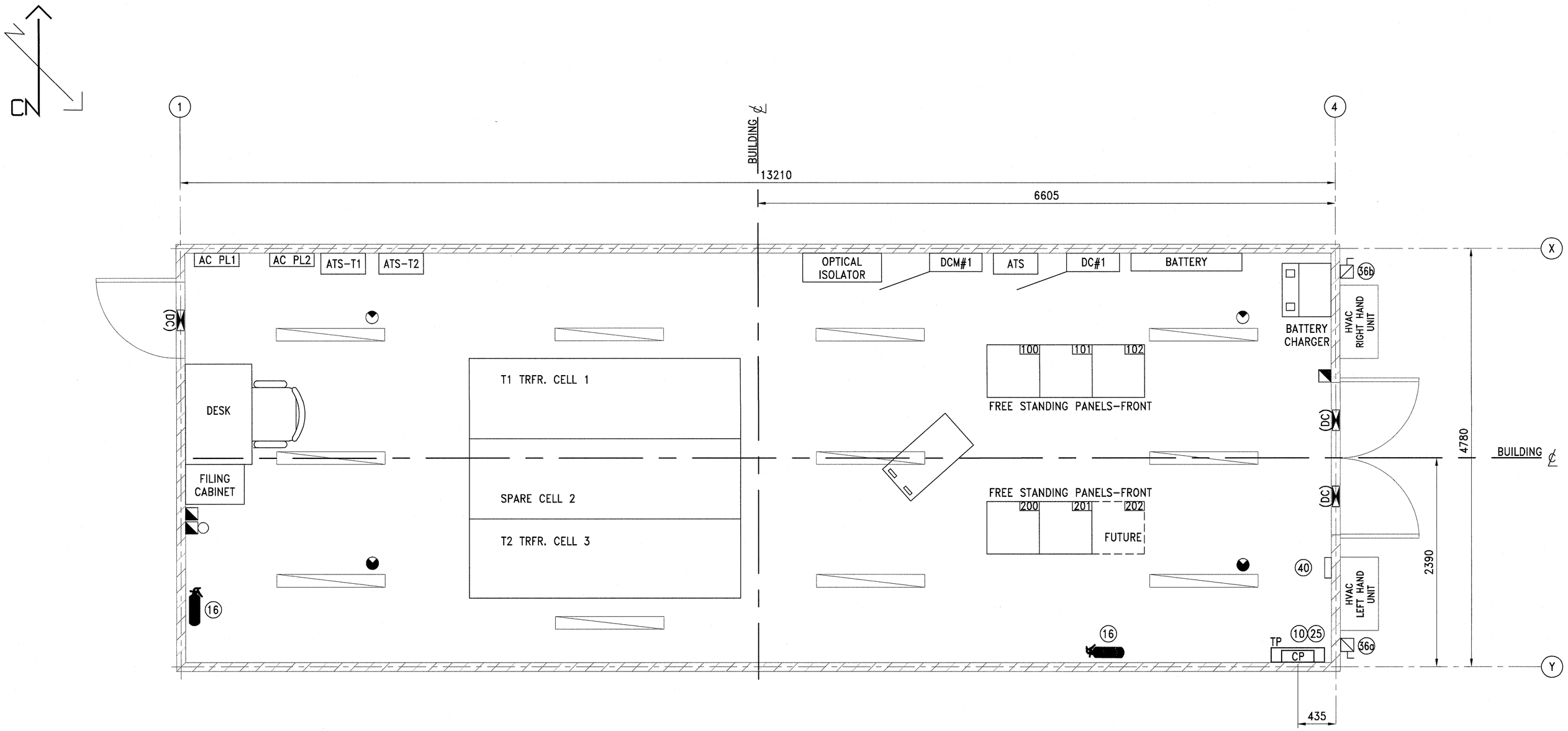
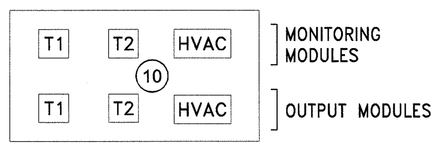
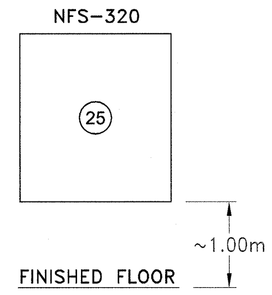


EQUIPMENT LAYOUT PLAN

SCALE: 1:30





CONTROL FIRE PANEL AND DETECTION MODULES PANEL LAYOUT

N.T.S.

HVAC LOAD CALCULATION FOR NF91 – PCT BUILDING 16'X44'X12' (4.88m X 13.41m X 3.66m)

SYSTEM TYPE: ONE MAIN HVAC UNIT AND ONE BACK-UP HVAC UNIT, INDUSTRIAL GRADE HVAC, WALL MOUNTED, 230/208V AC C/W GRILLES, EXTERIOR DISCONNECT SWITCH, BAROMETRIC FRESH AIR DAMPER.

JOB LOCATION: HAMILTON ONTARIO

WINTER DESIGN: INSIDE TEMPERATURE: 68°F (20°C) DB
OUTSIDE TEMPERATURE: -3°F (-19°C) DB

SUMMER DESIGN: INSIDE TEMPERATURE: 68°F (20°C) DB
OUTSIDE TEMPERATURE: 88°F (31°C) DB, 73°F (23°C) WB
RELATIVE HUMIDITY: 50%

MISC. EQUIPMENT/LIGHTING LOADS: 5000 W

CONDUCTION HEAT LOSS= AREA X TEM. DIFF / R-VALUE
AIR INFILTRATION LOSS =CFM X TEM. DIFF. X 1.1
REFERENCES: 2005 ASHRAE HANDBOOK AND CARRIER LOAD ESTIMATE FORMS

LEGEND:

	(DC)	DOOR CONTACT
		IONIZATION DETECTOR
		PHOTO ELECTRIC DETECTOR
	(PS)	ADDRESSABLE FIRE ALARM MANUAL PULL STATION
	(FA-A)	FIRE ALARM AUDIBLE SIGNAL – (BELL)
CP	25	NFS-320 FIRE ALARM SYSTEM CONTROL PANEL
TP	10	TRANSFORMER, BATTERY & HVAC SHUTDOWN INTERFACE PANEL
	40	HVAC CONTROL PANEL
	16	20LBS A,B,C FIRE EXTINGUISHER
	36a 36b	UNFUSED DISCONNECT SWITCH, 60A

HEATING LOAD

1-CONDUCTION HEAT LOSS			
SURFACE	INSULATION VALUE	FT^2	BTUH
ROOF	R30	704	1706
DOOR	R7	81	1532
WALL	R14	1359	5516
FLOOR(NO BASEMENT)	R30	704	1490
SUBTOTAL			19550
2-AIR INFILTRATION LOSS			9306
3-VENTILATION			3272
TOTAL (BTUH)			22442
TOTAL (KW)			6.58

COOLING LOAD

1-CONDUCTION HEAT LOSS			
SURFACE	INSULATION VALUE	FT^2	BTUH
ROOF	R30	704	387
DOOR	R7	81	190
WALL	R15	1359	2346
FLOOR(NO BASEMENT)	R30	704	-196
2-VENTILATION			717
3-MISC EQUIPMENT/LIGHTING LOADS)			17853
SUBTOTAL (SENSIBLE HEAT)			21493
LATENT HEAT			840
TOTAL (BTUH)			22333
TOTAL (TONS)			1.91

NOTES:

1. ALL DETECTORS SHALL BE MOUNTED AT THE HIGHEST POINT WHERE VARIATIONS IN CEILING HEIGHT EXIST, AND AS INDICATED ON DRAWINGS.
2. DETECTORS SHALL NOT BE MOUNTED OVER CONTROL RELAY PANELS, LIGHTS, ETC.
3. BELL SHALL BE MOUNTED 2440MM ABOVE THE FLOOR TO CENTER LINE OF BELL.
4. PULL STATIONS SHALL BE MOUNTED 1370mm FROM FLOOR TO CENTER LINE OF PULL STATIONS.
5. ALL WIRING SHALL BE COLOR CODED.
6. ALL INSTALLATION TO BE AS PER ULC AND CSA STD. & ONTARIO ELECTRICAL CODE.
7. PROVIDE FAULT ISOLATORS AFTER 20 DEVICES IN ANY LOOP.
8. CLASS 'A' WIRING IN SEPARATE METALLIC E.M.T. REQUIRED FOR DETECTORS.
9. CLASS 'B' WIRING CAN BE USED FOR FIRE ALARM, BELLS STROBE LIGHTS ETC.
10. MOUNT FIRE DETECTION AND SECURITY SYSTEM DRAWING IN FRAME & INSTALL ON WALL NEAR CONTROL PANEL.
11. ALL FANS AND AIR CONDITIONERS TO SHUT OFF WHEN FIRE ALARM IS ACTIVATED.
12. HEATING DESIGNED FOR 97.5% DESIGN DB FOR TIMMINS.
13. COOLING DESIGNED FOR 2.5% DESIGN DB FOR WINDSOR.
14. BARD MODEL, (ITEM23), 3 TON COOLING, 9KW HEATING INSTALLED WITH 100% REDUNDANCY AND LEAD/LAG CONTROL WITH DIGITAL CONTROLLER BARD MODEL (ITEM 40).

PROFESSIONALS:

N°	DATE	TRANSMISSION	BY ENG

THE S.M. GROUP INTERNATIONAL INC.
6205B Airport rd, Suite 205, Mississauga (Ontario) L4V 1E3
Tel. : 905 677.9009 / Fax. : 905 677.9014
www.groupesm.com

RELEASED FOR CONSTRUCTION

STAMP :

LICENSED PROFESSIONAL ENGINEER Y. Lessard 100128892 PROVINCE OF ONTARIO

CLIENT :

PROJECT :

MCMASTER UNIVERSITY-NF91

TITLE :

13.8kV AREA E-HOUSE
HVAC, FIRE ALARM & SECURITY SYSTEM ELECTRICAL ARRANGEMENT

PREPARED BY : M.GUAY	DATE : 2018/07/15
DRAWN BY : M.GUAY	SCALE : 1:30
VERIFIED BY : M.LAROCQUE	DISCIPLINE : ELECTRICAL ARRANGEMENT
APPROVED BY : Y.LESSARD	CAD FILE NAME F1731664-300-EA008.dwg

PROJECT No:	LOT:	DWG. #	REV:	PAGE :
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