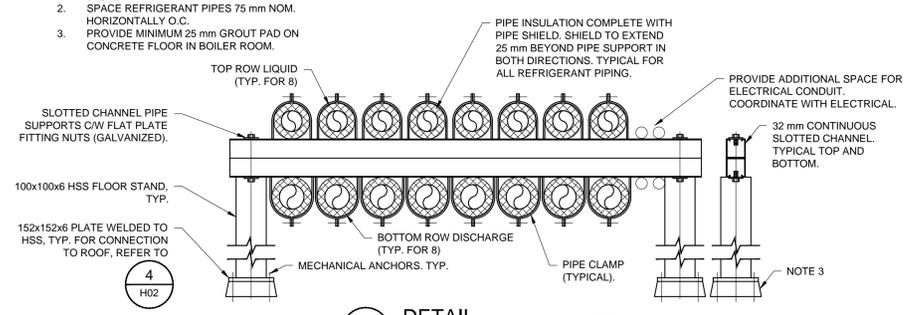
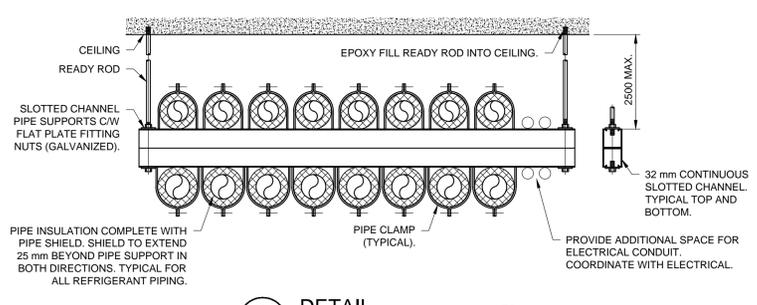




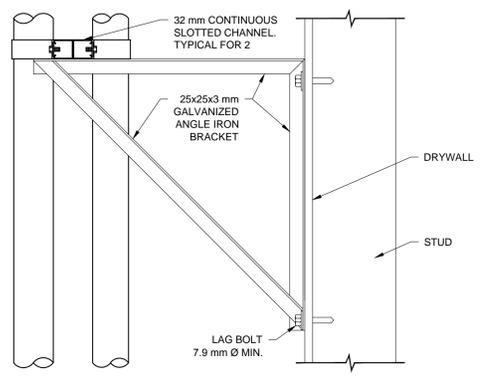
- NOTES:**
- INSULATION ON EXTERIOR PIPING TO BE COMPLETE WITH CONTINUOUS ALUMINUM JACKET.
  - SPACE REFRIGERANT PIPES 75 mm NOM. HORIZONTALLY O.C.
  - PROVIDE MINIMUM 25 mm GROUT PAD ON CONCRETE FLOOR IN BOILER ROOM.



1 DETAIL NTS  
REFRIGERANT PIPE SUPPORT



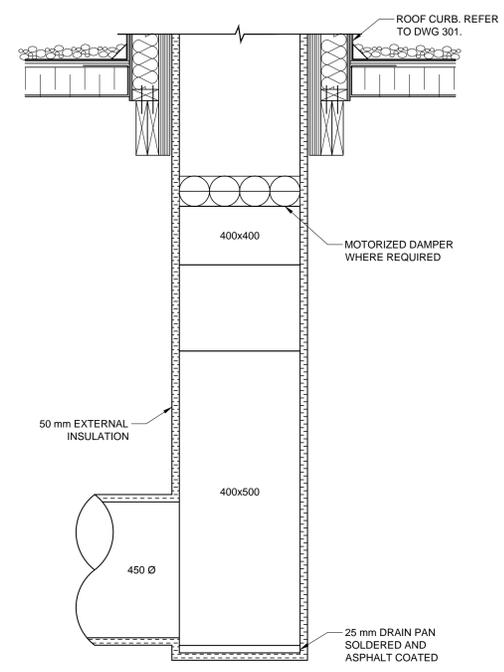
2 DETAIL NTS  
REFRIGERANT PIPE SUPPORT



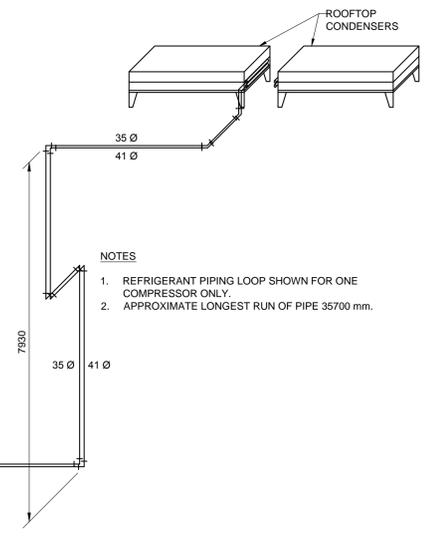
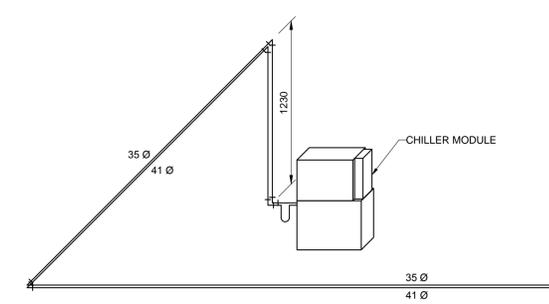
3 DETAIL NTS  
REFRIGERANT PIPE SUPPORT

INSTRUMENTATION	
SYMBOL	DESCRIPTION
FS	FLOW SWITCH
HP	HIGH PRESSURE SWITCH
LP	LOW PRESSURE SWITCH
DP	PRESSURE DIFFERENTIAL SENSOR
P	PRESSURE GAUGE
S	SWITCH
TG	TEMPERATURE GAUGE
TS	TEMPERATURE SENSOR
VFD	VARIABLE FREQUENCY DRIVE

DUCTWORK AND ACCESSORIES	
SYMBOL	DESCRIPTION
[Symbol]	SUPPLY AIR DUCT RISE
[Symbol]	RETURN AIR DUCT RISE
[Symbol]	EXHAUST AIR DUCT RISE
[Symbol]	SUPPLY AIR DUCT DROP
[Symbol]	RETURN AIR DUCT DROP
[Symbol]	EXHAUST AIR DUCT DROP
[Symbol]	DUCT WITH RIGID EXTERIOR INSULATION
[Symbol]	GRILLE
[Symbol]	MOTORIZED DAMPER
[Symbol]	ROUND DUCT ELBOW
[Symbol]	SQUARE TO ROUND REDUCER
[Symbol]	TYPE OF DIFFUSER/GRILLE SIZE (mm x mm) VOLUME (L/s)



4 DETAIL NTS  
LOUVERED PENTHOUSE AND EXHAUST FAN ROOF PENETRATION



- NOTES**
- REFRIGERANT PIPING LOOP SHOWN FOR ONE COMPRESSOR ONLY.
  - APPROXIMATE LONGEST RUN OF PIPE 35700 mm.

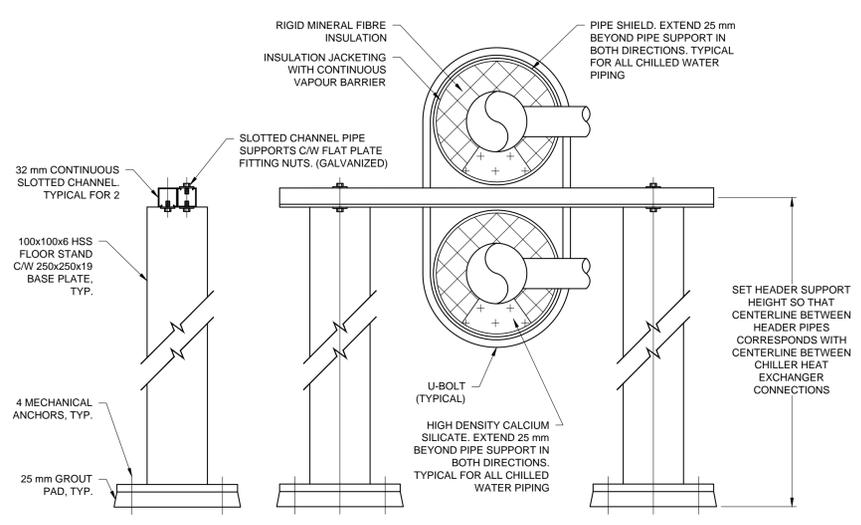
5 DETAIL NTS  
REFRIGERANT PIPING

PIPE FITTINGS & SPECIALITIES	
SYMBOL	DESCRIPTION
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
CONDENSATE RETURN	CONDENSATE RETURN
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
RWL	RAIN WATER LEADER
REFRIGERANT PIPING	REFRIGERANT PIPING
STEAM PIPING	STEAM PIPING
PIPE WITH RIGID EXTERIOR INSULATION	PIPE WITH RIGID EXTERIOR INSULATION
ELBOW UP	ELBOW UP
ELBOW DOWN	ELBOW DOWN
CONNECTION BOTTOM	CONNECTION BOTTOM
CONNECTION TOP	CONNECTION TOP
CAP OFF	CAP OFF
FLEXIBLE CONNECTION	FLEXIBLE CONNECTION
UNION CONNECTION	UNION CONNECTION
LINE STRAINER	LINE STRAINER
PUMP	PUMP
SERVICE PORT	SERVICE PORT
EXPANSION VALVE	EXPANSION VALVE
BALL VALVE	BALL VALVE
BALANCING VALVE	BALANCING VALVE
CHECK VALVE	CHECK VALVE
GATE VALVE	GATE VALVE
SOLENOID VALVE (NORMALLY OPEN)	SOLENOID VALVE (NORMALLY OPEN)

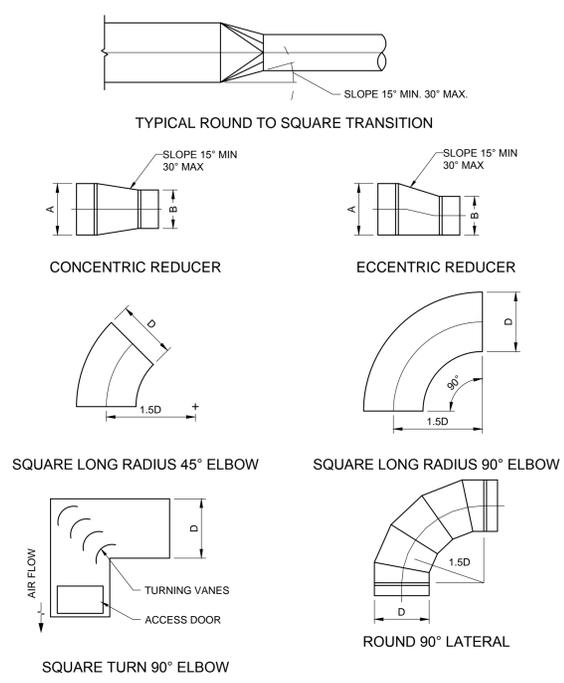
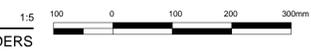
DUCTWORK CONVERSION CHART	
IMPERIAL	METRIC
4"	100 mm
5"	125 mm
6"	150 mm
7"	175 mm
8"	200 mm
9"	225 mm
10"	250 mm
12"	300 mm
14"	350 mm
16"	400 mm
18"	450 mm
20"	500 mm
22"	550 mm
24"	600 mm
26"	650 mm
28"	700 mm
30"	750 mm
32"	800 mm
34"	850 mm
36"	900 mm
38"	950 mm
40"	1000 mm
42"	1050 mm
48"	1200 mm
60"	1500 mm
72"	1800 mm

PIPEWORK CONVERSION CHART	
IMPERIAL	METRIC
1/2"	15 mm
3/4"	20 mm
1"	25 mm
1 1/4"	32 mm
1 3/8"	35 mm
1 1/2"	40 mm
1 5/8"	41 mm
2"	50 mm
2 1/2"	65 mm
3"	75 mm
4"	100 mm
5"	125 mm
6"	150 mm
8"	200 mm
10"	250 mm
12"	300 mm

ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
EMCS	ENERGY MANAGEMENT AND CONTROL SYSTEM
CH	CHILLER MODULE
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
CU	CONDENSING UNIT
EF	EXHAUST FAN
L/s	LITRES PER SECOND
VFD	VARIABLE FREQUENCY DRIVE



6 DETAIL NTS  
CHILLED WATER HEADERS



7 DETAIL NTS  
STANDARD DUCT FITTINGS

REVISIONS	DESCRIPTION	DATE
0	ISSUED FOR TENDER	14/JUN/2013

A	A detail number
B	B source drawing no. de dessin no.

project title / titre du projet  
**CHILLER REPLACEMENT**  
**GOC BUILDING**

drawing title / titre du dessin  
**LEGEND AND DETAILS**

designed by / conçu par	M. CLAASSEN
drawn by / dessiné par	K. ERKER
approved by / approuvé par	M. AKISTER
PWOSC Project Manager / Administrateur de Projets TPSCG	DAVE CHERKEWICH
scale / échelle	AS NOTED
project no. / projet no.	R.058058.001
date / date	14/JUN/2013
sheet / feuille	H05
	5 OF 7