNTING PLATE. SEE DETAIL 22/E602.
- 3 PROVIDE DATA FACEPLATE WITHIN RECESSED HUBBLE PREMISE #NSAV62M FPTV 2-GANG ENCLOSURE.
- 4 PROVIDE 8" x 8" x 4" PULLBOX RECESSED IN WALL WITH TWO 1-1/4" TO ACCESSIBLE ATTIC SPACE IN ROOM 369.
- 5 PROVIDE ONE 4/18 CABLE TO ACCESS CONTROL SYSTEM POWER SUPPLY AND PROVIDE ONE 2/18 CABLE AND ONE BELDEN 3107A CABLE TO ACCESS CONTROL SYSTEM CONTROL PANEL.
- 6 PROVIDE ONE 4/18 CABLE TO ACCESS CONTROL SYSTEM POWER SUPPLY AND PROVIDE ONE BELDEN 3107A CABLE TO ACCESS CONTROL SYSTEM CONTROL PANEL.

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- B. TELECOMMUNICATION OUTLET BOXES SHALL BE 5" SQUARE BY 2-7/8" DEEP WITH A SINGLE-GANG BOX EXTENSION THAT IS MOUNTED FLUSH WITH THE FINISHED WALL.
- C. PROVIDE ONE 1" C STUBBED FROM EACH TELECOMMUNICATION OUTLET BOX INTO THE ACCESSIBLE ATTIC SPACE TO FACILITATE TELECOMMUNICATION CABLE INSTALLATION.
- D. PROVIDE THREADED SET SCREW CONNECTORS WITH POLYPROPYLENE BUSHINGS AT EACH END OF CONDUIT SYSTEMS USED FOR TELECOMMUNICATION CABLE INSTALLATION. BUSHINGS SHALL BE INSTALLED AND INSPECTED PRIOR TO CABLE INSTALLATION.
- E. CABLE TRAYS SHALL COMPLY WITH NEMA VE 1 STANDARDS AND SHALL BE INSTALLED IN ACCORDANCE WITH NEMA VE 2 INSTALLATION GUIDELINES.

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 - a. AT DOOR CONTACT LOCATIONS - DRILL 1/2" HOLE IN STRIKE SIDE OF DOOR FRAME AND THROUGH HEADER, INSTALL DOOR CONTACT AND WIRING PER DETAIL 16/E602.
 - b. AT CARD READER LOCATIONS - INSTALL A SINGLE-GANG OUTLET BOX WITH A SINGLE-GANG TRIM-RING IN WALL AT 48" A.F.F. TO TOP OF BOX. INSTALL ONE 3/4" C TO JUNCTION BOX IN ACCESSIBLE ATTIC SPACE. INSTALL CARD READER AND WIRING PER DETAIL 16/E602.



1/8" = 1'-0" 1

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MARK	DATE	DESCRIPTION	ADDENDUM #3
D	4/14/2023		

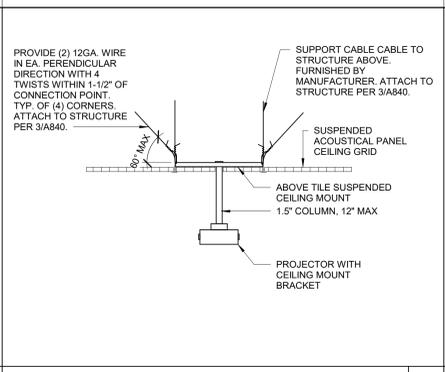


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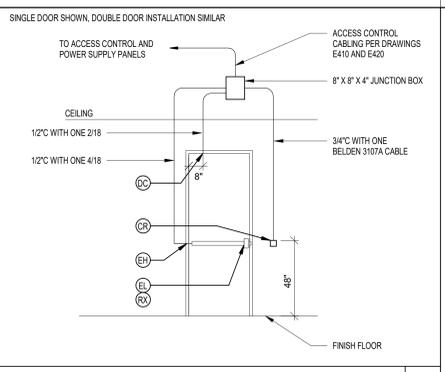


INSTRUCTIONAL CENTER PHASE 01
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 SIGNAL PLAN - SECOND FLOOR

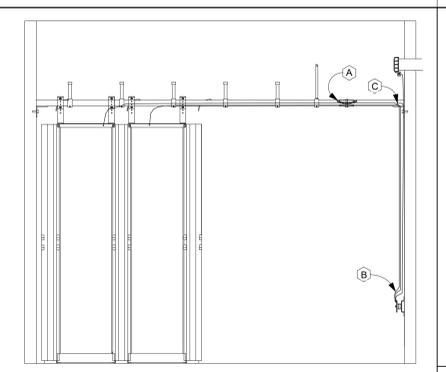
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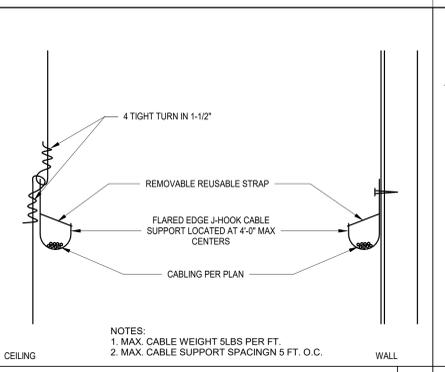
CEILING MOUNT PROJECTOR - ACT CEILING N.T.S. 21



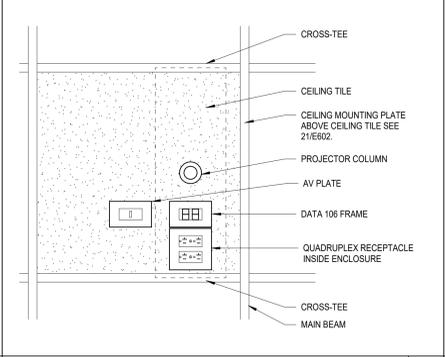
ACCESS CONTROL N.T.S. 16



J-HOOK MOUNTING N.T.S. 6



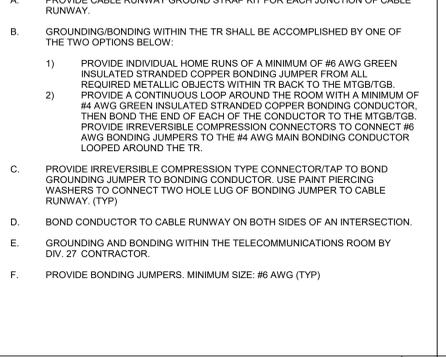
CABINET MOUNT - METAL STUD N.T.S. 1



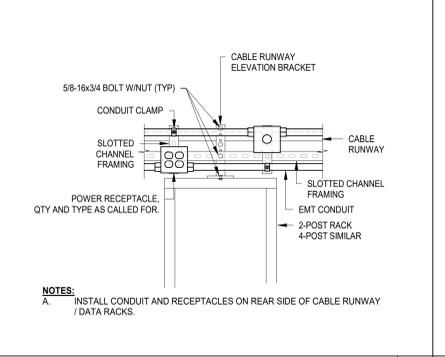
PROJECTOR OUTLETS N.T.S. 22



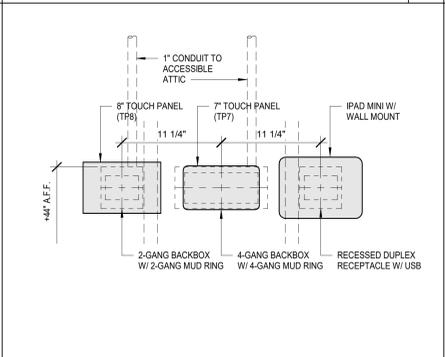
TR GROUNDING N.T.S. 12



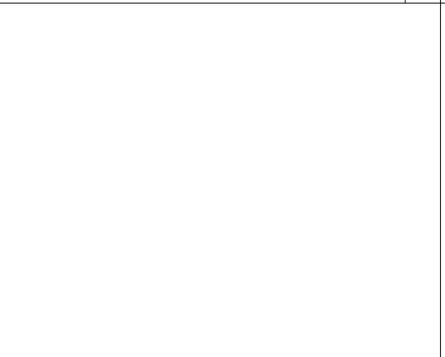
POWER RECEPTACLE AT CABLE RUNWAY N.T.S. 7



FLOOR MOUNTED 2-POST RACK N.T.S. 2



CONTROL PANEL LAYOUT 1 1/2" = 1'-0" 23



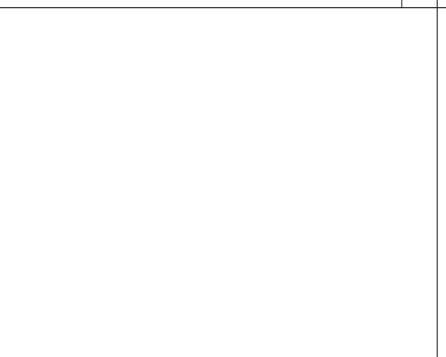
FLOOR MOUNTED 4-POST RACK N.T.S. 3



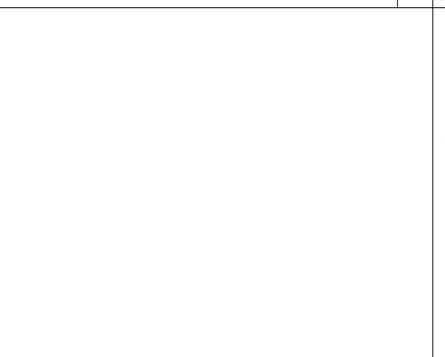
SIDE MOUNTING BRACKET AT WALL



END MOUNTING BRACKET AT WALL



RUNWAY ELEVATION KIT MOUNTING AT RACK



CABLE RUNWAY MOUNTING WALL N.T.S. 5

PROJECT NO. 20-11900
DRAWING E602

INSTRUCTIONAL CENTER PHASE 01
WEST HILLS COLLEGE LEMOORE
WEST HILLS COMMUNITY COLLEGE DISTRICT
LEMOORE, CA
DRAWING TITLE ELECTRICAL DETAILS

TETER, LLP
PRESNO HEADQUARTERS
VISALIA 1 BANGSFIELD | WOODSTOCK | SAN LUIS OBISPO
ARCHITECTS ENGINEERS CONNECTED

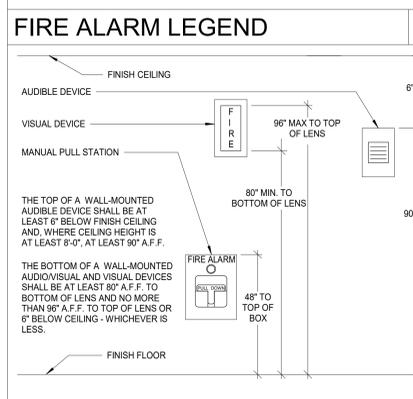
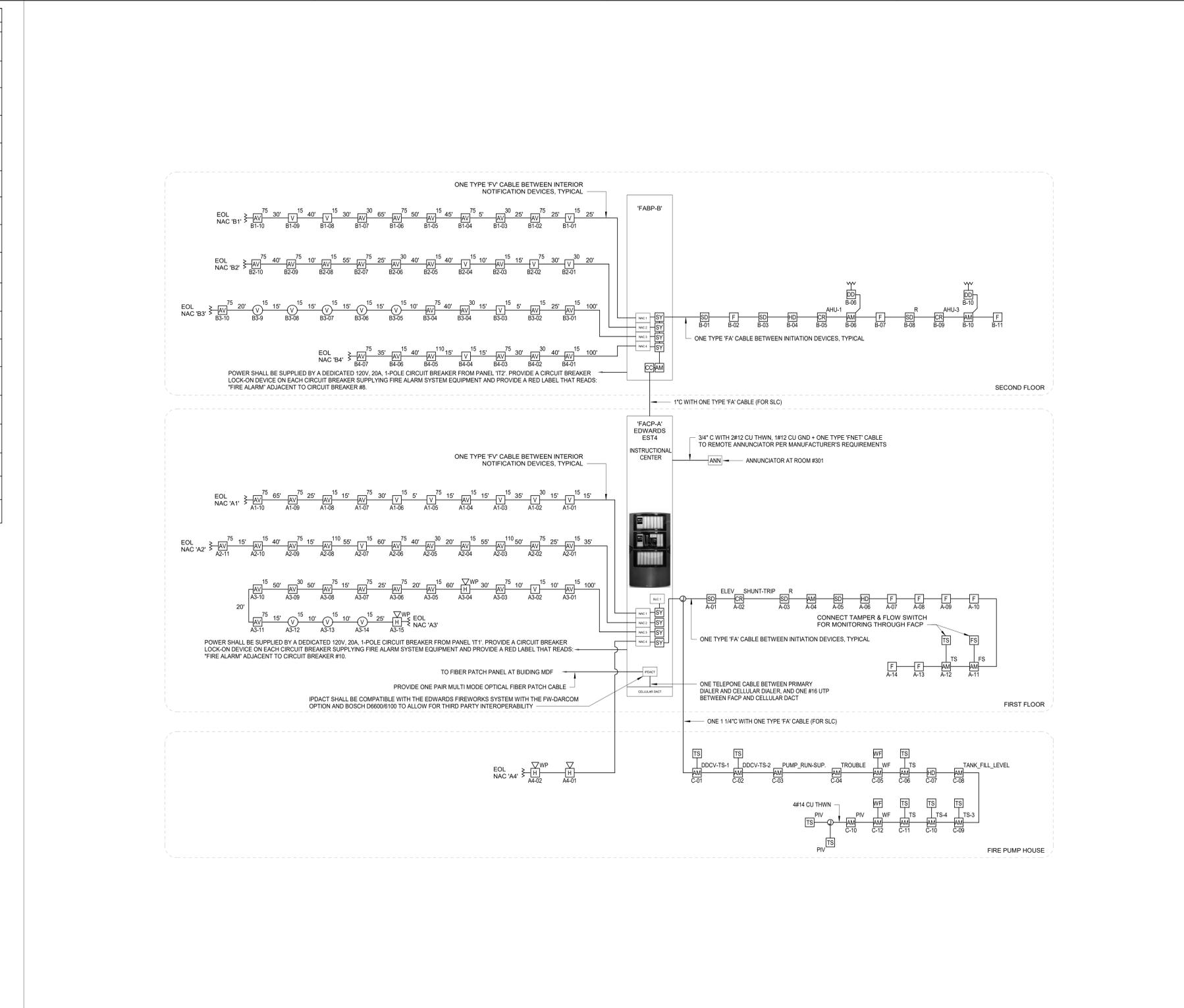
MARK DATE DESCRIPTION
D 4/14/2023 ADDENDUM #3

FIG. 1.1.6: PROJECTOR MOUNTING TO METAL STUDS. SEE DRAWING E602 FOR ADDITIONAL INFORMATION. THIS DOCUMENT, THE PROJECT, THE INFORMATION CONTAINED HEREIN, AND ANY OTHER PROJECT INFORMATION ARE THE PROPERTY OF TETER, LLP. NO PART OF THIS DOCUMENT IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF TETER, LLP.

FIRE ALARM SYSTEM DESCRIPTION	
THE FIRE ALARM SYSTEM DESCRIBED BY THESE DRAWINGS AND ASSOCIATED SPECIFICATIONS IS A MANUAL AND AUTOMATIC SYSTEM. THIS SYSTEM UTILIZES SMOKE DETECTORS ON CEILINGS AND IN THE ROOMS HOUSING THE FIRE ALARM SYSTEM EQUIPMENT WITH FIRE SPRINKLERS THROUGHOUT THE BUILDING. FIRE SPRINKLERS SHALL BE INSTALLED IN ATTICS IN LIEU OF HEAT DETECTORS. THE SYSTEM IS ADDRESSABLE AND IS WIRED CLASS 'B' WITHIN THE BUILDINGS AND CLASS 'B' BETWEEN BUILDINGS.	
FIRE ALARM APPROVAL	
THE FIRE ALARM SYSTEM DESIGN IS A "COMPLETE PLAN SUBMITTAL" PER DSA FIRE ALARM SUBMITTAL GUIDELINES. THE CONTRACTOR SHALL INSTALL THE SYSTEM AS SHOWN AND AS HEREIN SPECIFIED. IF ANY SUBSTITUTION OF FIRE ALARM EQUIPMENT IS TO BE REQUESTED, SUCH REQUEST SHALL BE MADE A MINIMUM OF TWO WEEKS PRIOR TO PROJECT BID DATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING THE SUBSTITUTION PER THE DSA GUIDELINES AND SHALL PAY ALL ADDITIONAL COSTS REQUIRED TO ACCOMMODATE REVIEW OF THE SUBSTITUTED FIRE ALARM SYSTEM BY DSA. WHETHER OR NOT SUCH APPROVAL IS GIVEN, THE CONTRACTOR'S SUBMITTAL SHALL INCLUDE MANUFACTURER'S CATALOG CUT SHEETS AND CSFM LISTING SHEETS FOR THE INDIVIDUAL COMPONENTS COMPRISING THE SUBSTITUTED FIRE ALARM SYSTEM, BATTERY LOAD CALCULATIONS AND VOLTAGE DROP CALCULATIONS FOR EACH SIGNALING CIRCUIT.	
APPLICABLE CODES AND STANDARDS	
2019 CA BUILDING CODE - CCR, TITLE 24, PART 2, VOLUMES 1 & 2 (2018 IBC AND CALIFORNIA AMENDMENTS)	
2019 CA ELECTRICAL CODE - CCR, TITLE 24, PART 3 (2017 NEC AND CALIFORNIA AMENDMENTS)	
2019 CA MECHANICAL CODE - CCR, TITLE 24, PART 4 (2018 IMC AND CALIFORNIA AMENDMENTS)	
2019 CA PLUMBING CODE - CCR, TITLE 24, PART 5 (2018 UPC AND CALIFORNIA AMENDMENTS)	
2019 CA FIRE CODE - CCR, TITLE 24, PART 9 (2018 FC AND CALIFORNIA AMENDMENTS)	
2019 CA REFERENCE STANDARDS CODE - CCR, TITLE 24, PART 12	
2016 NFPA 13, INSTALLATION OF SPRINKLER SYSTEMS AND 2016 CALIFORNIA AMENDMENTS	
2016 NFPA 72, NATIONAL FIRE ALARM CODE, AND 2016 CALIFORNIA AMENDMENTS	
PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS - CCR, TITLE 19	
DSA GUIDELINES FOR FIRE AND LIFE SAFETY SYSTEMS, DIVISION OF THE STATE ARCHITECT OFFICE OF REGULATION SERVICES.	
FIRE ALARM GENERAL NOTES	
1. UNDERGROUND AND EXTERIOR CONDUITS WILL HAVE WATERTIGHT FITTINGS. (CEC 110.11 AND CEC 300.6)	
2. OUTLETS ON OPPOSITE SIDES OF A FIRE RATED WALL SHALL BE INSTALLED WITH A MINIMUM HORIZONTAL SPACING OF TWO FEET.	
3. FIRE ALARM DEVICE MOUNTING HEIGHTS SHALL BE AS FOLLOWS:	
a. PULL STATION - OPERABLE PART OF A MANUALLY ACTUATED ALARM INITIATING DEVICE SHALL BE NOT LESS THAN 42" FROM FINISHED FLOOR, AND TOP OF BOX SHALL NOT BE MORE THAN 48" FROM FINISHED FLOOR. (CBC 11B 308.1.1, NFPA 72 17.14.3)	
b. INTERIOR AUDIBLE NOTIFICATION APPLIANCE - AT LEAST 90" TO THE TOP OF DEVICE ABOVE FINISHED FLOOR AND NOT LESS THAN 6" BELOW FINISHED CEILING. (NFPA 72 18.4.8.1)	
c. WALL-MOUNTED STROBE OR SPEAKER/STROBE - AT LEAST 80" TO BOTTOM OF LENS AND NOT GREATER THAN 96" TO TOP OF LENS ABOVE FINISHED FLOOR. (NFPA 72 18.5.5.1)	
4. AUDIBLE SIGNAL DEVICES OF A FIRE ALARM SYSTEM INTENDED TO ALERT ALL OCCUPANTS SHALL BE SO LOCATED AND UNOBSTRUCTED AS TO CAUSE A LEVEL OF AUDIBILITY OF AT LEAST 15 dBA ABOVE AVERAGE AMBIENT SOUND LEVEL BUT NOT LESS THAN 75 dBA AT TEN FEET, OR MORE THAN 110 dBA IN TOTAL. (NFPA 72 18.4.3.1, 18.4.1.2 AND CFC 907.5.2.1.2)	
5. AMBIENT NOISE LEVELS SHALL BE CONSTRUED TO MEAN THAT WHICH CAN NORMALLY BE EXPECTED TO EXIST WHEN THE FACILITY, BUILDING, ROOM OR AREA IS FUNCTIONING UNDER NORMAL OPERATIVE OR WORKING CONDITIONS. (CFC 907.5.2.1.1)	
6. AUDIBLE DEVICES SHALL SOUND THE CA UNIFORM FIRE ALARM SIGNAL IN TEMPORAL MODE. PROVIDE AT LEAST ONE EXTERIOR AUDIBLE DEVICE ON BUILDING FOR E OCCUPANCIES. (CFC 907.5.2.1.3)	
7. EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM SHALL COMPLY WITH CBC 907.2.3 AND NFPA 72 24.4.2	
8. VISUAL DEVICES SHALL NOT EXCEED TWO FLASHES PER SECOND AND SHALL NOT BE SLOWER THAN ONE FLASH EVERY SECOND. (NFPA 72 18.5.3.1)	
9. AUTOMATIC SMOKE DETECTION SHALL BE PROVIDED AT THE LOCATION OF EACH FIRE ALARM CONTROL UNIT, NOTIFICATION APPLIANCE CIRCUIT POWER EXTENDER AND SUPERVISING STATION TRANSMITTING EQUIPMENT TO PROVIDE NOTIFICATION OF FIRE AT THAT LOCATION. (NFPA 72 18.4.4)	
10. BRANCH CIRCUITS PROTECTING FIRE ALARM EQUIPMENT SHALL BE LABELED PER NFPA 72 10.6.5.2 AND SHALL INCLUDE A LISTED CIRCUIT BREAKER LOCKING DEVICE PER NFPA 72 10.6.5.4	
11. COMPLETE THE NFPA 72 RECORD OF COMPLETION, TESTING ALL DEVICES AND APPLIANCES. PROVIDE A COPY OF THE COMPLETED RECORD OF COMPLETION TO THE OWNER (SCHOOL DISTRICT, ARCHITECT, LOCAL FIRE AUTHORITY, AND DSA) VIA THE PROJECT INSPECTOR. TESTING OF THE LOCAL FIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE LOCAL FIRE AUTHORITY AND THE DSA INSPECTOR OF RECORD (IOR). FINAL TEST SHALL INCLUDE READ OUT VERIFICATION FORM FROM CENTER STATION.	
12. THE AUTOMATIC ALARM SYSTEM SHALL BE INSTALLED, TESTED, AND MAINTAINED IN ACCORDANCE WITH THE STATE FIRE MARSHAL'S REGULATIONS (CFC 907.5, NFPA 72 14.4.1.1, NFPA 72 14.5)	

FIRE ALARM SYSTEM EQUIPMENT LEGEND	
SYMBOL	DESCRIPTION
FACP-A	(N) FIRE ALARM CONTROL PANEL (N) 'FACP': EDWARDS # EST4 WITH 4-FWAL IP-DACT AND 4-FWAL-MM SFP NETWORK ADAPTER C.S.F.M. # 7170-1657-508
FABP-B	FIRE ALARM BOOSTER PANEL 'FABP-B': EDWARDS #BPS10A C.S.F.M. # 7300-1657-0229
ANN	FIRE ALARM REMOTE ANNUNCIATOR 'ANN': EDWARDS # EST4-2ANN C.S.F.M. # 7120-1657-0509
SD	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR (ON CEILING): EDWARDS # SIGA-PD, C.S.F.M. # 7272-1657-0331 SMOKE DETECTOR BASE: EDWARDS # SIGA-SB, C.S.F.M. # 7300-1657-0120
HD	ADDRESSABLE INTELLIGENT HEAT DETECTOR (ON CEILING): EDWARDS #SIGA-HRD FIXED TEMPERATURE 135°F C.S.F.M. #7270-1657-0333 BASE #SIGA-SB, C.S.F.M. #7300-1657-0120
DD	DUCT SMOKE DETECTOR: EDWARDS # SIGA-SD C.S.F.M. # 3242-1657-0223
CC	ADDRESSABLE SIGNAL MODULE: EDWARDS # SIGA-CC1 C.S.F.M. # 7300-1657-0121
SY	NAC MODULE WITH SYNC (VISUAL): EDWARDS # SIGA-CO1S C.S.F.M. # 7300-1657-0121
AM	ADDRESSABLE SUPERVISED INPUT MODULE: EDWARDS # MM1 C.S.F.M. # 7300-1657-0121
CR	CONTROL RELAY MODULE: EDWARDS # SIGA-CR C.S.F.M. # 7300-1657-0121
V	STROBE - WALL MOUNTED IN RED COLOR (XX REPRESENTS CANDELA 15, 30, 75, 110cd); EDWARDS LED #G4WR-F W/ GP10 WIRE PLATE C.S.F.M. # 7125-1657-0509
AV	AUDIO/VISUAL ANNUNCIATOR - WALL MOUNTED (XX REPRESENTS CANDELA); EDWARDS GENESIS #GLRFR-HDM C.S.F.M. # 7125-1657-0202
XX	STROBE - CEILING MOUNTED IN RED COLOR (XX REPRESENTS CANDELA 15, 30, 75, 110cd); EDWARDS LED #G4WR-F W/ GP-10 WIRING PLATE C.S.F.M. # 7125-1657-0510
F	MANUAL PULL STATION: EDWARDS # SIGA-Z70 C.S.F.M. # 7150-1657-0129
H	HORN, OUTDOOR: EDWARDS #SIGARF-H C.S.F.M. # 7135-1657-0310
TS	TAMPER SWITCH AT PIV, FIRE SPRINKLER RISER, OR DOUBLE DETECTOR CHECK VALVE. SPECIFIED UNDER FIRE PROTECTION DRAWINGS.
FS	FLOW SWITCH AT FIRE SPRINKLER RISER SPECIFIED UNDER FIRE PROTECTION DRAWINGS.
CELLULAR DACT	CELLULAR DACT: TELGUARD # TG-7FS C.S.F.M. # 7300-1402-0504

FIRE ALARM TESTING NOTE	
UPON COMPLETION OF SYSTEM INSTALLATION, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF A DSA PROJECT INSPECTOR.	
FIRE ALARM MONITORING NOTE	
AUTOMATIC FIRE ALARM SYSTEMS SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION AS REQUIRED BY NFPA 72 AS AMENDED BY CFC CHAPTER 47. THE SUPERVISING STATION SHALL BE LISTED AS EITHER UJFX OR ULJUS BY UNDERWRITERS LABORATORY OR SHALL MEET THE REQUIREMENTS OF FACTORY MUTUAL RESEARCH APPROVAL STANDARD 3011. SUPERVISION OF SYSTEM AND LEASED TELEPHONE LINES SHALL BE ARRANGED BY OWNER.	



FIRE ALARM SYSTEM OPERATIONAL MATRIX					
DEVICE	ACTIVATE EVACUATION SIGNALS/STROBES	SHUTDOWN FIRE/SMOKE EVACUATION DAMPER, OR ACTIVATE SMOKE VENT RELEASE	SHUTDOWN HVAC EQUIPMENT	ANNUNCIATE AT BUILDINGS FAC AND ALL REMOTE ANNUNCIATORS	SEND SIGNAL TO CENTRAL STATION
FIRE ALARM PANEL SYSTEM TROUBLE				X	X
MANUAL PULL STATION	X			X	X
SMOKE DETECTOR	X	X		X	X
HEAT DETECTOR	X			X	X
DUCT SMOKE DETECTOR	X	X	X	X	X
WATER FLOW SWITCH				X	X
VALVE TAMPER SWITCH				SUPERVISORY	SUPERVISORY
POST INDICATOR VALVE				SUPERVISORY	SUPERVISORY

FIRE ALARM CABLE SCHEDULE					
CABLE DESIGNATION	DESCRIPTION	MANUFACTURER & CATALOG #	OUTER JACKET COLOR	SYSTEM	USE
'FNET'	4-STRAND MULTI-MODE FIBER OPTIC CABLE (62.5/125um)	CORNING INFINICOR 300 OR EQUIVALENT	BLACK	FIRE ALARM	SITE OPTICAL FIBER FIRE ALARM NETWORK
'FA'	1 PR. #16 AWG SOLID UNSHIELDED FFL	WEST PENN #0990	RED	FIRE ALARM	ADDRESSABLE SLC LOOP CABLE - INTERIOR
'FAS'	1 PR. #16 AWG STRANDED UNSHIELDED NONARMSL FFL	WEST PENN #AQ225	BLACK	FIRE ALARM	SITE ADDRESSABLE SLC LOOP CABLE - EXTERIOR/OUTDOOR
'FV'	1 PR. #12 SOLID UNSHIELDED FFL	WEST PENN #0995B	RED	FIRE ALARM	VISUAL (STROBE) NOTIFICATION APPLIANCE CIRCUIT - INTERIOR
'FVS'	1 PR. #12 STRANDED UNSHIELDED FFL	WEST PENN #AQ227	BLACK	FIRE ALARM	VISUAL (STROBE) NOTIFICATION APPLIANCE CIRCUIT - EXTERIOR/OUTDOOR

PROJECT NO. 20-11900
 DRAWING E710
 DRAWING TITLE FIRE ALARM RISER DIAGRAM
 VISUAL & BANGSFIELD | WEST HILLS COMMUNITY COLLEGE DISTRICT
 FRESNO HEADQUARTERS
TETER, LLP
 ARCHITECTS ENGINEERS CONNECTED
 08-10-22