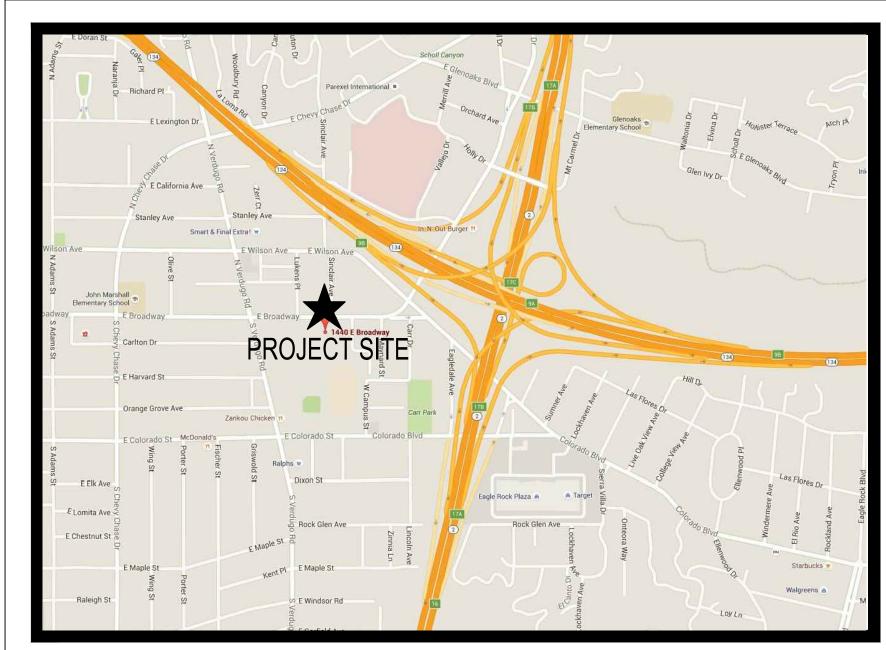
# GLENDALE HIGH SCHOOL CHILLER REPLACEMENT PROJECT



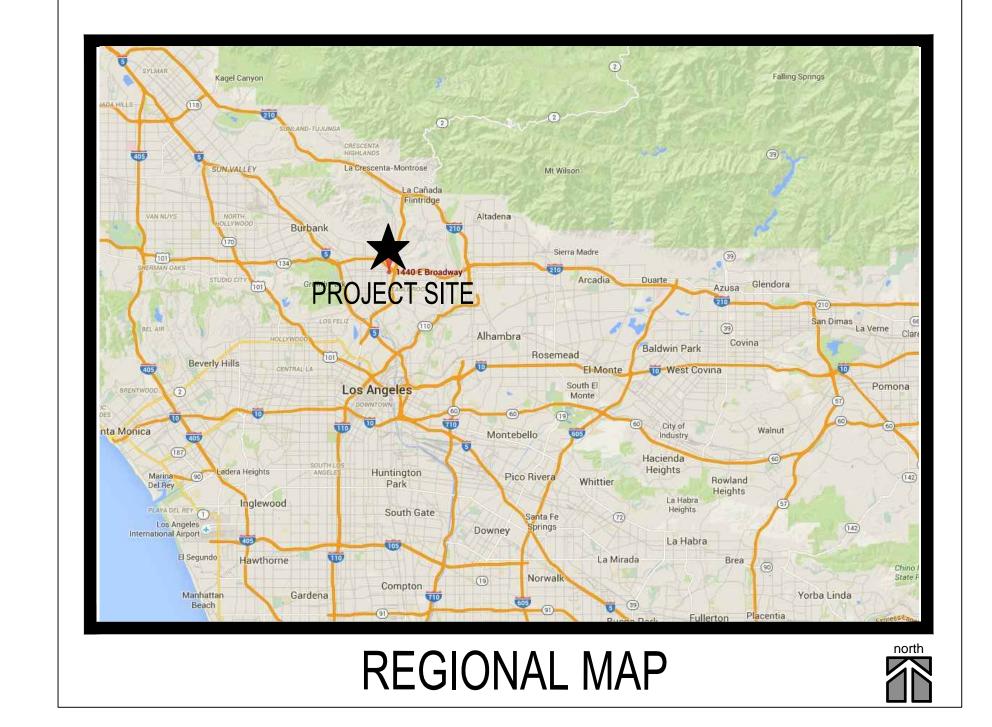
## GLENDALE UNIFIED SCHOOL DISTRICT

GLENDALE, CALIFORNIA



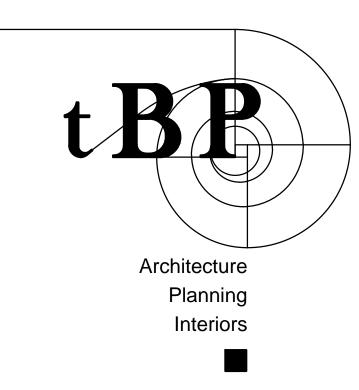


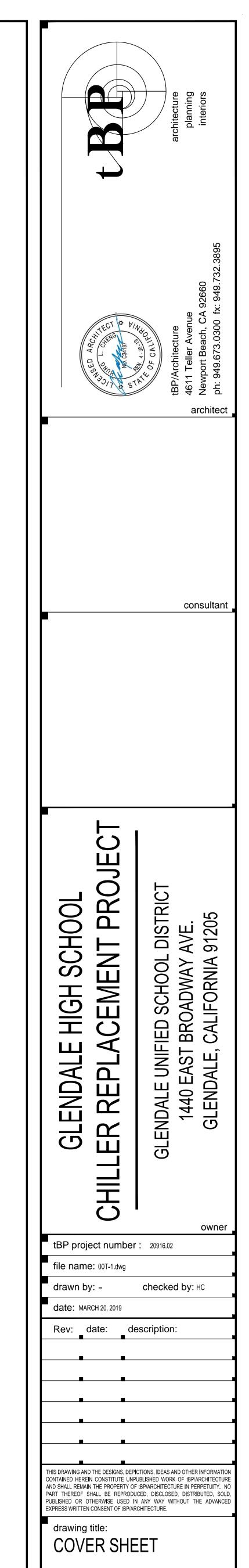
VICINITY MAP

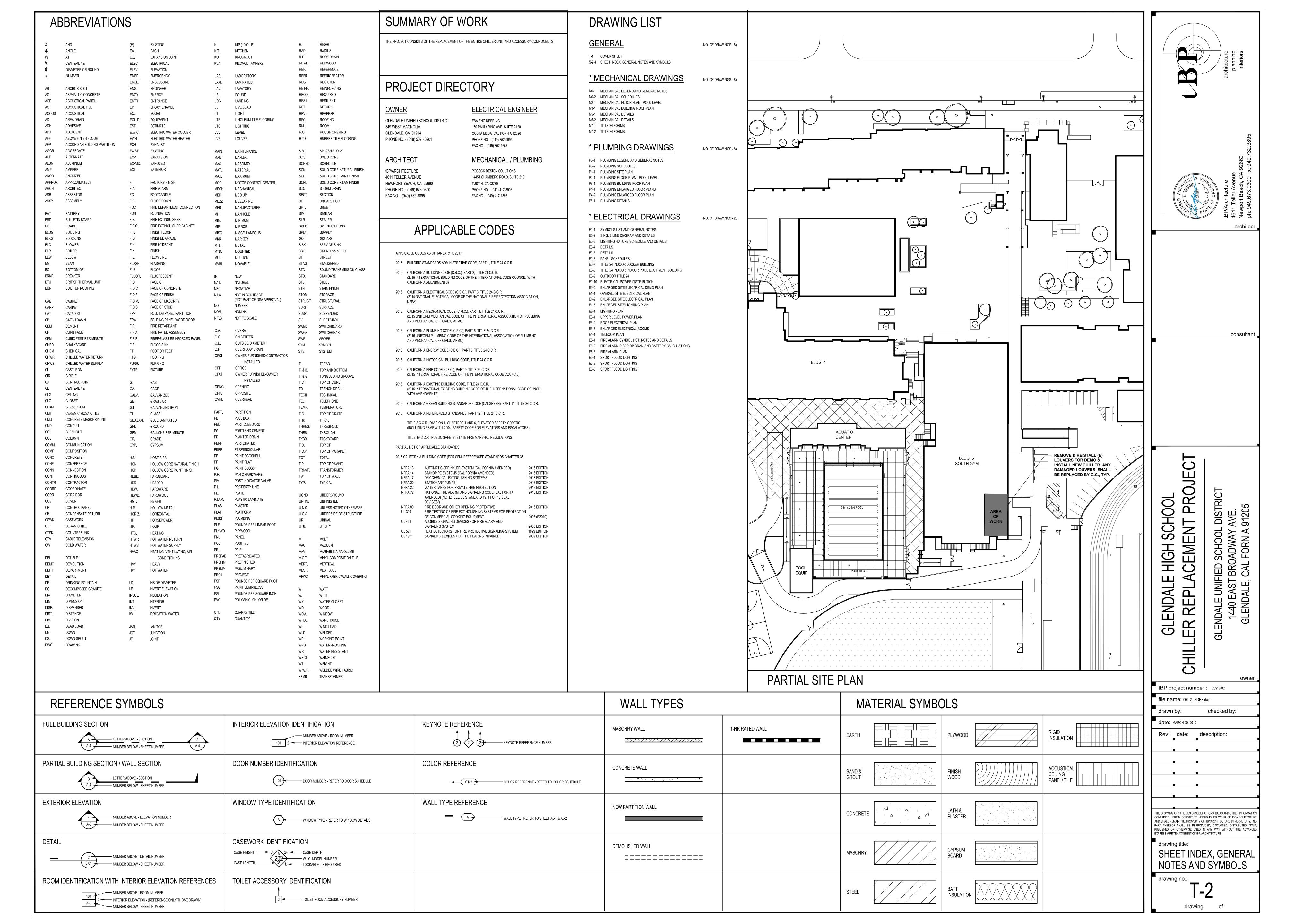


### tBP /Architecture

4611 Teller Avenue - Newport Beach - California - 92660 http://www.tbparchitecture.com ph: 949.673.0300 - fx: 949.732.3895







#### MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DS APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2016 CBC, SECTIONS 1616A.1.18 THROUGH 1616A.1.26 AND ASCE 7-10 CHAPTERS 13, 26 AND 30.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS. 2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY

FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

SERVICES SUCH AS ELECTRICITY, GAS OR WATER. 3. MOVABLE EQUIPMENT WHICH IS STATIONED IN ONE PLACE FOR MORE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS ARE REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT. B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND THE DSA DISTRICT STRUCTURAL ENGINEER. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

#### PIPING, DUCTWORK, AND ELECTRICAL

#### DISTRIBUTION SYSTEM ANCHORAGE NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCE AND DISPLACEMENTS PRESCRIBED IN ASCE 7-10 SECTION 13.3, AS DEFINED IN ASCE 7-10 SECTION 13.6.5.6, 13.6.7, 13.6.8, AND 2016 CBC SECTIONS 1616A.1.23, 1615A.1.24, 1616A.1.25, AND 1616A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G. SMACNA OR OSHPD OPM), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP	[X]	MD	[X] PP	[x]	E[]	-	0 A
MP	۲1	MD	[ ] PP	۲1	E[]	_	

- OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.
- OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE—APPROVAL (OPM #) MP [ ] MD [ ] PP [ ] E [ ] - ÖPTION 3: SHALL COMPLY WITH THE SMACNA SEISMIC RESTRAINT MANUAL, OSHPD EDITION (2009). INCLUDING ANY ADDENDA. FASTENERS AND OTHER ATTACHMENTS NOT SPECIFICALLY IDENTIFIED IN THE SMACNA SEISMIC RESTRAINT MANUAL. OSHPD EDITION, ARE DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS. THE DETAILS SHALL ACCOUNT FOR THE APPLICABLE SEISMIC HAZARD LEVEL \_\_\_\_\_ AND CONNECTION LEVEL \_\_\_\_ FOR THE PROJECT AND CONDITIONS.

#### CA GREEN BUILDING STANDARDS NOTES

- ENTIRE INSTALLATION SHALL COMPLY WITH THE 2016 CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE INCLUDING THE FOLLOWING APPLICABLE MANDATORY MEASURES:
- 5.504.1.3 PERMANENT HVAC SYSTEM SHALL ONLY BE USED DURING CONSTRUCTION IF NECESSARY TO CONDITION THE BUILDING WITHIN THE REQUIRED TEMPERATURE RANGE FOR MATERIAL AND EQUIPMENT INSTALLATION. IF THE HVAC SYSTEM IS USED DURING CONSTRUCTION, CONTRACTOR SHALL USE MERV 8 MINIMUM RETURN AIR FILTERS. REPLACE ALL FILTERS IMMEDIATELY PRIOR TO OCCUPANCY.
- 5.504.3 CONTRACTOR SHALL COVER ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY DURING STORAGE AND CONSTRUCTION AND UNTIL FINAL STARTUP.
- 5.504.5.3 MERV 8 FILTERS ARE REQUIRED FOR HVAC SYSTEMS SERVING REGULARLY OCCUPIED AREAS AND AS INDICATED IN THESE PLANS.
- 4. 5.504.7 OUTDOOR SMOKING AREAS SHALL BE MINIMUM 25'-0" FROM ALL BUILDING ENTRIES, OUTDOOR AIR INTAKES, AND OPERABLE WINDOWS.
- . 5.505.1 INSTALLATION SHALL COMPLY WITH CBC SECTION 1203 AND CHAPTER 14 FOR INDOOR MOISTURE CONTROL.
- 6. 5.506.2 DEMAND CONTROL VENTILATION REQUIRED FOR ALL DENSELY OCCUPIED SPACES PER 2016 CALIFORNIA ENERGY CODE REQUIREMENTS.
- 5.508.1 HVAC, REFRIGERATION, AND FIRE SUPPRESSION EQUIPMENT SHALL NOT CONTAIN CFCS OR HALONS.

	LEG	SEND
SYMBOL	ABBR.	DESCRIPTION
	_	SUPPLY AIR RISER
	-	RETURN AIR RISER
	-	EXHAUST AIR RISER
$\square$	SAG	SUPPLY AIR GRILLE
Ø	RAG	RETURN AIR GRILLE
Ø	EAG	EXHAUST AIR GRILLE
	SWR	SIDEWALL REGISTER
<del></del>	(L)	LINED DUCTWORK
	-	FLEXIBLE CONNECTION
	FC	FLEXIBLE CONNECTION
<b>;</b>	-	NEW DUCT (SEE PLAN)
<b>\$</b>		EXISTING DUCT (SEE PLAN)
4////A	_	DEMO DUCT (SEE PLAN)
	MVD	MANUAL VOLUME DAMPER
	BDD	BACKDRAFT DAMPER
S/F— —	SFD	SMOKE / FIRE DAMPER
F— - —	FD	FIRE DAMPER
	DL	DOOR LOUVER
U.C.	UC	UNDERCUT DOOR 3/4"
—RS—	RS	REFRIGERANT SUCTION LINE
—RL—	RL	REFRIGERANT LIQUID LINE
—CD—	CD	CONDENSATE DRAIN
	S.D.	SMOKE DETECTOR
	P.O.C.	POINT OF CONNECTION
T	T-STAT	THERMOSTAT
$\Theta$	Н	HUMIDISTAT
(13)	TS	TEMPERATURE SENSOR
<b>(</b> )	os	OVERRIDE SWITCH
@	PD	PRESSURE DIFFERENTIAL SWITCH
S	S	SWITCH
	o.c.	ON CENTER
	HWR	HOT-WATER RETURN
	HWS	HOT-WATER SUPPLY
	I.D.	INSIDE DIAMETER
	O.D.	OUTSIDE DIAMETER
	W/	WTH
	S/M	SHEET METAL
	s/s	STAINLESS STEEL
	G.C.	GENERAL CONTRACTOR
	VTR	VENT THRU ROOF
	EMS	ENERGY MANAGEMENT SYSTEM
	OBD	OPPOSED BLADE DAMPER
	FSC	FAN SPEED CONTROL

#### **GENERAL NOTES**

- --- GENERAL NOTES ----
- 1. ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE 2016 CALIFORNIA MECHANICAL CODE, 2016 CALIFORNIA BUILDING CODE, AND ALL OTHER APPLICABLE CODES AND REGULATIONS, INCLUDING 2016 CALIFORNIA ENERGY CONSERVATION STANDARDS DIVISION T-24.
- 2. 2016 CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE INCLUDING THE APPLICABLE MANDATORY MEASURES:
- COVERING OF DUCT OPENINGS AND PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION PER CALGREEN REQUIREMENTS.
- ADHESIVES, SEALANTS AND CAULKS SHALL MEET CALGREEN REQUIREMENTS.
- FILTERS SHALL BE A MINIMUM EFFICIENCY REPORTING VALUE (MERV) OF 8 OR AS SPECIFIED.
- INSTALLATIONS OF HVAC AND REFRIGERATION **EQUIPMENT SHALL COMPLY WITH SECTIONS 5.508.1.1** AND 5.508.1.2.
- 3. COORDINATE ENTIRE INSTALLATION OF THE HVAC SYSTEM WITH THE WORK OF ALL OTHER TRADES PRIOR TO ANY FABRICATION OR INSTALLATION. PROVIDE ALL FITTINGS, OFFSETS, AND TRANSITIONS AS REQUIRED FOR A COMPLETE WORKABLE INSTALLATION. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ITEMS TO BE PROVIDED BY OTHER TRADES WHERE MENTIONED IN THE CONTRACT DOCUMENTS PRIOR TO BID - NO
- 4. COORDINATE THE LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES WITH THE ARCHITECTURAL REFLECTIVE CEILING PLAN, ELECTRICAL LIGHTING LAYOUT AND ARCHITECTURAL ROOM ELEVATIONS. THE ARCHITECT AND ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY CONFLICTS PRIOR TO FABRICATION AND INSTALLATION.
- 5. ALL EQUIPMENT, DUCTS, PIPING, AND OTHER DEVICES AND MATERIALS INSTALLED OUTSIDE OF THE BUILDING OR OTHERWISE EXPOSED TO THE WEATHER SHALL BE COMPLETELY WEATHER-PROOFED AND PAINTED TO MATCH, COORDINATE WITH ARCHITECT PRIOR TO
- 6. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH AND BE CONSIDERED TO BE PART OF A SEPARATE AND COMPLETE MECHANICAL SPECIFICATION.
- 7. ALL DIMENSIONS SHOWN ON THESE PLANS ARE APPROXIMATE AND MUST BE CONFIRMED ON SITE. 8. PRIOR TO OCCUPANCY, THE ENTIRE H.V.A.C. SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH (AABC) ASSOCIATED AIR BALANCE COUNCIL STANDARDS BY AN INDEPENDENT AIR BALANCE CONTRACTOR. CERTIFICATION SHALL BE PROVIDED BY THE CONTRACTOR FOR AIR AND HYDRONIC AS APPLICABLE. SYSTEMS SHALL BE BALANCED AS INDICATED ON PLANS INCLUDING FRESH AIR VENTILATION. WHERE THERE IS A CONFLICT WITH THE MECHANICAL PLANS THE AIR BALANCE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO BALANCING OF SYSTEM, IF NOT THE AIR BALANCE CONTRACTOR SHALL BEAR ALL COSTS INCURRED FOR WORK THAT MUST BE RE-BALANCED DUE TO CONFLICTS ON CONTRACT DOCUMENTS, CONTRACTOR SHALL PROVIDE THREE
- ENGINEER FOR APPROVAL. 9. FOR INACCESSIBLE AREAS THE CONTRACTOR SHALL PROVIDE ACCESS PANELS FOR ALL DAMPERS, EQUIPMENT, SMOKE DETECTORS, AND CONTROL DEVICES. THESE PANELS SHALL MATCH THE RATING OF THE WALL AND/OR CEILING THAT THEY ARE LOCATED IN. MINIMUM ACCESS PANEL SIZES SHALL BE AS FOLLOWS:

COPIES OF THE AIR BALANCE REPORT TO THE

#### 1) HAND ACCESS: 12"x12"

- 2) BODY ACCESS: 30"x30" MIN. WHERE A LARGER ACCESS SIZE IS REQUIRED DUE TO INSTALLATION CONSTRAINTS, THE CONTRACTOR SHALL DO SO AT NO ADDITIONAL COST AND SHALL NOTIFY THE ARCHITECT AND ENGINEER OF DEVIATIONS PRIOR TO
- INSTALLATION. 10. COORDINATE THE LOCATION OF ALL ROOF OPENINGS AND THE LOCATION OF ALL ROOF MOUNTED EQUIPMENT WITH THE STRUCTURAL AND
- ARCHITECTURAL PLANS PRIOR TO ANY INSTALLATION. 11. PLATFORMS, CURBS, AND FLASHINGS FOR MECHANICAL EQUIPMENT SHALL BE AS INDICATED ON THE STRUCTURAL AND ARCHITECTURAL PLANS, UNLESS NOTED OTHERWISE. WHERE THERE IS A CONFLICT WITH THE MECHANICAL PLANS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND ENGINEER PRIOR TO
- FABRICATION AND INSTALLATION. 12. ALL EQUIPMENT, ACCESSORIES, AND RELATED PIPING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
- 13. MAINTENANCE LABEL SHALL BE AFFIXED TO ALL MECHANICAL EQUIPMENT AND A MAINTENANCE MANUAL SHALL BE PROVIDED FOR THE OWNER'S USE.
- 14. PROVIDE 30% MIN. EFFICIENCY THROWAWAY FILTERS FOR ALL AIR CONDITIONING UNITS. SEE EQUIPMENT SCHEDULE AND SPECIFICATIONS FOR TYPE, SIZES SHALL BE AS RECOMMENDED BY THE MANUFACTURER, UNLESS OTHERWISE SPECIFIED.
- 15. AIR FILTERS SHALL BE STATE FIRE MARSHALL APPROVED AND LISTED. PREFORMED FILTERS HAVING COMBUSTIBLE FRAMING SHALL BE TESTED AS A COMPLETE ASSEMBLY, AIR FILTERS SHALL BE ACCESSIBLE FOR CLEANING OR REPLACEMENT.
- 16. ALL EQUIPMENT WITH MOVING PARTS SHALL BE PROVIDED WITH FLEXIBLE DUCT AND PIPE CONNECTIONS.
- 17. CONCEALED SPACES, CIRCULATING AIR: NO COMBUSTIBLE MATERIAL USED FOR EXPOSED COMMUNICATION CABLES, INSULATED WIRES, PLASTIC TUBING OR PIPING, PIPE INSULATION, CONDENSATE PAN INSULATION, WOOD, PVC, ABS, AND OTHER PLASTICS SHALL BE INSTALLED IN CONCEALED SPACES USED TO CONVEY CIRCULATING AIR SUPPLY.

- IT SERVES. SEE PLANS AND SPECIFICATIONS FOR IDENTIFICATION STANDARDS.
- 19. ALL HVAC EQUIPMENT SHALL BE CERTIFIED BY THE CALIFORNIA ENERGY COMMISSION TO COMPLY WITH
- LATEST EFFICIENCY STANDARDS. 20. AC UNITS PROVIDED WITH ECONOMY CYCLE DAMPERS SHALL HAVE DAMPERS SET UP TO CLOSE AUTOMATICALLY ON FAN SHUTDOWN.
- 21. ALL FRESH AIR INTAKES SHALL MEET CODE REQUIRED CLEARANCES FROM EXHAUST, FLUE, FUEL BURNING APPLIANCE AND PLUMBING VENT OUTLETS. FOR GAS/ELECTRIC AIR CONDITIONING UNITS WHERE THE CODE REQUIRED CLEARANCES ARE NOT MET, A FACTORY FLUE GAS DEFLECTOR AND EXTENSION SHALL BE USED TO MINIMIZE THESE CLEARANCES. CONTRACTOR SHALL DETERMINE LOCATIONS WHERE REQUIRED PRIOR TO BID. THIS SHALL BE PROVIDED AT NO ADDITIONAL COST.
- 22. ALL AIR HANDLING EQUIPMENT SERVING CONDITIONED SPACES SHALL PROVIDE CONTINUOUS FRESH AIR TO SPACES IN OCCUPIED MODE.
- 23. CONTRACTOR SHALL VERIFY ALL CLEARANCES AND AVAILABLE SPACE FOR DUCTWORK PRIOR TO

ORDERING AND/OR FABRICATING MATERIAL.

- 24. CONTRACTOR TO SUBMIT ALL EQUIPMENT, DUCTWORK, AIR DISTRIBUTION DEVICES, AND OTHER ACCESSORIES TO THE ENGINEER FOR APPROVAL PRIOR TO ANY ORDERING OF SUCH ITEMS.
- 25. CONTRACTOR SHALL BE RESPONSIBLE FOR COMMISSIONING OF EQUIPMENT AS STIPULATED ON MECH-1-C FORM ON PLANS UNLESS NOTED OTHERWISE.
- 26. PAINT EXPOSED SURFACES, WHETHER OR NOT COLORS ARE DESIGNATED IN SCHEDULES, EXCEPT WHERE A SURFACE OR MATERIAL IS SPECIFICALLY INDICATED NOT TO BE PAINTED OR IS TO REMAIN NATURAL. WHERE AN ITEM OR SURFACE IS NOT SPECIFICALLY MENTIONED, PAINT THE SAME AS SIMILAR ADJACENT MATERIALS OR SURFACES. IF COLOR OR FINISH IS NOT DESIGNATED, THE OWNER'S REPRESENTATIVE WILL SELECT FROM STANDARD COLORS OR FINISHES AVAILABLE.
  - 1) PAINTING INCLUDES FIELD PAINTING EXPOSED BARE AND COVERED PIPES AND DUCTS (INCLUDING COLOR CODING), HANGERS, EXPOSED STEEL AND IRON WORK, AND PRIMED METAL SURFACES OF MECHANICAL AND ELECTRICAL EQUIPMENT. ---- CONTROLS ----
- 27. CONTROL SCHEMATICS ARE FOR SEQUENCE ONLY. REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR ALL ELECTRICAL DEVICES REQUIRED.
- 28. ALL LINE VOLTAGE WIRING SHALL BE INSTALLED IN CONDUIT. ALL LINE VOLTAGE CONDUIT AND WIRING, INCLUDING FINAL CONNECTIONS, SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THE ELECTRICAL DRAWINGS OR SPECIFIED IN THE ELECTRICAL SECTION OF THE SPECIFICATIONS, ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS OF ALL GOVERNING BODIES HAVING JURISDICTION THEREOF.
- 29. ALL LOW VOLTAGE CONDUIT AND WIRING AS APPLICABLE, INCLUDING FINAL CONNECTIONS, SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR AS INDICATED ON THE MECHANICAL DRAWINGS OR SPECIFIED IN THE MECHANICAL SECTION OF THE SPECIFICATIONS.
- IN CONDUIT.
- A2) ALL LOW VOLTAGE WIRING SHALL BE PLENUM -

A1) ALL LOW VOLTAGE WIRING SHALL BE INSTALLED

- B) WHERE THE CONTROLS CONTRACTOR IS RETAINED BY THE OWNER, THEY SHALL BE RESPONSIBLE FOR THE FOLLOWING:
- 1) FURNISH AND INSTALL ALL DEVICES, WIRING, AND TERMINATIONS REQUIRED FOR A COMPLETE AND FUNCTIONAL INSTALLATION.
- 2) COORDINATE ALL WORK AND REQUIREMENTS WITH OTHER TRADES INCLUDING GENERAL, MECHANICAL, AND ELECTRICAL CONTRACTORS PRIOR TO BID.
- 3) CONTRACTOR SHALL FOLLOW ALL SUBMITTAL REQUIREMENTS PER DRAWINGS AND SPECIFICATIONS. 30. CONTRACTOR SHALL BE RESPONSIBLE FOR ORDERING AIR CONDITIONING EQUIPMENT WITH THRU-THE-BASE POWER, CONTROL, AND GAS CONNECTIONS. VERIFY ALL CONNECTION LOCATIONS WITH UNIT
- MANUFACTURER AND COORDINATE WITH OTHER TRADES AS NECESSARY. 31. ALL THERMOSTATS SHALL HAVE LOCKABLE COVERS (WHERE INDICATED ON PLANS) AND SHALL BE OF THE ELECTRONIC, PROGRAMMABLE, AUTOMATIC CHANGEOVER TYPE TO SEQUENCE HEATING OR COOLING. SET POINT RANGE SHALL BE 10 DEGREES F BETWEEN FULL HEATING AND COOLING. THEY SHALL HAVE CAPABILITY OF TERMINATING ALL HEATING AT A
- TEMPERATURE NO MORE THAN 70 DEGREES F., AND COOLING AT A TEMPERATURE NOT LESS THAN 78 DEGREES F. ADJUSTABLE TEMPERATURE DIFFERENTIAL SHALL BE 1-1/2 DEGREES F. CONTROL LIMITS SHALL BE FROM 55 DEGREES F. TO 85 DEGREES F. MOUNT AT 48 INCHES ABOVE FLOOR OR AS REQUIRED BY LOCAL AUTHORITIES OR HANDICAP CODES.
  - NOTES: 1) THERMOSTATS THAT ARE PART OF AN ENERGY MANAGEMENT SYSTEM SHALL FOLLOW CONTROL SPECIFICATIONS AND DRAWING REQUIREMENTS.
  - 2) SHOULD THE LOCATION OF THE THERMOSTAT NOT MEET THE ADA HEIGHT REQUIREMENTS DUE TO OBSTRUCTIONS, THEN AN ALTERNATE LOCATION SHALL BE PROPOSED OR REQUESTED BY THE CONTRACTOR THAT SHALL BE APPROVED BY THE ENGINEER AND ARCHITECT.

- 18. ALL EQUIPMENT SHALL BE LABELED AS TO THE SPACE 32. LINE VOLTAGE THERMOSTATS SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY
  - THE ELECTRICAL CONTRACTOR. 33. CONTROLS CONTRACTOR AND AIR BALANCE CONTRACTOR SHALL COORDINATE WORK AND PERFORM NECESSARY TASKS AS REQUIRED TO OBTAIN AIR AND WATER FLOW QUANTITIES FOR SYSTEMS SHOWN
  - 34. CONTROLS SHALL BE PROVIDED TO PROVIDE THE MINIMUM RATE OF OUTDOOR AIR REQUIRED BY THE STATE ENERGY REGULATIONS.
  - ALL DUCTWORK SHALL BE SHEET METAL CONSTRUCTED OR SPIRAL, ERECTED, AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS, CHAPTER 6 OF THE MECHANICAL CODE, OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION.
  - ALL FLEXIBLE DUCTWORK SHALL NOT EXCEED SEVEN FEET IN LENGTH TO RESPECTIVE DIFFUSERS, GRILLES,

--- AIR DISTRIBUTION ----

- AND REGISTERS, OR OTHER AIR DEVICES. PROVIDE SEISMIC RESTRAINTS TO ALL DUCTWORK PIPE. AND EQUIPMENT SUPPORTS IN ACCORDANCE WITH THE LATEST SMACNA GUIDELINES FOR SEISMIC RESTRAINT OF MECHANICAL SYSTEMS, SUSPENDED EQUIPMENT SHALL BE PROVIDED WITH SEISMIC
- ANCHORAGE AND ISOLATION SUPPORTS. 38. ALL DUCT TURNS IN SUPPLY, RETURN, AND EXHAUST DUCTS SHALL HAVE TURNING VANES UNLESS OTHERWISE NOTED.
- 39. DUCTWORK HANDLING CONDITIONED AIR SHALL BE INSULATED OR LINED AS INDICATED ON DRAWINGS. SUPPLY AND RETURN DUCT INSULATION SHALL BE MIN. 1.5" THICK, 3/4 LB./CUBIC FT. DENSITY AND HAVE A MIN. VALUE OF R-8 WHERE LOCATED IN ONE OR MORE OF THE FOLLOWING SPACES:

#### A) OUTDOORS, OR

B) IN A SPACE BETWEEN THE ROOF AND AN INSULATED CEILING, OR C) IN A SPACE DIRECTLY UNDER A ROOF WITH

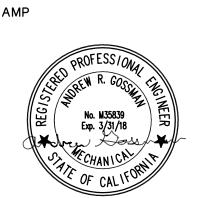
FIXED VENTS OR OPENINGS TO THE OUTSIDE OR UNCONDITIONED SPACES, OR

D) IN AN UNCONDITIONED CRAWLSPACE; OR E) IN OTHER UNCONDITIONED SPACES

- PER 2016 CEC, OTHERWISE PROVIDE R-4.2 WHEN LOCATED IN CONDITIONED ATTIC SPACES ABOVE CEILINGS . ALL DUCTWORK EXPOSED ON ROOF SHALL BE INTERNALLY LINED WITH 1.5" THICK, 1.5LB,/CUBIC FT. DENSITY DUCT LINER UNLESS OTHERWISE INDICATED OR SPECIFIED. ALL DUCT SIZES ARE SHEET METAL SIZES. ALL DUCT JOINTS SHALL BE SEALED PER CHAPTER 6 MECHANICAL CODE REQUIREMENTS. PROVIDE PIPING AND DUCT INSULATION IN ACCORDANCE WITH THE LATEST STANDARDS OF THE CALIFORNIA ENERGY COMMISSION.
- 40. ALL INSULATION SHALL HAVE A FLAME SPREAD OF NOT MORE THAN 25 AND A SMOKE DENSITY NOT EXCEEDING 50.
- MANUAL VOLUME DAMPERS SHALL BE PROVIDED IN ALL DUCT BRANCHES TO INDIVIDUAL DIFFUSERS, GRILLES, AND REGISTERS, AS WELL AS FRESH AIR INTAKE DUCTS. DAMPERS SHALL BE LOCATED AT THE BRANCH DUCT LOCATIONS. THE MECHANICAL CONTRACTOR SHALL COORDINATE LOCATIONS OF DAMPERS WITH THE AIR BALANCE CONTRACTOR PRIOR TO BID, SO THEY ARE ACCESSIBLE PRIOR TO INSTALLATION. IN LOCATIONS WHERE THESE DAMPERS ARE INACCESSIBLE, CABLE OPERATED ADJUSTMENT CONTROLS SHALL BE PROVIDED AT NO ADDITIONAL COST. OPPOSED BLADE DAMPERS SHALL NOT BE PERMITTED UNLESS NOTED OTHERWISE.
- 42. AUTOMATIC FIRE DAMPER REQUIREMENTS ARE AS
- FOLLOWS: A) PROVIDE AUTOMATIC FIRE DAMPERS AT ALL PENETRATIONS OF FIRE-RATED CEILINGS AND WALLS THROUGHOUT. CONTRACTOR SHALL COORDINATE FIRE-RATED AREAS WITH THE ARCHITECTURAL DRAWINGS AND OTHER TRADES PRIOR TO INSTALL AND SHALL NOTIFY PERTINENT PARTIES PRIOR TO ANY WORK PERFORMED IN THESE AREAS. IN ADDITION, CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE PROPER ACCESS FOR DAMPERS INSTALLED. THE DAMPER FIRE RATING SHALL BE COMPATIBLE WITH THE CEILING/WALL RATING.
- B) LOCATION OF FIRE-RATED CEILINGS AND WALLS ARE AS INDICATED ON THE ARCHITECTURAL DRAWINGS.
- C) FIRE AND/OR SMOKE DAMPER(S) SHALL BE PROVIDED AS REQUIRED BY THE LATEST UNIFORM/CALIFORNIA BUILDING CODE.
- D) CONTRACTOR SHALL FURNISH FLUSH MOUNTED FIRE AND/OR SMOKE DAMPERS, SO THAT DAMPER DO NOT EXTEND PASS WALLS, FOR AREAS WITHOUT CEILINGS FOR QUALITY WORKMANSHIP.
- 43. ALL DUCTWORK PASSING THROUGH FIRE RATED CORRIDORS AND LOBBIES SHALL BE MIN. 26 GAGE
- SHEET METAL CONSTRUCTION. ALL DUCTWORK, PIPING, CONDUIT, & ETC. PENETRATING FIRE RATED CONSTRUCTION SHALL HAVE
- APPROVED FIRE STOPPING. 45. UNLESS OTHERWISE NOTED THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING EXTERIOR LOUVERS CALLED OUT HEREIN, SEE SPECIFICATIONS FOR LOUVER REQUIREMENTS. COORDINATE SIZE(S) AND LOCATION(S) WITH OTHER TRADES AS NECESSARY PRIOR TO BID.

14451 Chambers Rd. Ste 210 Tustin, California 92780

Telephone (949) 417-3903 (949) 419-1393



EMEN  $\bigcirc$ 0

No. Rev. Date Description

03/06/2019

JOB NO:

DRAWN: **NG** 

CHECK: AG

ARCHITECT: N/A

ENGINEER: PDS

APPROVAL:

AVE. 9120

)ADWAY IFORNIA

SШ

**MECHANICAL GENERAL** 

PU	PUMP SCHEDULE												
SYM.	MFR. & MODEL	SERVICE	GPM	HEAD	TYPE	NPSHR(FT)	(FT) MOTOR				OPER.	REMARKS	
011.	MI TY, WINOBEL	GERMIGE	0	FT. H <sub>2</sub> O	11112		HP	RPM	V	PH	HZ	WT	TALIW WATER
$\left\langle \begin{array}{c} P \\ 1 \end{array} \right\rangle$	BELL & GOSSETT HSC-S 4x6x14L	CHW/HHW PRIMARY	700	165	HORIZONTAL SPLIT CASE	10.9	50	1800	460	3	60	1,530	1, 2, 3, 4
P 2	BELL & GOSSETT HSC-S 4x6x14L	CHW/HHW PRIMARY	700	165	HORIZONTAL SPLIT CASE	10.9	50	1800	460	3	60	1,530	1, 2, 3, 4
P 2	BELL & GOSSETT HSC-S 4x6x14L	BLDG 5000 HHW	375	60	HORIZONTAL SPLIT CASE	4.64	10	1200	460	3	60	895	1, 2, 3, 4

- OPEN DRIP PROOF MOTOR.
   PREMIUM EFFICIENCY MOTOR.
- 7. FREMION EFFICIENCY MOTOR.
   3. (N)FLEX CONNECTION ON INLET AND OUTLET.
- 4. PROVIDE WITH VARIABLE FREQUENCY DRIVE. REFER TO VFD SCHEDULE THIS SHEET.

	VARIABLE FREQUENCY DRIVE SCHEDULE								
SYM	MFR. & MODEL #	SERVICE	MOTOR HP	ELEC1	RICAL PH	UNIT WT (LBS)	REMARKS		
VFD 1	ABB ACH550	P 1	50	460	3	100	1, 2		
VFD 2	ABB ACH550	P 2	50	460	3	100	1, 2		
VFD 3	ABB ACH550	P 3	10	460	3	100	1, 2		

MANUAL BYPASS.
 NEMA 12 ENCLOSURE.

5	STEAM BOILER SCHEDULE (ADD ALTERNATE)										
SYM	MFR & MODEL #	CAPACI INPUT	TY (MBH) OUTPUT		OWER DATA VOLTAGE	SURFACE AREA	FLUE SIZE	FEED CONN.	STEAM CONN.	OPER. WT. (LBS)	REMARKS
B 1	POWER MASTER WB-AC-3P	12,554	10,043	3.7	120V/1PH/60HZ	1,500	20"Ø	2"	12"	47,280	1, 2, 3, 4

- 1. LOW NOX SCAQMD RULE 1146.2 CERTIFIED.
- 2. INDOOR RATED.
  3. WEISHALIPT PLAIRNE
- 3. WEISHAUPT PLN BURNER W/BACNET INTEGRATION.

  4. REPLACEMENT OF THE EXISTING STEAM BOILER TO BE PRICE.
- REPLACEMENT OF THE EXISTING STEAM BOILER TO BE PRICED AS AN ADD-ALTERNATE TO THE BASE PROJECT.

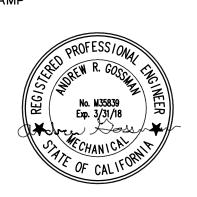
ST	EAM/HHW	CONVERTE	RS	CHED	ULE					
SYM.	MFR. & MODEL	SERVICE	GPM	ENT. WATER	LVG. WATER	STEAM PSI	NO. PASSES	PD WATER	SURFACE AREA	OPER. WT
$\left\langle \begin{array}{c} C \\ 1 \end{array} \right\rangle$	BELL & GOSSETT SU-165-2	BLDG 500 HHW	375	150	188	5	2	4 FT	188	900



14451 Chambers Rd. Ste 210 Tustin, California 92780

Telephone (949) 417-3903 Fax (949) 419-1393

ИΡ



PROJECT NAME:

DALE HS CHILLER REPLACEMENT NDALE UNIFIED SCHOOL DISTRICT

BROADWAY AVE. CALIFORNIA 91205

No. Rev. Date Description

No. Rev. Date Description

DATE: 03/06/2019

DRAWN: NG

CHECK: AG

ARCHITECT: N/A

ENGINEER: PDS

APPROVAL:

GL

SHEET DESCRIPTION:
MECHANICAL SCHEDULES

SHEET NO:

M0-2

H2 HIGH TEMPERATURE GENERATOR.
 OWNER FURNISHED, CONTRACTOR INSTALLED.

**GENERAL NOTES:** 

1. PRIOR TO ANY WORK BEING DONE CONTRACTOR SHALL MAKE A CAREFUL EVALUATION OF THE EXISTING CONDITIONS AND VERIFY

2. CONTRACTOR SHALL SEQUENCE ALL DEMOLITION AND

ALL METHODS OF REMOVAL AND INSTALLATION OF MECHANICAL

SCALE: 1" = 30'-0"



**KEY NOTES:** 

1. REMOVE AND REPLACE ALL EXISTING HHW/CHW PIPING WITHIN THE TUNNEL WITH NEW, SCH 80 PVC.

(1) CONTRACTOR SHALL PROVIDE PRICING FOR (3)DIFFERENT OPTIONS

REGARDING EXISTING HHW/CHW PIPING WITHIN THE TUNNEL:

2. SLEEVE NEW SCH 40 PVC PIPING IN TO EXISTING HHW/CHW PIPING. NEW PIPING SHALL BE SIZES AS INDICATED IN OPTION 3. CLEAN AND COAT EXISTING PIPING WITH NEW IN-PLACE EPOXY

2 PROVIDE NEW ISOLATION/BALANCING VALVES AT EACH BUILDING CONNECTION. TRANSITION AS REQUIRED.

NORTH

SCALE 1"=30'-0" SHEET DESCRIPTION: MECHANICAL UTILITY TUNNEL PLAN

CHECK: AG ARCHITECT: N/A ENGINEER: PDS

03/06/2019 DRAWN: NG

No. Rev. Date Description

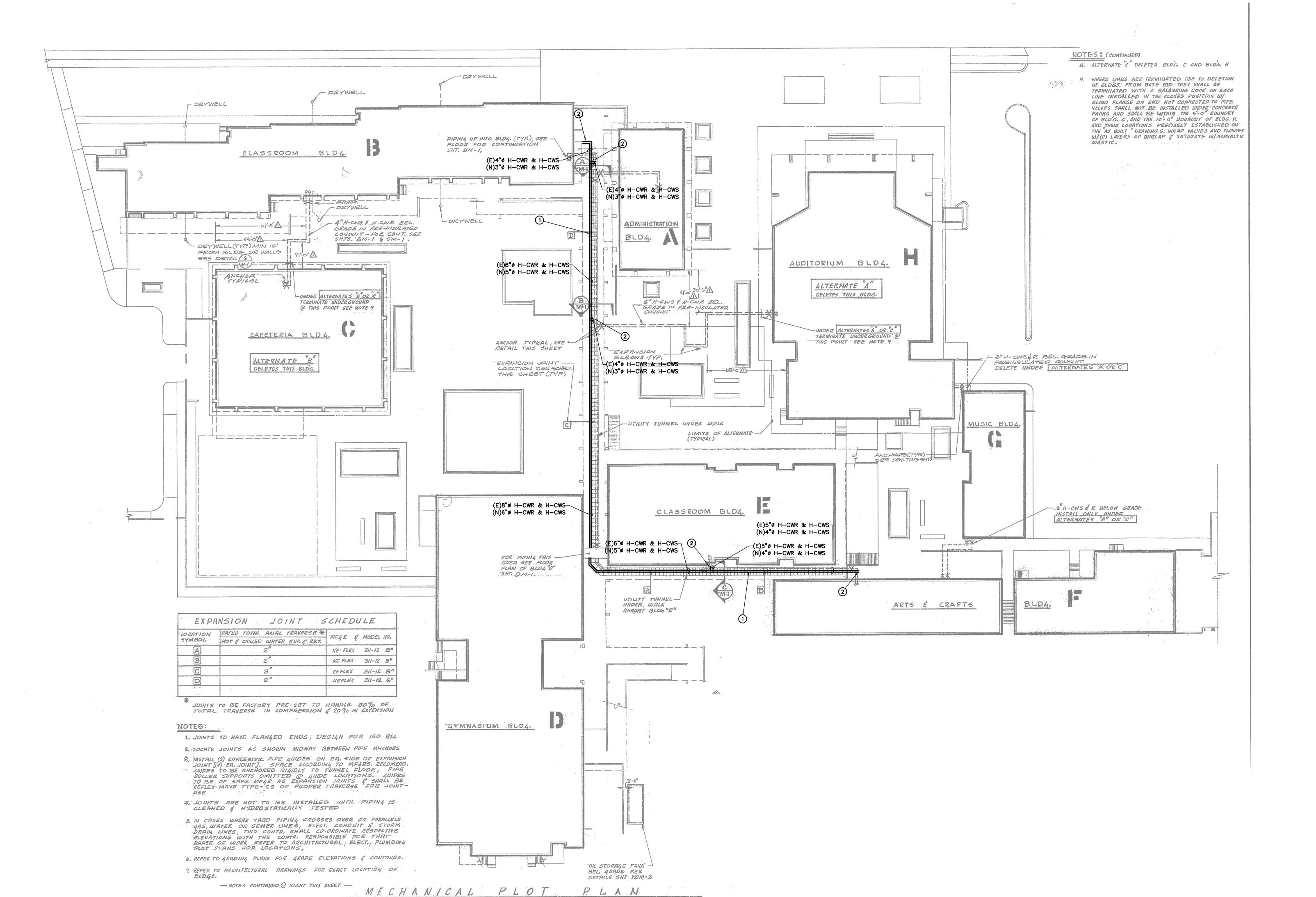
END, GL

ACEMENT ROADWAY AVE. ALIFORNIA 91205 REPL, E E S E

14451 Chambers Rd. Ste 210 Tustin, California 92780

Telephone (949) 417-3903

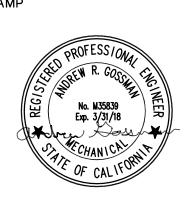
(949) 419-1393





14451 Chambers Rd. Ste 210 Tustin, California 92780

Telephone (949) 417-3903 (949) 419-1393



REPLACEMENT

ROADWAY AVE. ALIFORNIA 91205

No. Rev. Date Description JOB NO: 03/19/2018

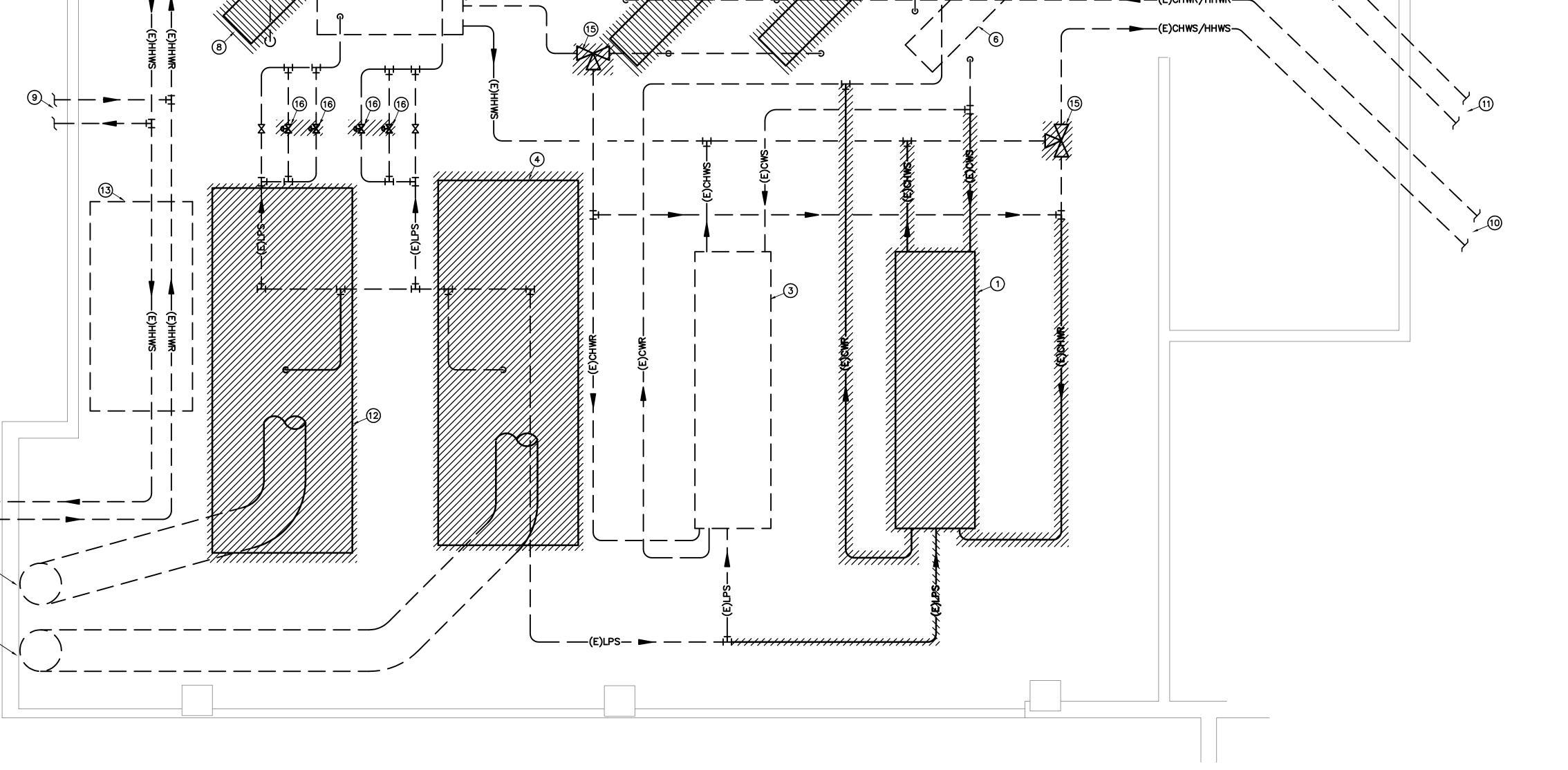
DRAWN: **NG** ARCHITECT: N/A

ENGINEER: PDS APPROVAL:

SCALE 1/4"=1'-0"

MECHANICAL DEMOLITION

**MD2-0** 

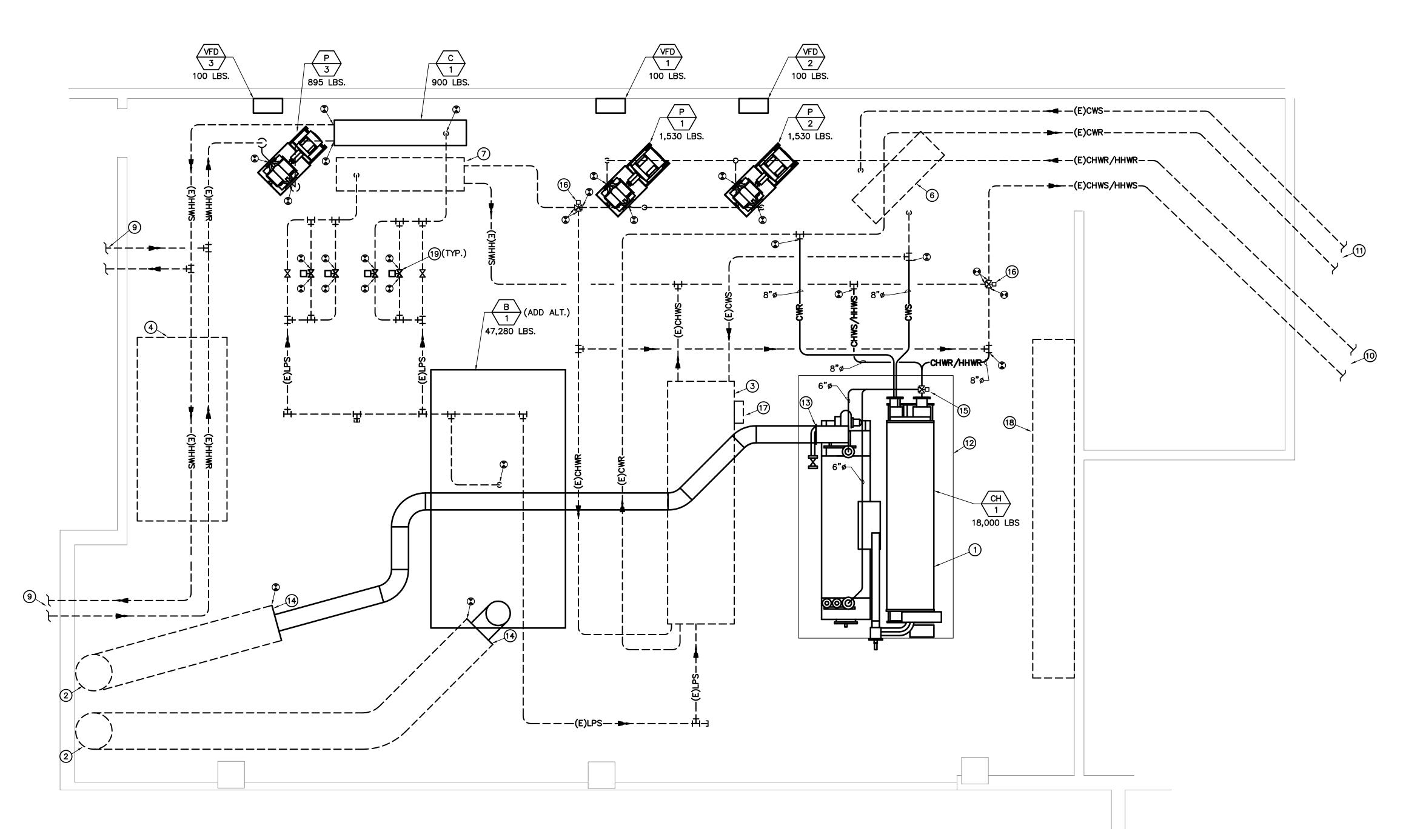


**DEMOLITION NOTES:** 

- ELECTRICAL CONTRACTOR SHALL DISCONNECT POWER FROM MECHANICAL EQUIPMENT TO BE REMOVED, RELOCATED, RE-USED AND/OR REPLACED AS REQUIRED.
- 2. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL ITEMS TO BE REMOVED. CONTRACTOR SHALL VERIFY ALL SUCH ITEMS WITH OWNER PRIOR TO REMOVAL. ALL ITEMS NOT REFUSED BY OWNER SHALL BE REMOVED INTACT AND FULLY FUNCTIONAL BY CONTRACTOR AND RETURNED TO OWNER. ALL ITEMS REFUSED BY OWNER SHALL BE PROPERLY DISPOSED BY CONTRACTOR.
- 3. CONTRACTOR SHALL RE-USE EXISTING OPENINGS IN WALLS AND ROOF WHEREVER POSSIBLE. COORDINATE WITH OTHER TRADES AS NECESSARY. GENERAL CONTRACTOR SHALL MODIFY OPENING AS REQUIRED TO ACCOMMODATE NEW MECHANICAL DEVICE.
- 4. GENERAL CONTRACTOR SHALL PATCH ALL OPENINGS IN WALLS, ROOF, ETC. THAT WILL NOT BE REUSED FOR FUTURE WORK. COORDINATE AS NECESSARY WITH OTHER TRADES.
- 5. PRIOR TO ANY WORK BEING DONE CONTRACTOR SHALL MAKE A CAREFUL EVALUATION OF THE EXISTING CONDITIONS AND VERIFY ALL METHODS OF REMOVAL AND INSTALLATION OF MECHANICAL
- 6. CONTRACTOR SHALL COORDINATE ALL DEMOLITION WORK WITH THE WORK OF ALL OTHER TRADES.
- 7. EXISTING ABANDONED OR DEFUNCT PIPING, FLUES, DUCT, VENTS, & ETC. SHALL BE REMOVED. PATCH AND REPAIR WALLS/ROOF AS NECESSARY.
- 8. CONTRACTOR SHALL SEQUENCE ALL DEMOLITION AND REMODEL WORK SUCH THAT THERE IS NO SYSTEM DOWN TIME DURING OCCUPIED BUILDING HOURS UNLESS PREVIOUSLY COORDINATED WITH THE DISTRICT. ANY AND ALL SYSTEM SHUTDOWNS SHALL BE COORDINATED WITH THE DISTRICT IN WRITING A MINIMUM OF 30 DAYS IN ADVANCE.

#### **DEMOLITION KEY NOTES:**

- 1) DEMO AND REMOVE EXISTING STEAM DRIVEN ABSORPTION CHILLER.
- (2) EXISTING STEAM BOILER FLUE UP THROUGH ROOF TO REMAIN.
- (3) EXISTING STEAM DRIVEN ABSORPTION CHILLER TO REMAIN.
- EXISTING STEAM BOILER TO BE DEMOLISHED, REMOVED, AND REPLACED WITH NEW. EXTEND EXISTING PIPING CONNECTIONS TO NEW LOCATIONS AND PROVIDE NEW TRANSITIONS AS REQUIRED. SEE SHEET M2-0.
- 5 EXISTING CHW/HHW DISTRIBUTION PUMP TO BE DEMOLISHED, REMOVED, AND REPLACED WITH NEW. EXTEND EXISTING PIPING CONNECTIONS TO NEW LOCATIONS AND PROVIDE NEW TRANSITIONS AS REQUIRED. SEE SHEET M2-0.
- 6 EXISTING CONDENSER WATER PUMP TO REMAIN. PROVIDE INTEGRATION TO NEW DDC CONTROLS SYSTEM. SEE SHEET M5-1.
- 7 EXISTING STEAM/HHW CONVERTER TO REMAIN.
- 8 EXISTING HHW DISTRIBUTION PUMP TO BE DEMOLISHED, REMOVED, AND REPLACED WITH NEW. EXTEND EXISTING PIPING CONNECTIONS TO NEW LOCATIONS AND PROVIDE NEW TRANSITIONS AS REQUIRED. SEE SHEET M2-0.
- (9) EXISTING HHW SUPPLY AND RETURN PIPING TO BUILDING 5000.
- (10) EXISTING CHW/HHW SUPPLY AND RETURN PIPING TO CAMPUS. REFER TO SHEET M1-1 FOR SCOPE OF WORK WITHIN UTILITY
- (1) EXISTING CONDENSER WATER SUPPLY AND RETURN PIPING TO UP TO COOLING TOWER ON ROOF.
- (2) EXISTING STEAM BOILER TO BE DEMOLISHED AND REMOVED. CAP ALL EXISTING CONNECTIONS.
- (3) EXISTING STEAM BOILER DE-AERATOR TANK AND ALL ASSOCIATED COMPONENTS AND CONNECTIONS TO REMAIN.
- EXISTING STEAM/HHW CONVERTER TO BE DEMOLISHED, REMOVED, AND REPLACED WITH NEW. EXTEND EXISTING PIPING CONNECTIONS TO NEW LOCATIONS AND PROVIDE NEW TRANSITIONS AS REQUIRED.
- EXISTING 3-WAY CHANGEOVER VALVE TO BE REPLACED WITH NEW. PROVIDE INTEGRATION TO THE NEW DDC CONTROLS SYSTEM. SEE SHEET M5-1.
- EXISTING PNEUMATIC STEAM VALVE TO REPLACED WITH NEW. PROVIDE INTEGRATION TO THE NEW DDC CONTROLS SYSTEM. SEE SHEET M5-1.

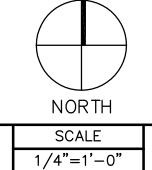


#### **CONSTRUCTION NOTES:**

- 1. FIELD VERIFY ALL EXISTING DIMENSIONS PRIOR TO FABRICATION. PROVIDE ALL TRANSITIONS AS REQUIRED TO CONNECT NEW TO EXISTING.
- 2. COORDINATE ENTIRE INSTALLATION OF THE HVAC SYSTEM WITH THE WORK OF ALL OTHER TRADES PRIOR TO ANY FABRICATION OR INSTALLATION. PROVIDE ALL FITTINGS, OFFSETS, AND TRANSITIONS AS REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
- 3. BEFORE COMMENCEMENT OF WORK, THE MECHANICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS AND DIMENSIONS OF ALL EXISTING EQUIPMENT AND ELECTRICAL SERVICES IN THE AREA OF NEW CONSTRUCTION AND NOTIFY THE DISTRICT OF ANY DISCREPANCIES.
- 4. CONTRACTOR SHALL SEQUENCE ALL DEMOLITION AND REMODEL WORK SUCH THAT THERE IS NO SYSTEM DOWN TIME DURING OCCUPIED BUILDING HOURS UNLESS PREVIOUSLY COORDINATED WITH THE DISTRICT. ANY AND ALL SYSTEM SHUTDOWNS SHALL BE COORDINATED WITH THE DISTRICT IN WRITING A MINIMUM OF 30 DAYS IN ADVANCE.
- 5. PRICING FOR THE REPLACEMENT OF THE EXISTING STEAM BOILER SHALL BE PROVIDED AS AN ADD ALTERNATE TO THE BASE PROJECT.

#### RENOVATION KEY NOTES:

- 1) NEW DIRECT, FIRED GAS ABSORPTION CHILLER.
- (2) EXISTING STEAM BOILER FLUE UP THROUGH ROOF.
- (3) EXISTING STEAM DRIVEN ABSORPTION CHILLER.
- (4) EXISTING DE-AERATOR TANK.
- 5 EXISTING CHW/HHW DISTRIBUTION PUMPS TO BE INTEGRATED INTO NEW CONTROLS SYSTEM. SEE SHEET M5-1.
- 6 EXISTING CONDENSER WATER PUMP TO BE INTEGRATED INTO NEW CONTROLS SYSTEM. SEE SHEET M5-1. (7) EXISTING STEAM/HEATING HOT WATER HEAT EXCHANGER.
- 8 EXISTING HHW DISTRIBUTION PUMP TO BE INTEGRATED INTO NEW CONTROLS SYSTEM. SEE SHEET M5-1.
- (9) EXISTING HHW SUPPLY AND RETURN PIPING TO BUILDING 5000.
- (10) EXISTING CHW/HHW SUPPLY AND RETURN PIPING TO CAMPUS.
- (1) EXISTING CONDENSER WATER SUPPLY AND RETURN PIPING TO UP TO COOLING TOWER ON ROOF.
- (2) EXISTING CONCRETE PAD TO BE ENLARGED AS REQUIRED TO ACCOMODATE NEW CHILLER.
- 13 POC NEW 14"Ø TYPE B DOUBLE WALL FLUE VENT TO CHILLER EXHAUST DISCHARGE. TRANSITION AS REQUIRED.
- 14) POC NEW FLUE VENT TO EXISTING. INSTALL FLUE VENT PER CMC REQUIREMENTS.
- (15) CHILLER COOLING/HEATING SWITCH VALVE.
- 16 NEW CHANGEOVER VALVE TO BE INTEGRATED INTO NEW DDC CONTROLS SYSTEM. SEE SHEET M5-1.
- 17) EXISTING CHILLER CONTROL PANEL. MAINTAIN MINIMUM 36" CLEAR FROM PANEL TO NEW CHILLER.
- (18) EXISTING ELECTRICAL SWITCHGEAR. MAINTAIN MINIMUM 48" CLEAR TO NEW CHILLER.
- (19) REPLACE EXISTING PNEUMATIC STEAM VALVES WITH NEW DDC CONTROLLED ELECTRONIC VALVES. SEE SHEET M5-1.



MECHANICAL RENOVATION **FLOOR PLAN** 

**M2-0** 

MECHANICAL CENTRAL PLANT FLOOR PLAN

(949) 419-1393

14451 Chambers Rd. Ste 210 Tustin, California 92780

Telephone (949) 417-3903

LER REPLACEMENT  $\circ$ 

END,

GL

JOB NO: -

DRAWN: NG

CHECK: AG

ARCHITECT: N/A

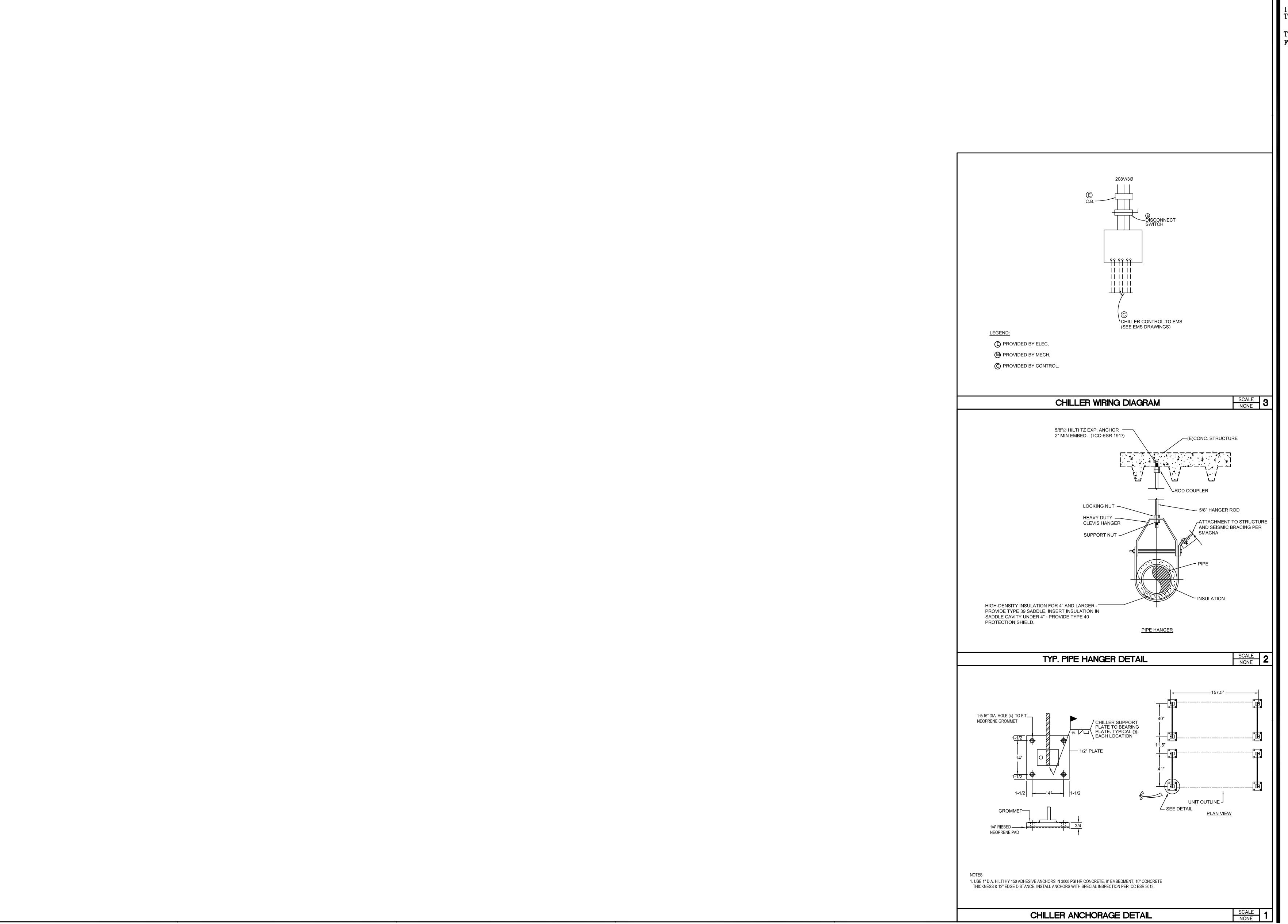
ENGINEER: PDS

APPROVAL:

No. Rev. Date Description

03/06/2019

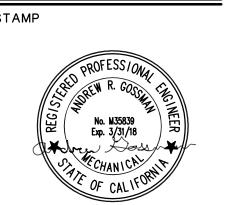
ROADWAY AVE. ALIFORNIA 91205





14451 Chambers Rd. Ste 210 Tustin, California 92780

Telephone (949) 417-3903 Fax (949) 419-1393



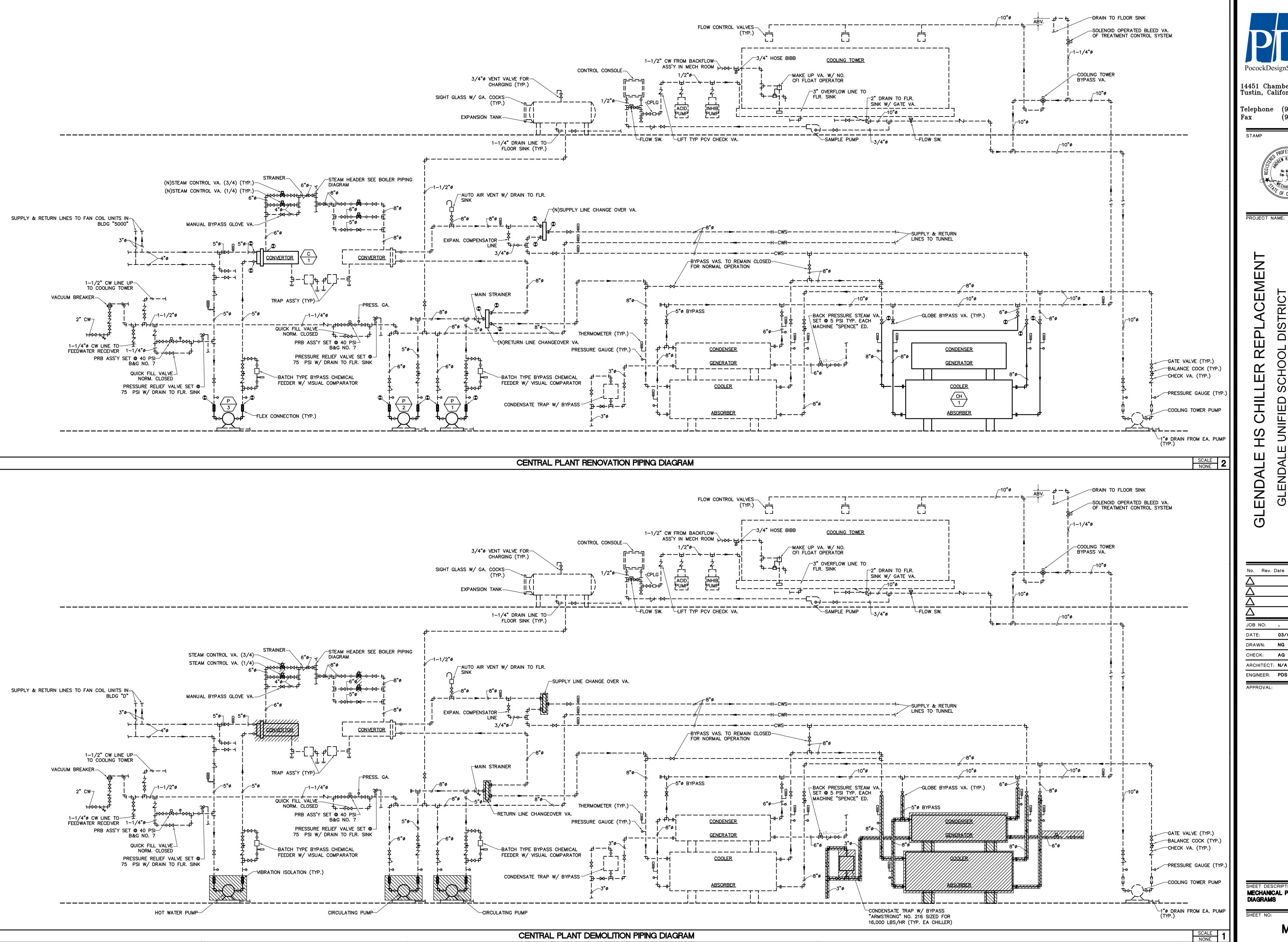
CHILLER REPLACEMENT GLENDALE

1440 EAST BROADWAY AVE. GLENDALE, CALIFORNIA 91205

No. Rev. Date Description JOB NO: 03/06/2019

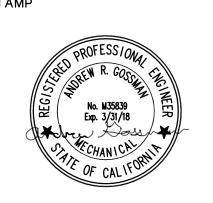
DRAWN: NG CHECK: AG ARCHITECT: N/A ENGINEER: PDS APPROVAL:

MECHANICAL DETAILS



14451 Chambers Rd. Ste 210 Tustin, California 92780

Telephone (949) 417-3903



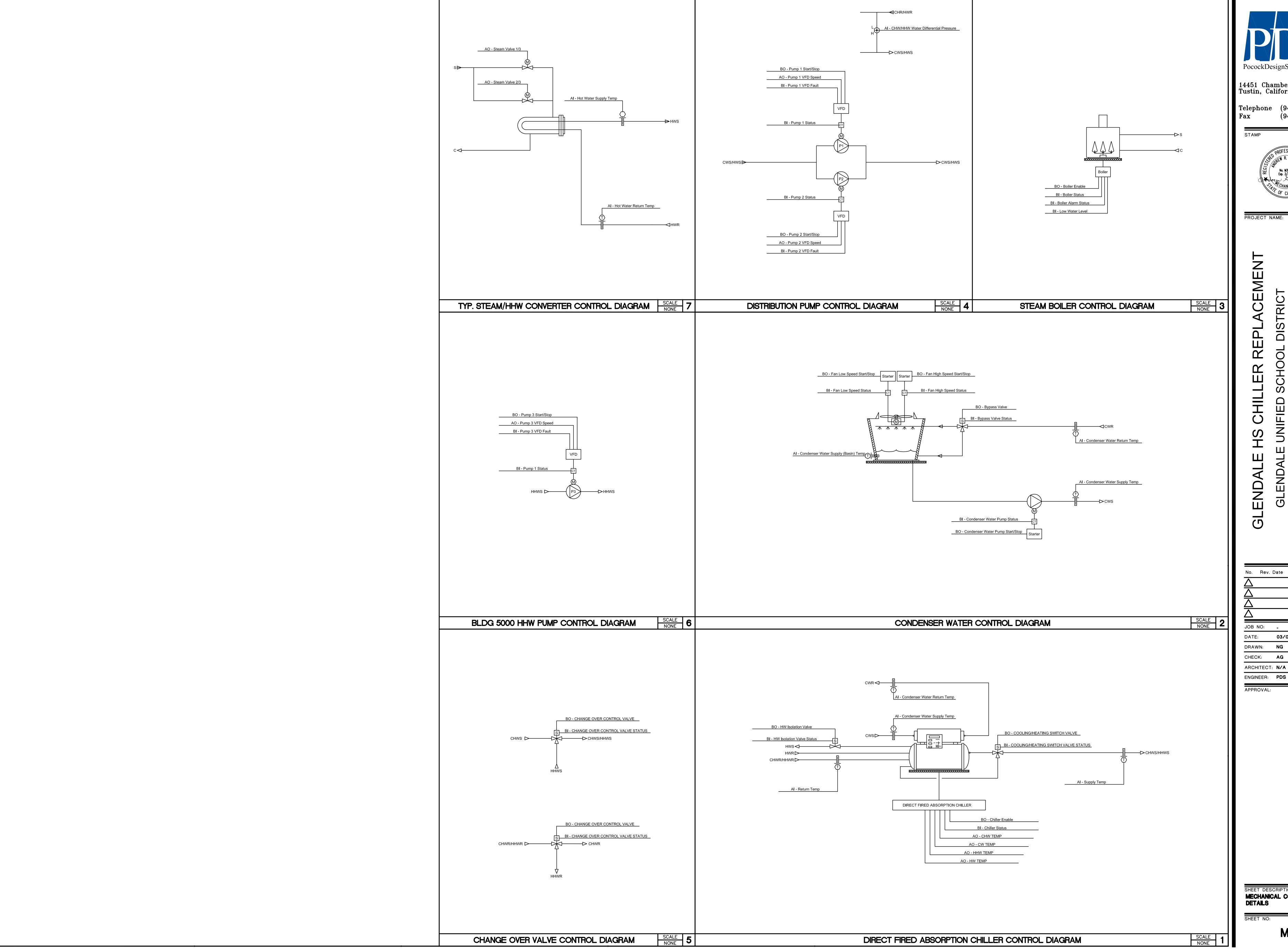
CEMENT

1440 EAST | GLENDALE, (

No. Rev. Date Description DRAWN: CHECK: AG

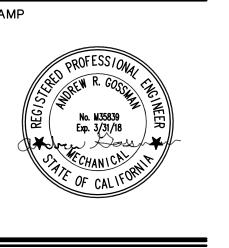
> SHEET DESCRIPTION: MECHANICAL PIPING

**M4-1** 





(949) 419-1393



1440 EAST BROADWAY AVE. GLENDALE, CALIFORNIA 91205

No. Rev. Date Description JOB NO: 03/06/2018 DRAWN: **NG** CHECK: AG ARCHITECT: N/A

SHEET DESCRIPTION: MECHANICAL CONTROLS

M5-1

#### **GENERAL NOTES**

- 1. BEFORE COMMENCEMENT OF WORK, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS, ELEVATIONS AND CHARACTERISTICS OF ALL UTILITIES AND PIPING, AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
- 2. ALL ACCESSIBLE WATER CLOSETS SHALL HAVE FLUSH VALVE WITH HANDLE ON OPEN SIDE.

DIELECTRIC UNIONS SEPARATED BY A TWELVE INCH (12") SECTION OF RED BRASS PIPE.

WATER AND DRAIN PIPING BELOW ACCESSIBLE LAVATORIES AND SINKS.

- 3. ALL VALVES, UNIONS, ETC. TO BE SAME SIZE AS PIPE UNLESS OTHERWISE INDICATED ON DRAWINGS.
- 4. ALL PLUMBING FIXTURE VENTS TO TERMINATE A MINIMUM OF 12 INCHES FROM ANY VERTICAL SURFACE AND 10 FEET FROM ANY OUTSIDE AIR INTAKES.
- 5. EXACT LOCATIONS AND MOUNTING HEIGHTS OF PLUMBING FIXTURES SHALL BE OBTAINED FROM THE ARCHITECTURAL
- 6. ALL EXTERIOR GAS COCKS, WATER SHUT OFF VALVES AND/OR SEWER CLEANOUTS BELOW GROUND SHALL BE INSTALLED IN
- YARD BOXES WITH THE COVERS CONSPICUOUSLY MARKED "GAS", "WATER", AND "SEWER" RESPECTIVELY.

  7. CONNECTION BETWEEN INCOMPATIBLE MATERIALS ABOVE GRADE AND INSIDE BUILDING SHALL BE MADE WITH TWO (2)
- 8. ALL CLEANOUTS SHALL BE INSTALLED WHERE READILY ACCESSIBLE. THE CONTRACTOR SHALL COORDINATE ALL CLEANOUT LOCATIONS WITH EQUIPMENT, CABINETS, ETC., AND THE ARCHITECT PRIOR TO ANY INSTALLATION.
- 9. SEE ARCHITECTURAL DRAWINGS FOR ACCESSIBLE FIXTURE LOCATIONS AND MOUNTING HEIGHTS. INSULATE ALL EXPOSED HOT
- 10. ALL PLUMBING WORK SHALL BE INSTALLED SO AS TO AVOID INTERFERENCE WITH ELECTRICAL AND MECHANICAL EQUIPMENT
- AND STRUCTURAL FRAMING.

  11. ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH CALIFORNIA PLUMBING CODE 2013.
- 12. THESE DRAWINGS INDICATE THE SEWER, WATER, AND STORM DRAIN SYSTEMS TO POINT OF CONNECTION 5'-0" OUTSIDE OF THE BUILDING. CONTINUATION OF THESE SYSTEMS IS SHOWN ON THE CIVIL DRAWINGS AND IS SPECIFIED UNDER ANOTHER

SECTION OF THE SPECIFICATIONS. THE PIPING SHALL BE INSTALLED TO MEET THE INVERT ELEVATIONS SHOWN ON THE CIVIL

- 13. INSULATION (SEE SPECIFICATION FOR TYPE REQUIRED) AND COVERING ON PIPE AND TUBING SHALL HAVE A FLAME SPREAD RATING NOT TO EXCEED 25 AND A SMOKE DENSITY NOT TO EXCEED 450 WHEN TESTED IN ACCORDANCE WITH 2013 C.B.C.
- 14. ANY ALTERATIONS TO A STRUCTURAL MEMBER, SUCH AS CUTTING, BORING, BRAZING, DRILLING, WELDING, ETC. SHALL HAVE
- 15. REFER TO 7 / P5-1 FOR PENETRATIONS AT FIRE RATED PARTITIONS.

PRIOR WRITTEN APPROVAL OF ARCHITECT, STRUCTURAL ENGINEER AND DSA.

- 16. M.E.P. COMPONENT ANCHORAGENOTE:
  - ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2013 CBC, SECTION 1616A.1.18 THROUGH 1616A.1.26 AND ASCE 7-10 CHAPTER 13, 26 AND 30.
  - ALL PERMANENT EQUIPMENT AND COMPONENTS.
     TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g. HARD WIRE) TO THE BUILDING UTILITY
    SERVICES SUCH AS ELECTRICITY, GAS OR WATER.
  - 3. MOVABLE EQUIPMENT WHICH IS STATIONED IN ONE PLACE FOR MORE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS ARE REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.
  - THE ATTACHMENT OF THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT BE DETAILED ON THE PLANS. THE PROJECT INSPECTOR WILL VERIFY THAT THESE ITEMS HAVE BEEN POSITIVELY ATTACHED. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT:
  - A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
  - B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL
  - FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT
  - TO THE APPROVAL OF THE MECHANICAL/ELECTRICAL ENGINEER.

    17. PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE:
  - PIPING, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-10 SECTION 13.6.8, 13.6.7. 13.6.5.6 AND 2013 CBC, SECTIONS 1616A.1.23 THROUGH 1616A.1.26.
  - COPIES OF THE MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF HANGING AND BRACING OF THE PIPE, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEMS.
  - THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

					FIX	TU	SCHEDULE	
		F	ROUGH	I—IN C	ONNE	CTIONS	3	
ITEM	FIXTURE	TRAP	WASTE	VENT	HOT WATER	COLD WATER	SYS	DESCRIPTION
GPR-1	GAS PRESSURE REGULATOR	1				1-	2"	AMERICAN METER COMPANY MODEL NO. 1843 WITH OVERPRESSURE SHUTOFF, 2" SIZE CONNECTION, 1-1/4" ORIFICE, BLACK AND GREEN PRESSURE SPRING NO. 71424P023, ORANGE AND YELLOW OPSO SPRING NO. 70017P078, 2" VENT WITH 5.0 PSI @ 5.0 PSI INLET PRESSURE AND A FLOW UP TO 8,000 CFH. CAST IRON CONSTRUCTION.
SGM-1	SUB GAS METER						3 <b>"</b>	ROOTS MODEL NO. 5M175—ICPWS "METER SERIES B3" GAS SUBMETER. COMPLETE WITH 3" GAS CONNECTIONS AND PULSE OUTPUT. CONNECT TO BMS SYSTEM.

SYMBOL	ABBREVIATION	DESCRIPTION
	S OR W	SOIL OR WASTE ABOVE FLOOR
	S OR W	SOIL OR WASTE BELOW FLOOR OR GRADE
SD	SD	STORM DRAIN ABOVE FLOOR
SD	SD	STORM DRAIN BELOW FLOOR OR GRADE
	OD	OVERFLOW DRAIN ABOVE FLOOR
	V	SANITARY VENT
	CW	COLD WATER
	HW	HOT WATER
	HWR	HOT WATER RETURN
CD	CD	CONDENSATE DRAIN
TP	TP	TRAP PRIMER
G	G	GAS LINE
ICW	ICW	INDUSTRIAL COLD WATER
MPG	MPG	MEDIUM PRESSURE GAS
TW	TW	TEMPER WATER
TWR	TWR	TEMPER WATER RETURN
ECW	ECW	EXISTING COLD WATER
EICW	EICW	EXISTING INDUSTRIAL COLD WATER
EMPG	EMPG	EXISTING MEDIUM PRESSURE GAS
RV	RV	GAS PRESSURE REGULATOR RELIEF VENT
		DIRECTION OF FLOW
	SOV	SHUT-OFF VALVE
	SOV/GC	SHUT-OFF VALVE OR GAS COCK IN YARD BOX
I <del></del> ₹I	GC	GAS COCK
	RP-BFP	REDUCED PRESSURE BACKFLOW PREVENTOR
Ф	FCO	FLOOR CLEANOUT
	wco	WALL CLEANOUT
		RISER UP
<del></del>		RISER DOWN
	ABV	ABOVE
	AP	ACCESS PANEL
	BEL	BELOW
	CLG	CEILING
	CONT	CONTINUATION
	CDNG	DIDENANOUT TO GRADE
		DIDENANOUT TO GRADE FLOOR
	CDNG	
	C <b>DN</b> IG FLR	FLOOR
	C <b>DN</b> IG FLR FFE	FLOOR FINISH FLOOR ELEVATION
	C <b>DN</b> IG  FLR  FFE  GVTR	FLOOR FINISH FLOOR ELEVATION GAS VENT THRU ROOF
	C <b>DN</b> IG  FLR  FFE  GVTR  HDR	FLOOR  FINISH FLOOR ELEVATION  GAS VENT THRU ROOF  HEADER
	CDNIG FLR FFE GVTR HDR I.E.	FLOOR  FINISH FLOOR ELEVATION  GAS VENT THRU ROOF  HEADER  INVERT ELEVATION
	CDNG FLR FFE GVTR HDR I.E. PLCS	FLOOR  FINISH FLOOR ELEVATION  GAS VENT THRU ROOF  HEADER  INVERT ELEVATION  PLACES

**LEGEND** 

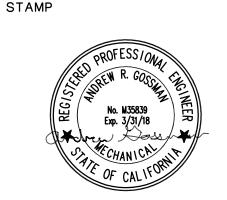


14451 Chambers Rd. Ste 210 Tustin, California 92780

(949) 419-1393

)

Telephone (949) 417-3903



PROJECT NAME:

ALE HS CHILLER REPLACEMEN'

NDALE UNIFIED SCHOOL DISTRICT

AVE. 9120

ROADWAY

No. Rev. Date Description

A

JOB NO: 
DATE: 03/06/2019

DRAWN: NG

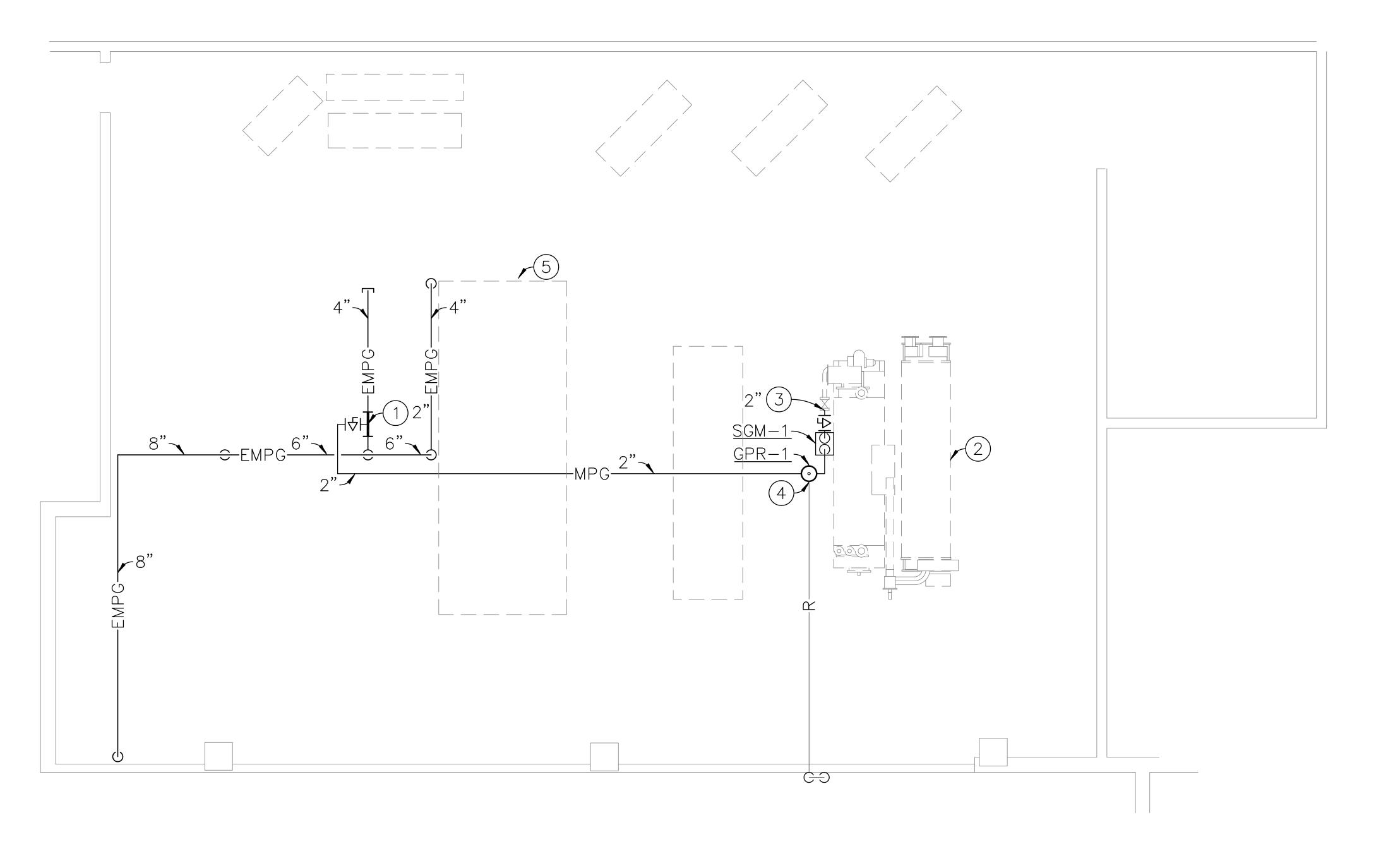
APPROVAL

ARCHITECT: N/A

SHEET DESCRIPTION:
PLUMBING GENERAL

SHEET NO:

0-1



#### **CONSTRUCTION KEY NOTES:**

- P.O.C. NEW MEDIUM PRESSURE GAS LINE TO EXISTING MEDIUM PRESSURE GAS LINE OVERHEAD. FIELD VERIFY EXACT LOCATION PRIOR TO INSTALLATION OF ANY PIPING.
- 2 DIRECT-FIRED ABSORPTION CHILLER, SEE MECH DWGS FOR EXACT LOCATION.
- P.O.C. MEDIUM PRESSURE GAS TO DIRECT—FIRED ABSORPTION CHILLER WITH GASCOCK.
- EXTEND FULL—SIZE RV TO TERMINATION @ ELEVATION EQUAL TO EXISTING TERMINATIONS WITH DOWNTURNED BIRDSCREENED ELBOW.
- (5) RECONNECT EXISTING GAS AND BLOW DOWN PIPING TO NEW STEAM BOILER.



Telephone (949) 417-3903 Fax (949) 419-1393



CHILLER REPLACEMENT
IFIED SCHOOL DISTRICT

1440 EAST BROADWAY AVE. GLENDALE, CALIFORNIA 91205

SCALE 1/4"=1'-0"