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

GALENA PARK INDEPENDENT SCHOOL DISTRICT
HAVARD ELEMENTARY SCHOOL
HVAC MODIFICATIONS

GPISD PROJECT #B105

CSP #25-300

SITE LOCATION

HAVARD ELEMENTARY SCHOOL
15150 WALLISVILLE RD, HOUSTON, TX 77049

LIST OF DRAWINGS:

LIST OF DRAWINGS

Salas O'Brien
salasobrien.com 281-664-1900
Houston
10930 W. Sam Houston Pkwy North, Suite 900
Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
08/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY: SH
DRAWN BY: MT

SHEET NAME

COVER SHEET - INDEX OF DRAWINGS

SHEET NUMBER: CS0.00
REVISION:

ABBREVIATION INDEX

&	AND
@	AT
℄	CENTER LINE
⌀	DIAMETER
ACCES.	ACCESSIBLE
ACT	ACOUSTICAL CEILING TILE
ADJ.	ADJUSTABLE
A.F.F.	ABOVE FINISH FLOOR
ALUM.	ALUMINUM
APPROX.	APPROXIMATE
BD.	BOARD
BLDG.	BUILDING
BLK.	BLOCK
BM.	BEAM
B.O.	BOTTOM OF
BRG.	BEARING
BTWN.	BETWEEN
CEM.	CEMENT
C.F.	COLD FORMED
C.J.	CONTROL JOINT
CLG.	CEILING
CLR.	CLEAR
CMU	CONCRETE MASONRY UNIT
CNTR.	COUNTER
COL.	COLUMN
CONC.	CONCRETE
CONT.	CONTINUOUS
CORR.	CORRIDOR
C.T.	CERAMIC TILE
DBL.	DOUBLE
DEPT.	DEPARTMENT
DF.	DOUBLE FACED
D.F.	DRINKING FOUNTAIN
DET.	DETAIL
DIA.	DIAMETER
DIM.	DIMENSION
DISP.	DISPENSER
DN.	DOWN
D.O.	DOOR OPENING
DR.	DOOR
DS.	DOWNSPOUT
DWG.	DRAWING
EA.	EACH
E.I.F.S.	EXTERIOR INSULATION & FINISH SYSTEM
E.J.	EXPANSION JOINT
EL.	ELEVATION
ELEC.	ELECTRICAL
EMERG.	EMERGENCY
ENCL.	ENCLOSURE
EQ.	EQUAL
EQPT.	EQUIPMENT
E.W.C.	ELECTRIC WATER COOLER
EXP.	EXPANSION
EXIST.	EXISTING
EXT.	EXTERIOR
FABR.	FABRICATED
F.D.	FLOOR DRAIN
FDN.	FOUNDATION
FIN.	FINISH
FIXT.	FIXTURE
FL.	FLOOR
FLASH.	FLASHING
FLUOR.	FLUORESCENT
F.O.C.	FACE OF CONCRETE
F.O.F.	FACE OF FINISH
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUDS
F.R.T.	FIRE RETARDANT TREATED
FT.	FOOT OR FEET
FTG.	FOOTING
FURR.	FURRING
GA.	GAUGE
GALV.	GALVANIZED
GEN.	GENERAL
G.C.	GENERAL CONTRACTOR
GL.	GLASS
GYP.	GYPSUM
GYP. BD.	GYPSUM BOARD
HVAC	HEATING AND COOLING
H.B.	HOSE BIBB
H.C.	HOLLOW CORE
H.D.	HEAVY DUTY
HDWD.	HARDWOOD
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL
HT.	HEIGHT
HSS.	HOLLOW STEEL SECTION
INFO.	INFORMATION
INSUL.	INSULATION
INT.	INTERIOR
JAN.	JANITOR
JT.	JOINT
LAM.	LAMINATE
LAV.	LAVATORY
LLD	LANDLORD
LT.	LIGHT
MAS.	MASONRY
MAX.	MAXIMUM
MECH.	MECHANICAL
MED.	MEDIUM
MEMB.	MEMBRANE
MET.	METAL
MFR.	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
M.O.	MASONRY OPENING
M.R.	MOISTURE RESISTANT
MTD.	MOUNTED
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
NOM.	NOMINAL
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OPNG.	OPENING
OPP.	OPPOSITE
O.H.	OVERHEAD
PL.	PLATE
P. LAM.	PLASTIC LAMINATE
PL.	LASTER
PLMB.	PLUMBING
PLYWD.	PLYWOOD
PR.	PAIR
PRTN.	PARTITION
PR.TR.	PRESSURE TREATED
PT.	POINT
RAD.	RADIUS
R.D.	ROOF DRAIN
REF.	REFERENCE
REFR.	REFRIGERATOR
REINF.	REINFORCED
REQD.	REQUIRED
RESIL.	RESILIENT
RM.	ROOM
R.O.	ROUGH OPENING
R.T.U.	ROOF TOP UNIT (HVAC)
S.C.	SOLID CORE
SCHED.	SCHEDULED
SECT.	SECTION
SHT.	SHEET
SIM.	SIMILAR
SPEC.	SPECIFICATION
STD.	STANDARD
STL.	STEEL
STOR.	STORAGE
STRUC.	STRUCTURAL
SUSP.	SUSPENDED
TEL.	TELEPHONE
T.	TEMPERED GLASS
THK.	THICK
T.O.	TOP OF
TS.	TUBE STEEL
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VCT	VINYL COMPOSITION TILE
VERT.	VERTICAL
VEST.	VESTIBULE
V.I.F.	VERIFY IN FIELD
V.T.R.	VENT THRU ROOF
WD.	WOOD
W/O	WITHOUT
WP	WATERPROOF
WT.	WEIGHT

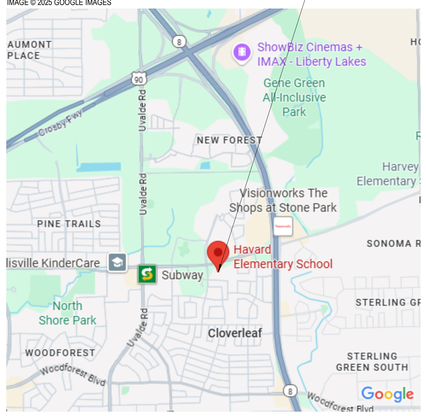
SYMBOL LEGEND

- NORTH ARROW
- KEYNOTE TAG (XX)
- EQUIPMENT TAG (1i)
- ROOM TAG (ROOM NAME / B555 / HS-AC-1)
- WALL TAG (1i)
- DOOR TAG (101)
- CEILING TAG (1t / 1' - 0")
- WINDOW TAG (X-1)
- FURNNITURE TAG (1i)
- MATERIAL FINISH TAG, SINGLE (?)
- DETAIL TAG (1 / A101 SIM)
- SECTION TAG (1 / A101 SIM)
- ELEVATION / DATUM INDICATOR (FIRST FLOOR / XXX XXX)
- ELEVATION TAG (XX / A101)
- INTERIOR ELEVATION TAG (1 / A101 / 1 / 1)
- REVISION BUBBLE AND TAG (1)
- MATCHLINE
- EGRESS ARROW
- OCCUPANCY TAG (00 / B)
- WALL SIGN TAG (XX)

INDEX OF DRAWINGS

PROJECT LOCATION

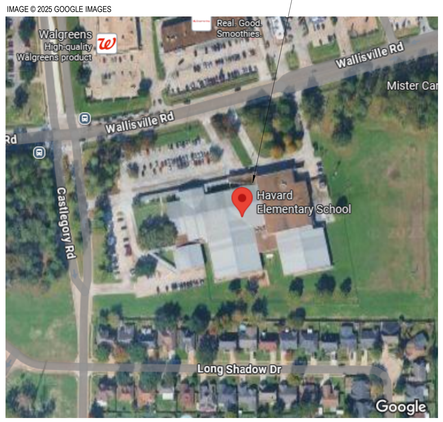
IMAGE © 2025 GOOGLE IMAGES



VICINITY MAP

PROJECT LOCATION

IMAGE © 2025 GOOGLE IMAGES



LOCATION MAP

APPROVALS

Name (Owner Representative)

Title

Date

☐ APPROVED ☐ APPROVED AS NOTED ☐ REVISE AND RESUBMIT

GENERAL SHEET NOTE INSTRUCTIONS

GENERAL SHEET NOTES ARE USED TO COMMUNICATE SHEET SPECIFIC INFORMATION OR INSTRUCTIONS. THESE NOTES APPLY TO THE ENTIRE SHEET.

EXAMPLE: A. ALL FURNISHINGS SHALL BE REMOVED BY OWNER PRIOR TO DEMOLITION PROCEDURES.

REFERENCE KEYNOTE INSTRUCTIONS

REFERENCE KEYNOTES ARE USED TO IDENTIFY GRAPHIC REPRESENTATIONS OF ITEMS IN THE DRAWING AND DIRECTLY REFERENCE THEM TO SPECIFICATIONS. A LEGEND ON THE RIGHT HAND SIDE OF THE PAGE LISTS THE REFERENCE KEYNOTES ON THE DRAWING AREA AND THE MATERIAL THEY REPRESENT.

EXAMPLE: 05 12 00.A01

- ROOT - SAME NUMBER AS THE SPECIFICATION BEING REFERENCED
- DECIMAL POINT - SEPERATES ROOT FROM SUFFIX
- SUFFIX - REPRESENTATION OF THE MATERIAL BEING REFERENCED. THIS NUMBER DOES NOT CORRESPOND TO A PARTICULAR SECTION WITHIN THE SPECIFICATION
- FACE BRICK - SOLDIER COURSE
- DESCRIPTOR - MATERIAL DESCRIPTION

SHEET KEYNOTE INSTRUCTIONS

SHEET KEYNOTES ARE NOTED WITHIN THE GRAPHIC AREA OF THE DRAWING. THESE ARE REPRESENTED BY A NUMBER SURROUNDED BY A HEXAGON, WITH OR WITHOUT A LEADER. A LEGEND ON THE RIGHT SIDE OF THE PAGE LISTS THE NOTES IN NUMERICAL ORDER.

EXAMPLE: 1

1. ALIGN NEW CONSTRUCTION WITH THE FACE OF EXISTING CONSTRUCTION.

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Project Number: 2550-00346-00

PROFESSIONAL SEAL

REGISTERED ARCHITECT · JOHN M. MICHAEL · 21116 · STATE OF TEXAS · 6/30/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD

2025146.01
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 WALLISVILLE RD
HOUSTON, TX 77049

GPD GROUP
Professional Corporation
2121 Sage Road, Suite 240
Houston, Texas 77056
713.622.1448 fax: 713.622.1455
TEXAS REGISTRATION NUMBER 19819
ARCHITECTURE CONSULTANT

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY	DRAWN BY
JM	AB

SHEET NAME

TITLE SHEET

SHEET NUMBER	REVISION
G-000	

A1 FIRST FLOOR DEMOLITION PLAN
1/16" = 1'-0"

GENERAL SHEET NOTES

A. DO NOT SCALE DRAWINGS.
B. BUILDING SHALL BE CONSTRUCTED TO MEET MINIMUM REQUIREMENTS OF THE CURRENT EDITION OF ASHRAE / IES STANDARD 90.1 AND ASHRAE STANDARD 189.
C. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CROSS-CHECK THE MEP DRAWINGS WITH THE ARCHITECTURAL DRAWINGS PRIOR TO THE ORDERING / INSTALLATION OF MECHANICAL, ELECTRICAL, AND PLUMBING WORK. ANY DISCREPANCIES BETWEEN THE ARCHITECTURAL AND MEP DRAWINGS SHALL BE BROUGHT TO THE ARCHITECTS ATTENTION FOR IMMEDIATE CLARIFICATION.
D. COORDINATE WORK WITH OTHER TRADES, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE TENANT AND LANDLORD/ BUILDING OWNER, AND THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE. COORDINATE THE INSTALLATION WITH OTHER TRADES AS REQUIRED TO ENSURE A NEAT AND ORDERLY INSTALLATION. NOTIFY ARCHITECT / ENGINEER OF ANY DISCREPANCIES BEFORE STARTING WORK.
E. GENERAL CONTRACTOR AND SUB-CONTRACTORS SHALL CAREFULLY REVIEW THE CONSTRUCTION DOCUMENTS. INFORMATION REGARDING THE COMPLETE WORK IS DISPERSED THROUGHOUT THE DOCUMENT SET AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE COMPLETE DOCUMENT SET.
F. WHERE THERE MAY BE A CONFLICT IN THE SPECIFICATIONS AND/OR DRAWINGS, THEN THE MORE EXPENSIVE LABOR, MATERIALS AND EQUIPMENT SHALL BE ASSUMED TO BE REQUIRED AND SHALL BE PROVIDED BY THE GENERAL CONTRACTOR TO THE SATISFACTION OF THE TENANT.
G. WHEN WORK, NOT SPECIFICALLY CALLED OUT, IS REQUIRED TO COMPLETE THE PROJECT, IT SHALL BE PROVIDED BY THE GENERAL CONTRACTOR WITH THE BEST MATERIALS AND WORKMANSHIP.
H. CEILING GRID HANGER WIRES SHALL NOT BE ATTACHED TO ROOF DECK. HANGERS TO ATTACH TO STRUCTURAL MEMBERS ONLY. MAY REQUIRE ADDITIONAL SUPPORT MEMBERS BE ADDED TO PROVIDE ADDITIONAL LIGHTING SUPPORT AND/OR CEILING SUPPORT, WHEN REQUIRED, PER SEISMIC ZONE AND LOCAL CODE. ATTACHING CEILING DIRECTLY TO DECK IS NOT PERMITTED.

SHEET KEYNOTES (#)

01 REMOVE EXISTING TACK OR DRY MARKER BOARD COMPLETE. PROTECT AND STORE AS REQUIRED FOR REINSTALLATION. PATCH ADJACENT SURFACES TO REMAIN AS REQUIRED WITH MATCHING MATERIAL TYPE AS REQUIRED FOR NEW FINISHES.
02 REMOVE EXISTING MAPRAIL COMPLETE. PROTECT AND STORE AS REQUIRED FOR REINSTALLATION. PATCH ADJACENT SURFACES TO REMAIN AS REQUIRED WITH MATCHING MATERIAL TYPE AS REQUIRED FOR NEW FINISHES.
03 REMOVE EXISTING CASEWORK COMPLETE. PROTECT AND STORE AS REQUIRED FOR REINSTALLATION. PATCH ADJACENT SURFACES TO REMAIN AS REQUIRED WITH MATCHING MATERIAL TYPE AS REQUIRED FOR NEW FINISHES.
04 REMOVE EXISTING GYPSUM BOARD AND STUD FRAME PARTITION COMPLETE. PATCH ADJACENT SURFACES TO REMAIN AS REQUIRED WITH MATCHING MATERIAL TYPE AS REQUIRED FOR NEW FINISHES.
05 EXISTING VCT FLOORING TO REMAIN. PROTECT DURING CONSTRUCTION. PROVIDE FLOOR PROTECTION AT THIS LOCATION - RAM BOARD OR APPROVED EQUAL. PROVIDE 90-DAY SEAM TAPE AT ALL JOINTS. PROVIDE 3/4" PLYWOOD UNDER ALL EQUIPMENT SUCH AS LIFTS TO AVOID DAMAGING VCT FLOOR AND FINISH. AFTER REMOVAL OF FLOOR PROTECTION, CLEAN AND POLISH VCT FLOOR TO LIKE NEW CONDITION.
06 EXISTING CARPET TO REMAIN. PROTECT DURING CONSTRUCTION. PROVIDE FLOOR PROTECTION AT THIS LOCATION - RAM BOARD OR APPROVED EQUAL. PROVIDE 90-DAY SEAM TAPE AT ALL JOINTS. PROVIDE 3/4" PLYWOOD UNDER ALL EQUIPMENT SUCH AS LIFTS TO AVOID DAMAGING CARPET AND RESILIENT BASE. AFTER REMOVAL OF FLOOR PROTECTION, VACUUM AND STEAM CLEAN CARPET PER MANUFACTURERS RECOMMENDED INSTRUCTIONS.
12 REMOVE EXISTING ELECTRICAL PANELS AND OTHER ELECTRICAL EQUIPMENT IN THIS ROOM COMPLETE. PATCH ADJACENT SURFACES TO REMAIN AS REQUIRED FOR NEW FINISHES. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
13 REMOVE EXISTING DOOR FRAME AND HARDWARE COMPLETE. PATCH ADJACENT SURFACES TO REMAIN AS REQUIRED WITH MATCHING MATERIAL TYPE AS REQUIRED FOR NEW FINISHES.
14 MODIFY AND PREPARE FRAME TO CONVERT A LEFT HAND DOOR TO A LEFT HAND REVERSE OUTSWINGING DOOR. NEW HARDWARE TO BE PROVIDED. REFER TO DOOR SCHEDULE FOR ADDITIONAL INFORMATION.
16 EXISTING FIRE EXTINGUISHER CABINET TO BE REMOVED, CLEANED, STORED AND HELD FOR RELOCATION. INFILL EXISTING OPENING AS REQUIRED. PATCH ADJACENT SURFACES TO REMAIN AS REQUIRED FOR NEW FINISHES.
17 EXISTING LADDER TO REMAIN. PROTECT DURING CONSTRUCTION.

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Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

REGISTERED ARCHITECT — JOHN M. MICHAEL — 21116 — STATE OF TEXAS — 6/JUL/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD

2025146.01
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 WALLISVILLE RD
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2121 Sage Road, Suite 240
Houston, Texas 77056
713.622.1448 fax: 713.622.1455
TEXAS REGISTRATION NUMBER 1955
ARCHITECTURE CONSULTANT

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY: JM
DRAWN BY: AB

SHEET NAME

DEMO COMPOSITE FIRST FLOOR PLAN

SHEET NUMBER: AD-101
REVISION:

GENERAL SHEET NOTES

A. DO NOT SCALE DRAWINGS.
B. BUILDING SHALL BE CONSTRUCTED TO MEET MINIMUM REQUIREMENTS OF THE CURRENT EDITION OF ASHRAE / IES STANDARD 90.1 AND ASHRAE STANDARD 189.
C. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CROSS-CHECK THE MEP DRAWINGS WITH THE ARCHITECTURAL DRAWINGS PRIOR TO THE ORDERING / INSTALLATION OF MECHANICAL, ELECTRICAL, AND PLUMBING WORK. ANY DISCREPANCIES BETWEEN THE ARCHITECTURAL AND MEP DRAWINGS SHALL BE BROUGHT TO THE ARCHITECTS ATTENTION FOR IMMEDIATE CLARIFICATION.
D. COORDINATE WORK WITH OTHER TRADES, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE TENANT AND LANDLORD/ BUILDING OWNER, AND THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE. COORDINATE THE INSTALLATION WITH OTHER TRADES AS REQUIRED TO ENSURE A NEAT AND ORDERLY INSTALLATION. NOTIFY ARCHITECT / ENGINEER OF ANY DISCREPANCIES BEFORE STARTING WORK.
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F. WHERE THERE MAY BE A CONFLICT IN THE SPECIFICATIONS AND/OR DRAWINGS, THEN THE MORE EXPENSIVE LABOR, MATERIALS AND EQUIPMENT SHALL BE ASSUMED TO BE REQUIRED AND SHALL BE PROVIDED BY THE GENERAL CONTRACTOR TO THE SATISFACTION OF THE TENANT.
G. WHEN WORK, NOT SPECIFICALLY CALLED OUT, IS REQUIRED TO COMPLETE THE PROJECT, IT SHALL BE PROVIDED BY THE GENERAL CONTRACTOR WITH THE BEST MATERIALS AND WORKMANSHIP.
H. CEILING GRID HANGER WIRES SHALL NOT BE ATTACHED TO ROOF DECK. HANGERS TO ATTACH TO STRUCTURAL MEMBERS ONLY. MAY REQUIRE ADDITIONAL SUPPORT MEMBERS BE ADDED TO PROVIDE ADDITIONAL LIGHTING SUPPORT AND/OR CEILING SUPPORT, WHEN REQUIRED, PER SEISMIC ZONE AND LOCAL CODE. ATTACHING CEILING DIRECTLY TO DECK IS NOT PERMITTED.

SHEET KEYNOTES (#)

07 REMOVE EXISTING ACOUSTIC CEILING TILE AND SUPPORT GRID COMPLETE. PATCH ADJACENT SURFACES TO REMAIN AS REQUIRED WITH MATCHING MATERIAL TYPE AS REQUIRED FOR NEW FINISHES.
08 REMOVE EXISTING ELECTRICAL/TECHNOLOGY DEVICES FROM EXISTING CEILING. STORE DURING CONSTRUCTION AND PREPARE FOR REINSTALLATION. COIL WIRING IN CEILING PLENUM IN PLACE TO USE TO RECONNECT TO DEVICE UPON INSTALLATION OF NEW CEILING AND GRID. PATCH ADJACENT SURFACES TO REMAIN AS REQUIRED WITH MATCHING MATERIAL TYPE AS REQUIRED FOR NEW FINISHES.
09 REMOVE EXISTING LIGHT FIXTURES FROM EXISTING CEILING. STORE DURING CONSTRUCTION AND PREPARE FOR REINSTALLATION. COIL WIRING IN CEILING PLENUM IN PLACE TO USE TO RECONNECT TO DEVICE UPON INSTALLATION OF NEW CEILING AND GRID. PATCH ADJACENT SURFACES TO REMAIN AS REQUIRED WITH MATCHING MATERIAL TYPE AS REQUIRED FOR NEW FINISHES.
10 REMOVE EXISTING SPEAKERS FROM EXISTING CEILING. STORE DURING CONSTRUCTION AND PREPARE FOR REINSTALLATION. COIL WIRING IN CEILING PLENUM IN PLACE TO USE TO RECONNECT TO DEVICE UPON INSTALLATION OF NEW CEILING AND GRID. PATCH ADJACENT SURFACES TO REMAIN AS REQUIRED WITH MATCHING MATERIAL TYPE AS REQUIRED FOR NEW FINISHES.

DEMO RCP LEGEND

- 24" x 24" ACOUSTICAL PANEL CEILING ACP-1 TO BE DEMOLISHED
- 2'-0" X 4'-0" LIGHT
- RETURN AIR GRILLE RE: MECH
- SUPPLY AIR GRILLE RE: MECH

A1 DEMO FIRST FLOOR REFLECTED CEILING PLAN
1/16" = 1'-0"

N

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Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

REGISTERED ARCHITECT JOHN M. MICHAEL 21116 STATE OF TEXAS 6/30/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD — EXCELLENCE IN ALL FOR ALL STUDENTS

2025146.01
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 WALLISVILLE RD
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TEXAS REGISTRATION NUMBER 19519
ARCHITECTURE CONSULTANT

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY: JM
DRAWN BY: AB

SHEET NAME

DEMO COMPOSITE REFLECTED CEILING FIRST FLOOR PLAN

SHEET NUMBER: AD-102
REVISION:

GENERAL SHEET NOTES

A. DO NOT SCALE DRAWINGS.
B. BUILDING SHALL BE CONSTRUCTED TO MEET MINIMUM REQUIREMENTS OF THE CURRENT EDITION OF ASHRAE / IES STANDARD 90.1 AND ASHRAE STANDARD 189.
C. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CROSS-CHECK THE MEP DRAWINGS WITH THE ARCHITECTURAL DRAWINGS PRIOR TO THE ORDERING / INSTALLATION OF MECHANICAL, ELECTRICAL, AND PLUMBING WORK. ANY DISCREPANCIES BETWEEN THE ARCHITECTURAL AND MEP DRAWINGS SHALL BE BROUGHT TO THE ARCHITECTS ATTENTION FOR IMMEDIATE CLARIFICATION.
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SHEET KEYNOTES (#)

04 REMOVE EXISTING GYPSUM BOARD AND STUD FRAME PARTITION COMPLETE. PATCH ADJACENT SURFACES TO REMAIN AS REQUIRED WITH MATCHING MATERIAL TYPE AS REQUIRED FOR NEW FINISHES.

A1 DEMO MEZZANINE PLAN
1/16" = 1'-0"

N

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REGISTERED ARCHITECT JOHN M. MICHAEL 27116 STATE OF TEXAS
6/30/25

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TEXAS REGISTRATION NUMBER 1955
ARCHITECTURE CONSULTANT

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY: JM
DRAWN BY: AB

SHEET NAME

DEMO MEZZANINE PLAN

SHEET NUMBER: AD-103
REVISION:

GENERAL SHEET NOTES

A. DO NOT SCALE DRAWINGS.
B. BUILDING SHALL BE CONSTRUCTED TO MEET MINIMUM REQUIREMENTS OF THE CURRENT EDITION OF ASHRAE / IES STANDARD 90.1 AND ASHRAE STANDARD 189.
C. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CROSS-CHECK THE MEP DRAWINGS WITH THE ARCHITECTURAL DRAWINGS PRIOR TO THE ORDERING / INSTALLATION OF MECHANICAL, ELECTRICAL, AND PLUMBING WORK. ANY DISCREPANCIES BETWEEN THE ARCHITECTURAL AND MEP DRAWINGS SHALL BE BROUGHT TO THE ARCHITECTS ATTENTION FOR IMMEDIATE CLARIFICATION.
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G. WHEN WORK, NOT SPECIFICALLY CALLED OUT, IS REQUIRED TO COMPLETE THE PROJECT, IT SHALL BE PROVIDED BY THE GENERAL CONTRACTOR WITH THE BEST MATERIALS AND WORKMANSHIP.

SHEET KEYNOTES (#)

15 PROVIDE BOLT ON SAFETY CAGE FOR EXISTING LADDER TO COMPLY WITH OSHA AND ANSI STANDARD.
BASIS OF DESIGN COTTERMAN WELDED STEEL SAFETY CAGE. 29" INSIDE DIAMETER WITH FLARED BOTTOM TO 34" INSIDE DIAMETER.. INSTALL 7 FEET ABOVE FINISH FLOOR. MAX. HEIGHT OF CAGE 20 FEET (FIELD VERIFY) IN THE FOLLOWING SECTIONS:
4'-0" BOLT ON BOTTOM SECTION - COTTERMAN 4BC OR APPROVED EQUAL BY TRI-ARC.
4'-0" BOLT ON MID SECTION - COTTERMAN 4MC OR APPROVED EQUAL BY TRI-ARC.
7'-0" BOLT ON MID SECTION - COTTERMAN 7MC OR APPROVED EQUAL BY TRI-ARC.
5'-0 "BOLT ON TOP SECTION - COTTERMAN 5WC OR APPROVED EQUAL BY TRI-ARC.
FINISH TO BE GALVANIZED STAINLESS STEEL.

18 EXISTING RELOCATED FIRE EXTINGUISHER CABINET. COORDINATE FINAL LOCATION WITH OWNER/ARCHITECT/ENGINEER PRIOR TO RELOCATION.

A1 COMPOSITE FIRST FLOOR PLAN
1/16" = 1'-0"

Salas O'Brien
salasobrien.com 281-664-1900
Houston
10930 W. Sam Houston Pkwy North, Suite 900
Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

REGISTERED ARCHITECT — JOHN M. MICHAEL — 27116 — STATE OF TEXAS — 8/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

2025146.01
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 WALLISVILLE RD
HOUSTON, TX 77049

GPD GROUP
Professional Corporation
2121 Sage Road, Suite 240
Houston, Texas 77056
713.622.1448 fax: 713.622.1455
TEXAS REGISTRATION NUMBER: 19579
ARCHITECTURE CONSULTANT

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY: JM
DRAWN BY: AB

SHEET NAME

COMPOSITE FIRST FLOOR PLAN

SHEET NUMBER: A-101
REVISION:

GENERAL SHEET NOTES

A. DO NOT SCALE DRAWINGS.
B. BUILDING SHALL BE CONSTRUCTED TO MEET MINIMUM REQUIREMENTS OF THE CURRENT EDITION OF ASHRAE / IES STANDARD 90.1 AND ASHRAE STANDARD 189.
C. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CROSS-CHECK THE MEP DRAWINGS WITH THE ARCHITECTURAL DRAWINGS PRIOR TO THE ORDERING / INSTALLATION OF MECHANICAL, ELECTRICAL, AND PLUMBING WORK. ANY DISCREPANCIES BETWEEN THE ARCHITECTURAL AND MEP DRAWINGS SHALL BE BROUGHT TO THE ARCHITECTS ATTENTION FOR IMMEDIATE CLARIFICATION.
D. COORDINATE WORK WITH OTHER TRADES, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE TENANT AND LANDLORD/ BUILDING OWNER, AND THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE. COORDINATE THE INSTALLATION WITH OTHER TRADES AS REQUIRED TO ENSURE A NEAT AND ORDERLY INSTALLATION. NOTIFY ARCHITECT / ENGINEER OF ANY DISCREPANCIES BEFORE STARTING WORK.
E. GENERAL CONTRACTOR AND SUB-CONTRACTORS SHALL CAREFULLY REVIEW THE CONSTRUCTION DOCUMENTS. INFORMATION REGARDING THE COMPLETE WORK IS DISPERSED THROUGHOUT THE DOCUMENT SET AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE COMPLETE DOCUMENT SET.
F. WHERE THERE MAY BE A CONFLICT IN THE SPECIFICATIONS AND/OR DRAWINGS, THEN THE MORE EXPENSIVE LABOR, MATERIALS AND EQUIPMENT SHALL BE ASSUMED TO BE REQUIRED AND SHALL BE PROVIDED BY THE GENERAL CONTRACTOR TO THE SATISFACTION OF THE TENANT.
G. WHEN WORK, NOT SPECIFICALLY CALLED OUT, IS REQUIRED TO COMPLETE THE PROJECT, IT SHALL BE PROVIDED BY THE GENERAL CONTRACTOR WITH THE BEST MATERIALS AND WORKMANSHIP.

A1 MEZZANINE PLAN
1/16" = 1'-0"

N

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PROFESSIONAL SEAL

REGISTERED ARCHITECT JOHN M. MICHAEL 21116 STATE OF TEXAS
8/11/25

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Galena Park ISD — EXCELLENCE IN ALL FOR ALL STUDENTS

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ARCHITECTURE CONSULTANT

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY JM
DRAWN BY AB

SHEET NAME

MEZZANINE PLAN

SHEET NUMBER A-102
REVISION

GENERAL RCP NOTES

1. SPRINKLER HEAD COVER PLATES TO MATCH COLOR OF CEILING TILE
2. CEILINGS TO BE 9' - 0" U.N.O.
3. REFER TO MEP DRAWINGS FOR LOCATIONS OF STROBES, OCCUPANCY SENSORS, AND SMOKE DETECTORS.
4. PROVIDE 24" X 24" ACCESS PANELS IN ALL GYPSUM CEILINGS. COORDINATE WITH OWNER/ARCHITECT FOR FINAL LOCATIONS.
5. PROVIDE CONTROL JOINTS IN GYPSUM CEILINGS AROUND ALL LIGHT FIXTURES ON ALL SIDES. REFER TO PLANS FOR ADDITIONAL INFORMATION.
6. STAGE RIGGING GRID COMPOSED OF FOUR (4) 1-1/2 INCH DIA X 21 FEET LONG AND SIX (6) 1-1/2 INCH DIA X 13 FEET LONG SCHEDULE 40 PIPE BATTENS INTERSECTING AT 4 FOOT CENTERS. PROVIDE 24 INTERSECTION BRACKET HARDWARE (IWEISS P309 OR APPROVED EQUAL), AND 24 PIPE CLAMPS (IWEISS P305 OR APPROVED EQUAL). SUPPORT TO STRUCTURE WITH UNISTRUT AND 3/8 DIA. AIRCRAFT CABLE WITH LOOP AND THIMBLE CONNECTIONS AT ALL PIPE CLAMP LOCATIONS.

RCP LEGEND

- 24" x 24" ACOUSTICAL PANEL CEILING ACP-1
- 2'-0" X 4'-0" LIGHT
- RETURN AIR GRILLE RE: MECH
- SUPPLY AIR GRILLE RE: MECH

A1 FIRST FLOOR REFLECTED CEILING PLAN
1/16" = 1'-0"

N

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REGISTERED ARCHITECT JOHN M. MICHAEL 27116 STATE OF TEXAS
8/4/25

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ARCHITECTURE CONSULTANT

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY: JM
DRAWN BY: AB

SHEET NAME

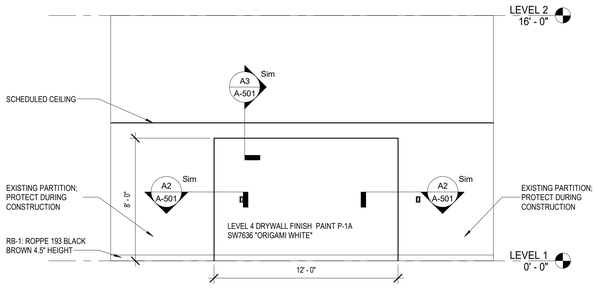
COMPOSITE REFLECTED CEILING FIRST FLOOR PLAN

SHEET NUMBER: A-121
REVISION:

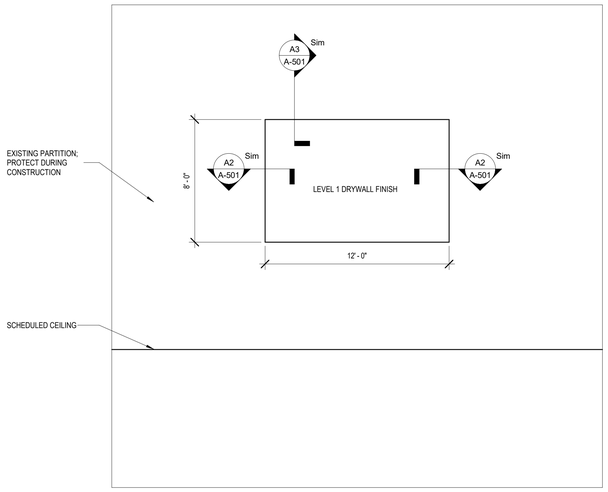
DOOR HARDWARE SCHEDULE - HAVARD ELEMENTARY SCHOOL					
DOOR # 517	BOILER ROOM DOOR - MODIFY EXISTING FRAME TO CHANGE FROM LH TO LHR				
DOOR					
TYPE	WIDTH	PANELS	HEIGHT	THICK	HTL
F	3'-0"	1	7'-0"	1.75"	HM
FRAME					
TYPE	DEPTH	RATING	HEAD	JAMB	SILL
ETR	ETR	ETR TO BE MODIFIED	BUA-501	B3/A-501	B2/A-501
DORMAKABA					
QTY	UNIT	DESCRIPTION	CATALOG NUMBER	FINISH	MFGR
3	EA	HINGE	CB179-4.5 X 4 .5 NRP	US26D	ST
1	EA	FIRE EXIT HARDWARE	80 ETL-16	626	SGT
1	EA	SFIC RIM HOUSING	12E-72 PATD	626	BE
1	EA	CONST. CORE	BY OWNER (TYPE/QTY AS REQD)		B/O
1	EA	PERM SFIC CORE	MATCH OWNER'S EXISTING SYSTEM (BEST PEAKS 7 PIN)	626	BES
1	EA	SURFACE CLOSER	LCN-4041- SCUSH-SNB	689	LCN
1	EA	KICK PLATE	KO050 10" X 2" LDW B4E C-SUNK	630	TR
1	EA	GASKETING	2525C	---	NG

DOOR # 518	CHILLER DOUBLE DOOR FROM MECHANICAL 519				
DOOR					
TYPE	WIDTH	PANELS	HEIGHT	THICK	HTL
2F	4'-0"	2	7'-0"	1.75"	HM
FRAME					
TYPE	DEPTH	RATING	HEAD	JAMB	SILL
HM/E3	8.25"	20 MIN	BUA-501	B3/A-501	B2/A-501
DORMAKABA					
QTY	UNIT	DESCRIPTION	CATALOG NUMBER	FINISH	MFGR
6	EA	HINGE	CB179-4.5 X 4 .5 NRP	US26D	ST
2	EA	FIRE EXIT HARDWARE	NB-8710 ETL	626	SGT
2	EA	TOP STRIKE	646	---	SGT
2	EA	SFIC RIM HOUSING	12E-72 PATD	626	BE
2	EA	CONST. CORE	BY OWNER (TYPE/QTY AS REQD)		B/O
1	EA	PERM SFIC CORE	MATCH OWNER'S EXISTING SYSTEM (BEST PEAKS 7 PIN)	626	BES
2	EA	SURFACE CLOSER	LCN-4041- SCUSH-SNB	689	LCN
2	EA	KICK PLATE	KO050 10" X 2" LDW B4E C-SUNK	630	TR
2	EA	GASKETING	2525C	---	NG
1	EA	THRESHOLD	896	---	NG
1	EA	ASTRAGAL	563 BPR PREP LOX, STK & FB's	---	NG

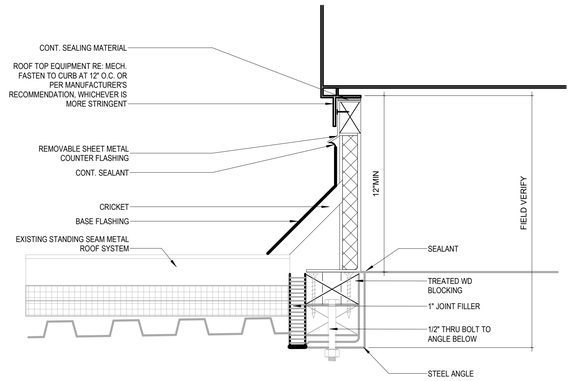
E1 DOOR SCHEDULE
1" = 1'-0"



C1 WALL OPENING - TYPE A
1/4" = 1'-0"

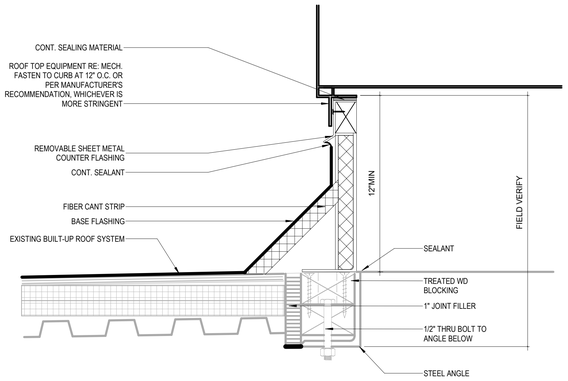


E3 TYPICAL CURB DETAIL AT METAL ROOF
3" = 1'-0"

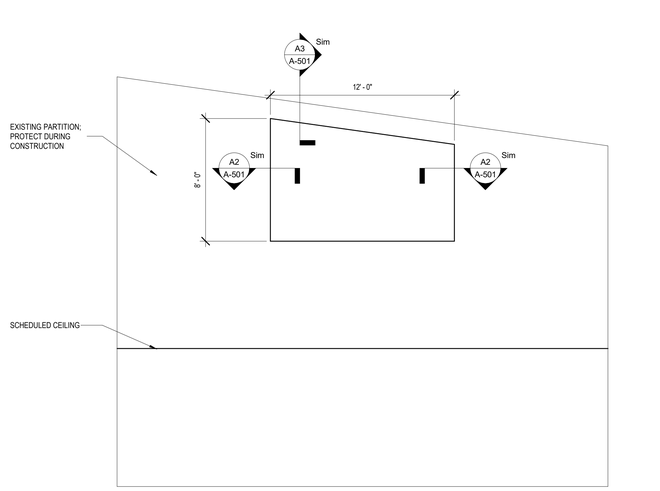


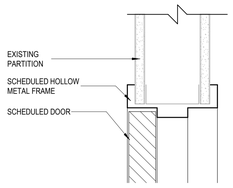
REFER TO MECHANICAL DRAWINGS FOR ROOF PENETRATIONS

E4 TYPICAL CURB DETAIL AT BUILT-UP ROOF
3" = 1'-0"

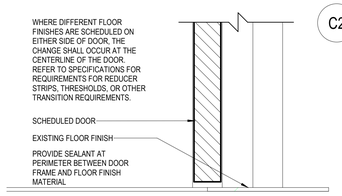


REFER TO MECHANICAL DRAWINGS FOR ROOF PENETRATIONS





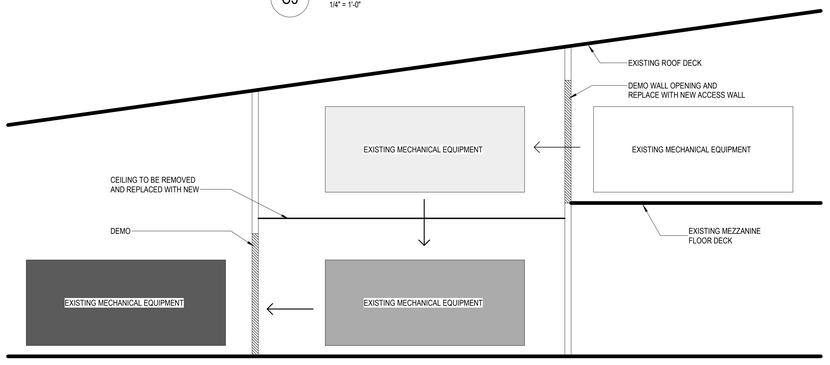
B1 HOLLOW METAL DOOR HEAD DETAIL
3" = 1'-0"

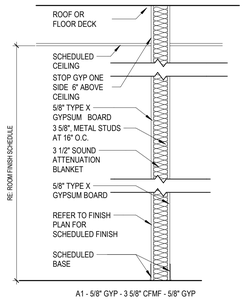


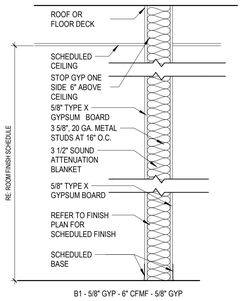
B2 HOLLOW METAL DOOR SILL
3" = 1'-0"

C2 WALL OPENING - TYPE B
1/4" = 1'-0"

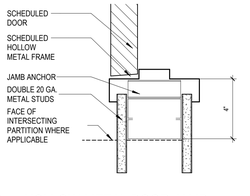
C3 WALL OPENING - TYPE C
1/4" = 1'-0"





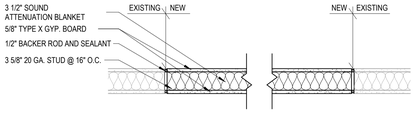


A1 PARTITION TYPES
3/4" = 1'-0"

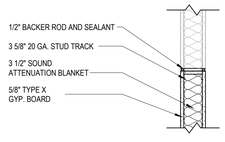


B3 HOLLOW METAL DOOR JAMB
3" = 1'-0"

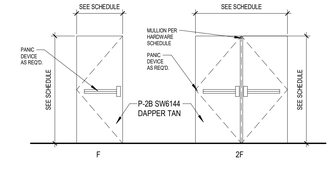
B4 DIAGRAMMATIC SECTION
1/4" = 1'-0"



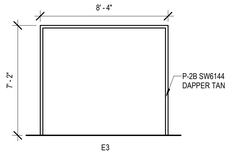
A2 TYP. CLASSROOM WALL JAMB
1" = 1'-0"



A3 TYP. CLASSROOM WALL HEAD
1" = 1'-0"



A4 DOOR TYPES
1/4" = 1'-0"



A5 FRAME TYPE ELEVATION
1/4" = 1'-0"

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REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY	DRAWN BY
JM	AB

SHEET NAME

PARTITION TYPES, DOOR SCHEDULES, AND DETAILS

SHEET NUMBER	REVISION
A-501	

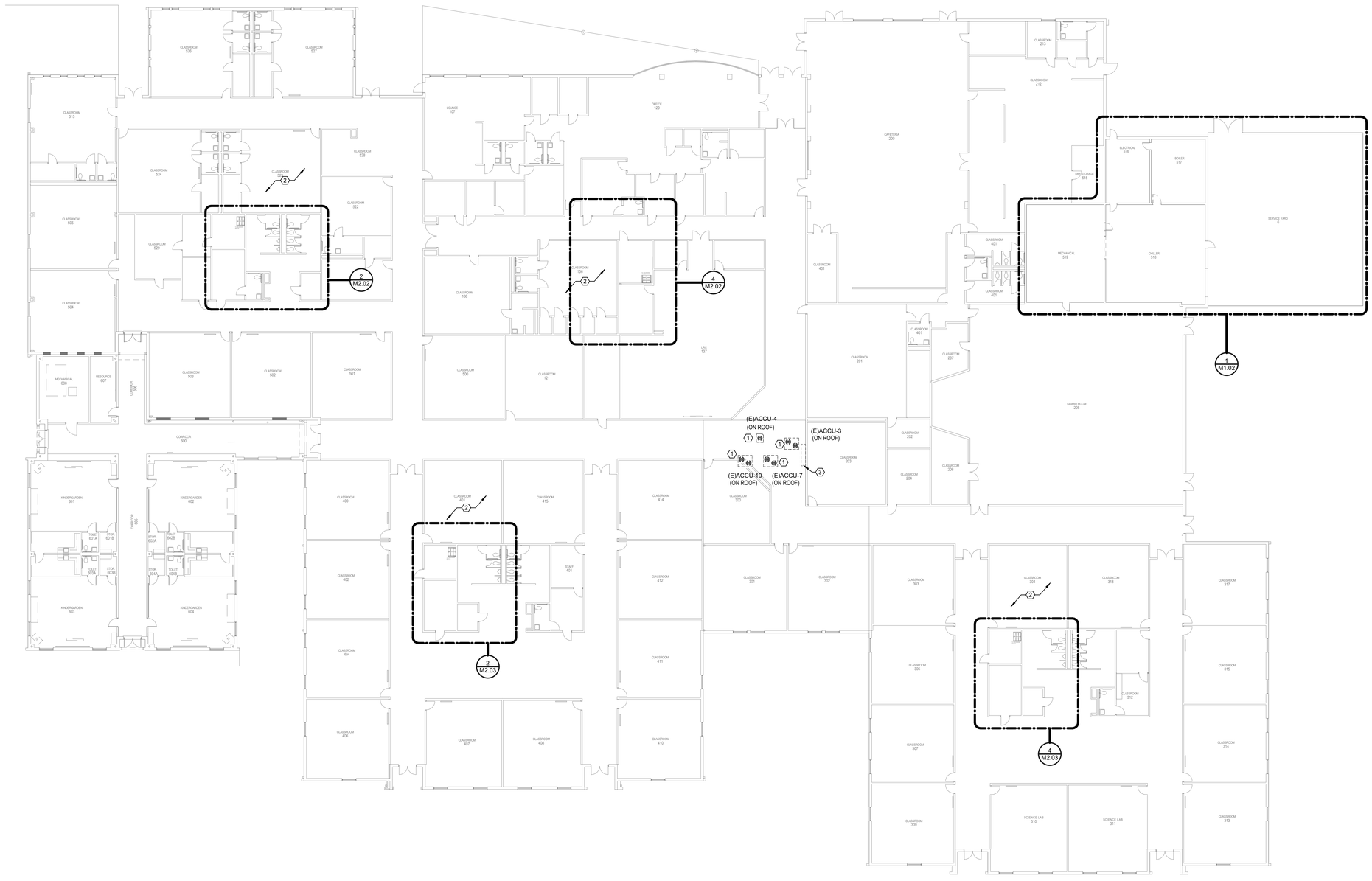
SYMBOL LEGEND	
	POINT OF CONNECTION TO EXISTING
	ITEM TO REMAIN
	ITEM TO BE REMOVED

MECHANICAL GENERAL NOTES

1	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.
2	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.
3	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.
4	REMOVE ALL UNUSED OR ABANDONED HANGER AND SUPPORTS OF DEMOLISHED EQUIPMENT AND MATERIAL.
5	MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

MECHANICAL KEYED NOTES

KEYED NOTE	DESCRIPTION
1	REMOVE EXISTING CONDENSING UNIT, EQUIPMENT SUPPORTS, REFRIGERANT PIPING, PIPE SUPPORTS, AND ALL ASSOCIATED APPURTENANCES.
2	REFER TO ARCHITECTURAL DRAWINGS FOR WORK IN THIS AREA.
3	REMOVE EXISTING PIPING AND ALL ASSOCIATED APPURTENANCES. PATCH AND SEAL ROOF OPENING TO MATCH ADJACENT.



N

1 **MECHANICAL DEMO COMPOSITE PLAN - LEVEL 1**
Scale: 1/16" = 1'-0"

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15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY VP **DRAWN BY** BB

SHEET NAME

MECHANICAL DEMO COMPOSITE PLAN

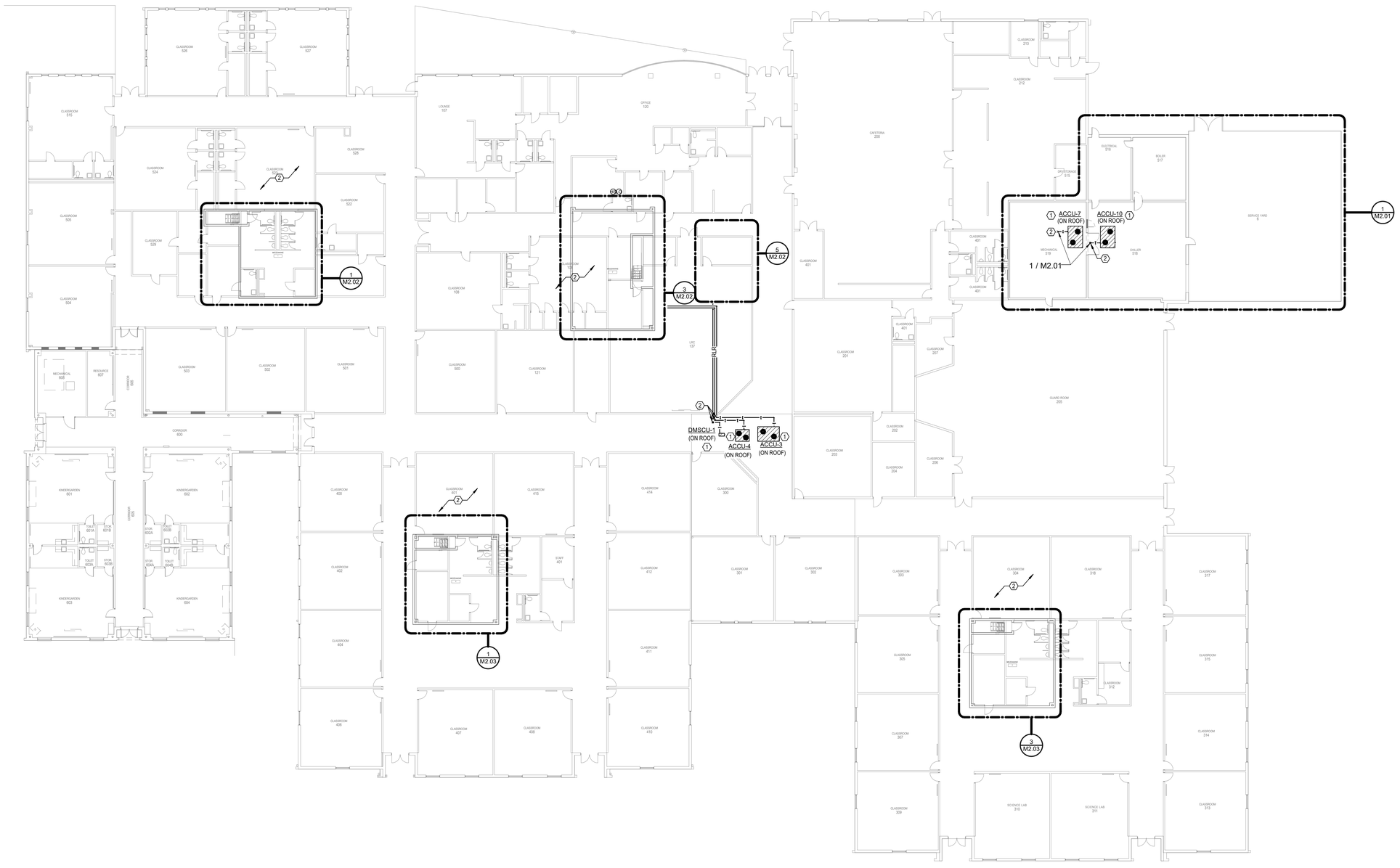
SHEET NUMBER M0.00 **REVISION**

MECHANICAL GENERAL NOTES

1	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.
2	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.
3	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.
4	REMOVE ALL UNUSED OR ABANDONED HANGER AND SUPPORTS OF DEMOLISHED EQUIPMENT AND MATERIAL
5	MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

MECHANICAL KEYED NOTES

KEYED NOTE	DESCRIPTION
1	AIR COOLED CONDENSING UNIT SHALL BE MOUNTED ON ROOF AT LOCATION SHOWN. REFER TO MANUFACTURER FOR REFRIGERANT PIPE SIZES, AIRFLOW CLEARANCES, AND MAINTENANCE CLEARANCES. REFER TO DETAIL FOR WIND RESISTANT EQUIPMENT SUPPORT DETAIL. ROUTE REFRIGERANT PIPING THROUGH PIPE HOUSING SHOWN. PROVIDE ROOF PIPE SUPPORTS AS SPECIFIED.
2	PROVIDE PHP MODEL PP-10 ON ROOF WITH ROLLER AND FULLY ADJUSTABLE HEIGHT THROUGHOUT PIPE RUN EVERY 6'-0" ON CENTER AND EVERY CHANGE IN DIRECTION.



N

1 **MECHANICAL COMPOSITE PLAN - LEVEL 1**
Scale: 1/16" = 1'-0"

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08/11/25

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REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY VP
DRAWN BY BB

SHEET NAME

MECHANICAL COMPOSITE PLAN

SHEET NUMBER M0.01
REVISION

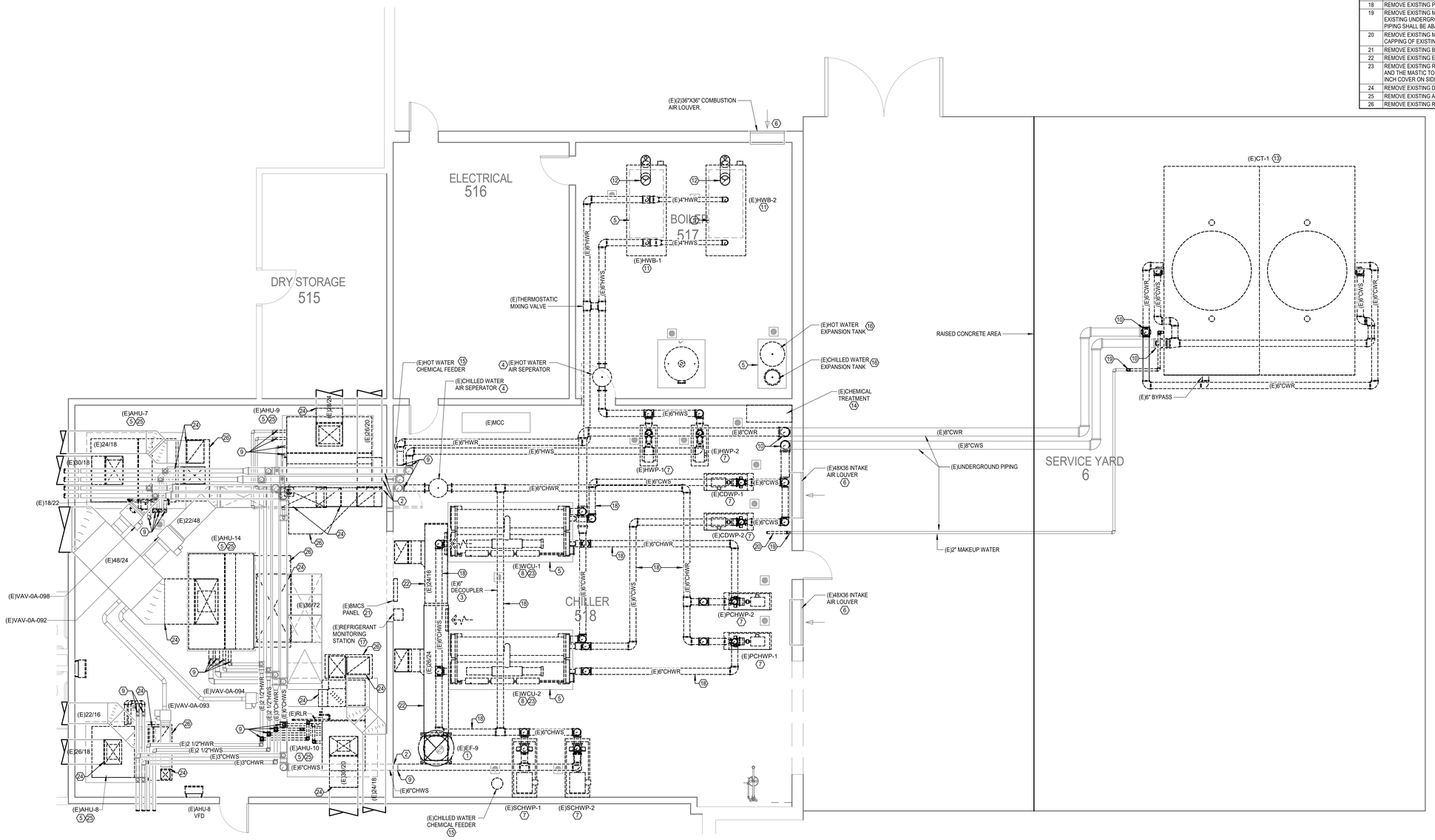
SYMBOL LEGEND	
	POINT OF CONNECTION TO EXISTING
	ITEM TO REMAIN
	ITEM TO BE REMOVED

MECHANICAL GENERAL NOTES

1	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.
2	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.
3	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.
4	REMOVE ALL UNUSED OR ABANDONED HANGER AND SUPPORTS OF DEMOLISHED EQUIPMENT AND MATERIAL
5	MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

MECHANICAL KEYED NOTES

KEYED NOTE	DESCRIPTION
1	REMOVE EXISTING FAN, ROOF CURB, CONTROLS, AND ALL ASSOCIATED APPURTENANCES. EXISTING ROOF PENETRATION TO REMAIN AND BE REUSED. CONTRACTOR SHALL PRESERVE OPENING FOR DURATION OF CONSTRUCTION.
2	EXISTING PIPING TO REMAIN.
3	REMOVE EXISTING DECOUPLER AND ALL ASSOCIATED APPURTENANCES.
4	REMOVE EXISTING AIR SEPARATOR AND ALL ASSOCIATED APPURTENANCES.
5	EXISTING CONCRETE HOUSEKEEPING PAD TO REMAIN.
6	EXISTING LOUVER TO REMAIN.
7	REMOVE EXISTING PUMP, CONTROLS, CONCRETE HOUSEKEEPING PAD, AND ALL ASSOCIATED APPURTENANCES.
8	REMOVE EXISTING WATER COOLED CHILLER, CONTROLS, AND ALL ASSOCIATED APPURTENANCES.
9	REMOVE EXISTING PIPING AND ALL ASSOCIATED APPURTENANCES BACK TO POINT INDICATED.
10	REMOVE EXISTING CONDENSER WATER PIPING BACK TO POINT INDICATED. CONTRACTOR SHALL CAP EXISTING UNDERGROUND CONDENSER WATER PIPING BELOW GRADE. UNDERGROUND CONDENSER WATER PIPING SHALL BE ABANDONED IN PLACE. CONTRACTOR SHALL PATCH EXISTING CONCRETE.
11	REMOVE EXISTING BOILER, CONTROLS, AND ALL ASSOCIATED APPURTENANCES.
12	REMOVE EXISTING FLUE. EXISTING OPENING SHALL REMAIN. CONTRACTOR SHALL PRESERVE OPENING FOR DURATION OF CONSTRUCTION.
13	REMOVE EXISTING COOLING TOWER, CONTROLS, AND ALL ASSOCIATED APPURTENANCES. CONTRACTOR SHALL REMOVE EXISTING TOWER SUPPORTS. TOWER SUPPORTS SHALL BE REMOVED BACK TO BELOW GRADE. CONTRACTOR SHALL PATCH EXISTING CONCRETE.
14	REMOVE EXISTING COOLING TOWER CHEMICAL TREATMENT.
15	REMOVE EXISTING CHEMICAL FEEDER AND ALL ASSOCIATED APPURTENANCES.
16	REMOVE EXISTING EXPANSION TANK AND ALL ASSOCIATED APPURTENANCES.
17	REMOVE EXISTING REFRIGERANT MONITORING STATION AND ALL ASSOCIATED APPURTENANCES.
18	REMOVE EXISTING PIPING IN ITS ENTIRETY.
19	REMOVE EXISTING MAKEUP WATER PIPING BACK TO POINT INDICATED. CONTRACTOR SHALL CAP EXISTING UNDERGROUND MAKEUP WATER PIPING BELOW GRADE. UNDERGROUND MAKEUP WATER PIPING SHALL BE ABANDONED IN PLACE. CONTRACTOR SHALL PATCH EXISTING CONCRETE.
20	REMOVE EXISTING MAKEUP WATER PIPING AS INDICATED. REFER TO PLUMBING DRAWINGS FOR CAPPING OF EXISTING MAKEUP WATER.
21	REMOVE EXISTING BMCS PANEL AND ALL ASSOCIATED APPURTENANCES.
22	REMOVE EXISTING EXHAUST DUCTWORK IN ITS ENTIRETY.
23	REMOVE EXISTING RELIEF PIPE FROM EXISTING PITCH PAN. FILL VOID WITH LIQUID FOAM INSULATION AND THE MASTIC TO SEAL. AFTERWARDS COVER TOP WITH STAINLESS STEEL CAP MINIMUM OF 1.5 INCH COVER ON SIDES.
24	REMOVE EXISTING DUCTWORK AND ALL ASSOCIATED APPURTENANCES BACK TO POINT INDICATED.
25	REMOVE EXISTING AIR HANDLING UNIT AND ALL ASSOCIATED APPURTENANCE.
26	REMOVE EXISTING RETURN AIR PLENUM BOX AS INDICATED.



N

1 **MECHANICAL ENLARGED DEMOLITION PLAN - SERVICE YARD**
Scale: 1/4" = 1'-0"

Salas O'Brien
salasobrien.com 281-664-1900
Houston
10930 W. Sam Houston Pkwy North, Suite 900
Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
08/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY VP
DRAWN BY BB

SHEET NAME

MECHANICAL DEMO ENLARGED PLAN - SERVICE YARD

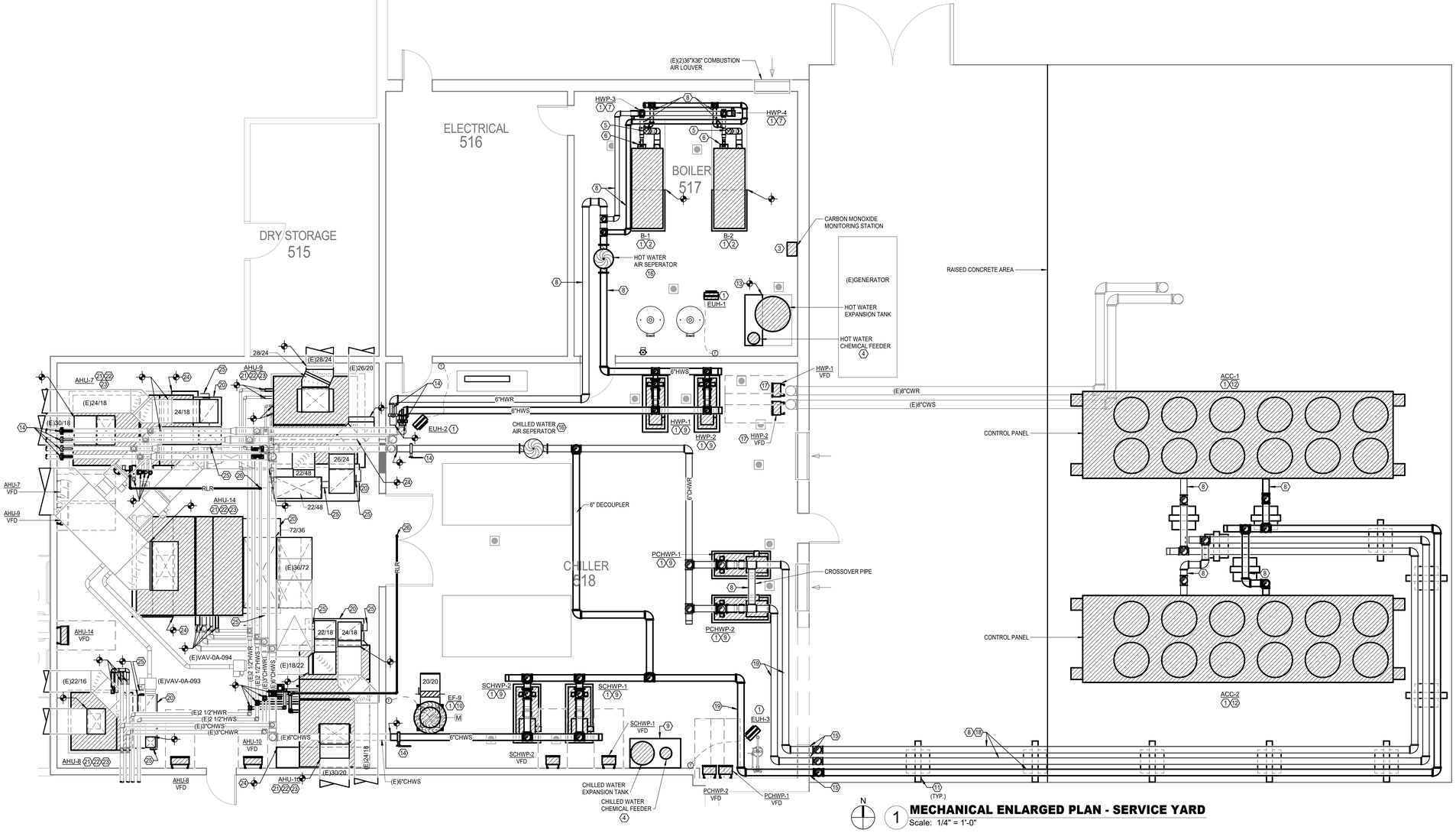
SHEET NUMBER M1.02
REVISION

MECHANICAL GENERAL NOTES

1	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.
2	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.
3	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.
4	REMOVE ALL UNUSED OR ABANDONED HANGER AND SUPPORTS OF DEMOLISHED EQUIPMENT AND MATERIAL.
5	MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

MECHANICAL KEYED NOTES

KEYED NOTE	DESCRIPTION
1	VERIFY SERVICE CLEARANCES WITH EQUIPMENT MANUFACTURER. COORDINATE WITH ALL TRADE NOT TO OBSTRUCT.
2	MODIFY EXISTING CONCRETE HOUSE KEEPING PAD TO ACCOMMODATE NEW BOILER.
3	PROVIDE CARBON MONOXIDE MONITORING STATION. MOUNT ENCLOSURE AT 5'-0" AFF. INSTALL PER MANUFACTURER RECOMMENDATIONS. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
4	PROVIDE CHEMICAL FEEDER SUPPORT. REFER TO DETAIL.
5	ROUTE BOILER FLUE UP THROUGH EXISTING PENETRATION ON ROOF. MODIFY EXISTING PENETRATION TO ACCOMMODATE NEW FLUE. INSTALL PER MANUFACTURER RECOMMENDATIONS. REFER TO DETAILS.
6	COMBUSTION AIR INTAKE TO REMAIN OPEN.
7	CIRCULATOR PUMP PROVIDED BY BOILER MANUFACTURER.
8	REFER TO PIPING DIAGRAM FOR PIPE SIZES.
9	PROVIDE 4" CONCRETE HOUSEKEEPING PAD.
10	ROUTE 20/20 EXHAUST DUCT UP TO FAN ON ROOF. TRANSITION EXHAUST DUCT TO CONNECT TO FAN OPENING. DUCTWORK SHALL TERMINATE 1'-0" BELOW EXISTING STRUCTURE. PROVIDE OPENING WITH 1/4" ALUMINUM WIRE MESH. MODIFY EXISTING OPENING TO ACCOMMODATE NEW FAN.
11	PROVIDE PIPE STAND. REFER TO DETAIL.
12	PROVIDE 12" WIDE X 12" TALL X UNIT LENGTH CONCRETE RUNNER REINFORCED WITH 4 CONTINUOUS #4 REBAR WITH #3 STIRRUPS AT 18" O.C. SPACING. PROVIDE 1-1/2" COVER ON TOP AND SIDES AND 3" COVER ON BOTTOM OF BEAM. (TYPICAL OF 2 RUNNERS PER CHILLER).
13	MODIFY EXISTING CONCRETE HOUSEKEEPING PAD TO ACCOMMODATE NEW EXPANSION TANK.
14	PROVIDE ISOLATION VALVE AT LOCATION SHOWN.
15	ROUTE PIPING THROUGH EXTERIOR WALL. REFER TO DETAIL.
16	REFER TO DETAIL FOR SUPPORT AT AIR/DIRT SEPARATOR.
17	MOUNTED VARIABLE FREQUENCY DRIVE (VFD) ON UNISTRUT RACK AT LOCATION SHOWN.
18	BOTTOM OF PIPE (BOP) SHALL BE 7'-6".
19	BOTTOM OF PIPE (BOP) SHALL BE 14'-0"
20	PROVIDE SHEET METAL PLENUM, FULL SIZE OF UNIT OPENING, LENGTH AS REQUIRED FOR ALL DUCT CONNECTIONS SHOWN.
21	VERIFY SERVICE CLEARANCE FOR AIR FILTER, FAN SHAFT, AND COIL REMOVAL WITH EQUIPMENT MANUFACTURER. COORDINATE WITH ALL TRADES NOT TO OBSTRUCT.
22	VERIFY SERVICE CLEARANCES FOR FAN SHAFT AND COIL REMOVAL WITH EQUIPMENT MANUFACTURER. COORDINATE WITH OTHER TRADES NOT TO OBSTRUCT.
23	ROUTE FULL SIZE CONDENSATE DRAIN LINE TO EXISTING FLOOR DRAIN. INSTALL TRAP PER MANUFACTURERS INSTALLATION INSTRUCTIONS. REFER TO PLUMBING DRAWINGS FOR EXACT LOCATION.
24	MODIFY EXISTING CONCRETE HOUSEKEEPING PAD TO ACCOMMODATE NEW AIR HANDLING UNIT.
25	PROVIDE MANUAL BALANCING (D-2) DAMPER IN VERTICAL.
26	ROUTE REFRIGERANT LINE AS HIGH AS POSSIBLE. REFERENCE M0.01 FOR CONTINUATION.



1 **MECHANICAL ENLARGED PLAN - SERVICE YARD**
Scale: 1/4" = 1'-0"

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

PROFESSIONAL SEAL

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY VP **DRAWN BY** BB

SHEET NAME

MECHANICAL ENLARGED PLAN - SERVICE YARD

SHEET NUMBER M2.01 **REVISION**

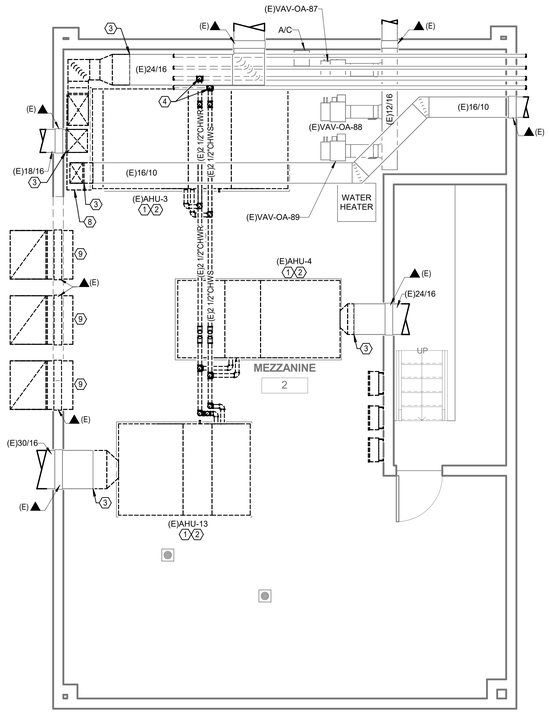
SYMBOL LEGEND	
	POINT OF CONNECTION TO EXISTING
	ITEM TO REMAIN
	ITEM TO BE REMOVED

MECHANICAL GENERAL NOTES

1	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.
2	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.
3	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.
4	REMOVE ALL UNUSED OR ABANDONED HANGER AND SUPPORTS OF DEMOLISHED EQUIPMENT AND MATERIAL.
5	MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

MECHANICAL KEYED NOTES

KEYED NOTE	DESCRIPTION
1	EXISTING CONCRETE HOUSEKEEPING PAD TO REMAIN.
2	REMOVE EXISTING AIR HANDLING UNIT AND ALL ASSOCIATED APPURTENANCE.
3	REMOVE EXISTING DUCTWORK AND ALL ASSOCIATED APPURTENANCES BACK TO POINT INDICATED.
4	REMOVE EXISTING PIPING AND ALL ASSOCIATED APPURTENANCES BACK TO POINT INDICATED.
5	VERIFY SERVICE CLEARANCE FOR AIR FILTER, FAN SHAFT, AND COIL REMOVAL WITH EQUIPMENT MANUFACTURER. COORDINATE WITH ALL TRADES NOT TO OBSTRUCT.
6	VERIFY SERVICE CLEARANCES FOR FAN SHAFT AND COIL REMOVAL WITH EQUIPMENT MANUFACTURER. COORDINATE WITH OTHER TRADES NOT TO OBSTRUCT.
7	ROUTE FULL SIZE CONDENSATE DRAIN LINE TO EXISTING FLOOR DRAIN. INSTALL TRAP PER MANUFACTURERS INSTALLATION INSTRUCTIONS. REFER TO PLUMBING DRAWINGS FOR EXACT LOCATION.
8	REMOVE EXISTING SUPPLY AIR PLENUM BOX AS INDICATED.
9	REMOVE EXISTING RETURN AIR BOOT AS INDICATED AND ALL ASSOCIATED APPURTENANCES. CONTRACTOR SHALL PRESERVE OPENING FOR DURATION OF CONSTRUCTION.
10	PROVIDE INTERNALLY LINED RETURN ELBOW/S AT SIZE INDICATED.
11	MODIFY EXISTING CONCRETE HOUSEKEEPING PAD TO ACCOMMODATE NEW AIR HANDLING UNIT.
12	REMOVE EXISTING TEMPERATURE SENSOR AND ALL ASSOCIATED CONTROL WIRING BACK TO ASSOCIATED MECHANICAL EQUIPMENT.
13	EXISTING AIR DEVICE TO REMAIN.
14	EXISTING TERMINAL UNIT AND ALL ASSOCIATED APPURTENANCES TO REMAIN.
15	CONDENSATE PUMP TO BE MOUNTED BELOW HIGHWALL UNIT. INSTALL PER MANUFACTURER INSTALLATION INSTRUCTIONS. ROUTE CONDENSATE PIPE FROM INDOOR UNIT TO CONDENSATE PUMP. REFER TO DUCTLESS MINI-SPLIT INDOOR UNIT SCHEDULE FOR CONDENSATE PUMP INFORMATION.
16	PROVIDE NEW DDC TEMPERATURE SENSOR AND CONTROL WIRING. REFER TO SPECIFICATIONS FOR MORE INFORMATION. NO EXISTING CONTROL WIRE SHALL BE REUSED.
17	VERIFY SERVICE CLEARANCES WITH EQUIPMENT MANUFACTURER. COORDINATE WITH ALL TRADE NOT TO OBSTRUCT.
18	ROUTE FULL SIZE CONDENSATE DRAIN PIPE AS INDICATED. INSTALL CONDENSATE DRAIN TRAP AT UNIT AS RECOMMENDED BY MANUFACTURER.
19	ROUTE REFRIGERANT LINES TO ASSOCIATED CONDENSING UNIT ON ROOF. REFER TO MANUFACTURER FOR PIPE SIZES.
20	BOTTOM OF HIGH WALL UNIT SHALL BE MOUNTED ABOVE 7'-3" A.F.F.
21	PROVIDE TEMPERATURE SENSOR FOR BMCS.
22	ROUTE FULL SIZE CONDENSATE DRAIN PIPE DOWN WALL TO WYE TAIL PIECE. REFER TO PLUMBING.



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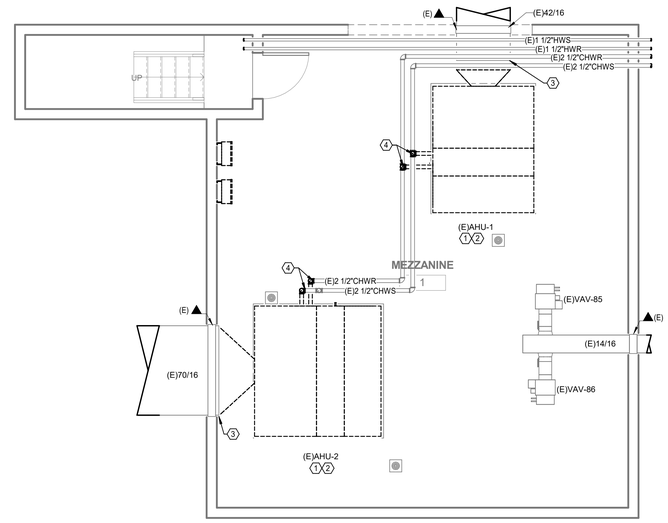
4 MECHANICAL DEMO ENLARGED PLAN - MEZZANINE 2
Scale: 1/4" = 1'-0"



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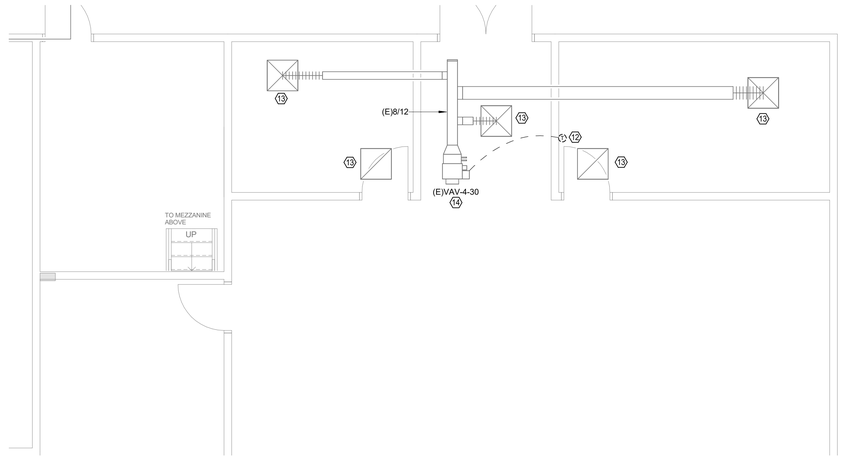
2 MECHANICAL DEMO ENLARGED PLAN - MEZZANINE 1
Scale: 1/4" = 1'-0"



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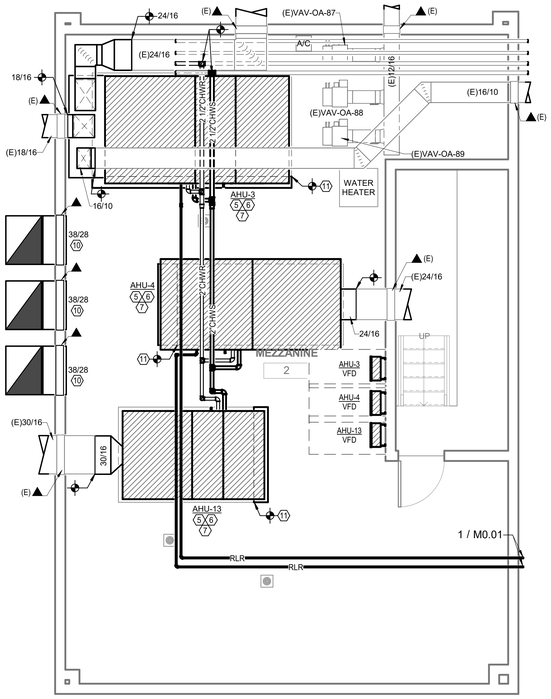
6 MECHANICAL DEMO ENLARGED PLAN - LEVEL 1 - MDF
Scale: 1/4" = 1'-0"



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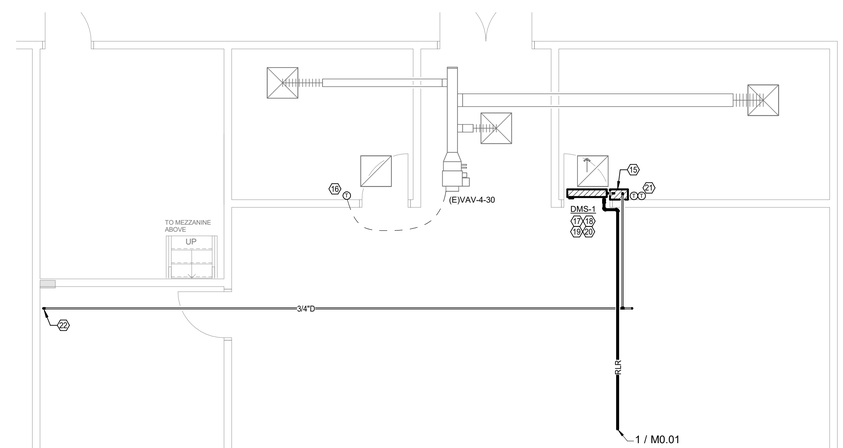
3 MECHANICAL ENLARGED PLAN - MEZZANINE 2
Scale: 1/4" = 1'-0"

N

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



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5 MECHANICAL ENLARGED PLAN - LEVEL 1 - MDF
Scale: 1/4" = 1'-0"

Salas O'Brien

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

PROFESSIONAL SEAL

BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
08/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD — EXCELLENCE IN ALL FOR ALL STUDENTS

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY VP
DRAWN BY BB

SHEET NAME

MECHANICAL ENLARGED PLANS - MEZZANINE 1 & 2

SHEET NUMBER M2.02
REVISION

SYMBOL LEGEND	
	POINT OF CONNECTION TO EXISTING
	ITEM TO REMAIN
	ITEM TO BE REMOVED

MECHANICAL GENERAL NOTES

1	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.
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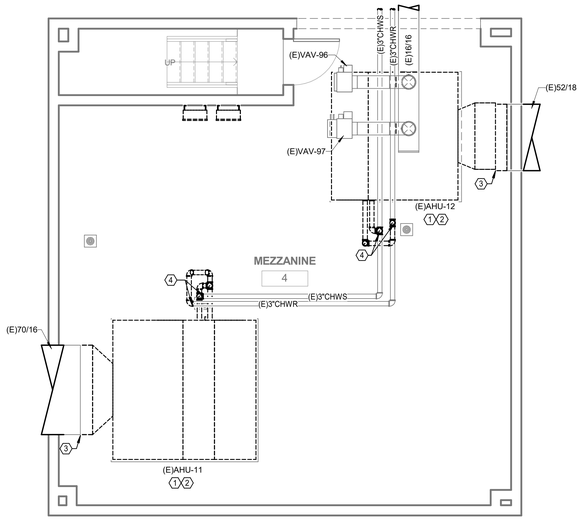
4	REMOVE ALL UNUSED OR ABANDONED HANGER AND SUPPORTS OF DEMOLISHED EQUIPMENT AND MATERIAL.
5	MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

MECHANICAL KEYED NOTES

KEYED NOTE	DESCRIPTION
1	EXISTING CONCRETE HOUSEKEEPING PAD TO REMAIN.
2	REMOVE EXISTING AIR HANDLING UNIT AND ALL ASSOCIATED APPURTENANCE.
3	REMOVE EXISTING DUCTWORK AND ALL ASSOCIATED APPURTENANCES BACK TO POINT INDICATED.
4	REMOVE EXISTING PIPING AND ALL ASSOCIATED APPURTENANCES BACK TO POINT INDICATED.
5	VERIFY SERVICE CLEARANCE FOR AIR FILTER, FAN SHAFT, AND COIL REMOVAL WITH EQUIPMENT MANUFACTURER. COORDINATE WITH ALL TRADES NOT TO OBSTRUCT.
6	VERIFY SERVICE CLEARANCES FOR FAN SHAFT AND COIL REMOVAL WITH EQUIPMENT MANUFACTURER. COORDINATE WITH OTHER TRADES NOT TO OBSTRUCT.
7	ROUTE FULL SIZE CONDENSATE DRAIN LINE TO EXISTING FLOOR DRAIN. INSTALL TRAP PER MANUFACTURERS INSTALLATION INSTRUCTIONS. REFER TO PLUMBING DRAWINGS FOR EXACT LOCATION.
8	MODIFY EXISTING CONCRETE HOUSEKEEPING PAD TO ACCOMMODATE NEW AIR HANDLING UNIT.



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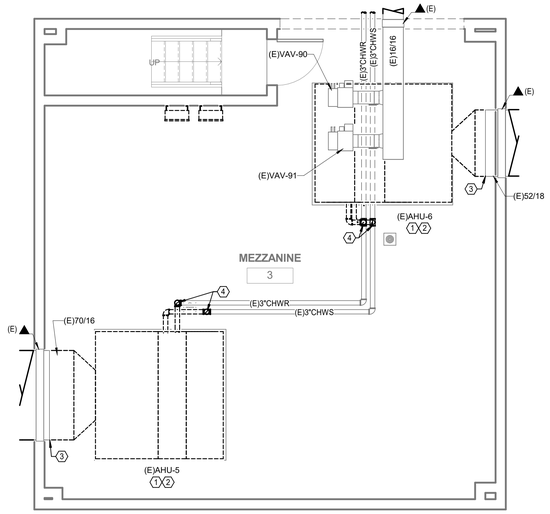
4 **MECHANICAL DEMO ENLARGED PLAN - MEZZANINE 4**
Scale: 1/4" = 1'-0"



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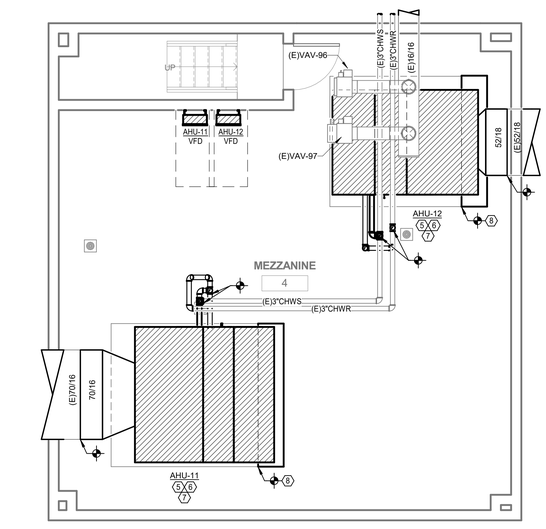
2 **MECHANICAL DEMO ENLARGED PLAN - MEZZANINE 3**
Scale: 1/4" = 1'-0"



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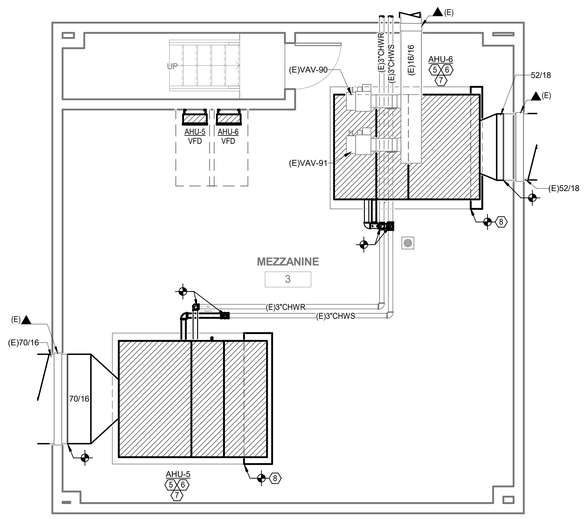
3 **MECHANICAL ENLARGED PLAN - MEZZANINE 4**
Scale: 1/4" = 1'-0"



N

1 **MECHANICAL ENLARGED PLAN - MEZZANINE 3**
Scale: 1/4" = 1'-0"

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Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

STATE OF TEXAS
BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
08/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

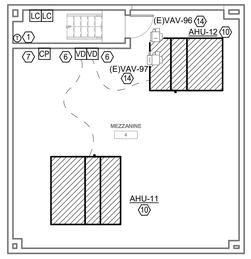
Δ	DESCRIPTION	DATE

CHECKED BY VP
DRAWN BY BB

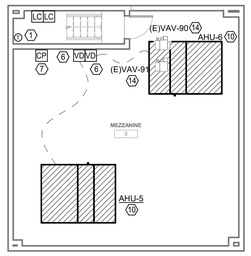
SHEET NAME

MECHANICAL ENLARGED PLANS - MEZZANINE 3 & 4

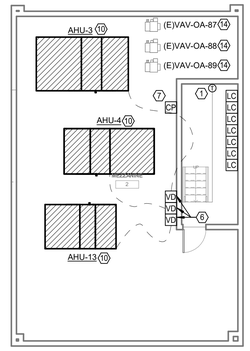
SHEET NUMBER M2.03
REVISION



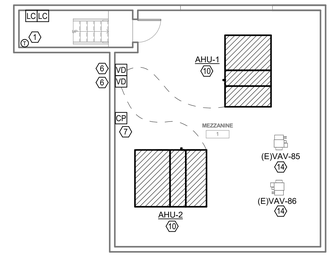
5 MECHANICAL PLAN - LEVEL 2 - MEZZANINE 4
Scale: 1/8" = 1'-0"



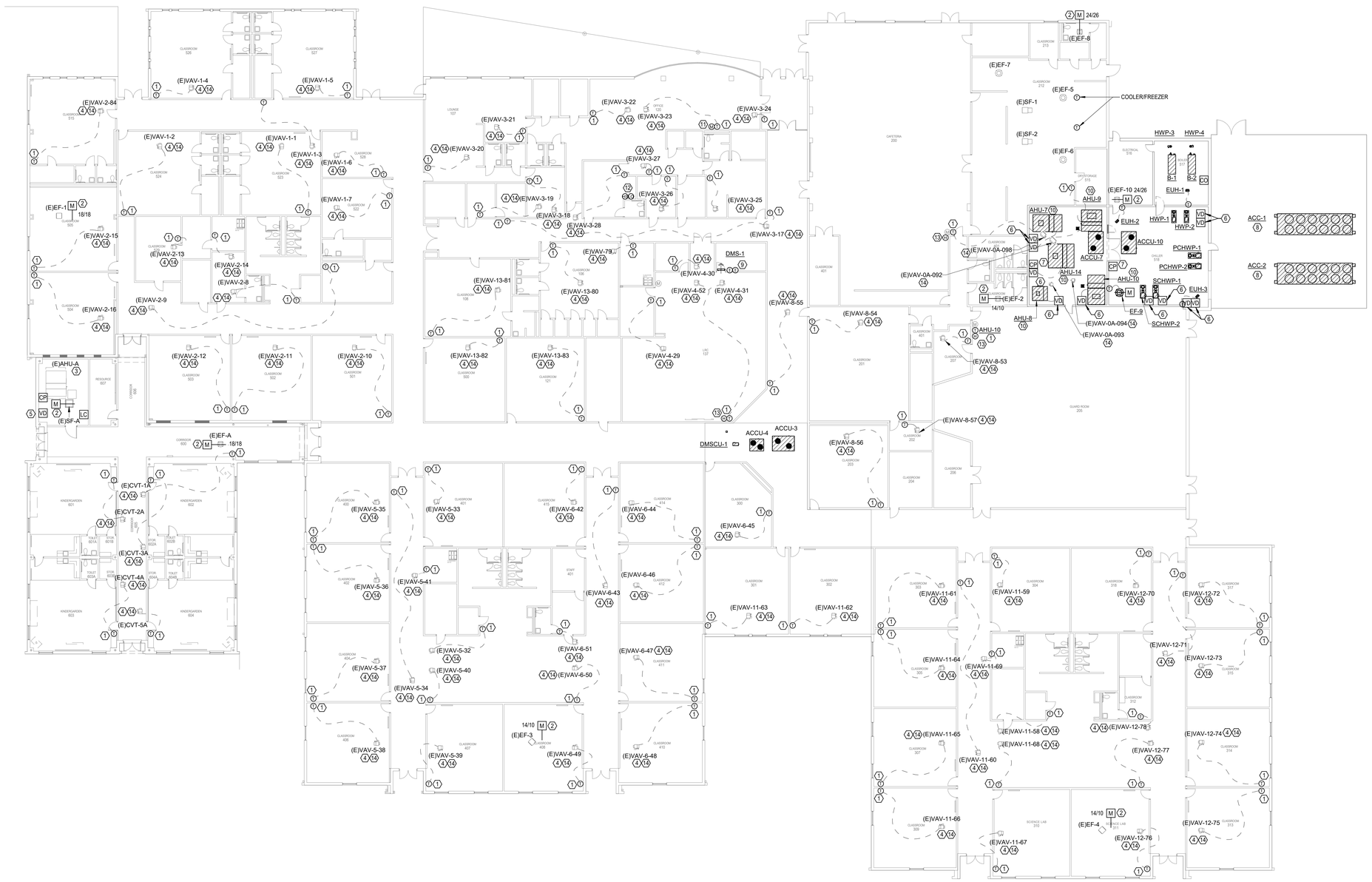
4 MECHANICAL PLAN - LEVEL 2 - MEZZANINE 3
Scale: 1/8" = 1'-0"



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



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



1 MECHANICAL BMCS PLAN
Scale: 1/16" = 1'-0"

MECHANICAL GENERAL NOTES

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3	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.
4	REMOVE ALL UNUSED OR ABANDONED HANGER AND SUPPORTS OF DEMOLISHED EQUIPMENT AND MATERIAL.
5	MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

MECHANICAL KEYED NOTES

KEYED NOTE	DESCRIPTION
1	PROVIDE NEW DDC TEMPERATURE SENSOR AND CONTROL WIRING. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
2	PROVIDE NEW MOTORIZED DAMPER, ACTUATOR AND CONTROLS. MODIFY EXISTING DUCTWORK AND INSULATION AS REQUIRED. AFFECTED DUCTWORK SHALL BE SEALED AND RE-INSULATED TO MATCH EXISTING.
3	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 AS REQUIRED FOR INSTALLATION OF NEW VALVES AND APPURTENANCES.
4	EXISTING TERMINAL BOX SHALL REMAIN. REPLACE EXISTING HOT WATER ISOLATION VALVE, BALANCING VALVE, AND CONTROL VALVE WITH NEW. REPLACE EXISTING HOT WATER PIPING WITH NEW AS REQUIRED FOR INSTALLATION OF NEW VALVES AND APPURTENANCES.
5	EXISTING VARIABLE FREQUENCY DRIVE SHALL BE REMOVED AND REPLACED WITH NEW VARIABLE FREQUENCY DRIVE TO MATCH EXISTING UNIT HORSEPOWER. EXTEND EXISTING CONDUIT AND PROVIDE NEW WIRE AS REQUIRED 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 ALARM SYSTEM.
6	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.
7	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.
11	PROVIDE NEW MANUAL OVERRIDE FOR AFTER HOUR DX COOLING SYSTEM. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
12	FIELD VERIFY THE EXACT LOCATION OF THE EXTERIOR LIGHTING OVERRIDE AND HVAC SHUTDOWN STATION WITH OWNER AND ENGINEER PRIOR TO INSTALLATION.
13	PROVIDE NEW HUMIDITY SENSOR AND CONTROL WIRING. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
14	PROVIDE NEW DAMPER ACTUATOR AND TERMINAL CONTROLLER FOR EXISTING TERMINAL BOX.

BMCS SYMBOL LEGEND

SYMBOL	DESCRIPTION
VD	VARIABLE FREQUENCY DRIVE
CP	CONTROL PANEL
DS	DISCONNECT SWITCH
M	MOTORIZED DAMPER
RM	REFRIGERANT MONITORING SYSTEM

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Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
08/11/25

ISSUE DATE	DESCRIPTION
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Galena Park ISD
EXCELLENCE IN ALL FOR ALL STUDENTS

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

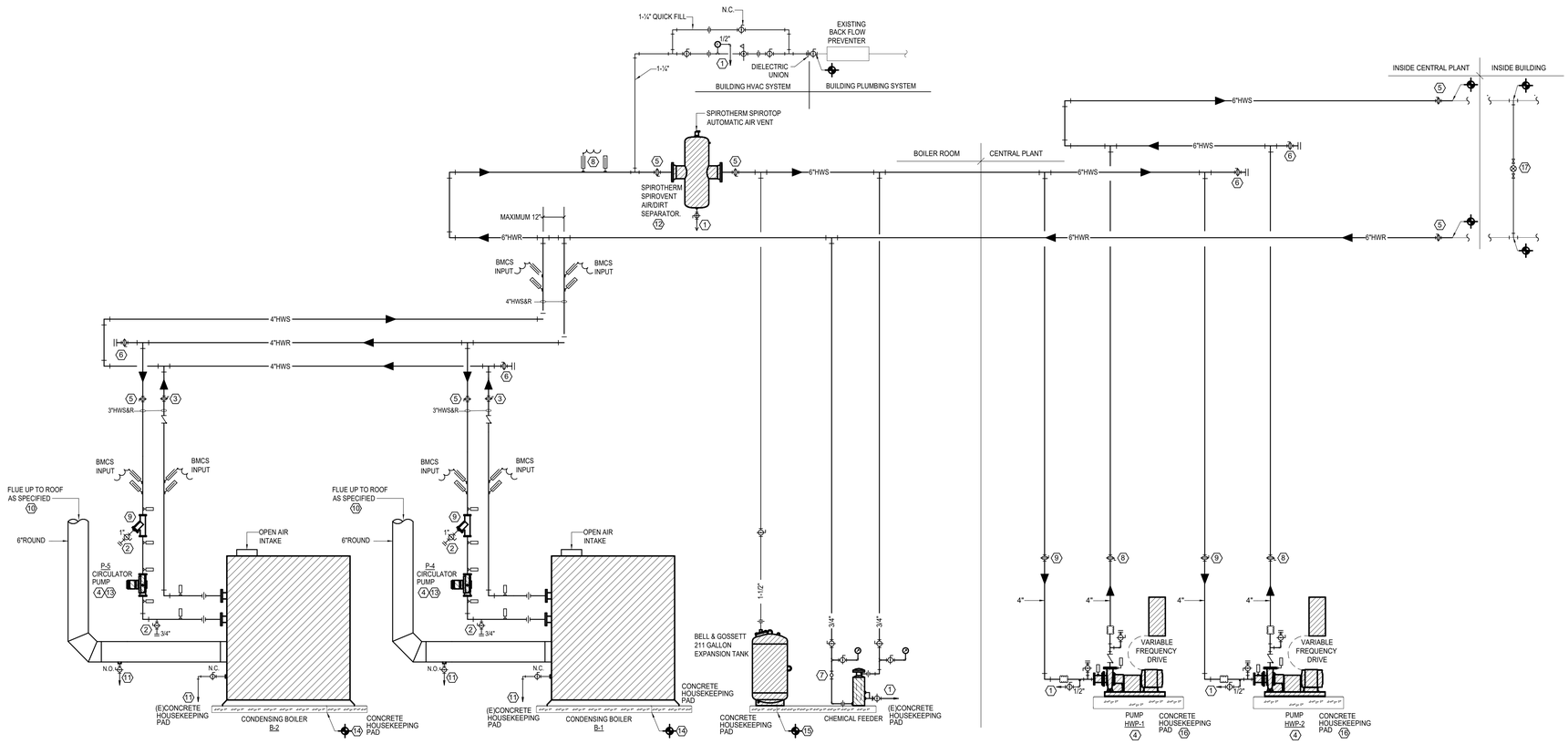
Δ	DESCRIPTION	DATE

CHECKED BY: VP
DRAWN BY: BB

SHEET NAME

MECHANICAL BMCS PLAN

SHEET NUMBER: M3.01
REVISION:

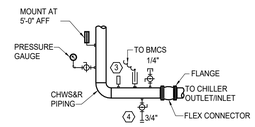


3 HOT WATER PIPING DIAGRAM

SCALE: NO SCALE

HOT WATER KEYED NOTES

1. ROUTE FULL SIZE TYPE "L" COPPER DRAIN LINE TO NEAREST FLOOR DRAIN.
2. PROVIDE DRAIN BALL VALVE WITH HOSE THREAD ADAPTER.
3. BALANCING VALVE TO BE PROVIDED WITH INFINITE POSITION CRANK OR MEMORY STOP FOR BALANCING SERVICE.
4. VERIFY SERVICE CLEARANCES WITH EQUIPMENT MANUFACTURER. COORDINATE WITH ALL TRADE NOT TO OBSTRUCT.
5. PROVIDE ISOLATION VALVE AT LOCATION SHOWN.
6. PROVIDE ISOLATION VALVE AND BLIND FLANGE FOR TEMPORARY CONNECTION.
7. PROVIDE AN ERNEST GAUGE #E-57-3 BRONZE BODY SIGHT GLASS WITH S.S. SHAFT, PLASTIC SPINNER AND DOUBLE WINDOW. OPERATING TEMPERATURE AND PRESSURE SHALL BE 200°F, 125 PSI MINIMUM.
8. HEADER TEMPERATURE SENSOR. PROVIDED BY BOILER MANUFACTURER.
9. PROVIDE STRAINER.
10. REFER TO DETAIL FOR MORE INFORMATION ON POWER EXHAUST FLUE. BOILER FLUE SHALL TERMINATE 3'-0" ABOVE COMBUSTION AIR INTAKE.
11. ROUTE FULL SIZE CPVC PIPING FROM BOILER TO ACID NEUTRALIZATION BASIN AND FROM BASIN TO FLOOR DRAIN.
12. REFER TO DETAIL FOR MORE INFORMATION ON AIR/DIRT SEPARATOR SUPPORT.
13. CIRCULATOR PUMP PROVIDED BY BOILER MANUFACTURER.
14. MODIFY EXISTING CONCRETE HOUSEKEEPING PAD TO ACCOMMODATE NEW BOILER.
15. MODIFY EXISTING CONCRETE HOUSEKEEPING PAD TO ACCOMMODATE NEW EXPANSION TANK.
16. PROVIDE 4" CONCRETE HOUSEKEEPING PAD.
17. PROVIDE DIFFERENTIAL PRESSURE SENSOR.

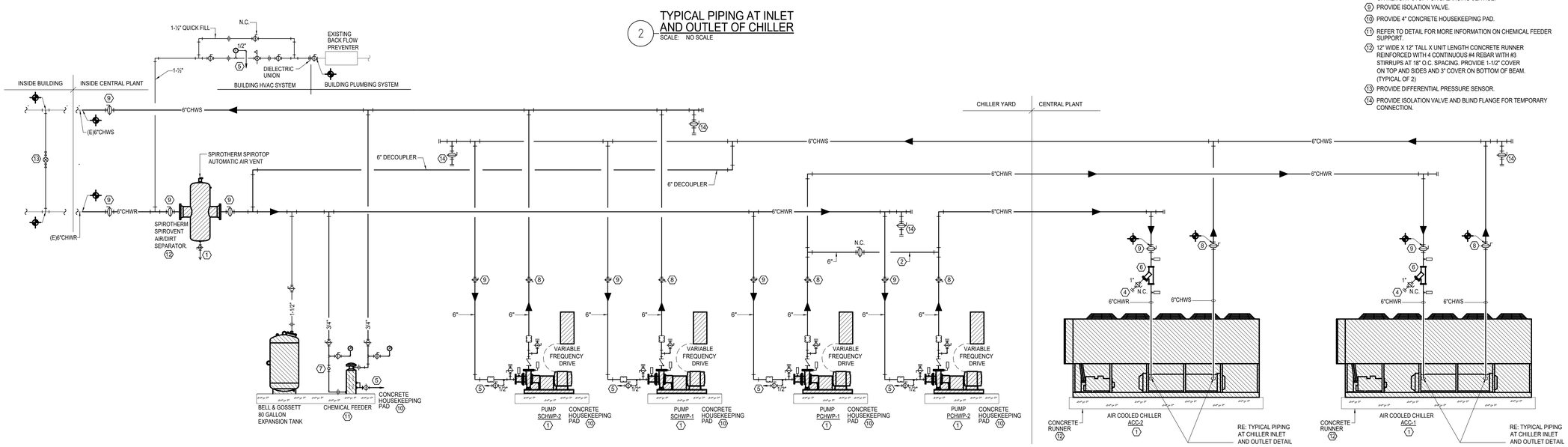


2 TYPICAL PIPING AT INLET AND OUTLET OF CHILLER

SCALE: NO SCALE

CHILLED WATER KEYED NOTES:

1. VERIFY AIRFLOW AND SERVICE CLEARANCES WITH EQUIPMENT MANUFACTURER. COORDINATE WITH ALL TRADES NOT TO OBSTRUCT.
2. PROVIDE CROSSOVER PIPE ON SUPPLY SIDE OF PRIMARY PUMPS.
3. PROVIDE PETE'S PLUG. (TYP.)
4. PROVIDE BALL VALVE WITH HOSE THREAD ADAPTER AT FULL SIZE OR AT SIZE INDICATED.
5. ROUTE FULL SIZE TYPE "L" COPPER DRAIN LINE TO NEAREST FLOOR DRAIN.
6. PROVIDE INLINE STRAINER.
7. PROVIDE ERNEST GAUGE #E-57-3 BRONZE BODY SIGHT GLASS WITH S.S. SHAFT, PLASTIC SPINNER AND DOUBLE WINDOW. OPERATING TEMPERATURE AND PRESSURE SHALL BE 125 PSI, 200F. MINIMUM.
8. BALANCING VALVE TO BE PROVIDED WITH INFINITE POSITION CRANK OR MEMORY STOP FOR BALANCING SERVICE.
9. PROVIDE ISOLATION VALVE.
10. PROVIDE 4" CONCRETE HOUSEKEEPING PAD.
11. REFER TO DETAIL FOR MORE INFORMATION ON CHEMICAL FEEDER SUPPORT.
12. 12" WIDE X 12" TALL X UNIT LENGTH CONCRETE RUNNER REINFORCED WITH 4 CONTINUOUS #4 REBAR WITH #3 STIRRUPS AT 18" O.C. SPACING. PROVIDE 1-1/2" COVER ON TOP AND SIDES AND 3" COVER ON BOTTOM OF BEAM. (TYPICAL OF 2)
13. PROVIDE DIFFERENTIAL PRESSURE SENSOR.
14. PROVIDE ISOLATION VALVE AND BLIND FLANGE FOR TEMPORARY CONNECTION.



1 CHILLED WATER PIPING DIAGRAM

SCALE: NO SCALE

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REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY VP
DRAWN BY BB

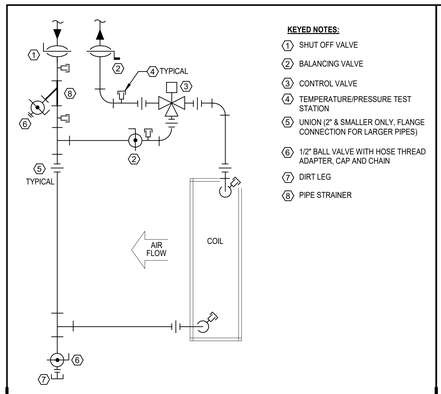
SHEET NAME

MECHANICAL PIPING DIAGRAMS

SHEET NUMBER M4.01
REVISION

SYMBOL LEGEND

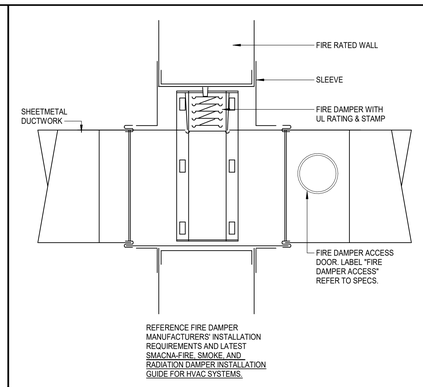
SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
GENERAL	
(#)	KEY NOTE TAG
(A)	REVISION TAG
	NEW EQUIPMENT
DUCTWORK	
	SUPPLY AIR DUCTWORK
	RETURN AIR AND OUTSIDE AIR DUCTWORK
	EXHAUST AIR DUCTWORK
	FLEXIBLE DUCTWORK
	SUPPLY AIR DUCTWORK THROUGH HORIZONTAL PARTITION
	RETURN AIR DUCTWORK THROUGH HORIZONTAL PARTITION
	EXHAUST AIR DUCTWORK THROUGH HORIZONTAL PARTITION
	FIRE DAMPER (VERTICAL)
	FIRE DAMPER (HORIZONTAL)
(S)	SMOKE DAMPER (VERTICAL)
(S)	SMOKE DAMPER (HORIZONTAL)
FS	COMBINATION FIRE & SMOKE DAMPER (VERTICAL)
FS	COMBINATION FIRE & SMOKE DAMPER (HORIZONTAL)
	MANUAL BALANCING DAMPER (SEE DAMPER SCHEDULE)
M	MOTORIZED DAMPER (SEE DAMPER SCHEDULE)
SENSORS	
(T)	THERMOSTAT AND TEMPERATURE SENSOR
(H)	HUMIDISTAT
(SD)	SMOKE DETECTOR
(M)	MANUAL OVERRIDE FOR AFTER HOUR DX COIL
PIPING	
–CWS&R–	CONDENSER WATER SUPPLY & RETURN (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
–CWS–	CONDENSER WATER SUPPLY
–CWR–	CONDENSER WATER RETURN
–CHWS&R–	CHILLED WATER SUPPLY & RETURN (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
–CHWS–	CHILLED WATER SUPPLY
–CHWR–	CHILLED WATER RETURN
–HWS&R–	HOT WATER FOR HYDRONIC HEATING SUPPLY & RETURN (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
–HWS–	HOT WATER FOR HYDRONIC HEATING SUPPLY
–HWR–	HOT WATER FOR HYDRONIC HEATING RETURN
—D—	CONDENSATE DRAIN LINE
—AD—	AUXILIARY CONDENSATE DRAIN LINE
—RLR—	REFRIGERANT LIQUID & GAS RECIRCULATION LINE (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
—RL—	REFRIGERANT LIQUID LINE
—HG—	REFRIGERANT HOT GAS LINE
—RS—	REFRIGERANT SUCTION LINE
—O	ELBOW UP
—D	ELBOW DOWN
	90° ELBOW
	45° ELBOW
	TEE
	TEE DOWN
	TEE UP
	TOP BRANCH CONNECTION
	BOTTOM BRANCH CONNECTION
	FLANGE
	CAP
	CONTINUATION
	FLOOR DRAIN (REFER TO PLUMBING DRAWINGS)
	GATE VALVE
	GLOBE VALVE
	CHECK VALVE
	BUTTERFLY VALVE
	BUTTERFLY VALVE WITH OPERATOR
	PLUG VALVE
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	BALL VALVE
	STRAINER
	UNION
	THERMOMETER WELL
	PETE'S PLUG
	PRESSURE GAUGE
	TEMPERATURE SENSOR IN PIPE
	VENTURI FLOW METER
	FLOW SWITCH
(FM)	FLOW MEASURING STATION
	EXPANSION JOINT
	FLEXIBLE CONNECTION
G.C.	GAUGE COCK
	SITE GLASS
	DIFFERENTIAL PRESSURE SENSOR
	TURBINE FLOW METER
	ANCHOR
	PIPE GUIDE
SUBSCRIPTS AND ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR
BBS	BELOW BOTTOM OF STRUCTURE
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
CA	COMBUSTION AIR
CFM	CUBIC FEET PER MINUTE
EA	EXHAUST AIR
FPM	FEET PER MINUTE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR
RENOVATIONS	
	POINT OF CONNECTION FROM NEW TO EXISTING
	ITEM TO REMAIN
	ITEM TO BE REMOVED



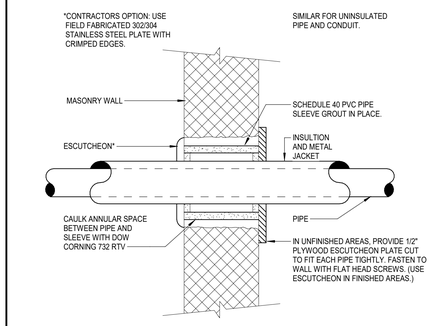
KEYED NOTES:

1. SHUT OFF VALVE
2. BALANCING VALVE
3. CONTROL VALVE
4. TEMPERATURE/PRESSURE TEST STATION
5. UNION (2" & SMALLER ONLY, FLANGE CONNECTION FOR LARGER PIPES)
6. 1/2" BALL VALVE WITH HOSE THREAD ADAPTER, CAP AND CHAIN
7. DIRT LEG
8. PIPE STRAINER

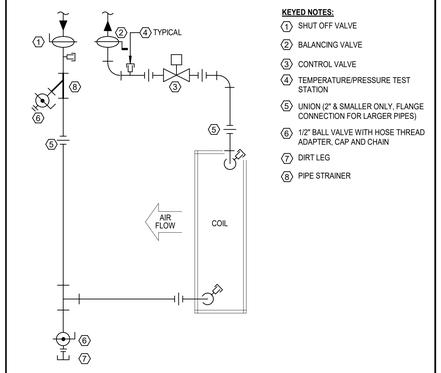
12 PIPING AT WATER COIL 3-WAY
SCALE: NONE



8 FIRE DAMPER
SCALE: NONE



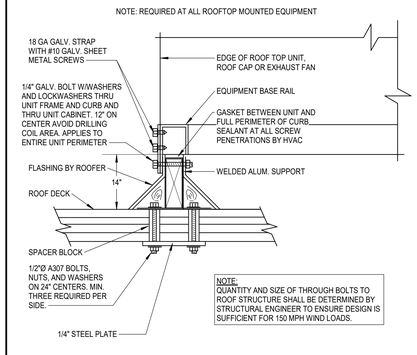
4 PIPE THROUGH EXTERIOR WALL
SCALE: NONE



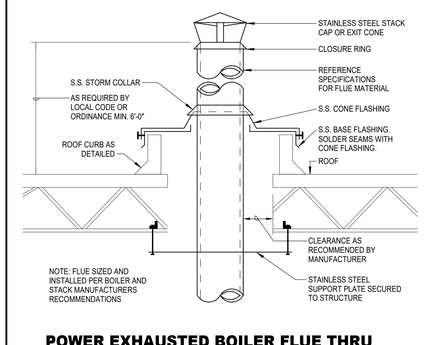
KEYED NOTES:

1. SHUT OFF VALVE
2. BALANCING VALVE
3. CONTROL VALVE
4. TEMPERATURE/PRESSURE TEST STATION
5. UNION (2" & SMALLER ONLY, FLANGE CONNECTION FOR LARGER PIPES)
6. 1/2" BALL VALVE WITH HOSE THREAD ADAPTER, CAP AND CHAIN
7. DIRT LEG
8. PIPE STRAINER

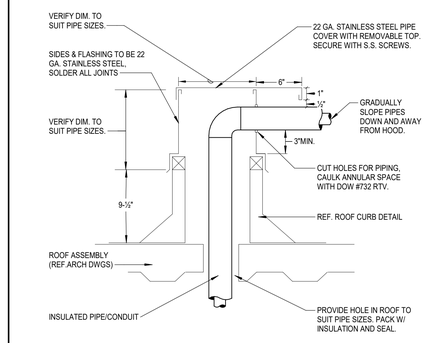
11 PIPING WATER COIL 2-WAY
SCALE: NONE



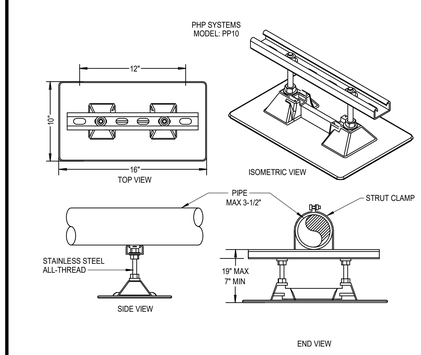
7 WIND RESISTANT EQUIPMENT SUPPORT
SCALE: NONE



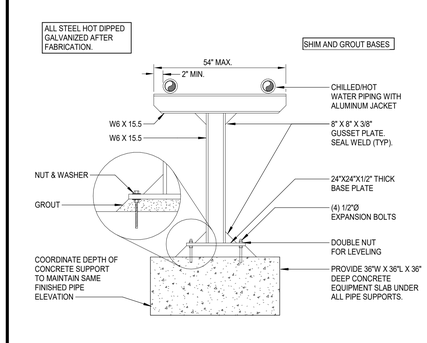
POWER EXHAUSTED BOILER FLUE THRU ROOF
SCALE: NONE



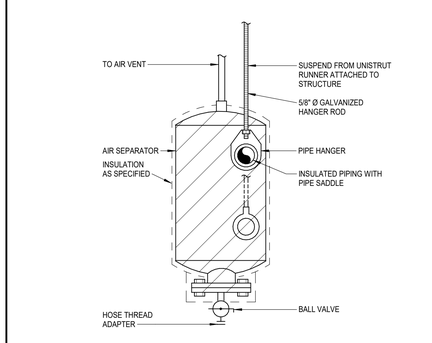
14 INSULATED PIPE THRU ROOF
SCALE: NONE



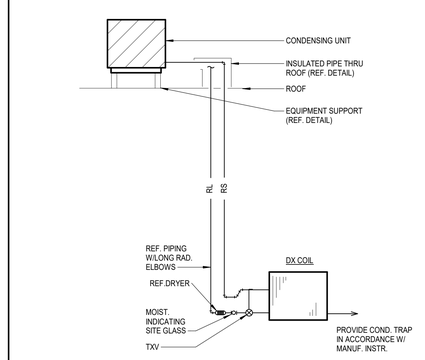
10 PIPE SUPPORT ON ROOF
SCALE: NONE



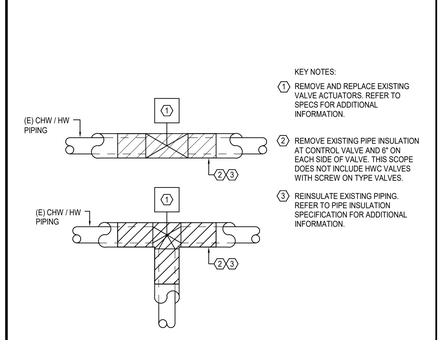
6 PIPE STAND
SCALE: NONE



2 SUPPORT AT AIR/DIRT SEPARATOR
SCALE: NONE



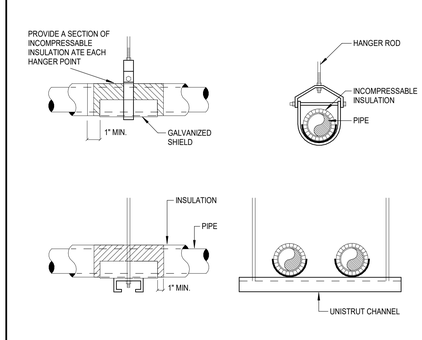
13 REFRIGERANT PIPING DIAGRAM
SCALE: NONE



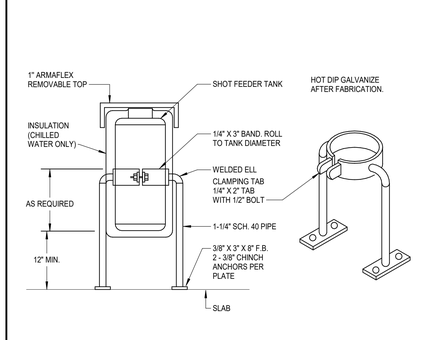
KEY NOTES:

1. REMOVE AND REPLACE EXISTING VALVE ACTUATORS. REFER TO SPECS FOR ADDITIONAL INFORMATION.
2. REMOVE EXISTING PIPE INSULATION AT CONTROL VALVE AND 6" ON EACH SIDE OF VALVE. THIS SCOPE DOES NOT INCLUDE HWC VALVES WITH SCREW ON TYPE VALVES.
3. REINSULATE EXISTING PIPING. REFER TO PIPE INSULATION SPECIFICATION FOR ADDITIONAL INFORMATION.

CHW & HW CONTROL VALVE PIPE INSULATION
SCALE: NONE



5 PIPE HANGERS
SCALE: NONE



1 CHILLED AND HOT WATER CHEMICAL FEEDER TANK SUPPORT DETAIL
SCALE: NONE

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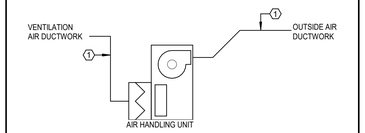
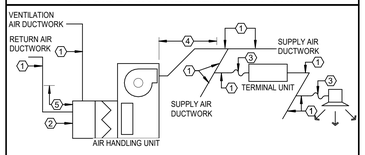
MECHANICAL DETAILS AND LEGENDS

SHEET NUMBER	REVISION
M5.01	

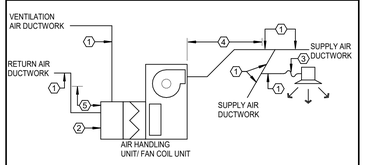
DUCT LINER AND INSULATION



OUTSIDE AIR PRETREATMENT UNIT



VARIABLE AIR VOLUME AIR HANDLING UNITS

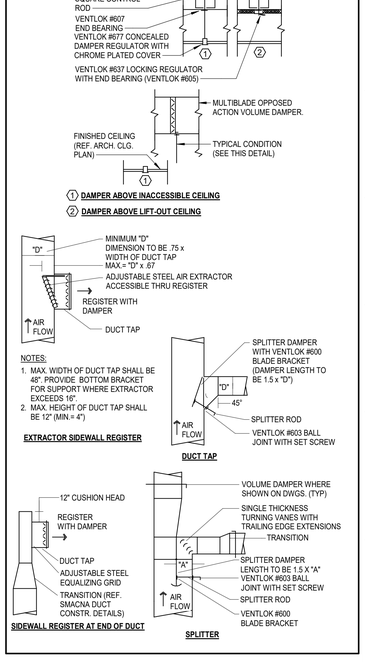


AIR HANDLING UNITS AND FAN COIL UNITS

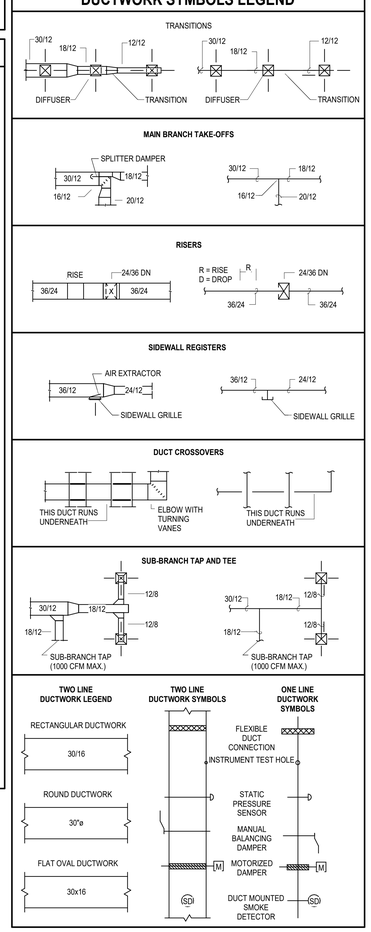
KEYED NOTES:

1. SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
2. SHEETMETAL DUCTWORK RETURN AIR PLENUM WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
3. FLEXIBLE DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
4. 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.
6. EXHAUST DUCTWORK AS SPECIFIED WITH FIREBOARD INSULATION AS SPECIFIED.
7. SHEETMETAL DUCTWORK ONLY. NO INSULATION REQUIRED.

DUCTWORK CONSTRUCTION DETAILS



DUCTWORK SYMBOLS LEGEND



PACKAGED AIR COOLED CHILLER - STANDARD EFFICIENCY SCREW

MARK	ACTUAL CAPACITY (TONS)	LEAVING WATER TEMP (°F)	GPM	PRESSURE DROP (FT.)	AMBIENT AIR TEMP. (°F)	CURRENT CHARAC. V	P	F	MOCP	MCA	REMARKS
ACC-1	180	44	310	20.0	95 °F	480	3	60	500	383	(1,2,3,4,5,6)
ACC-2	180	44	310	20.0	95 °F	480	3	60	500	383	(1,2,3,4,5,6)

GENERAL NOTES:
1. MAXIMUM FOULING FACTOR FOR THE EVAPORATOR IS 0.0001
2. 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 IECC 2015.

REMARKS:
1. PROVIDE WITH LOW AMBIENT HEAD PRESSURE CONTROL.
2. PROVIDE WITH INTEGRAL MAIN ELECTRICAL DISCONNECT SWITCH.
3. PROVIDE WITH INSULATION ON ALL SUCTION LINES.
4. PROVIDE WITH POLYMER CONDENSER FANS AND COMPRESSOR BLANKETS.
5. 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.

PACKAGED AIR COOLED CHILLER - HIGH EFFICIENCY SCREW

MARK	ACTUAL CAPACITY (TONS)	LEAVING WATER TEMP (°F)	GPM	PRESSURE DROP (FT.)	AMBIENT AIR TEMP. (°F)	CURRENT CHARAC. V	P	F	MOCP	MCA	REMARKS
ACC-1	180	44	310	20.0	95 °F	480	3	60	500	369	(1,2,3,4,5,6)
ACC-2	180	44	310	20.0	95 °F	480	3	60	500	369	(1,2,3,4,5,6)

GENERAL NOTES:
1. MAXIMUM FOULING FACTOR FOR THE EVAPORATOR IS 0.0001
2. 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 IECC 2015.

REMARKS:
1. PROVIDE WITH LOW AMBIENT HEAD PRESSURE CONTROL.
2. PROVIDE WITH INTEGRAL MAIN ELECTRICAL DISCONNECT SWITCH.
3. PROVIDE WITH INSULATION ON ALL SUCTION LINES.
4. PROVIDE WITH POLYMER CONDENSER FANS AND COMPRESSOR BLANKETS.
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.

AIR HANDLING UNIT

MARK	SUPPLY CFM	OUTSIDE AIR CFM	EXT. STATIC PRESSURE (IN. W.C)	HORSE POWER	CURRENT V	PH	F	COOLING AIR TEMPERATURE (°F) ENTERING DRY BULB	ENTERING WET BULB	LEAVING DRY BULB	LEAVING WET BULB	COOLING WATER ENTERING TEMP (°F)	GPM	PRESSURE DROP (FT.)	HEATING ENTERING AIR TEMPERATURE (°F)	HEATING MIN. HEATING CAPACITY	HEATING WATER ENTERING TEMP. (°F)	HEATING WATER GPM	HEATING WATER PRESSURE DROP (FT.)	PIPE SIZE TO COIL (IN.) CHILLED WATER	HOT WATER	REMARKS
AHU-1	6200	565	1.38	7.5	480	3	60	78.4	65.0	55.0	54.0	45	25.6	15.0		NO HEATING				2"	-	(1,4,5,7,10,15,19)
AHU-2	10800	965	1.38	10.0	480	3	60	77.7	64.4	55.0	54.0	45	41.8	15.0		NO HEATING				2 1/2"	-	(1,4,5,7,9,15,19)
AHU-3	6100	600	1.38	10.0	480	3	60	77.1	64.3	55.0	54.0	45	23.4	15.0		NO HEATING				2"	-	(1,4,5,7,9,15,16,19)
AHU-4	3200	290	1.38	5.0	480	3	60	77.5	64.2	55.0	54.0	45	12.1	15.0		NO HEATING				1 1/4"	-	(1,4,5,7,9,15,17,19)
AHU-5	11300	1,020	1.38	15.0	480	3	60	77.6	64.2	55.0	54.0	45	42.8	15.0		NO HEATING				2 1/2"	-	(1,4,5,7,9,15,19)
AHU-6	9100	820	1.38	10.0	480	3	60	79.3	66.6	55.0	54.0	45	43.8	15.0		NO HEATING				2 1/2"	-	(1,4,5,7,9,15,19)
AHU-7	5500	1,290	1.13	7.5	480	3	60	79.2	66.6	55.0	54.0	45	27.0	15.0	63.7	156,000	180.0	16.0	10.0	2"	1 1/2"	(1,3,6,8,9,11,14,15,18,19)
AHU-8	3500	315	1.38	5.0	480	3	60	77.1	64.3	55.0	54.0	45	14.0	15.0		NO HEATING				1 1/2"	-	(1,3,5,8,9,15,19)
AHU-9	7100	3,850	1.38	7.5	480	3	60	75.0	62.2	55.0	54.0	45	22.0	15.0	49.0	314,400	180.0	32.0	10.0	1"	1"	(1,3,6,8,9,11,14,15,19)
AHU-10	5450	1,290	1.00	7.5	480	3	60	78.8	65.4	55.0	54.0	45	24.0	15.0	63.6	155,200	180.0	16.0	10.0	2"	1 1/2"	(1,3,6,8,9,11,14,15,12,19)
AHU-11	13600	1,235	1.38	15.0	480	3	60	77.7	64.4	55.0	54.0	45	52.6	15.0		NO HEATING				2 1/2"	-	(1,4,5,7,10,15,19)
AHU-12	9150	830	1.38	10.0	480	3	60	78.1	64.6	55.0	54.0	45	36.2	15.0		NO HEATING				2"	-	(1,4,5,7,9,15,19)
AHU-13	4450	410	1.38	5.0	480	3	60	78.3	64.8	55.0	54.0	45	18.0	15.0		NO HEATING				1 1/2"	-	(1,4,5,7,9,15,19)
AHU-14	14850	13,500	1.50	20.0	480	3	60	97.0	77.0	55.0	54.0	45	148.0	15.0	27.0	609,400	180.0	62.0	10.0	4"	2 1/2"	(2,3,8,9,11,13,15,19)

GENERAL NOTES:
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 LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. MINIMUM 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.

REMARKS:
1. VELOCITY NOT TO EXCEED 500 FPM ON COOLING COIL.
2. VELOCITY NOT TO EXCEED 450 FPM ON COOLING COIL.
3. PROVIDE VERTICAL UNIT.
4. PROVIDE HORIZONTAL UNIT.
5. PROVIDE VARIABLE VOLUME UNIT WITH VARIABLE FREQUENCY DRIVE.
6. PROVIDE SINGLE ZONE VAV UNIT WITH VARIABLE FREQUENCY DRIVE.
7. PROVIDE FRONT DISCHARGE.
8. PROVIDE TOP DISCHARGE.
9. PROVIDE TWO-WAY COOLING CONTROL VALVES.
10. PROVIDE THREE-WAY COOLING CONTROL VALVES.
11. PROVIDE TWO-WAY HEATING CONTROL VALVES.
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.
13. PROVIDE HOT WATER COIL IN PRE-HEAT POSITION.
14. PROVIDE HOT WATER COIL IN REHEAT POSITION.
15. PROVIDE UNIT WITH FLAT FILTER SECTION.
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.

AIR COOLED CONDENSING UNIT

MARK	MIN. TOTAL CAPACITY (BTUH)	OUTDOOR AIR TEMP (°F)	MINIMUM EER/ SEER2	CURRENT CHAR. V	P	F	RELATED UNIT MARK	BASIS OF DESIGN MCA	MOCP	REMARKS
ACCU-3	222,332	105	10.5/-	480	3	60	AHU-3	54	70	(1,2,3)
ACCU-4	97,063	105	11.0/-	480	3	60	AHU-4	22	30	(1,2,3)
ACCU-7	212,300	105	10.5/-	480	3	60	AHU-7	54	70	(1,2,3)
ACCU-10	187,450	105	10.5/-	480	3	60	AHU-10	45	60	(1,2,3)

GENERAL NOTES:
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.

REMARKS:
1. PROVIDE WITH LOW AMBIENT CONTROL DOWN TO 20°F.
2. PROVIDE WITH DISCONNECT SWITCH.
3. REFRIGERANT LINES TO BE SIZED PER MANUFACTURER'S REQUIREMENTS.

BOILER

MARK	TYPE	MINIMUM GAS INPUT (MBH)	MINIMUM HEAT OUTPUT (MBH)	PRESSURE DROP (FT.H20)	GPM	FLUE SIZE	ELECTRICAL BLOWER HORSEPOWER	CURRENT V	P	F	MANUFACTURER	MODEL NUMBER	REMARKS
B-1	CONDENSING	1500.0	1426.5	10.0	95.0	6	1	480	3	60	RBI	FLEXCORE 1500	(1,2)
B-2	CONDENSING	1500.0	1426.5	10.0	95.0	6	1	480	3	60	RBI	FLEXCORE 1500	(1,2)

GENERAL NOTES:
1. PROVIDE 8 OUNCE GAS PRESSURE TO BOILER.
2. 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.

REMARKS:
1. 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.
2. PROVIDE SEALED COMBUSTION BOILER.

PUMP

TAG	SERVICE	TYPE	GPM	HEAD (FT.)	MOTOR HORSE POWER	MAX. RPM	CURRENT CHARAC. V	P	F	MANUFACTURER	MODEL NUMBER	REMARKS
PCHWP-1	CHILLED WATER	HORIZONTAL END SUCTION	310	60.00	15.0	1800	480	3	3	ARMSTRONG	4030	(1,2,3,4)
PCHWP-2	CHILLED WATER	HORIZONTAL END SUCTION	310	60.00	15.0	1800	480	3	3	ARMSTRONG	4030	(1,2,3,4)
SCHWP-1	CHILLED WATER	HORIZONTAL END SUCTION	270	90.00	20.0	1800	480	3	3	ARMSTRONG	4030	(1,2,3,4)
SCHWP-2	CHILLED WATER	HORIZONTAL END SUCTION	270	90.00	20.0	1800	480	3	3	ARMSTRONG	4030	(1,2,3,4)
HWP-1	HOT WATER	HORIZONTAL END SUCTION	190	70.00	7.5	1800	480	3	60	ARMSTRONG	4030	(1,2,3,4)
HWP-2	HOT WATER	HORIZONTAL END SUCTION	190	70.00	7.5	1800	480	3	60	ARMSTRONG	4030	(1,2,3,4)
HWP-3	HOT WATER	INLINE CIRCULATOR	95	20.00	1.0	1800	480	3	60	ARMSTRONG	4300	(4,5)
HWP-4	HOT WATER	INLINE CIRCULATOR	95	20.00	1.0	1800	480	3	60	ARMSTRONG	4300	(4,5)

GENERAL NOTES:
1. 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.
2. PROVIDE SUCTION DIFFUSER AT PUMP INLET.
3. 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.

DUCTLESS MINI-SPLIT - INDOOR UNIT

MARK	FAN SUPPLY AIR CFM	FAN EXT.STATIC PRESSURE (IN. W.C.)	FAN HORSE POWER	CURRENT CHARAC. V	P	F	AIR TEMPERATURE (°F) ENTERING DRY BULB	AIR TEMPERATURE (°F) ENTERING WET BULB	COOLING MIN. TOTAL CAPACITY (BTUH)	COOLING MIN. SENS. CAPACITY (BTUH)	MINIMUM EER/ SEER2	REMARKS
DMS-1	775	0.30	86.0	208	1	60	75.0	62.5	24,000	19,200	-/21	(1,2,3,4,5,6)

GENERAL NOTES:
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 LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. 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.

REMARKS:
1. UNIT TO BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. CONTROLLED BY PROGRAMMABLE WIRED THERMOSTAT.
3. REFRIGERANT LINES TO BE SIZED PER MANUFACTURER'S REQUIREMENTS.
4. INDOOR UNIT IS POWERED FROM OUTDOOR UNIT.
5. 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.

FAN SCHEDULE

TAG	LOCATION	CFM	EXT. STATIC PRESSURE (IN.W.C.)	MAX RPM	HORSE POWER	CURRENT CHAR V	P	F	LOCALLY SWITCHED	INTERLOCK WITH	FAN TYPE	DRIVE TYPE	MANUFACTURER	MODEL NUMBER	REMARKS
EF-9	CHILLER 518	2500	0.50	1087	0.5	120	1	60	TSTAT	-	ROOF MOUNTED	DIRECT	COOK	ACED	(1,2,3,4)

GENERAL NOTES:
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 LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. 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, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. PROVIDE WITH DISCONNECT.
2. PROVIDE WITH ROOF CURB AND BIRD SCREEN.
3. PROVIDE WITH MOTORIZED DAMPER.
4. PROVIDE WITH EC MOTOR WITH FAN SPEED CONTROLLER.

DUCTLESS MINI-SPLIT - OUTDOOR UNIT

MARK	MIN. TOTAL CAPACITY (BTUH)	OUTDOOR AIR TEMP (°F)	MINIMUM EER/ SEER2	CURRENT CHARAC. V	PH	F	RELATED UNIT MARK	REMARKS
DMSCU-1	24,000	95	-/21	208	1	60	DMS-1	(1,2,3)

GENERAL NOTES:
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.

REMARKS:
1. PROVIDE WITH LOW AMBIENT CONTROL DOWN TO 20°F.
2. PROVIDE WITH DISCONNECT SWITCH.
3. REFRIGERANT LINES TO BE SIZED PER MANUFACTURER'S REQUIREMENTS.

DAMPER

MARK	ACTUATOR	DUTY	BLADE ACTION	MANUFACTURER	MODEL 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

NOTES:
N/A - NOT APPLICABLE

UNIT HEATER - ELECTRIC

MARK	MINIMUM CAPACITY (BTUH)	KW	CURRENT CHAR. V	P	F	CFM	MANUFACTURER	MODEL	REMARKS
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)

REMARKS:
1. PROVIDE WITH PENDANT MOUNTED THERMOSTAT.
2. REFER TO MANUFACTURER FOR INSTALLATION INSTRUCTIONS AND MOUNTING HEIGHTS.

Salas O'Brien
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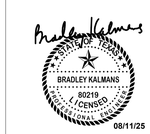
Project Number: 2550-00346-00

PROFESSIONAL SEAL



ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY: VP
DRAWN BY: BB

SHEET NAME

MECHANICAL SCHEDULES AND LEGENDS

SHEET NUMBER: M6.01
REVISION:

(E)AIR HANDLER PROPERTIES (2003)

MARK	AHU TYPE	CFM		HORSE POWER	CHILLED WATER		HOT WATER (PREHEAT)		HOT WATER (REHEAT)	
		SA	OA		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 SELECT UNITS WILL BE CLOSED AND SHALL REMAIN CLOSED CX AGENT IS RESPONSIBLE FOR THIS SCOPE.

(E)CVB SCHEDULE (2003)

MARK	G.P.M.	PIPE CONNECTION 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"

GENERAL NOTES

1. PROVIDE WITH 2 WAY HEATING VALVES.

(E)FANS INTERLOCK (2003)

MARK	CFM	LOCALLY SWITCHED BY	INTERLOCKED WITH	REMARKS
(E)EF-A	400	-	(E)AHU-A	-
(E)SF-A	1,560	-	(E)AHU-A	-

GENERAL NOTES

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.

REMARKS :

N/A

(E)FANS INTERLOCK (1997)

MARK	CFM	LOCALLY SWITCHED BY	INTERLOCKED 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	-

GENERAL NOTES

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.

REMARKS :

N/A

(E)CVB SCHEDULE (1997)

MARK	G.P.M.	PIPE CONNECTION SIZE
(E)VAV-1-1	1.9	3/4"
(E)VAV-1-2	1.9	3/4"
(E)VAV-1-3	0.7	3/4"
(E)VAV-1-4	2.2	3/4"
(E)VAV-1-5	2.1	1"
(E)VAV-1-6	1.8	3/4"
(E)VAV-1-7	1.7	3/4"
(E)VAV-2-8	1.3	3/4"
(E)VAV-2-9	1.5	3/4"
(E)VAV-2-10	1.8	3/4"
(E)VAV-2-11	1.6	1"
(E)VAV-2-12	2.5	1"
(E)VAV-2-13	2.3	3/4"
(E)VAV-2-14	-	-
(E)VAV-2-15	2.4	1"
(E)VAV-2-16	2.5	3/4"
(E)VAV-2-84	2.6	3/4"
(E)VAV-3-17	0.7	1"
(E)VAV-3-18	0.6	1"
(E)VAV-3-19	0.6	1"
(E)VAV-3-20	1.7	1"
(E)VAV-3-21	0.7	1"
(E)VAV-3-22	0.6	3/4"
(E)VAV-3-23	4.0	1"
(E)VAV-3-24	1.0	3/4"
(E)VAV-3-25	0.7	3/4"
(E)VAV-3-26	0.4	1"
(E)VAV-3-27	0.9	3/4"
(E)VAV-3-28	0.5	3/4"
(E)VAV-4-29	0.8	1"
(E)VAV-4-30	0.7	1"
(E)VAV-4-31	2.3	1"
(E)VAV-4-52	2.3	1"
(E)VAV-5-32	1.1	1"
(E)VAV-5-33	1.8	3/4"
(E)VAV-5-34	2.3	3/4"
(E)VAV-5-35	2.5	1"
(E)VAV-5-36	2.6	3/4"
(E)VAV-5-37	2.6	3/4"
(E)VAV-5-38	2.9	1"
(E)VAV-5-39	2.5	3/4"
(E)VAV-5-40	1.2	3/4"
(E)VAV-5-41	-	-
(E)VAV-6-42	1.8	3/4"
(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"
(E)VAV-6-48	2.4	1"
(E)VAV-6-49	2.6	3/4"
(E)VAV-6-50	1.2	3/4"
(E)VAV-6-51	0.6	1"

GENERAL NOTES

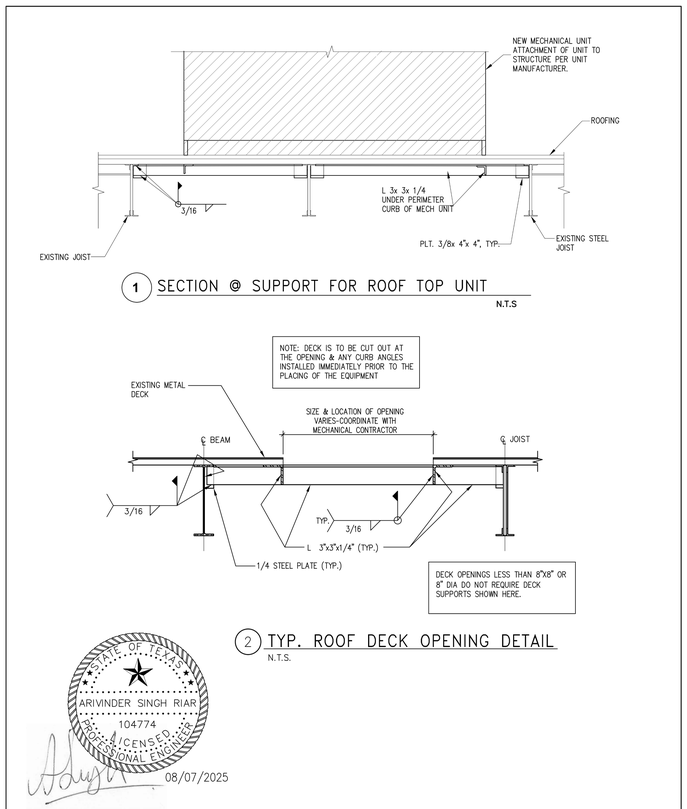
1. PROVIDE WITH 3 WAY HEATING VALVES.

(E)CVB SCHEDULE (1997) CONT.

(E)VAV-8-53	1.2	3/4"
(E)VAV-8-54	2.7	3/4"
(E)VAV-8-55	0.9	3/4"
(E)VAV-8-56	1.6	3/4"
(E)VAV-8-57	0.6	3/4"
(E)VAV-11-58	0.9	3/4"
(E)VAV-11-59	1.8	3/4"
(E)VAV-11-60	2.1	3/4"
(E)VAV-11-61	1.8	3/4"
(E)VAV-11-62	2.4	3/4"
(E)VAV-11-63	8.6	3/4"
(E)VAV-11-64	2.5	3/4"
(E)VAV-11-65	2.6	3/4"
(E)VAV-11-66	2.9	3/4"
(E)VAV-11-67	2.5	3/4"
(E)VAV-11-68	1.2	3/4"
(E)VAV-11-69	-	-
(E)VAV-12-70	1.8	3/4"
(E)VAV-12-71	2.0	3/4"
(E)VAV-12-72	2.5	3/4"
(E)VAV-12-73	2.5	3/4"
(E)VAV-12-74	2.5	3/4"
(E)VAV-12-75	2.4	3/4"
(E)VAV-12-76	2.6	3/4"
(E)VAV-12-77	1.5	3/4"
(E)VAV-12-78	0.6	3/4"
(E)VAV-13-80	1.4	3/4"
(E)VAV-13-81	1.3	3/4"
(E)VAV-13-82	1.8	3/4"
(E)VAV-13-83	1.8	3/4"
(E)VAV-79	-	-
(E)VAV-85	-	-
(E)VAV-86	-	-
(E)VAV-90	-	-
(E)VAV-91	-	-
(E)VAV-96	-	-
(E)VAV-97	-	-
(E)VAV-OA-87	-	-
(E)VAV-OA-88	-	-
(E)VAV-OA-89	-	-
(E)VAV-0A-092	-	-
(E)VAV-0A-093	-	-
(E)VAV-0A-094	-	-
(E)VAV-0A-098	-	-

GENERAL NOTES

1. PROVIDE WITH 3 WAY HEATING VALVES.



1 SECTION @ SUPPORT FOR ROOF TOP UNIT

N.T.S

2 TYP. ROOF DECK OPENING DETAIL

N.T.S.

STATE OF TEXAS
ARIVINDER SINGH RIAR
104774
LICENSED
PROFESSIONAL ENGINEER
08/07/2025

NEXGEN ENGINEERS, LLC
TX FIRM REGISTRATION # F-16037
5600 NW CENTRAL DRIVE, #230
HOUSTON TX 77092
PH: 713-462-4269

HAVARD ELEMENTARY SCHOOL
15150 WALLISVILLE RD, HOUSTON, TX
PROJECT # 25273

DATE:	DRAWN BY:	REVIEWED BY:	SHEET:
08/07/2025	AR	AR.	SK-1

Salas O'Brien
salasobrien.com 281-664-1900
Houston
10930 W. Sam Houston Pkwy North, Suite 900
Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

STATE OF TEXAS
BRADLEY KALMANS
80219
LICENSED
MECHANICAL
08/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY: VP
DRAWN BY: BB

SHEET NAME

MECHANICAL SCHEDULES

SHEET NUMBER: M6.02
REVISION:

ELECTRICAL GENERAL NOTES:

1. 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 SCHEDULES.
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 OTHERWISE.

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 OR AS REQUIRED TO CLEAR THE AREAS OF NEW CONSTRUCTION.

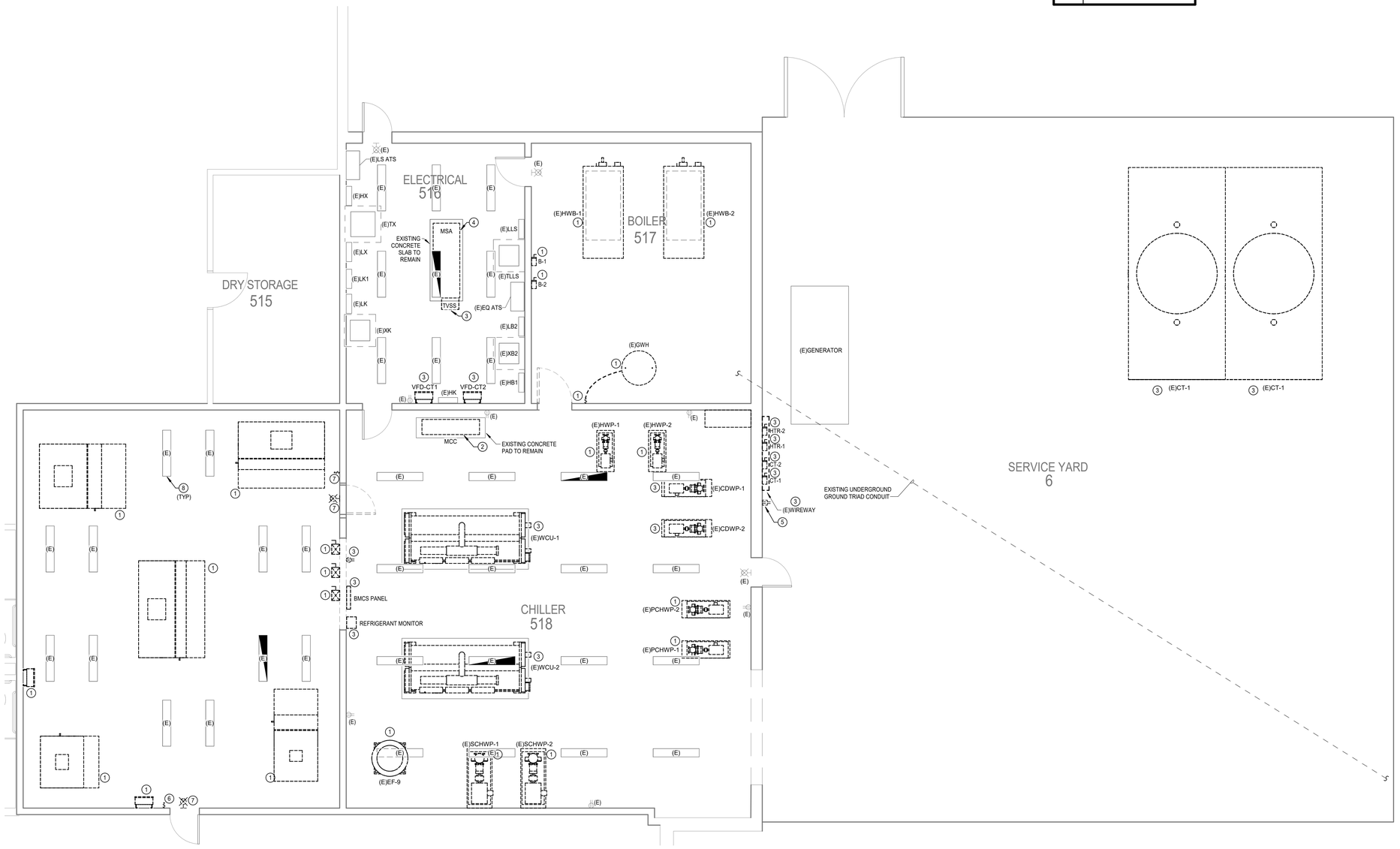
OWNER HAS THE RIGHT TO KEEP POSSESSION OF ANY DEMOLISHED EQUIPMENT/DEVICES. CONTRACTOR TO NOTIFY THE OWNER OF DEMOLISHED EQUIPMENT/DEVICES FOR REUSE OR KEEP AS SPARE PARTS PRIOR TO REMOVAL OFFSITE.

SYMBOL LEGEND

	POINT OF CONNECTION
	ITEM TO REMAIN
	ITEM TO BE REMOVED

ELECTRICAL KEYED NOTES

KEYED NOTE	Description
1	EXISTING EQUIPMENT/FIXTURE TO BE REPLACED. REMOVE CONDUCTORS AND CONDUITS BACK TO THE SOURCE. UNDERGROUND CONDUITS TO BE ABANDONED, CAP CONDUIT AT GROUND LEVEL.
2	MCC PANEL TO BE REPLACED WITH NEW DISTRIBUTION PANEL. REMOVE ALL CONDUITS AND CONDUCTORS BACK TO THE SOURCE. UNDERGROUND CONDUITS TO BE ABANDONED, CAP CONDUIT AT GROUND LEVEL.
3	EXISTING EQUIPMENT/FIXTURE TO BE REMOVED. REMOVE CONDUCTORS AND CONDUITS BACK TO THE SOURCE OR NEAREST FIXTURE TO REMAIN. UNDERGROUND CONDUITS TO BE ABANDONED, CAP CONDUIT AT GROUND LEVEL.
4	EXISTING MAIN SWITCHBOARD TO BE REPLACED. REMOVE ALL CONDUCTORS BACK TO THE SOURCE. EXISTING FEEDER AND ORIGINAL SPARE CONDUITS TO REMAIN. REMOVE ALL OVERHEAD CONDUITS AND ABANDON UNDERGROUND BRANCH CIRCUIT CONDUITS, CAP CONDUIT AT GROUND LEVEL. COORDINATE POWER SHUTDOWN WITH AL
5	EXISTING RECEPTACLE TO BE REPLACED. MAINTAIN CONDUCTORS AND CONDUITS IN PLACE AND MAKE READY FOR NEW INSTALLATION.
6	EXISTING LIGHTING FIXTURE/SWITCH TO BE REMOVED. REMOVE CONDUCTORS BACK TO NEAREST J-BOX OR FIXTURE TO REMAIN. EXISTING CONDUIT TO REMAIN.
7	EXISTING LIGHTING FIXTURE/SWITCH TO BE REMOVED. REMOVE CONDUITS AND CONDUCTORS BACK TO NEAREST J-BOX OR FIXTURE TO REMAIN. ABANDON EMBEDDED CONDUITS AND PATCH HOLES.
8	LIGHTS ARE EXISTING TO REMAIN AND SHOWN FOR REFERENCE ONLY.



N

1 **ELECTRICAL POWER ENLARGED DEMOLITION PLAN - SERVICE YARD**
Scale: 1/4" = 1'-0"

Salas O'Brien
salasobrien.com 281-664-1900
Houston
10930 W. Sam Houston Pkwy North, Suite 900
Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

STATE OF TEXAS · BRADLEY KALMANS · 80219 · LICENSED · PROFESSIONAL ENGINEER
08/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD — EXCELLENCE IN ALL FOR ALL STUDENTS

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY JZ
DRAWN BY AW

SHEET NAME

ELECTRICAL DEMO ENLARGED PLAN - SERVICE YARD

SHEET NUMBER E0.01
REVISION

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ELECTRICAL KEYED NOTES

KEYED NOTE	Description
1	DETACH THE SHOWN CLASSROOM WALL RECEPTACLES FROM EXISTING CONSTRUCTION. IN A MANNER TO PREVENT DAMAGE, AND PREPARE FOR REUSE. PROVIDE NEW FACEPLATE AND REINSTALL RECEPTACLES IN SAME LOCATION. MAINTAIN CONTINUITY OF CIRCUITS. REFER TO ARCHITECTURAL DRAWINGS FOR SCOPE IN THIS ROOM.

N

1 **ELECTRICAL COMPOSITE PLAN - LEVEL 1**
Scale: 1/16" = 1'-0"

Salas O'Brien
salasobrien.com 281-664-1900
Houston
10930 W. Sam Houston Pkwy North, Suite 900
Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD — EXCELLENCE IN ALL FOR ALL STUDENTS

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY	DRAWN BY
JZ	AW

SHEET NAME

ELECTRICAL COMPOSITE PLAN

SHEET NUMBER	REVISION
E1.00	

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.

ELECTRICAL GENERAL NOTES:

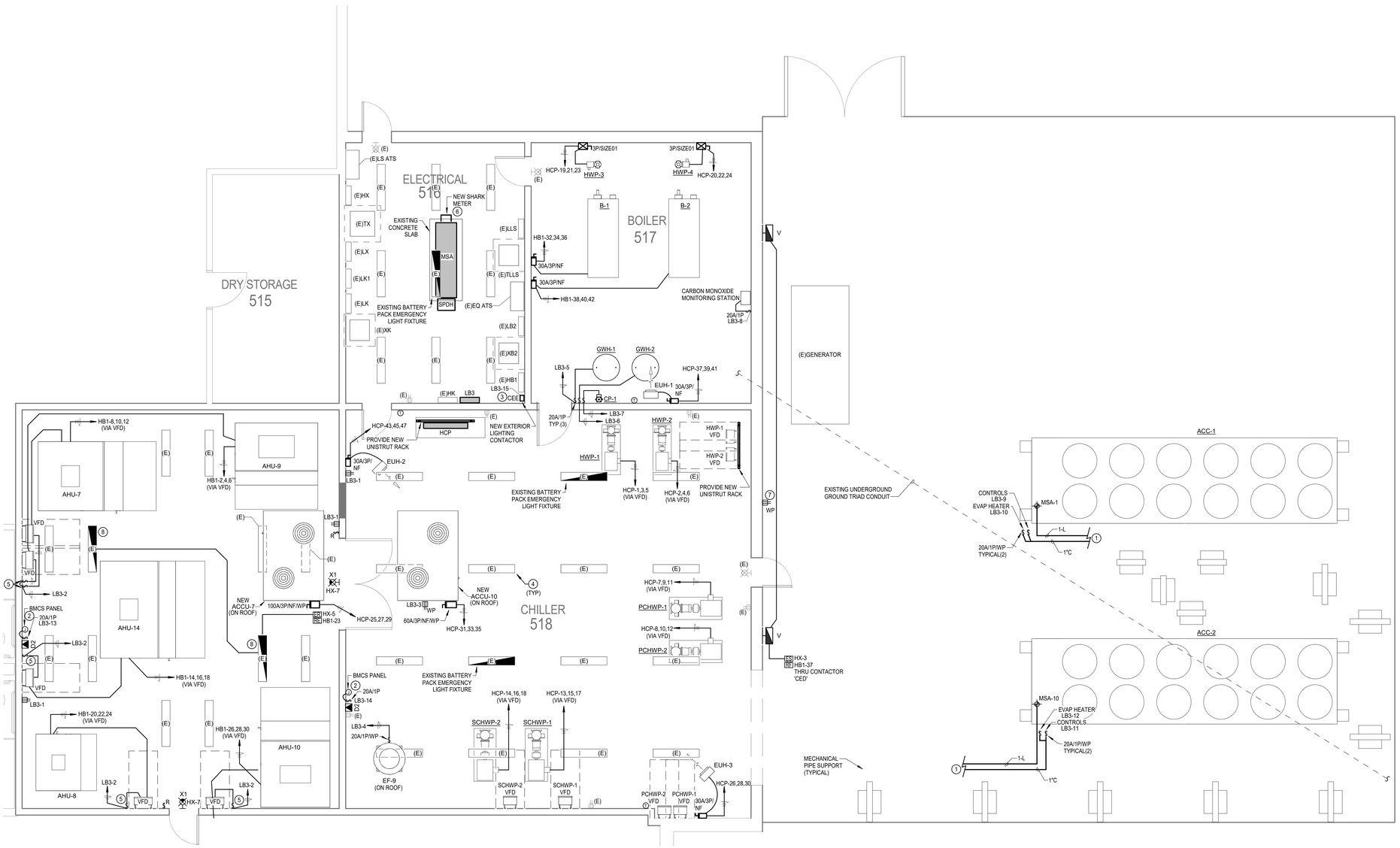
1. PROTECT EXISTING EQUIPMENT TO REMAIN IN PLACE. KEEP EXISTING POWER CONNECTIONS. ALL EXISTING EQUIPMENT SHALL REMAIN FULLY FUNCTIONAL.
2. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT AND SCHEDULES.
3. COORDINATE WITH OWNER FOR STORAGING OR DISPOSING ALL REMOVED EQUIPMENT PRIOR COMMENCEMENT OF WORK.
4. ALL EXISTING DISTRIBUTION PANELS AND BREAKERS TO REMAIN UNLESS SPECIFICALLY NOTED OTHERWISE.

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 KEYED NOTES

KEYED NOTE	Description
1	USE MECHANICAL PIPE SUPPORT TO RUN NEW OVERHEAD CONDUITS AND CONDUCTORS FOR CHILLERS. COORDINATE CHILLER CONTROL WIRING & CONDUIT ROUTING WITH DIVISION 23 PRIOR COMMENCEMENT OF WORK.
2	PROVIDE (1) DATA CABLE INSIDE 1" CONDUIT ROUTED FROM NEAREST IDF/MDF ROOM TO BMCS PANEL FOR CONNECTIVITY. MATCH EXISTING BUILDING CABLING MANUFACTURER AND COORDINATE CABLE COLOR WITH OWNER PRIOR TO INSTALLATION.
3	PROVIDE OVERRIDE SWITCH. COORDINATE LIGHTING CONTROLS WITH BMCS CONTRACTOR PRIOR ROUGH-IN. MAKE ALL FINAL CONNECTIONS.
4	LIGHTS ARE EXISTING TO REMAIN AND SHOWN FOR REFERENCE ONLY.
5	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.
6	PROVIDE SELF-ENCLOSED(NEMA1) SHARK METER #200 SERIES. COORDINATE DATA CONNECTION WITH BMCS CONTRACTOR. MAKE ALL FINAL CONNECTIONS.
7	INSTALL NEW WEATHER PROOF RECEPTACLE. USE EXISTING WIRES AND CONDUITS.
8	REMOVE BATTERY PACK FROM EXISTING FIXTURE. CONNECT FIXTURE TO NEW UL 924 DEVICE SERVED BY NEW EMERGENCY CIRCUIT AND EXISTING NORMAL POWER CIRCUIT SERVING THE SPACE.



N

1 **ELECTRICAL POWER ENLARGED PLAN - SERVICE YARD**
Scale: 1/4" = 1'-0"

Salas O'Brien
salasobrien.com 281-664-1900
Houston
10930 W. Sam Houston Pkwy North, Suite 900
Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY JZ **DRAWN BY** AW

SHEET NAME

ELECTRICAL ENLARGED PLAN - SERVICE YARD

SHEET NUMBER E2.01 **REVISION**

Autodesk Docs://050 - Galena Park ISD - Havard Elementary MEP Reno/GALENA PARK ISD-HAVARD ES_MEP_R23.rvt
8/7/2025 12:44:14 PM

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 OR AS REQUIRED TO CLEAR THE AREAS OF NEW CONSTRUCTION.

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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.

SYMBOL LEGEND

	POINT OF CONNECTION
	ITEM TO REMAIN
	ITEM TO BE REMOVED
	NEW ITEM

ELECTRICAL KEYED NOTES

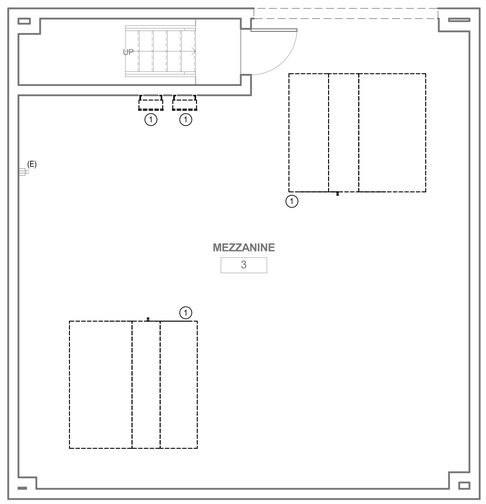
KEYED NOTE	Description
1	EXISTING EQUIPMENT/FIXTURE TO BE REPLACED. REMOVE CONDUCTORS AND CONDUITS BACK TO THE SOURCE. UNDERGROUND CONDUITS TO BE ABANDONED, CAP CONDUIT AT GROUND LEVEL.
2	PROVIDE 20A/1P (LOCK-OFF)SWITCH FOR UV LIGHT. CONNECT UV LIGHT CIRCUIT THROUGH NEW 20A/1P SPDT RELAY CONTROLLED BY THE VFD "NO" DRY CONTACT. MAKE ALL FINAL CONNECTIONS.
3	PROVIDE (1) DATA CABLE INSIDE 1" CONDUIT ROUTED FROM NEAREST IDF/MDF ROOM TO BMCS PANEL FOR CONNECTIVITY. MATCH EXISTING BUILDING CABLING MANUFACTURER AND COORDINATE CABLE COLOR WITH OWNER PRIOR TO INSTALLATION.

ELECTRICAL GENERAL NOTES:

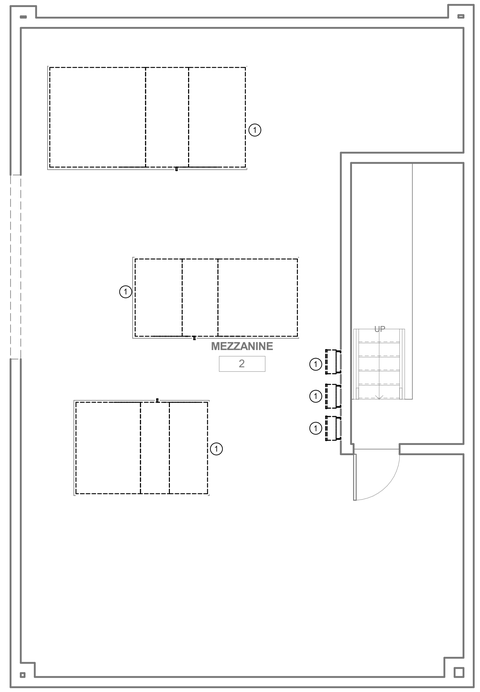
1. PROTECT EXISTING EQUIPMENT TO REMAIN IN PLACE. KEEP EXISTING POWER CONNECTIONS. ALL EXISTING EQUIPMENT SHALL REMAIN FULLY FUNCTIONAL.
2. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT AND SCHEDULES.
3. COORDINATE WITH OWNER FOR STORAGING OR DISPOSING ALL REMOVED EQUIPMENT PRIOR COMMENCEMENT OF WORK.
4. ALL EXISTING DISTRIBUTION PANELS AND BREAKERS TO REMAIN UNLESS SPECIFICALLY NOTED OTHERWISE.

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.



N 6 **ELECTRICAL DEMO ENLARGED PLAN - MEZZANINE 3**
Scale: 1/4" = 1'-0"



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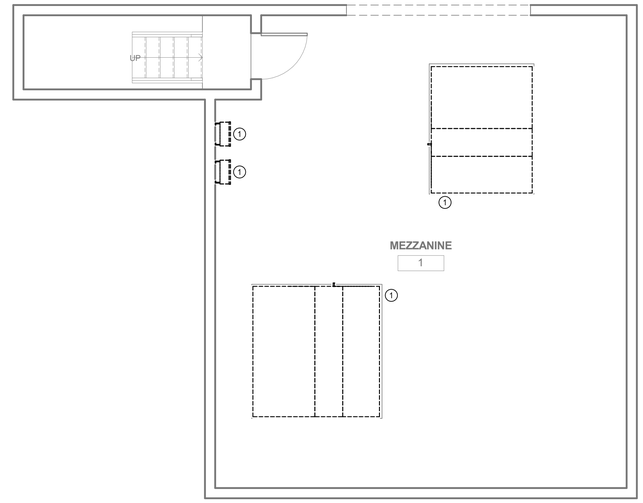
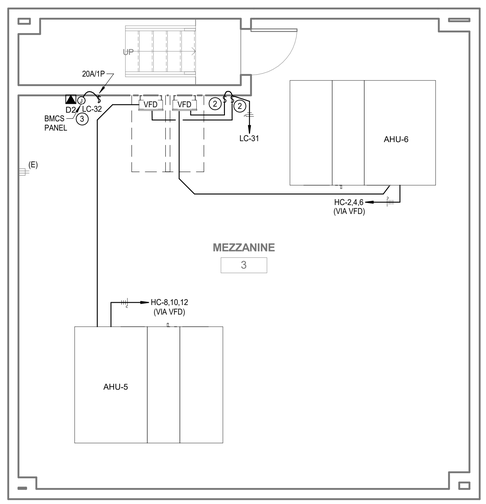
Scale: 1/4" = 1'-0"



N 3 **ELECTRICAL DEMO ENLARGED PLAN - MEZZANINE 1**
Scale: 1/4" = 1'-0"



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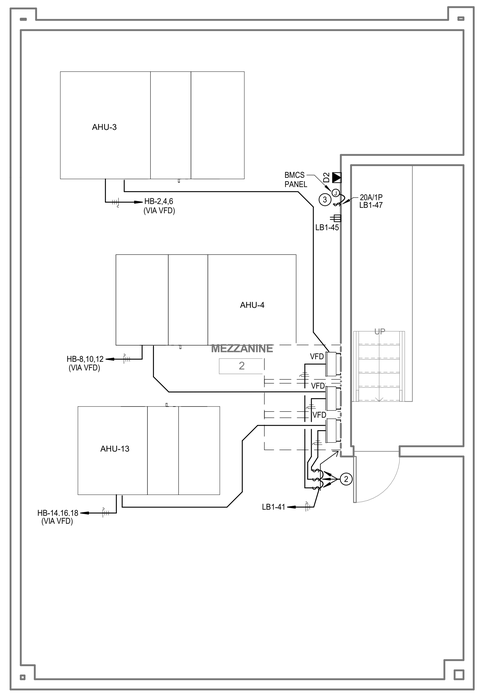
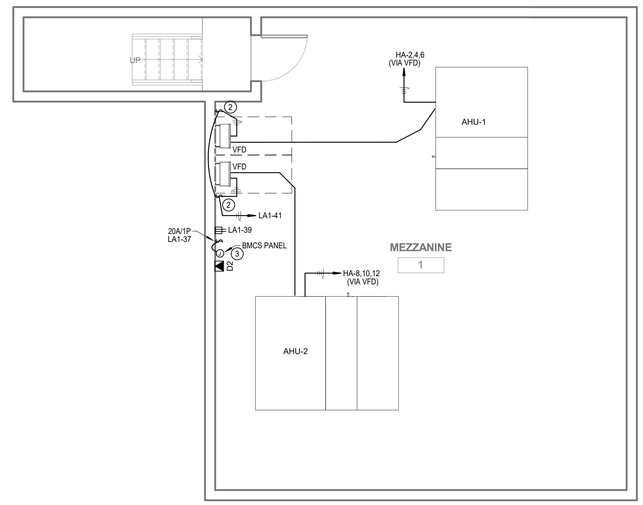
Scale: 1/4" = 1'-0"



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



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

Salas O'Brien
salasobrien.com 281-664-1900
Houston
10930 W. Sam Houston Pkwy North, Suite 900
Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

08/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY: JZ
DRAWN BY: AW

SHEET NAME

ELECTRICAL ENLARGED PLANS - MEZZANINE

SHEET NUMBER: E2.02
REVISION:

SYMBOL LEGEND

	POINT OF CONNECTION
	ITEM TO REMAIN
	ITEM TO BE REMOVED
	NEW ITEM

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 OR AS REQUIRED TO CLEAR THE AREAS OF NEW CONSTRUCTION.

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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:

1. PROTECT EXISTING EQUIPMENT TO REMAIN IN PLACE. KEEP EXISTING POWER CONNECTIONS. ALL EXISTING EQUIPMENT SHALL REMAIN FULLY FUNCTIONAL.
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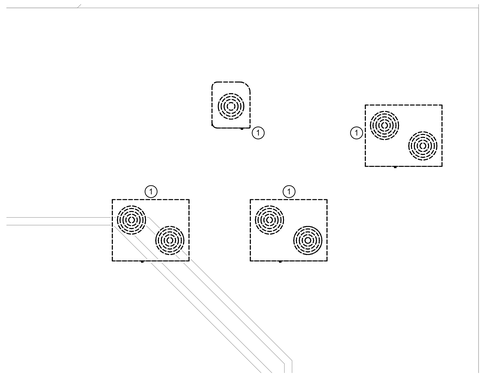
3. COORDINATE WITH OWNER FOR STORAGING OR DISPOSING ALL REMOVED EQUIPMENT PRIOR COMMENCEMENT OF WORK.
4. ALL EXISTING DISTRIBUTION PANELS AND BREAKERS TO REMAIN UNLESS SPECIFICALLY NOTED OTHERWISE.
5. PROVIDE SMOKE DETECTORS AT EACH RETURN AIR INLET INTO EACH MECHANICAL ROOM AS REQUIRED FOR OPENING SIZE. REFER TO MECHANICAL DRAWINGS FOR PROPOSED LOCATION AND QUANTITIES.
6. PROVIDE DUCT MOUNTED SMOKE DETECTOTRS IN SUPPLY AND RETURN DUCTS OF ALL AIR HANDLERS 2000 CFM OR GREATER. REFER TO MECHANICAL DRAWINGS FOR PROPOSED LOCATION AND QUANTITIES.

DATA DROPS GENERAL NOTES:

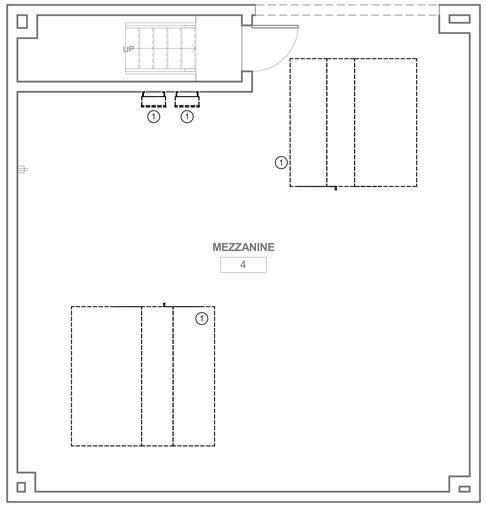
1. STRUCTURED CABLING CONTRACTOR MUST BE A PARTICIPANT OF THE STRUCTURED CABLING MANUFACTURER CERTIFIED INSTALLER PROGRAM AND BE CAPABLE OF OFFERING A 25 YEAR CERTIFICATION PLUS SYSTEM WARRANTY. INSTALLATION CONTRACTOR AND SYSTEM MUST BE MANUFACTURER CERTIFIED.
2. DATA CABLING TO BE A MINIMUM OF CATEGORY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

ELECTRICAL KEYED NOTES

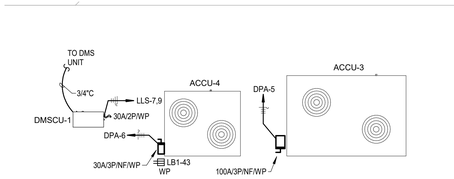
KEYED NOTE	Description
1	EXISTING EQUIPMENT/FIXTURE TO BE REPLACED. REMOVE CONDUCTORS AND CONDUITS BACK TO THE SOURCE. UNDERGROUND CONDUITS TO BE ABANDONED, CAP CONDUIT AT GROUND LEVEL.
2	PROVIDE 20A/1P (LOCK-OFF)SWITCH FOR UV LIGHT. CONNECT UV LIGHT CIRCUIT THROUGH NEW 20A/1P SPDT RELAY CONTROLLED BY THE VFD "NO" DRY CONTACT. MAKE ALL FINAL CONNECTIONS.
3	PROVIDE (1) DATA CABLE INSIDE 1" CONDUIT ROUTED FROM NEAREST IDF/MDF ROOM TO BMCS PANEL FOR CONNECTIVITY. MATCH EXISTING BUILDING CABLING MANUFACTURER AND COORDINATE CABLE COLOR WITH OWNER PRIOR TO INSTALLATION.



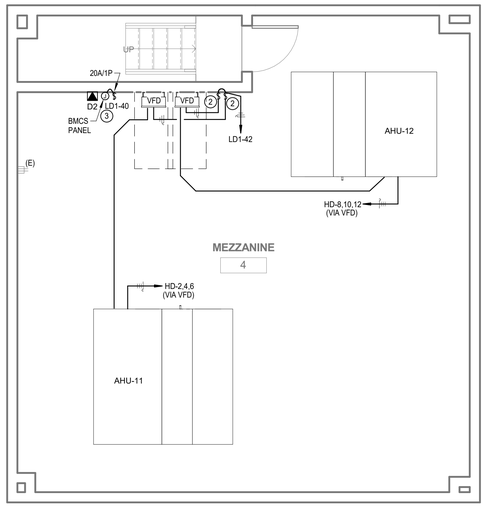
4 **ELECTRICAL DEMO ENLARGED PLAN - ROOF**
Scale: 1/4" = 1'-0"



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



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



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

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

PROFESSIONAL SEAL

08/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY JZ
DRAWN BY AW

SHEET NAME

ELECTRICAL ENLARGED PLANS - MEZZANINE & ROOF

SHEET NUMBER E2.03
REVISION

SYMBOL LEGEND

	POINT OF CONNECTION
	ITEM TO REMAIN
	ITEM TO BE REMOVED
	NEW ITEM

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.

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 OR AS REQUIRED TO CLEAR THE AREAS OF NEW CONSTRUCTION.

ELECTRICAL GENERAL NOTES:

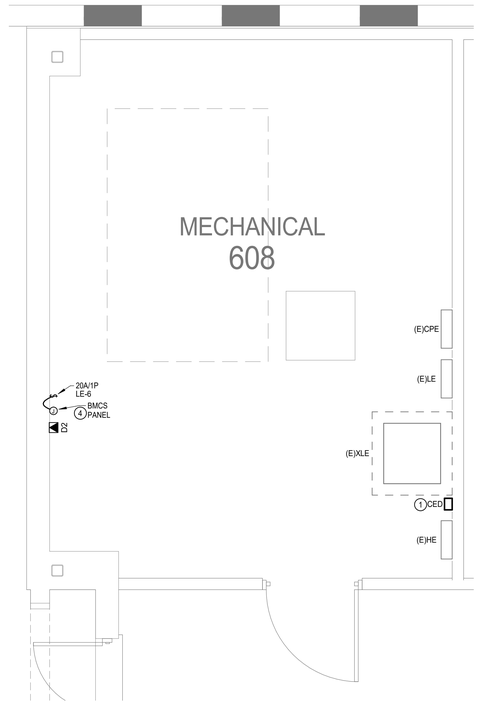
1. PROTECT EXISTING EQUIPMENT TO REMAIN IN PLACE. KEEP EXISTING POWER CONNECTIONS. ALL EXISTING EQUIPMENT SHALL REMAIN FULLY FUNCTIONAL.
2. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT AND SCHEDULES.
3. COORDINATE WITH OWNER FOR STORAGING OR DISPOSING ALL REMOVED EQUIPMENT PRIOR COMMENCEMENT OF WORK.
4. ALL EXISTING DISTRIBUTION PANELS AND BREAKERS TO REMAIN UNLESS SPECIFICALLY NOTED OTHERWISE.

DATA DROPS GENERAL NOTES:

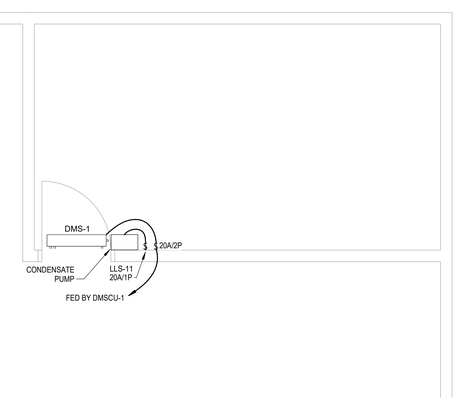
1. STRUCTURED CABLING CONTRACTOR MUST BE A PARTICIPANT OF THE STRUCTURED CABLING MANUFACTURER CERTIFIED INSTALLER PROGRAM AND BE CAPABLE OF OFFERING A 25 YEAR CERTIFICATION PLUS SYSTEM WARRANTY. INSTALLATION CONTRACTOR AND SYSTEM MUST BE MANUFACTURER CERTIFIED.
2. DATA CABLING TO BE A MINIMUM OF CATEGORY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

ELECTRICAL KEYED NOTES

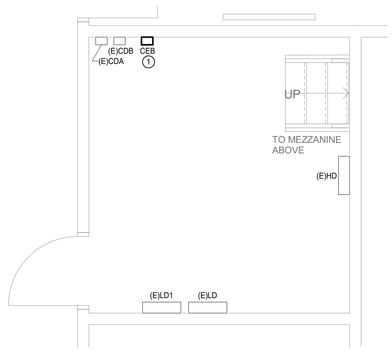
KEYED NOTE	Description
1	REPLACE EXISTING LIGHTING CONTACTOR BOX. PROVIDE OVERRIDE SWITCH. EXTEND EXISTING CONDUITS, AND RUN NEW CONDUCTORS TO SOURCE PANEL IN SAME ROOM. MAKE ALL FINAL CONNECTIONS.
2	EXISTING PANEL TO BE REPLACED. REMOVE FEEDER CONDUCTORS BACK TO SOURCE. EXISTING CONDUITS AND BRANCH CIRCUITS TO REMAIN.
3	NEW PANEL REPLACING EXISTING. EXTEND EXISTING CONDUITS AND RUN NEW CONDUCTORS. INSTALL NEW BRANCH CIRCUIT BREAKERS AND MAKE ALL FINAL CONNECTIONS.
4	PROVIDE (1) DATA CABLE INSIDE 1" CONDUIT ROUTED FROM NEAREST IDF/MDF ROOM TO BMCS PANEL FOR CONNECTIVITY. MATCH EXISTING BUILDING CABLING MANUFACTURER AND COORDINATE CABLE COLOR WITH OWNER PRIOR TO INSTALLATION.



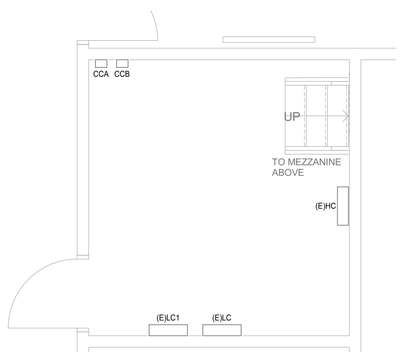
N 7 **ELECTRICAL ENLARGED PLAN - LEVEL 1 - MECH RM#608**
Scale: 3/8" = 1'-0"



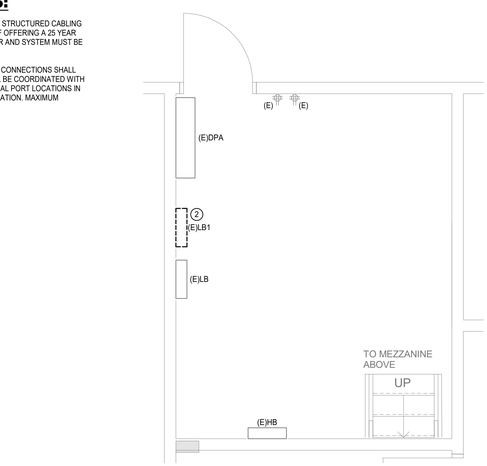
N 6 **ELECTRICAL ENLARGED PLAN - LEVEL 1 - MDF**
Scale: 3/8" = 1'-0"



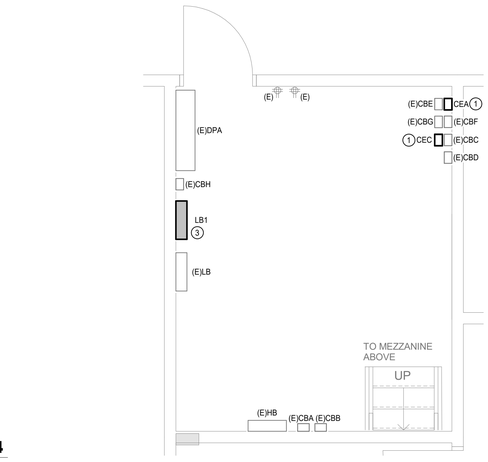
N 5 **ELECTRICAL ENLARGED PLAN - LEVEL 1 - MECH RM#4**
Scale: 3/8" = 1'-0"



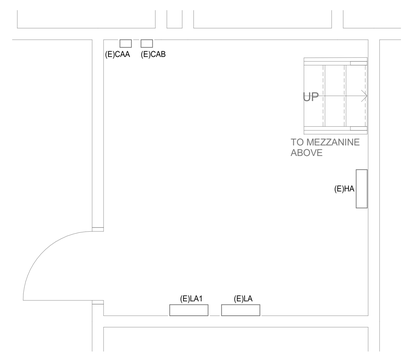
N 4 **ELECTRICAL ENLARGED PLAN - LEVEL 1 - MECH RM#3**
Scale: 3/8" = 1'-0"



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



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



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

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15150 Wallisville Rd, Houston, TX 77049

REVISIONS

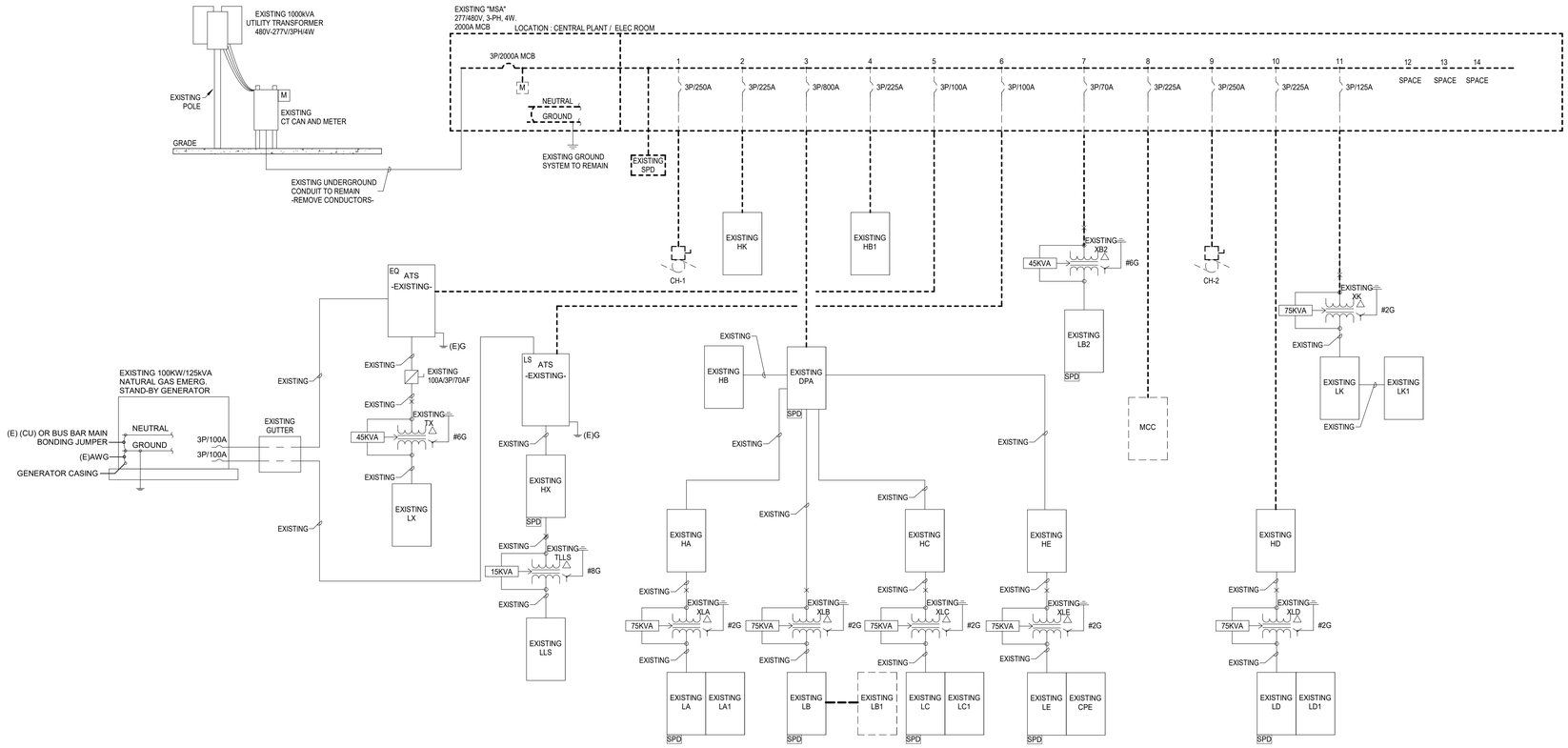
Δ	DESCRIPTION	DATE

CHECKED BY: JZ
DRAWN BY: AW

SHEET NAME

ELECTRICAL ENLARGED PLANS- LEVEL 1

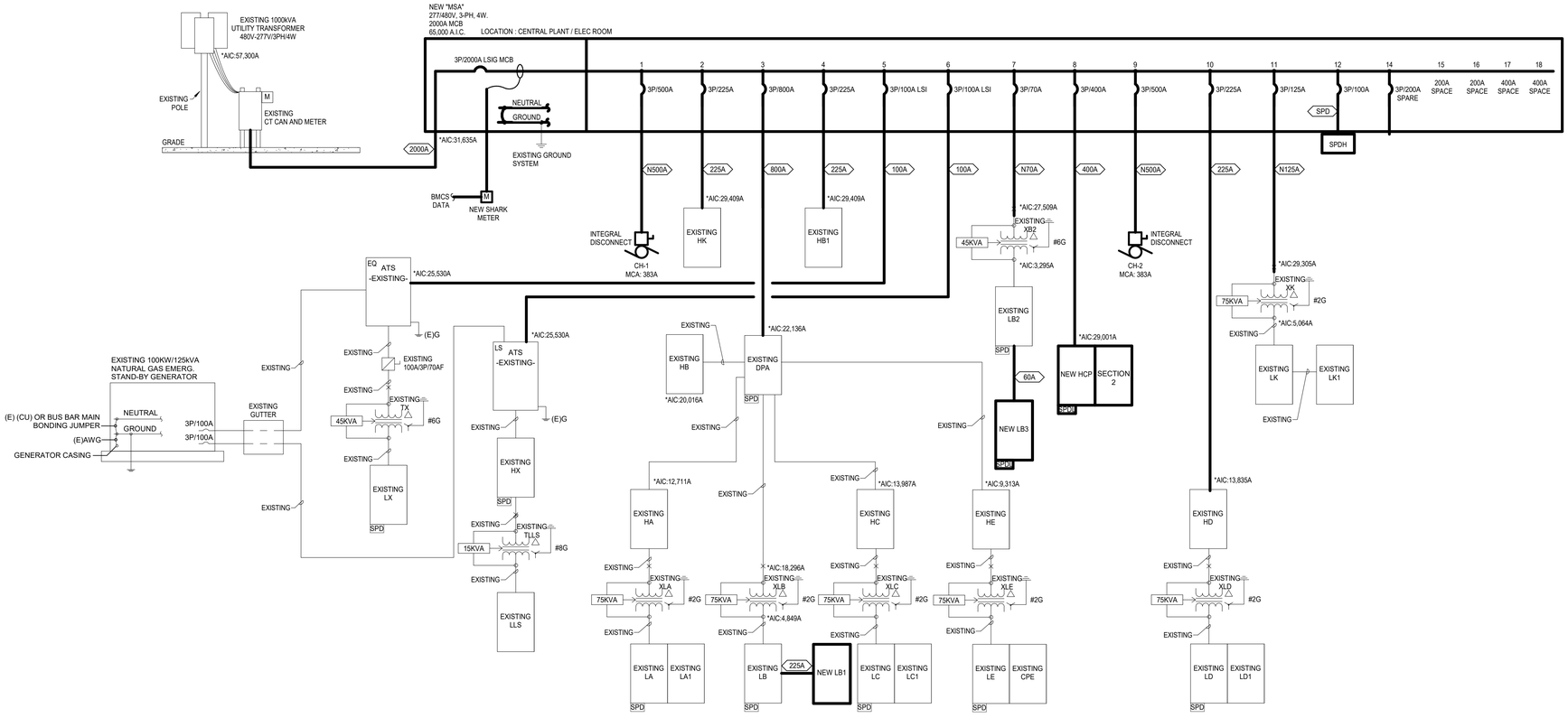
SHEET NUMBER: E2.04
REVISION:



N

2 EXISTING/DEMO ONE LINE DIAGRAM

Scale: N.T.S.



N

1 NEW ONE LINE DIAGRAM

Scale: N.T.S.

ELECTRICAL GENERAL NOTES:

1. 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 SCHEDULES.
3. COORDINATE WITH OWNER FOR STORAGING OR DISPOSING ALL REMOVED EQUIPMENT.
4. ALL EXISTING DISTRIBUTION PANELS AND BREAKERS TO REMAIN UNLESS SPECIFICALLY NOTED OTHERWISE.

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 OR AS REQUIRED TO CLEAR THE AREAS OF NEW CONSTRUCTION.

OWNER OR ITS REPRESENTATIVE SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL EQUIPMENT BEING REMOVED FROM THIS PROJECT. CONTRACTOR TO NOTIFY DISTRICT REPRESENTATIVE PRIOR TO DEMOLITION WORK TO DISCUSS ALL RETURNED ITEMS TO DISTRICT.

ALL CONDUCTORS TO BE COPPER THHN/THWN 90 DEG. C. INSULATION TYPE UNLESS SPECIFICALLY NOTED OTHERWISE.

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.

SYMBOL LEGEND

	POINT OF CONNECTION
	ITEM TO REMAIN
	ITEM TO BE REMOVED
	NEW ITEM

SERVICE LOAD ANALYSIS

LOAD DESCRIPTION	LOAD kVA
EXISTING LOAD (NEC 220.87) UTILITY PEAK 557kVA @ 125%	697
REMOVED LOAD 352kVA @ 100%	352
NEW HVAC LOAD	677
LARGEST MOTOR (NEC 430.24) ACC-1 COMPRESSOR 1A (RLA 164A) @25%	34
NEW EXTERIOR LIGHTING @ 125%	1
NEW TOTAL LOAD	1057

1057kVA*1000/(480V*√3) = 1271A
EXISTING 2000A SERVICE.

FEEDER SCHEDULE

AMPERAGE	# SETS	CONDUCTOR (QTY.)/SIZE	GROUND (QTY.)/SIZE	CONDUIT
60A	1	(4) #6	#10	1"C
100A	1	(4) #3	#8	1-1/4"C
225A	1	(4) #4/0	#4	2-1/2"C
400A	2	(4) #3/0	#2	2"C
800A	3	(4) #300KCMIL	#1/0	3"C
2000A	4	(4) #600KCMIL	N/A	(E)4"C
N70A	1	(3) #4	#8	1-1/4"C
N125A	1	(3) #1/0	#6	2"C
N500A	2	(3) #250KCMIL	#2	3"C
SPD	1	(5)#3	N/A	1-1/2"C

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Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

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DRAWN BY AW

SHEET NAME

ELECTRICAL ONE-LINE DIAGRAM

SHEET NUMBER E3.01
REVISION

LIGHTING FIXTURE SCHEDULE

Type Mark	CATALOG NUMBER		MOUNTING	LAMP TYPE	CCT	CRI	VOLTAGE	LOAD	REMARKS
	MANUFACTURER	MODEL							
V	ILP	ILP VFM-14L-U-CCTS-W-x-y	WALL	13,190L LED	4000 K	80	277 V	106 W	EXTERIOR WALL MOUNTED FLOOD LIGHT. MOUNT FIXTURE AT +18'-0" AFF
X1	EVEN LITE	TLX-AC-RU-W-SD/VX	WALL	LED	NA	0	277 V	5 W	WALL MOUNT LED EXIT SIGN, WHITE HOUSING, RED LETTERING, VANDAL RESISTANT GAURD

LIGHTING CONTROLS SCHEDULE

Type	Sensor Operation	# of Lighting Zones	Description	AREA
RE	NONE	1	INTERMATIC SPRING WOUND 12-HOUR TIMER SWITCH WITH HOLD.	MECH / ELEC / MDF / IDF
RF	PHOTOSENSOR	1	ON/OFF VIA PHOTOSENSOR/BMCS/OVERRIDE SWITCH	OUTDOOR
ER	-	-	UL924 LOAD CONTROL RELAY, PLENUM RATED, 0-10V COMPATIBLE, 16A MINIMUM	-
ES	-	-	UL1008 GENERATOR TRANSFER DEVICE, PLENUM RATED, 0-10V COMPATIBLE, 16A MINIMUM	-

LIGHTING CONTACTOR SCHEDULE

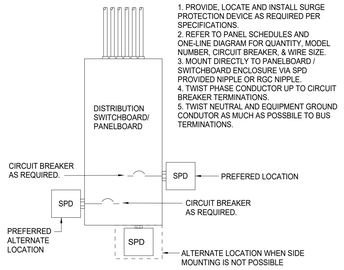
MARK	CIRCUIT NO.	RATED AMPS	CONTROL SOURCE	CONTACTOR LOCATION	LOADS SERVED
CEA	HB-19,23	30A	BMCS/PHOTOCELL	ELECTRICAL 1	EXTERIOR LIGHTING
CEB	HD-23	30A	BMCS/PHOTOCELL	ELECTRICAL 4	EXTERIOR LIGHTING
CEC	HB-15,17	30A	BMCS/PHOTOCELL	ELECTRICAL 1	PARKING LOT LIGHTING
CED	HE-1,3	30A	BMCS/PHOTOCELL	MECHANICAL 608	EXTERIOR/PARKING LOT LIGHTING
CEE	HB1-37	30A	BMCS/PHOTOCELL	MAIN ELECTRICAL	WALL PACKS

SYMBOL SCHEDULE

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
LIGHTING (LETTER DENOTES TYPE - SEE LIGHT FIXTURE SCHEDULE)	
	LIGHT FIXTURE
	FIXTURE ON EMERGENCY CIRCUIT
	EXIT LIGHT-WALL MTD WITH DIRECTIONAL ARROWS AS REQUIRED
SWITCHES	
$	LINE VOLTAGE SINGLE POLE SWITCH
$2	LINE VOLTAGE 2-POLE SWITCH
$3	LINE VOLTAGE 3-WAY SWITCH
$R	WALL LIGHT SWITCH. REFER TO CONTROLS SCHEDULE FOR MORE INFORMATION
RX	LIGHTING CONTROL TAG. REFER TO CONTROLS SCHEDULE FOR MORE INFORMATION
RECEPTACLES AND OUTLETS	
	SIMPLEX RECEPTACLE
	DUPLEX RECEPTACLE
	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE
MOTOR CONTROLLERS AND EQUIPMENT	
	MOTOR, MAKE FINAL MOTOR CONNECTION
J	DISCONNECT SWITCH AS REQUIRED
J	FUSED DISCONNECT SWITCH AS REQUIRED
J	COMBINATION MOTOR STARTER/DISCONNECT SWITCH AS REQUIRED
	MOTOR STARTER
$M	MANUAL MOTOR SWITCH AS REQUIRED
ELECTRICAL EQUIPMENT	
	ELECTRICAL DISTRIBUTION OR PANELBOARD
	DRY TYPE TRANSFORMER
CIRCUITING	
	CONDUIT
	CONDUIT BELOW FLOOR, SLAB, OR GRADE
SUBSCRIPTS AND ABBREVIATIONS	
WP	INDICATES WEATHERPROOF
1-L	REFER TO ONE-LINE DIAGRAM
LSIG	LONG-TIME, SHORT-TIME, INSTANTANEOUS, AND GROUND FAULT PROTECTION
MISCELLANEOUS EQUIPMENT	
D2	TWO DROPS DATA NETWORK OUTLET

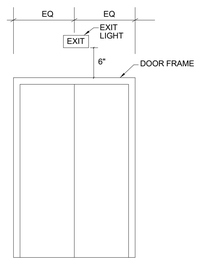
GENERAL NOTES:

-ALL EXTERIOR BUILDING ELECTRICAL EQUIPMENT TO BE WEATHERPROOF NEMA-3RX MINIMUM UNLESS OTHERWISE SPECIFIED.

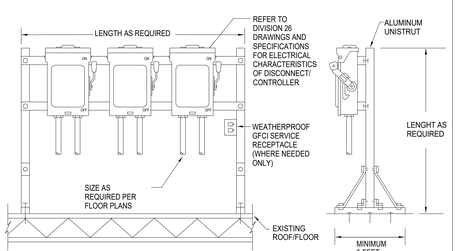


NOTES:
1. PROVIDE, LOCATE AND INSTALL SURGE PROTECTION DEVICE AS REQUIRED PER SPECIFICATIONS.
2. REFER TO PANEL SCHEDULES AND ONE-LINE DIAGRAM FOR QUANTITY, MODEL NUMBER, CIRCUIT BREAKER, & WIRE SIZE.
3. MOUNT DIRECTLY TO PANELBOARD / SWITCHBOARD ENCLOSURE VIA SPD PROVIDED NIPPLE OR RGC NIPPLE.
4. TWIST PHASE CONDUCTOR UP TO CIRCUIT BREAKER TERMINATIONS.
5. TWIST NEUTRAL AND EQUIPMENT GROUND CONDUTOR AS MUCH AS POSSIBLE TO BUS TERMINATIONS.

3 SURGE PROTECTION DEVICE DETAIL
SCALE: NONE

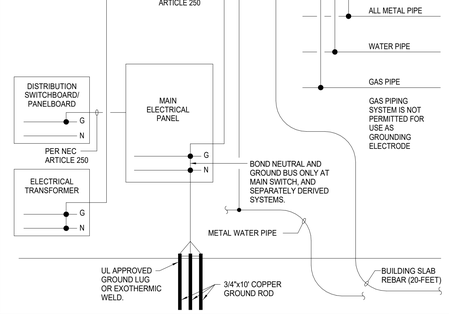


2 TYPICAL EXIT SIGN LOCATION
SCALE: NONE



NOTES:
1. REFER TO ARCHITECTURAL, STRUCTURAL AND ROOFING DRAWINGS AND SPECIFICATIONS FOR HVAC EQUIPMENT SUPPORT CONSTRUCTION DETAILS.

4 FLOOR/ROOF MOUNTING RACK DETAIL
SCALE: NONE



1 SYSTEM GROUNDING DETAIL
SCALE: NONE

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Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
08/11/25

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Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY: JZ
DRAWN BY: AW

SHEET NAME

ELECTRICAL DETAILS

SHEET NUMBER: E4.01
REVISION:

EXISTING

Switchboard: DPA

Location: MECH 2 | **Volts:** 277/480 Wye | **A.I.C. Rating:** 65,000
Supply From: MSA | **Phases:** 3 | **ENCLOSURE:** NEMA 1
Mounting: Surface | **Wires:** 4 | **Mains Rating:** 800
Enclosure: Type 1

CKT	Circuit Description	Trip Rating	# of Poles	Load	Wire	Remarks
1	PANEL HA	225	3	47.7 kVA	(E)	(E)
2	PANEL HB	225	3	65.6 kVA	(E)	(E)
3	PANEL HC	225	3	59.8 kVA	(E)	(E)
4	PANEL HE	225	3	77.5 kVA	(E)	(E)
5	**ACCU-3**	**70**	**3**	**44.8 kVA**	**(3)#4**	**1-1/4"C**
6	**ACCU-4**	**30**	**3**	**18.2 kVA**	**(3)#8**	**1"C**
7	SPARE	70	1	0.0 kVA		
8	SPARE	60	1	0.0 kVA		
9	XFMR XB 75kVA	125	3	36.0 kVA	(E)	(E)
10	TVSS	30	3	0.0 kVA	(E)	(E)
11	SPACE	--	1	--		
12	SPACE	--	1	--		
			Total Conn...	349.6 kVA		
			Total Amps:	420		

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	96.9 kVA	100.00%	96.9 kVA		
Lighting	122.7 kVA	125.00%	153.4 kVA	**Total Conn. Load:**	349.6 kVA
Miscellaneous	39.0 kVA	100.00%	39.0 kVA	**Total Est. Demand:**	394.0 kVA
Existing	55.0 kVA	125.00%	68.8 kVA	**Total Conn. Current:**	420
				Total Est. Demand...	474

Notes:
- NEW WORK IN BOLD

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
Mounting: Surface | **Wires:** 4 | **Mains:** 225A MLO
Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	LIGHTING	(E)	20 1	2.0 / 0.7						2	
N	3	**OUTDOOR LIGHTS SERVICE YARD**	**#12**	**20 1**		0.2 / 0.7		3 70	(E)	45 kVA XFMR TLLS	4	
N	5	**EMERGENY LIGHTS MECH 519**	**#12**	**20 1**			0.1 / 0.7				6	
N	7	**EXIT SIGNS MECH 519**	**#12**	**20 1**	0.0 / 0.0			1 20	--	SPARE	8	--
--	9	SPARE	--	20 1		0.0 / 0.0		1 20	--	SPARE	10	--
--	11	SPARE	--	20 1			0.0 / 0.0	1 20	--	SPARE	12	--
--	13	SPARE	--	20 1	0.0 / 0.0			1 20	--	SPARE	14	--
--	15	SPARE	--	20 1		0.0 / 0.0		1 20	--	SPARE	16	--
--	17	SPARE	--	20 1			0.0 / 0.0	1 --	--	SPACE	18	--
--	19	SPACE	--	-- 1	0.0 / 0.0			1 --	--	SPACE	20	--
--	21	SPACE	--	-- 1		0.0 / 0.0		1 --	--	SPACE	22	--
--	23	SPACE	--	-- 1			0.0 / 0.0	1 --	--	SPACE	24	--
--	25	SPACE	--	-- 1	0.0 / 0.0			1 --	--	SPACE	26	--
--	27	SPACE	--	-- 1		0.0 / 0.0		1 --	--	SPACE	28	--
--	29	SPACE	--	-- 1			0.0 / 0.0	1 --	--	SPACE	30	--
--	31	SPACE	--	-- 1	0.0 / 0.0			1 --	--	SPACE	32	--
--	33	SPACE	--	-- 1		0.0 / 0.0		1 --	--	SPACE	34	--
--	35	SPACE	--	-- 1			0.0 / 0.0	1 --	--	SPACE	36	--
--	37	SPACE	--	-- 1	0.0 / 0.0			1 --	--	SPACE	38	--
--	39	SPACE	--	-- 1		0.0 / 0.0		1 --	--	SPACE	40	--
--	41	SPACE	--	-- 1			0.0 / 0.0	1 --	--	SPACE	42	--
			Total Load:		2.7 kVA	0.8 kVA	0.8 kVA					
			Total Amps:		10 A	3 A	3 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	4.3 kVA	125.00%	5.4 kVA		
				Total Conn. Load:	4.3 kVA
				Total Est. Demand:	5.4 kVA
				Total Conn. Current:	5 A
				Total Est. Demand Current:	6 A

Notes:
- PANEL HAS BUILT-IN SPD.
- NEW WORK IN BOLD

Abbreviations:
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EXISTING

Branch Panel: LB2

Location: ELECTRICAL 516 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 10,000
Supply From: | **Phases:** 3 | **Enclosure:** Type 1
Mounting: Surface | **Wires:** 4 | **Mains:** 150A MCB
Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	RECEPTACLES	(E)	20 1	1.1 / 1.1			1 20	(E)	RECEPTACLES	2	
	3	RECEPTACLES	(E)	20 1		1.1 / 1.1		1 20	(E)	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	
	9	EDF	(E)	20 1		0.9 / 1.0		1 20	(E)	OVERHEAD DOOR	10	
	11	EF-2	(E)	20 1			0.8 / 0.8	1 20	(E)	EF-10	12	
	13	MOTORIZED GOAL	(E)	20 1	1.0 / 1.1			1 20	(E)	RECEPTACLES	14	
	15	MOTORIZED GOAL	(E)	20 1		1.0 / 0.0		1 20	--	SPARE	16	--
	17	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	(E)	STAGE LIGHTING	20	
	21	SOUND SYSTEM	(E)	20 1		0.5 / 1.2		1 20	(E)	STAGE LIGHTING	22	
LO	23	FIRE/SMOKE DAMPERS	(E)	20 1			0.8 / 1.2	1 20	(E)	STAGE LIGHTING	24	
	25	RECEPTACLES	(E)	20 1	1.1 / 1.2			1 20	(E)	STAGE LIGHTING	26	
	27	RECEPTACLES	(E)	20 1		1.1 / 2.0		1 30	(E)	HEAT TRACE	28	
	29	RECEPTACLES	(E)	20 1			1.1 / 1.1	1 20	(E)	CLEAN UP RECEPTACLES	30	
--	31	SPARE	--	20 1	0.0 / 1.1			1 20	(E)	CLEAN UP RECEPTACLES	32	
	33	Existing	(E)	20 1		0.5 / 0.5		1 20	(E)	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	#10	TVSS	40	
	41						3.3 / 0.0				42	
			Total Load:		14.8 kVA	12.6 kVA	12.8 kVA					
			Total Amps:		123 A	105 A	107 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	2.6 kVA	100.00%	2.6 kVA		
Lighting	4.8 kVA	125.00%	6.0 kVA	**Total Conn. Load:**	40.1 kVA
Miscellaneous	13.4 kVA	100.00%	13.4 kVA	**Total Est. Demand:**	38.2 kVA
Receptacles	17.2 kVA	79.00%	13.6 kVA	**Total Conn. Current:**	111 A
Existing	2.1 kVA	125.00%	2.6 kVA	**Total Est. Demand Current:**	106 A

Notes:

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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.

EXISTING

Branch Panel: LLS

Location: ELECTRICAL 516 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 10,000
Supply From: TLLS | **Phases:** 3 | **Enclosure:** Type 1
Mounting: Surface | **Wires:** 4 | **Mains:** 60A MCB
Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	ANSUL	(E)	20 1	0.5 / 0.0			1	--	-- SPACE	2	--
--	3	SPARE	--	20 1		0.0 / 0.0		1	--	-- SPACE	4	--
--	5	SPARE	--	20 1			0.0 / 0.0	1	--	-- SPACE	6	--
	7				2.0 / 0.0			1	--	-- SPACE	8	--
N	9	**DMSCU-1**	**#10**	**30 2**		2.0 / 0.0		1	--	-- SPACE	10	--
N	11	**DMS-1 CONDENSATE PUMP**	**#12**	**20 1**			1.2 / 0.0	1	--	-- SPACE	12	--
--	13	SPACE	--	-- 1	0.0 / 0.0			1	--	-- SPACE	14	--
--	15	SPACE	--	-- 1		0.0 / 0.0		1	--	-- SPACE	16	--
--	17	SPACE	--	-- 1			0.0 / 0.0	1	--	-- SPACE	18	--
			Total Load:		2.5 kVA	2.0 kVA	1.2 kVA					
			Total Amps:		22 A	18 A	10 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	4.0 kVA	100.00%	4.0 kVA		
Miscellaneous	1.7 kVA	100.00%	1.7 kVA	**Total Conn. Load:**	5.7 kVA
				Total Est. Demand:	5.7 kVA
				Total Conn. Current:	16 A
				Total Est. Demand Current:	16 A

Notes:

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EXISTING

Branch Panel: HB1

Location: ELECTRICAL 516 | **Volts:** 277/480 Wye | **A.I.C. Rating:** 10,000
Supply From: MSA | **Phases:** 3 | **Enclosure:** Type 1
Mounting: Surface | **Wires:** 4 | **Mains:** 250A MLO
Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	LIGHTING	(E)	20 1	3.0 / 3.1						2	
	3	LIGHTING	(E)	20 1		3.0 / 3.1		3 20	#12	AHU-9 VFD (7.5HP)	4	N
	5	LIGHTING	(E)	20 1			3.0 / 3.1				6	
	7	LIGHTING	(E)	20 1	3.0 / 3.1						8	
	9	LIGHTING	(E)	20 1		3.0 / 3.1		3 20	#12	AHU-7 VFD (7.5HP)	10	N
	11	LIGHTING	(E)	20 1			3.0 / 3.1				12	
	13	LIGHTING	(E)	20 1	3.0 / -0.2						14	
	15	LIGHTING	(E)	20 1		3.0 / -0.2		3 60	#6	AHU-14 VFD (20HP)	16	N
	17	LIGHTING	(E)	20 1			3.0 / -0.2				18	
	19	LIGHTING	(E)	20 1	3.0 / 1.3						20	
	21	LIGHTING	(E)	20 1		3.0 / 1.3		3 20	#12	AHU-8 VFD (3HP)	22	N
	23	LIGHTING	(E)	20 1			3.0 / 1.3				24	
	25				1.9 / 3.1						26	
	27	EF-9	(E)	15 3		1.9 / 3.1		3 20	#12	AHU-10 VFD (7.5HP)	28	N
	29						1.9 / 3.1				30	
	31				3.0 / 2.0						32	
	33	OVERHEAD DOOR	(E)	20 3		3.0 / 2.0		3 20	#12	B-1	34	N
	35						3.0 / 2.0				36	
N	37	**OUTDOOR WALL PACKS**	**#12**	**20 1**	0.0 / 2.0						38	
	39	Existing	(E)	20 1		0.5 / 2.0		3 20	#12	B2	40	N
	41	EGRESS LIGHTING	(E)	20 1			2.0 / 2.0				42	
			Total Load:		31.2 kVA	31.7 kVA	33.2 kVA					
			Total Amps:		113 A	115 A	120 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	36.5 kVA	100.00%	36.5 kVA		
Heating	8.3 kVA	100.00%	8.3 kVA	**Total Conn. Load:**	96.1 kVA
Lighting	38.0 kVA	125.00%	47.5 kVA	**Total Est. Demand:**	105.7 kVA
Miscellaneous	12.8 kVA	100.00%	12.8 kVA	**Total Conn. Current:**	116 A
Existing	0.5 kVA	125.00%	0.6 kVA	**Total Est. Demand Current:**	127 A

Notes:
- NEW WORK IN BOLD

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NEW

Branch Panel: HCP

Location: CHILLER 518 | **Volts:** 277/480 Wye | **A.I.C. Rating:** 65,000
Supply From: MSA | **Phases:** 3 | **Enclosure:** Type 1
Mounting: Surface | **Wires:** 4 | **Mains:** 400A MLO
Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1				1.9 / 1.9						2	
	3	HWP-1 VFD (7.5 HP)	#12	20 3		1.9 / 1.9		3 20	#12	HWP-2 VFD (7.5 HP)	4	
	5						1.9 / 1.9				6	
	7				3.7 / 3.7						8	
	9	PCHWP-1 VFD (15 HP)	#12	20 3		3.7 / 3.7		3 20	#12	PCHWP-2 VFD (15 HP)	10	
	11						3.7 / 3.7				12	
	13				5.0 / 5.0						14	
	15	SCHWP-1 VFD (20 HP)	#6	60 3		5.0 / 5.0		3 60	#6	SCHWP-2 VFD (20 HP)	16	
	17						5.0 / 5.0				18	
	19				0.2 / 0.2						20	
	21	HWP-3 (1 HP)	#12	20 3		0.2 / 0.2		3 20	#12	HWP-4 (1 HP)	22	
	23						0.2 / 0.2				24	
	25				14.9 / 1.7						26	
	27	ACCU-7	#4	70 3		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	ACCU-10	#6	60 3		12.5 / 0.0		3 20	--	SPARE	34	--
	35						12.5 / 0.0				36	
	37				1.7 / 0.0						38	
	39	EUH-1 (5 KW)	#12	20 3		1.7 / 0.0		3 60	--	SPARE	40	--
	41						1.7 / 0.0				42	
	43				1.7 / 0.0			1	--	-- SPACE	44	--
	45	EUH-2 (5 KW)	#12	20 3		1.7 / 0.0		1	--	-- SPACE	46	--
	47						1.7 / 0.0	1	--	-- SPACE	48	--
--	49	SPARE	--	20 1	0.0 / 0.0			1	--	-- SPACE	50	--
--	51	SPARE	--	20 1		0.0 / 0.0		1	--	-- SPACE	52	--
--	53	SPARE	--	20 1			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	1	--	-- SPACE	60	--
--	61	SPACE	--	-- 1	0.0 / 0.0			1	--	-- SPACE	62	--
--	63	SPACE	--	-- 1		0.0 / 0.0		1	--	-- SPACE	64	--
--	65	SPACE	--	-- 1			0.0 / 0.0	1	--	-- SPACE	66	--
--	67	SPACE	--	-- 1	0.0 / 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	SPACE	--	-- 1		0.0 / 0.0		1	--	-- SPACE	76	--
--	77	SPACE	--	-- 1			0.0 / 0.0	1	--	-- SPACE	78	--
--	79	SPACE	--	-- 1	0.0 / 0.0						80	
--	81	SPACE	--	-- 1		0.0 / 0.0		3 30	#10	SPDL	82	
--	83	SPACE	--	-- 1			0.0 / 0.0				84	
			Total Load:		54.1 kVA	54.1 kVA	54.1 kVA					
			Total Amps:		195 A	195 A	195 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	132.2 kVA	100.00%	132.2 kVA		
Heating	15.3 kVA	100.00%	15.3 kVA	**Total Conn. Load:**	162.4 kVA
Miscellaneous	0.0 kVA	0.00%	0.0 kVA	**Total Est. Demand:**	162.4 kVA
Motor	14.9 kVA	100.00%	14.9 kVA	**Total Conn. Current:**	195 A
				Total Est. Demand Current:	195 A

Notes:

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FEED THROUGH LUGS

Salas O'Brien
salasobrien.com 281-664-1900
Houston
10930 W. Sam Houston Pkwy North, Suite 900
Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
08/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD — EXCELLENCE IN ALL FOR ALL STUDENTS

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY: JZ | DRAWN BY: AW

SHEET NAME

ELECTRICAL PANEL SCHEDULES

SHEET NUMBER: E4.02 | REVISION

EXISTING

Branch Panel: HC

Location: MECH RM#3 | **Supply From:** DPA | **Mounting:** Surface
Volts: 277/480 Wye | **Phases:** 3 | **Wires:** 4
A.I.C. Rating: 65,000 | **Enclosure:** Type 1 | **Mains:** 225A MLO

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	LIGHTING	(E)	20 1	3.0 / -0.2						2	
	3	LIGHTING	(E)	20 1		3.0 / -0.2		3	20	AHU-6	4	
	5	LIGHTING	(E)	20 1			3.0 / -0.2				6	
	7	LIGHTING	(E)	20 1	3.0 / -0.2						8	
	9	LIGHTING	(E)	20 1		3.0 / -0.2		3	20	AHU-5	10	
	11	LIGHTING	(E)	20 1			3.0 / -0.2				12	
	13	LIGHTING	(E)	20 1	3.0 / 3.3			1	20 (E)	VAV's	14	
	15	LIGHTING	(E)	20 1		3.0 / 3.3		1	20 (E)	VAV's	16	
	17	CORRIDOR LIGHTING	(E)	20 1			3.0 / 2.8	1	20 (E)	VAV's	18	
	19	Existing	(E)	20 1	0.5 / 3.4			1	20 (E)	VAV's	20	
	21	CORRIDOR LIGHTING	(E)	20 1		3.0 / 9.0		1	40 (E)	EWH-C-1	22	
	23	MEZZANINE LIGHTING	(E)	20 1			1.5 / 3.0	1	20 (E)	EWH-C-2	24	
	25	Existing	(E)	20 1	0.5 / 0.5			1	20 (E)	Existing	26	
--	27	SPACE	--	-- 1		0.0 / 0.5		1	20 (E)	Existing	28	
--	29	SPACE	--	-- 1			0.0 / 0.5	1	20 (E)	Existing	30	
--	31	SPACE	--	-- 1	0.0 / 0.5			1	20 (E)	Existing	32	
--	33	SPACE	--	-- 1		0.0 / 0.0		1	-- --	SPACE	34	--
--	35	SPACE	--	-- 1			0.0 / 0.0	1	-- --	SPACE	36	--
--	37	SPACE	--	-- 1	0.0 / 0.0			1	-- --	SPACE	38	--
--	39	SPACE	--	-- 1		0.0 / 0.0		1	-- --	SPACE	40	--
N	41	EGRESS LIGHTING		20 1			2.0 / 0.0	1	-- --	SPACE	42	--
		Total Load:			17.2 kVA	24.3 kVA	18.3 kVA					
		Total Amps:			62 A	88 A	67 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	11.3 kVA	100.00%	11.3 kVA		
Lighting	33.5 kVA	125.00%	41.9 kVA	**Total Conn. Load:**	59.8 kVA
Miscellaneous	12.0 kVA	100.00%	12.0 kVA	**Total Est. Demand:**	68.9 kVA
Existing	3.0 kVA	125.00%	3.8 kVA	**Total Conn. Current:**	72 A
				Total Est. Demand Current:	83 A

Notes:

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EXISTING

Branch Panel: HE

Location: MECH RM#608 | **Supply From:** DPA | **Mounting:** Surface
Volts: 277/480 Wye | **Phases:** 3 | **Wires:** 4
A.I.C. Rating: 18,000 | **Enclosure:** Type 1 | **Mains:** 225A MLO

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	OUTSIDE LIGHTS	(E)	20 1	3.0 / 3.0						2	
	3	PARKING LIGHTS	(E)	20 1		3.0 / 3.0		3	20 (E)	AHU (7.5HP)	4	
	5	CLASSROOM LIGHTS	(E)	20 1			3.0 / 3.0				6	
	7	CLASSROOM LIGHTS	(E)	20 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 / 0.5			1	20 (E)	CVT-4A (3/4HP)	14	
--	15	SPARE	--	20 1		0.0 / 0.5		1	20 (E)	CVT-5A (3/4HP)	16	
--	17	SPARE	--	20 1			0.0 / 0.0	1	20 --	SPARE	18	--
--	19	SPARE	--	20 1	0.0 / 0.0			1	20 --	SPARE	20	--
--	21	SPARE	--	20 1		0.0 / 0.0		1	20 --	SPARE	22	--
--	23	SPARE	--	20 1			0.0 / 0.0	1	20 --	SPARE	24	--
--	25	SPARE	--	20 1	0.0 / 0.0			1	20 --	SPARE	26	--
--	27	SPACE	--	-- 1		0.0 / 0.0		1	-- --	SPACE	28	--
--	29	SPACE	--	-- 1			0.0 / 0.0	1	-- --	SPACE	30	--
--	31	SPACE	--	-- 1	0.0 / 0.0			1	-- --	SPACE	32	--
--	33	SPACE	--	-- 1		0.0 / 0.0		1	-- --	SPACE	34	--
--	35	SPACE	--	-- 1			0.0 / 0.0	1	-- --	SPACE	36	--
--	37	SPACE	--	-- 1	0.0 / 15.0						38	
--	39	SPACE	--	-- 1		0.0 / 15.0		3	125 (E)	XFMR XLE (75KVA)	40	
--	41	SPACE	--	-- 1			0.0 / 15.0				42	
		Total Load:			28.0 kVA	25.0 kVA	24.5 kVA					
		Total Amps:			101 A	91 A	88 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	2.5 kVA	100.00%	2.5 kVA		
Lighting	21.0 kVA	125.00%	26.3 kVA	**Total Conn. Load:**	77.5 kVA
Miscellaneous	9.0 kVA	100.00%	9.0 kVA	**Total Est. Demand:**	94.0 kVA
Existing	45.0 kVA	125.00%	56.3 kVA	**Total Conn. Current:**	93 A
				Total Est. Demand Current:	113 A

Notes:

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LO - PROVIDE PERMANENT LOCK-ON DEVICE
M - PROVIDE METERING DEVICE

EXISTING

Branch Panel: HB

Location: MECH RM#2 | **Supply From:** DPA | **Mounting:** Surface
Volts: 277/480 Wye | **Phases:** 3 | **Wires:** 4
A.I.C. Rating: 65,000 | **Enclosure:** Type 1 | **Mains:** 225A MLO

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	LIGHTING	(E)	20 1	3.5 / -0.2						2	
	3	LIGHTING	(E)	20 1		3.5 / -0.2		3	30 #10	AHU-3 (10 HP)	4	
	5	LIGHTING	(E)	20 1			3.5 / -0.2				6	
	7	LIGHTING	(E)	20 1	2.3 / -0.2						8	
	9	LIGHTING	(E)	20 1		3.5 / -0.2		3	20 #12	AHU-4 (5 HP)	10	
	11	LIGHTING	(E)	20 1			3.5 / -0.2				12	
	13	CORRIDOR LIGHTING	(E)	20 1	3.4 / -0.2						14	
	15	EXTERIOR POLE LIGHTING	(E)	20 2		2.0 / -0.2		3	20 #12	AHU-13 (5 HP)	16	
	17						2.0 / -0.2				18	
	19	EXTERIOR LIGHTING	(E)	20 1	2.0 / 3.4			1	20 (E)	VAV's	20	
	21	EXTERIOR LIGHTING	(E)	20 1		2.0 / 2.1		1	20 (E)	VAV's	22	
	23	MEZZANINE LIGHTING	(E)	20 1			2.0 / 3.1	1	20 (E)	VAV's	24	
	25	Existing	(E)	20 1	0.5 / 3.5			1	20 (E)	VAV's	26	
	27	Existing	(E)	20 1		0.5 / 0.5		1	20 (E)	Existing	28	
	29	Existing	(E)	20 1			0.5 / 0.5	1	20 (E)	Existing	30	
--	31	SPACE	--	-- 1	0.0 / 6.0						32	
--	33	SPACE	--	-- 1		0.0 / 6.0		3	40 (E)	EWH-4-1	34	
--	35	SPACE	--	-- 1			0.0 / 6.0				36	
--	37	SPACE	--	-- 1	0.0 / 0.0			1	-- --	SPACE	38	--
--	39	SPACE	--	-- 1		0.0 / 0.0		1	-- --	SPACE	40	--
	41	EGRESS LIGHTING	(E)	20 1			2.0 / 0.0	1	-- --	SPACE	42	--
		Total Load:			23.9 kVA	19.4 kVA	22.4 kVA					
		Total Amps:			88 A	70 A	82 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	9.9 kVA	100.00%	9.9 kVA		
Lighting	35.2 kVA	125.00%	44.0 kVA	**Total Conn. Load:**	65.6 kVA
Miscellaneous	18.0 kVA	100.00%	18.0 kVA	**Total Est. Demand:**	75.0 kVA
Existing	2.5 kVA	125.00%	3.1 kVA	**Total Conn. Current:**	79 A
				Total Est. Demand Current:	90 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE
M - PROVIDE METERING DEVICE

EXISTING

Branch Panel: HD

Location: MECH RM#4 | **Supply From:** | **Mounting:** Surface
Volts: 277/480 Wye | **Phases:** 3 | **Wires:** 4
A.I.C. Rating: 18,000 | **Enclosure:** Type 1 | **Mains:** 225A MLO

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	LIGHTING	(E)	20 1	3.0 / -0.2						2	
	3	LIGHTING	(E)	20 1		3.0 / -0.2		3	20	AHU-11	4	
	5	LIGHTING	(E)	20 1			3.0 / -0.2				6	
	7	LIGHTING	(E)	20 1	3.0 / -0.2						8	
	9	LIGHTING	(E)	20 1		3.0 / -0.2		3	20	AHU-12	10	
	11	LIGHTING	(E)	20 1			3.0 / -0.2				12	
	13	LIGHTING	(E)	20 1	3.0 / 3.3			1	20 (E)	VAV's	14	
	15	CORRIDOR LIGHTING	(E)	20 1		3.0 / 3.3		1	20 (E)	VAV's	16	
	17	LIGHTING	(E)	20 1			3.0 / 2.8	1	20 (E)	VAV's	18	
	19	LIGHTING	(E)	20 1	3.0 / 3.4			1	20 (E)	VAV's	20	
	21	CORRIDOR LIGHTING	(E)	20 1		3.0 / 3.4		1	20 (E)	VAV's	22	
	23	EXTERIOR LIGHTING	(E)	20 1			3.0 / 9.0	1	40 (E)	EWD-D-1	24	
	25	MEZZANINE LIGHTING	(E)	20 1	1.5 / 3.0			1	20 (E)	EWD-D-2	26	
	27	P.B.S.	(E)	100 2		0.3 / 1.5		2	100 (E)	P.B.S	28	
	29						0.3 / 1.5				30	
	31	Existing	(E)	20 1	0.5 / 0.2						32	
	33	Existing	(E)	20 1		0.5 / 0.2		3	30 (E)	TVSS	34	
--	35	SPACE	--	-- 1			0.0 / 0.2				36	
--	37	SPACE	--	-- 1	0.0 / 15.0						38	
	39	Existing	(E)	20 1		0.5 / 15.0		3	125 (E)	XFMR XLD	40	
	41	EGRESS LIGHTING	(E)	20 1			2.0 / 15.0				42	
		Total Load:			38.4 kVA	36.1 kVA	42.2 kVA					
		Total Amps:			140 A	130 A	154 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	14.7 kVA	100.00%	14.7 kVA		
Lighting	39.5 kVA	125.00%	49.4 kVA	**Total Conn. Load:**	116.7 kVA
Miscellaneous	12.0 kVA	100.00%	12.0 kVA	**Total Est. Demand:**	139.2 kVA
Existing	50.5 kVA	125.00%	63.1 kVA	**Total Conn. Current:**	140 A
				Total Est. Demand Current:	167 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE
M - PROVIDE METERING DEVICE

EXISTING

Branch Panel: HA

Location: MECH RM#1 | **Supply From:** DPA | **Mounting:** Surface
Volts: 277/480 Wye | **Phases:** 3 | **Wires:** 4
A.I.C. Rating: 18,000 | **Enclosure:** Type 1 | **Mains:** 225A MLO

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	LIGHTING	(E)	20 1	3.6 / -0.2						2	
	3	LIGHTING	(E)	20 1		3.6 / -0.2		3	20	AHU-1	4	
	5	LIGHTING	(E)	20 1			4.0 / -0.2				6	
	7	LIGHTING	(E)	20 1	3.7 / -0.2						8	
	9	LIGHTING	(E)	20 1		3.7 / -0.2		3	20	AHU-2	10	
	11	LIGHTING	(E)	20 1			3.0 / -0.2				12	
	13	CORRIDOR LIGHTING	(E)	20 1	4.3 / 3.4			1	20 (E)	VAV's	14	
	15	EXTERIOR LIGHTING	(E)	20 1		3.6 / 2.4		1	20 (E)	VAV's	16	
	17	MEZZANINE LIGHTING	(E)	20 1			1.5 / 2.5	1	20 (E)	VAV's	18	
	19	Existing	(E)	20 1	0.5 / 3.4			1	20 (E)	VAV's	20	
	21	Existing	(E)	20 1		0.5 / 0.5		1	20 (E)	Existing	22	
	23	Existing	(E)	20 1			0.5 / 0.5	1	20 (E)	Existing	24	
--	25	SPACE	--	-- 1	0.0 / 0.5			1	20 (E)	Existing	26	
--	27	SPACE	--	-- 1		0.0 / 0.5		1	20 (E)	Existing	28	
--	29	SPACE	--	-- 1			0.0 / 0.5	1	20 (E)	Existing	30	
--	31	SPACE	--	-- 1	0.0 / 0.0			1	-- --	SPACE	32	--
--	33	SPACE	--	-- 1		0.0 / 0.0		1	-- --	SPACE	34	--
--	35	SPACE	--	-- 1			0.0 / 0.0	1	-- --	SPACE	36	--
--	37	SPACE	--	-- 1	0.0 / 0.2						38	
--	39	SPACE	--	-- 1		0.0 / 0.2		3	125 (E)	XFMR XLA	40	
	41	EGRESS LIGHTING		20 1			2.0 / 0.2				42	
		Total Load:			19.1 kVA	14.5 kVA	14.2 kVA					
		Total Amps:			69 A	52 A	51 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	10.2 kVA	100.00%	10.2 kVA		
Lighting	33.0 kVA	125.00%	41.3 kVA	**Total Conn. Load:**	47.7 kVA
Existing	4.5 kVA	125.00%	5.6 kVA	**Total Est. Demand:**	57.1 kVA
				Total Conn. Current:	57 A
				Total Est. Demand Current:	69 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE
M - PROVIDE METERING DEVICE

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.

Salas O'Brien
salasobrien.com 281-664-1900
Houston
10930 W. Sam Houston Pkwy North, Suite 900
Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

BRADLEY KALMANS 80219 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS

08/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD — EXCELLENCE IN ALL FOR ALL STUDENTS

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY	DRAWN BY
JZ	AW

SHEET NAME

ELECTRICAL PANEL SCHEDULES

SHEET NUMBER	REVISION
E4.03	

NEW

Branch Panel: LB3

Location: CENTRAL PLANT
Supply From: LB2
Mounting: Surface
Volts: 120/208 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 10,000
Enclosure: Type 1
Mains: 60A MCB

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	RECEPTS MECH 519	#12	20 1	0.5 / 1.0			1	20	#12 AHUS UV LIGHTS	2	
	3	ROOF RECEPT	#12	20 1		0.2 / 0.4		1	20	#12 EF-9	4	
	5	GWH-2	#12	20 1			0.7 / 0.7	1	20	#12 GWH-1	6	
	7	CP-1	#12	20 1	0.1 / 0.0			1	20	#12 CO MONITORING STATION	8	
	9	CH-1 CONTROLS	#12	20 1		0.2 / 0.2		1	20	#12 CH-1 EVAP HEATER	10	
	11	CH-2 CONTROLS	#12	20 1			0.2 / 1.5	1	20	#12 CH-2 EVAP HEATER	12	
	13	BMCS PANEL	#12	20 1	0.7 / 0.7			1	20	#12 BMCS PANEL	14	
	15	LIGHTING CONTACTOR	#12	20 1		0.5 / 0.0		1	--	-- SPACE	16	--
--	17	SPARE	--	20 1			0.0 / 0.0	1	--	-- SPACE	18	--
--	19	SPARE	--	20 1	0.0 / 0.0			1	--	-- SPACE	20	--
--	21	SPARE	--	20 1		0.0 / 0.0		1	--	-- SPACE	22	--
--	23	SPARE	--	20 1			0.0 / 0.0	1	--	-- SPACE	24	--
--	25	SPARE	--	20 1	0.0 / 0.0			1	--	-- SPACE	26	--
--	27	SPARE	--	20 1		0.0 / 0.0		1	--	-- SPACE	28	--
--	29	SPARE	--	20 1			0.0 / 0.0	1	--	-- SPACE	30	--
--	31	SPACE	--	-- 1	0.0 / 0.0			1	--	-- SPACE	32	--
--	33	SPACE	--	-- 1		0.0 / 0.0		1	--	-- SPACE	34	--
--	35	SPACE	--	-- 1			0.0 / 0.0	1	--	-- SPACE	36	--
--	37	SPACE	--	-- 1	0.0 / 0.2						38	
--	39	SPACE	--	-- 1		0.0 / 0.2		3	30	#10 SPDL	40	
--	41	SPACE	--	-- 1			0.0 / 0.2				42	
		Total Load:			3.2 kVA	1.6 kVA	3.3 kVA					
		Total Amps:			29 A	13 A	29 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	0.5 kVA	100.00%	0.5 kVA		
Miscellaneous	5.7 kVA	100.00%	5.7 kVA	**Total Conn. Load:**	8.1 kVA
Receptacles	1.9 kVA	100.00%	1.9 kVA	**Total Est. Demand:**	8.1 kVA
				Total Conn. Current:	23 A
				Total Est. Demand Current:	23 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE
M - PROVIDE METERING DEVICE

EXISTING

Branch Panel: LD1

Location: MECH RM#4
Supply From:
Mounting: Surface
Volts: 120/208 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 18,000
Enclosure: Type 1
Mains: 225A MLO

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	COMPUTER RECEPTACLES	(E)	20 1	0.8 / 0.8			1	20	(E) COMPUTER RECEPTACLES	2	
	3	COMPUTER RECEPTACLES	(E)	20 1		1.0 / 1.0		1	20	(E) COMPUTER RECEPTACLES	4	
	5	COMPUTER RECEPTACLES	(E)	20 1			1.0 / 1.0	1	20	(E) COMPUTER RECEPTACLES	6	
	7	COMPUTER RECEPTACLES	(E)	20 1	0.8 / 0.8			1	20	(E) COMPUTER RECEPTACLES	8	
	9	COMPUTER RECEPTACLES	(E)	20 1		0.8 / 0.8		1	20	(E) COMPUTER RECEPTACLES	10	
	11	COMPUTER RECEPTACLES	(E)	20 1			1.0 / 1.0	1	20	(E) COMPUTER RECEPTACLES	12	
	13	COMPUTER RECEPTACLES	(E)	20 1	1.0 / 1.0			1	20	(E) COMPUTER RECEPTACLES	14	
	15	COMPUTER RECEPTACLES	(E)	20 1		0.8 / 0.8		1	20	(E) COMPUTER RECEPTACLES	16	
	17	COMPUTER RECEPTACLES	(E)	20 1			1.0 / 1.0	1	20	(E) COMPUTER RECEPTACLES	18	
	19	COMPUTER RECEPTACLES	(E)	20 1	0.8 / 0.8			1	20	(E) COMPUTER RECEPTACLES	20	
	21	COMPUTER RECEPTACLES	(E)	20 1		0.8 / 0.8		1	20	(E) COMPUTER RECEPTACLES	22	
	23	COMPUTER RECEPTACLES	(E)	20 1			1.0 / 1.0	1	20	(E) COMPUTER RECEPTACLES	24	
	25	COMPUTER RECEPTACLES	(E)	20 1	0.8 / 1.0			1	20	(E) COMPUTER RECEPTACLES	26	
	27	COMPUTER RECEPTACLES	(E)	20 1		0.8 / 0.8		1	20	(E) COMPUTER RECEPTACLES	28	
	29	COMPUTER RECEPTACLES	(E)	20 1			0.8 / 1.0	1	20	(E) COMPUTER RECEPTACLES	30	
	31	COMPUTER RECEPTACLES	(E)	20 1	1.0 / 1.0			1	20	(E) COMPUTER RECEPTACLES	32	
	33	COMPUTER RECEPTACLES	(E)	20 1		0.8 / 0.8		1	20	(E) COMPUTER RECEPTACLES	34	
	35	COMPUTER RECEPTACLES	(E)	20 1			1.0 / 0.8	1	20	(E) COMPUTER RECEPTACLES	36	
	37	COMPUTER RECEPTACLES	(E)	20 1	1.0 / 0.8			1	20	(E) COMPUTER RECEPTACLES	38	
	39	COMPUTER RECEPTACLES	(E)	20 1		0.8 / 0.7		**1**	**20**	**#12 MEZZ BMCS PANEL**	40	**N**
	41	COMPUTER RECEPTACLES	(E)	20 1			1.0 / 0.4	**1**	**20**	**#12 AHU-11&12 UV LIGHT**	42	**N**
		Total Load:			12.0 kVA	11.0 kVA	12.9 kVA					
		Total Amps:			101 A	91 A	109 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Miscellaneous	0.9 kVA	100.00%	0.9 kVA		
Receptacles	35.0 kVA	64.31%	22.5 kVA	**Total Conn. Load:**	35.9 kVA
				Total Est. Demand:	23.4 kVA
				Total Conn. Current:	100 A
				Total Est. Demand Current:	65 A

Notes:

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

NEW

Branch Panel: LB1

Location: MECH RM#2
Supply From:
Mounting: Surface
Volts: 120/208 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 18,000
Enclosure: Type 1
Mains: 225A MLO

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	COMPUTER RECEPTACLES	(E)	20 1	0.8 / 0.8			1	20	(E) COMPUTER RECEPTACLES	2	
	3	COMPUTER RECEPTACLES	(E)	20 1		1.0 / 1.0		1	20	(E) COMPUTER RECEPTACLES	4	
	5	COMPUTER RECEPTACLES	(E)	20 1			1.0 / 0.8	1	20	(E) COMPUTER RECEPTACLES	6	
	7	COMPUTER RECEPTACLES	(E)	20 1	0.8 / 0.8			1	20	(E) COMPUTER RECEPTACLES	8	
	9	COMPUTER RECEPTACLES	(E)	20 1		0.5 / 0.8		1	20	(E) COMPUTER RECEPTACLES	10	
	11	COMPUTER RECEPTACLES	(E)	20 1			0.8 / 1.0	1	20	(E) COMPUTER RECEPTACLES	12	
	13	COMPUTER RECEPTACLES	(E)	20 1	1.0 / 0.8			1	20	(E) COMPUTER RECEPTACLES	14	
	15	COMPUTER RECEPTACLES	(E)	20 1		1.0 / 1.0		1	20	(E) COMPUTER RECEPTACLES	16	
	17	COMPUTER RECEPTACLES	(E)	20 1			1.0 / 1.0	1	20	(E) COMPUTER RECEPTACLES	18	
	19	MEDIA RETRIEVEL	(E)	20 1	0.5 / 0.8			1	20	(E) COMPUTER RECEPTACLES	20	
	21	MEDIA RETRIEVEL	(E)	20 1		0.5 / 1.0		1	20	(E) COMPUTER RECEPTACLES	22	
	23	MEDIA RETRIEVEL	(E)	20 1			0.5 / 0.8	1	20	(E) COMPUTER RECEPTACLES	24	
	25	OFFICE COFFE POT	(E)	20 1	1.8 / 0.8			1	20	(E) COMPUTER RECEPTACLES	26	
	27	NEW OFFICE RECEPTS	(E)	20 1		0.5 / 0.8		1	20	(E) COMPUTER RECEPTACLES	28	
	29	NEW WALL RECEPTS	(E)	20 1			0.5 / 0.8	1	20	(E) COMPUTER RECEPTACLES	30	
	31	Existing	(E)	20 1	0.5 / 0.8			1	20	(E) COMPUTER RECEPTACLES	32	
	33	Existing	(E)	20 1		0.5 / 0.8		1	20	(E) COMPUTER RECEPTACLES	34	
	35	LAMINATOR	(E)	20 1			1.5 / 0.8	1	20	(E) A106 COUNTERTOP RECEPT	36	
	37	OFFICE RECEPT	(E)	20 1	0.5 / 1.6			1	20	(E) A106 COUNTERTOP RECEPT	38	
	39	PROJECTOR SCREEN	(E)	20 1		0.5 / 0.5		1	20	(E) Existing	40	
	41	AHU-3,4&13 UV LIGHTS	#12	20 1			0.6 / 0.5	1	20	(E) Existing	42	
	43	ROOF RECEPTACLE	#12	20 1	0.2 / 0.0			1	--	-- SPACE	44	--
	45	MEZZ RECEPT	#12	20 1		0.2 / 0.0		1	--	-- SPACE	46	--
	47	MEZZ BMCS PANEL	#12	20 1			0.7 / 0.0	1	--	-- SPACE	48	--
--	49	SPACE	--	-- 1	0.0 / 0.0			1	--	-- SPACE	50	--
--	51	SPACE	--	-- 1		0.0 / 0.0		1	--	-- SPACE	52	--
--	53	SPACE	--	-- 1			0.0 / 0.0	1	--	-- SPACE	54	--
		Total Load:			12.1 kVA	10.4 kVA	12.1 kVA					
		Total Amps:			103 A	87 A	102 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Kitchen Equipment	1.8 kVA	100.00%	1.8 kVA		
Miscellaneous	1.1 kVA	100.00%	1.1 kVA	**Total Conn. Load:**	34.6 kVA
Receptacles	29.7 kVA	66.86%	19.8 kVA	**Total Est. Demand:**	25.2 kVA
Existing	2.0 kVA	125.00%	2.5 kVA	**Total Conn. Current:**	96 A
				Total Est. Demand Current:	70 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE
M - PROVIDE METERING DEVICE

EXISTING

Branch Panel: LC

Location: MECH RM#3
Supply From:
Mounting: Surface
Volts: 120/208 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 18,000
Enclosure: Type 1
Mains: 225A MCB

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	RECEPTACLES	(E)	20 1	1.1 / 0.5			1	20	(E) RECEPTACLES	2	
	3	RECEPTACLES	(E)	20 1		1.3 / 0.5		1	20	(E) RECEPTACLES	4	
	5	RECEPTACLES	(E)	20 1			1.1 / 0.5	1	20	(E) RECEPTACLES	6	
	7	RECEPTACLES	(E)	20 1	0.8 / 0.5			1	20	(E) RECEPTACLES	8	
	9	RECEPTACLES	(E)	20 1		1.3 / 0.5		1	20	(E) RECEPTACLES	10	
	11	RECEPTACLES	(E)	20 1			1.3 / 0.5	1	20	(E) RECEPTACLES	12	
	13	COPIER	(E)	20 1	1.8 / 0.5			1	20	(E) CLEAN UP RECEPTACLES	14	
	15	RECEPTACLES	(E)	20 1		1.3 / 0.5		1	20	(E) CLEAN UP RECEPTACLES	16	
	17	RECEPTACLES	(E)	20 1			1.1 / 0.5	1	20	(E) Existing	18	
	19	RECEPTACLES	(E)	20 1	0.8 / 0.5			1	20	(E) RECEPTACLES	20	
	21	RECEPTACLES	(E)	20 1		0.8 / 0.5		1	20	(E) RECEPTACLES	22	
	23	FIRE SMOKE DAMPERS	(E)	20 1			0.6 / 1.6	1	20	(E) EF-3	24	
	25	VAV CONTROL POWER	(E)	20 1	0.5 / 0.5			1	20	(E) CLEAN UP RECEPTACLES	26	
	27	VAV CONTROL POWER	(E)	20 1		0.5 / 0.5		1	20	(E) CLEAN UP RECEPTACLES	28	
	29	VAV CONTROL POWER	(E)	20 1			0.5 / 1.0	1	20	(E) FIRE ALARM	30	LO
N	31	**AHU-5 & 6 UV LIGHTS**	**#12**	**20 1**	0.4 / 0.7			**1**	**20**	**#12 MEZZ BMCS PANEL**	32	**N**
--	33	SHUNT TRIP SPACE FOR CKT 35	--	-- 1		0.0 / 0.0		1	--	-- SPACE	34	--
	35	EDF	(E)	20 1			0.9 / 1.0	1	20	(E) AHU CONTROL POWER	36	
	37				0.2 / 0.0			1	--	-- SPACE	38	--
	39	TVSS	(E)	30 3		0.2 / 0.0		1	--	-- SPACE	40	--
	41						0.2 / 0.0	1	--	-- SPACE	42	--
		Total Load:			8.8 kVA	7.9 kVA	10.8 kVA					
		Total Amps:			74 A	66 A	91 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	3.1 kVA	100.00%	3.1 kVA		
Miscellaneous	4.4 kVA	100.00%	4.4 kVA	**Total Conn. Load:**	27.4 kVA
Receptacles	17.9 kVA	77.93%	14.0 kVA	**Total Est. Demand:**	24.0 kVA
Existing	2.0 kVA	125.00%	2.5 kVA	**Total Conn. Current:**	76 A
				Total Est. Demand Current:	66 A

Notes:

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

Branch Panel: LA1

Location: MECH RM#1
Supply From:
Mounting: Surface
Volts: 120/208 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 18,000
Enclosure: Type 1
Mains: 225A MLO

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	COMPUTER RECEPTACLES	(E)	20 1	0.8 / 0.8			1	20	(E) COMPUTER RECEPTACLES	2	
	3	COMPUTER RECEPTACLES	(E)	20 1		1.0 / 1.0		1	20	(E) COMPUTER RECEPTACLES	4	
	5	COMPUTER RECEPTACLES	(E)	20 1			0.8 / 1.0	1	20	(E) COMPUTER RECEPTACLES	6	
	7	COMPUTER RECEPTACLES	(E)	20 1	1.0 / 0.8			1	20	(E) COMPUTER RECEPTACLES	8	
	9	COMPUTER RECEPTACLES	(E)	20 1		1.0 / 1.0		1	20	(E) COMPUTER RECEPTACLES	10	
	11	COMPUTER RECEPTACLES	(E)	20 1			0.8 / 0.8	1	20	(E) COMPUTER RECEPTACLES	12	
	13	COMPUTER RECEPTACLES	(E)	20 1	1.0 / 0.8			1	20	(E) COMPUTER RECEPTACLES	14	
	15	COMPUTER RECEPTACLES	(E)	20 1		0.8 / 1.0		1	20	(E) COMPUTER RECEPTACLES	16	
	17	COMPUTER RECEPTACLES	(E)	20 1			1.0 / 1.0	1	20	(E) COMPUTER RECEPTACLES	18	
	19	COMPUTER RECEPTACLES	(E)	20 1	0.8 / 0.8			1	20	(E) COMPUTER RECEPTACLES	20	
	21	Existing	(E)	20 1		0.5 / 0.5		1	20	(E) COMPUTER RECEPTACLES	22	
	23	Existing	(E)	20 1			0.5 / 0.5	1	20	(E) Existing	24	
	25	Existing	(E)	20 1	0.5 / 0.0			1	20	-- SPARE	26	--
--	27	SPARE	--	20 1		0.0 / 0.0		1	20	-- SPARE	28	--
--	29	SPARE	--	20 1			0.0 / 0.0	1	20	-- SPARE	30	--
	31	COPIER	(E)	20 2	1.5 / 1.5						32	
	33					1.5 / 1.5		2	20	(E) COPIER	34	
--	35	SPACE	--	-- 1			0.0 / 0.0	1	--	-- SPACE	36	--
N	37	**MEZZ BMCS PANEL**	**#12**	**20 1**	0.5 / 0.0			1	--	-- SPACE	38	--
N	39	**MEZZ RECEPT**	**#12**	**20 1**		0.2 / 0.0		1	--	-- SPACE	40	--
N	41	**AHU-1&2 UV LIGHT**	**#12**	**20 1**			0.4 / 0.0	1	--	-- SPACE	42	--
		Total Load:			10.5 kVA	9.9 kVA	6.7 kVA					
		Total Amps:			92 A	87 A	55 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Miscellaneous	0.9 kVA	100.00%	0.9 kVA		
Receptacles	24.2 kVA	70.68%	17.1 kVA	**Total Conn. Load:**	27.1 kVA
Existing	2.0 kVA	125.00%	2.5 kVA	**Total Est. Demand:**	20.5 kVA
				Total Conn. Current:	75 A
				Total Est. Demand Current:	57 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
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LO - PROVIDE PERMANENT LOCK-ON DEVICE
M - PROVIDE METERING DEVICE
N - NEW WORK, NEW CIRCUIT BREAKER

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.

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

PROFESSIONAL SEAL

STATE OF TEXAS
BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
08/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY	DRAWN BY
JZ	AW

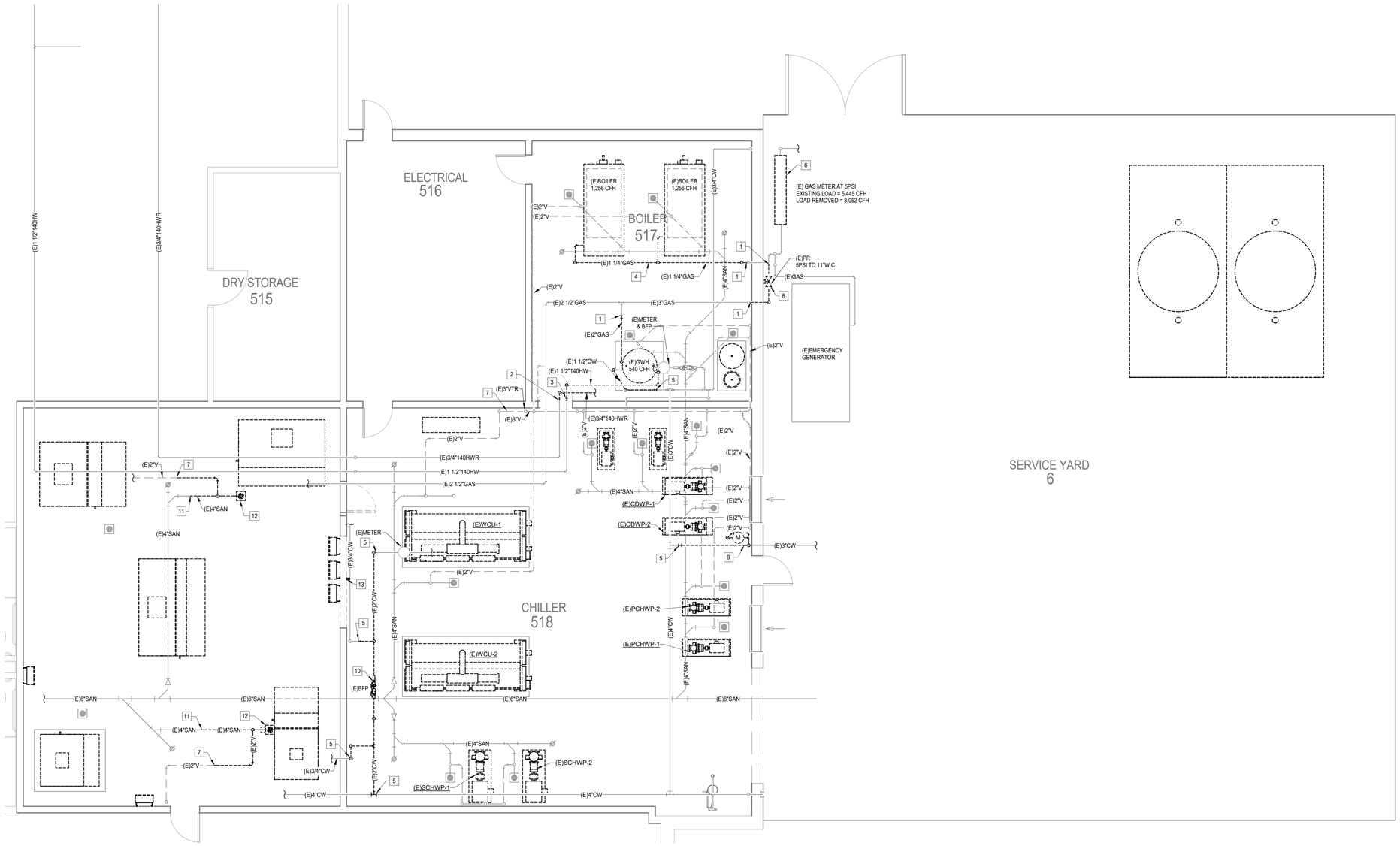
SHEET NAME

ELECTRICAL PANEL SCHEDULES

SHEET NUMBER	REVISION
E4.04	

PLUMBING KEYED NOTES

1 REMOVE EXISTING GAS BACK TO THIS POINT.
2 REMOVE EXISTING HWR BACK TO THIS POINT.
3 REMOVE EXISTING HW BACK TO THIS POINT.
4 EXISTING GAS TO BE REMOVED.
5 REMOVE EXISTING CW BACK TO THIS POINT.
6 EXISTING GAS METER TO BE REMOVED AND REPLACED. CONTRACTOR TO COORDINATE WITH CENTERPOINT FOR GAS METER REPLACEMENT.
7 REMOVE EXISTING VENT BACK TO THIS POINT.
8 EXISTING PRESSURE REGULATOR TO BE REMOVED. REMOVE GAS PIPING BACK TO POINT INDICATED.
9 EXISTING MAKEUP WATER LINE TO CHILLERS TO BE REMOVED. REMOVE EXISTING METER. REFER TO MECHANICAL DRAWINGS FOR EXTENT OF PIPE REMOVAL.
10 EXISTING BACKFLOW PREVENTER TO BE RELOCATED. DISCONNECT FROM EXISTING PIPING AND PRESERVE FOR RECONNECTION.
11 REMOVE EXISTING SANITARY BACK TO THIS POINT.
12 EXISTING FLOOR DRAIN/SINK TO BE REMOVED. REMOVE SANITARY BACK TO POINT INDICATED.
13 EXISTING HOSE BIB TO BE REMOVED. REMOVE CW PIPING BACK TO MAIN AND CAP.



N

1 **PLUMBING ENLARGED DEMOLITION PLAN - SERVICE YARD**
Scale: 1/4" = 1'-0"

Salas O'Brien
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Houston
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REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY EH
DRAWN BY BR

SHEET NAME

PLUMBING DEMO ENLARGED PLAN - SERVICE YARD

SHEET NUMBER P0.01
REVISION

PLUMBING KEYED NOTES

1 PROVIDE WYE TAILPIECE FOR CONDENSATE.

N

1 **PLUMBING COMPOSITE PLAN- LEVEL 1**
Scale: 1/16" = 1'-0"

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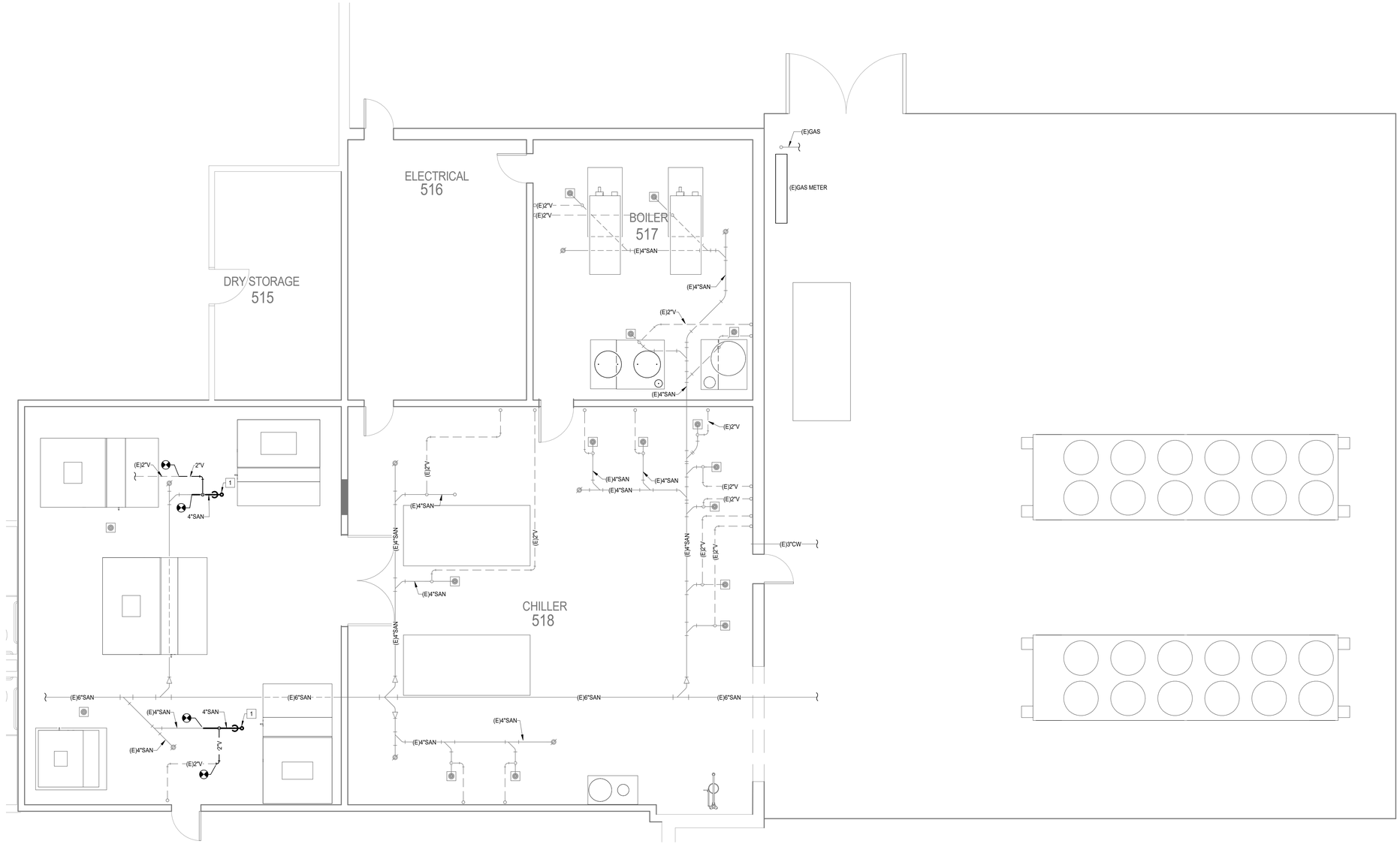
SHEET NAME

PLUMBING COMPOSITE PLAN

SHEET NUMBER P1.00
REVISION

PLUMBING KEYED NOTES

1 4" SANITARY FROM FLOOR SINK ABOVE.



N

1 **PLUMBING UNDERFLOOR PLAN - LEVEL 0 - SERVICE YARD**
Scale: 1/4" = 1'-0"

Salas O'Brien

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Houston, TX 77064
Registration: F-4111
Project Number: 2550-00346-00

PROFESSIONAL SEAL

STATE OF TEXAS
BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
08/11/25

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD — EXCELLENCE IN ALL FOR ALL STUDENTS

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY EH
DRAWN BY BR

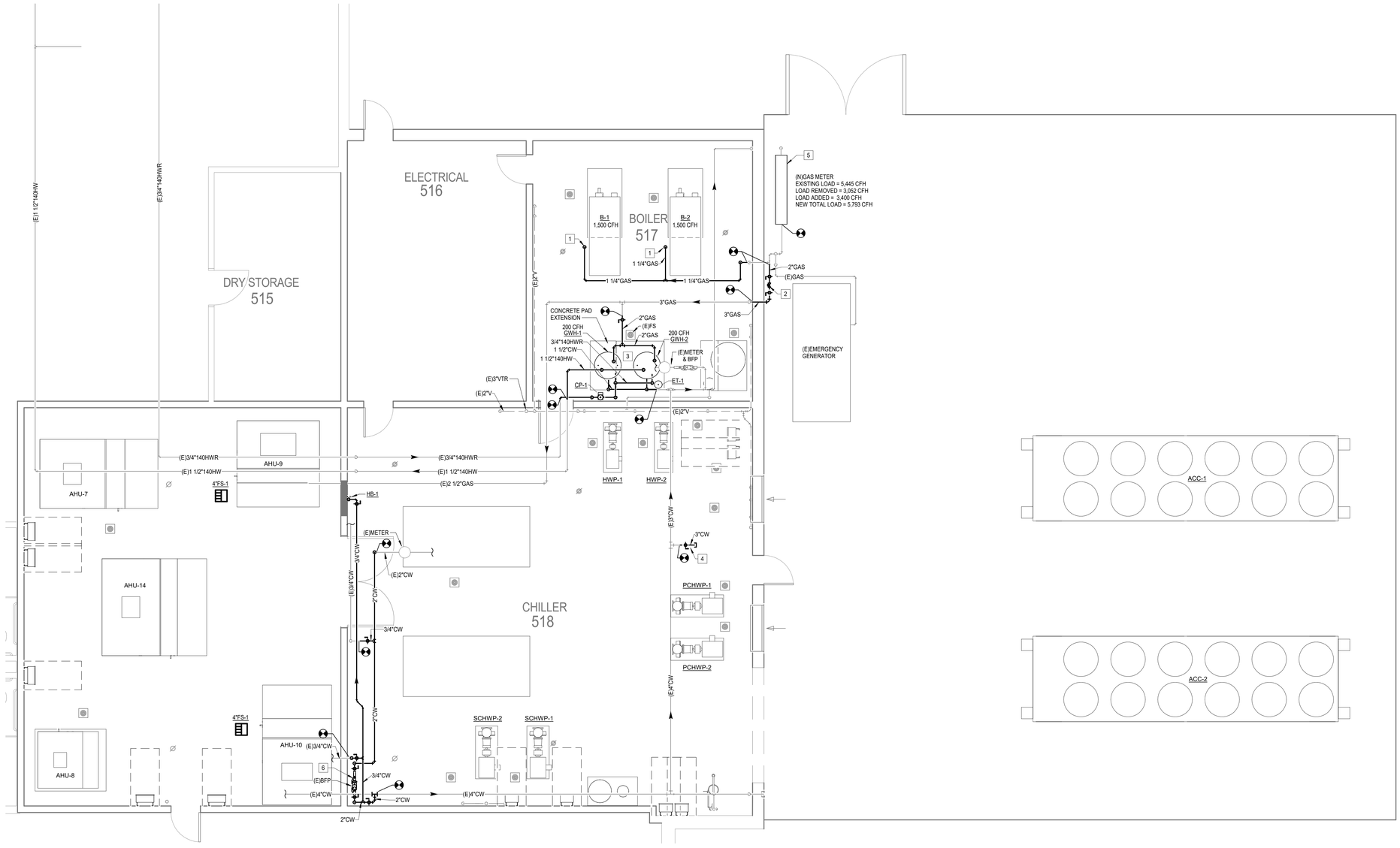
SHEET NAME

PLUMBING UNDERFLOOR PLAN - SERVICE YARD

SHEET NUMBER P1.01
REVISION

PLUMBING KEYED NOTES

1. 1-1/4" GAS DOWN TO SERVE BOILER. PROVIDE PRESSURE REGULATOR FROM 5 PSI TO 8 OZ PRESSURE AT 60" A.F.F. PROVIDE 1-1/2" PIPING FROM PRESSURE REGULATOR TO BOILER CONNECTION.
2. PRESSURE REGULATOR FROM 5 PSI TO 11" W.C. 1,493 CFH.
3. 1-1/2" CW AND 1-1/2" HW CONNECTIONS AT WATER HEATERS. 1-1/2" GAS PIPING DOWN THE SERVE WATER HEATER.
4. VALVE AND CAP FOR FUTURE CONNECTION.
5. NEW GAS METER. COORDINATE METER INSTALLATION WITH CENTERPOINT. TOTAL CONNECTED LOAD: 5,793 CFH AT 5 PSI OUTLET PRESSURE. CONTACT: ALFREDO VEGA (281)-420-5945.
6. REINSTALL PRESERVED BACKFLOW PREVENTER AT 4'-0" A.F.F. ROUTE DISCHARGE LINE TO EXISTING FLOOR DRAIN.



N

1 **PLUMBING ENLARGED PLAN - SERVICE YARD**
Scale: 1/4" = 1'-0"

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Houston, TX 77064
Registration: F-4111
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PROFESSIONAL SEAL

BRADLEY KALMANS
80210
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
08/11/25

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Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

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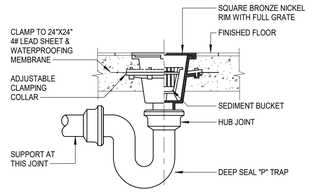
SHEET NAME

PLUMBING ENLARGED PLAN - SERVICE YARD

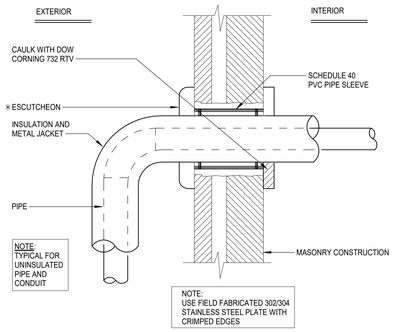
SHEET NUMBER P2.01
REVISION

PSAN08- XX/XX/XX



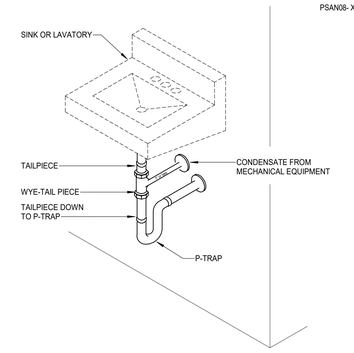
11 FLOOR SINK
SCALE: NONE

PSL03- XX/XX/XX



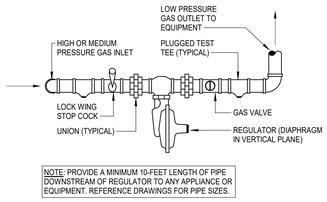
8 EXTERIOR WALL PENETRATION
SCALE: NONE

PSAN08- XX/XX/XX



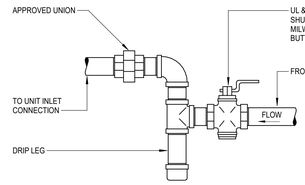
4 WYE-TAILPIECE AT SINK/LAV
SCALE: NONE

PNG02 - XX/XX/XX

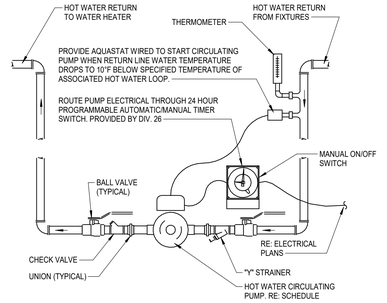


10 GAS PRESSURE REGULATOR PIPING
SCALE: NONE

PNG03 - XX/XX/XX



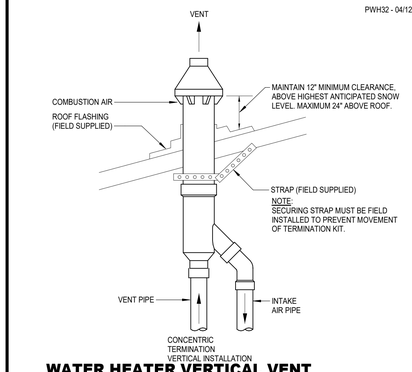
7 GAS CONNECTION
SCALE: NONE



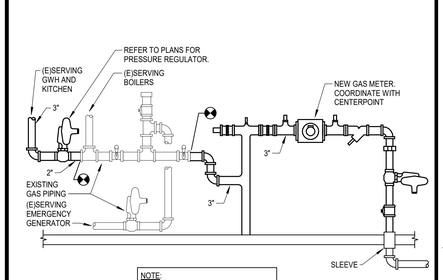
NOTE: MOUNT AT 54"-60" A.F.F. UNLESS NOTED OTHERWISE ON PLANS.

3 HOT WATER CIRCULATING PUMP
SCALE: NONE

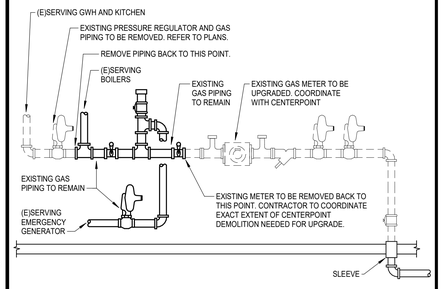
PWH32 - 04/12/18



WATER HEATER VERTICAL VENT TERMINATION
9
SCALE: NONE

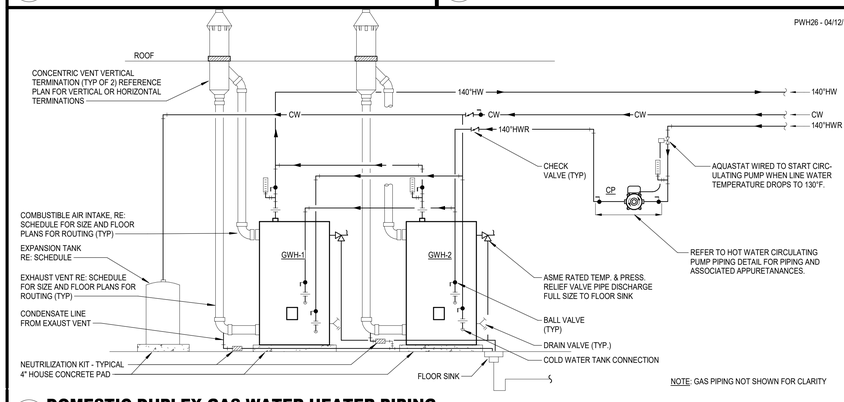


6 GAS METER PIPING
SCALE: NONE



2 GAS METER PIPING DEMOLITION
SCALE: NONE

PWH26 - 04/12/18

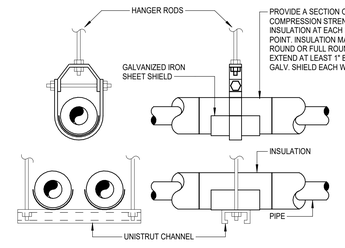


5 DOMESTIC DUPLEX GAS WATER HEATER PIPING
SCALE: NONE

PP01 - XX/XX/XX

MINIMUM DIMENSIONS OF GALVANIZED SHEETMETAL PROTECTION SHIELDS AT PIPE HANGERS

NOMINAL SIZE PIPE	SHIELD LENGTH (IN.)	GAUGE THICKNESS
1/2" & 3/4"	12	18
1" - 2-1/2"	12	18
3" - 4"	16	18
6"	18	16



1 PIPE SHIELDS FOR INSULATED PIPING
SCALE: NONE

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PROFESSIONAL SEAL

ISSUE DATE	DESCRIPTION
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Galena Park ISD

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY: EH
DRAWN BY: BR

SHEET NAME

PLUMBING DETAILS

SHEET NUMBER: P3.01
REVISION:

PLUMBING PIPING LEGEND

SYMBOLS	DESCRIPTION
SAN	SANITARY OR WASTE PIPING ABOVE GRADE (SAN)
SAN	SANITARY OR WASTE PIPING BELOW GRADE (SAN)
GW	GREASE WASTE PIPING (GW)
GW	GREASE WASTE PIPING BELOW GRADE (GW)
SD	STORM DRAIN PIPING (SD)
SD	STORM DRAIN PIPING BELOW GRADE (GW)
SSD	SUB-SOIL DRAIN OR FOOTING DRAIN (SSD)
AW	ACID WASTE PIPING (AW)
AW	ACID WASTE PIPING BELOW GRADE (AW)
PD	PUMPED DISCHARGE (PD)
CD	CONDENSATE DRAIN PIPING (CD)
D	CONDENSATE - INDIRECT DRAIN PIPING (D)
	VENT PIPING (V)
CW	COLD WATER PIPING (CW)
HW	HOT WATER PIPING (HW)
HWR	HOT WATER RETURN PIPING (HWR)
SCW	SOFT COLD WATER PIPING (SCW)
CDW	CHILLED DRINKING WATER PIPING (CDW)
TP	TRAP PRIMER LINE (TP)
F	FIRE PROTECTION PIPING (F)
AS	AUTOMATIC SPRINKLER PIPING (AS)
GAS	NATURAL GAS PIPING (G)
GV	GAS VENT PIPING (GV)
AIR	COMPRESSED AIR PIPING (A)
	FLOW DIRECTIONAL ARROW
	SHUT-OFF VALVE
BV	BALANCING VALVE (BV)
SV	SOLENOID VALVE (SV)
	BALL VALVE (BV)
	BUTTERFLY VALVE
PC	LUBRICATED PACKED PLUG STOP STOP COCK (PC)
	HORIZONTAL SWING CHECK
	UNION
	HORIZONTAL SWING CHECK
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
RPBFP	REDUCED PRESSURE BACKFLOW PREVENTER (RPBFP)
	PIPING DOWN
	RISE OR DROP PIPING
	PIPING UP -OR- PIPING UP & DOWN
	CAP ON END OF PIPE
CO	CLEANOUT (WALL OR CEILING) (CO)
FCO	FLOOR CLEANOUT (FCO)
ECO	EXTERIOR CLEANOUT WITH 18"x18"x4" CONCRETE PAD (ECO)
	TWO-WAY CLEANOUT (PROVIDE 18"x24"x4" CONCRETE PAD OUTSIDE)
	FIRE DEPARTMENT VALVE AT RISER
	FIRE HYDRANT
	FIRE DEPARTMENT CONNECTION
PRV	PRESSURE REDUCING VALVE (PRV)
	BRANCH CONNECTION OUT OF TOP
	BRANCH CONNECTION OUT OF BOTTOM
	BRANCH CONNECTION OUT OF SIDE
	WYE & 1/8TH BEND BRANCH CONNECTION
	WYE BRANCH CONNECTION
HB	HOSE BIBB
	PRESSURE GAUGE WITH COCK
	THERMOMETER
	GAS PRESSURE REGULATOR
	TEST COCK
	GAS METER
	WALL HYDRANT
	VALVE IN RISE
	ASME TEMPERATURE & PRESSURE RELIEF VALVE
	VACUUM RELIEF VALVE
	ANGLE VALVE
	OS&Y VALVE
RD	ROOF DRAIN
1	REFER TO KEYED NOTE
FS	FLOW SWITCH
FS	FLOOR SINK (FS)
FD	FLOOR DRAIN (FD)
	FLOOR DRAIN WITH P-TRAP (FD)
	FLOOR DRAIN WITH P-TRAP AT 45° ANGLE (FD)
HD	HUB DRAIN (HD)
	ACCESS PANEL FOR TRAP PRIMER OR SHOCK ABSORBER
AP	ACCESS PANEL LOCATION SYMBOL
A	SHOCK ABSORBER
	AIR CHAMBER
(E)	EXISTING
(N)	NEW
VTR	VENT THRU ROOF
B.F.F.	BELOW FINISHED FLOOR
A.F.F.	ABOVE FINISHED FLOOR
	NEW CONNECTION
IE=100.00'	INVERT ELEVATION
1	DELTA CHANGE SYMBOL
P 1	4" VTR RISER FLAG

GAS WATER HEATER SCHEDULE

MARK	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	STORAGE CAPACITY (GAL)	BTU/HR. INPUT	WH GALS. PER HR. RECOVERY RATE 100°F RISE	STORED WATER TEMP	ELECTRICAL CHAR. V	ELECTRICAL CHAR. P	REMARKS
GWH-1	PVI	20 L 100A-GLC	100	199,900	233	140 °F	120	1	
GWH-2	PVI	20 L 100A-GLC	100	199,900	233	140 °F	120	1	

NOTES:
1. INDIVIDUAL VERTICAL 4" CONCENTRIC FLUE VENT FLUE ROUTING AND LOCATIONS THROUGH ROOF. CONTRACTOR SHALL COORDINATE FLUE LOCATION THROUGH ROOF AND PIPE ROUTING IN CEILING SPACES WITH ALL OTHER DISCIPLINES PRIOR TO CONSTRUCTION.
2. THE WATER HEATERS SHALL BE EQUIPPED WITH ASME RATED TANKS, ASME RATED TEMPERATURE PRESSURE AND RELIEF VALVES, IGNITION CONTROL DEVICES WITH INTEGRAL DIAGNOSTICS, LED FAULT DISPLAY AND DIGITAL DISPLAY OF TEMPERTURE SETTINGS
3. THE WATER HEATERS SHALL BE LOW NOX AND THE SYSTEM SHALL BE PIPED WITH AN EXPANSION TANK. RE: SCHEDULE ON THIS SHEET (ET-1)
4. THE WATER HEATERS SHALL BE SUITABLE FOR SEALED COMBUSTION DIRECT-VENT USING 4" CPVC PIPE FOR INTAKE AND EXHAUST. PROVIDE PVI CONCENTRIC VENT KIT. INSTALL PER MANUFACTURERS INSTRUCTIONS.

DOMESTIC HW EXPANSION TANK SCHEDULE

MARK	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	DESCRIPTION	MAX WORK PRESSURE (PSI)	TANK VOLUME GALLONS	MAX. ACCEPT. GALLONS	DIAMETER (INCHES)
ET-1	AMTROL	ST-12C-DD	HOT WATER EXPANSION TANK	150	6.4	3.2	12"

CIRCULATION PUMP SCHEDULE

MARK	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	DESCRIPTION	TYPE	GPM	HEAD FEET	HP MIN	ELECTRICAL CHAR. V	ELECTRICAL CHAR. P	MAX RPM
CP-1	GRUNDFOS	ALPHA HWR 15-29	CIRCULATION PUMP	INLINE STAINLESS STEEL	3	5	1/25	120	1	2400

NOTES:
1. DOMESTIC CIRCULATION PUMPS SHALL BE FACTORY SET TO AUTOADAPT.
2. CP-1 TO BE CONNECTED TO GWH-1 AND GWH-2.

PLUMBING FIXTURE SCHEDULE

TYPE: FS-1
SERVICE: MECHANICAL ROOM
DESCRIPTION: A.R.E. COATED CAST IRON BODY 12" SQUARE FLOOR SINK WITH 8" DEEP SUMP, BOTTOM OUTLET, LOOSE SET CAST IRON SECONDARY STRAINER, CLAMPING DEVICE, AND STAINLESS STEEL HALF TOP GRATE. WADE 9140-6-15-26-85.
TRAP SEAL: PROVIDE PRO-SET SYSTEMS, INC. TRAP GUARD FACTORY FITTED TO MATCH EACH FLOOR SINK BY SIZE, MODEL, AND MANUFACTURER.
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES. COORDINATION FINAL LOCATION WITH ARCHITECTURAL DRAWINGS/EQUIPMENT PLACEMENT.

TYPE: HB-1 - COLD WATER
DESCRIPTION: HOSE BIBB. EXPOSED TYPE, MILD CLIMATE, WALL-MOUNTED FAUCET WITH 3/4" F.P.T. INLET, 3/4" MALE HOSE THREAD OUTLET AND SELF-DRAINING ANTI-SIPHON VACUUM BREAKER. CHROME PLATED BRASS FINISH WITH REMOVABLE TEE HANDLE. CHICAGO 952-CP.
ROUGH-IN: 3/4" COLD WATER. INSTALL WITH OUTLET AT 18" A.F.F. OR AS DIRECTED BY ARCHITECT/OWNER.

DEMOLITION GAS EQUIPMENT SCHEDULE

EQUIPMENT NUMBER	DESCRIPTION	BTU PER HOUR LOAD	TOTAL BTU PER HOUR	TOTAL CFH
(E)B-1	BOILER	1,256,000 BTUH	1,256,000 BTUH	1,256 CFH
(E)B-2	BOILER	1,256,000 BTUH	1,256,000 BTUH	1,256 CFH
(E)GWH	GAS WATER HEATER	540,000 BTUH	540,000 BTUH	540 CFH
TOTAL LOAD REMOVED:			3,052,000 BTUH	3,052 CFH

GAS EQUIPMENT SCHEDULE

EQUIPMENT NUMBER	DESCRIPTION	BTU PER HOUR LOAD	TOTAL BTU PER HOUR	TOTAL CFH
B-1	BOILER	1,500,000 BTUH	1,500,000 BTUH	1,500 CFH
B-2	BOILER	1,500,000 BTUH	1,500,000 BTUH	1,500 CFH
GWH-1	GAS WATER HEATER	199,900 BTUH	199,900 BTUH	200 CFH
GWH-2	GAS WATER HEATER	199,900 BTUH	199,900 BTUH	200 CFH
TOTALS:			3,399,800 BTUH	3,400 CFH

PLUMBING GENERAL NOTES

1. WITHIN THE EXISTING BUILDING, EXISTING WATER, WASTE AND VENT SERVICES ARE TO BE MODIFIED AS REQUIRED AND REUSED FOR THE INSTALLATION OF NEW AND/OR RELOCATED PLUMBING FIXTURES. REFER TO PLUMBING FLOOR PLANS FOR POINTS OF CONNECTION.
2. WITHIN THE EXISTING BUILDING, SAWCUT AND REMOVE EXISTING FLOOR SLAB AS REQUIRED TO PROVIDE NEW AND/OR RELOCATED PLUMBING FIXTURES, CLEANOUTS, AND UNDERSLAB WASTE AND VENT PIPING. PATCH AND REFINISH FLOOR TO MATCH EXISTING.
3. IN AREAS WHERE THE FLOOR SLAB IS REMOVED, CONTRACTOR SHALL ALSO REMOVE UNDERSLAB WASTE AND VENT PIPING WHICH SERVES FIXTURES DESIGNATED FOR REMOVAL. PRIOR TO ANY REMOVAL, FIELD VERIFY THAT LINES TO BE REMOVED DO NOT SERVE ANY EXISTING FIXTURES TO REMAIN OR NEW FIXTURES TO BE INSTALLED.
4. IN AREAS WHERE THE FLOOR SLAB IS NOT REMOVED, CONTRACTOR SHALL ABANDON IN PLACE ANY UNDERSLAB WASTE AND VENT PIPING NO LONGER NEEDED, UNLESS THE PIPING MUST BE REMOVED TO ACCOMMODATE NEW CONSTRUCTION. IF NEW WORK DOES NOT NECESSITATE THEIR REMOVAL, CUT AND PLUG SUCH LINES BELOW SLAB, AND PATCH FLOOR TO MATCH EXISTING.
5. FIELD VERIFY EXACT LOCATION, SIZE, DEPTH, DIRECTION OF FLOW, CAPACITY, PIPE MATERIAL AND CONDITION OF EXISTING WASTE PIPING PRIOR TO BEGINNING CONSTRUCTION. ENSURE THAT PROPER CONNECTIONS TO AND EXTENSION OF SUCH UTILITIES CAN BE MADE.
6. WASTE LINES TO BE RE-USED OR RECONNECTED TO SHALL BE THOROUGHLY RODDED OUT AND FLUSHED TO ENSURE THEY ARE FREE FROM BLOCKAGES.
7. CONTRACTOR SHALL COORDINATE ROUTING OF PIPING BELOW SLAB WITH COLUMN FOOTINGS, GRADE BEAMS, UNDERGROUND PLUMBING AND ELECTRICAL UTILITIES, AND OTHER SUB-SURFACE BUILDING ELEMENTS.
8. CONTRACTOR SHALL COORDINATE ROUTING OF PIPING IN CEILING SPACES WITH MECHANICAL AND ELECTRICAL EQUIPMENT, DUCTWORK AND CONDUIT. SHOULD A CONFLICT OCCUR THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO INSTALLING AN ALTERNATE PIPING PLAN.
9. CONTRACTOR TO COORDINATE ALL REMODEL WORK WITH THE WORK OF OTHER TRADES TO AVOID CONFLICTS AND TO MINIMIZE INTERRUPTION OF SERVICES.
10. COORDINATE ALL FIXTURE AND EQUIPMENT LOCATIONS AND CONNECTION REQUIREMENTS WITH LATEST ARCHITECTURAL DRAWINGS AND SPECIFICATIONS PRIOR TO ANY ROUGH-INS.
11. DO NOT ROUGH-IN FROM THESE DRAWINGS. REFER TO LATEST ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS.
12. CONTRACTOR TO FIELD VERIFY AS NECESSARY THE EXACT ROUTING AND SIZES OF ALL PIPING.
13. ALL WORK, METHODS AND INSTALLATIONS INVOLVED IN THE PLUMBING DESIGN SHALL BE IN ACCORDANCE WITH THE CITY BUILDING CODE, INSPECTION REGULATIONS AND ALL OTHER OFFICIALS HAVING JURISDICTION.
14. THE PROPER INSTALLATION OF NEW FIXTURES AND THE PROPER CONTINUED OPERATION OF EXISTING FIXTURES TO REMAIN SHALL DETERMINE THE EXTENT AND NATURE OF PLUMBING REMODEL WORK.
15. EACH VENT SHALL TERMINATE VERTICALLY NOT LESS THAN 6" ABOVE ROOF, MAINTAIN MINIMUM 10'-0" DISTANCE BETWEEN VENT TERMINALS THROUGH ROOF AND ALL FRESH AIR INTAKES, AND A MINIMUM 5'-0" FROM ANY EXTERIOR WALL.
16. PRIOR TO BEGINNING CONSTRUCTION, COORDINATE BUILDING BACKFLOW PREVENTION REQUIREMENTS WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PROVIDE AS DIRECTED.

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Project Number: 2550-00346-00

PROFESSIONAL SEAL

ISSUE DATE	DESCRIPTION
2025-08-11	ISSUE FOR BID

Galena Park ISD

2550-00346-00
Galena Park Independent School District

Havard Elementary School HVAC Modifications - GPISD Project #B105

15150 Wallisville Rd, Houston, TX 77049

REVISIONS

Δ	DESCRIPTION	DATE

CHECKED BY EH
DRAWN BY BR

SHEET NAME

PLUMBING LEGENDS AND SCHEDULES

SHEET NUMBER P4.01
REVISION