

#### **ADDENDUM NO. 2**

August 14, 2025

Project: Galena Park ISD - Havard Elementary School HVAC Modifications

Prepared by: Salas O'Brien Engineers

10930 W. Sam Houston Parkway N., Suite 900

Houston, Texas 77064

Prepared For: Prospective Proposers

#### PART A: NOTICE TO PROPOSERS

- Receipt of this Addendum shall be acknowledged on the Proposal Form. Failure to do so may subject Proposers to disqualification. Each Proposer shall make necessary adjustments and submit his proposal with full knowledge of all modifications, clarifications, and supplemental data included therein.
- 2. This Addendum forms part of the Contract Documents and shall be incorporated integrally therewith. Where provisions of the following supplemental data differ from those of previously issued documents, this Addendum shall govern.
- 3. The following Contract Documents have been issued to date delineating the Work (Project). Contract Documents dated: August 11, 2025
- 4. This Addendum consists of 2 typewritten pages and 17 pages of attachments for a total of 19 pages.

#### PART B CHANGES TO PRIOR ADDENDUM

1. None

#### PART C CHANGES TO THE PROJECT MANUAL

- 1. 01 10 00 Summary of Work, Part 3 Execution, Schedule 3.1, revise "E" date to read January 8, 2027.
- 2. 23 82 18 Ductless Mini Splits, Part 2 Products, Article 2.0 Acceptable Manufactures, Delete paragraph D in its entirety.
- 3. 23 82 18 Ductless Mini Splits, Part 2 Products, Article 2.8 Outdoor Unit General, Add paragraph C to read "C. Provide unit with a ICM surge protection device. Coordinate with Electrical Contractor for installation."

#### PART D CHANGES TO THE DRAWINGS

- M0.01 MECHANICAL COMPOSITE PLAN
  - a. Refer to revised sheet.
- M1.02 MECHANICAL DEMO ENLARGED PLAN SERVICE YARD
  - a. Refer to revised sheet.
- M2.01 MECHANICAL ENLARGED PLAN SERVICE YARD
  - a. Refer to revised sheet.
- 4. M3.01 MECHANICAL BMCS PLAN
  - a. Refer to revised sheet.
- 5. M6.01 MECHANICAL SCHEDULES AND LEGENDS
  - a. Refer to revised sheet.
- 6. M6.02 MECHANICAL SCHEDULES
  - a. Refer to revised sheet.

- 7. E2.03 ELECTRICAL ENLARGED PLANS -MEZZANINE & ROOF
  - a. Refer to revised sheet.
- 8. E2.04 ELECTRICAL ENLARGED PLANS-LEVEL 1
  - a. Refer to revised sheet.
- 9. E3.01 ELECTRICAL ONE-LINE DIAGRAM
  - a. Refer to revised sheet.
- 10. E4.02 ELECTRICAL PANEL SCHEDULES
  - a. Refer to revised sheet.
- 11. E4.03 ELECTRICAL PANEL SCHEDULES
  - a. Refer to revised sheet.

#### PART E RE-ISSUED DRAWING SHEET (30"X42")

- M0.01 MECHANICAL COMPOSITE PLAN
- 2. M1.02 MECHANICAL DEMO ENLARGED PLAN SERVICE YARD
- 3. M2.01 MECHANICAL ENLARGED PLAN SERVICE YARD
- 4. M3.01 MECHANICAL BMCS PLAN
- 5. M6.01 MECHANICAL SCHEDULES AND LEGENDS
- 6. M6.02 MECHANICAL SCHEDULES
- 7. E2.03 ELECTRICAL ENLARGED PLANS -MEZZANINE & ROOF
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- 9. E3.01 ELECTRICAL ONE-LINE DIAGRAM
- 10. E4.02 ELECTRICAL PANEL SCHEDULES
- 11. E4.03 ELECTRICAL PANEL SCHEDULES

#### PART F NEW DRAWINGS SHEETS (30"X42")

1. None

#### PART G QUESTIONS/CLARIFICATIONS

None

#### PART H. ATTACHMENTS

- Pre-Proposal Agenda
- 2. Section 01 10 00 Summary of Work

**END OF ADDENDUM 2** 





# GALENA PARK INDEPENDENT SCHOOL DISTRICT Havard Elementary School HVAC Modifications

GALENA PARK ISD PROJECT NUMBER B105

Pre-Proposal Conference Agenda SOB Project No: 2550-00346

Monday, August 11, 2025 @ 10:00 AM

- 1. Introduction of Representatives
  - A. Galena Park Independent School District
    - 1. Ed Martir Director of Facilities, Planning, and Construction
    - 2. Barbara Reed Project Manager
    - 3. Zach Fade Director for Energy Management
  - B. Salas O'Brien & Consultants
    - 1. Alan Penn Principal
    - 2. Trevor Cella Project Manager
- Galena Park Independent School District (GPISD) is requesting Competitive Sealed Proposals (CSP 25-300) for Havard Elementary School HVAC Modifications (GPISD Project B105). Base Proposals are due on September 10, 2025, at 2:00 PM and Alternates are due at 3:00 PM after which proposals will be opened publicly and read aloud.

#### **Proposal Checklist**

Project: Havard Elementary School HVAC Modifications

Project #: B105

Total Project \$6,652,000

Budget:

Pre-Proposal Conference:

Havard Elementary School 15150 Wallisville
Houston, TX 77015 August 11, 2025 at 10:00
AM Attendance is highly recommended.

**Proposal Opening Location:** 

Galena Park ISD Administration Building 14705 Woodforest Blvd Houston, TX 77015

PROJECT INCLUDES VOLUME 1& 2 SPECIFICATIONS

Proposal September 10, 2025, at 2:00PM Alternates @3:00PM

Deadline:

| Items Due<br>5 Busines<br>Days Prior | s for additional information)  |
|--------------------------------------|--|
|                                      | OSHA (Occupational Safety & Health Administration) inspection logs for the last years, a loss analysis from the Offeror's insurance carrier, & a loss history covering all lines of insurance coverage carried by the Offeror. |
|                                      | Qualification Statement (AIA Document A305).   |
|                                      | A list of at least five (5) projects of similar scope as the project being   |
|                                      | proposed of which have been completed in the last five (5) years.  |
|                                      | Contractor's Proposed Project Personnel.   |
| Items Due                            | e at Bid Time – September 10, 2025 at 2:00 PM  |
| Bid P                                | ackage including:  |
|                                      | Bid Bond/Proposal Bond (10%)   |
|                                      | Response to Sections 1 - 20  |
|                                      | Respond to All Bid Lines   |
|                                      | Respond to All Alternate Bid Lines   |
|                                      | Unit Prices  |
|                                      | Subcontractor Listing  |
|                                      | Small Business Enterprise Program (SBEP)   |
|                                      | Contractor Information   |
| Bid A                                | ttachments:  |
|                                      | Request for Taxpayer Identification Number and Certification W9  |
|                                      | Conflict of Interest Questionnaire   |
|                                      | Certificate of Interested Parties Form 1295  |
|                                      | State and Federal Certification Forms  |
|                                      | Certification of Criminal History Record Information   |
| Change                               | on: Any changes arising out of questions requiring interpretation, election or correction  |
|                                      | es: Any changes arising out of questions requiring interpretation, clarification or correction<br>Proposal Documents will be made by Addendum.   |
| The Pr                               | ary of Work: oject consists of replacement of and modifications to existing HVAC systems, including but  |
| not limi                             | ted to:<br>tion and removal of existing HVAC equipment, ductwork, air devices, chillers, AHU's and   |
|                                      | components. Demolition of existing domestic water heating system and related system.   |
|                                      | aneous steel framing and metals. Installation of new HVAC equipment, AHU's, ductwork,  |
|                                      | ices, chillers and related components. New Building management control system. Roofing   |
| work re                              | equired.   |
| Substa                               | ntial Completion Dates -   |
| August                               | 2, 2026 - Phase 1  |
| Octobe                               | er 2, 2026 - Phase 2   |
| Januar                               | y 8, 2027 - Phase 3  |

3.

4.

5.

#### **Substantial Completion Dates**

- A. Having thoroughly familiarized himself with the conditions as they exist at the building site and acquainted himself with the labor sum lv and the material market, the proposer will state in his proposal that he agrees to be substantially complete with Phase One work by Sunday August 2, 2026, midnight. Phase one work consists of AHU's, Central Plant, Domestic Water Heaters, Mini Split unit, BMCS control of temperature within space and TOD schedule of mechanical systems.
- B. Having thoroughly familiarized himself with the conditions as they exist at the building site and acquainted himself with the labor supply and the material market, the proposer will state in his proposal that he agrees to be substantially complete with Phase Two work by Friday October 2,2026 midnight. Phase two work consists of Hydronic Boilers and heating system within building including, BMCS control of temperature within space and TOD schedule of mechanical systems.
- C. Having thoroughly familiarized himself with the conditions as they exist at the building site and acquainted himself with the labor sup0lv and the material market, the proposer will state in his proposal that he agrees to be substantially complete with Phase Three work by Friday, January 8, 2027 midnight. Phase three work consists of completion of the BMCS, graphics, complete commissioning of the BMCS to owners' satisfaction.

The Owner will use the following criteria with respect to evaluating the proposals:

| Criteria Purchase Price (Line Items)   | Percent<br>40 |
|--|---------------|
| Reputation, quality, and long term value to the Owner (Warranty) of the Proposer's Goods and services, and safety record to the proposer. (Exhibit A, B, C, D & E – A305 and References) | 20            |
| Qualifications of the Proposers proposed project team (Proposed Project Personnel Attribute, Qualification Statement, & Exhibit C – A305)  | 10            |
| Qualifications and reputation of the Proposer's proposed subcontractors (Subcontractor Listing Line Item)  | 15            |
| Proposed Schedule  | 10            |
| Small Business Participation Commitment  | 5             |

6. Vendor Questions Due:

- 7. Questions / Comments
  Submit question to GPISD IONWAVE SITE
- 8. Clarifications:

#### **SECTION 01 10 00**

#### SUMMARY OF WORK

#### PART 1 — GENERAL

#### 1.1 DESCRIPTION

- A. Refer Instructions to Proposers, Manufacturer Prequalification for substitutions and GALENA PARK ISD Terms and Conditions.
- B. The Project, of which the work of this Contract is a part, is HVAC UPGRADES AT HAVARD ELEMENTARY for the GALENA PARK Independent School District.
- C. Location: The site is located at Havard Elementary School 15150 Wallisville Rd. Houston, TX 77049
- D. The Project consists of replacement of and modifications to existing HVAC systems; including but not limited to:
  - Demolition and removal of existing HVAC equipment, ductwork, air devices, chillers, AHU's and related components.
  - 02 Demolition of existing domestic water heating system and related system.
  - 03 Miscellaneous steel framing and metals.
  - 04 Installation of new HVAC equipment, AHU's, ductwork, air devices, chillers and related components.
  - 05 New Building management control system.
  - 06 Roofing work required penetrations sealed.

#### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. MEP work primarily includes removal of existing HVAC equipment and associated components, and installation new HVAC equipment, chiller replacement, ductwork and devices, infill of existing roof defined opening locations, building management control system, electrical, plumbing and pipe insulation.
- B. Electrical modifications associated with the new HVAC equipment.
- C. Roofing work includes miscellaneous roofing work as required to accommodate new work.
- D. Other Work: The scope includes other minor miscellaneous Work as indicated on the Drawings.

#### PART 3 - EXECUTION

#### 3.1 SCHEDULE

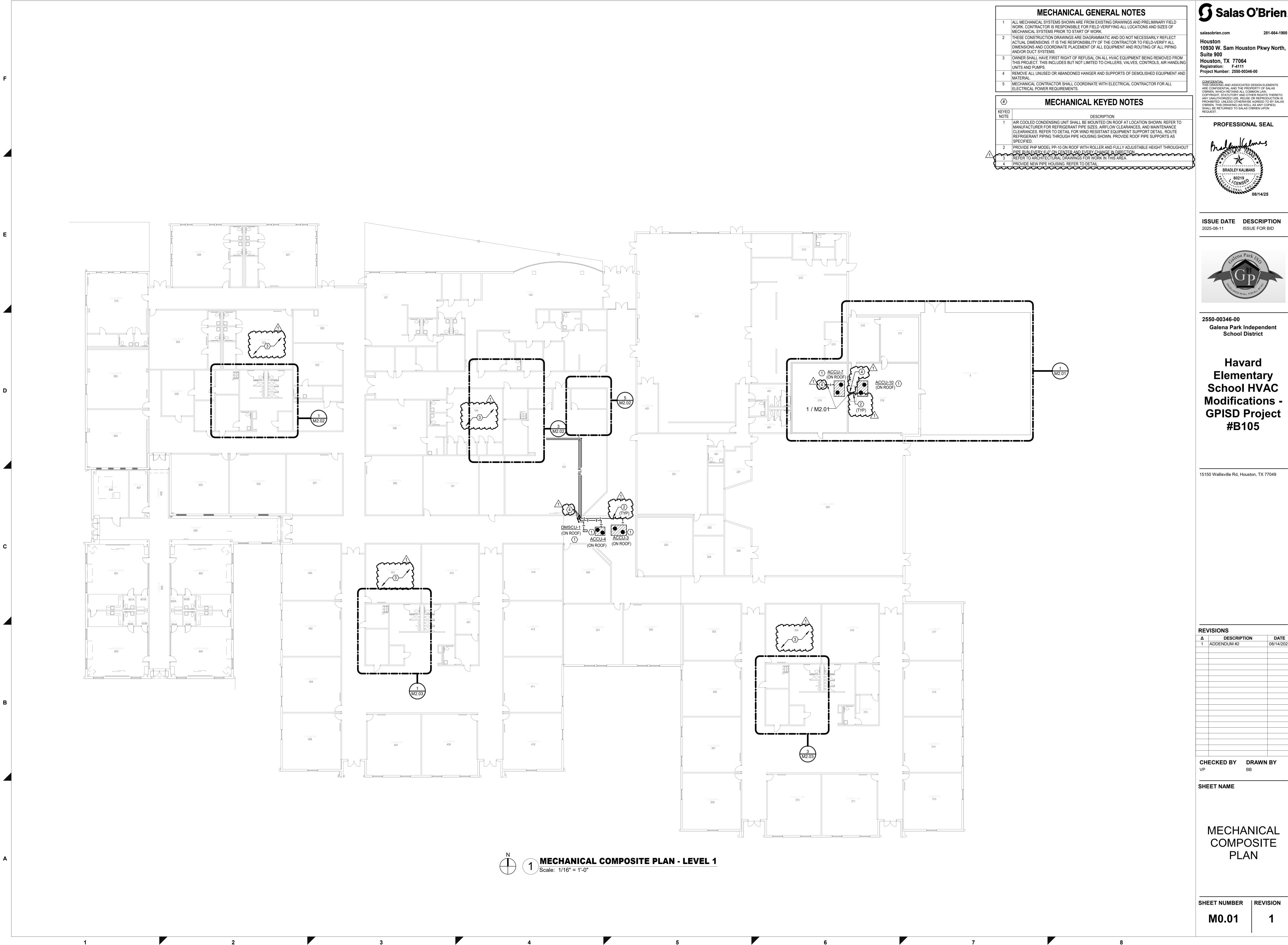
- A. Work on the project shall be limited to GALENA PARK ISD school calendar summer in 2026.
  - The Contract for construction is scheduled to be awarded by the GALENA PARK ISD board of trustees at their regularly scheduled meeting October 6, 2025
- B. On-Site Commencement of Work:

- On-site work may commence after GPISD of contract, NTP, Bonds and Insurance approval.
- The deadline for Substantial Completion is non-negotiable.
- The Proposer's submission of a Proposal signifies that he shall meet the required Substantial Completion date; and further, the Proposal amount(s) include all costs required to meet the deadline.

#### **Substantial Completion Dates:**

- C. Having thoroughly familiarized himself with the conditions as they exist at the building site and acquainted himself with the labor supply and the material market, the proposer will state in his proposal that he agrees to be substantially complete with Phase One work by Sunday August 2,2026 midnight. Phase one work consists of AHU's, Central Plant, Domestic Water Heaters, Mini Split unit, BMCS control of temperature within space and TOD schedule of mechanical systems.
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**END OF SECTION** 



Salas O'Brien.

10930 W. Sam Houston Pkwy North,

Project Number: 2550-00346-00

**PROFESSIONAL SEAL** 



ISSUE DATE DESCRIPTION ISSUE FOR BID



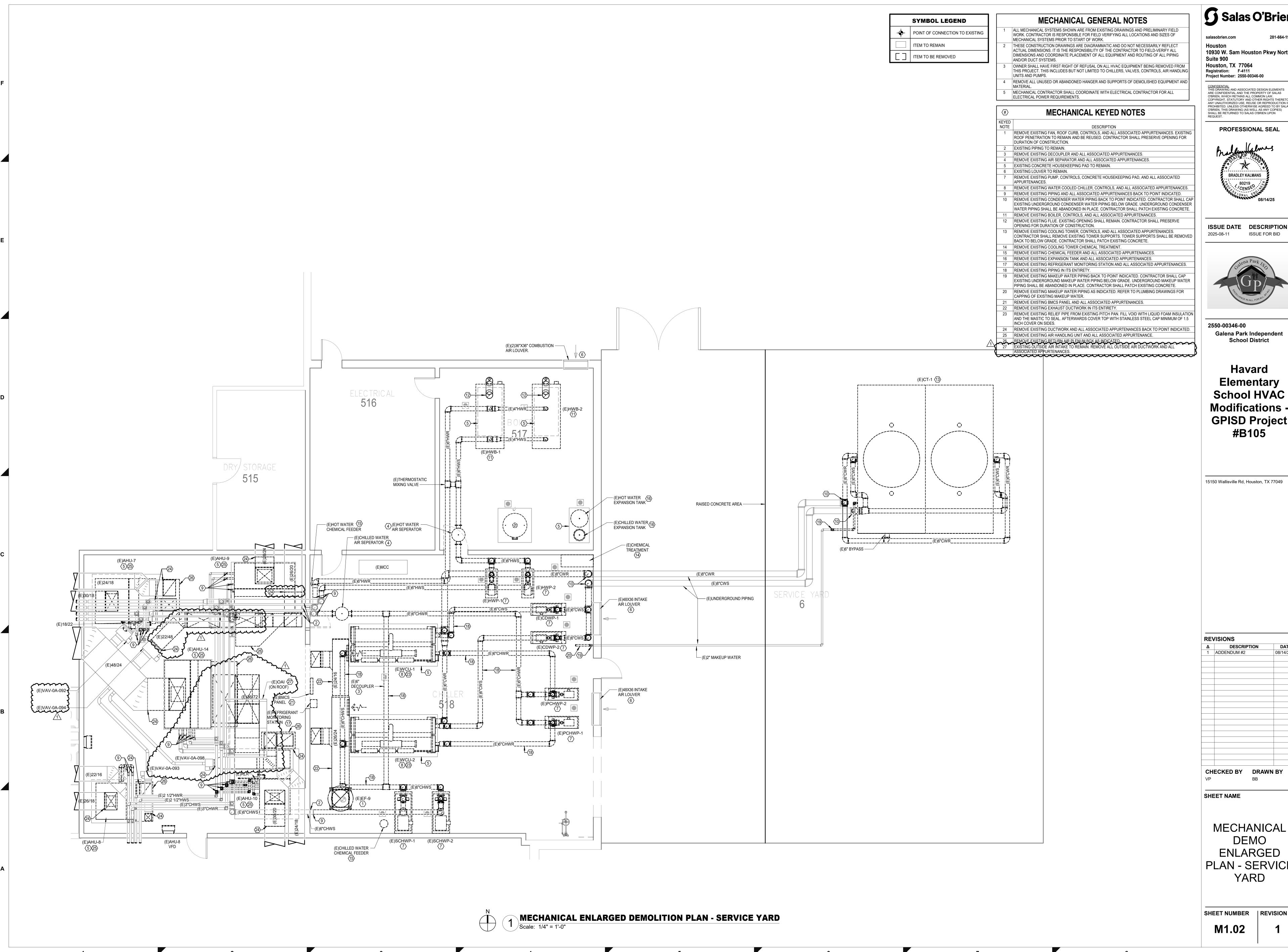
Galena Park Independent School District

Havard **Elementary** School HVAC Modifications -GPISD Project #B105

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MECHANICAL COMPOSITE PLAN

SHEET NUMBER | REVISION



10930 W. Sam Houston Pkwy North, Houston, TX 77064

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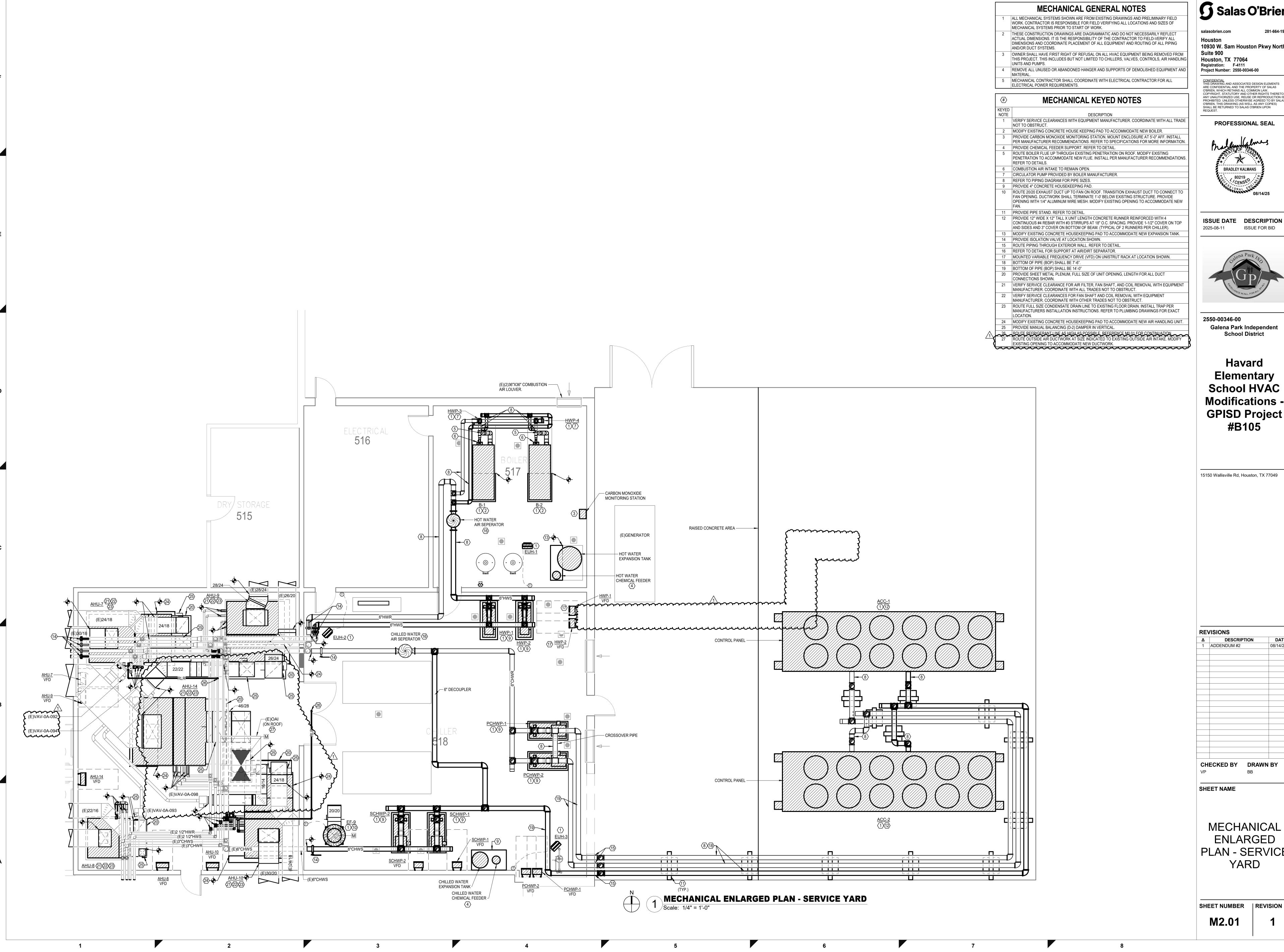
Galena Park Independent **School District** 

Havard School HVAC **Modifications** -**GPISD Project** #B105

15150 Wallisville Rd, Houston, TX 77049

DATE

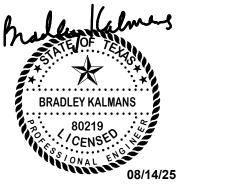
**MECHANICAL** DEMO **ENLARGED** PLAN - SERVICE YARD



10930 W. Sam Houston Pkwy North, Houston, TX 77064 Registration: F-4111

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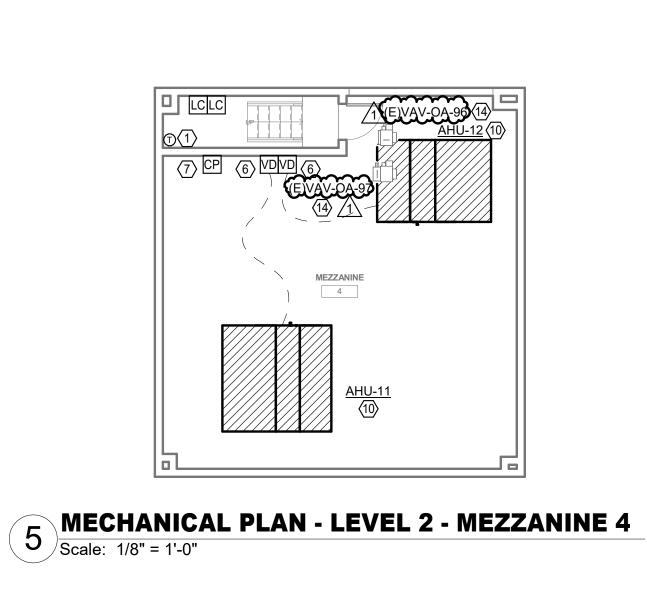


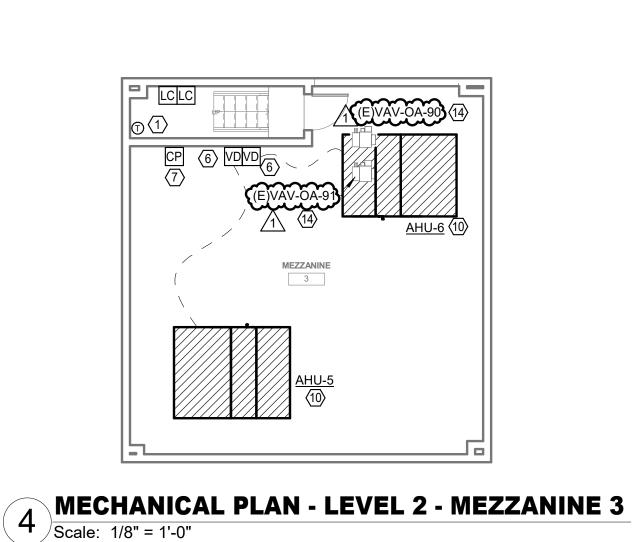
Galena Park Independent **School District** 

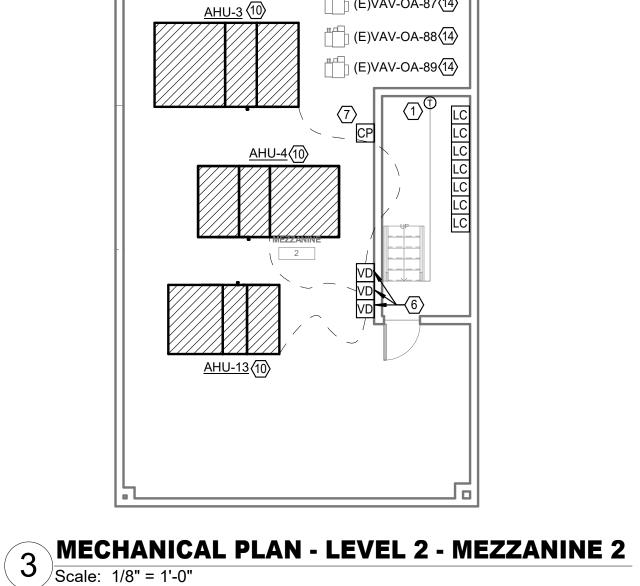
School HVAC **Modifications** -**GPISD Project** #B105

15150 Wallisville Rd, Houston, TX 77049

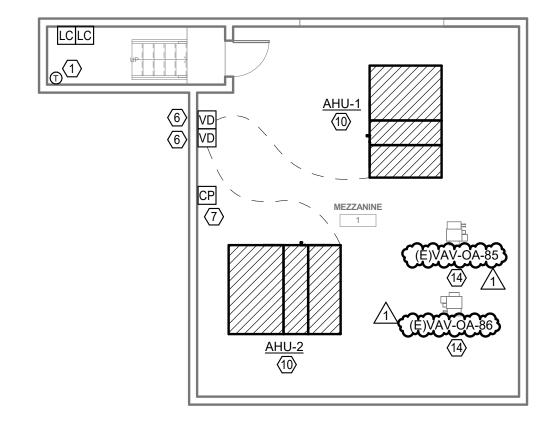
**MECHANICAL ENLARGED** PLAN - SERVICE YARD



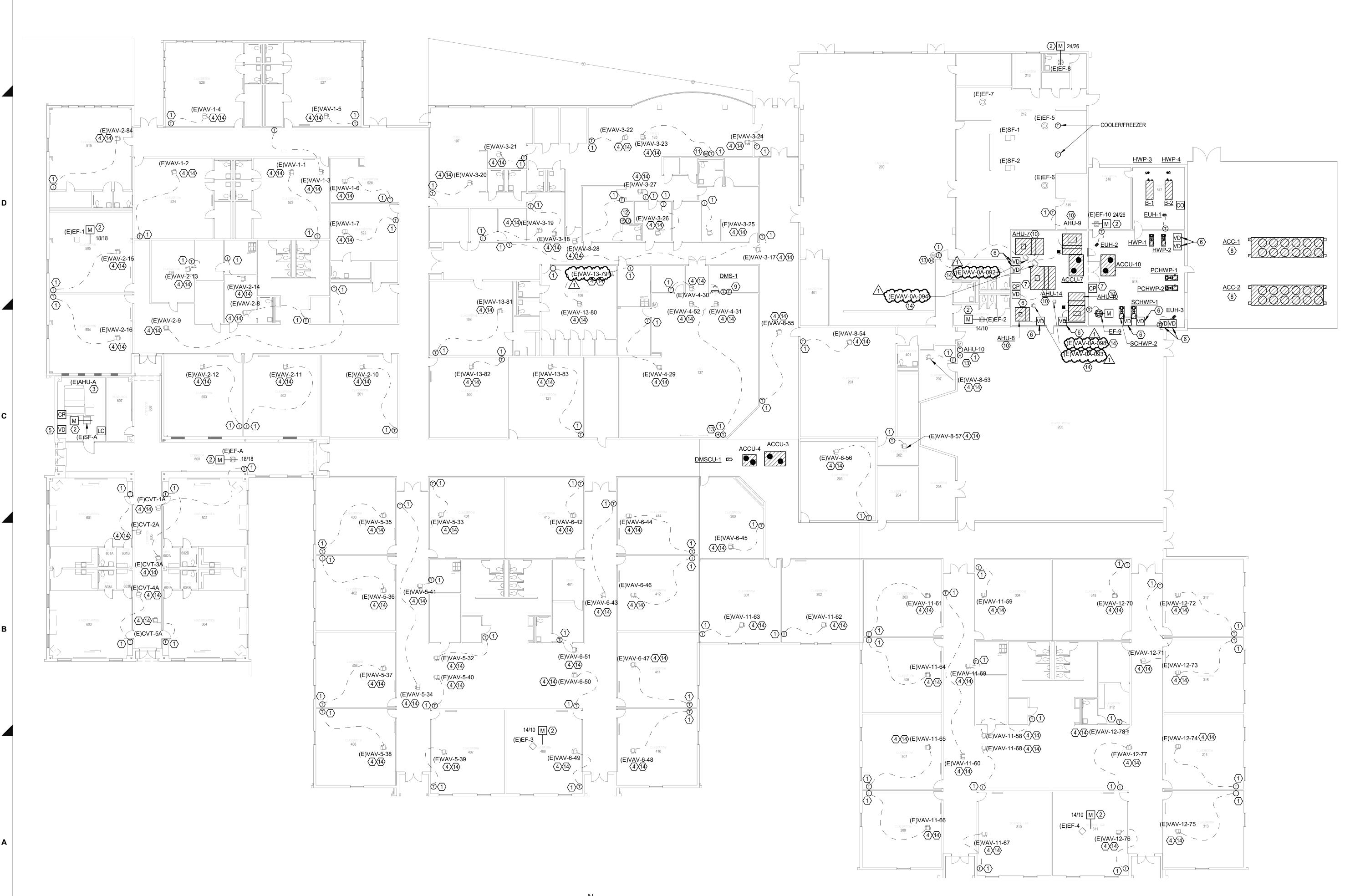




(E)VAV-OA-87(14)



MECHANICAL PLAN - LEVEL 2 - MEZZANINE 1 Scale: 1/8" = 1'-0"



MECHANICAL BMCS PLAN

Scale: 1/16" = 1'-0"

# **MECHANICAL GENERAL NOTES**

- ALL MECHANICAL SYSTEMS SHOWN ARE FROM EXISTING DRAWINGS AND PRELIMINARY FIELD WORK. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL LOCATIONS AND SIZES OF
- MECHANICAL SYSTEMS PRIOR TO START OF WORK. THESE CONSTRUCTION DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY REFLECT
  - ACTUAL DIMENSIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD-VERIFY ALL DIMENSIONS AND COORDINATE PLACEMENT OF ALL EQUIPMENT AND ROUTING OF ALL PIPING AND/OR DUCT SYSTEMS.
- OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL HVAC EQUIPMENT BEING REMOVED FROM THIS PROJECT. THIS INCLUDES BUT NOT LIMITED TO CHILLERS, VALVES, CONTROLS, AIR HANDLING UNITS AND PUMPS. REMOVE ALL UNUSED OR ABANDONED HANGER AND SUPPORTS OF DEMOLISHED EQUIPMENT A
- MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

# **MECHANICAL KEYED NOTES**

- DESCRIPTION PROVIDE NEW DDC TEMPERATURE SENSOR AND CONTROL WIRING. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
- PROVIDE NEW MOTORIZED DAMPER, ACTUATOR AND CONTROLS. MODIFY EXISTING DUCTWORK AND INSULATION. AFFECTED DUCTWORK SHALL BE SEALED AND RE-INSULATED TO MATCH
- EXISTING AIR HANDLING UNIT SHALL REMAIN. REPLACE EXISTING CHILLED AND HOT WATER
- ISOLATION VALVE, BALANCING VALVE, AND CONTROL VALVE WITH NEW. REPLACE EXISTING CHILLED AND HOT WATER PIPING WITH NEW, FOR INSTALLATION OF NEW VALVES AND APPURTENANCES.
- EXISTING TERMINAL BOX SHALL REMAIN. REPLACE EXISTING HOT WATER ISOLATION VALVE, BALANCING VALVE, AND CONTROL VALVE WITH NEW. REPLACE EXISTING HOT WATER PIPING TO
- ACCOMODATE THE INSTALLATION OF NEW VALVES AND ASSOCIATED APPURTENANCES. EXISTING VARIABLE FREQUENCY DRIVE SHALL BE REMOVED AND REPLACED WITH NEW VARIABL FREQUENCY DRIVE TO MATCH EXISTING UNIT HORSEPOWER. EXTEND EXISTING CONDUIT AND PROVIDE NEW WIRE TO MAKE FINAL CONNECTION. DISCONNECT EXISTING FIRE ALARM WIRING FROM EXISTING VARIABLE FREQUENCY DRIVE AND REINSTALL ON NEW. RECOMMISION FIRE

ALARM SYSTEM TO ENSURE ALL AIR HANDLING UNITS SHUT DOWN WHEN SIGNALED BY THE FIRE

- PROVIDE NEW VARIABLE FREQUENCY DRIVE (VFD) AT LOCATION SHOWN. VFD SHALL BE CONNECTED TO NEW MECHANICAL EQUIPMENT AS INDICATED. CONTRACTOR SHALL PROVIDE
- NEW CONTROL WIRING TO MAKE ALL FINAL CONNECTIONS.
- PROVIDE NEW BMCS PANEL AT LOCATION SHOWN.
- 8 REFER TO SPECIFICATIONS FOR CONTROLS WORK AT CHILLER. 9 PROVIDE TEMPERATURE SENSOR FOR BMCS.
- 10 REFER TO SPECIFICATIONS FOR CONTROLS WORK AT NEW AIR HANDLING UNIT. 1 PROVIDE NEW MANUAL OVERRIDE FOR AFTER HOUR DX COOLING SYSTEM. REFER TO
- SPECIFICATIONS FOR MORE INFORMATION. 12 FIELD VERIFY THE EXACT LOCATION OF THE EXTER
- SHUTDOWN STATION WITH OWNER AND ENGINEER 13 PROVIDE NEW HUMIDITY SENSOR AND CONTROL V

| IN ORMATION.   |
|--|
| PROVIDE NEW DAMPER ACTUATOR AND TERMINAL CONTROLLER FOR EXISTING TERMINAL BO |

CONTROL PANEL

DISCONNECT SWITCH

MOTORIZED DAMPER

REFRIGERANT MONITORING SYSTEM

| AWATION.   | Ca.              |
|--|------------------|
| ON OF THE EXTERIOR LIGHTING OVERRIDE AND HVAC<br>R AND ENGINEER PRIOR TO INSTALLATION. |                  |
| AND CONTROL WIRING. REFER TO SPECIFICATIONS FOR MORE                                   | Up/              |
| R AND TERMINAL CONTROLLER FOR EXISTING TERMINAL BOX.                                   | Ser. B.          |
| BMCS SYMBOL LEGEND   | OF IN ALL, FOR I |
| SYMBOL DESCRIPTION   |                  |
| VD VARIABLE FREQUENCY DRIVE  | 0550 00040 00    |

2550-00346-00 Galena Park Independent **School District** 

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**BRADLEY KALMANS** 

ISSUE DATE DESCRIPTION

2025-08-11

ISSUE FOR BID

Suite 900

Houston, TX 77064

Registration: F-4111

Project Number: 2550-00346-00

Havard **Elementary School HVAC Modifications -GPISD Project** #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

**DATE** 08/14/2025 DESCRIPTION 1 ADDENDUM #2

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**MECHANICAL BMCS PLAN** 

SHEET NUMBER | REVISION

M3.01

VENTILATION AIR DUCTWORK √3\DUCTWORK RETURN AIR DUCTWORK -SUPPLY AIR DUCTWORK

# AIR HANDLING UNITS AND FAN COIL UNITS

**EXTERNAL DUCT** 

MULTIBLADE OPPOSED ACTION VOLUME DAMPER.

- TYPICAL CONDITION

- SPLITTER DAMPER WITH VENTLOK #600

BLADE BRACKET

BE 1.5 x "D")

SPLITTER ROD

VENTLOK #603 BALL

VOLUME DAMPER WHERE SHOWN ON DWGS. (TYP)

- SINGLE THICKNESS

SPLITTER DAMPER

VENTLOK #603 BALL

-SPLITTER ROD

- VENTLOK #600

BLADE BRACKET

TURNING VANES WITH

LENGTH TO BE 1.5 X "A"

JOINT WITH SET SCREW

-TRANSITION

JOINT WITH SET SCREW

(DAMPER LENGTH TO

(SEE THIS DETAIL)

INSULATION

(1) SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.

AIR HANDLING

UNIT/ FAN COIL UNIT

- $\overline{2}$  SHEETMETAL DUCTWORK RETURN AIR PLENUM WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
- (3) FLEXIBLE DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
- $\overline{\langle 4 \rangle}$  SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED AND 1" THICK 1-1/2 LB LINER AS SPECIFIED FROM AIR HANDLING UNIT DISCHARGE TO 10'-0" DOWNSTREAM.
- (5) SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED AND 1" THICK 1-1/2 LB LINER AS SPECIFIED FROM AIR HANDLING UNIT INLET TO 10'-0" UPSTREAM.
- $\langle 6 \rangle$ EXHAUST DUCTWORK AS SPECIFIED WITH FIREBOARD INSULATION AS SPECIFIED.  $\overline{7}$  SHEETMETAL DUCTWORK ONLY. NO INSULATION REQUIRED.

MINIMUM "D"

EXCEEDS 16".

BE 12" (MIN.= 4")

2. MAX. HEIGHT OF DUCT TAP SHALL

EXTRACTOR SIDEWALL REGISTER

—12" CUSHION HEAD

ADJUSTABLE STEEL

**EQUALIZING GRID** 

TRANSITION (REF

CONSTR. DETAILS)

**SMACNA DUCT** 

SIDEWALL REGISTER AT END OF DUCT

REGISTER

DUCT TAP

WITH DAMPER

DIMENSION TO BE .75 x

— ADJUSTABLE STEEL AIR EXTRACTOR ACCESSIBLE THRU REGISTER

**DUCT TAP** 

↑ AIR

FLOW

WIDTH OF DUCT TAP

|                           | DUCTWORK SY                     | MBOLS LEGEND        |
|---------------------------|---------------------------------|---------------------|
|                           | TRAN                            | ISITIONS            |
| 18/12 — 18/12 — DIFFUSER— |                                 | N DIFFUSER— TRANSIT |
|                           | MAIN BRAN                       | CH TAKE-OFFS        |
| 30/12<br>16/12 —          | SPLITTER DAMPER  18/12  — 20/12 | 30/12 18/12         |

PRESSURE

(IN. W.C)

POWER

10.0

LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.

AIR CFM

ELECTRICAL CLEARANCE AS REQUIRED BY NEC. REMARKS:

1. VELOCITY NOT TO EXCEED 500 FPM ON COOLING COIL.

9. PROVIDE TWO-WAY COOLING CONTROL VALVES.

10. PROVIDE THREE-WAY COOLING CONTROL VALVES.

13. PROVIDE HOT WATER COIL IN PRE-HEAT POSITION.

14. PROVIDE HOT WATER COIL IN REHEAT POSITION.

15. PROVIDE UNIT WITH FLAT FILTER SECTION.

11. PROVIDE TWO-WAY HEATING CONTROL VALVES.

2. VELOCITY NOT TO EXCEED 450 FPM ON COOLING COIL.

5. PROVIDE VARIABLE VOLUME UNIT WITH VARIABLE FREQUENCY DRIVE

6. PROVIDE SINGLE ZONE VAV UNIT WITH VARIABLE FREQUENCY DRIVE.

GENERAL NOTES:

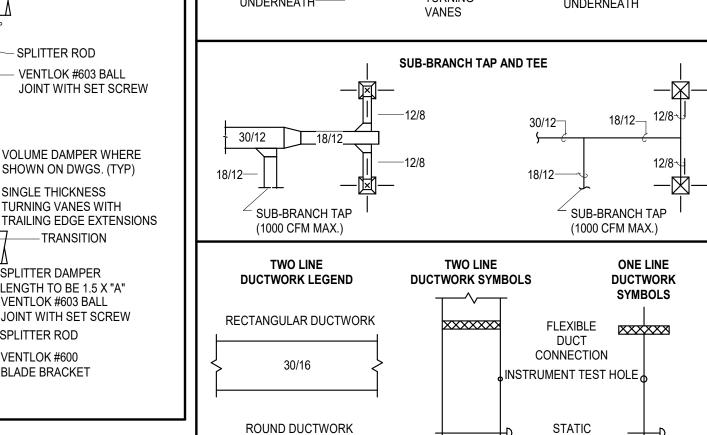
3. PROVIDE VERTICAL UNIT. 4. PROVIDE HORIZONTAL UNIT

7. PROVIDE FRONT DISCHARGE. 8. PROVIDE TOP DISCHARGE.

| SIDEWALL REG                             | SISTERS                   |
|--|---------------------------|
| AIR EXTRACTOR  24/12  SIDEWALL GRILLE    | SIDEWALL GRILLE           |
| DUCT CROSS                               | OVERS                     |
| THIS DUCT RUNS UNDERNEATH TURNING VANCES | THIS DUCT RUNS UNDERNEATH |

| X | 36/24

 $R = RISE \vdash R$ 



30"ø

FLAT OVAL DUCTWORK

30x16

PRESSURE SENSOR

BALANCING

DAMPER

DAMPER

SMOKE

MOTORIZED M

DUCT MOUNTED (SD)

PACKAGED AIR COOLED CHILLER - STANDARD EFFICIENCY SCREW CAPACITY WATER GPM PRESSURE A' AIR TEMP. MCA MOCP REMARKS (TONS) TEMP.(°F) 180 44 310 20.0 95 °F 480 3 60 500 (1,2,3,4,5,6) 180 44 310 20.0 95 °F 480 3 60 500 383 (1,2,3,4,5,6)

MAXIMUM FOULING FACTOR FOR THE EVAPORATOR IS 0.0001 . MAINTAIN MINIMUM CLEARANCES REQUIRED BY CHILLER MANUFACTURER FOR PROPER AIRFLOW TO FANS AND UNIT. MAINTAIN

MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON EQUIPMENT FOR SERVICE, MAINTENANCE AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCES AS REQUIRED BY NEC. 3. CHILLER SHALL MEET OR EXCEED BOTH MINIMUM AHRI STANDARDIZED FULL-LOAD AND PART-LOAD EFFICIENCIES INDICATED IN

REMARKS

(1,4,5,7,10,15,19)

(1,4,5,7,9,15,19)

(1,4,5,7,9,15,16,19

(1,4,5,7,9,15,17,19

(1,4,5,7,9,15,19)

(1,4,5,7,9,15,19)

(1,3,5,8,9,15,19)(1,3,6,8,9,11,14,15,19

(1,4,5,7,10,15,19)

(1,4,5,7,9,15,19)

(1,4,5,7,9,15,19)

REMARKS

1,3,6,8,9,11,14,15,18

1. PROVIDE WITH LOW AMBIENT HEAD PRESSURE CONTROL.

HEATING

CAPACITY TEMP. (°F)

NO HEATING

156,000

155,200

ENTERING AIR

(°F)

PRESSURE TEMPERATURE MIN. HEATING ENTERING

2. PROVIDE WITH INTEGRAL MAIN ELECTRICAL DISCONNECT SWITCH. 3. PROVIDE WITH INSULATION ON ALL SUCTION LINES.

PRESSURE

, GPM DROP (FT.)

27.0 609,400 180.0 62.0 10.0 4" 21/2" (2,3,8,9,11,13,15,19)

4. PROVIDE WITH POLYMER CONDENSER FANS AND COMPRESSOR BLANKETS. . PROVIDE CHILLER WITH A MINIMUM FULL LOAD EFFICIENCY OF 10.13 EER AND A MINIMUM IPLV OF 16.44. 6. PROVIDE CHILLER RATED FOR 65KA SCCR.

TO COIL (IN.)

CHILLED HOT

WATER WATER

16.0 10.0 2" 11/2" (1,3,6,8,9,11,14,15,12,1

PACKAGED AIR COOLED CHILLER - HIGH EFFICIENCY SCREW GPM DROP (FT.) WATER AIR TEMP. MOCP MCA REMARKS MARK CAPACITY (TONS)

180 44 310 20.0 95 °F 480 3 60 500 44 310 20.0 95 °F 480 3 60 500 369 (1,2,3,4,5, MAXIMUM FOULING FACTOR FOR THE EVAPORATOR IS 0.0001

. MAINTAIN MINIMUM CLEARANCES REQUIRED BY CHILLER MANUFACTURER FOR PROPER AIRFLOW TO FANS AND UNIT. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON EQUIPMENT FOR SERVICE, MAINTENANCE AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCES AS REQUIRED BY NEC. 3. CHILLER SHALL MEET OR EXCEED BOTH MINIMUM AHRI STANDARDIZED FULL-LOAD AND PART-LOAD EFFICIENCIES INDICATED IN

1. PROVIDE WITH LOW AMBIENT HEAD PRESSURE CONTROL

2. PROVIDE WITH INTEGRAL MAIN ELECTRICAL DISCONNECT SWITCH.

4. PROVIDE WITH POLYMER CONDENSER FANS AND COMPRESSOR BLANKETS.

PROVIDE WITH INSULATION ON ALL SUCTION LINES. 5. PROVIDE CHILLER WITH A MINIMUM FULL LOAD EFFICIENCY OF 10.60 EER AND A MINIMUM IPLV OF 19.16. 6. PROVIDE CHILLER RATED FOR 65KA SCCR.

**BOILER** PRESSURE MINIMUM HEAT GAS INPUT DROP REMARKS GPM CURRENT MANUFACTURER MODEL NUMBER BLOWER OUTPUT (MBH) SIZE (FT.H20) HORSEPOWER V P F 1426.5 10.0 95.0 6 1500.0 480 3 FLEXCORE 1500 1426.5 10.0 | 95.0 | 6 FLEXCORE 1500 (1,2)

#### GENERAL NOTES: PROVIDE 8 OUNCE GAS PRESSURE TO BOILER.

. MAINTAIN MINIMUM CLEARANCE AROUND A BOILER OF 24 INCHES PER TEXAS BOILER LAW. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS FOR SERVICE, MAINTENANCE AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCES AS REQUIRED BY NEC.

PROVIDE WITH CIRCULATING PUMP, SIZED BY BOILER MANUFACTURER TO ENSURE CONSTANT FLOW THROUGH BOILER. PUMP TO BE SHIPPED LOOSE. POWER BY ELECTRICAL CONTRACTOR BUT CONTROLLED BY BOILER. CONTRACTOR TO WIRE FROM BOILER PUMP CONTROL CIRCUIT TO PUMP STARTER RELAY. . PROVIDE SEALED COMBUSTION BOILER.

|         |               |                           |     |               | PUMI           | )           |       |        |       |              |                 |          |
|---------|---------------|---------------------------|-----|---------------|----------------|-------------|-------|--------|-------|--------------|-----------------|----------|
|         |               |                           |     | LIEAD         | MOTOR          | MAY         | CURRE | ENT CH | HARAC |              |                 | }        |
| TAG     | SERVICE       | TYPE                      | GPM | HEAD<br>(FT.) | HORSE<br>POWER | MAX.<br>RPM | V     | Р      | F \$  | MANUFACTURER | MODEL<br>NUMBER | REMAR    |
| PCHWP-1 | CHILLED WATER | HORIZONTAL<br>END SUCTION | 310 | 60.00         | 15.0           | 1800        | 480   | 3      | 3     | AURORA       | 3804            | (1,2,3,4 |
| PCHWP-2 | CHILLED WATER | HORIZONTAL<br>END SUCTION | 310 | 60.00         | 15.0           | 1800        | 480   | 3      | 3     | AURORA       | 3804            | (1,2,3,4 |
| SCHWP-1 | CHILLED WATER | HORIZONTAL<br>END SUCTION | 270 | 90.00         | 20.0           | 1800        | 480   | 3      | 3     | AURORA       | 3804            | (1,2,3,4 |
| SCHWP-2 | CHILLED WATER | HORIZONTAL END SUCTION    | 270 | 90.00         | 20.0           | 1800        | 480   | 3      | 3     | AURORA       | 3804            | (1,2,3,4 |
|         |               |                           |     |               |                |             |       |        |       |              |                 | 3        |
| HWP-1   | HOT WATER     | HORIZONTAL END SUCTION    | 190 | 70.00         | 7.5            | 1800        | 480   | 3      | 60    | AURORA       | 3804            | (1,2,3,4 |
| HWP-2   | HOT WATER     | HORIZONTAL<br>END SUCTION | 190 | 70.00         | 7.5            | 1800        | 480   | 3      | 60    | AURORA       | 3804            | (1,2,3,4 |
| HWP-3   | HOT WATER     | INLINE<br>CIRCULATOR      | 95  | 20.00         | 1.5            | 1800        | 480   | 3      | 60    | AURORA       | 382B            | (4,5)    |
| HWP-4   | HOT WATER     | INLINE<br>CIRCULATOR      | 95  | 20.00         | 1.5            | 1800        | 480   | 3      | 60    | AURORA       | 382B            | (4,5)    |

 PUMP IS TO HAVE A NON-OVERLOADING MOTOR. 2. MINIMUM RECOMMENDED CLEARANCE AROUND A PUMP IS 24 INCHES. MAINTAIN MINIMUM CLEARANCES AS REQUIRED FOR SERVICE, MAINTENANCE, AND INSPECTION.

REMARKS:

1. PROVIDE WITH VARIABLE FREQUENCY DRIVE.

PROVIDE SUCTION DIFFUSER AT PUMP INLET

B. PROVIDE WITH BACK PULL OUT. 4. PROVIDE WITH GAUGE TAPPINGS.

5. PUMP SHALL BE SELECTED BY BOILER MANUFACTURER, WITH DISCONNECT AND STARTER BY ELECTRICAL CONTRACTOR AND CONTROLLED BY BOILER.

|      |                   |                                      | DL             | JCTL  | ES    | SS M        | INI-SPL              | IT - IND             | OOR UNI                          | Γ                                |                          |               |
|------|-------------------|--------------------------------------|----------------|-------|-------|-------------|----------------------|----------------------|----------------------------------|----------------------------------|--------------------------|---------------|
|      |                   | F                                    | AN             |       |       |             | AIR TEMPER           | RATURE (°F)          |                                  | COOLING                          |                          |               |
| ARK  | SUPPLY<br>AIR CFM | EXT.STATIC<br>PRESSURE<br>(IN. W.C.) | HORSE<br>POWER | CURRE | NT CI | HARAC.<br>F | ENTERING<br>DRY BULB | ENTERING<br>WET BULB | MIN. TOTAL<br>CAPACITY<br>(BTUH) | MIN. SENS.<br>CAPACITY<br>(BTUH) | MINIMUM<br>EER/<br>SEER2 | REMARKS       |
| MS-1 | 775               | 0.30                                 | 86.0           | 208   | 1     | 60          | 75.0                 | 62.5                 | 24,000                           | 19,200                           | -/21                     | (1,2,3,4,5,6) |

. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN. . MAINTAIN MINIMUM CLEARANCE FOR COIL PULL AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND

CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

. UNIT TO BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. . CONTROLLED BY PROGRAMMABLE WIRED THERMOSTAT.

 REFRIGERANT LINES TO BE SIZED PER MANUFACTURER'S REQUIREMENTS. . INDOOR UNIT IS POWERED FROM OUTDOOR UNIT.

. PROVIDE WITH LITTLE GIANT CONDENSATE PUMP MODEL 554652 VCMA-20ULS-C-PRO, 1/30 HP, 115V/1PH/60HZ. 6. PROVIDE UNIT WITH WATER LEVEL SENSING DEVICE. DEVICE SHALL SHUT OFF THE UNIT THE UNIT IN EVENT THE PRIMARY DRAIN LINE BECOMES RESTRICTED.

|     |             |                 |                   |                |                 | F         | AN S     | SCHE    | DULE           |                 |                    |                |                 |                   |           |
|-----|-------------|-----------------|-------------------|----------------|-----------------|-----------|----------|---------|----------------|-----------------|--------------------|----------------|-----------------|-------------------|-----------|
|     |             |                 | EXT. STATIC       |                |                 | CUF       | RRENT C  | HAR     |                |                 |                    |                |                 |                   |           |
|     |             |                 | PRESSURE          |                |                 |           | _        | _       | LOCALLY        |                 |                    |                |                 | l                 |           |
|     | LOCATION    | CFM             | (IN.W.C.)         | MAX RPM        | HORSE POWER     | V         | P        | F       | SWITCHED       | INTERLOCK WITH  | FAN TYPE           | DRIVE TYPE     | MANUFACTURER    | MODEL NUMBER      | REMARKS   |
|     | CHILLER 518 | 2500            | 0.50              | 1087           | 0.5             | 120       | 1        | 60      | TSTAT          | -               | ROOF MOUNTED       | DIRECT         | COOK            | ACED              | (1,2,3,4) |
| OTE | ES:         |                 |                   |                |                 |           |          |         |                |                 |                    |                |                 |                   |           |
|     |             | INCLLIDES LOSSE | S DIJE TO DIJETWE | JOK VID DEVICE | S DAMBEDS AND D | LICT MOLI | NITED LI | T WATER | COILS WHERE VE | DIICADIE DIDTVI | TI TED AND LINIT O | ASING MILET DE | ADDED TO EVTERN | INI STATIC DDESSI | IDE TO    |

. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN. . MINIMUM RECOMMENDED CLEARANCE AROUND UNIT IS 12 INCHES ON NON-SERVICE SIDES AND 30 INCHES ON SERVICE SIDES. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE,

<u>REMARKS</u>: 1. PROVIDE WITH DISCONNECT.

PROVIDE WITH ROOF CURB AND BIRD SCREEN.

|           | DUCTL                            | ESS MI                      | NI-SPLI                  | T - C | UTI          | 000   | R UNIT                  |         |
|-----------|----------------------------------|-----------------------------|--------------------------|-------|--------------|-------|-------------------------|---------|
| MARK      | MIN. TOTAL<br>CAPACITY<br>(BTUH) | OUTDOOR<br>AIR<br>TEMP (°F) | MINIMUM<br>EER/<br>SEER2 | CURR  | ENT CH<br>PH | ARAC. | RELATED<br>UNIT<br>MARK | REMARKS |
| DMSCU-1   | 24,000                           | 95                          | -/21                     | 208   | 1            | 60    | DMS-1                   | (1,2,3) |
| GENERAL N | IOTES:                           |                             |                          |       |              |       |                         |         |

A. MINIMUM RECOMMENDEDLD CLEARANCE AROUND UNIT IS 12 INCHES ON NON-SERVICE SIDES AND 30 INCHES ON SERVICE SIDES. MAINTAIN MINIMUM CLEARANCE FOR CONDENSER AIR FLOW AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

PROVIDE WITH LOW AMBIENT CONTROL DOWN TO 20°F. PROVIDE WITH DISCONNECT SWITCH.

. REFRIGERANT LINES TO BE SIZED PER MANUFACTURER'S REQUIREMENTS.

|      |                  |               |              | DAMPI        | ER              |   |
|------|------------------|---------------|--------------|--------------|-----------------|---|
| MARK | ACTUATOR         | DUTY          | BLADE ACTION | MANUFACTURER | MODEL<br>NUMBER | REMARKS   |
| D-1  | MANUAL BALANCING | UNDER 9" WIDE | N/A          | N/A          | N/A             | SEE SMACNA CONSTRUCTION DETAILS REFERENCED "TYPICAL CONSTRUCTION DETAILS FOR LOW VELOCITY DUCTS." |
| D-2  | MANUAL BALANCING | OVER 9" WIDE  | OPPOSED      | RUSKIN       | MD-35           | MANUAL DAMPER WITH STANDARD CONSTRUCTION FEATURES AND VENTLOCK #639 LOCKING REGULATOR.            |
| D-3  | MOTORIZED        | OVER 9" WIDE  | OPPOSED      | RUSKIN       | CD-60           | LOW LEAKAGE DAMPER WITH BLADE SEALS   |

|       | MINIMUM | 101 | CURF | RENT CH | HAR. | CEM |              |       | DEMARK |
|-------|---------|-----|------|---------|------|-----|--------------|-------|--------|
| MARK  | (BTUH)  | KW  | V    | Р       | F    | CFM | MANUFACTURER | MODEL | REMARK |
| EUH-1 | 17,060  | 5   | 480  | 3       | 60   | 479 | REZNOR       | EUH   | (1,2)  |
| EUH-2 | 17,060  | 5   | 480  | 3       | 60   | 479 | REZNOR       | EUH   | (1,2)  |
| EUH-3 | 17,060  | 5   | 480  | 3       | 60   | 479 | REZNOR       | EUH   | (1,2)  |

CHECKED BY DRAWN BY

SHEET NAME

**REVISIONS** 

1 ADDENDUM #2

DESCRIPTION

DATE

08/14/2025

salasobrien.com

Suite 900

Houston, TX 77064

Registration: F-4111

Project Number: 2550-00346-00

10930 W. Sam Houston Pkwy North,

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**PROFESSIONAL SEAL** 

SHALL BE RETURNED TO SALAS O'BRIEN UPON

**BRADLEY KALMANS** 

ISSUE DATE DESCRIPTION

Galena Park Independent

**School District** 

Havard

School HVAC

**Modifications** -

**GPISD Project** 

15150 Wallisville Rd, Houston, TX 77049

2025-08-11

2550-00346-00

ISSUE FOR BID

**MECHANICAL** SCHEDULES AND LEGENDS

SHEET NUMBER | REVISION

M6.01

**KEYED NOTES: DUCTWORK CONSTRUCTION DETAILS** VENTLOK #605 INSIDE END BEARING — SINGLE BLADE VOLUME DAMPER REF. SMACNA CONSTR. DETAILS — SQUARE CONTROL VENTLOK #607 END BEARING -VENTLOK #677 CONCEALED DAMPER REGULATOR WITH CHROME PLATED COVER ———— VENTLOK #637 LOCKING REGULATOR WITH END BEARING (VENTLOK #605) -FINISHED CEILING (REF. ARCH. CLG. (1) DAMPER ABOVE INACCESSIBLE CEILING 2 DAMPER ABOVE LIFT-OUT CEILING REGISTER WITH DAMPER 1 ↑ AIR — DUCT TAP FLOW NOTES: 1. MAX. WIDTH OF DUCT TAP SHALL BE 48". PROVIDE BOTTOM BRACKET FOR SUPPORT WHERE EXTRACTOR

16. PROVIDE DX COOLING COIL DOWNSTREAM OF CHILLED WATER COIL. DX COIL TOTAL CAPACITY SHALL MATCH COOLING CAPACITIES. ENTERING AIR TEMPERATURE CONDITIONS SHALL BE 80°F DB / 66°F WB. LEAVING AIR TEMPERATURES SHALL BE 55°F DB / 54°F WB. 17. PROVIDE DX COOLING COIL DOWNSTREAM OF CHILLED WATER COIL. DX COIL TOTAL CAPACITY SHALL MATCH COOLING CAPACITIES. ENTERING AIR TEMPERATURE CONDITIONS SHALL BE 77.5°F DB / 64.2°F WB. LEAVING AIR TEMPERATURES SHALL BE 55°F DB / 54°F WB. 18. PROVIDE DX COOLING COIL DOWNSTREAM OF CHILLED WATER COIL. DX COIL TOTAL CAPACITY SHALL MATCH COOLING CAPACITIES. ENTERING AIR TEMPERATURE CONDITIONS SHALL BE 79.2°F DB / 66.6°F WB. LEAVING AIR TEMPERATURES SHALL BE 55°F DB / 54°F WB. 19. PROVIDE UV LIGHT PER SPECIFICATIONS. UV LIGHT SHALL HAVE SEPARATE ELECTRICAL CONNECTION FROM AIR HANDLING UNIT. REFER TO ELECTRICAL DRAWINGS.

12. PROVIDE DX COOLING COIL DOWNSTREAM OF CHILLED WATER COIL. DX COIL TOTAL CAPACITY SHALL MATCH COOLING CAPACITIES. ENTERING AIR TEMPERATURE CONDITIONS SHALL BE 78.8°F DB / 65.4°F WB. LEAVING AIR TEMPERATURES SHALL BE 55°F DB / 54°F WB.

**AIR HANDLING UNIT** 

ENTERING

1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE

MAINTAIN MINIMUM CLEARANCE FOR COIL PULL AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM

24.0

36.2

52.6

15.0

CAPACITY

COOLING

| WET BULB | DRY BULB | WET BULB | TEMP (°F)

ENTERING | ENTERING | LEAVING |

SEER2 (BTUH) MARK 10.5/- | 480 | 3 | 60 | AHU-3 97,063 11.0/-AHU-4 (1,2,3)AHU-7 212,300 10.5/-ACCU-10 105 | 10.5/- | 480 | 3 | 60 | AHU-10 <u>3ENERAL NOTES:</u> A. MINIMUM RECOMMENDEDLD CLEARANCE AROUND UNIT IS 12 INCHES ON NON-SERVICE SIDES AND 30 INCHES ON SERVICE SIDES. MAINTAIN MINIMUM CLEARANCE FOR CONDENSER AIR FLOW AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC. PROVIDE WITH LOW AMBIENT CONTROL DOWN TO 20°F. PROVIDE WITH DISCONNECT SWITCH. B. REFRIGERANT LINES TO BE SIZED PER MANUFACTURER'S REQUIREMENTS.

AIR COOLED CONDENSING UNIT

MINIMUM | CURRENT CHAR. | RELATED

EER/

MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

. PROVIDE WITH MOTORIZED DAMPER.

. PROVIDE WITH EC MOTOR WITH FAN SPEED CONTROLLER.

|                           |                |           | (E)A      | IR H      | IAND      | LER PRO              | PERTIE         | S (2003)       |               |            |
|---------------------------|----------------|-----------|-----------|-----------|-----------|----------------------|----------------|----------------|---------------|------------|
| MARK                      | A1111 T) (DE   | CF        | -M        | HORSE     | CH        | HILLED WATER         | HOT V<br>(PREI | VATER<br>HEAT) | HOT W<br>(REH |            |
| MARK                      | AHU TYPE       | SA        | OA        | POWER     | GPM       | VALVE TYPE           | GPM            | VALVE TYPE     | GPM           | VALVE TYPE |
| (E)AHU-A                  | HDT - VAV      | 7,650     | 1,560     | 7.5       | 62        | 2-WAY                | 3              | -              | -             | -          |
| GENERAL NOTES:            |                |           |           |           |           |                      |                |                |               |            |
| 1. BALANCING VALVES ON SE | LECT UNITS WIL | L BE CLOS | SED AND S | SHALL REI | MAIN CLOS | SED CX AGENT IS RESP | ONSIBLE FOR TH | S SCOPE.       |               |            |

NEW MECHANICAL UNIT ATTACHMENT OF UNIT TO

STRUCTURE PER UNIT MANUFACTURER.

EXISTING STEEL

L 3x 3x 1/4 UNDER PERIMETER

(1) SECTION @ SUPPORT FOR ROOF TOP UNIT

1/4 STEEL PLATE (TYP.)

NOTE: DECK IS TO BE CUT OUT AT THE OPENING & ANY CURB ANGLES INSTALLED IMMEDIATELY PRIOR TO THE PLACING OF THE EQUIPMENT

SIZE & LOCATION OF OPENING VARIES-COORDINATE WITH MECHANICAL CONTRACTOR

TYP. 3/16

2 TYP. ROOF DECK OPENING DETAIL
N.T.S.

HAVARD ELEMENTARY SCHOOL

PROJECT # 25273

08/07/2025

DATE:

15150 WALLISVILLE RD, HOUSTON, TX

DRAWN BY:

AR

EXISTING JOIST-

EXISTING METAL ————— DECK

3/16

NEXGEN ENGINEERS, LLC TX FIRM REGISTRATION # F-16037

5600 NW CENTRAL DRIVE, #230 HOUSTON TX 77092 PH: 713-462-4269

CURB OF MECH UNIT

PLT. 3/8x 4"x 4", TYP.

DECK OPENINGS LESS THAN 8"X8" OR 8" DIA DO NOT REQUIRE DECK SUPPORTS SHOWN HERE.

REVIEWED BY:

AR.

SHEET:

SK-1

| (E)CVB                                     | SCHEDULE  | (2003)                  |
|--|-----------|-------------------------|
| MARK                                       | G.P.M.    | PIPE CONNECTION<br>SIZE |
| (E)CVT-1A                                  | 2.4       | 3/4"                    |
| (E)CVT-2A                                  | 3.3       | 3/4"                    |
| (E)CVT-3A                                  | 3.3       | 3/4"                    |
| (E)CVT-4A                                  | 3.4       | 3/4"                    |
| (E)CVT-5A                                  | 3.2       | 3/4"                    |
| ENERAL NOTES<br>PROVIDE WITH 2 WAY HEATING | G VALVES. |                         |

| (I            | E)FANS                              | INTERL                    | OCK (200                       | 03)           |
|---------------|-------------------------------------|---------------------------|--------------------------------|---------------|
| MARK          | CFM                                 | LOCALLY<br>SWITCHED<br>BY | INTERLOCKED<br>WITH            | REMARKS       |
| (E)EF-A       | 400                                 | -                         | (E)AHU-A                       | -             |
| (E)SF-A       | 1,560                               | -                         | (E)AHU-A                       | -             |
| SOFTWARE INTE | ERLOCKS ARE ACC<br>JST FANS EQUIPPE |                           | SES ONLY.<br>D DAMPER SHALL HA | AVE THE DAMPE |

| MARK     | CFM   | LOCALLY<br>SWITCHED<br>BY | INTERLOCKED<br>WITH | REMARKS |
|----------|-------|---------------------------|---------------------|---------|
| (E)EF-1  | 2,095 | -                         | AHU-1               | -       |
| (E)EF-2  | 885   | -                         | AHU-8               | -       |
| (E)EF-3  | 850   | -                         | AHU-5               | -       |
| (E)EF-4  | 850   | -                         | AHU-11              | -       |
| (E)EF-5  | 3,750 | HOOD                      | -                   | -       |
| (E)EF-6  | 3,750 | HOOD                      | -                   | -       |
| (E)EF-7  | 1,400 | HOOD                      | -                   | -       |
| (E)EF-8  | 455   | -                         | AHU-9               | -       |
| (E)EF-9  | 6,125 | TSTAT                     | -                   | -       |
| (E)EF-10 | 1,340 | TSTAT                     | -                   | -       |
| (E)SF-1  | 2,300 | -                         | (E)EF-5             | -       |
| (E)SF-2  | 2,300 | -                         | (E)EF-6             | -       |

1. INTERLOCKS ARE SHOWN FOR ASSOCIATION PURPOSES ONLY. SOFTWARE INTERLOCKS ARE ACCEPTABLE. 2. EXISTING EXHAUST FANS EQUIPPED WITH MOTORIZED DAMPER SHALL HAVE THE DAMPER ACTUATOR REPLACED.

| (E)CVB                     | SCHEDULE |                         |               | (E)CVB SCH                                       | HEDULE (19  | 97) CONT. |
|----------------------------|----------|-------------------------|---------------|--|-------------|-----------|
| MARK                       | G.P.M.   | PIPE CONNECTION<br>SIZE | 1 [           | (E)VAV-8-53                                      | 1.2         | 3/4"      |
| (E)VAV-1-1                 | 1.9      | 3/4"                    | 1 [           | (E)VAV-8-54                                      | 2.7         | 3/4"      |
| (E)VAV-1-2                 | 1.9      | 3/4"                    | 1 [           | (E)VAV-8-55                                      | 0.9         | 3/4"      |
| (E)VAV-1-3                 | 0.7      | 3/4"                    |               | (E)VAV-8-56                                      | 1.6         | 3/4"      |
| (E)VAV-1-4                 | 2.2      | 3/4"                    |               | (E)VAV-8-57                                      | 0.6         | 3/4"      |
| (E)VAV-1-5                 | 2.1      | 1"                      |               |  |             |           |
| (E)VAV-1-6                 | 1.8      | 3/4"                    |               | (E)VAV-11-58                                     | 0.9         | 3/4"      |
| (E)VAV-1-7                 | 1.7      | 3/4"                    | 1 L           | (E)VAV-11-59                                     | 1.8         | 3/4"      |
|                            |          |                         | 1 L           | (E)VAV-11-60                                     | 2.1         | 3/4"      |
| (E)VAV-2-8                 | 1.3      | 3/4"                    | <b>↓</b> ↓    | (E)VAV-11-61                                     | 1.8         | 3/4"      |
| (E)VAV-2-9                 | 1.5      | 3/4"                    | <b>↓</b>      | (E)VAV-11-62                                     | 2.4         | 3/4"      |
| (E)VAV-2-10                | 1.8      | 3/4"                    | <del></del> ↓ | (E)VAV-11-63                                     | 4.43/1      | 3/4"      |
| (E)VAV-2-11                | 1.6      | 1"                      | ↓ L           | (E)VAV-11-64                                     | 2.5         | 3/4"      |
| (E)VAV-2-12                | 2.5      | 1"                      | <b>↓</b>      | (E)VAV-11-65                                     | 2.6         | 3/4"      |
| (E)VAV-2-13                | 2.3      | 3/4"                    | <b>↓</b>      | (E)VAV-11-66                                     | 2.9         | 3/4"      |
| (E)VAV-2-14                | -        | -                       | ┨╴┟           | (E)VAV-11-67                                     | 2.5         | 3/4"      |
| (E)VAV-2-15                | 2.4      | 1"                      | <del></del>   | (E)VAV-11-68                                     | 1.2         | 3/4"      |
| (E)VAV-2-16                | 2.5      | 3/4"                    | ┨╶┠           | (E)VAV-11-69                                     | -           | -         |
| (E)VAV-2-84                | 2.6      | 3/4"                    | ┨╶┠           |  |             |           |
|                            |          |                         | ┨╶┠           | (E)VAV-12-70                                     | 1.8         | 3/4"      |
| (E)VAV-3-17                | 0.7      | 1"                      | <b>↓</b>      | (E)VAV-12-71                                     | 2.0         | 3/4"      |
| (E)VAV-3-18                | 0.6      | 1"                      | ┨╶┠           | (E)VAV-12-72                                     | 2.5         | 3/4"      |
| (E)VAV-3-19                | 0.6      | 1"                      | ┨             | (E)VAV-12-73                                     | 2.5         | 3/4"      |
| (E)VAV-3-20                | 1.7      | 1"                      | ┨╶┠           | (E)VAV-12-74                                     | 2.5         | 3/4"      |
| (E)VAV-3-21                | 0.7      | 1"                      | ┨╴┠           | (E)VAV-12-75                                     | 2.4         | 3/4"      |
| (E)VAV-3-22                | 0.6      | 3/4"                    | ┨╴┠╴          | (E)VAV-12-76                                     | 2.6         | 3/4"      |
| (E)VAV-3-23                | 4.0      | 1"                      | ┨╴┠╴          | (E)VAV-12-77                                     | 1.5         | 3/4"      |
| (E)VAV-3-24                | 0.7      | 3/4"                    | ┨╶┠           | (E)VAV-12-78                                     | 0.6         | 3/4"      |
| (E)VAV-3-25<br>(E)VAV-3-26 | 0.7      | 1"                      |               | /E\\/A\/ 12.70                                   | <u> </u>    |           |
| (E)VAV-3-20                | 0.9      | 3/4"                    | ┨╺┡╸          | (E)VAV-13-79<br>(E)VAV-13-80                     | 1.4         | 3/4"      |
| (E)VAV-3-27                | 0.5      | 3/4"                    | ┨╴┠           | (E)VAV-13-80                                     | 1.3         | 3/4"      |
| (2)                        | 0.0      | 3/4                     | ┨╶┠           | (E)VAV-13-81                                     | 1.8         | 3/4"      |
| (E)VAV-4-29                | 0.8      | 1"                      | ┨╶┠╴          | (E)VAV-13-83                                     | 1.8         | 3/4"      |
| (E)VAV-4-30                | 0.7      | 1"                      | ┨╷┠           | (2)*****   | 1.0         | O/ 1      |
| (E)VAV-4-31                | 2.3      | 1"                      |               | (E)VAV-OA-85                                     | _           | -         |
| (E)VAV-4-52                | 2.3      | 1"                      | ┨╏            | (E)VAV-OA-86                                     | )<br>}<br>- | -         |
| · · ·                      |          |                         | ┨╏            | (E)VAV-OA-87                                     | )<br>  .    | -         |
| (E)VAV-5-32                | 1.1      | 1"                      | 1             | (E)VAV-OA-88                                     | -           | -         |
| (E)VAV-5-33                | 1.8      | 3/4"                    | ┨╷┠           | (E)VAV-OA-89                                     | -           | -         |
| (E)VAV-5-34                | 2.3      | 3/4"                    |               | (E)VAV-OA-90                                     | -           | -         |
| (E)VAV-5-35                | 2.5      | 1"                      | 1 1           | (E)VAV-0A-91                                     | -           | -         |
| (E)VAV-5-36                | 2.6      | 3/4"                    | 1             | (E)VAV-0A-092                                    | -           | -         |
| (E)VAV-5-37                | 2.6      | 3/4"                    | 1             | (E)VAV-0A-093                                    | -           | -         |
| (E)VAV-5-38                | 2.9      | 1"                      |               | (E)VAV-0A-094                                    | -           | -         |
| (E)VAV-5-39                | 2.5      | 3/4"                    |               | (E)VAV-OA-96                                     | -           | -         |
| (E)VAV-5-40                | 1.2      | 3/4"                    | 1 1           | (E)VAV-OA-97                                     | -           | -         |
| (E)VAV-5-41                | -        | -                       |               | (E)VAV-0A-098                                    | -           | -         |
|                            |          |                         |               | <u>:NERAL NOTES</u><br>PROVIDE WITH 3 WAY HEATIN | G VALVES.   |           |
| (E)VAV-6-42                | 1.8      | 3/4"                    | j Ľ           | WAT HEATHY                                       |             |           |
| (E)VAV-6-43                | 1.8      | 3/4"                    |               |  |             |           |
| (E)VAV-6-44                | 1.8      | 3/4"                    |               |  |             |           |
| (E)VAV-6-45                | 1.8      | 1"                      |               |  |             |           |
| (E)VAV-6-46                | 1.8      | 3/4"                    |               |  |             |           |
| (E)VAV-6-47                | 2.5      | 3/4"                    | 1             |  |             |           |
| (E)VAV-6-48                | 2.4      | 1"                      | 1             |  |             |           |
|                            | 1        | I                       | _             |  |             |           |

2.6

(E)VAV-6-49

(E)VAV-6-50

(E)VAV-6-51

GENERAL NOTES

1. PROVIDE WITH 3 WAY HEATING VALVES.

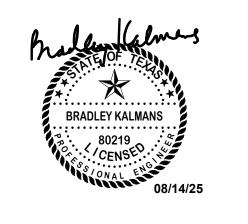
Salas O'Brien

10930 W. Sam Houston Pkwy North, Suite 900 Houston, TX 77064 Registration: F-4111 Project Number: 2550-00346-00

salasobrien.com

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**PROFESSIONAL SEAL** 



ISSUE DATE DESCRIPTION ISSUE FOR BID 2025-08-11



2550-00346-00 Galena Park Independent School District

Havard School HVAC **Modifications** -**GPISD Project** #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

| Δ | DESCRIPTION | DAIL       |
|---|-------------|------------|
| 1 | ADDENDUM #2 | 08/14/2025 |
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SHEET NAME

MECHANICAL

SCHEDULES

SHEET NUMBER | REVISION

M6.02

DEMOLITION / EXISTING DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS(WHEN AVAILABLE). CONTRACTOR TO VERIFY EXISTING CONDITIONS ON FIELD AND NOTIFY ENGINEER IF THERE ARE ANY CONFLICTS/DISCREPANCIES BETWEEN EXISTING CONDITIONS AND DRAWINGS PRIOR COMMENCEMENT OF WORK CONTRACTOR SHALL REMOVE SUCH EXISTING WORK AS CALLED FOR ON THE DRAWINGS TO CLEAR THE AREAS OF NEW CONSTRUCTION.

OWNER HAS THE RIGHT TO KEEP POSSESSION OF ANY DEMOLISHED EQUIPMENT/DEVICES, CONTRACTOR TO NOTIFY THE OWNER OF DEMOLISHED EQUIPMENT/DEVICES FOR REUSE OR KEEP AS SPARE PARTS PRIOR TO REMOVAL OFFSITE.

EXISTING RACEWAYS AND LOCATION OF ELECTRICAL BOXES/OUTLETS ON EXISTING WALLS TO REMAIN SHALL BE RE-USED AS PRACTICAL FOR NEW DEVICES AS PART OF NEW WORK.

### **ELECTRICAL GENERAL NOTES:**

- PROTECT EXISTING EQUIPMENT TO REMAIN IN PLACE. KEEP EXISTING POWER CONNECTIONS. ALL EXISTING EQUIPMENT SHALL REMAIN FULLY FUNCTIONAL. 2. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT AND
- . COORDINATE WITH OWNER FOR STORAGING OR DISPOSING ALL REMOVED EQUIPMENT PRIOR COMMENCEMENT OF WORK.

4. ALL EXISTING DISTRIBUTION PANELS AND BREAKERS TO REMAIN UNLESS SPECIFICALLY NOTED OTHERWISE.....

### **DATA DROPS GENERAL NOTES:**

- STRUCTURED CABLING CONTRACTOR MUST BE A PARTICIPANT OF THE STRUCTURED CABLING MANUFACTURER CERTIFIED INSTALLER PROGRAM AND BE CAPABLE OF OFFERING A 25 YEAR CERTIFICATION PLUS SYSTEM WARRANTY. INSTALLATION CONTRACTOR AND SYSTEM MUST BE MANUFACTURER CERTIFIED.
- 2. DATA CABLING TO BE A MINIMUM OF CATEGORY 6. FINAL PATCH CABLE CONNECTIONS SHALL MATCH EXISTING CABLE LENGTH IN MDF/IDF LOCATIONS. COLOR SHALL BE COORDINATED WITH OWNER AND MATCH EXISTING BUILDING CABLING MANUFACTURER. FINAL PORT LOCATIONS IN MDF/IDF SHALL BE COORDINATED WITH THE OWNER PRIOR TO INSTALLATION. MAXIMUM HORIZONTAL CABLE RUN FOR DATA DROPS IS 90 METERS.

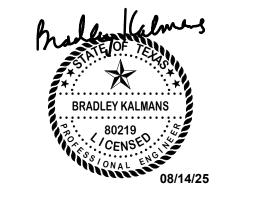
# **ELECTRICAL KEYED NOTES**

EXISTING EQUIPMENT/FIXTURE TO BE REPLACED. REMOVE CONDUCTORS AND CONDUITS BACK TO THE SOURCE. UNDERGROUND CONDUITS TO BE ABANDONED, CAP CONDUIT AT GROUND LEVEL. PROVIDE 20A/1P (LOCK-OFF)SWITCH FOR UV LIGHT. CONNECT UV LIGHT CIRCUIT THROUGH NEW 20A/1P SPDT RELAY CONTROLLED BY THE VFD "NO" DRY CONTACT. MAKE ALL FINAL CONNECTIONS. PROVIDE (1) DATA CABLE INSIDE 1" CONDUIT ROUTED FROM NEAREST IDF/MDF ROOM TO BMCS

COORDINATE CABLE COLOR WITH OWNER PRIOR TO INSTALLATION.

PANEL FOR CONNECTIVITY. MATCH EXISTING BUILDING CABLING MANUFACTURER AND

PROFESSIONAL SEAL



10930 W. Sam Houston Pkwy North,

Suite 900

Houston, TX 77064

Registration: F-4111

Project Number: 2550-00346-00

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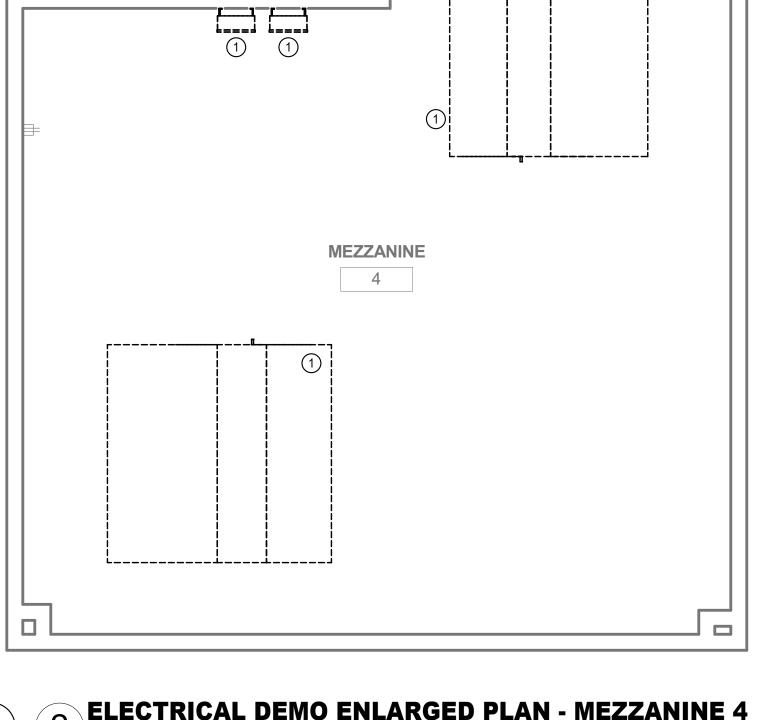
ISSUE DATE DESCRIPTION ISSUE FOR BID 2025-08-11



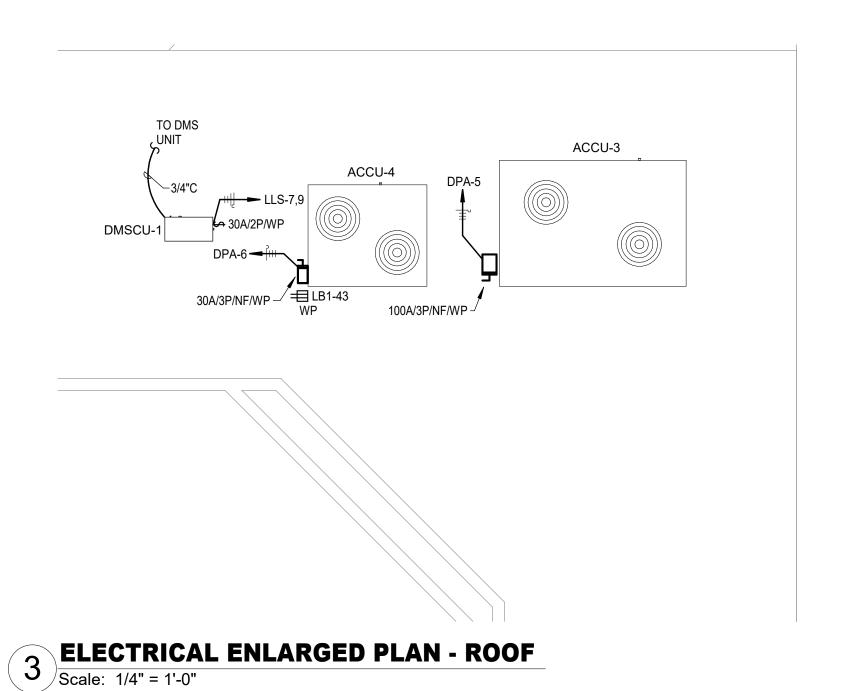
2550-00346-00 Galena Park Independent **School District** 

Havard School HVAC **Modifications** -GPISD Project #B105

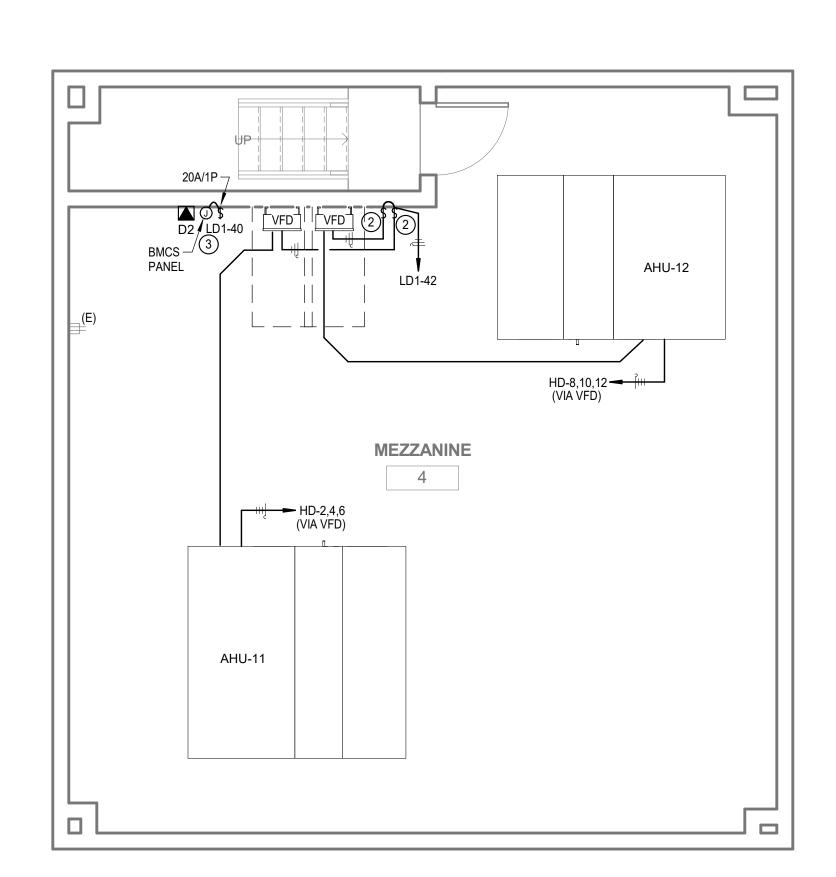
15150 Wallisville Rd, Houston, TX 77049



2 ELECTRICAL DEMO ENLARGED PLAN - MEZZANINE 4
Scale: 1/4" = 1'-0"



4 ELECTRICAL DEMO ENLARGED PLAN - ROOF
Scale: 1/4" = 1'-0"



ELECTRICAL ENLARGED PLAN - MEZZANINE 4
Scale: 1/4" = 1'-0"

Δ DESCRIPTION1 ADDENDUM #2

**DATE** 08/14/2025

REVISIONS

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**ELECTRICAL ENLARGED** PLANS -MEZZANINE & ROOF

SHEET NUMBER | REVISION

E2.03

ELECTRICAL ENLARGED PLAN - LEVEL 1 - MECH RM#608

Scale: 3/8" = 1'-0"

6 ELECTRICAL ENLARGED PLAN - LEVEL 1 - MDF
Scale: 3/8" = 1'-0"

OWNER HAS THE RIGHT TO KEEP POSSESSION OF ANY DEMOLISHED EQUIPMENT/DEVICES, CONTRACTOR TO NOTIFY THE OWNER OF DEMOLISHED EQUIPMENT/DEVICES FOR REUSE OR KEEP AS SPARE PARTS PRIOR TO REMOVAL OFFSITE.

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# **ELECTRICAL GENERAL NOTES:**

. PROTECT EXISTING EQUIPMENT TO REMAIN IN PLACE. KEEP EXISTING POWER CONNECTIONS. ALL EXISTING EQUIPMENT SHALL REMAIN FULLY FUNCTIONAL. 2. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT AND

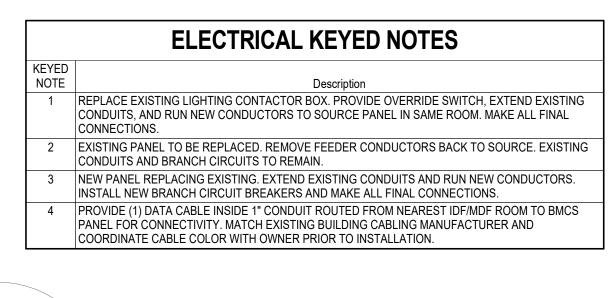
3. COORDINATE WITH OWNER FOR STORAGING OR DISPOSING ALL REMOVED EQUIPMENT PRIOR COMMENCEMENT OF WORK.

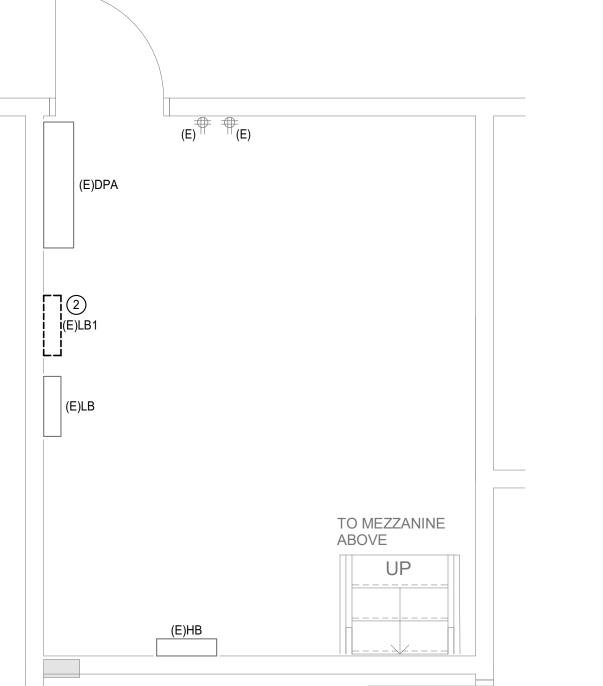
4. ALL EXISTING DISTRIBUTION PANELS AND BREAKERS TO REMAIN UNLESS SPECIFICALLY NOTED

# **DATA DROPS GENERAL NOTES:**

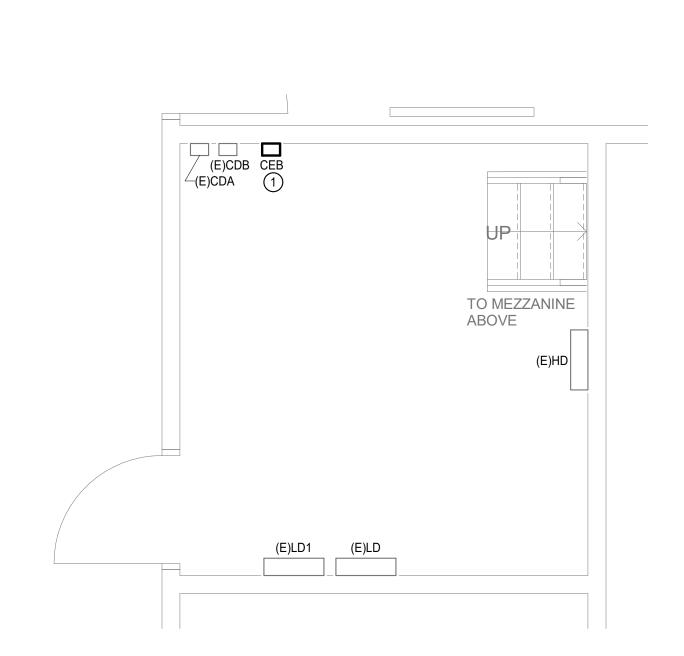
1. STRUCTURED CABLING CONTRACTOR MUST BE A PARTICIPANT OF THE STRUCTURED CABLING MANUFACTURER CERTIFIED INSTALLER PROGRAM AND BE CAPABLE OF OFFERING A 25 YEAR CERTIFICATION PLUS SYSTEM WARRANTY. INSTALLATION CONTRACTOR AND SYSTEM MUST BE MANUFACTURER CERTIFIED.

2. DATA CABLING TO BE A MINIMUM OF CATEGORY 6. FINAL PATCH CABLE CONNECTIONS SHALL MATCH EXISTING CABLE LENGTH IN MDF/IDF LOCATIONS. COLOR SHALL BE COORDINATED WITH OWNER AND MATCH EXISTING BUILDING CABLING MANUFACTURER. FINAL PORT LOCATIONS IN MDF/IDF SHALL BE COORDINATED WITH THE OWNER PRIOR TO INSTALLATION. MAXIMUM HORIZONTAL CABLE RUN FOR DATA DROPS IS 90 METERS.

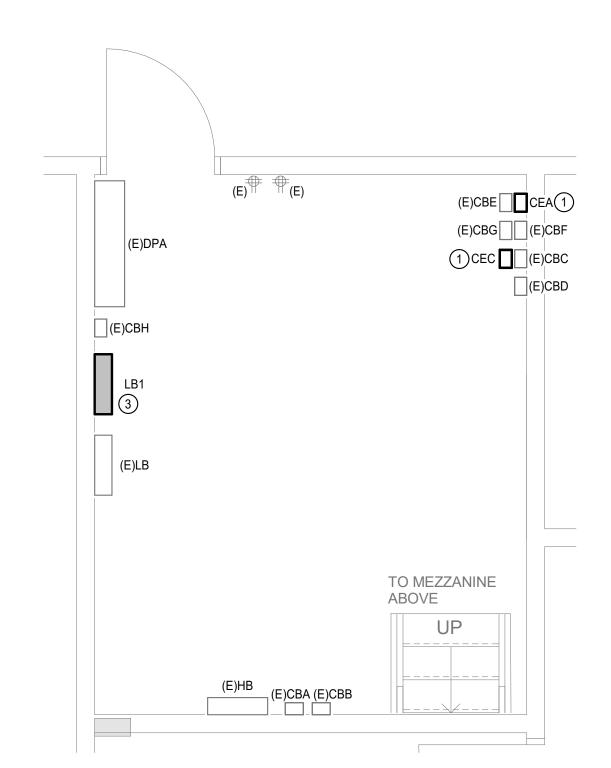




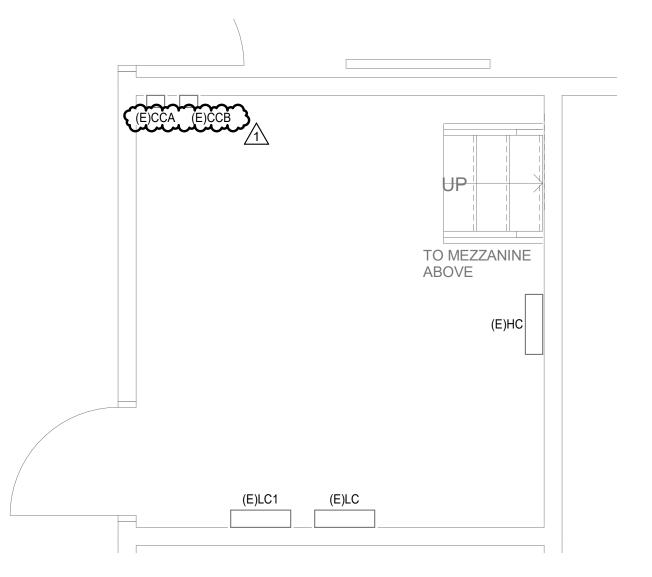




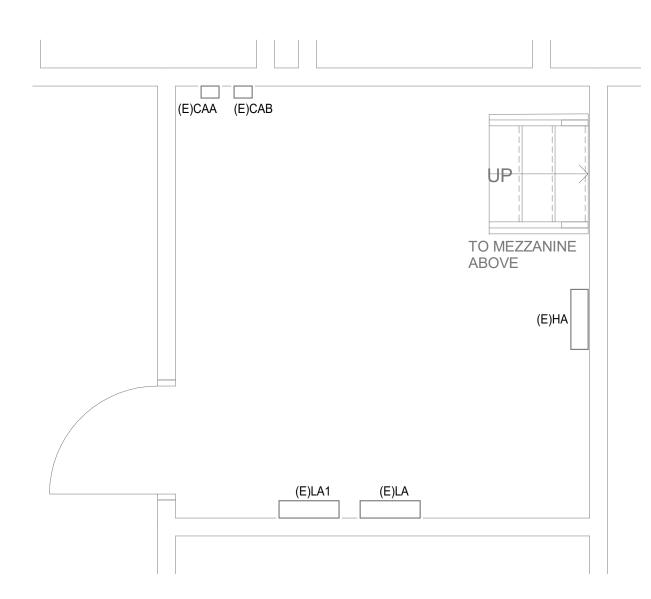
5 ELECTRICAL ENLARGED PLAN - LEVEL 1 - MECH RM#4
Scale: 3/8" = 1'-0"



2 ELECTRICAL ENLARGED PLAN - LEVEL 1 - MECH RM#2
Scale: 3/8" = 1'-0"



4 ELECTRICAL ENLARGED PLAN - LEVEL 1 - MECH RM#3
Scale: 3/8" = 1'-0"



ELECTRICAL ENLARGED PLAN - LEVEL 1 - MECH RM#1

Scale: 3/8" = 1'-0"

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REVISIONS Δ DESCRIPTION
1 ADDENDUM #2 **DATE** 08/14/2025

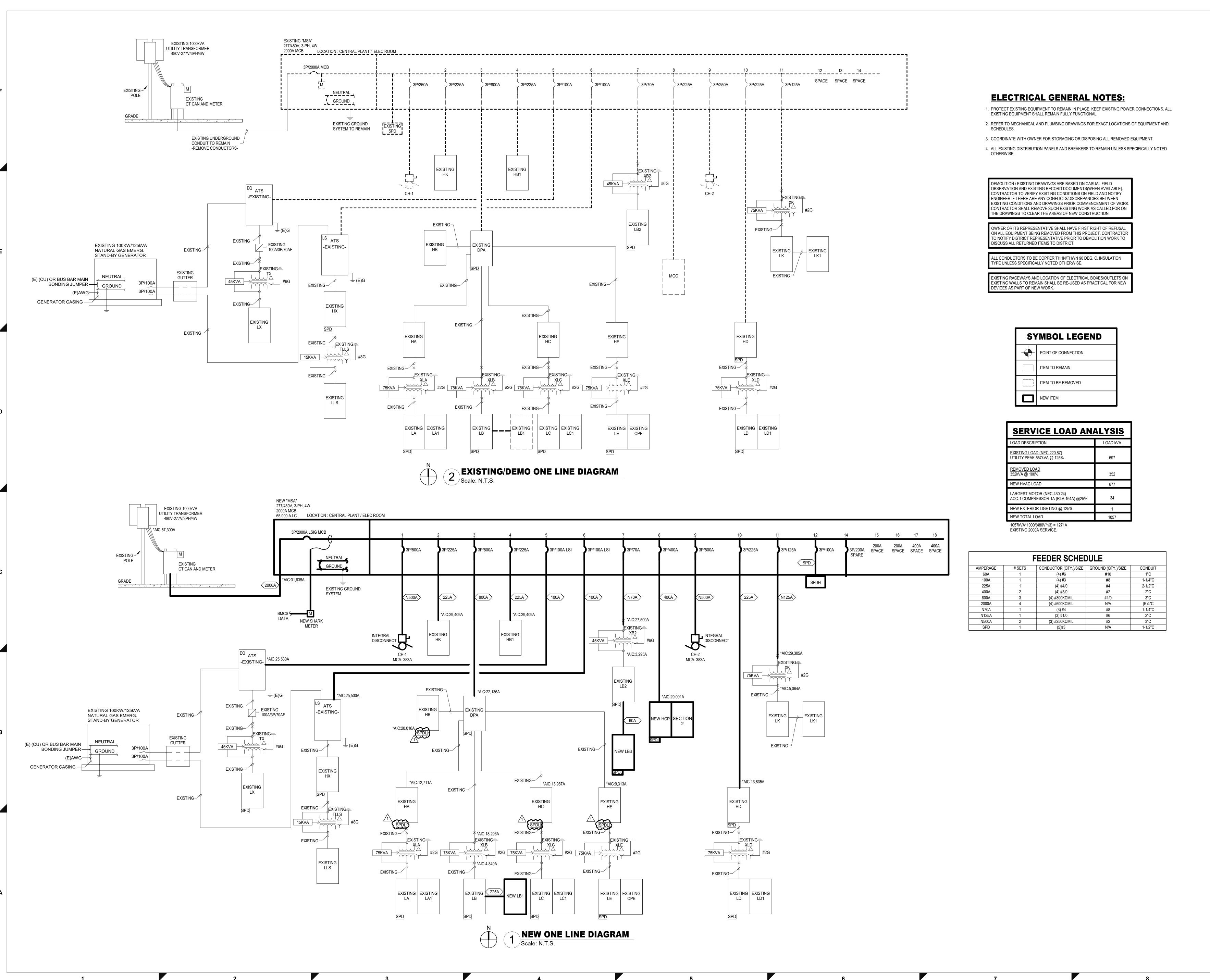
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ELECTRICAL **ENLARGED** PLANS- LEVEL 1

SHEET NUMBER | REVISION

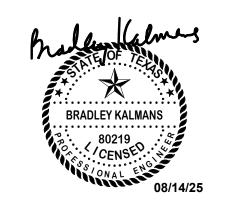
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ISSUE DATE DESCRIPTION ISSUE FOR BID 2025-08-11



2550-00346-00 Galena Park Independent **School District** 

Havard School HVAC **Modifications** -**GPISD Project** #B105

15150 Wallisville Rd, Houston, TX 77049

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| 1 | ADDENDUM #2 | 08/14/2025 |
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DESCRIPTION DATE

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SHEET NAME

**ELECTRICAL** ONE-LINE DIAGRAM

SHEET NUMBER | REVISION

E3.01

Switchboard: DPA Location: MECH 2 Volts: 277/480 Wye Supply From: MSA Phases: 3 Mounting: Surface Wires: 4 Enclosure: Type 1

**Circuit Description** 95.2 kVA 225 65.6 kVA 225 59.8 kVA

**A.I.C. Rating:** 65,000

**ENCLOSURE**: NEMA 1

Mains Rating: 800

3 PANEL HC 4 PANEL HE 225 77.5 kVA 5 ACCU-3 44.8 kVA (3)#4 1-1/4"C 6 ACCU-4 18.2 kVA (3)#8 7 SPARE 0.0 kVA 8 SPARE 0.0 kVA 9 XFMR XB 75kVA 36.0 kVA 10 TVSS 0.0 kVA 11 SPACE 12 SPACE Total Conn... 397.1 kVA Total Amps: 478

**Load Classification Panel Totals** Connected Load Demand Factor Estimated Demand 96.9 kVA 100.00% 96.9 kVA 122.7 kVA 125.00% 153.4 kVA Total Conn. Load: 397.1 kVA Total Est. Demand: 453.4 kVA 100.00% 39.0 kVA 39.0 kVA Miscellaneous 102.5 kVA 125.00% 128.1 kVA Total Conn. Current: 478 Existing Total Est. Demand... 545

- NEW WORK IN BOLD

1 PANEL HA

2 PANEL HB

**EXISTING** 

**Branch Panel: HX** Location: ELECTRICAL 516 Volts: 277/480 Wye **A.I.C. Rating:** 10,000 Supply From: LS ATS Phases: 3 Enclosure: Type 1 Mains: 225A MLO Phase in kVA Note CKT **Circuit Description** A B C Breaker Wire **Circuit Description** 1 LIGHTING 3 OUTDOOR LIGHTS SERVICE YARD
5 EMERGENY LIGHTS MECH 519 **EXIT SIGNS MECH 519** 11 SPARE 13 SPARE 15 SPARE 19 SPACE 21 SPACE 23 SPACE 25 SPACE 27 SPACE 27 SPACE
 29 SPACE
 31 SPACE
 33 SPACE
 35 SPACE
 37 SPACE
 39 SPACE
 41 SPACE Total Amps: 10 A 3 A Load Classification Panel Totals Connected Load Demand Factor **Estimated Demand** 4.3 kVA 125.00% 5.4 kVA Total Conn. Load: 4.3 kVA 0.0 kVA 0.00% 0.0 kVA Total Est. Demand: 5.4 kVA Total Conn. Current: 5 A Total Est. Demand Current: 6 A Abbrevations: - PANEL HAS BUILT-IN SPD. - NEW WORK IN BOLD G - PROVIDE GFCI CIRCUIT BREAKER LF - PROVIDE PERMANENT LOCK-OFF DEVICE LO - PROVIDE PERMANENT LOCK-ON DEVICE M - PROVIDE METERING DEVICE

| <b>EXISTING</b> |
|-----------------|

PANELBOARD CIRCUIT DIRECTORY:

NEC-2023: 408.4(A) FOR DETAILS.

DETAILS.

CONTRACTOR SHALL RECORD AND/OR PRESERVE THE EXISTING CIRCUIT DIRECTORY, IF ANY, FOR THE SOLE PURPOSE UPON COMPLETION OF NEW WORK OF PRODUCING A NEW DIRECTORY.

CONTRACTOR SHALL PROVIDE AS PART OF THE CONSTRUCTION DOCUMENTS A NEW, NEATLY TYPED DIRECTORY. CONTRACTOR

CONTRACTOR SHALL PERMANENTLY LABEL AS PART OF THE

CONSTRUCTION DOCUMENTS ALL SWITCHBOARDS, SWITCHGEAR AND PANELBOARDS TO INDICATE EACH POWER SOURCE. REFER TO

SHALL TRACE EXISTING CIRCUITS AND SHALL LEGIBLY IDENTIFY AS TO IT'S CLEAR, EVIDENT, AND SPECIFIC PURPOSE OR USE, LOADS SERVED, LOCATION AND/OR THE PANELBOARD SCHEDULE ON THE DRAWINGS. THE WORD "EXISTING" SHALL NOT BE USED ON PANELBOARD DIRECTORIES. SPARE BREAKERS ARE TO BE LISTED AS "SPARE" AND SWITCHED TO THE OFF POSITION. SPACES WITH NO BREAKERS ARE TO BE LEFT BLANK. REFER TO NEC-2023: 408.4(A) FOR

| EXI    | STI    | NG  |         |        |      |           |   |            |       |       |      |   |           |        |
|--------|--------|---|---------|--------|------|-----------|---|------------|-------|-------|------|---|-----------|--------|
|        |        | Branch Panel: LB2                                       |         |        |      |           |   |            |       |       |      |   |           |        |
|        |        | Location: ELECTRICAL 516 Supply From: Mounting: Surface |         |        |      |           | Volts: 120/20<br>hases: 3<br>Wires: 4   | ·          |       |       |      | A.I.C. Rating: 10,000<br>Enclosure: Type 1<br>Mains: 150A M | СВ        |        |
|        |        |   |         | ı      |      |           | Phase in                                | kVA        |       |       |      | T   |           |        |
| lote   | СКТ    | Circuit Description                                     | Wire    | Brea   | aker | A         | В                                       | С          | Br    | eaker |      |   | otion CK  | Γ Note |
|        |        | RECEPTACLES   | (E)     | 20     | 1    | 1.1 / 1.1 |   |            | 1     | 20    | (E)  | RECEPTACLES   | 2         |        |
|        |        | RECEPTACLES   | (E)     | 20     | 1    |           | 1.1 / 1.1                               |            | 1     | 20    |      | RECEPTACLES   | 4         |        |
|        | 5      | RECEPTACLES   | (E)     | 20     | 1    |           |   | 1.1 / 0.5  | 1     | 20    | (E)  | Existing  | 6         |        |
|        | 7      | RECEPTACLES   | (E)     | 20     | 1    | 1.1 / 1.0 |   |            | 1     | 20    | (E)  | OVERHEAD DOOR   | 8         |        |
|        |        | EDF   | (E)     | 20     | 1    |           | 0.9 / 1.0                               |            | 1     | 20    |      | OVERHEAD DOOR   | 10        |        |
|        |        | EF-2  | (E)     | 20     | 1    |           |   | 0.8 / 0.8  | 1     | 20    | (E)  | EF-10   | 12        |        |
|        |        | MOTORIZED GOAL  | (E)     | 20     | 1    | 1.0 / 1.1 |   |            | 1     | 20    | (E)  | RECEPTACLES   | 14        |        |
|        |        | MOTORIZED GOAL  | (E)     | 20     | 1    |           | 1.0 / 0.0                               |            | 1     | 20    |      | SPARE   | 16        |        |
|        |        | DAMPERS/RECEPTACLES                                     | (E)     | 20     | 1    |           |   | 1.1 / 0.0  | 1     | 20    |      | SPARE   | 18        |        |
|        | 19     | SOUND SYSTEM  | (E)     | 20     | 1    | 0.5 / 1.2 |   |            | 1     | 20    |      | STAGE LIGHTING  | 20        |        |
|        | 21     | SOUND SYSTEM  | (E)     | 20     | 1    |           | 0.5 / 1.2                               |            | 1     | 20    |      | STAGE LIGHTING  | 22        |        |
| LO     |        | FIRE/SMOKE DAMPERS                                      | (E)     | 20     | 1    |           |   | 0.8 / 1.2  | 1     | 20    |      | STAGE LIGHTING  | 24        |        |
|        |        | RECEPTACLES   | (E)     | 20     | 1    | 1.1 / 1.2 |   |            | 1     | 20    | (E)  | STAGE LIGHTING  | 26        |        |
|        |        | RECEPTACLES   | (E)     | 20     | 1    |           | 1.1 / 2.0                               |            | 1     | 30    |      | HEAT TRACE  | 28        |        |
|        |        | RECEPTACLES   | (E)     | 20     | 1    |           |   | 1.1 / 1.1  | 1     | 20    | (E)  | CLEAN UP RECEPTACLES  | 30        |        |
|        |        | SPARE   |         | 20     | 1    | 0.0 / 1.1 |   |            | 1     | 20    |      | CLEAN UP RECEPTACLES  | 32        |        |
|        |        | Existing  | (E)     | 20     | 1    |           | 0.5 / 0.5                               |            | 1     | 20    |      | VAV CONTROL POWER   | 34        |        |
|        | 35     | Existing  | (E)     | 20     | 1    |           |   | 0.5 / 0.5  | 1     | 20    | (E)  | Existing  | 36        |        |
|        | 37     |   |         |        |      | 3.2 / 0.0 |   |            |       |       |      |   | 38        |        |
| N      | 39     | PANEL LB3   | 1-L     | 60     | 3    |           | 1.6 / 0.0                               |            | 3     | 30    | (E)  | TVSS  | 40        |        |
|        | 41     |   |         |        |      |           |   | 3.3 / 0.0  |       |       |      |   | 42        |        |
|        |        |   | Total   | Load   | :    | 14.8 kVA  | 12.6 kVA                                | 12.8 kVA   |       |       |      |   |           |        |
|        |        |   | Total A | Amps   | :    | 123 A     | 105 A                                   | 107 A      |       |       |      |   |           |        |
| .oad   | Classi | fication  | Conne   | cted L | .oad | Dem       | and Factor                              | Estimate   | ed D  | emano | d    | Panel   | Totals    |        |
| IVAC   |        |   | 2.6     | 6 kVA  |      | 1         | 00.00%                                  | 2.6        | 6 kV  | 4     |      |   |           |        |
| ightir |        |   |         | 3 kVA  |      |           | 25.00%                                  |            | ) kV/ |       |      | Total Conn. Load:   | Λ0.1 k\/Δ |        |
|        |        | 10  |         |        |      | _         |   |            |       |       |      |   |           |        |
|        | laneou |   |         | 4 kVA  |      |           | 00.00%                                  |            | 4 kV  |       |      | Total Est. Demand:  |           |        |
|        | tacles |   |         | 2 kVA  |      |           | 79.00%                                  | _          | 6 kV  |       |      | Total Conn. Current:  |           |        |
| xistir | g      |   | 2.′     | 1 kVA  |      | 1         | 25.00%                                  | 2.6        | 3 kV  | 4     |      | Total Est. Demand Current:                                  | 106 A     |        |
|        |        |   |         |        |      |           |   |            |       |       |      |   |           |        |
|        |        |   |         |        |      |           |   |            |       |       |      |   |           |        |
| lotes  | :      |   |         |        |      | Ab        | brevations:                             | 1          |       |       |      |   |           |        |
|        |        |   |         |        |      |           | - PROVIDE GF                            | CLCIRCUIT  | RRE   | ΔKER  |      |   |           |        |
|        |        |   |         |        |      |           |   |            |       |       |      |   |           |        |
|        |        |   |         |        |      |           | - PROVIDE PI                            |            |       |       |      |   |           |        |
|        |        |   |         |        |      | LO        | - PROVIDE P                             | ERMANENT   | LOC   | K-ON  | DEVI | CE  |           |        |
|        |        |   |         |        |      | M -       | - PROVIDE ME                            | ETERING DE | VICE  | •     |      |   |           |        |
|        |        |   |         |        |      | N -       | NEW WORK,                               | NEW CIRCL  | JIT B | REAK  | ER   |   |           |        |
|        |        |   |         |        |      | .,        | =:: :: :: : : : : : : : : : : : : : : : |            |       |       |      |   |           | _      |

N - NEW WORK, NEW CIRCUIT BREAKER

**EXISTING** 

**Branch Panel: LLS** Location: ELECTRICAL 516 **A.I.C. Rating:** 10,000 Volts: 120/208 Wye Supply From: TLLS Enclosure: Type 1 Phases: 3 Mounting: Surface Wires: 4 Mains: 60A MCB Phase in kVA **Circuit Description Circuit Description** 1 ANSUL -- 3 SPARE -- 5 SPARE  $N \longrightarrow DMSCU-1$ #10 30 2 SPACE N 11 DMS-1 CONDENSATE PUMP SPACE 13 SPACE -- SPACE 15 SPACE 17 SPACE -- SPACE Total Load: 2.5 kVA 2.0 kVA 1.2 kVA Total Amps: 22 A 18 A Load Classification Demand Factor **Estimated Demand** Panel Totals Connected Load 4.0 kVA 100.00% 4.0 kVA 1.7 kVA 100.00% 1.7 kVA Total Conn. Load: 5.7 kVA Miscellaneous Total Est. Demand: 5.7 kVA Total Conn. Current: 16 A Total Est. Demand Current: 16 A Abbrevations: G - PROVIDE GFCI CIRCUIT BREAKER LF - PROVIDE PERMANENT LOCK-OFF DEVICE LO - PROVIDE PERMANENT LOCK-ON DEVICE M - PROVIDE METERING DEVICE N - NEW WORK, NEW CIRCUIT BREAKER

**EXISTING** 

|         |                | Location: ELECTRICAL Supply From: MSA Mounting: Surface | 516               |                |       | PI                | Volts: 277/48<br>hases: 3<br>Wires: 4<br>Phase in | ·                 | ı     |       | 1    | A.I.C. Rating: 10,000<br>Enclosure: Type 1<br>Mains: 250A M | LO     | ı              | ı    |
|---------|----------------|---|-------------------|----------------|-------|-------------------|---|-------------------|-------|-------|------|---|--------|----------------|------|
| Note    | СКТ            | Circuit Description                                     | Wire              | Brea           | ker   | A                 | В   | С                 | Bro   | eaker | Wire | Circuit Descrip   | tion   | СКТ            | Note |
|         | 3              | LIGHTING<br>LIGHTING                                    | (E)               | 20             | 1     | 3.0 / 3.1         | 3.0 / 3.1   | 2.2.10.1          | 3     | 20    |      | AHU-9 VFD (7.5HP)   |        | 2              | N    |
|         | 7              | LIGHTING<br>LIGHTING<br>LIGHTING                        | (E)<br>(E)<br>(E) | 20<br>20<br>20 | 1 1 1 | 3.0 / 3.1         | 3.0 / 3.1   | 3.0 / 3.1         | 3     | 20    | #12  | AHU-7 VFD (7.5HP)   |        | 6<br>8<br>10   | N    |
|         | 11             | LIGHTING<br>LIGHTING<br>LIGHTING                        | (E)<br>(E)        | 20<br>20<br>20 | 1 1   | 3.0 / 7.5         | 3.0 / 3.1   | 3.0 / 3.1         | 3     | 20    | #14  | AUO-1 ALD (1.9UL)   |        | 12             | IN . |
|         | 15             | LIGHTING<br>LIGHTING                                    | (E)<br>(E)        | 20             | 1 1   | 0.071.0           | 3.0 / 7.5   | 3.0 / 7.5         | 3     | 60    | #6   | AHU-14 VFD (20HP)   |        | 16             | N    |
|         | 21             | LIGHTING<br>LIGHTING                                    | (E)               | 20<br>20       | 1 1 1 | 3.0 / 1.3         | 3.0 / 1.3   | 3.0 / 1.3         | 3     | 20    | #12  | AHU-8 VFD (3HP)   |        | 20<br>22<br>24 | N    |
|         | 25<br>27       | LIGHTING<br>EF-9  | (E)               | 20<br>15       | 3     | 1.9 / 3.1         | 1.9 / 3.1   |                   | 3     | 20    | #12  | AHU-10 VFD (7.5HP)  |        | 26<br>28       | N    |
|         | 29<br>31<br>33 | OVERHEAD DOOR   | (E)               | 20             | 3     | 3.0 / 2.0         | 3.0 / 2.0   | 1.9 / 3.1         | 3     | 20    | #12  | B-1   |        | 30<br>32<br>34 | N    |
| N       | 35<br>37       | OUTDOOR WALL PACKS                                      | #12               | 20             | 1     | 0.0 / 2.0         |   | 3.0 / 2.0         |       |       |      |   |        | 36<br>38       |      |
|         |                | EXISTING EGRESS LIGHTING                                | (E)<br>(E)        | 20<br>20       | 1     | 22.21.74          | 0.5 / 2.0   | 2.0 / 2.0         | 3     | 20    | #12  | B2  |        | 40<br>42       | N    |
|         |                |   | Total A           | Amps:          | . '   | 38.9 kVA<br>141 A | 39.4 kVA<br>143 A                                 | 40.9 kVA<br>148 A | ]     |       |      |   |        |                |      |
|         |                | ification   | Connec            |                | oad   |                   | and Factor  | Estimate          |       |       | k k  | Panel 7   | Totals |                |      |
| HVAC    |                |   |                   | 7 kVA          |       |                   | 00.00%  |                   | 7 kV  |       |      |   |        |                |      |
| Heati   |                |   |                   | kVA            |       |                   | 00.00%  |                   | 8 kV/ |       |      | Total Conn. Load:   |        |                |      |
| Lightii |                |   |                   | 0 kVA          |       |                   | 25.00%  | _                 | 5 kV  |       |      | Total Est. Demand:  |        |                |      |
|         | llaneo         | us  |                   | 8 kVA          |       |                   | 00.00%  |                   | 8 kV  |       |      | Total Conn. Current:  |        |                |      |
| Existi  | ng             |   | 0.5               | kVA            |       | 1.                | 25.00%  | 0.6               | 8 kVÆ | ١     |      | Total Est. Demand Current:                                  | 155 A  |                |      |
| Notes   |                |   |                   |                |       | 1                 | brevations:                                       |                   |       |       |      |   |        |                |      |
| - NEV   | V WOF          | RK IN BOLD  |                   |                |       | LF                | PROVIDE GF<br>- PROVIDE PI                        | ERMANENT I        | LOC   | K-OFF | DEVI |   |        |                |      |
|         |                |   |                   |                |       | 1                 | - PROVIDE P                                       |                   |       |       | DEVI | CE  |        |                |      |
|         |                |   |                   |                |       | M -               | PROVIDE ME  | ETERING DEV       | VICE  | -     |      |   |        |                |      |

N - NEW WORK, NEW CIRCUIT BREAKER

NEW

| lote (   |          | Supply From: MSA  Mounting: Surface |       |        |      | PI                 | Volts: 277/48<br>hases: 3<br>Wires: 4<br>Phase in |             |      |        |        | A.I.C. Rating: 65,000 Enclosure: Type 1 Mains: 400A M | <b>1</b> LO |          |
|----------|----------|-------------------------------------|-------|--------|------|--------------------|---|-------------|------|--------|--------|---|-------------|----------|
| iote (   | CKT      | Circuit Description                 | Wire  | Brea   | lko# | Δ.                 | В   | С           | D.,  | eaker  | \\/iwo | Circuit Descri  | ntion       | Note     |
|          | 1        | Circuit Description                 | vvire | brea   | Ker  | <b>A</b> 1.9 / 1.9 | В   | C           | Dr   | еакег  | vvire  | Circuit Descri  | ption CK1   | Note     |
|          | 3        | HWP-1 VFD (7.5 HP)                  | #12   | 20     | 3    | 1.07 1.0           | 1.9 / 1.9   | 10/10       | 3    | 20     | #12    | HWP-2 VFD (7.5 HP)                                    | 4           |          |
| +        | 5<br>7   |                                     |       |        |      | 3.7 / 3.7          |   | 1.9 / 1.9   |      |        |        |   | 6 8         |          |
|          | 9        | PCHWP-1 VFD (15 HP)                 | #12   | 20     | 3    | 0.7 7 0.7          | 3.7 / 3.7   | 27/27       | 3    | 20     | #12    | PCHWP-2 VFD (15 HP)                                   | 10<br>12    |          |
|          | 11<br>13 |                                     |       |        |      | 5.0 / 5.0          |   | 3.7 / 3.7   |      |        |        |   | 12          |          |
|          | 15       | SCHWP-1 VFD (20 HP)                 | #6    | 60     | 3    | 3.0 / 3.0          | 5.0 / 5.0   | 50/50       | 3    | 60     | #6     | SCHWP-2 VFD (20 HP)                                   | 16          |          |
|          | 17<br>19 |                                     |       |        |      | 0.4 / 0.4          |   | 5.0 / 5.0   |      |        |        |   | 18<br>20    |          |
|          | 21       | HWP-3 (1.5 HP)                      | #12   | 20     | 3    | 0.4 / 0.4          | 0.4 / 0.4   |             | 3    | 20     | #12    | HWP-4 (1.5 HP)  | 22          |          |
|          | 23       |                                     |       |        |      | 140/17             |   | 0.4 / 0.4   |      |        |        |   | 24<br>26    |          |
| $\vdash$ | 25<br>27 | ACCU-7                              | #4    | 70     | 3    | 14.9 / 1.7         | 14.9 / 1.7  |             | 3    | 20     | #12    | EUH-3 (5 KW)  | 28          |          |
|          | 29       |                                     |       |        |      |                    |   | 14.9 / 1.7  |      |        |        | ,   | 30          |          |
|          | 31       |                                     |       |        |      | 12.5 / 0.0         |   |             | _    |        |        |   | 32          |          |
|          | 33<br>35 | ACCU-10                             | #6    | 60     | 3    |                    | 12.5 / 0.0  | 12.5 / 0.0  | 3    | 20     |        | SPARE   | 34<br>36    |          |
|          | 37       |                                     |       |        |      | 1.7 / 0.0          |   | 12.5 / 0.0  |      |        |        |   | 38          |          |
|          |          | EUH-1 (5 KW)                        | #12   | 20     | 3    | 1.7 7 0.0          | 1.7 / 0.0   |             | 3    | 60     |        | SPARE   | 40          | <b>-</b> |
|          | 41       | ,                                   |       |        |      |                    |   | 1.7 / 0.0   |      |        |        |   | 42          |          |
|          | 43       |                                     |       |        |      | 1.7 / 0.0          |   |             | 1    |        |        | SPACE   | 44          |          |
|          |          | EUH-2 (5 KW)                        | #12   | 20     | 3    |                    | 1.7 / 0.0   | 4.7./0.0    | 1    |        |        | SPACE   | 46          |          |
|          | 47<br>49 | SPARE                               |       | 20     | 1    | 0.0 / 0.0          |   | 1.7 / 0.0   | 1    |        |        | SPACE SPACE   | 48<br>50    |          |
|          | 51       | SPARE SPARE                         |       | 20     | 1    | 0.0 / 0.0          | 0.0 / 0.0   |             | 1    |        |        | SPACE   | 52          |          |
|          | 53       | SPARE                               |       | 20     | 1    |                    | 0.070.0   | 0.0 / 0.0   | 1    |        |        | SPACE   | 54          |          |
|          | 55       | SPACE                               |       |        | 1    | 0.0 / 0.0          |   |             | 1    |        |        | SPACE   | 56          |          |
|          | 57       | SPACE                               |       |        | 1    |                    | 0.0 / 0.0   |             | 1    |        |        | SPACE   | 58          |          |
|          | 59       | SPACE                               |       |        | 1    | 0.0/0.0            |   | 0.0 / 0.0   | 1    |        |        | SPACE   | 60          |          |
|          | 61<br>63 | SPACE<br>SPACE                      |       |        | 1    | 0.0 / 0.0          | 0.0 / 0.0   |             | 1    |        |        | SPACE SPACE   | 62<br>64    |          |
|          | 65       | SPACE<br>SPACE                      |       |        | 1    |                    | 0.070.0   | 0.0 / 0.0   | 1    |        |        | SPACE   | 66          |          |
|          | 67       | SPACE                               |       |        | 1    | 0.0 / 0.0          |   | 0.07 0.0    | 1    |        |        | SPACE   | 68          |          |
| _        | 69       | SPACE                               |       |        | 1    |                    | 0.0 / 0.0   |             | 1    |        |        | SPACE   | 70          |          |
|          | 71       | SPACE                               |       |        | 1    |                    |   | 0.0 / 0.0   | 1    |        |        | SPACE   | 72          |          |
|          | 73       | SPACE                               |       |        | 1    | 0.0 / 0.0          |   |             | 1    |        |        | SPACE   | 74          |          |
|          | 75<br>77 | SPACE<br>SPACE                      |       |        | 1    |                    | 0.0 / 0.0   | 0.0/0.0     | 1    |        |        | SPACE SPACE   | 76<br>78    |          |
|          | 79       | SPACE<br>SPACE                      |       |        | 1    | 0.0 / 0.0          |   | 0.0 / 0.0   | -    |        |        | SPACE   | 80          |          |
|          | 81       | SPACE                               |       |        | 1    | 0.07 0.0           | 0.0 / 0.0   |             | 3    | 30     | #10    | SPDL  | 82          |          |
|          | 83       | SPACE                               |       |        | 1    |                    |   | 0.0 / 0.0   |      |        |        |   | 84          |          |
|          |          |                                     | Total | Load:  | :    | 54.4 kVA           | 54.4 kVA  | 54.4 kVA    |      |        |        |   |             |          |
|          |          |                                     | Total | Amps:  | :    | 196 A              | 196 A   | 196 A       |      |        |        |   |             |          |
|          | Classi   | fication                            | Conne |        |      |                    | and Factor  | Estimate    |      |        |        | Panel   | Totals      |          |
| VAC      |          |                                     |       | .9 kVA |      |                    | 00.00%  | 132.        |      |        |        |   |             |          |
| eating   |          |                                     |       | 3 kVA  |      |                    | 00.00%  | 15.3        |      |        |        | Total Conn. Load:                                     |             |          |
|          | aneou    | IS                                  |       | ) kVA  |      | _                  | 0.00%   |             | kV/  |        |        | Total Est. Demand:                                    |             |          |
| otor     |          |                                     | 14.   | 9 kVA  |      | 10                 | 00.00%  | 14.9        | 9 kV | Ά      |        | Total Conn. Current:                                  |             |          |
|          |          |                                     |       |        |      |                    |   |             |      |        |        | Total Est. Demand Current:                            | 196 A       |          |
|          |          |                                     |       |        |      |                    |   |             |      |        |        |   |             |          |
| lotes:   |          |                                     |       |        |      | 1                  | brevations:                                       |             |      |        |        | FEED TH   | ROUGH LUGS  |          |
|          |          |                                     |       |        |      | 1                  | PROVIDE GF  |             |      |        |        |   |             |          |
|          |          |                                     |       |        |      |                    | - PROVIDE PI                                      |             |      |        |        |   |             |          |
|          |          |                                     |       |        |      | LO                 | - PROVIDE P                                       | ERMANENT I  | LOC  | K-ON I | DEVIC  | DE  |             |          |
|          |          |                                     |       |        |      | M -                | PROVIDE ME  | ETERING DEV | VICE | Ē      |        |   |             |          |

Salas O'Brien

281-664-1900

10930 W. Sam Houston Pkwy North, Suite 900 Houston, TX 77064 Registration: F-4111 Project Number: 2550-00346-00

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**PROFESSIONAL SEAL** 



ISSUE DATE DESCRIPTION ISSUE FOR BID 2025-08-11



2550-00346-00 Galena Park Independent **School District** 

Havard **Elementary** School HVAC **Modifications** -**GPISD Project** #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

1 ADDENDUM #2

Δ DESCRIPTION

DATE

08/14/2025

CHECKED BY DRAWN BY

SHEET NAME

ELECTRICAL **PANEL** 

SHEET NUMBER | REVISION

E4.02

PANELBOARD CIRCUIT DIRECTORY: CONTRACTOR SHALL RECORD AND/OR PRESERVE THE EXISTING CIRCUIT DIRECTORY, IF ANY, FOR THE SOLE PURPOSE UPON COMPLETION OF NEW WORK OF PRODUCING A NEW DIRECTORY. CONTRACTOR SHALL PROVIDE AS PART OF THE CONSTRUCTION DOCUMENTS A NEW, NEATLY TYPED DIRECTORY. CONTRACTOR SHALL TRACE EXISTING CIRCUITS AND SHALL LEGIBLY IDENTIFY AS TO IT'S CLEAR, EVIDENT, AND SPECIFIC PURPOSE OR USE, LOADS SERVED, LOCATION AND/OR THE PANELBOARD SCHEDULE ON THE DRAWINGS. THE WORD "EXISTING" SHALL NOT BE USED ON PANELBOARD DIRECTORIES. SPARE BREAKERS ARE TO BE LISTED AS "SPARE" AND SWITCHED TO THE OFF POSITION. SPACES WITH NO BREAKERS ARE TO BE LEFT BLANK. REFER TO NEC-2023: 408.4(A) FOR DETAILS. CONTRACTOR SHALL PERMANENTLY LABEL AS PART OF THE CONSTRUCTION DOCUMENTS ALL SWITCHBOARDS, SWITCHGEAR AND PANELBOARDS TO INDICATE EACH POWER SOURCE. REFER TO

NEC-2023: 408.4(A) FOR DETAILS.

|  |            | Branch Panel: HE                         |             |         |  |                    |  |                        |       |          |        |                            |            |          |            |
|--|------------|--|-------------|---------|--|--------------------|--|------------------------|-------|----------|--------|----------------------------|------------|----------|------------|
| Location: MECH RM#608 Supply From: DPA |            |  |             |         | Volts: 277/480 Wye A.I.C. Rating: 18,000 Phases: 3 Enclosure: Type 1 |                    |  |                        |       |          |        |                            |            |          |            |
|  |            | Mounting: Surface                        |             |         |  |                    | Wires: 4   |                        |       |          |        | <b>Mains:</b> 225A M       | <b>ILO</b> |          |            |
|  |            |  |             |         |  |                    | Phase in   | kVA                    |       |          |        |                            |            |          |            |
| Nata                                   | CVT        | Circuit Description                      | \A/:        | a Bra   | alcan  |                    | В  |                        | Bus   | aker     | \A/iwa | Circuit Passari            |            | CKT      | Na         |
| Note<br>N                              | <b>CKT</b> | Circuit Description OUTSIDE LIGHTS       | Wir<br>#12  |         |  | <b>A</b> 3.0 / 3.0 | В  | С                      | Bre   | aker     | vvire  | Circuit Descri             | ption      | 2 CKT    | NO         |
| N                                      | 3          | PARKING LIGHTS                           | #12         |         | 1  | 3.073.0            | 3.0 / 3.0  |                        | 3     | 20       | (F)    | AHU (7.5HP)                |            | 4        |            |
|  | 5          | CLASSROOM LIGHTS                         | (E)         |         | 1  |                    | 0.07 0.0   | 3.0 / 3.0              |       |          | (-/    |                            |            | 6        |            |
|  | 7          | CLASSROOM LIGHTS                         | (E)         |         | 1  | 3.0 / 0.           | 5  |                        | 1     | 20       | (E)    | CVT-1A (3/4HP)             |            | 8        |            |
|  | 9          | CLASSROOM LIGHTS                         | (E)         | 20      | 1  |                    | 3.0 / 0.5  |                        | 1     | 20       | (E)    | CVT-2A (3/4HP)             |            | 10       |            |
|  | 11         | CLASSROOM LIGHTS                         | (E)         | 20      | 1  |                    |  | 3.0 / 0.5              | 1     | 20       | (E)    | CVT-3A (3/4HP)             |            | 12       |            |
|  | 13         | CORRIDOR/MECH LIGHTS                     | (E)         | 20      | 1  | 3.0 / 0.           |  |                        | 1     | 20       |        | CVT-4A (3/4HP)             |            | 14       | _          |
|  |            | SPARE                                    |             | 20      | 1  |                    | 0.0 / 0.5  | 00/00                  | 1     | 20       |        | CVT-5A (3/4HP)             |            | 16       | _          |
|  |            | SPARE SPARE                              |             | 20      | 1  | 0.0 / 0.0          |  | 0.0 / 0.0              | 1     | 20<br>20 |        | SPARE SPARE                |            | 18<br>20 |            |
|  |            | SPARE                                    |             | 20      | 1  | 0.0 / 0.0          | 0.0 / 0.0  |                        | 1     | 20       |        | SPARE                      |            | 22       | -          |
|  |            | SPARE                                    |             | 20      | 1  |                    | 0.070.0  | 0.0 / 0.0              | 1     | 20       |        | SPARE                      |            | 24       | <u></u>    |
|  | 25         | SPARE                                    |             | 20      | 1  | 0.0 / 0.0          | )  | 0.07 0.0               | 1     | 20       |        | SPARE                      |            | 26       | <b>-</b> - |
|  |            | SPACE                                    |             |         | 1  |                    | 0.0 / 0.0  |                        | 1     |          |        | SPACE                      |            | 28       |            |
|  |            | SPACE                                    |             |         | 1  |                    |  | 0.0 / 0.0              | 1     |          |        | SPACE                      |            | 30       |            |
|  |            | SPACE                                    |             |         | 1  | 0.0 / 0.0          |  |                        | 1     |          |        | SPACE                      |            | 32       |            |
|  |            | SPACE                                    |             |         | 1  |                    | 0.0 / 0.0  |                        | 1     |          |        | SPACE                      |            | 34       |            |
| $\gamma\gamma$                         | ᢙᢆ         | ABAGETTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT | $\sim \sim$ | $\sim$  | $^1$   |                    |  | 0.0 / 0.0              | 1     |          |        | SPACE                      |            | 36       |            |
| N                                      |            | SPDL                                     | #10         | 30      | <b>3</b> 3   | 0.0 / 15           | 0.0 / 15.0   |                        | 3     | 125      | (E)    | XFMR XLE (75KVA)           |            | 38<br>40 |            |
| <u></u>                                | 41<br>     |  | mary.       | r Load  | _ز_  | 28.0 kV            | A 25.0 kVA   | 0.0 / 15.0<br>24.5 kVA |       |          |        |                            |            | 42       |            |
|  |            |  |             | l Amps  |  | 101 A              | 91 A   | 88 A                   |       |          |        |                            |            |          |            |
|  |            | ification                                |             | ected l |  | D                  | emand Factor   | Estimate               |       |          | i      | Panel                      | Totals     |          |            |
| HVAC                                   | ;          |  | 2           | .5 kVA  |  |                    | 100.00%  |                        | 5 kVA |          |        |                            |            |          |            |
| _ightir                                | ng         |  | 2           | 1.0 kVA | ١.   |                    | 125.00%  | 26.                    | 3 kVA | 4        |        | Total Conn. Load:          | 77.5 kVA   |          |            |
| Misce                                  | llaneo     | us                                       | 9           | .0 kVA  |  |                    | 100.00%  | 9.0                    | 0 kVA |          |        | Total Est. Demand:         | 94.0 kVA   |          |            |
| Existir                                | ng         |  | 4:          | 5.0 kVA | ١  |                    | 125.00%  | 56.                    | 3 kVA | 4        |        | Total Conn. Current:       | 93 A       |          |            |
|  |            |  |             |         |  |                    |  |                        |       |          |        | Total Est. Demand Current: | 113 A      |          |            |
|  |            |  |             |         |  |                    |  |                        |       |          |        |                            |            |          |            |
| Notes                                  |            |  |             |         |  |                    | Abbrevations:  |                        |       |          |        |                            |            |          |            |
| 10100                                  | <b>,</b> . |  |             |         |  |                    | G - PROVIDE GF   | CI CIRCI IIT I         | BREA  | VKED     |        |                            |            |          |            |
|  |            |  |             |         |  |                    | LF - PROVIDE P   |                        |       |          | DEM    | CE                         |            |          |            |
|  |            |  |             |         |  |                    | _  |                        |       | _        |        |                            |            |          |            |
|  |            |  |             |         |  |                    |  |                        |       |          | DFAI(  | JE .                       |            |          |            |
|  |            |  |             |         |  |                    | LO - PROVIDE PERMANENT LOCK-ON DEVICE  M - PROVIDE METERING DEVICE |                        |       |          |        |                            |            |          |            |
|  |            |  |             |         |  |                    | M - PROVIDE ME<br>N - NEW WORK,                                    |                        |       |          |        |                            |            |          |            |

|          |          | Branch               | n Panel: HD  |                   |       |     |            |                                       |                           |               |              |   |                            |  |          |     |  |  |
|----------|----------|----------------------|--|-------------------|-------|-----|------------|---------------------------------------|---------------------------|---------------|--------------|---|----------------------------|--|----------|-----|--|--|
|          |          |                      | Location: MECH RM#4 Supply From: Mounting: Surface |                   |       |     | Pł         | Volts: 277/48<br>nases: 3<br>Wires: 4 | 80 Wye                    |               |              | A.I.C. Rating: 18,000  Enclosure: Type 1  Mains: 225A MLO |                            |  |          |     |  |  |
|          |          |                      |  |                   |       |     |            | Phase in kVA                          |                           |               |              |   | T                          |  |          |     |  |  |
| lote     | СКТ      | г                    | Circuit Description                                | Wire              | Break | er  | Α          | В                                     | С                         | Bre           | eaker        | Wire  | Circuit Descri             | otion  | CKI      | No  |  |  |
|          | 1        | LIGHTING             |  | (E)               | 20    |     | 3.0 / -0.2 | _                                     | (                         |               | <b>**</b> ** |   |                            | <del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del> | 2        | ~   |  |  |
|          | 3        | LIGHTING             |  | (E)               |       | 1   |            | 3.0 / -0.2                            |                           | 3             | 40           | #8  | AHU-11 (15 HP)             |  | 4        | N   |  |  |
|          | 5        | LIGHTING             |  | (E)               |       | 1   |            |                                       | 3.0 / -0.2                |               |              |   |                            |  | 6        |     |  |  |
|          | 7        | LIGHTING             |  | (E)               |       |     | 3.0 / -0.2 | 20/02                                 |                           | _             | 20           | 440   | AUU 40 (40 UD)             |  | 8        | ┤ 、 |  |  |
|          | 9<br>11  | LIGHTING<br>LIGHTING |  | (E)               |       | 1   |            | 3.0 / -0.2                            | 3.0 / -0.2                | 3             | 30           |   | AHU-12 (10 HP)             |  | 10       | N   |  |  |
|          | 13       | _                    |  | (E)               |       |     | 3.0 / 3.3  |                                       | 3.07-0.2                  | 4             | سيد          | سببر<br>(F)   | VAV's                      | mmm  | 14       | 4   |  |  |
|          | 15       | CORRIDOR             | LIGHTING   | (E)               |       | 1   | 0.07 0.0   | 3.0 / 3.3                             |                           | 1             | 20           | (E)   | VAV's                      |  | 16       |     |  |  |
|          | 17       |                      |  | (E)               | 20    | 1   |            |                                       | 3.0 / 2.8                 | 1             | 20           | (E)   | VAV's                      |  | 18       |     |  |  |
|          | 19       |                      |  | (E)               | 20    | 1   | 3.0 / 3.4  |                                       |                           | 1             | 20           | (E)   | VAV's                      |  | 20       |     |  |  |
| $\sim$   | ~21-     | CORBIDOR             | HCHI HOM   | ~~~{\\frac{1}{2}} | 2     | 1   |            | 3.0 / 3.4                             |                           | 1             | 20           |   | VAV's                      |  | 22       |     |  |  |
| <u>ل</u> | 23       |                      | IGHTING  | #12               | 20    | )1  | 4.5.40.0   |                                       | 3.0 / 9.0                 | 1             | 40           |   | EWD-D-1                    |  | 24       |     |  |  |
|          |          | TMEZZANTNE           | LIGHTING   | ع) را             | 200   | 1   | 1.5 / 3.0  | 0.3 / 1.5                             |                           | 1             | 20           |   | EWD-D-2                    |  | 26<br>28 |     |  |  |
|          | 27<br>29 | P.B.S.               |  | (E)               | 100   | 2 – |            | 0.371.5                               | 0.3 / 1.5                 | 2             | 100          | (E)   | P.B.S                      |  | 30       | +   |  |  |
|          | 31       | Existing             |  | (E)               | 20    | 1   | 0.5 / 0.0  |                                       | 0.57 1.5                  |               |              |   |                            |  | 32       |     |  |  |
|          | 33       | Existing             |  | (E)               | 20    | 1   |            | 0.5 / 0.0                             |                           | 3             | 30           | (E)   | TVSS                       |  | 34       | 1   |  |  |
|          | 35       |                      |  |                   |       | 1   |            |                                       | 0.0 / 0.0                 |               |              | ` '   |                            |  | 36       |     |  |  |
|          | 37       | SPACE                |  |                   |       | _   | 0.0 / 15.0 |                                       |                           |               |              |   |                            |  | 38       |     |  |  |
|          | 39       | Existing             |  | (E)               | 20    | 1   |            | 0.5 / 15.0                            |                           | 3             | 125          | (E)   | XFMR XLD                   |  | 40       |     |  |  |
|          | 41       | EGRESS LIG           | SHTING   | (E)               |       | 1   | 00.011/4   | 00.011/4                              | 2.0 / 15.0                |               |              |   |                            |  | 42       |     |  |  |
|          |          |                      |  | Total             |       |     | 38.2 kVA   | 36.0 kVA                              | 42.1 kVA                  |               |              |   |                            |  |          |     |  |  |
|          |          |                      |  | Total A           |       |     | 139 A      | 130 A                                 | 153 A                     |               |              |   |                            |  |          |     |  |  |
|          |          | sification           |  | Connec            |       | ad  |            | and Factor                            | Estimate                  |               |              | <b>t</b>  | Panel                      | Totals   |          |     |  |  |
| VAC      |          |                      |  |                   | 7 kVA |     |            | 00.00%                                |                           | 7 kV          |              |   |                            |  |          |     |  |  |
| ghti     |          |                      |  |                   | 5 kVA |     |            | 25.00%                                |                           | 4 kV          |              |   | Total Conn. Load:          |  |          |     |  |  |
|          | ellane   | ous                  |  |                   | 0 kVA |     |            | 00.00%                                |                           | 0 kV          |              |   | Total Est. Demand:         |  |          |     |  |  |
| xisti    | ng       |                      |  | 50.0              | 0 kVA |     | 12         | 25.00%                                | 62.                       | 5 kV          | A            |   | Total Conn. Current:       |  |          |     |  |  |
|          |          |                      |  |                   |       |     |            |                                       |                           |               |              |   | Total Est. Demand Current: | 167 A  |          |     |  |  |
|          |          |                      |  |                   |       |     |            |                                       |                           |               |              |   |                            |  |          |     |  |  |
| otes     | S:       |                      |  |                   |       |     | Abl        | brevations:                           |                           |               |              |   |                            |  |          |     |  |  |
|          |          |                      |  |                   |       |     |            | PROVIDE GF                            | CI CIRCUIT                | BRF           | AKER         |   |                            |  |          |     |  |  |
|          |          |                      |  |                   |       |     |            | - PROVIDE P                           |                           |               |              |   | ICE                        |  |          |     |  |  |
|          |          |                      |  |                   |       |     |            | - PROVIDE P                           |                           |               |              |   |                            |  |          |     |  |  |
|          |          |                      |  |                   |       |     |            | PROVIDE ME                            |                           |               |              |   |                            |  |          |     |  |  |
|          |          |                      |  |                   |       |     | IVI -      |                                       | _ 1 L 1 1 1 1 1 1 1 1 1 1 | $v \cup \Box$ | _            |   |                            |  |          |     |  |  |

|  |                | Branch Panel: HC    |         |       |     |            |  |             |              |   |            |  |         |  |
|--|----------------|---------------------|---------|-------|-----|------------|--|-------------|--------------|---|------------|--|---------|--|
| Location: MECH RM#3 Supply From: DPA Mounting: Surface |                |                     |         |       |     | i          | Volts: 277/48<br>Phases: 3<br>Wires: 4<br>Phase in | ·           |              | A.I.C. Rating: 65,000 Enclosure: Type 1 Mains: 225A MLO |            |  |         |  |
| lote   | скт            | Circuit Description | Wire    | Brea  | ker | A          | В  | С           | Bı           | eakei   | w          | ireCircuit Description                 | CKT Not |  |
|  |                | LIGHTING            | (E)     | 20    | 1   | 3.0 / -0.2 |  |             |              | ~~  | ~~         |  | 5 5 x   |  |
|  |                | LIGHTING            | (E)     | 20    | 1   |            | 3.0 / -0.2   |             | 3            | 30  | #          | 10 AHU-6 (10 HP)                       | 4 N     |  |
|  |                | LIGHTING            | (E)     | 20    | 1   |            |  | 3.0 / -0.2  | 7            |   |            | ,                                      | 6       |  |
|  |                | LIGHTING            | (E)     | 20    | 1   | 3.0 / -0.2 |  |             | ع            |   |            |  | 8       |  |
|  |                | LIGHTING            | (E)     | 20    | 1   |            | 3.0 / -0.2   |             | 3            | 40  | #          | #8 AHU-5 (15 HP)                       | 10 N    |  |
|  |                | LIGHTING            | (E)     | 20    | 1   |            |  | 3.0 / -0.2  | <b>Y</b> u   | m   | سار        | mannaman and a second                  | سينثله  |  |
|  |                | LIGHTING            | (E)     | 20    | 1   | 3.0 / 3.3  |  |             | 1            | 20  |            | E) VAV's                               | 14      |  |
|  |                | LIGHTING            | (E)     | 20    | 1   |            | 3.0 / 3.3  |             | 1            | 20  |            | E) VAV's                               | 16      |  |
|  |                | CORRIDOR LIGHTING   | (E)     | 20    | 1   |            | 4  | 3.0 / 2.8   | 1            | 20  |            | E) VAV's                               | 18      |  |
|  |                | Existing            | (E)     | 20    | 1   | 0.5 / 3.4  |  |             | 1            | 20  | <u> (E</u> | E) VAV's                               | 20      |  |
|  |                | CORRIDOR LIGHTING   | (E)     | 20    | 1   |            | 3.0 / 9.0  | 4.5.40.0    | 1            | 40  | ( <u>(</u> | E) EWH-C-1                             | 22      |  |
|  |                | MEZZANINE LIGHTING  | (E)     | 20    | 1   | 0.5./0.5   | 4  | 1.5 / 3.0   | 1            | 20  |            | E) EWH-C-2                             | 24      |  |
|  |                | Existing            | (E)     | 20    | 1   | 0.5 / 0.5  | 0.0/05   |             | 1            | 20  |            | E) Existing                            | 26      |  |
|  |                | SPACE               |         |       | 1   |            | 0.0 / 0.5  | 0.0/0.5     | 1            | 20  | (E         |  | 28      |  |
|  |                | SPACE               |         |       | 1   | 0.0.10.5   |  | 0.0 / 0.5   | 1            | 20  | (E         |  | 30      |  |
| -  |                | SPACE<br>SPACE      |         |       | 1   | 0.0 / 0.5  | 0.0700   |             | 1            | 20  | 1)         | E) Existing SPACE                      | 32      |  |
|  |                | SPACE               |         |       | 1   |            | 0.0 / 0.0  | 0.0 / 0.0   | 1            |   | -          | SPACE                                  | 34      |  |
|  |                | SPACE               |         |       | 1   | 0.0 / 0.0  |  | 0.0 / 0.0   |              | حيد   | ₩          | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | يىلىۋۇر |  |
|  |                | SPACE               |         |       | 1   | 0.070.0    | 0.0 / 0.0  |             | 3            | 30  | 4,         | 10 SPDL                                | 40 N    |  |
| <br>N  |                | EGRESS LIGHTING     |         | 20    | 1   |            | 0.070.0  | 2.0 / 0.0   | <b>}</b>     | 30  | "          | IU GFDL                                | 42      |  |
| IN   | 41             | LGINESS LIGITING    | Total   |       | I   | 17.2 kVA   | 24.3 kVA   | 18.3 kVA    | <del>\</del> | سل  | ╙          | <del>ununununun</del>                  | سكت     |  |
|  |                |                     |         |       | Į   |            |  |             |              |   |            |  |         |  |
|  |                |                     | Total A |       |     | 62 A       | 88 A   | 67 A        |              |   |            |  |         |  |
|  |                | ification           | Connec  |       | oad |            | nand Factor  | Estima      |              |   | ıd         | Panel Totals                           |         |  |
| IVA(   |                |                     | 11.3    | 3 kVA |     |            | 100.00%  | 1           | 1.3 k\       | /A  |            |  |         |  |
| ighti  | ng             |                     | 33.5    | 5 kVA |     |            | 125.00%  | 4           | 1.9 k\       | /A  |            | Total Conn. Load: 59.8 kVA             |         |  |
|  | ellaneo        | us                  | 12.0    | ) kVA |     |            | 100.00%  | 1:          | 2.0 k\       | /A  |            | Total Est. Demand: 68.9 kVA            |         |  |
| xisti  |                |                     |         | kVA   |     |            | 125.00%  |             | 3.8 kV       |   |            | Total Conn. Current: 72 A              |         |  |
|  | · <del>J</del> |                     | 3.0     |       |     |            |  |             |              | •   |            | Total Est. Demand Current: 83 A        |         |  |
|  |                |                     |         |       |     |            |  |             |              |   |            | Total Lat. Demand Odifent. 03 A        |         |  |
|  |                |                     |         |       |     |            |  |             |              |   |            |  |         |  |
|  |                |                     |         |       |     |            |  |             |              |   |            |  |         |  |
| Note:  | s:             |                     |         |       |     | A          | bbrevations:                                       |             |              |   |            |  |         |  |
|  |                |                     |         |       |     | G          | - PROVIDE GF                                       | FCI CIRCUIT | Γ BRE        | AKEF  | ₹          |  |         |  |
|  |                |                     |         |       |     | l          | F - PROVIDE P                                      |             |              |   |            |  |         |  |

LO - PROVIDE PERMANENT LOCK-ON DEVICE

N - NEW WORK, NEW CIRCUIT BREAKER

M - PROVIDE METERING DEVICE

|          |          | Branch Panel: HB       |         |  |            |              |             |          |        |   |       |               |
|----------|----------|------------------------|---------|--|------------|--------------|-------------|----------|--------|---|-------|---------------|
|          |          | Location: MECH RM#2    |         |  |            | Volts: 277/4 | 80 Wye      |          |        | <b>A.I.C. Rating:</b> 65,000            |       |               |
|          |          | Supply From: DPA       |         |  | P          | hases: 3     |             |          |        | Enclosure: Type 1                       |       |               |
|          |          | Mounting: Surface      |         |  |            | Wires: 4     |             |          |        | Mains: 225A MLO                         |       |               |
|          |          |                        |         |  |            | Phase in     | kVA         |          |        |   |       |               |
|          |          |                        |         |  |            |              |             |          |        |   |       |               |
| Note     |          | Circuit Description    |         | Breaker                                    | Α          | В            | С           | Bre      | eaker  | Wire Circuit Description                | СКТ   | No            |
|          |          | LIGHTING               | (E)     | 20 1                                       | 3.5 / -0.2 |              |             |          |        |   | 2     |               |
|          |          | LIGHTING               | (E)     | 20 1                                       |            | 3.5 / -0.2   |             | 3        | 30     | #10 AHU-3 (10 HP)                       | 4     | _ N           |
|          |          | LIGHTING               | (E)     | 20 1                                       | 0.01.00    |              | 3.5 / -0.2  |          |        |   | 6     | +             |
|          |          | LIGHTING<br>LIGHTING   | (E)     | 20 1                                       | 2.3 / -0.2 | 25/02        |             | ,        | 20     | #42 AULI 4 (E UD)                       | 8     | ١,            |
|          |          | LIGHTING               | (E)     | 20 1<br>20 1                               |            | 3.5 / -0.2   | 3.5 / -0.2  | 3        | 20     | #12 AHU-4 (5 HP)                        | 10    | N             |
|          |          | CORRIDOR LIGHTING      | (L)     | 20 1                                       | 3.4 / -0.2 |              | 3.37 -0.2   |          |        |   | 14    | +             |
| $\sim$   | 15<br>15 |                        | A A A A | <b>├</b> ~~~                               | 0.47 0.2   | 2.0 / -0.2   |             | 3        | 20     | #12 AHU-13 (5 HP)                       | 16    | $\dashv$ N    |
| N        | 17       | EXTERIOR POLE LIGHTING | #12     | <b>20 2</b> 2                              |            |              | 2.0 / -0.2  |          |        |   | 18    | 1             |
| N        |          | EXTERIOR LIGHTING      | #12     | <b>20 3</b> 1                              | 2.0 / 3.4  |              |             | 1        | 20     | (E) VAV's                               | 20    |               |
| N.       |          | EXTERIOR LIGHTING      | #12     |  |            | 2.0 / 2.1    |             | 1        | 20     | (E) VAV's                               | 22    |               |
| <b>\</b> | 23       | MEZZANINE LIGHTING     | (E)     | 20 1                                       |            |              | 2.0 / 3.1   | 1        | 20     | (E) VAV's                               | 24    |               |
|          |          | Existing               | (E)     | 20 1                                       | 0.5 / 3.5  |              |             | 1        | 20     | (E) VAV's                               | 26    |               |
|          |          | Existing               | (E)     | 20 1                                       |            | 0.5 / 0.5    |             | 1        | 20     | (E) Existing                            | 28    |               |
|          |          | Existing               | (E)     | 20 1                                       | 0.0.4.0.0  |              | 0.5 / 0.5   | 1        | 20     | (E) Existing                            | 30    |               |
|          |          | SPACE                  |         | 1  | 0.0 / 6.0  | 0.0/0.0      |             |          | 40     | (E) ENAME 4.4                           | 32    | 4             |
|          |          | SPACE<br>SPACE         |         | 1<br>1                                     |            | 0.0 / 6.0    | 0.0 / 6.0   | 3        | 40     | (E)  EWH-4-1                            | 34    | -             |
|          |          | SPACE                  |         | 1  | 0.0 / 0.0  |              | 0.076.0     | 1        | $\sim$ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 38    | ~             |
|          |          | SPACE                  |         | <u>                                   </u> | 0.07 0.0   | 0.0 / 0.0    |             | 3        | 30     | #10 SPDL                                | 40    | $\frac{1}{N}$ |
|          |          | EGRESS LIGHTING        | (E)     | 20 1                                       |            | 0.07 0.0     | 2.0 / 0.0   | <b> </b> | 00     |   | 42    | ┤ '`          |
|          |          | Zorizoo zioiiiito      |         | Load:                                      | 23.9 kVA   | 19.4 kVA     | 22.4 kVA    | 1        | سس     | ······································  | ستنبه | し             |
|          |          |                        |         | Amps:                                      | 88 A       | 70 A         | 82 A        |          |        |   |       |               |
| Load     | Classi   | ification              |         | cted Load                                  |            | and Factor   | Estimat     | ed De    | emand  | Panel Totals                            |       |               |
| HVAC     |          |                        |         | 9 kVA                                      |            | 00.00%       |             | 9 kVA    |        |   |       |               |
|          |          |                        |         | 2 kVA                                      |            | 25.00%       |             | .0 kV    |        | Total Conn. Load: 65.6 kVA              |       |               |
| Lightii  |          |                        |         | 0 kVA                                      |            |              |             |          |        |   |       |               |
|          | llaneou  | ıs                     |         |  |            | 00.00%       |             | .0 kV    |        | Total Est. Demand: 75.0 kVA             |       |               |
| Existi   | ng       |                        | 2.9     | 5 kVA                                      | 1          | 25.00%       | 3.          | 1 kVA    | 4      | Total Conn. Current: 79 A               |       |               |
|          |          |                        |         |  |            |              |             |          |        | Total Est. Demand Current: 90 A         |       |               |
|          |          |                        |         |  |            |              |             |          |        |   |       |               |
| Notes    | S:       |                        |         |  | Ah         | brevations:  |             |          |        |   |       |               |
|          |          |                        |         |  |            | PROVIDE G    | FCI CIRCUIT | BRF      | AKFR   |   |       |               |
|          |          |                        |         |  | 1          |              |             |          |        | DEVICE                                  |       |               |
|          |          |                        |         |  | 1          | - PROVIDE P  |             |          |        |   |       |               |
| ı        |          |                        |         |  |            | - PROVIDE F  |             |          |        | DEVICE                                  |       |               |
|          |          |                        |         |  | M -        | - PROVIDE M  | E FERING DE | VICE     | =      |   |       |               |
|          |          |                        |         |  |            | NEW WORK     |             |          |        |   |       |               |

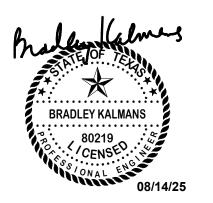
|          |        | Branch Panel: HA                                       |                          |   |            |               |            |                 |          |                            |   |                     |          |
|----------|--------|--|--------------------------|---|------------|---------------|------------|-----------------|----------|----------------------------|---|---------------------|----------|
|          |        | Location: MECH RM#1 Supply From: DPA Mounting: Surface |                          | Volts: 277/480 Wye Phases: 3 Wires: 4 What is a street of the street of |            |               |            |                 |          |                            | ILO   |                     |          |
| lote     | СКТ    | Circuit Description                                    | Wire                     | Breaker   | A          | В             | С          | Breake          | er Wir   | e Circuit Descri           | ption   | скт                 | Note     |
|          |        | LIGHTING   | (E)                      | 20 1  | 3.6 / -0.2 | _             |            |                 | ~~~      | manner of the second       | MANA MANA   | بركيد               | <b>₩</b> |
|          |        | LIGHTING   | (E)                      | 20 1  |            | 3.6 / -0.2    |            | 3 20            | #12      | 2 AHU-1 (7.5 HP)           |   | 4                   | N        |
|          |        | LIGHTING   | (E)                      | 20 1  |            |               | 4.0 / -0.2 | <u> </u>        |          | -                          |   | 6                   |          |
|          |        | LIGHTING   | (E)                      | 20 1  | 3.7 / -0.2 |               |            | 3               |          |                            |   | 8                   |          |
|          |        | LIGHTING   | (E)                      | 20 1  |            | 3.7 / -0.2    |            | 3 30            | #10      | 0 AHU-2 (10 HP)            |   | 10                  | N        |
|          |        | LIGHTING   | (E)                      | 20 1  | 40/04      |               | 3.0 / -0.2 | سيا             | ببلد     | mmmm                       | mmm   | <del>بر</del> ايرسر | Jun      |
| <b>~</b> | حيرك   | CORBIDOR LICHTING                                      | ~~~\ <del>\\\</del> \\\\ | $\frac{20}{20}$   | 4.3 / 3.4  | 26/04         |            | 1 20            | (E)      | VAV's                      |   | 14                  | +        |
| سلا      | μÇ     | EXTÉRIOR LIGHTING MEZZANINE LIGHTING                   | white                    | 20 31   |            | 3.6 / 2.4     | 1.5 / 2.5  | 1 20            |          |                            |   | 16<br>18            |          |
|          |        | Existing Existing                                      | (E)                      | 20 1  | 0.5 / 3.4  |               | 1.5 / 2.5  | 1 20            |          | ) VAVS                     |   | 20                  |          |
|          |        | Existing   | (E)                      | 20 1  | 0.57 5.4   | 0.5 / 0.5     |            | 1 20            |          | ) VAV's<br>) Existing      |   | 22                  |          |
|          |        | Existing   | (E)                      | 20 1  |            | 0.570.5       | 0.5 / 0.5  | 1 20            | (E)      | ) Existing                 |   | 24                  |          |
|          |        | SPACE  | (L)                      | 1   | 0.0 / 0.5  |               | 0.07 0.0   | 1 20            | (E       | ) Existing                 |   | 26                  |          |
|          |        | SPACE  |                          | 1   | 0.07 0.0   | 0.0 / 0.5     |            | 1 20            |          | ) Existing                 |   | 28                  |          |
|          |        | SPACE  |                          | 1   |            | 0.07 0.0      | 0.0 / 0.5  | 1 2             |          | Existing                   | 2-2-2-2-2-2                                       | ~~ <sup>30</sup>    |          |
|          |        | SPACE  |                          | 1   | 0.0 / 0.0  |               |            | <u> </u>        | <b>Y</b> |                            | <del>, , , , , , , , , , , , , , , , , , , </del> | 32                  | * ** *   |
|          |        | SPACE  |                          | 1   |            | 0.0 / 0.0     |            | 🕻 3   <b>30</b> | #10      | 0 SPDL                     |   | 34                  | N        |
|          |        | SPACE  |                          | 1   |            |               | 0.0 / 0.0  | <b>[</b> .   ]  |          |                            |   | 36                  | ٦        |
|          |        | SPACE  |                          | 1   | 0.0 / 16.0 |               |            |                 |          |                            |   | 38                  |          |
|          |        | SPACE  |                          | 1   |            | 0.0 / 16.0    |            | 3   12          | 5   (E)  | XFMR XLA                   |   | 40                  |          |
|          | 41     | EGRESS LIGHTING  |                          | 20 1  |            |               | 2.0 / 16.0 |                 |          |                            |   | 42                  |          |
|          |        |  | Total                    | Load:   | 34.9 kVA   | 30.3 kVA      | 30.0 kVA   |                 |          |                            |   |                     |          |
|          |        |  | Total A                  | Amps:   | 126 A      | 110 A         | 108 A      | _               |          |                            |   |                     |          |
| oad      | Classi | ification  | Connec                   | cted Load   | Dem        | and Factor    | Estimate   | ed Dema         | nd       | Panel                      | Totals  |                     |          |
| VAC      | ;      |  | 10.                      | 2 kVA   | 1          | 00.00%        | 10.        | 2 kVA           |          |                            |   |                     |          |
| ighti    |        |  |                          | 0 kVA   |            | 25.00%        |            | .3 kVA          |          | Total Conn. Load:          | 95.2 k\/Δ   |                     |          |
|          |        |  | _                        | 0 kVA   |            | 25.00%        |            | .0 kVA          |          | Total Est. Demand:         |   |                     |          |
| xisti    | ıy     |  | 52.                      | UKVA  | I          | ZJ.UU 70      | 05.        | UKVA            |          |                            |   |                     |          |
|          |        |  |                          |   |            |               |            |                 |          | Total Conn. Current:       |   |                     |          |
|          |        |  |                          |   |            |               |            |                 |          | Total Est. Demand Current: | 140 A   |                     |          |
|          |        |  | 1                        |   |            |               |            |                 |          |                            |   |                     |          |
| lote     | <br>s: |  |                          |   | Δh         | brevations:   |            |                 |          |                            |   |                     |          |
|          |        |  |                          |   |            | - PROVIDE GF  | CI CIRCUIT | BREAKE          | R        |                            |   |                     |          |
|          |        |  |                          |   |            |               |            |                 |          | //CE                       |   |                     |          |
|          |        |  |                          |   |            | - PROVIDE P   |            |                 |          |                            |   |                     |          |
|          |        |  |                          |   | 1          | ) - PROVIDE P |            |                 | N DEV    | /ICE                       |   |                     |          |
|          |        |  |                          |   | M          | - PROVIDE MI  | ETERING DE | VICE            |          |                            |   |                     |          |
|          |        |  |                          |   | l N I      | - NEW WORK    | NIEW CIRCL | UT DDE A        | LCED     |                            |   |                     |          |

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2550-00346-00 Galena Park Independent School District

Havard School HVAC **Modifications** -GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

 DESCRIPTION
 ADDENDUM #2

CHECKED BY DRAWN BY

ELECTRICAL PANEL SCHEDULES

SHEET NUMBER | REVISION

E4.03