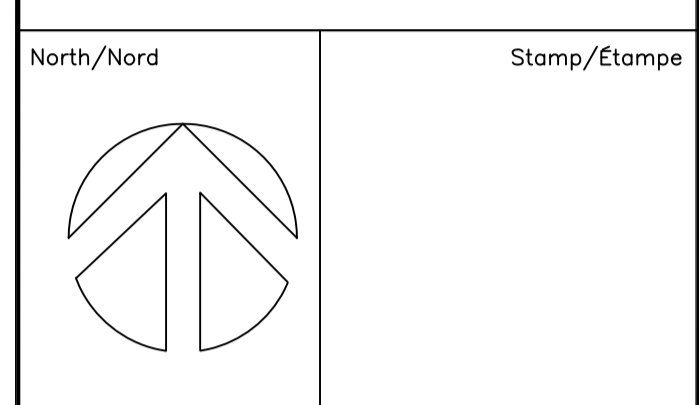


- ### GENERAL NOTES
- CONTRACTOR TO CONFIRM ALL DIMENSIONS ON SITE AND REPORT DISCREPANCIES TO DEPARTMENTAL REPRESENTATIVE.
 - CONTRACTOR TO LOCATE MATERIAL WHERE DIRECTED BY DEPARTMENTAL REPRESENTATIVE.
 - AT LOCATIONS OF DEMOLITION OR RELOCATION OF SERVICES, FILL ANY GAPS IN SPRAY INSULATION WITH COMPATIBLE MATERIAL, TO ENSURE CONTINUITY OF THERMAL PERFORMANCE.
 - PROVIDE 100 HIGH JOHNSONITE RUBBER BASE OF ALL NEW EXISTING GYPSUM BOARD PARTITIONS THAT MEET FLOOR SLABS, COLOUR: 7 STORM CLOUD.
 - PROVIDE FIRE SEALANT AS REQUIRED AT ALL RATED LOCATIONS OF CONDUITS AT UNDERSIDE OF ROOF STRUCTURE.
 - PROVIDE HILTI FIRE SEALANTS BETWEEN ROOF DECK AND NEW WALLS TO ENSURE FIRE RATING CONTINUITY.
 - PROVIDE SEALANT AS REQUIRED TO SEAL ALL MECHANICAL / ELECTRICAL EQUIPMENT THAT PENETRATES EXTERIOR WALL ASSEMBLIES.

- ### WALL DEMOLITION
- (D-01)** - REMOVE EXISTING GYPSUM BOARD FROM NORTH SIDE OF STEEL STUD WALL.
- REMOVE GLASS FIBRE BATT INSULATION FROM NORTH SIDE OF STEEL STUD WALL.
- EXISTING STEEL STUDS TO REMAIN.
- REMOVE SPRAY FOAM INSULATION AND GYPSUM BOARD FROM SOUTH SIDE OF STEEL STUD WALL.
- REMOVE SPRAY FOAM INSULATION OVER SPRAY FROM ALL REMAIN STEEL.
 - (D-02)** - REMOVE EXISTING CHAINLINK FENCE, GATE AND ASSOCIATED POSTS.
- FILL HOLES IN CONCRETE FLOOR SLAB TO MATCH EXISTING

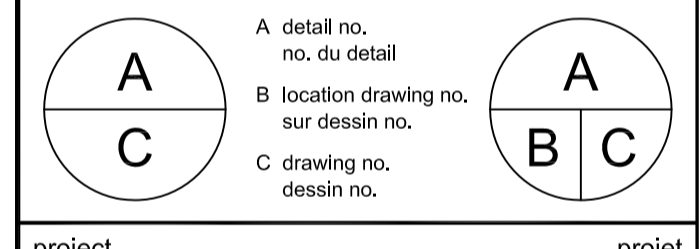
- ### WALL ASSEMBLIES
- (P-01)** 3 HOUR RATED PARTITION
- NEW 2 LAYERS 19.1 TYPE "X" GYPSUM BOARD, TAPE, SAND, P1 PAINT FINISH
- NEW 92 STEEL STUDS @ 400 O.C.
- NEW 2 LAYERS 19.1 TYPE "X" GYPSUM BOARD, TAPE, SAND, P1 PAINT FINISH
- PROVIDE NEOPRENE BARRIER UNDER BASE TRACK AND DEFLECTION TRACK AT UNDERSIDE OF ROOF DECK.
- FIRE-STOP ALL OPENINGS WITH HILTI FIRE PROTECTION SYSTEM.
 - (P-02)** - 16 TYPE "X" GYPSUM BOARD, TAPE, SAND, P1 PAINT FINISH
- 92 STEEL STUDS @ 400 O.C., TIE BACK TO STRUCTURE
- EXISTING SPRAY FOAM INSULATION
- EXISTING STEEL STRUCTURE
- EXISTING PREFINISHED STEEL SIDING
 - (P-2A)** - EXTERIOR WALL ABOVE ANECHOIC CHAMBER
- 16 TYPE "X" GYPSUM BOARD, TAPE, SAND, P1 PAINT FINISH
- 92 STEEL STUDS @ 400 O.C., TIE BACK TO STRUCTURE
- EXISTING SPRAY FOAM INSULATION TO REMAIN
- EXISTING STEEL STRUCTURE TO REMAIN
- EXISTING PREFINISHED STEEL SIDING TO REMAIN
 - (P-03)** - PROVIDE NEW / EXTEND NEW 16 TYPE "X" GYPSUM BOARD, TOP OF WALL / ANECHOIC CHAMBER TO U/S OF CEILING, TAPE, SAND, P1 PAINT FINISH.
 - (P-04)** - PROVIDE NEW 16 DENS-GLASS EXTERIOR SHEATHING TO NORTH SIDE OF STEEL STUDS. TAPE ALL JOINTS.
- PROVIDE 92mm ROXUL SEMI RIGID INSULATION BETWEEN EXISTING STUD WALL.
- PROVIDE 16 MIL AIR VAPOUR BARRIER TO SOUTH SIDE OF EXISTING STEEL STUD WALL.
- PROVIDE 16 GYPSUM BOARD TO SOUTH SIDE OF EXISTING STEEL STUD WALL, TAPE, SAND, P1 PAINT FINISH.

- ### CEILING ASSEMBLY
- (CL-01)** - NEW 16 TYPE "X" GYPSUM BOARD, TAPE, SAND, P2 PAINT FINISH
- NEW 92 STEEL STUDS @ 400 O.C., SECURED TO EXISTING ROOF PURLINS
- EXISTING SPRAY FOAM INSULATION
- EXISTING ROOF PURLINS
- EXISTING STEEL ROOF STRUCTURE, NEW STRUCTURAL REINFORCEMENT AS PER CLELAND JARDINE DETAIL.
- EXISTING METAL LINER PANEL
- EXISTING GALVANIZED STANDING SEAM ROOF(S)



KEY PLAN / PLAN-REPÈRE N.T.S.

revisions	description	date
7	REVISIONS	14-10-08
6	REVISIONS	14-09-30
5	REVISIONS TO 100% DOCUMENTS	14-08-26
4	RE-ISSUED FOR 100% CLIENT REVIEW	14-08-08
3	ISSUED FOR 100% CLIENT REVIEW	14-07-08
2	ISSUED FOR CLIENT 99% REVIEW	14-06-13
1	ISSUED FOR CLIENT REVIEW	14-03-14



project projet
**BUILDING M51
ROOF MODIFICATION
/ INTERIOR WALL
PROTECTION**

drawing dessin
**GROUND FLOOR PLAN
&
DOOR / HARDWARE
SCHEDULES**

Designed By	RAC	Conçu par
Date	14-03-10	(yyyy/mm/dd)
Drawn By		Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	EY/RAC	Examiné par
Date	14-03-12	(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission
Project Manager	Administrateur de projets	
Project no.		No. du projet
	3953	
Drawing no.		No. du dessin
	A101	

1 GROUND FLOOR PLAN
A101 1:100

DOOR SCHEDULE

DOOR NO.	FROM/TO	OPENING SIZE	PANEL TYPE	PANEL MAT'L	PANEL FINISH	FRAME ELEV	FRAME TYPE	FRAME MAT'L	FRAME FINISH	F.R.R.	HARDWARE GROUP	COMMENTS
D-101	101	EXTERIOR 914x2032x45	D1	HMI	P3	E1	F1	PSF	P4	-	HG1	
D-101A	101A	101 2-914x2134x45	D1	HM	P3	E1	F1	PSF	P4	2.5HR	HG2	HARDWARE TO MEET FRR REQUIREMENTS
D-102	102	EXTERIOR 914x2134x45	D1	HMI	P3	E1	F1	PSF	P4	-	HG1	

DOOR / FRAME MATERIALS
Abbreviations:
HM = HOLLOW METAL
HMI = HOLLOW METAL INSULATED
PSF = PRESSED STEEL FRAME
P4 = PAINT FINISH

HARDWARE GROUP:
HG1
-EXIT DEVICE TO CAN/CGSB-69.19, FINISH TO 626, WITH LEVER AND KEY LOCK ON EXTERIOR, RIM MOUNTED
-1 PAIR BUTT HINGES TO CAN/CGSB-69.18, w/ NON-REMOVABLE PINS, 114 x 101
-DOOR CLOSER TO CAN/CGSB-69.20, SURFACE MOUNTED, FINISHED TO AL.
-KICK PLATE, 1.27 mm THICK STAINLESS STEEL, FINISHED TO 630, 203 x 877
-ALUMINUM THRESHOLD
-WEATHERSTRIPPING
-DOOR SWEEP

HG2
-STOREROOM FUNCTION LOCK TO ANSI F86, GRADE 1 CYLINDRICAL
-DUST PROOF STRIKE
-4 PAIR HINGES TO CAN/CGSB.18 w/ NON-REMOVABLE PINS, 114 x 101
-2 DOOR CLOSERS TO CAN/CGSB-69.20, SURFACE MOUNTED, FINISHED TO AL.
-1 DOOR CO-ORDINATOR
-AUTO FLUSHBOLTS
-2 KICK PLATES BOTH DOORS, 1.27mm THICK STAINLESS STEEL, FINISHED TO 630, 203 x 877

2 DOOR / HARDWARE SCHEDULE
A101 N.T.S.

PAINT FINISH SCHEDULE

DESIGNATION	DESCRIPTION
P1	PAINT TO MATCH COLOUR OF INTERIOR WALLS AT SOUTH BUILDING
P2	PAINT TO MATCH COLOUR OF INTERIOR WALLS AT SOUTH BUILDING
P3	PAINT TO MATCH GREEN COLOUR OF EXISTING EXTERIOR DOORS
P4	PAINT TO MATCH WHITE COLOUR OF EXISTING PRE-FINISHED METAL SIDING

NOTES:
SAMPLES TO BE SUBMITTED (IN DUPLICATE) FOR REVIEW PRIOR TO ORDERING OF MATERIAL.
REFER TO 09.2 PAINT ON DRAWING A100 FOR LUSTRES AND PAINT FORMULATIONS

3 PAINT FINISH SCHEDULE
A101 N.T.S.

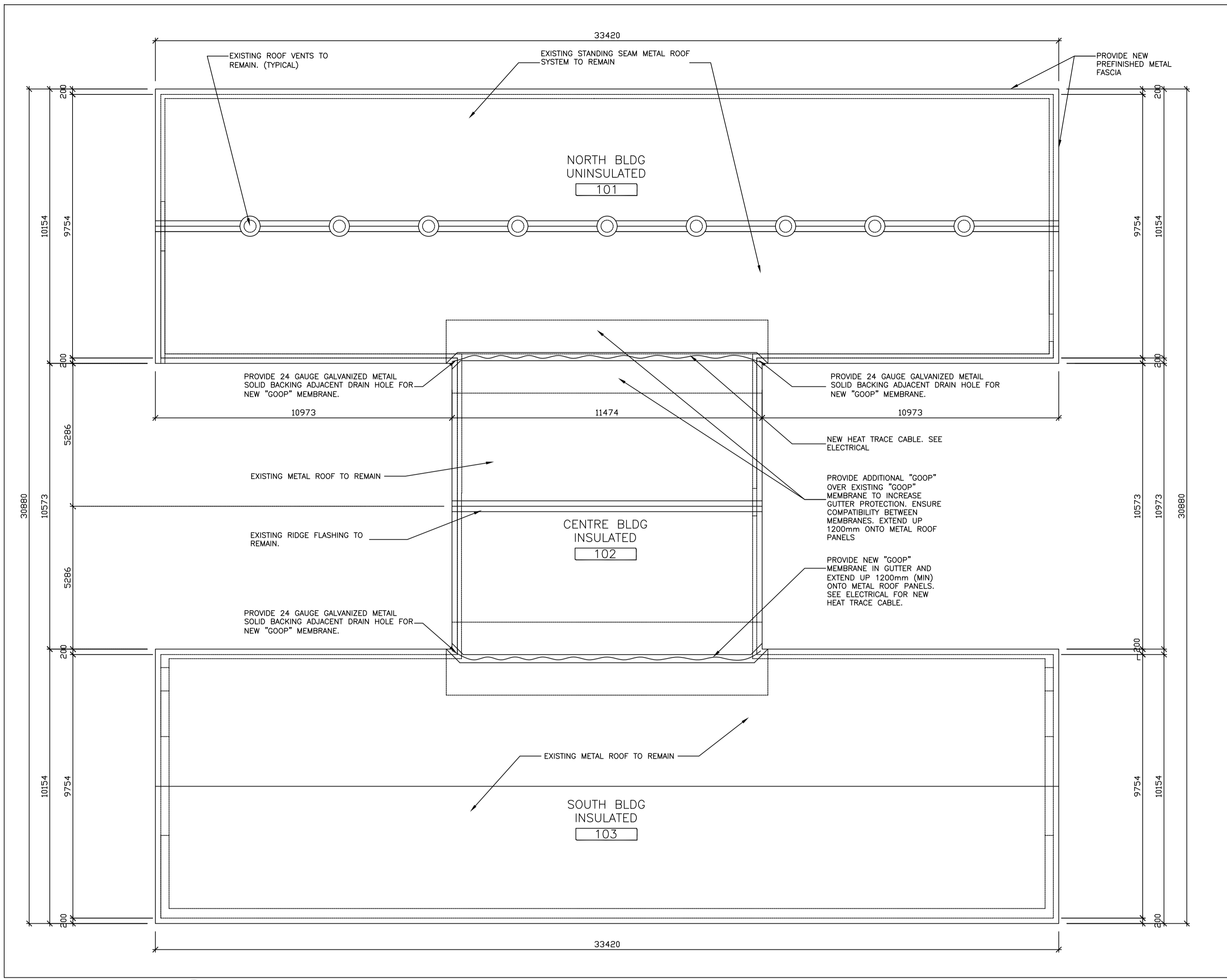
revisions	description	date
7	REVISIONS	14-10-08
6	REVISIONS	14-09-30
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3	ISSUED FOR 100% CLIENT REVIEW	14-07-08
2	ISSUED FOR 99% CLIENT REVIEW	14-06-13
1	ISSUED FOR CLIENT REVIEW	14-03-14

A	A detail no. no. du détail
B	B location drawing no. sur dessin no.
C	C drawing no. dessin no.

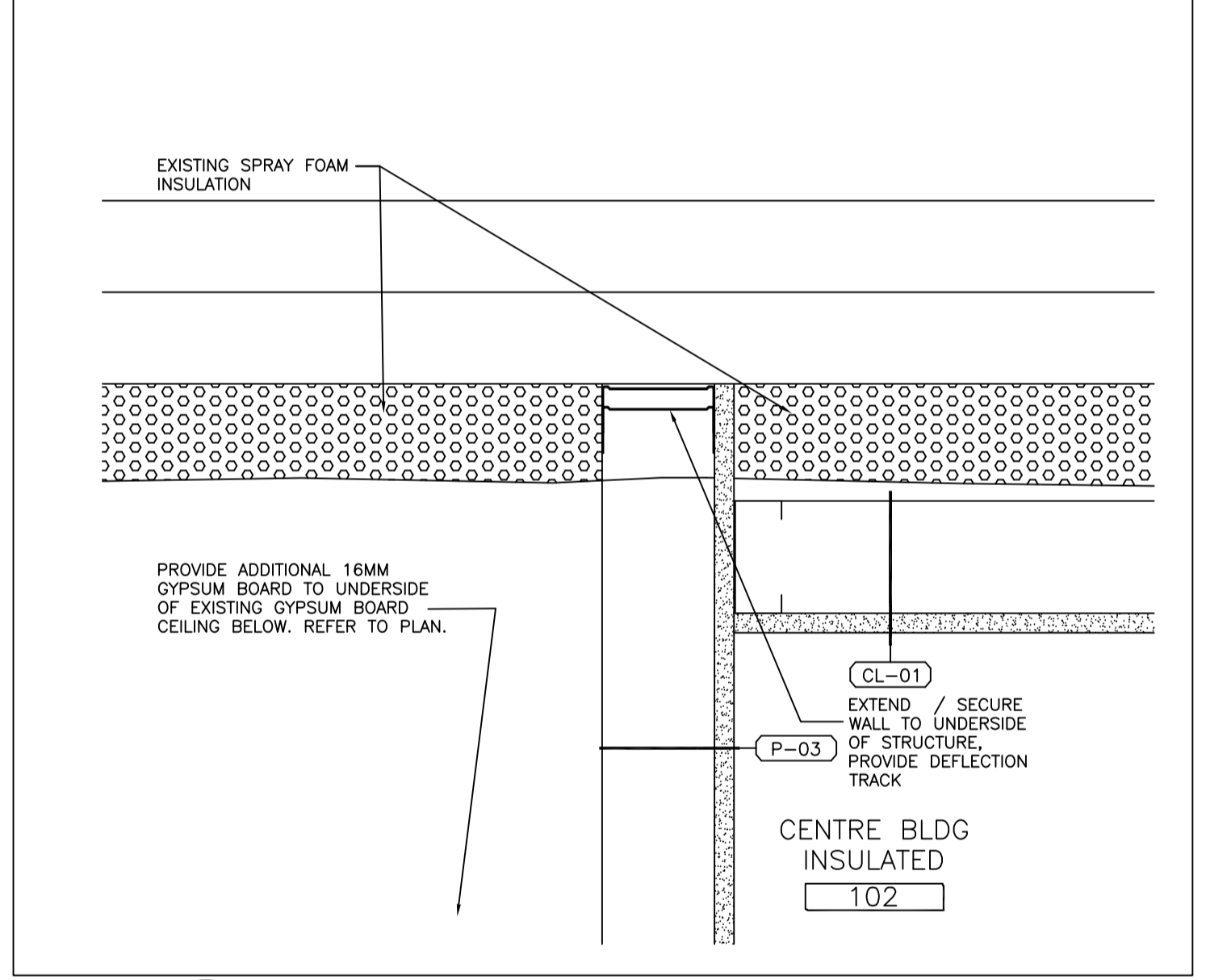
project **BUILDING M51
 ROOF MODIFICATION
 / INTERIOR WALL
 PROTECTION** projet

drawing **ROOF PLAN
 &
 SECTIONAL
 DETAILS** dessin

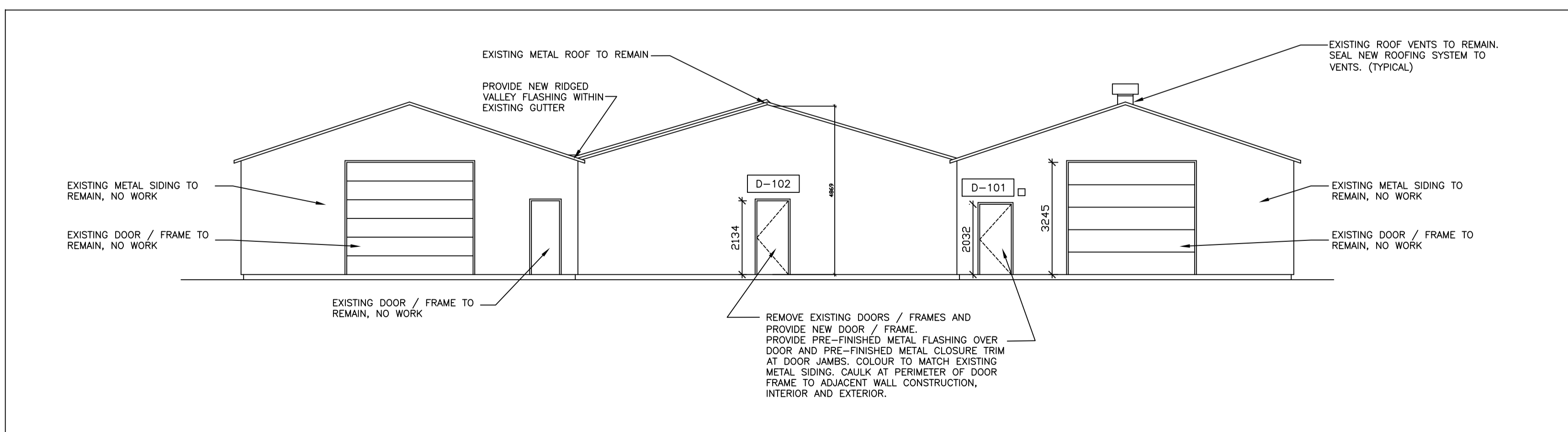
Designed By	RAC	Conçu par
Date	14-03-10	(yyyy/mm/dd)
Drawn By		Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	EY/RAC	Examiné par
Date	14-03-12	(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission
Project Manager	Administrateur de projets	
Project no.	3953	No. du projet
Drawing no.	A102	No. du dessin



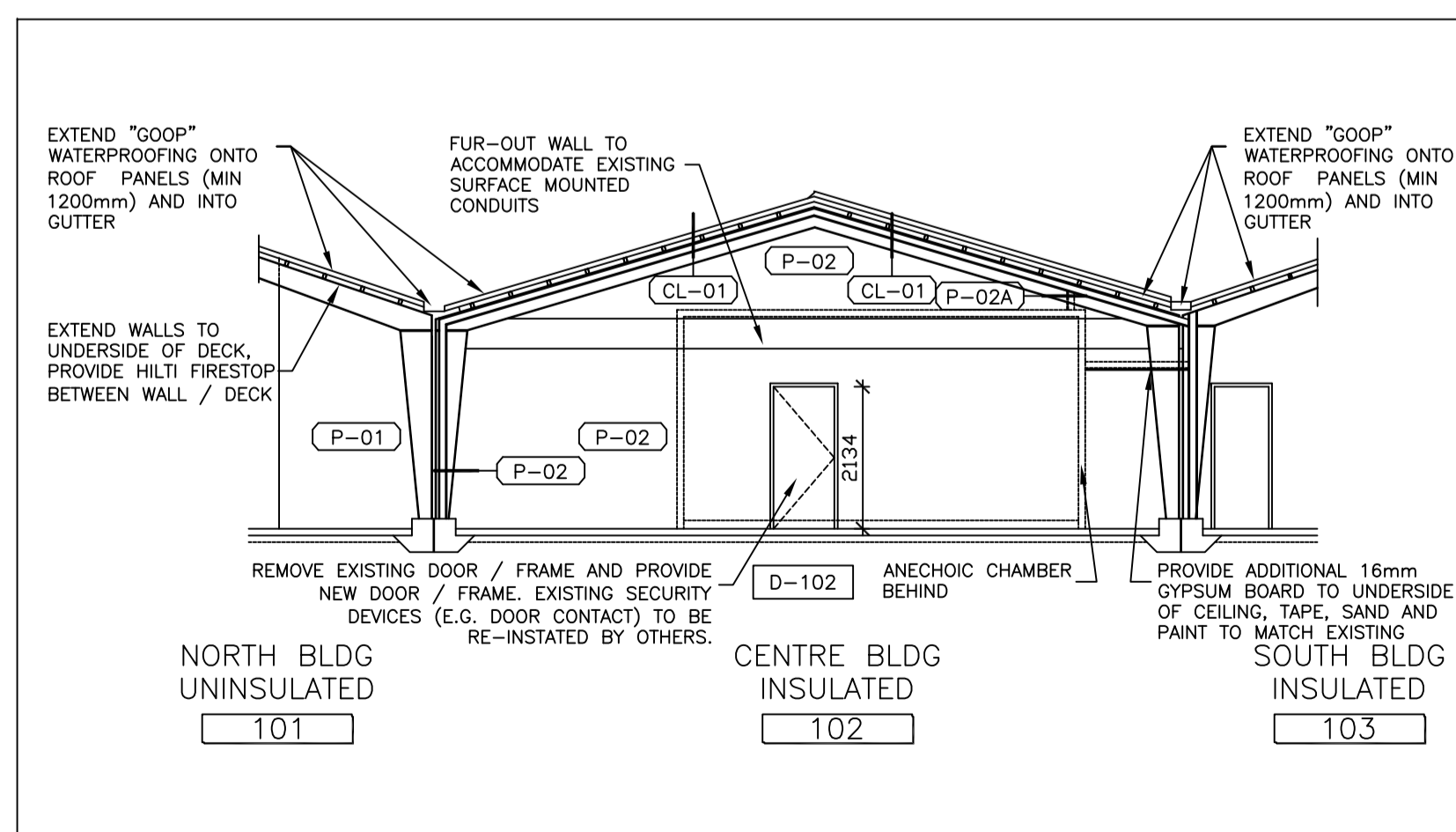
4 ROOF PLAN
 A102 1:100



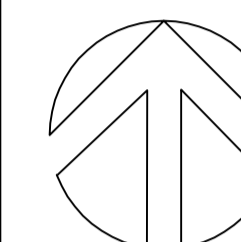
2 ABOVE ANECHOIC CHAMBER
 A102 1:5



3 EAST ELEVATION
 A102 1:100



1 NORTH - SOUTH PARTIAL SECTION
 A102 1:100



revisions	description	date
2	ISSUED FOR 99% REVIEW COMMENTS	14-08-21
1	ISSUED FOR 99% REVIEW	14-07-02

revisions	description	date
A	A detail no. no. du detail	
B	B location drawing no. sur dessin no.	
C	C drawing no. dessin no.	

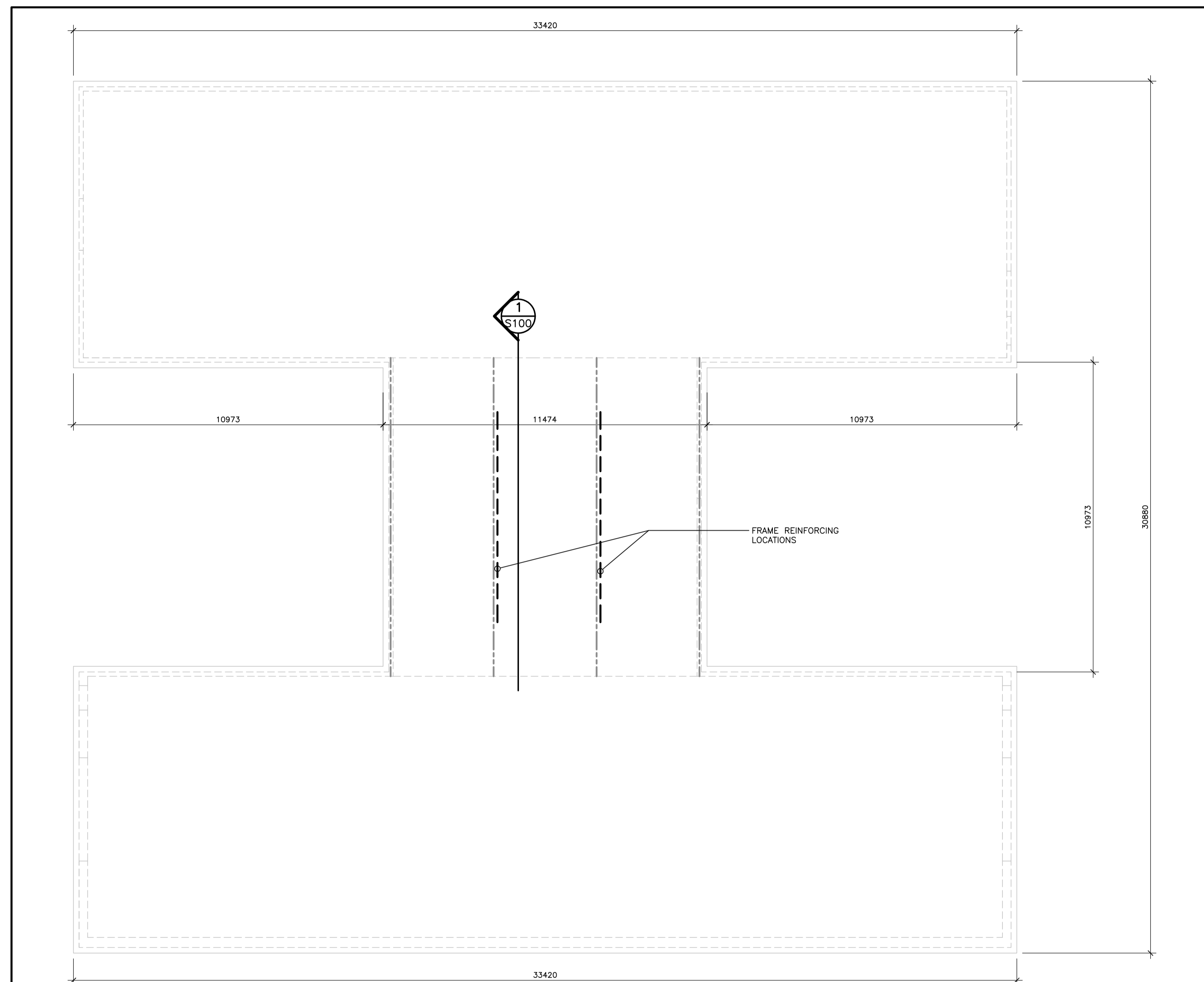
project / projet

**BUILDING M51
ROOF MODIFICATION
/ INTERIOR WALL
PROTECTION**

drawing / dessin

**ROOF PLAN
&
DETAILS**

Designed By	M. CLELAND	Conçu par
Date	14-06-30	(yyyy/mm/dd)
Drawn By	S. HAGEN	Dessiné par
Date	14-06-30	(yyyy/mm/dd)
Reviewed By	M. CLELAND	Examiné par
Date	14-06-30	(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission
Project Manager		Administrateur de projets
Project no.	14-0077	No. du projet
Drawing no.	S100	No. du dessin



ROOF PLAN
SCALE 1:100

1) GRAVITY LOADS:

DEAD: STEEL FRAMING: 0.15
INSULATION: 0.15
CEILING/M&E: 0.25
ROOFING: 0.15
0.70 KN/m²

LIVE: SNOW: 2.32 KN/m²

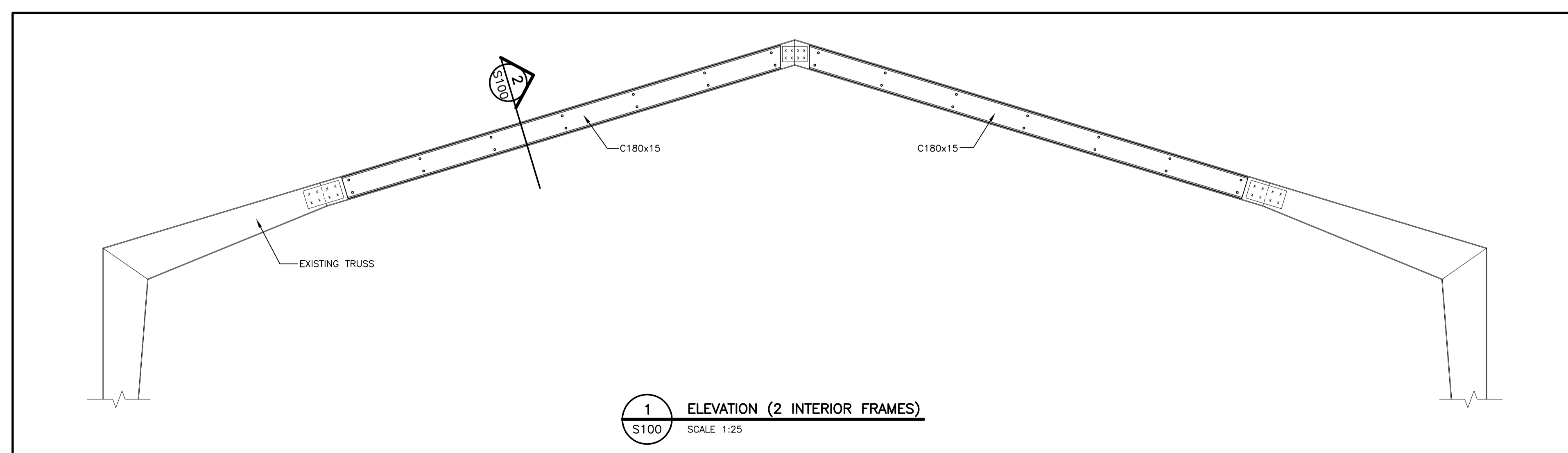
2) STRUCTURAL STEEL

STRUCTURAL STEEL SHALL COMPLY WITH CAN3-S16.1-01(06) UNLESS OTHERWISE NOTED.

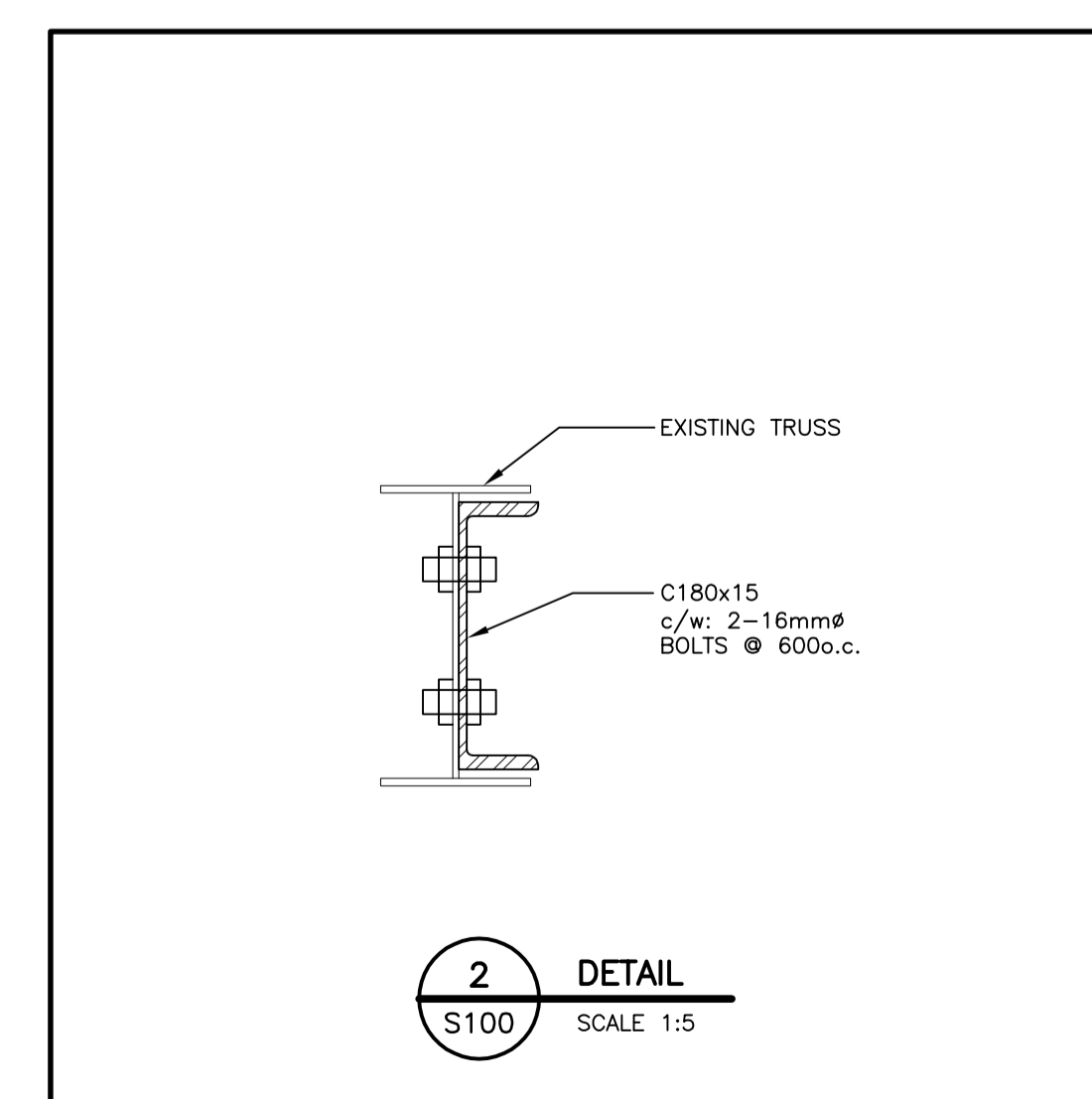
ITEM APPLICABLE SPECIFICATION (UNLESS OTHERWISE NOTED)

ROLLED SECTIONS G40.21M - 350W
CONNECTION BOLTS A325 (BEARING TYPE)
BRACE FRAME/BEARING PLATES G40.21M-300W

- ALL STEEL WORK SHALL BE GIVEN ONE COAT OF APPROVED PRIMER.
- FIELD AND SHOP CONNECTIONS SHALL BE HIGH TENSILE BOLTED (ASTM STANDARD A325).
- STRUCTURAL STEEL MEMBERS SHALL NOT BE SPLICED UNLESS APPROVED BY THE STRUCTURAL ENGINEER IN WRITING.
- WHERE STRUCTURAL STEEL MEMBERS SPECIFIED ON THE STRUCTURAL DRAWINGS ARE UNAVAILABLE TO THE CONTRACTOR, THE STRUCTURAL STEEL CONTRACTOR SHALL PROVIDE MEMBERS HAVING ALL SECTION PROPERTIES EQUAL TO OR BETTER THAN THAT OF THE SPECIFIED MEMBERS AT NO ADDITIONAL COST. CONTACT DEPARTMENTAL REPRESENTATIVE FOR ACCEPTANCE OF ANY AND ALL SUBSTITUTIONS.



1 ELEVATION (2 INTERIOR FRAMES)
SCALE 1:25



2 DETAIL
SCALE 1:5

MECHANICAL SPECIFICATIONS

1.0 VENTILATION

1.1 SCOPE OF WORK

-WORKS INCLUDE ALL LABOUR, PROVISIONS AND INSTALLATION OF ALL MATERIALS AND EQUIPMENT REQUIRED FOR VENTILATION AS SHOWN ON THE DRAWINGS.

-SUPPLY AND INSTALL NEW ELECTRICAL ROOM EXHAUST FAN.

-SUPPLY AND INSTALLATION OF ALL DUCTWORK, THERMOSTATS, MOTORIZED DAMPERS, GRILLES, LOUVERS, AND ACCESSORIES AS SHOWN ON DRAWINGS.

-ALL OPENINGS SHALL BE AT THE CONTRACTORS EXPENSE. THE CONTRACTOR SHALL CO-ORDINATE WITH ALL OTHER SUB-TRADES.

-SUPPLY AND INSTALL ACCESS DOORS FOR ALL FIRE DAMPERS.

-INSTALL ALL EQUIPMENT AND PIPING WITH REQUIRED SEISMIC RESTRAINTS TO SUIT APPLICABLE CODES.

-TAKE READINGS AND PROVIDE A BALANCING REPORT ONCE EQUIPMENT HAS BEEN INSTALLED.

-“AS BUILT” DRAWINGS.

1.2 DUCTWORK

-ALL NEW DUCTWORK SHALL BE MANUFACTURED, INSTALLED AND HUNG ACCORDING TO ASHRAE SPECIFICATIONS.

-DUCT SHALL BE OF GALVANIZED STEEL OF THE FOLLOWING GAUGES, LONGEST SIDE:
 -UP TO 12 INCH: 0.020 IN.
 -OVER TO 12 INCH: 0.026 IN.
 -JOINTS SHALL BE PITTSBURGH SEAM, LONGITUDINALLY, AND TDC WITH CLIPS TRANSVERSELY, AND SHALL BE AIR TIGHT.

-DUCT LEAKAGE IN ACCORDANCE WITH SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL

-ALL TRANSVERSE JOINTS SHALL BE SEALED USING A PIECE OF BUTYL TAPE (STRIP) BETWEEN THE TWO MATING SURFACES (T-JOINTS) OR USING TUCK TAPE (DRIVE SLIP JOINTS).

-ALL LEAKAGE TO BE SEALED USING OIL RESISTANT POLYMER TYPE DUCT SEALANT.

-ALL SUPPORTING RODS SHALL BE THREADED AND ADJUSTABLE IN LENGTH.

-FLEXIBLE DUCT CONNECTIONS SHALL BE UL LISTED FIRE-RETARDANT NEOPRENE COATED WOVEN GLASS FIBRE FABRIC TO NFPA 90A APPROXIMATELY 75 mm WIDE, CRIMPED INTO METAL EDGING STRIP.

1.3 DUCTHANGERS AND SUPPORTS:

-STRAP HANGER OF SAME MATERIAL AS DUCT, GAUGE ONE SIZE HEAVIER THAN DUCT GAUGE INSTALLED ACCORDING TO SMACNA, SPECIFICATIONS. DUCTWORK SUPPORTS AND HANGERS TO MEET ALL APPLICABLE SEISMIC REQUIREMENTS.

1.4 THERMAL INSULATION

-DUCT INSULATION TO BE INSTALLED IN UNCONTROLLED SPACE.

-FIBERGLASS INSULATION WITH RFFRKF ALUMINUM COATING, 16 KG/M3 (1 LB./FT3) DENSITY AND MAXIMUM THERMAL CONDUCTIVITY OF 0.040 W/M°C (0.27 BTU.IN /H.FT2.F) AT 24°C (75°F), AS PER MANSON ALLEY WRAP WITH FSK COATING.

-SEAL ALL JOINTS (TRANSVERSE AND LONGITUDINAL) USING RFFRKF TAPE AND VAPOR PROOF ADHESIVE.

-ALL EXPOSED AND APPARENT INSULATION SHALL BE COVERED WITH CANVAS. CANVAS SHALL BE INSTALLED WITH JOINTS OVERLAPPING

-THICKNESS: ALL SUPPLY AIR DUCTS SHALL BE INSULATED WITH 1" (25mm.) THERMAL INSULATION. RETURN AIR DUCTS SHALL BE INSULATED WITH 1" (25mm.) THERMAL INSULATION FROM THE UNIT DOWN TO 10 FT.INSIDE THE BUILDING.

1.5 MOTORIZED DAMPERS:

-EXTRUDED ALUMINIUM DAMPER FRAME IS NOT LESS THAN .080" (2.03mm) IN THICKNESS. DAMPER FRAME IS 4" (101.6mm) DEEP. BLADES ARE EXTRUDED ALUMINIUM PROFILES, INTERNALLY INSULATED WITH EXPANDED POLYURETHANE FOAM AND THERMALLY BROKEN, INTERMEDIATE OR TUBULAR STEEL STRUCTURAL SUPPORT IS REQUIRED TO RESIST APPLIED PRESSURE LOADS FOR DAMPERS THAT CONSIST OF TWO OR MORE SECTIONS IN BOTH HEIGHT AND WIDTH. GELCON INNER BEARING OR OIL IMPREGNATED BRONZE, ALL LUBRICATED. PRESSURE DROP DOES NOT EXCEED .03" W.G.

-INSTALL DAMPERS IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.

-NEW DAMPER ACTUATORS PROVIDED BY CONTROLS SECTION.

-SYSTEM DAMPERS, TAMCO SERIES 9000 OR EQUIVALENT. TO BE INSTALLED ON FRESH AIR AND EXHAUST AIR SYSTEMS.

1.6 FIRE DAMPERS:

-IN COMPLIANCE WITH NFPA-90A, NFPA-90B, ULC LISTED, 1-1/2 HOURS RESISTANCE. FUSIBLE LINK LISTED FOR 70 DEG C (160 DEG F).

1.7 EXHAUST FAN

-DIRECT DRIVE BACKWARD INCLINED CENTRIFUGAL INLINE FAN.

-300 L/s WITH 75Pa OF STATIC PRESSURE.

-120V/60HZ/1PH

-SUCH AS GREENHECK 50-90 OR APPROVED EQUIVALENT.

-INSTALL FAN WITH VIBRATION ISOLATORS.

1.8 STORM PROOF LOUVERS

-FURNISH AND INSTALL STATIONARY LOUVERS COMPLETE WITH AMCA SEAL. LOUVERS SHALL BE 102mm DEEP. BLADES AND FRAME SHALL BE 2.06mm EXTRUDED ALUMINIUM.

-LOUVERS TO BE INSTALLED WITH BIRDSCREEN.

-SUCH AS VENTEX MODEL 2420 OR APPROVED EQUIVALENT.

1.9 GRILLES

-RY TYPE GRILLE: SITE FABRICATED 13mmx13mm GALVANIZED STEEL MESH WELDED TO A GALVANIZED STEEL FRAME.

2.0 CONTROLS

2.1 SCOPE OF WORK:

-WORK INCLUDES ALL LABOUR, EQUIPMENT, INSTALLATION, ADJUSTMENTS, CALIBRATION AND ALL ELECTRICAL AND ELECTRONIC CONNECTIONS REQUIRED FOR CONTROLS SYSTEMS AS SHOWN ON DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.

-THERE IS AN EXISTING ANDOVER SYSTEM PRESENTLY INSTALLED IN THE COMPLEX. ALL MATERIALS MUST BE SELECTED TO ENSURE FULL COMPATIBILITY WITH THE EXISTING ANDOVER SYSTEM.

-THE DESIGNATED CONTRACTOR IS AIRTRON. HIRE THE SERVICES OF AIRTRON OR ITS AUTHORIZED REPRESENTATIVE TO COMPLETE THE WORK RELATED TO ALL EMCS SECTIONS.

-THIS SECTION SHALL INCLUDE, UNLESS OTHERWISE NOTED, ALL CONDUITS AND WIRING REQUIRED FOR ELECTRICAL AND DDC TYPE CONTROLS, AND ALL CONNECTIONS REQUIRED TO CONTROL PANELS.

-WORK INCLUDES, BUT NOT LIMITED TO, THE FOLLOWING:

- ALL CONTROLS REQUIRED FOR VENTILATION, AS SHOWN ON CONTROLS SCHEMATIC.
- SUPPLY AND INSTALLATION OF DAMPER ACTUATORS.
- NEW RELAY LOGIC, AS SHOWN ON DRAWINGS.
- MODIFICATIONS TO THE EXISTING BUILDING EMCS, INCLUDING THE ADDITION OF ALL NEW CONTROL POINTS TO THE BUILDING MANAGEMENT SYSTEM, PROGRAMMING AND OPERATING SEQUENCES.
- TESTING, VERIFICATION AND COMMISSIONING OF SYSTEM. PROVIDE ALL DOCUMENTATION OF THIS PROCESS.
- O&M MANUALS AND AS-BUILT DRAWINGS.

2.2 ELECTRICAL INSTALLATION:

-CONTROLS DIVISION IS RESPONSIBLE FOR THE HIRING OF A QUALIFIED AND LICENSED ELECTRICAL CONTRACTOR FOR THE FOLLOWING WORK:

- COMPLETE ELECTRICAL INSTALLATION INCLUDING ALL CONDUITS, CABLES, JUNCTION BOX, ETC. REQUIRED FOR CONTROLS SYSTEMS.
- 120 SINGLE PHASE POWER SUPPLIES FOR DDC CONTROLS, LOCAL CONTROL PANELS AND TRANSFORMERS PROVIDED BY THIS SECTION.
- ALL CONNECTIONS TO STARTERS, INTERLOCK FOR FANS AND OTHER CONTROL COMPONENTS.

THE CONTROLS SECTION IS SOLELY RESPONSIBLE FOR THE PROPER OPERATION OF ITS SYSTEMS AND MUST COORDINATE ALL WIRING AND POWER REQUIREMENTS WITH ELECTRICAL DIVISION.

2.3 SHOP DRAWINGS:

-FOR EACH ITEM, PROVIDE SPECIFICATIONS, TECHNICAL DATA SHEET AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.

-PROVIDE CONTROLS SCHEMATICS FOR EACH SYSTEM INCLUDING CONNECTION DIAGRAMS, CONNECTIONS TO CONTROLLERS, EQUIPMENT LISTS, IDENTIFICATION USED, OPERATING SEQUENCES, ETC.

2.4 WIRING:

-ALL CABLES MUST BE RUN IN EMT CONDUIT.

2.5 MATERIALS:

2.5.1 ELECTROMECHANICAL RELAY (R):

-4DPDT, SILVER/NICKEL ALLOY CONTACT, PLUG-IN TYPE WITH TERMINATION BASE AND LED STATUS INDICATORS. COILS RATED FOR 120V AC OR 24V DC. CONTACTS RATED AT 10 AMPS AT 120 V AC, IN APPLICATIONS WHERE RELAY IS SUBJECT TO VIBRATION, PROVIDE HOLD-ON CLIPS, C/W HOUSING WHEN INSTALLED OUTSIDE PANELS.

2.5.2 TRANSFORMER (TR):

-SINGLE PHASE TRANSFORMER, ENCLOSED TYPE C/W HOLDER AND FUSE. TRANSFORMER CAPACITY IN VA TO BE AT LEAST 20% GREATER THAN RATED CHARGE TO BE CONNECTED.

2.5.3 DAMPER ACTUATOR:

-120VAC, ON/OFF, DIRECT MOUNT WITH U-BOLT TYPE CLAMP AND ANTI-ROTATION BRACKET, PROVIDE ALL ADDITIONAL MOUNTING BRACKETS, ACCESSORIES OR ADAPTORS REQUIRED FOR DAMPER SHAFT COUPLING. SPRING RETURN FOR "FAIL SAFE" IN NORMALLY OPEN OR NORMALLY CLOSED POSITION AS INDICATED. SIZE TO CONTROL DAMPERS AGAINST MAXIMUM PRESSURE AND DYNAMIC CLOSING/OPENING PRESSURE, WHICHEVER IS GREATER. TORQUE REQUIREMENTS TO BE 50% GREATER THAN THEORETICAL REQUIREMENTS. MUST HAVE 2 SETS OF AUXILIARY CONTACTS INDICATING OPEN/CLOSE.

2.5.4 DDC CONTROLLER:

-DDC TYPE CONTROLLER, MIN. 2 ANALOG INPUTS (TEMPERATURE, SETPOINT), MIN. 1 DIGITAL OUTPUTS.

2.5.5 ROOM TEMPERATURE SENSOR:

-RESISTIVE TYPE. ACCURACY ±0.2°C. FOR WALL MOUNTING, LED DISPLAY, SETPOINT ADJUSTMENT.

2.5.6 LOCAL CONTROL PANEL - LCP:

-LOCATE TO PROVIDE A MINIMUM CLEARANCE OF 1000 MM (40") IN FRONT OF PANEL. ALL CONTROLS EQUIPMENT INCLUDING RELAYS, SWITCHES, FUSES, TERMINAL BLOCKS, ETC., TO BE INSTALLED INSIDE THE PANEL. CONTROL PANEL AND ALL ITS ASSOCIATED EQUIPMENT, FIELD DEVICES AND WIRING MUST BE IDENTIFIED. ALL JOINTS AND CONNECTIONS INSIDE THE PANEL MUST BE DONE ON SCREW-TYPE TERMINAL BLOCKS. SUPPLY AND INSTALL ON THE INTERIOR OF THE PANEL'S FRONT DOOR, A DETAILED SCHEMATIC DRAWING OF THE SYSTEM'S ARRANGEMENT, INCLUDING ALL WIRING AND DEVICES IDENTIFICATION. SCHEMATIC DRAWING TO BE SEALED IN A TRANSPARENT PLASTIC.

2.6 EMCS POINTS:

-CONFIGURE ALARMS FOR THE FOLLOWING POINTS:

- 1- ROOM TEMPERATURE (HIGH/LOW)
- 2- MD-02 END SWITCH STATUS
- 3- EXHAUST FAN STATUS
- 4- EXHAUST FAN ALARM (UNAUTHORIZED ON/OFF)

2.7 SEQUENCE OF OPERATION

2.7.1 ELECTRICAL ROOM VENTILATION

2.7.1.1 AT SHUTDOWN:

- EXHAUST FAN EF-01 IS OFF
- MD-01 AND MD-02 ARE CLOSED BY INTERLOCK

2.7.1.2 AT START-UP:

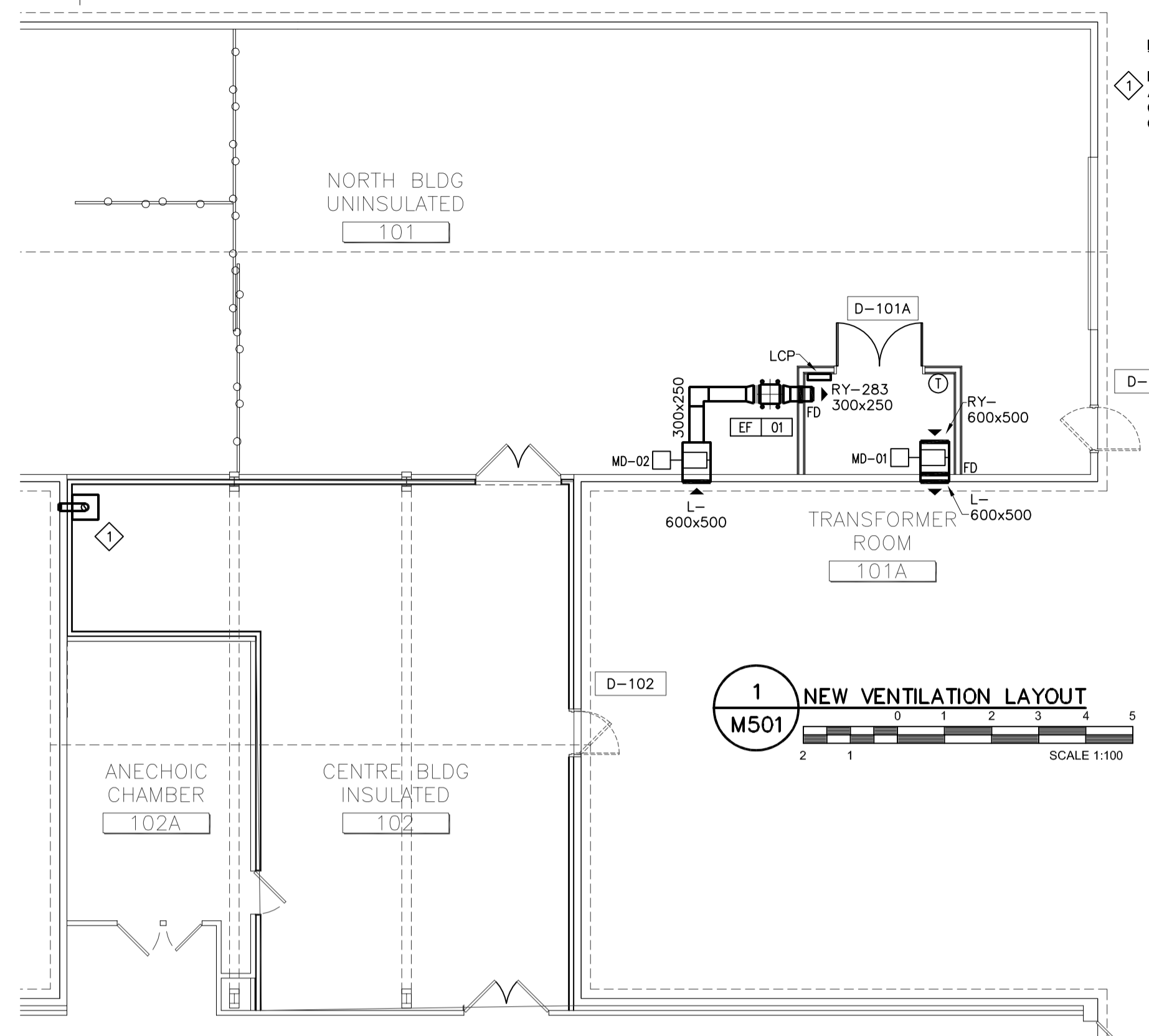
- EXHAUST FAN EF-01 IS ENABLED
- MD-01 AND MD-02 OPEN BY INTERLOCK
- WHEN MD-02 IS PROVED OPEN (VIA LIMIT SWITCH LS-02), EF-01 STARTS

2.7.1.3 NORMAL OPERATION:

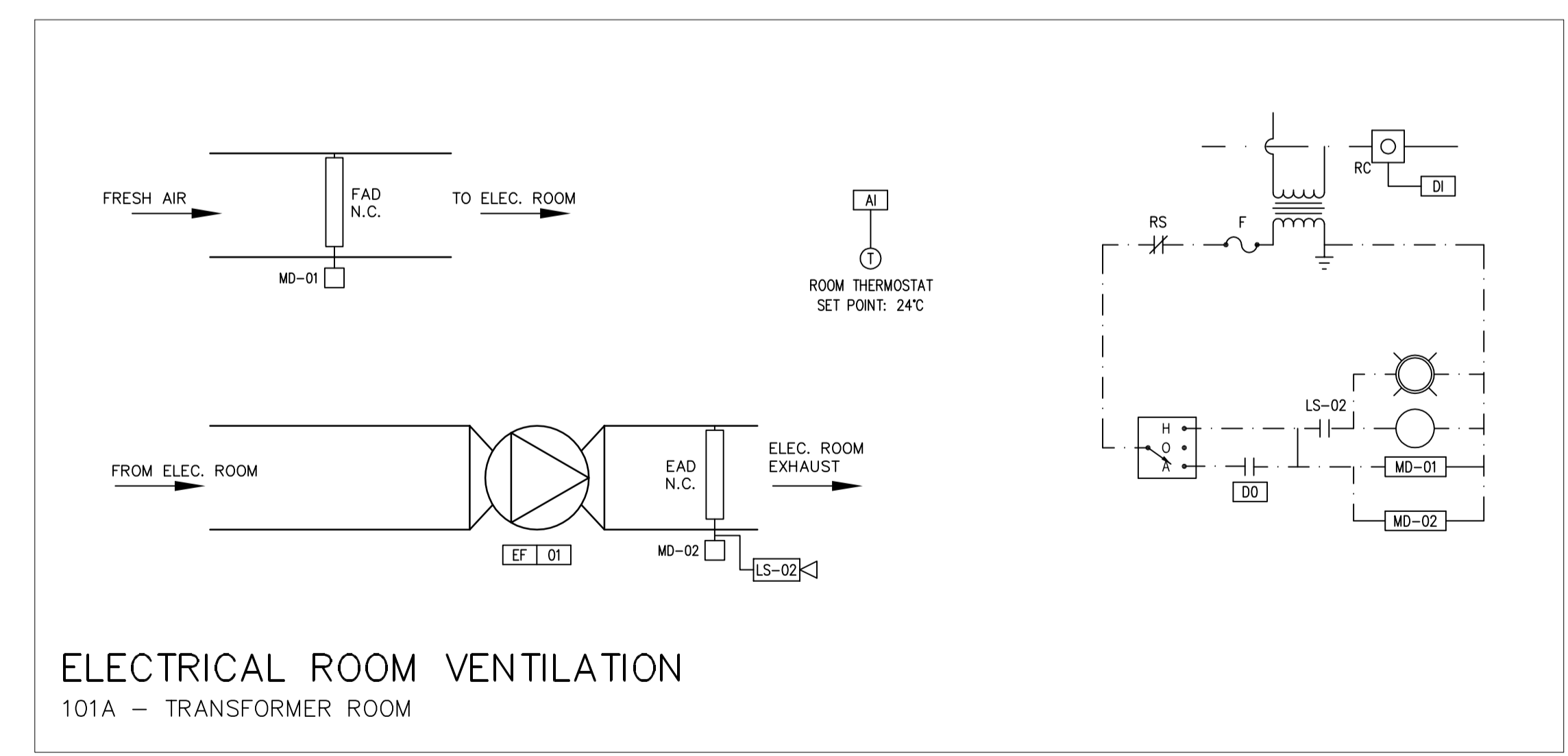
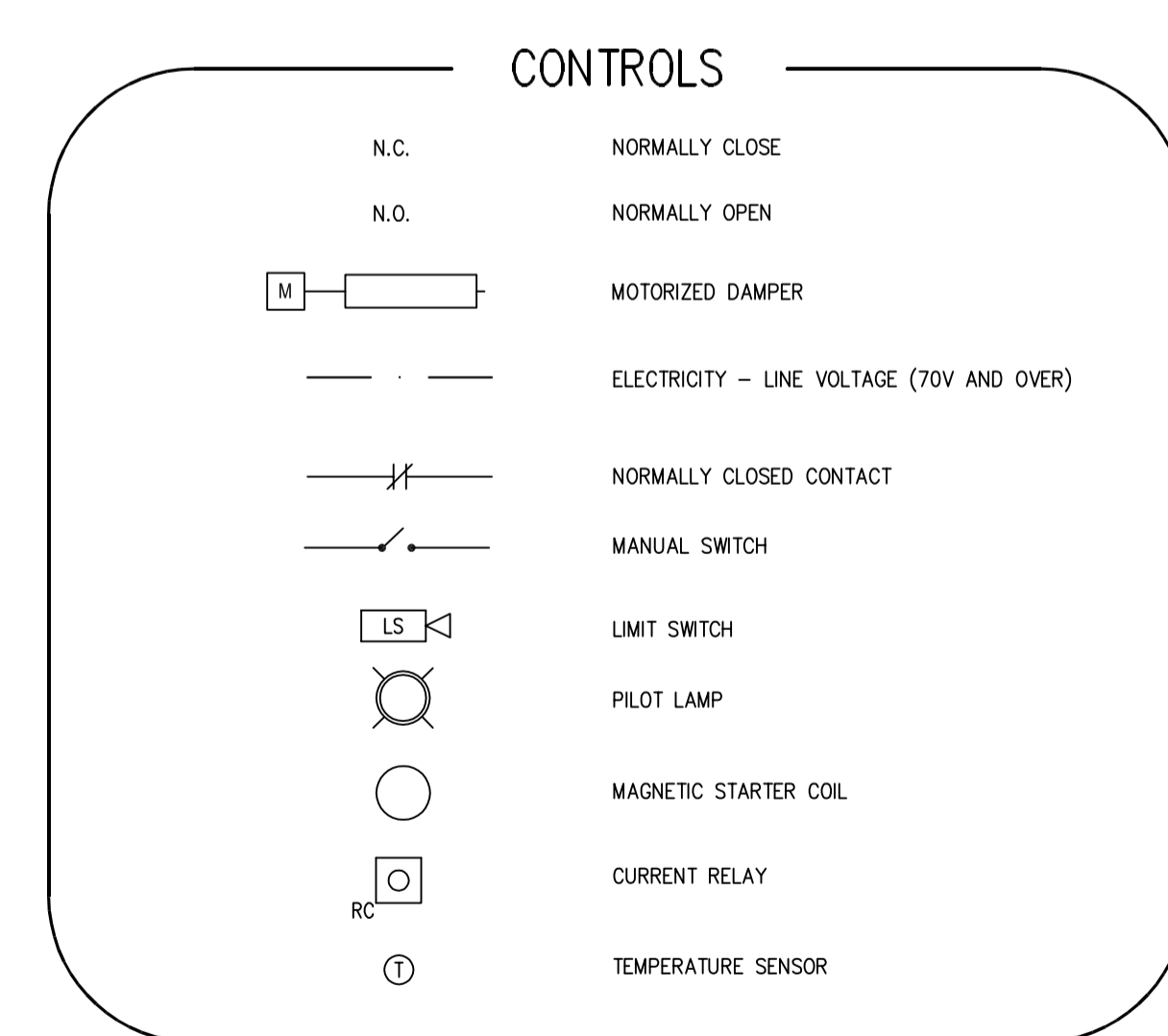
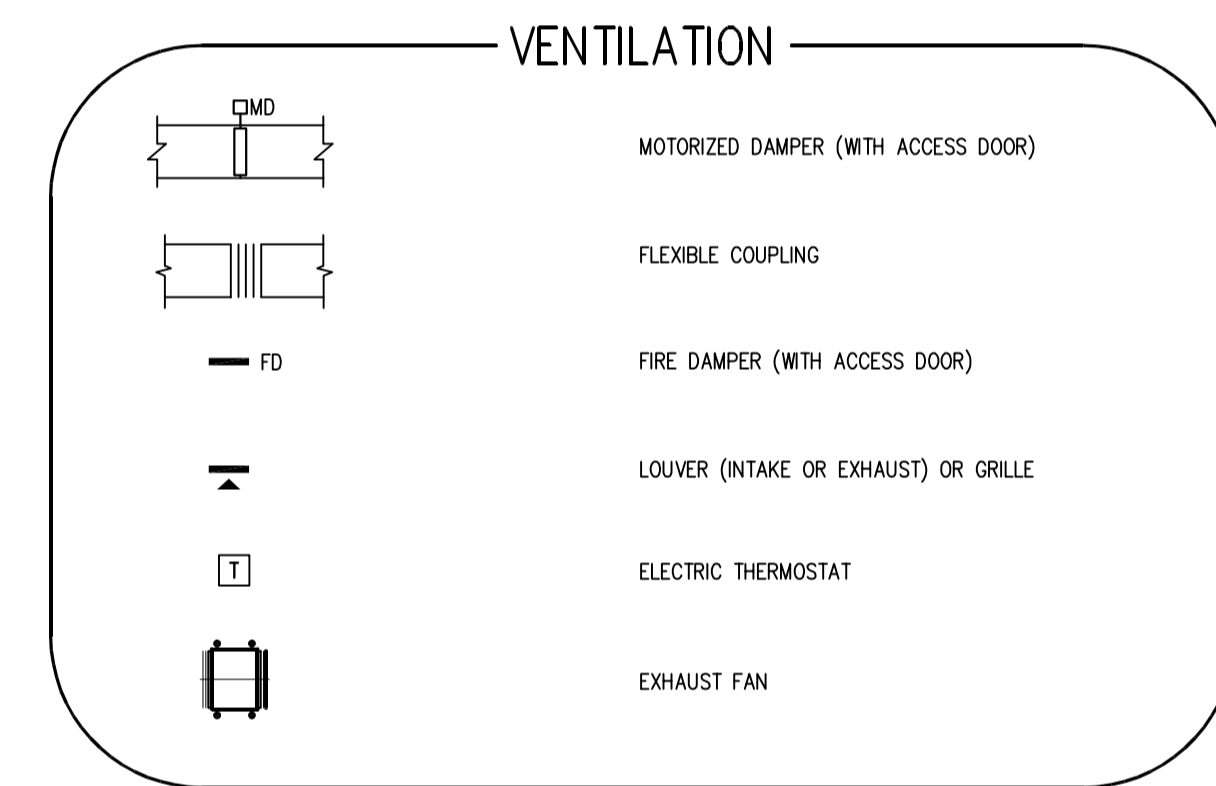
- WHEN TEMPERATURE IN THE ROOM EXCEEDS THE SET POINT (24°C)
- THE SYSTEM REMAINS OPERATIONAL FOR A MINIMUM DELAY (15 MINUTES), AND UNTIL THE ROOM TEMPERATURE IS BELOW 22°C

2.7.1.4 PROTECTIONS:

- THE CONTROLLER OVERRIDES THE TIME DELAY AND STOPS THE SYSTEM IF THE ROOM TEMPERATURE FALLS BELOW 13°C



DRAWING NOTES:
 REMOVE EXISTING EXHAUST HOOD, DUCTWORK AND ALL ASSOCIATED ACCESSORIES. RE-INSTALL ONCE ALL ARCHITECTURAL MODIFICATIONS ARE COMPLETED.



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revisions	description	date

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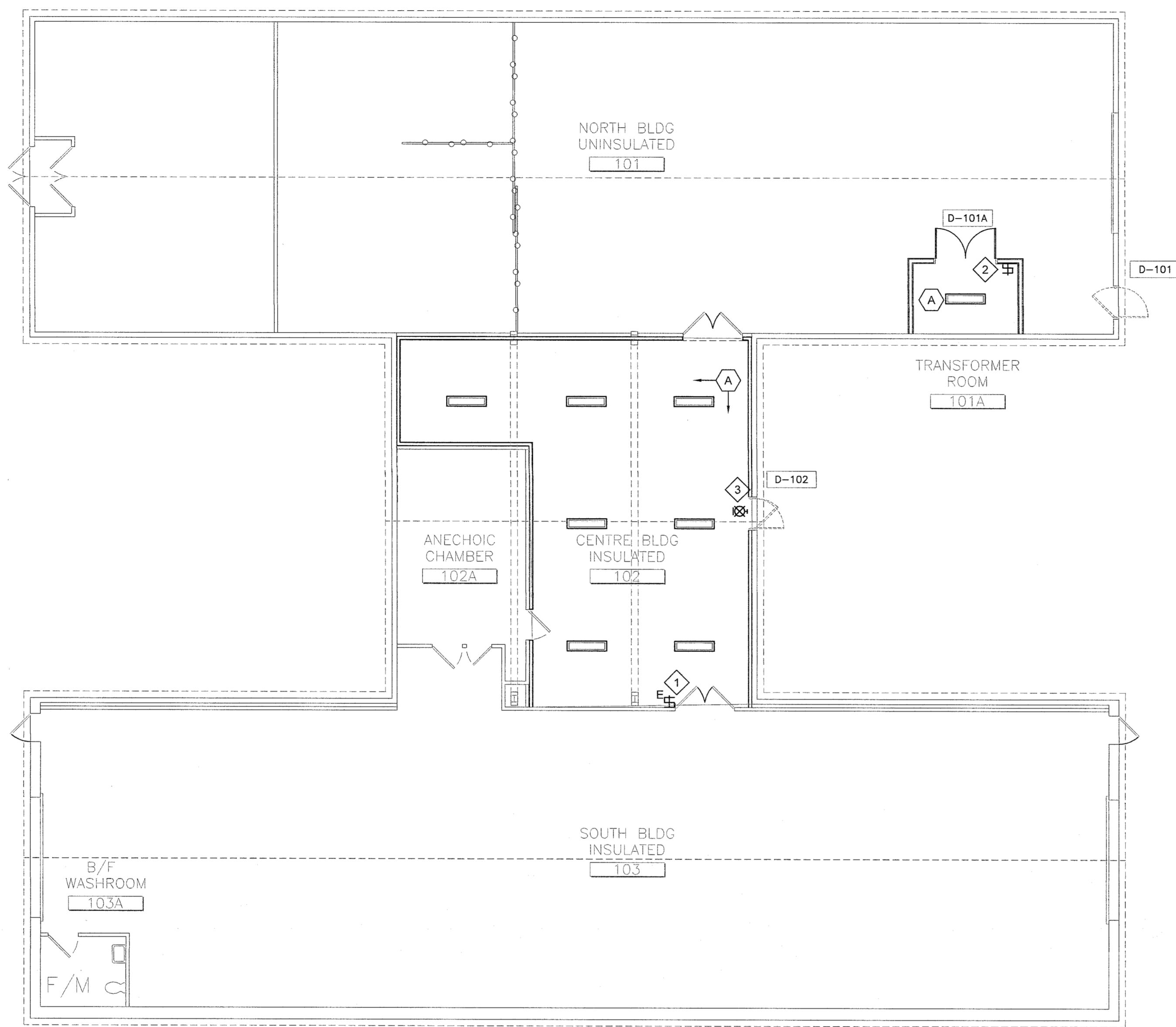
project

**BUILDING M51
 ROOF MODIFICATION
 / INTERIOR WALL
 PROTECTION**

dessin

**MECHANICAL
 SPECIFICATION,
 LEGEND, AND
 VENTILATION PLAN**

Designed By	J.F.	Conçu par
Date	2014-08-07	(yyyy/mm/dd)
Drawn By	J.F.	Dessiné par
Date	2014-08-07	(yyyy/mm/dd)
Reviewed By	P.S.O.	Examiné par
Date	2014-08-07	(yyyy/mm/dd)
Approved By	P.S.O.	Approuvé par
Date	2014-08-07	(yyyy/mm/dd)
Tender		Soumission
Project Manager	Administrateur de projets	
Project no.	No. du projet	
	8014-061	
Drawing no.	No. du dessin	
	M501	



1 FLOOR PLAN -- LIGHTING
E01 SCALE 1:100

LEGEND	
SYMBOL	DESCRIPTION
FIRE ALARM	
	FIRE ALARM PULL STATION
	FIRE ALARM SMOKE DETECTOR
	FIRE ALARM HEAT DETECTOR
	FIRE ALARM BELL
	FIRE ALARM CONTROL PANEL
LIGHTING	
	1200mm FLUORESCENT FIXTURE
LIGHTING CONTROLS	
	LIGHT SWITCH
EMERGENCY LIGHTING	
	WALL MOUNTED EXIT SIGNS
	EMERGENCY BATTERY UNIT C/W HEADS
POWER	
	DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE - SURFACE MOUNTED
	DIRECT CONNECTION
	MOTOR CONNECTION
	DISCONNECT SWITCH
	JUNCTION BOX
	TRANSFORMER
	BREAKER PANEL
HEATING	
	UNIT HEATER
SECURITY	
	CLOSED CIRCUIT TELEVISION CAMERA
	DOOR STRIKE
	CARD READER
	MOTION DETECTOR
NOTES	
	REFER TO NOTE 1
	FIXTURE TYPE 'A'
E	DENOTES EXISTING TO REMAIN
R	DENOTES EXISTING TO BE RELOCATED
D	DENOTES EXISTING TO BE REMOVED
N	DENOTES NEW TO BE SUPPLIED AND INSTALLED
GFI	DENOTES GROUND FAULT INTERRUPT

FIXTURE SCHEDULE		
SYMBOL	TYPE	DESCRIPTION
		4'-0" LED LINEAR STRIP FIXTURE - LED LAMP - 3800 LUMENS - 120 VOLT LED DRIVER - CHAIN HUNG - BAKED WHITE ACRYLIC FINISH - FULLY ENCLOSED FROSTED ACRYLIC LENS - COLOUR 4000K - MANUFACTURER: PHILIPS FLUXSTREAM EZ LF-2-EZ-38-40-U-LAG OR EQUAL

- GENERAL NOTES:**
- REMOVE SPRAY FOAM INSULATION FROM THE COVERS OF JUNCTION BOXES IN CENTRE BUILDING 102.
- NOTES:**
- ALL FIXTURES IN ROOM TO BE CONNECTED THROUGH EXISTING LIGHT SWITCH. EXTEND CONDUIT AND WIRING TO SUIT.
 - ALL FIXTURES IN ROOM TO BE CONNECTED THROUGH NEW LIGHT SWITCH. CONNECT THROUGH LOCAL LIGHT CIRCUITING. EXTEND CONDUIT AND WIRING TO SUIT.
 - REINSTATE EXISTING EXIT LIGHT REMOVED DURING DEMOLITION. EXTEND CONDUIT AND WIRING TO SUIT.

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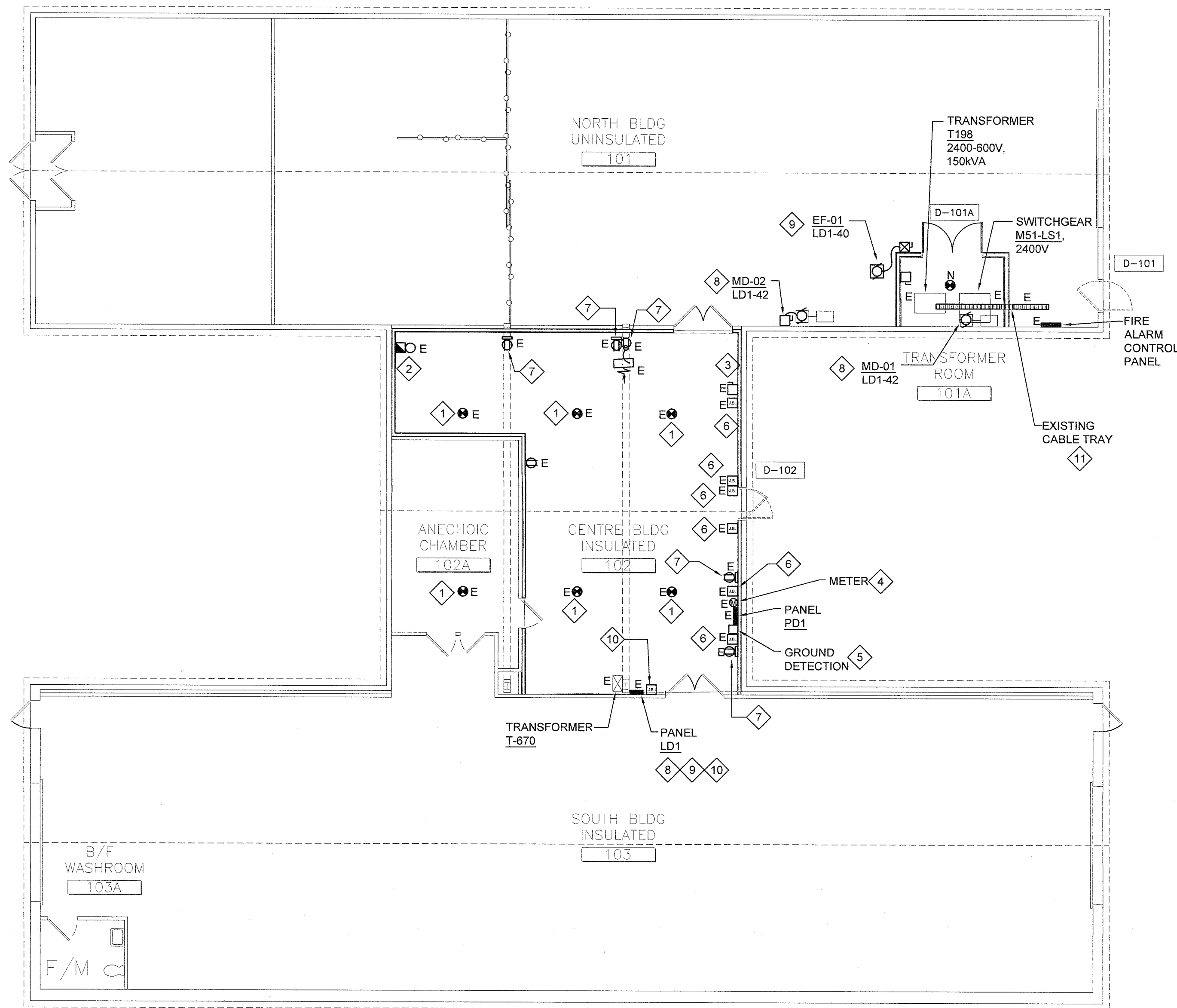
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**BUILDING M51
ROOF MODIFICATION
/ INTERIOR WALL
PROTECTION**

drawing dessin

**ELECTRICAL
LEGEND &
GROUND FLOOR PLAN
LIGHTING**

Designed By	T.O.R.	Conçu par
Date	2014-08-07	(yyyy/mm/dd)
Drawn By	T.O.R.	Dessiné par
Date	2014-08-07	(yyyy/mm/dd)
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Date		(yyyy/mm/dd)
Approved By	M.M.	Approuvé par
Date	2014-08-07	(yyyy/mm/dd)
Tender		Soumission
Project Manager		Administrateur de projets
Project no.		No. du projet
	8014-061	
Drawing no.		No. du dessin
	E01	



1 FLOOR PLAN - POWER AND SYSTEMS
E02
SCALE 1:100

GENERAL NOTES:

1. REMOVE SPRAY FOAM INSULATION FROM THE COVERS OF JUNCTION BOXES IN CENTRE BUILDING 102.

NOTES:

- 1 REINSTATE FIRE ALARM DEVICES UPON COMPLETION OF NEW CEILING. PROVIDE EXTENSION RINGS FLUSH TO NEW DRYWALL CEILING. PROVIDE NEW WIRING, NO JOINTS PERMITTED. PROVIDE FIRE ALARM TESTING, VERIFICATION CERTIFICATE UPON COMPLETION OF WORK.
- 2 REINSTATE FIRE ALARM BELL UPON COMPLETION OF NEW WALL. PROVIDE FIRE ALARM TESTING, VERIFICATION CERTIFICATE UPON COMPLETION OF WORK.
- 3 REINSTATE EXISTING DISCONNECT UPON COMPLETION OF NEW WALL. EXTEND CONDUIT AND WIRING TO SUIT.
- 4 REINSTATE EXISTING METER UPON COMPLETION OF NEW WALL. EXTEND CONDUIT AND WIRING TO SUIT.
- 5 REINSTATE EXISTING GROUND DETECTION UPON COMPLETION OF NEW WALL. EXTEND CONDUIT AND WIRING TO SUIT.
- 6 PROVIDE EXTENSION RINGS ON JUNCTION BOXES. PROVIDE COVER PLATES UPON COMPLETION OF NEW WALL. COORDINATE WITH DEPARTMENTAL REPRESENTATIVE.
- 7 PROVIDE EXTENSION RINGS ON DEVICE BOXES. PROVIDE NEW COVER PLATES AND DEVICES UPON COMPLETION OF NEW WALL. EXTEND CONDUIT AND WIRING TO SUIT. COORDINATE WITH DEPARTMENTAL REPRESENTATIVE.
- 8 PROVIDE A 15A-1P BREAKER IN THE EXISTING PANEL AS INDICATED TO SUPPLY NEW MOTORIZED DAMPERS. REFER TO ELECTRICAL ROOM VENTILATION SCHEMATIC ON MECHANICAL DRAWING M501. EXTEND CONDUIT AND WIRING TO SUIT.
- 9 PROVIDE A 15A-1P BREAKER IN THE EXISTING PANEL AS INDICATED TO SUPPLY NEW EXHAUST FAN EF-01. PROVIDE A MAGNETIC STARTER AS SHOWN. REFER TO ELECTRICAL ROOM VENTILATION SCHEMATIC ON MECHANICAL DRAWING M501. EXTEND CONDUIT AND WIRING TO SUIT.
- 10 JUNCTION BOX LOCATED ABOVE PANEL LD1 TO BE RELOCATED TO ACCOMMODATE NEW GYPSUM CEILING. REWORK THREE CONDUITS ENTERING AND THREE CONDUITS EXITING THE JUNCTION BOX COMPLETE WITH CIRCUITS. ALLOW FOR 12 CIRCUITS TO BE REWORKED. EXTEND CONDUIT AND WIRING TO SUIT. COORDINATE WITH DEPARTMENTAL REPRESENTATIVE.
- 11 CUT AND REMOVE A SECTION OF THE CABLE TRAY SUPPORTING THE 2400V CABLE TO ACCOMMODATE WALL CONSTRUCTION. PROVIDE CABLE TRAY SUPPORTS AT EACH END NEAR THE NEW WALL. PRIMARY CABLE IS TO BE RAN INSIDE A 150mm SPLIT SLEEVE PROVIDED BY OTHERS. THE SLEEVE IS TO BE FIRE STOPPED AFTER THE CABLE HAS BEEN INSTALLED.

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**BUILDING M51
ROOF MODIFICATION
/ INTERIOR WALL
PROTECTION**

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**ELECTRICAL
GROUND FLOOR PLAN
POWER & SYSTEMS**

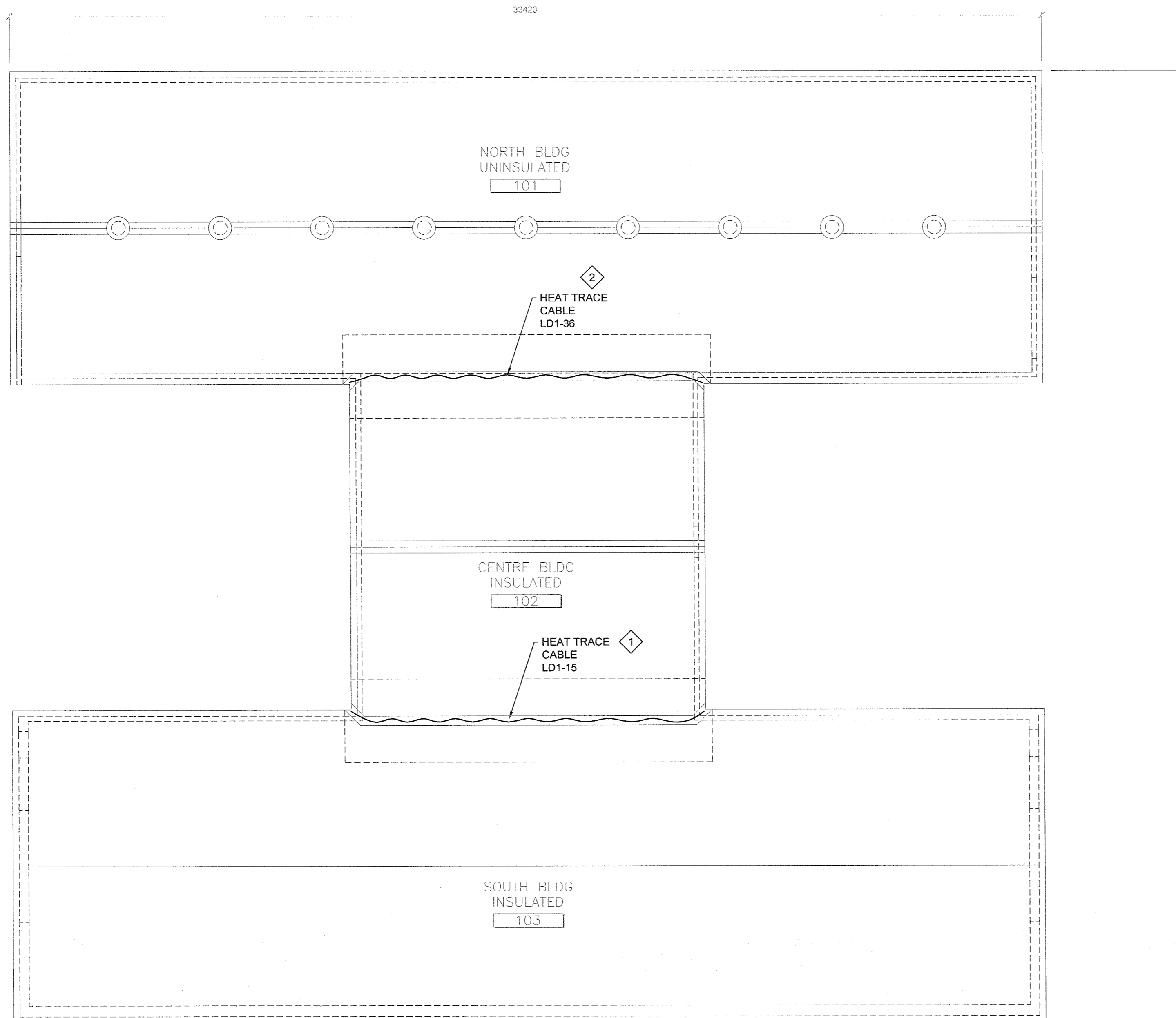
Designed By	T.O.R.	Conçu par
Date	2014-08-07	(yyyy/mm/dd)
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Date	2014-08-07	(yyyy/mm/dd)
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Approved By	M.M.	Approuvé par
Date	2014-08-07	(yyyy/mm/dd)
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Project Manager Administrateur de projets
Project no. No. du projet

8014-061

Drawing no. No. du dessin

E02



1 ROOF PLAN - POWER
E03
SCALE 1:100

NOTES:

- 1 REMOVE EXISTING HEAT TRACE CABLE AND PROVIDE NEW HEAT TRACE CABLE AND COMPONENTS AS REQUIRED. THE HEAT TRACE CABLE IS TO COVER THE FULL GUTTER AS SHOWN. REMOVE EXISTING BREAKER AND PROVIDE NEW GFI RATED HEAT TRACE BREAKER.
- 2 PROVIDE NEW HEAT TRACE CABLE AND COMPONENTS AS REQUIRED. THE HEAT TRACE CABLE IS TO COVER THE FULL GUTTER AS SHOWN. PROVIDE A 15A-1P, GFI RATED HEAT TRACE BREAKER IN THE EXISTING PANEL AS INDICATED TO SUPPLY NEW HEAT TRACE CABLE. EXTEND CONDUIT AND WIRING TO SUIT.

Canada

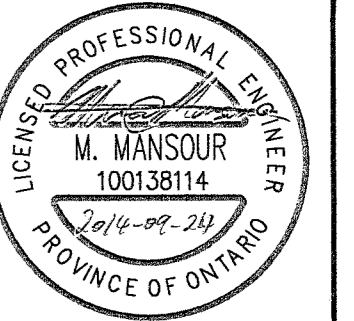
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**BUILDING M51
ROOF MODIFICATION
/ INTERIOR WALL
PROTECTION**

drawing dessin

**ELECTRICAL
ROOF PLAN
POWER & SYSTEMS**

Designed By T.O.R. Conçu par
Date 2014-08-07 (yyyy/mm/dd)

Drawn By T.O.R. Dessiné par
Date 2014-08-07 (yyyy/mm/dd)

Reviewed By Examiné par
Date (yyyy/mm/dd)

Approved By M.M. Approuvé par
Date 2014-08-07 (yyyy/mm/dd)

Tender Soumission

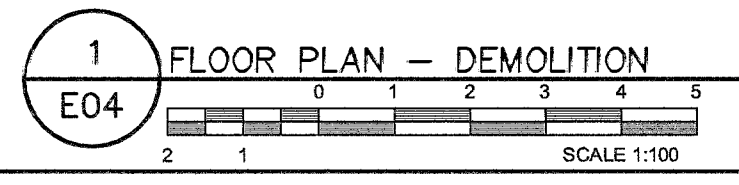
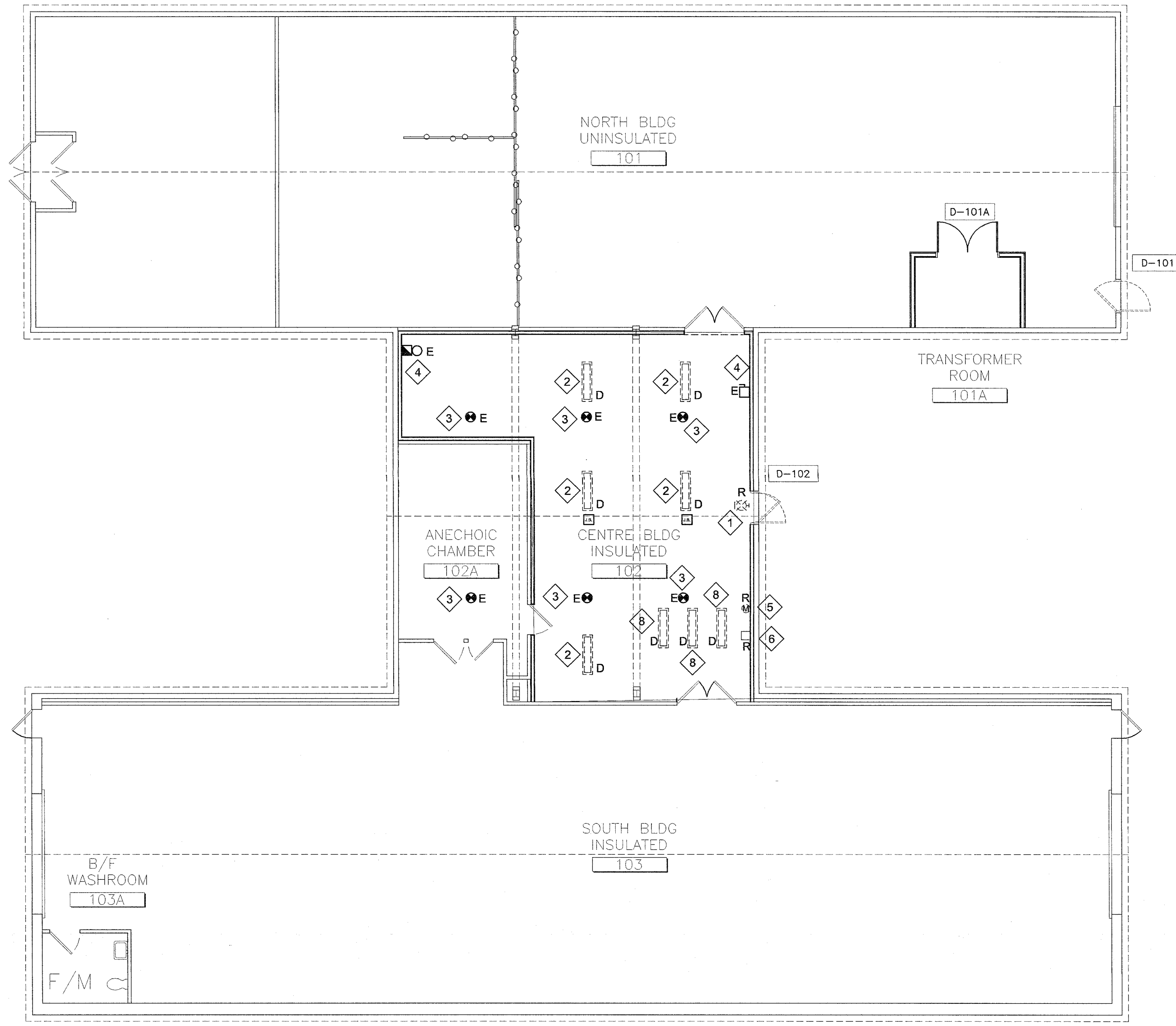
Project Manager Administrateur de projets

Project no. No. du projet

8014-061

Drawing no. No. du dessin

E03



- NOTES:**
- 1 EXISTING EXIT LIGHT TO BE REMOVED AND REINSTATED TO ACCOMMODATE NEW WALL. REFER TO NEW LIGHTING LAYOUT FOR LOCATION.
 - 2 REMOVE LIGHT FIXTURES AND REPLACE WITH NEW AS INDICATED ON NEW LAYOUT DRAWINGS.
 - 3 REMOVE FIRE ALARM DEVICES FROM CEILING TO ACCOMMODATE NEW GYPSUM CEILING. TEMPORARILY SUPPORT FIRE ALARM DEVICES DURING REMOVALS AND INSTALLATION OF CEILING. ENSURE FIRE ALARM DEVICES REMAIN FUNCTIONAL DURING CONSTRUCTION.
 - 4 REMOVE FIRE ALARM BELL FROM THE WALL TO ACCOMMODATE NEW GYPSUM WALL CONSTRUCTION. TEMPORARILY SUPPORT FIRE ALARM BELL DURING INSTALLATION OF WALL. ENSURE FIRE ALARM BELL REMAINS FUNCTIONAL DURING CONSTRUCTION.
 - 5 REMOVE DISCONNECT FROM THE WALL TO ACCOMMODATE NEW GYPSUM WALL CONSTRUCTION. REINSTATE DISCONNECT ON NEW WALL.
 - 6 REMOVE METER FROM THE WALL TO ACCOMMODATE NEW GYPSUM WALL CONSTRUCTION. REINSTATE METER ON NEW WALL.
 - 7 REMOVE GROUND DETECTION FROM THE WALL TO ACCOMMODATE NEW GYPSUM WALL CONSTRUCTION. REINSTATE GROUND DETECTOR ON NEW WALL.
 - 8 REMOVE LIGHT FIXTURES AND SUPPORT STRUCTURE AND CHANNEL. REPLACE WITH NEW AS INDICATED ON NEW LAYOUT DRAWINGS.

GENERAL INSTRUCTIONS:

1. REPAIR AND MAKE GOOD ALL WALLS, CEILINGS, ETC. CUT UNDER THIS DIVISION.
2. PROTECT EXISTING WORK AND EQUIPMENT DURING CONSTRUCTION.
3. TEST ALL SYSTEM COMPONENTS FOR PROPER OPERATION AND SAFETY.

SPECIFICATION NOTES:

1.0 GENERAL

1. DO COMPLETE INSTALLATION IN ACCORDANCE WITH THE FOLLOWING: ONTARIO BUILDING CODE, ONTARIO ELECTRICAL CODE, AMENDMENTS AND APPLICABLE LOCAL REGULATIONS CW INSPECTION CERTIFICATE.
2. PRIOR TO TENDER, CONFIRM SITE CONDITIONS AND LOCATION OF EXISTING SERVICES.
3. DRAWINGS INDICATE GENERAL LOCATION, QUANTITY AND TYPE OF OUTLETS FOR ELECTRICAL SERVICES ONLY. DO NOT SCALE.
4. SUBMIT ALL PLANS REQUIRED BY THE INSPECTION AUTHORITY FOR APPROVAL. FURNISH INSPECTION CERTIFICATE, PRIOR TO FINAL PAYMENT, TO SHOW INSTALLED WORK CONFORMS WITH SPECIFICATION AND REGULATIONS. PAY ALL FEES AND PERMIT COSTS.
5. SUBMIT COPY OF SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL. PROVIDE SHOP DRAWINGS OF ALL EQUIPMENT AND DEVICES.
6. UPON COMPLETION OF WORK PROVIDE MARKUP PRINTS DESCRIBING ASBUILT CONDITIONS AND 1 COPY OF MAINTENANCE MANUALS.
7. ALLOW FOR RELOCATION OF OUTLETS UP TO 3000mm PRIOR TO INSTALLATION AT NO EXTRA COST.
8. ALL WIRING DEVICES TO BE SPECIFICATION GRADE.
9. INSTALL ELECTRICAL EQUIPMENT AT THE FOLLOWING HEIGHTS UNLESS OTHERWISE INDICATED OR DIRECTED OTHERWISE.
 - LOCAL SWITCHES AND DIMMER SWITCHES: 1220mm
 - GENERAL RECEPTACLES: 400mm
 - WALL MOUNTED FIRE ALARM BELLS, HORNS OR STROBES: 2400mm
 - CARD READERS, KEYPADS AND SECURITY DEVICES: 1220mm
 - DOOR CONTACTS: TOP OF DOOR FRAME
10. SCAN ALL AFFECTED SHAFT WALLS, BLOCK WALLS, FLOORS OR OTHER SUCH ASSEMBLIES PRIOR TO ANY CORE DRILLING OR SAW-CUTTING.
11. PROVIDE APPROPRIATE FIRESTOPPING FOR ALL PENETRATIONS THROUGH FIRE-RATED ASSEMBLIES.

2.0 WIRING METHOD

1. USE ELECTRICAL METALLIC TUBING (EMT) FOR ALL WORK EXCEPT FOR THE FOLLOWING USAGE: UNDERGROUND CONDUIT FOR EXTERIOR LIGHTING AND OTHER ELECTRICAL SERVICES SHALL BE IN PVC (TYPE 2), TO CSA C22.2 NO.211, JAN. 1985.
- USE FLEXIBLE METAL CONDUIT FOR FINAL CONNECTIONS TO FLUORESCENT FIXTURES.
- ARMoured CABLE DROP FROM CEILING TO WALL OUTLET.
2. PROVIDE IN ALL CONDUITS AN INSULATED GREEN GROUNDING CONDUCTOR (NO.12 AWG) RUN WITH CIRCUIT CONDUCTORS AN TO ALL ENCLOSURES.
3. PROVIDE PULL STRINGS IN ALL EMPTY CONDUIT.
4. CONDUCTOR MATERIAL (WIRE IN CONDUIT) - ANNEALED COMMERCIAL GRADE, 98% CONDUCTIVITY, COPPER. NO.12 AWG AND LARGER - STRANDED.
- RW90, UNLESS OTHERWISE NOTED. PROVIDE 600V RATED FOR 347/600V AND 120/208V WIRING, SIZES NO.12 AND NO.10 AWG.
- RWU90, NO.8 AND LARGER, 1000V RATED FOR 347/600V AND 120/208V WIRING.
- SMALLEST CONDUCTOR SIZE ALLOWED NO.12 AWG UNLESS OTHERWISE SPECIFIED.
- FOR BRANCH CIRCUITS OVER 23M (75') IN LENGTH, USE NO.10 AWG FOR ENTIRE LENGTH.
- PROVIDE SEPARATE NEUTRAL CONDUCTOR FOR ALL COMPUTER BRANCH CIRCUITS (SIZE TO MATCH HOT WIRE).
5. IN FINISHED AREAS RUN CONDUIT CONCEALED, PARALLEL TO BUILDING LINES.

3.0 GROUNDING

1. GROUNDING EQUIPMENT TO CSA C22.2 NO. 41. COPPER GROUNDING CONDUCTORS TO CSA C22.1, SECTION 10 (LATEST EDITION). INSULATED GROUNDING CONDUCTORS AS HEREIN SPECIFIED.
2. FOR STANDARD DUPLEX RECEPTACLES PROVIDE INSULATED GROUND CONDUCTOR. SIZE FOR EQUIPMENT GROUND IN ACCORDANCE WITH ELECTRICAL CODE. MINIMUM CONDUCTOR SIZE #12 WITH GREEN INSULATION. GROUND CONDUCTOR TO BE CONNECTED UNDER A BONDING SCREW TO OUTLET BOX(ES) AND PANELBOARD.
3. INSTALL SEPARATE 'GREEN' GROUND CONDUCTOR IN SAME CONDUIT WITH CIRCUIT (POWER WIRING) CONDUCTORS. BOND SECURELY TO GROUND SCREW IN EACH OUTLET, JUNCTION, PULL BOX AND EQUIPMENT ENCLOSURE. GROUND CONDUCTOR EQUAL IN AMPACITY TO SIZE OF CIRCUIT AMPACITY OR IN ACCORDANCE WITH CODE FOR EQUIPMENT GROUNDING.

4.0 IDENTIFICATION

1. IDENTIFY SOURCE, VOLTAGE AND LOAD ON ALL JUNCTION BOXES. USE OF P-TOUCH TYPE MARKERS FOR THESE LOCATIONS IS ACCEPTABLE.
2. ALL CONDUCTORS TO BE COLOUR CODED IN ACCORDANCE WITH CSA 22.1 - SECTION 4.036 AND EXISTING BUILDING WIRE COLOUR CODE SYSTEM.
3. UPDATE ALL PANELBOARD SCHEDULES AS REQUIRED.
4. PROVIDE LAMICOID IDENTIFICATION LABELS ON ALL EQUIPMENT.
5. MARK ALL CIRCUIT NUMBERS ON RECEPTACLES, DOWNFEED SERVICE POLES, ETC. WITH BLACK LETTERS ON CLEAR P-TOUCH LABELS.

5.0 MOULDED CASE CIRCUIT BREAKERS

1. PROVIDE MOULDED CASE CIRCUIT BREAKERS TO CSA 22.2 NO. 5.1, WITH THE FOLLOWING FEATURES:
 - PROVIDE AUTOMATIC MOULDED CASE CIRCUIT BREAKERS IN PANELBOARDS AS INDICATED. BREAKER SIZES AND TRIPS AS SCHEDULED, OR INDICATED ON THE ONE-LINE DIAGRAM.
 - USE BOLT-ON MOULDED CASE CIRCUIT BREAKERS, QUICK-MAKE, QUICK-BREAK TYPE FOR MANUAL AND AUTOMATIC OPERATION WITH TEMPERATURE COMPENSATION FOR 40°C (104°F) AMBIENT.
 - BREAKERS SHALL BE COMMON TRIPS WITH SINGLE HANDLE FOR MULTI-POLE APPLICATION.
 - IN PANELBOARDS, MOULDED CASE CIRCUIT BREAKERS TO OPERATE AUTOMATICALLY BY MEANS OF THERMAL AND MAGNETIC TRIPPING DEVICES TO PROVIDE INVERSE TIME CURRENT TRIPPING UNDER OVERLOAD CONDITIONS, AND INSTANTANEOUS MAGNETIC TRIPPING FOR CIRCUIT PROTECTION.
 - MAGNETIC INSTANTANEOUS TRIP ELEMENTS TO OPERATE ONLY WHEN THE VALUE OF CURRENT REACHES 10 TO 12 TIMES THE BREAKER TRIP SETTING.
 - BREAKER MINIMUM INTERRUPTING CAPACITY (SYMMETRICAL RMS VALUES) SHALL BE NOT LESS THAN THE FOLLOWING: 600V - 25kA; 240V - 10kA.
 - MOTOR CONTROL MAGNETIC STARTERS SHALL BE PROVIDED WITH MOTOR CIRCUIT INTERRUPTER BREAKERS - 600V, 3 POLE, 25kA INTERRUPTING CAPACITY, MAGNETIC TRIP ONLY, ADJUSTABLE (8 SETTINGS), WITH LOCKING PIN.
 - HEAT TRACE BREAKERS TO BE GFCI WITH A 30mA TRIP LEVEL.
2. STANDARD OF ACCEPTANCE: CSA APPROVED FOR PANELBOARD.

12.0 MOTOR PROTECTION AND CONTROL

1. MAGNETIC AND COMBINATION MAGNETIC STARTERS OF SIZE, TYPE, RATING AND ENCLOSURE TYPE AS INDICATED WITH COMPONENTS AS FOLLOWS:
 - 1 CONTACTOR SOLENOID OPERATED, RAPID ACTION TYPE.
 - 2 MOTOR OVERLOAD PROTECTIVE DEVICE IN EACH PHASE MANUALLY RESET FROM OUTSIDE ENCLOSURE.
 - 3 POWER AND CONTROL TERMINALS.
 - 4 WIRING AND SCHEMATIC DIAGRAM INSIDE STARTER ENCLOSURE IN VISIBLE LOCATION.
 - 5 IDENTIFY EACH WIRE AND TERMINAL FOR EXTERNAL CONNECTIONS, WITHIN STARTER, WITH PERMANENT NUMBER MARKING IDENTICAL TO DIAGRAM.
 - 6 CONTROL TRANSFORMER.
2. COMBINATION TYPE STARTERS TO INCLUDE MOTOR CIRCUIT INTERRUPTER WITH OPERATING LEVER ON OUTSIDE CIRCUIT INTERRUPTER AND PROVISION FOR:
 - 1 LOCKING IN "OFF" POSITION WITH UP TO THREE (3) PADLOCKS.
 - 2 LOCKING IN "ON" POSITION.
 - 3 INDEPENDENT LOCKING OF ENCLOSURE DOOR.
 - 4 PROVISION FOR PREVENTING SWITCHING TO "ON" POSITION WHILE ENCLOSURE DOOR OPEN.
3. ACCESSORIES:
 - 1 SELECTOR SWITCHES HAND-OFF-AUTO. HEAVY DUTY LABELLED AS INDICATED.
 - 2 LED INDICATING LIGHTS: OIL-TIGHT TYPE RED FOR RUN.
 - 3 2AWG AND 2AWG SPARE AUXILIARY CONTACTS UNLESS OTHERWISE INDICATED.

CHECK SEQUENCE CONTROLS, INTERLOCKING WITH OTHER SEPARATE RELATED STARTERS, EQUIPMENT, CONTROL DEVICES, TO ENSURE OPERATION AS REQUIRED.

6.0 WIRING DEVICES

1. MANUALLY OPERATED GENERAL PURPOSE AC SWITCHES TO CSA C22.2 NO. 111.
2. SNAP SWITCHES TO CSA C22.2 NO. 55-M1986 (R2003).
3. RECEPTACLES, PLUGS AND SIMILAR DEVICES TO CSA C22.2 NO. 42-99 (R2004).
4. COVERPLATES TO CSA C22.2 NO. 42-1-00 (R2004).
5. SWITCHES:
 - 15A, 120V SINGLE POLE, THREE-WAY, FOUR-WAY SPECIFICATION GRADE SWITCHES AS INDICATED.
 - TOGGLE OPERATED, FULLY RATED FOR TUNGSTEN FILAMENT AND FLUORESCENT LAMPS, AND UP TO 80% OF RATED CAPACITY OF MOTOR LOADS.
 - SWITCHES OF ONE MANUFACTURER THROUGHOUT PROJECT. EQUAL TO HUBBELL 1200 SERIES FOR 120V, AND HUBBELL 1800 SERIES FOR 347V.
 - INSTALL SINGLE THROW SWITCHES WITH HANDLE IN THE 'UP' POSITION WHEN SWITCH IS CLOSED.
 - INSTALL SWITCHES IN GANG TYPE OUTLET BOX WHEN MORE THAN ONE SWITCH IS REQUIRED IN ONE LOCATION.
6. RECEPTACLES:
 - DUPLEX RECEPTACLES, CSA TYPE 5-15R, 125V, 15A, U GROUND, SPECIFICATION GRADE EQUAL TO HUBBELL 5262.
7. COVERPLATES:
 - PROVIDE STAINLESS STEEL COVERPLATES FOR ALL WIRING DEVICES.
- 7.0 FIRE PROTECTION SYSTEM
 1. DO INSTALLATION TO ULC-S524 AND VERIFICATION TO ULC-S537 (LATEST EDITION) AND CSA C22.1 SECTION 32.
 2. THE MANUFACTURER SHALL MAKE AN INSPECTION OF THE COMPLETED SYSTEM AND THE EQUIPMENT COMPONENTS NECESSARY TO THE DIRECT OPERATION OF THE SYSTEM, SUCH AS MANUAL STATIONS, THERMAL DETECTORS AND CONTROLS. SUBMIT A COPY OF THE INSPECTING TECHNICIANS REPORT SHOWING LOCATION OF EACH DEVICE AND CERTIFYING THE TEST RESULTS OF EACH DEVICE.
- 8.0 HEAT TRACE CABLE
 - 8.1 HEAT TRACE CABLE
 - SELF-LIMITING 120 VOLT HEATING CABLE MODIFIED POLYOLEFIN OUTER JACKET, TINNED COPPER BRAID, MODIFIED POLYOLEFIN INNER JACKET, SELF REGULATING CONDUCTIVE CORE AND NICKEL PLATED COPPER BUS WIRES. HEATING CAPACITY: 15W/M; FOR USE WITH 120V POWER SUPPLY.
 - 8.2 CONTROLS:
 - LINE VOLTAGE THERMOSTAT SPECIFICALLY MANUFACTURED FOR THE CONTROL SELF-LIMITING HEATING CABLES.
 - THERMOSTAT SHALL HAVE THE FOLLOWING FEATURES.
 - LINE VOLTAGE: 120 VOLT, 22 AMPS.
 - NEMA 4X POLYURETHANE COATED, CAST ALUMINUM HOUSING, STAINLESS STEEL HARDWARE.
 - FIXED SET POINT: 4.4°C (NON-ADJUSTABLE).
 - SENSOR EXPOSURE LIMITS - 34 °C TO 60°C.
 - TWO POLE SINGLE THROW SWITCH.
 - SENSOR TYPE AND FIXED FLUID FILLED BULB AND 800 MM CAPILLARY.
 - 8.3 MANUFACTURER'S INSTRUCTIONS:
 - COMPLIANCE: COMPLY WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS OR SPECIFICATIONS, INCLUDING PRODUCT TECHNICAL BULLETINS, HANDLING, STORAGE AND INSTALLATION INSTRUCTIONS, AND DATASHEET.
 - 8.4 INSTALLATION:
 - INSTALL HEATING CABLE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DISTRIBUTE AND FASTEN CABLE AS SPECIFIED BY THE MANUFACTURER. ENSURE THAT HEATING CABLES DO NOT TOUCH OR CROSS EACH OTHER. RUN ONLY COLD LEADS IN CONDUIT AND ENSURE SENSING BULB DOES NOT TOUCH CABLE. GROUND SHIELD TO BUILDING GROUND. COORDINATE CABLE INSTALLATION WITH INSULATION APPLICATION. LOOP ADDITIONAL CABLE AT FITTINGS, VALVES, AND FLANGES.
- 8.5 FIELD QUALITY CONTROL
 - TESTS:
 - USE 500 V MEGGER TO TEST CABLES FOR CONTINUITY AND INSULATION VALUE AND RECORD READINGS BEFORE, DURING AND AFTER INSTALLATION.
 - WHERE RESISTANCE OF 50 MEGOHMS OR LESS IS MEASURED, STOP WORK AND ADVISE DEPARTMENTAL REPRESENTATIVE.

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C	C drawing no. dessin no.	C

**BUILDING M51
ROOF MODIFICATION
/ INTERIOR WALL
PROTECTION**

**ELECTRICAL
GROUND FLOOR PLAN
DEMOLITION**

Designed By	T.O.R.	Conçu par
Date	2014-08-07	(yyyy/mm/dd)
Drawn By	T.O.R.	Dessiné par
Date	2014-08-07	(yyyy/mm/dd)
Reviewed By		Examiné par
Date		(yyyy/mm/dd)
Approved By	M.M.	Approuvé par
Date	2014-08-07	(yyyy/mm/dd)
Tender		Soumission
Project Manager	Administrateur de projets	
Project no.	No. du projet	
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