

**GENERAL NOTES**

- 1- ALL FLOW RATES ARE IN CFM.
- 2- THIS SCHEMATIC IS INTENDED FOR AIR FLOW BALANCING SCHEME.
- 3- FIRE DAMPER ARE MOTORIZED TYPE AND WILL BE OPERATED VIA F&G PANEL COMMANDS.
- 4- ONE ROOF PACKAGED UNIT (PKG) WILL SUPPLY THE CONDITIONED AIR FOR INSIDE BUILDING.
- 5- WHENEVER THE PKG CONTROL & ELECTRICAL PANEL RECEIVED A SIGNAL FROM FIRE & GAS MONITORING SYSTEM, THE WHOLE SYSTEM MUST SHUT DOWN AND ALL ASSOCIATED MOTORIZED DAMPERS SHALL RETURN TO 100% CLOSED POSITION. IN ADDITION, HVAC SYSTEM STATUS SIGNAL SHALL SEND TO F&G SYSTEM VIA PKG CONTROL & ELECTRICAL PANEL.
- 6- ALL REFRIGERANT PIPE SIZES AND REQUIRED COMPONENTS TO BE VERIFIED AND FINALIZED BY VENDOR.
- 7- EACH COMPRESSOR SHALL BE EQUIPPED WITH MINIMUM 4 STEP UNLOADING VALVE.
- 8- #1 REFERS TO HVAC SYSTEM STATUS SIGNAL TO F&G SYSTEM.
- 9- #2 REFERS TO UNIT INTERLOCKED WITH CORRESPONDING MOTORIZED DAMPER AND COMPLETE SHUT DOWN AND AUTOMATIC CHANGEOVER TO OTHER STANDBY UNIT.
- 10- THE MOTORIZED DAMPERS ON FRESH, RETURN DUCTS ARE PROPORTIONAL TYPE. THE MOTORIZED DAMPERS ON SUPPLY AND EXHAUST DUCTS ARE OPEN/CLOSE TYPE.
- 11- FLAMMABLE GAS DETECTOR (FGD) AND TOXIC GAS DETECTOR (TGD) ARE CONSIDERED AT THE FRESH AIR INTAKE OF AHUS.
- 12- LIQUID INJECTION FOR COMPRESSORS SHALL BE CONSIDERED.

REFERENCE DOCUMENTS	DOC. NO.
HVAC DESIGN CRITERIA	LRP-TNA-HV-99-SPC-0001
FIRE STATION NO.2 HVAC CALCULATION	LRP-TNA-HV-15-CAL-0001
HVAC EQUIPMENT DATA SHEETS	LRP-TNA-HV-15-DSH-0001

**LEGEND**

AC	ACCUMULATOR	COMP	COMPRESSOR
MD	MOTORIZED DAMPER	H/O/A	HANDY-OFF-AUTOMATIC
RA	RETURN AIR	HLT	HIGH LIMIT TEMPERATURE
SA	SUPPLY AIR	FS	FLOW SWITCH
EA	EXHAUST AIR	SW	SWITCH
VD	VOLUME DAMPER	XL	RUNNING LAMP
TYP.	TYPICAL	DPT	HIGH LIMIT THERMOSTAT
CC	COOLING COIL	DPS	DIFFERENTIAL PRESSURE SWITCH
COMD	COMMAND	SPU	SPLIT PACKAGED UNIT
FA	FRESH AIR	S/D	SHUT DOWN
FD	FIRE DAMPER	MFD	MOTORIZED FIRE DAMPER
M	MOTOR	ACC	AIR COOLED CONDENSER
EF	EXHAUST FAN	—	CONTROL WIRING
TE	TEMPERATURE ELEMENT	—HC	REFRIGERANT HOT GAS LINE
TC	TEMPERATURE CONTROLLER	—LL	REFRIGERANT LIQUID LINE
PB	PUSH BUTTON	—SUC	REFRIGERANT SUCTION LINE
O/O	ON/OFF	—EH	ELECTRICAL HEATER
F&G	FIRE/GAS SYSTEM		
S/D	SHUT DOWN		
DPT	DIFFERENTIAL PRESSURE TRANSMITTER		
CO <sub>2</sub>	CO <sub>2</sub> SENSOR		

**KEY PLAN**

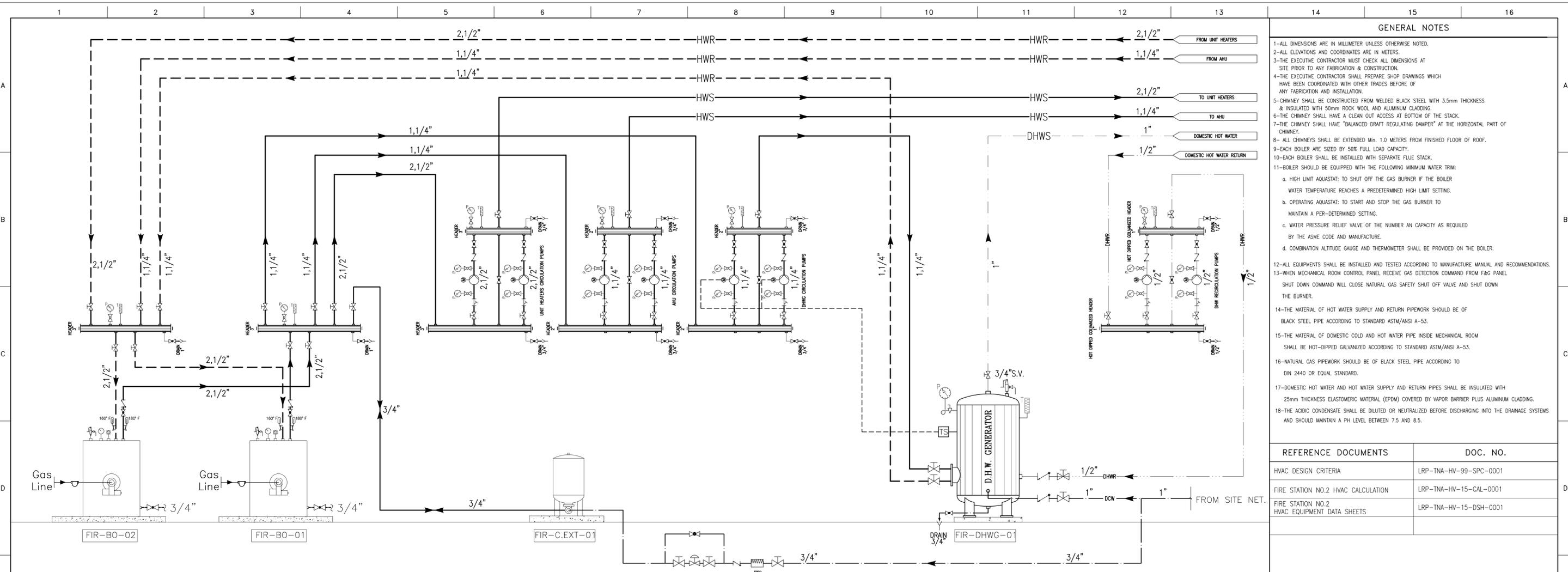
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Rev.	Date	Purpose of Issue	PRE'D.	CHK'D.	APR'D.

Project  
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DRAWING TITLE:  
**FIRE STATION NO.2 HVAC P&ID**

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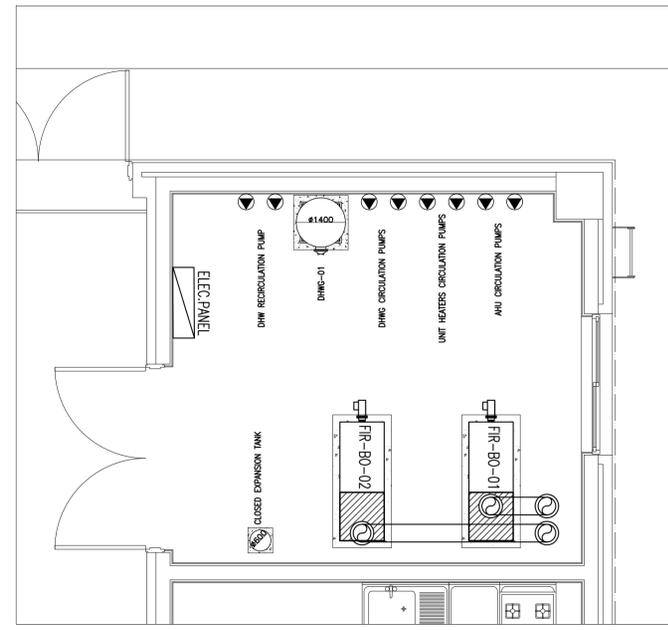


### MECHANICAL FLOW DIAGRAM

Sc:NTS

#### LEGEND & SYMBOLS

— DHWR —	DOMESTIC HOT WATER RETURN PIPE		IN-LINE PUMP
— DHWS —	DOMESTIC HOT WATER SUPPLY PIPE		HEADER
— DCW —	DOMESTIC COLD WATER PIPE		PRESSURE GAUGE
— HWS —	HOT WATER SUPPLY PIPE		TEMPERATURE GAUGE
— HWR —	HOT WATER RETURN PIPE		PRESSURE RELIEF VALVE
— EXP —	EXPANSION LINE SUPPLY PIPE		THERMOSTAT
	SIGNAL		AQUASTAT
	GATE VALVE N.O.		
	GATE VALVE N.C.		
	GLOBE VALVE N.O.		
	GLOBE VALVE N.C.		
	BALL VALVE		
	CHECK VALVE		
	STRAINER		
	PRESSURE REGULATING VALVE		
	REDUCER		
	FLEXIBLE CONNECTION		
	AIR VENT		
S.C.	SUMMER CLOSED		
W.C.	WINTER CLOSED		
N.C.	NORMALLY CLOSED		
EVAP	EVAPORATOR		
COMP	COMPRESSOR		
FS	FLOW SWITCH		
BO	BOILER		
BU	BURNER		
PU	PUMP		
DHWG	DOMESTIC HOT WATER GENERATOR		
C.EXT	CLOSED EXPANSION TANK		
EWS	MAGNETIC WATER SOFTENER		



### MECHANICAL ROOM ARRANGEMENT

Sc:1/50

#### GENERAL NOTES

- 1-ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE NOTED.
- 2-ALL ELEVATIONS AND COORDINATES ARE IN METERS.
- 3-THE EXECUTIVE CONTRACTOR MUST CHECK ALL DIMENSIONS AT SITE PRIOR TO ANY FABRICATION & CONSTRUCTION.
- 4-THE EXECUTIVE CONTRACTOR SHALL PREPARE SHOP DRAWINGS WHICH HAVE BEEN COORDINATED WITH OTHER TRADES BEFORE OF ANY FABRICATION AND INSTALLATION.
- 5-CHIMNEY SHALL BE CONSTRUCTED FROM WELDED MILD STEEL WITH 3.5mm THICKNESS & INSULATED WITH 50mm ROCK WOOL AND ALUMINUM CLADDING.
- 6-THE CHIMNEY SHALL HAVE A CLEAN OUT ACCESS AT BOTTOM OF THE STACK.
- 7-THE CHIMNEY SHALL HAVE "BALANCED DRAFT REGULATING DAMPER" AT THE HORIZONTAL PART OF CHIMNEY.
- 8-ALL CHIMNEYS SHALL BE EXTENDED MIN. 1.0 METERS FROM FINISHED FLOOR OF ROOF.
- 9-EACH BOILER ARE SIZED BY 50% FULL LOAD CAPACITY.
- 10-EACH BOILER SHALL BE INSTALLED WITH SEPARATE FLUE STACK.
- 11-BOILER SHOULD BE EQUIPPED WITH THE FOLLOWING MINIMUM WATER TRIM:
  - a. HIGH LIMIT AQUASTAT: TO SHUT OFF THE GAS BURNER IF THE BOILER WATER TEMPERATURE REACHES A PREDETERMINED HIGH LIMIT SETTING.
  - b. OPERATING AQUASTAT: TO START AND STOP THE GAS BURNER TO MAINTAIN A PER-DETERMINED SETTING.
  - c. WATER PRESSURE RELIEF VALVE OF THE NUMBER AN CAPACITY AS REQUIRED BY THE ASME CODE AND MANUFACTURE.
  - d. COMBINATION ALTITUDE GAUGE AND THERMOMETER SHALL BE PROVIDED ON THE BOILER.
- 12-ALL EQUIPMENTS SHALL BE INSTALLED AND TESTED ACCORDING TO MANUFACTURE MANUAL AND RECOMMENDATIONS.
- 13-WHEN MECHANICAL ROOM CONTROL PANEL RECEIVE GAS DETECTION COMMAND FROM F&G PANEL SHUT DOWN COMMAND WILL CLOSE NATURAL GAS SAFETY SHUT OFF VALVE AND SHUT DOWN THE BURNER.
- 14-THE MATERIAL OF HOT WATER SUPPLY AND RETURN PIPEWORK SHOULD BE OF BLACK STEEL PIPE ACCORDING TO STANDARD ASTM/ANSI A-53.
- 15-THE MATERIAL OF DOMESTIC COLD AND HOT WATER PIPE INSIDE MECHANICAL ROOM SHALL BE HOT-DIPPED GALVANIZED ACCORDING TO STANDARD ASTM/ANSI A-53.
- 16-NATURAL GAS PIPEWORK SHOULD BE OF BLACK STEEL PIPE ACCORDING TO DIN 2440 OR EQUAL STANDARD.
- 17-DOMESTIC HOT WATER AND HOT WATER SUPPLY AND RETURN PIPES SHALL BE INSULATED WITH 25mm THICKNESS ELASTOMERIC MATERIAL (EPDM) COVERED BY VAPOR BARRIER PLUS ALUMINUM CLADDING.
- 18-THE ACIDIC CONDENSATE SHALL BE DILUTED OR NEUTRALIZED BEFORE DISCHARGING INTO THE DRAINAGE SYSTEMS AND SHOULD MAINTAIN A PH LEVEL BETWEEN 7.5 AND 8.5.

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FIRE STATION NO.2 HVAC EQUIPMENT DATA SHEETS	LRP-TNA-HV-15-DSH-0001

#### LEGEND

#### KEY PLAN

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