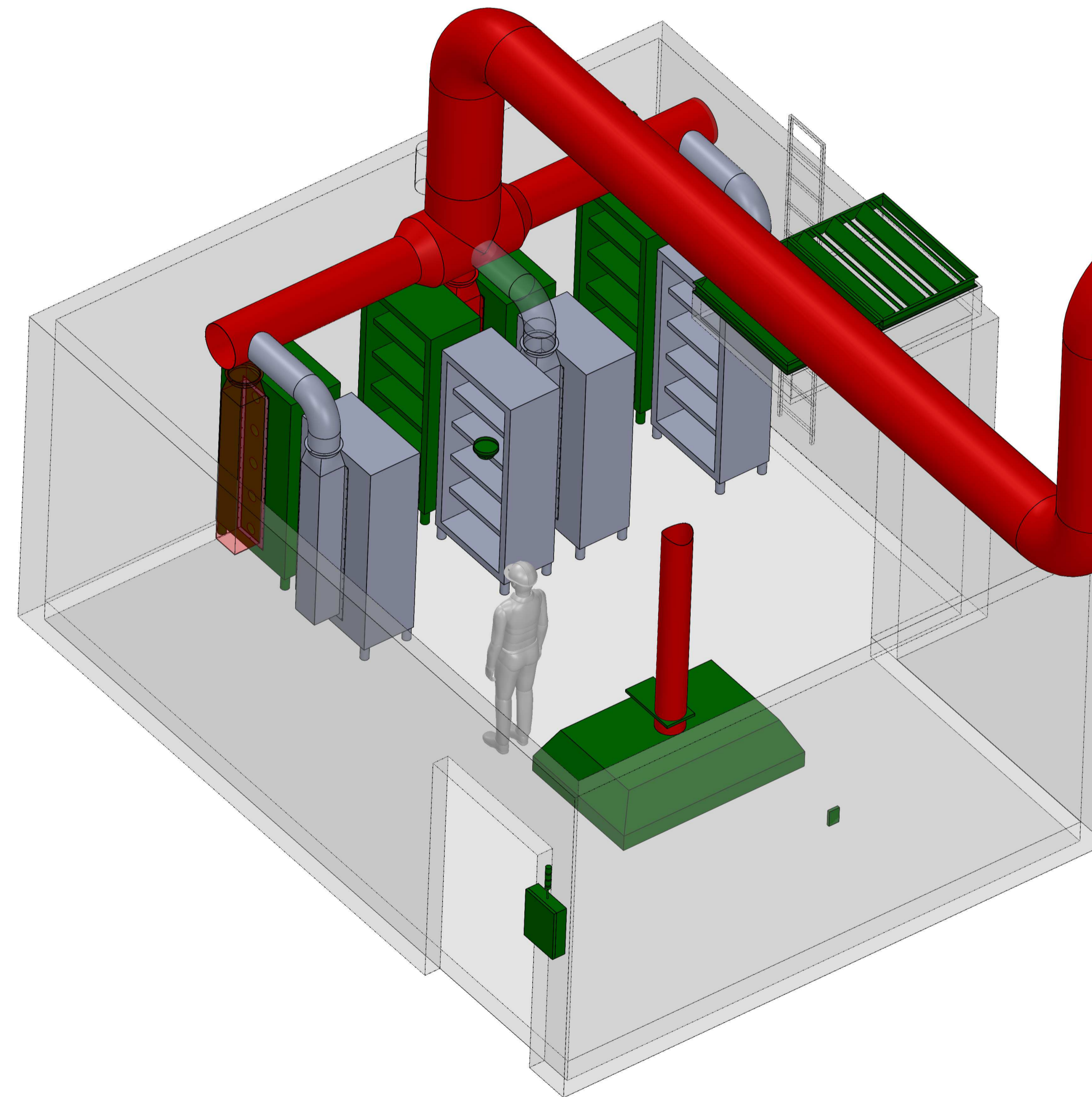
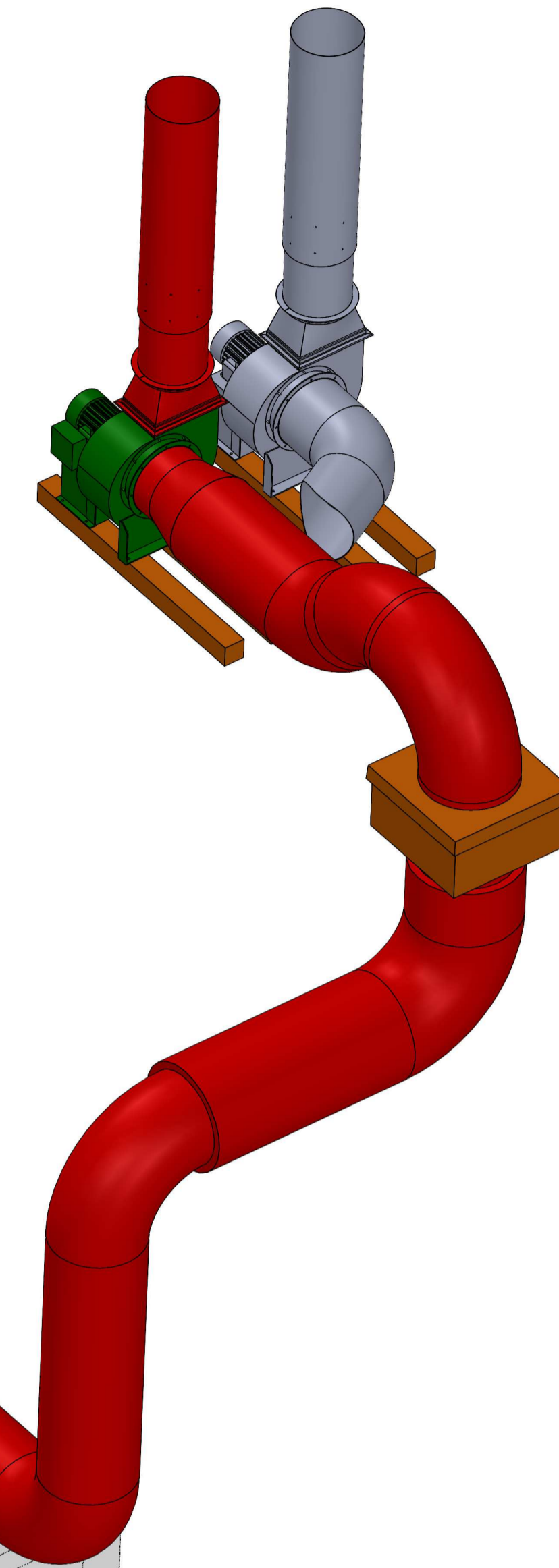


# CNRC - BOUCHERVILLE

## PROJECT: BATTERY LABORATORY- VENTILATION & SECURISATION



DRAWING LIST				
PROJECT #	DISCIPLIN/SUB-DISCIPLIN	LOT #	SEQUENTIAL #	TITLE
08894	MV	01	01	TITLE PAGE
08894	MV	01	02	SCHEMATICS AND REQUIREMENTS
08894	MV	01	03	PLAN VIEW
08894	MV	01	04	SECTIONS
08894	MV	01	05	DETAILS
08894	MV	01	06	DETAILS

LEGEND:	
	EXISTING
	NEW EQUIPEMENT
	NEW DUCTING / TO BE FABRICATED
	DECONSTRUCTION
	ELECTRICITY
	FUTUR PHASE (FOR REFERENCE)

**FOR CALL FOR TENDERS**  
DO NOT USE FOR CONSTRUCTION

2022-06-27

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**SCEAU DU CONCEPTEUR**  
DESIGNER SEAL

**INGÉNIEUR**  
ENGINEER

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**TITRE DU PROJET**  
PROJECT TITLE

CNRC - BOUCHERVILLE  
BATTERIES LABORATORY  
VENTILATION & SECURISATION

**DESSINATEUR**  
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**TITRE DU DESSIN**  
DRAWING TITLE

MECHANICAL  
VENTILATION  
TITLE PAGE

**ÉCHELLE**  
SCALE

INDIQUATED

**FORMAT**  
A1  
(594mm x 841mm)

**RÉF. CLIENT**  
CLIENT REF.

# DE PROJET  
PROJECT #

08894

**DIS.**  
S-DIS.

MV

**# LOT**

01

**# SEQUENCE**

01

**REVISION**

1

REV.	DATE	DESCRIPTION DE LA RÉVISION	REVISION DESCRIPTION	PAR	BY
1	2022-03-11	FOR CALL FOR TENDERS		N.D.	
0	2022-01-31	FOR CALL FOR TENDERS		N.D.	

**1.0 WORKS DESCRIPTION**

THE WORKS CONSISTS TO:  
 INSTAL A VENTILATION SYSTEM IN THE CELLBLOCK TEST SHELVES. INSTAL A VENTILATION HOOD  
 AND A VENTILATION ARM WITH THEIR DUCTINGS.

THE CONTRACTOR WILL ACT AS GENERAL CONTRACTOR.

**2.0 INCLUDED WORKS:**

**MÉCHANICAL:**

SUPPLY THE MATERIAL, TOOLS, HARDWARE, LIFTING EQUIPMENTS, TRANSPORT AND WORKFORCE FOR:

- SUPPLY AND INSTALL THE NEW DUCTING NETWORK CONNECTED TO THE CELLBLOCK SHELVES AND TO THE NEW FAN, INCLUDING A SMOKE DETECTOR (DEF-01) AND A HEAT DETECTOR (DEC-01) BRAND AND MODEL TO BE COORDINATED WITH THE CLIENT.
- SUPPLY AND INSTAL A NEW SMOKE DETECTOR (DEF-02) IN THE LABORATORY, CONNECTED TO THE CONTROL PANEL.
- SUPPLY AND INSTAL A NEW DUCTING NETWORK CONNECTED TO THE NEW VENTILATION HOOD (HOT-01) INCLUDING A GUILLOTINE DAMPER AND AN ON/OFF BUTTON
- SUPPLY AND INSTALL THE EXIT BOXES (DETAILS 7 AND 8 ON DRAWING) ON THE CELLBLOCK SHELVES WITH SELFTHREADING SCREWS AND CONNECT TO THE NEW DUCTING NETWORK WITH QUICK CONNECT (DETAIL 6)
- INSTALL THE NEW FAN (VEN-01) ON THE ROOF. SUPPLY AND INSTAL A LOCAL SIEMENS DISCONNECTOR ON THE ROOF, ON THIS FAN. THE ELECTRICAL WIRES MUST BE TECK WIRES.
- SUPPLY, INSTAL AND CONNECT TO THE CONTROL PANEL A CURRENT DONUT (BDC-01) ON THE NEW FAN'S (VEN-01) ENGINE OF OPERATION.
- DESIGN, FABRICATE AND INSTAL A REMOVABLE ALUMINIUM PROTECTION SHEET AGAINST SEVERE WEATHER CONDITIONS ON THE NEW FAN'S (VEN-01) ENGINE. MINIMUM THICKNESS: 1/8"
- OPEN THE NEW FAN DRAIN OR DRILL A 1/2" HOLE.
- PERFORM AN AEROLIC BALANCE OF THE NEW DUCTING NETWORK AND PROVIDE A REPORT TO THE ENGINEER.
- CONNECT THE SYSTEM ON THE SIEMENS CONTRÔLS
- SUPPLY, INSTALL, CONNECT AND PROGRAM A CONTROL PANEL (PAC-01) TO MANAGE THE SPEED OF THE NEW FAN (VEN-01)
- SUPPLY, INSTAL AND CONNECT TO THE CONTROLS A MOTORIZED DAMPER (VOM-01)
- PERFORM THE ELECTRICAL CONNECTIONS (FAN, DAMPERS, DETECTORS, CONTROL PANEL, HOOD)
- THE CONTRACTOR MUST CONFORM TO THE SECURITY RULES ESTABLISHED AT THE CNRC

**ARCHITECTURAL:**

- MAKE A ROOF OPENING (ELEVATION 103'-10") TO PASS THE NEW DUCTING THROUGH.
- PROVIDE AND INSTAL A NEW ROOF CURB FOR THE NEW OPENING
- PROVIDE AND INSTAL THE NEW REINFORCMENTS AROUND THE OPENING. THE CONTRACTOR MUST PROVIDE AN ALL INCLUDED SERVICE. INCLUDING REINFORCEMENT DETAILS AND CHARGES CALCULATIONS, REPORT INCLUDED.
- SUPPLY AND INSTAL WOOD FRAMING TO SIT THE NEW FAN (VEN-01)
- MAKE THE OPENINGS ON THE LABORATORY ROOM'S WALLS:
  - 48" X 72" (REF) FOR MOTORIZED DAMPERS
  - Ø24" FOR THE NEW SHELVING'S DUCTINGS
  - Ø10" FOR THE VENTILATION HOODS DUCTINGS (HOT-01)
  - FOR EVERY OPEINING, SUPLY AN ALUMINIUM TRIMMING IN THE SAME COLOR AS THE LOCAL
- REPLENISH THE SURFACES, WALLS AND ROOFS AFTER THE WORKS ARE COMPLETED.

**3.0 NON-INCLUDED WORKS:**

- PURCHASING OF THE NEW FAN AND IT SPEED VARIATOR, PROVIDED BY THE CNRC.
- PURCHASIN OF THE CELLBLOCK SHELVINGS, PROVIDED BY THE CNRC.
- PURCHASING OF THE NEW VENTILATION HOOD HOT-01, PROVIDED BY THE CNRC.

**4.0 VENTILATION NETWORKS (INTÉRIOR)**

- THE DIMENSIONS ON THE DRAWINGS ARE "FREE OF PASSAGE" AND SHOULD BE CONSIDERED FOR REFERENCE ONLY. A THOROUGH VERIFICATION OF EVERY MEASURES IS REQUIRED ON THE WORKSITE BY THE CONTRACTOR BEFORE THE FABRICATION AND INSTALATION. ANY ANOMALY OR DIFFERENT MEASURE THAT COULD INFLUENCE FUNCTIONNALITY OF THE SYSTEM MUST BE REPORTED TO THE ENGINEER FOR APPROBATION.
- THE DUCTIGNS WILL BE SPIRAL DUCTS. THICKNESS OF THE WALLS WILL BE **GAUGE 18** AND MUST BE CONFORM TO SMACNA RECOMANDATIONS.
- THE SPIRAL JOINT WILL BE RL-1 TYPE
- THE DUCT CONNECTIONS WILL BE SLEEVE TYPE AS PER DETAIL 1. SCREWED EVERY 4" C/C AND SCALED AS PER DETAIL 1.
- THE ELBOWS WILL HAVE A BENDING RADIUS EQUAL TO 1.5 TIMES THE DUCT DIAMETER, EXEPT OTHERWISE INDICATED.
- EVERY DUCTING WILL BE SUPPORTED EVERY 10 FEET MAXIMUM AND AT EVERY DIRECTION CHANGES. THE SUPPORTS WILL BE MADE OUT OF BLACK STEEL. THE SUPPORT RODS WILL HAVE A 3/8" DIAMETER. THE SADDLE WILL BE 2" X 3/16" ON HALF THE CIRCUMFERENCE.
- PROVIDE A SYSMIC RETENTION SYSTEM FOR EVERY SUPPORT FOR THE LARGE DUCTS (>Ø24"). CONFORM TO THE QUÉBEC CONSTRUCTION CODE REQUIREMENTS.
- THE DUCTINGS MUST BE ISOLATED:
  - OUTSIDE, FROM THE CURB TO THE FAN
  - INSIDE, ON A DISTANCE OF TEN FEET FROM THE ROOF OPENING

**6.0 GROUND CONTINUITY AND GROUNDING**

- ALL OF THE NETWORK MUST BE EQUIPED WITH GROUND CONTINUITY AND GROUNDING
- THE GROUND CONTINUITY WORKS CONSTIST IN INSURING THE GROUND CONTINUITY BY MEASURING THE RESISTANCE (OHM, Ω)
- A MEASURING REPORT MUST BE PROVIDED TO THE ENGINEER

**7.0 MOTORIZED DAMPERS VOM-01 (PROVIDED BY CNRC)**

- BRAND TAMCO
- MODEL: SERIE 1000
- DIMENSIONS: 36" X 48"
- TWO (2) REQUIRED, ATTACHED IN SERIE
- PROVIDE, INSTAL AND CONNECT TO THE CONTROL PANEL A MODULATONG ACTUATOR 24V
- RETURN SPRING TO KEEP THE DAMPER NORMALLY OPEN IN CASE OF A BLACKOUT

**8.0 CONTROL PANEL PAC-01**

- TOUCHSCREEN, IDENTIFICATION PLATE AND LOCKING FOR RESTRICTED ACCESS
- CSA APPROBATION OR EQUIVALENT
- EQUIPED WITH A RED/YELLOW/GREEN STACK LIGHT
- EXACT POSITION TO BE COORDONATED

**9.0 FAN VEN-01 (PROVIDED BY CNRC)**

- BRAND: NEW YORK BLOWER
- PN:SW 16\_PLR\_ARR4\_CL2\_CW\_TH\_215TMTR
- FLOW: 4000 CFM
- PRESSURE: 10 IN WC

**10.0 CONTROL LOGIC: (FOR 4 SHELVINGS)**

**10.1 NORMAL MODE:**

- THE FAN VEN-01 EXTRACTS 800 CFM
- THE MOTORIZED DAMPER VOM-01 IS CLOSED
- THE LIGHT STACK HAS GREEN LIGHT ON

**10.2 EMERGENCY MODE:**

- IF SMOKE OR HIGH TEMPERATURE ARE DETECTED INSIDE THE DUCTINGS (DEC-01 ET DEF-01)(>50°C):
  - THE FAN VEN-01 ACCELERATES AT 4000 CFM
  - THE MOTORIZED DAMPER OPENS 100%
  - ACTIVATION OF THE FLASHING LIGHT AND ALARM
  - THE LIGHT STACK HAS RED LIGHT ON
  - A SIGNAL IS SENT TO THE BUILDING'S FIRE PREVENTION CENTRAL PANEL TO SIGNAL THE EVENT ONLY

IF SMOKE IS DETECTED INSIDE THE LABORATORY ROOM (DEF-02)

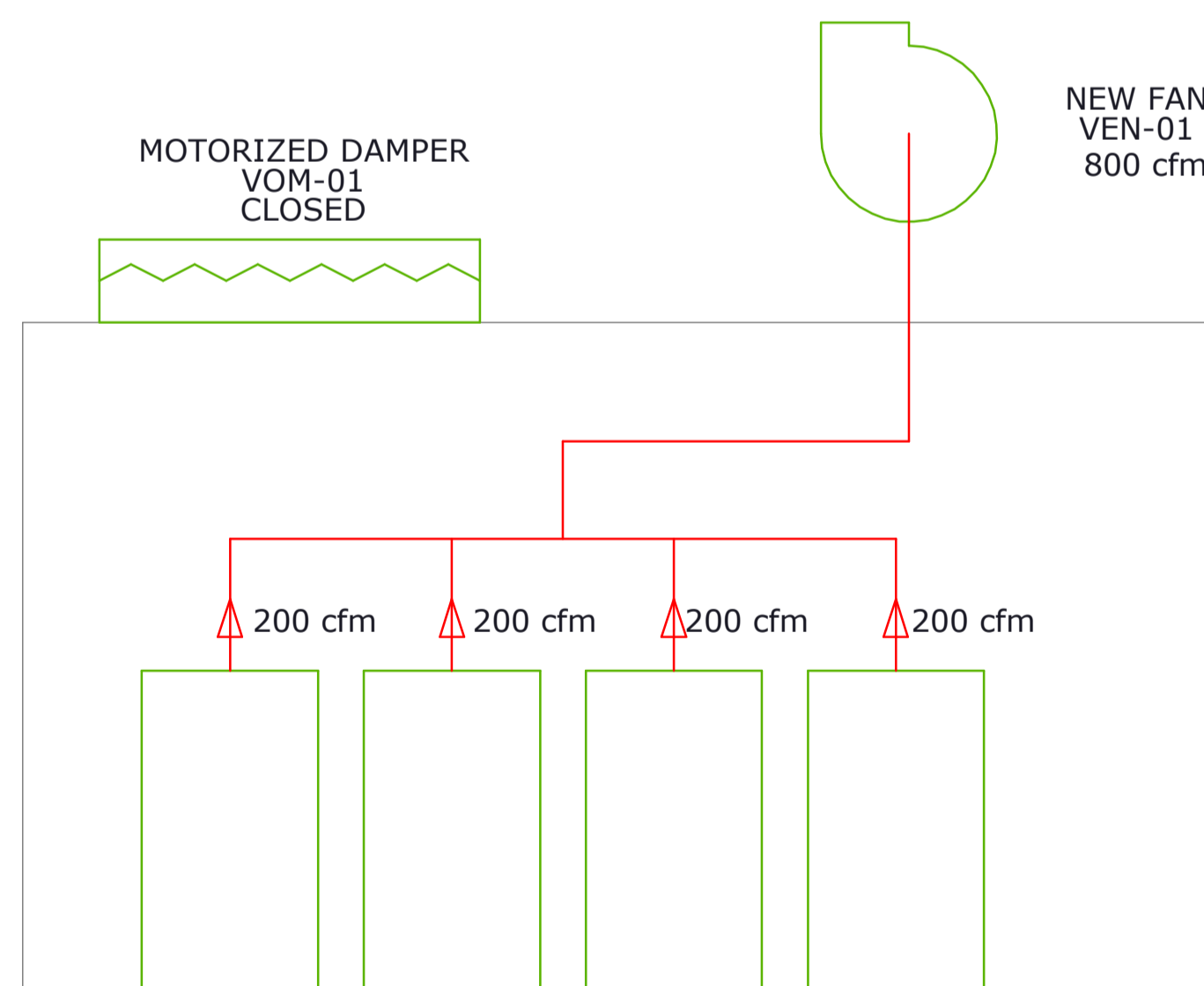
- A SIGNAL IS SENT TO THE BUILDING'S FIRE PREVENTION CENTRAL PANEL TO ENGAGE THE EMERGENCY EVACUATION ALARM OF THE BUILDING.

**10.3 TROUBLE**

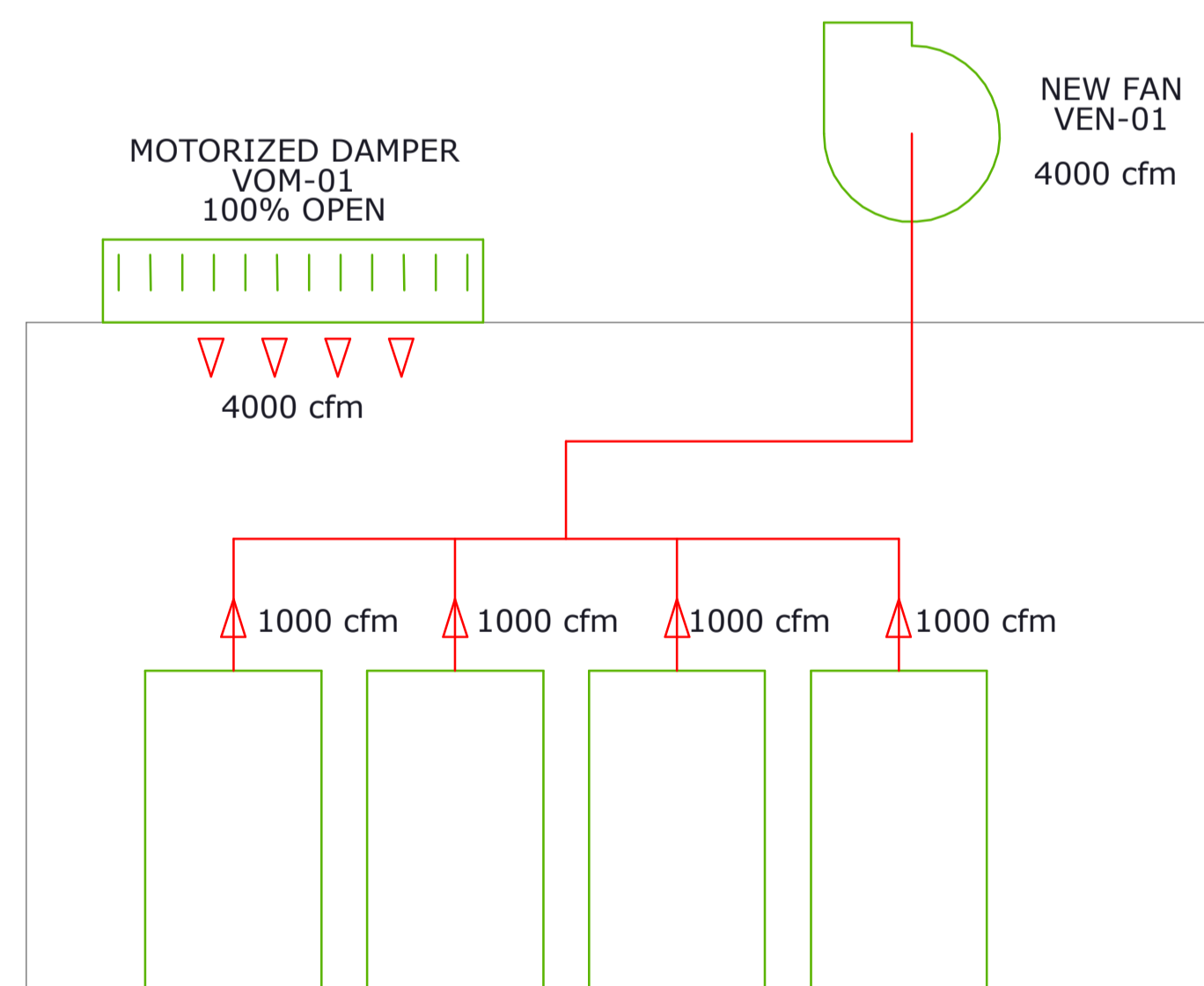
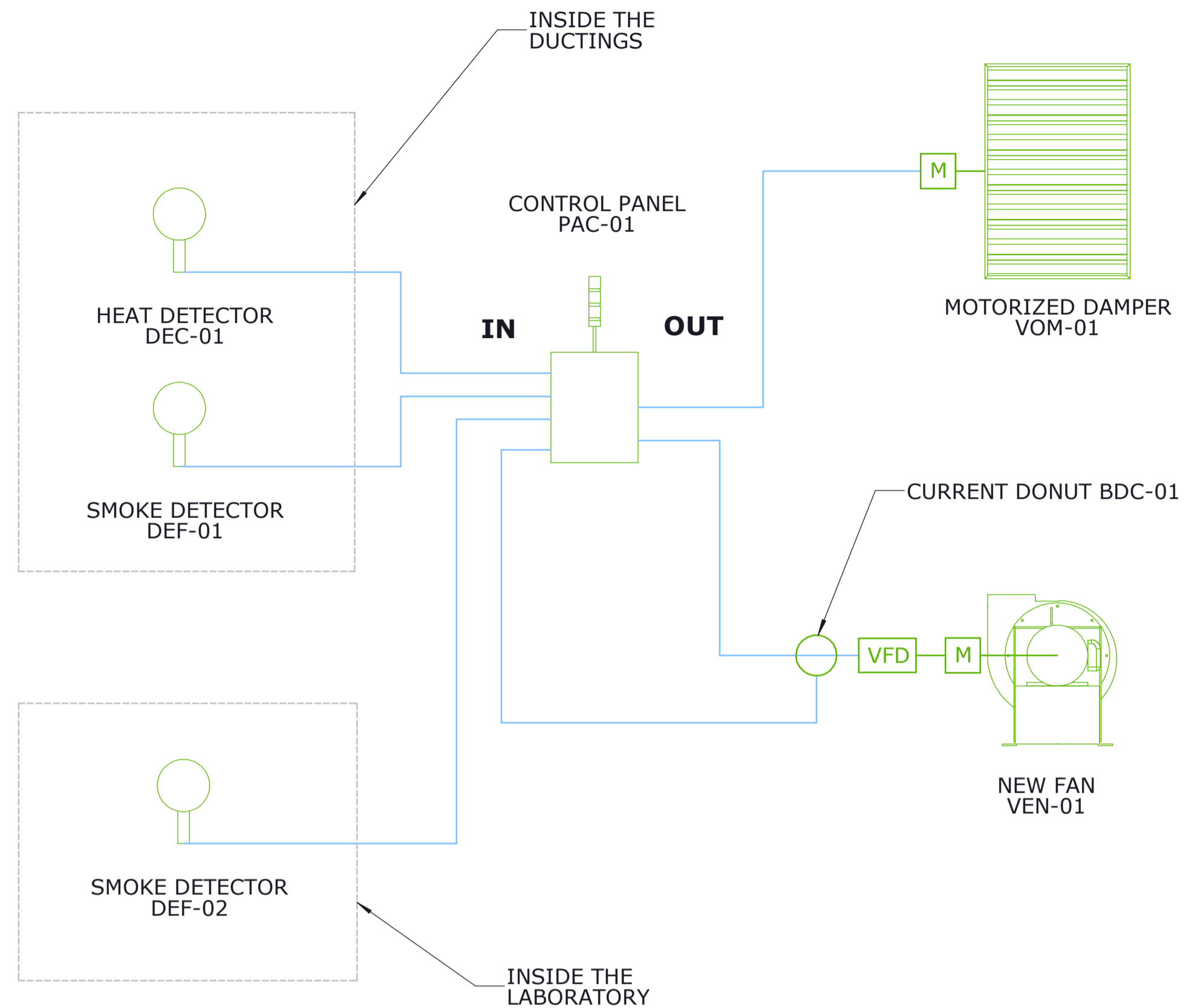
- IF THE FAN UNEXPECTEDLY STOPS (BLACKOUT, BREAKOUT, FAILURE OF THE FAN'S ENGINE, ETC.), THE LIGHT STACK HAS YELLOW LIGHT ON.

**10.4 TROUBLE PAIRED WITH EMERGENCY MODE:**

- IN CASE OF SMOKE DETECTION OR HIGH TEMPERATURE (>50°C) PAIRED WITH AN UNEXPECTED STOP OF THE FAN, A SIGNAL WILL BE SENT TO THE BUILDING'S FIRE PREVENTION CENTRAL PANEL TO ENGAGE THE EMERGENCY EVACUATION ALARM OF THE BUILDING.



**VENTILATION SCHEMATIC - NORMAL MODE**



**VENTILATION SCHEMATIC - EMERGENCY MODE**

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2022-06-27

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 DESIGNER SEAL**

**INGÉNIEUR  
 ENGINEER**

**CLIENT**

**TITRE DU PROJET  
 PROJECT TITLE**

**TITRE DU DESSIN  
 DRAWING TITLE**



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**CNRC - BOUCHERVILLE  
 BATTERIES LABORATORY  
 VENTILATION & SECURISATION**

**MECHANICAL  
 VENTILATION  
 SCHEMATICS AND REQUIREMENTS**

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 PROJECT MANAGER: NICOLAS DUGUAY  
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ÉCHELLE  
 SCALE: INDIQUATED

FORMAT  
 A1  
 (594mm x 841mm)

REF. CLIENT  
 CLIENT REF.

# DE PROJET  
 PROJECT #: 08894

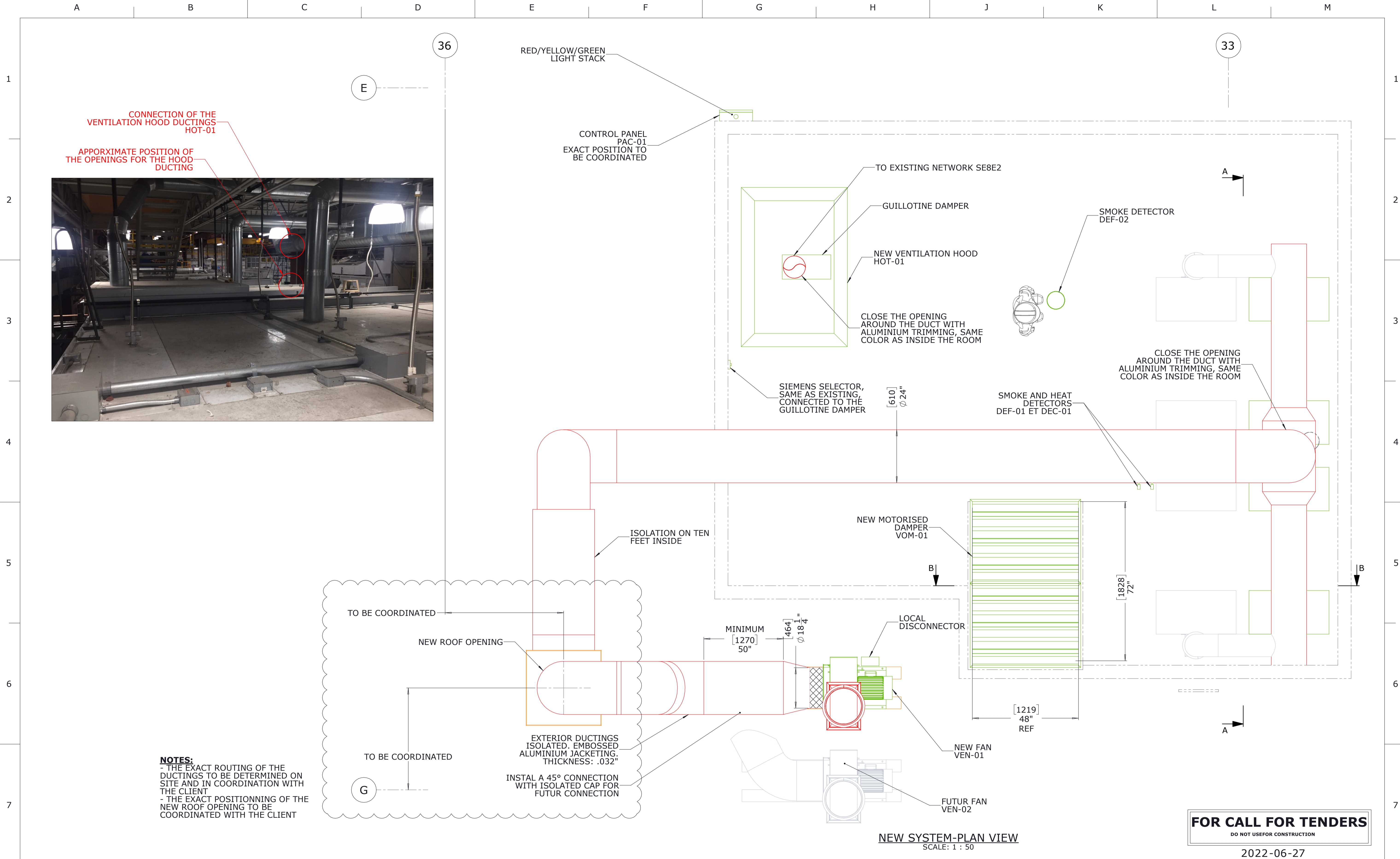
DIS-  
 S-DIS: MV

# LOT: 01

# SEQUENCE: 02

REVISION: 1

REV.	DATE	DESCRIPTION DE LA RÉVISION REVISION DESCRIPTION	PAR BY	RÉV. REV.	DATE	DESCRIPTION DE LA RÉVISION REVISION DESCRIPTION
1	2022-03-11	FOR CALL FOR TENDERS				N.D.
0	2022-01-31	FOR CALL FOR TENDERS				N.D.



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**SCEAU DU CONCEPTEUR  
DESIGNER SEAL**

**INGÉNIEUR  
ENGINEER**

**CLIENT**

**TITRE DU PROJET  
PROJECT TITLE**

**TITRE DU DESSIN  
DRAWING TITLE**

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CONTROLLER** GERMAIN NOLET  
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**CNRC - BOUCHERVILLE  
BATTERIES LABORATORY  
VENTILATION & SECURISATION**

**MECHANICAL  
VENTILATION  
PLAN VIEW**

**ÉCHELLE  
SCALE** INDIQUÉ

**REF. CLIENT  
CLIENT REF.**

**# DE PROJET  
PROJECT #** 08894

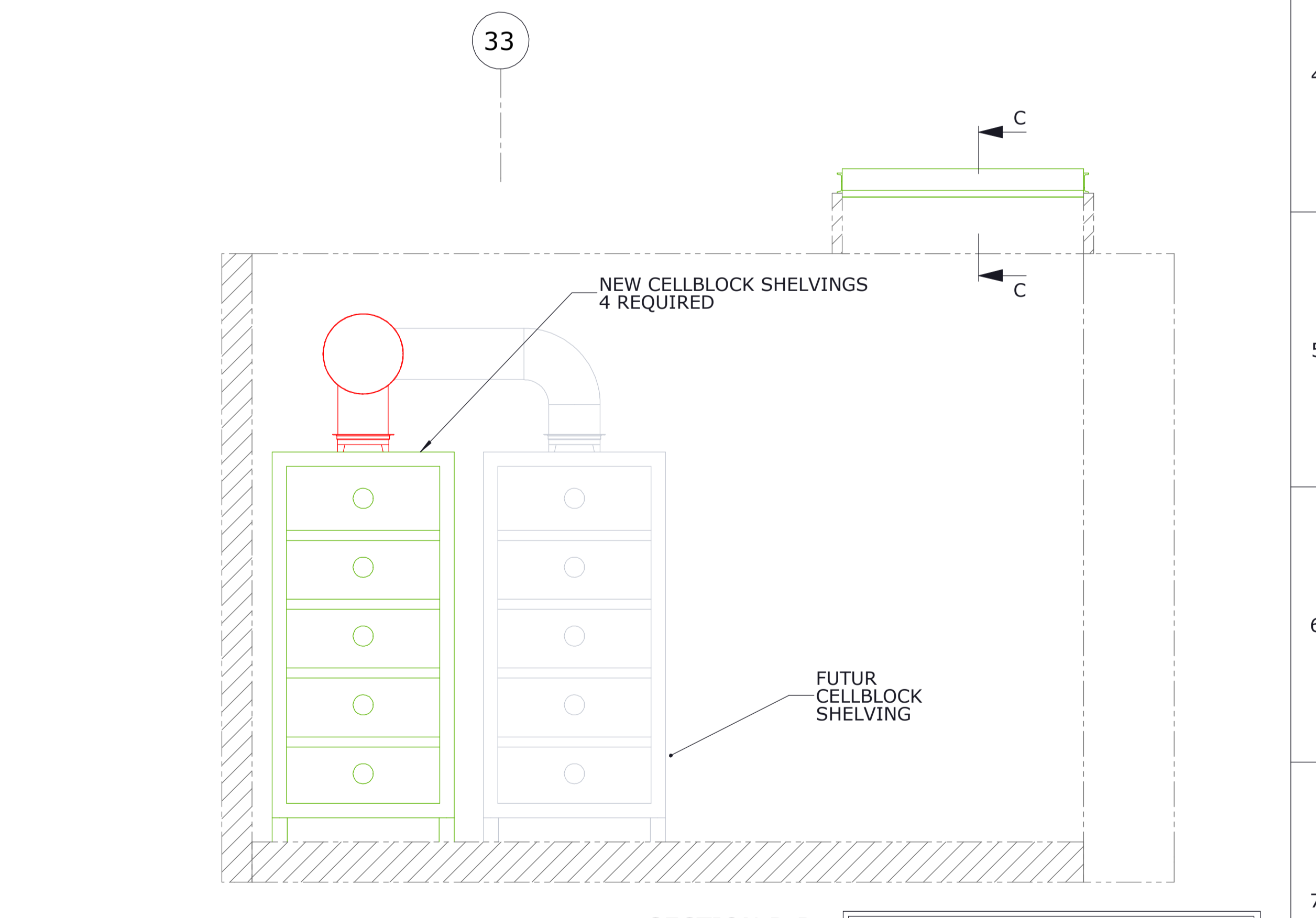
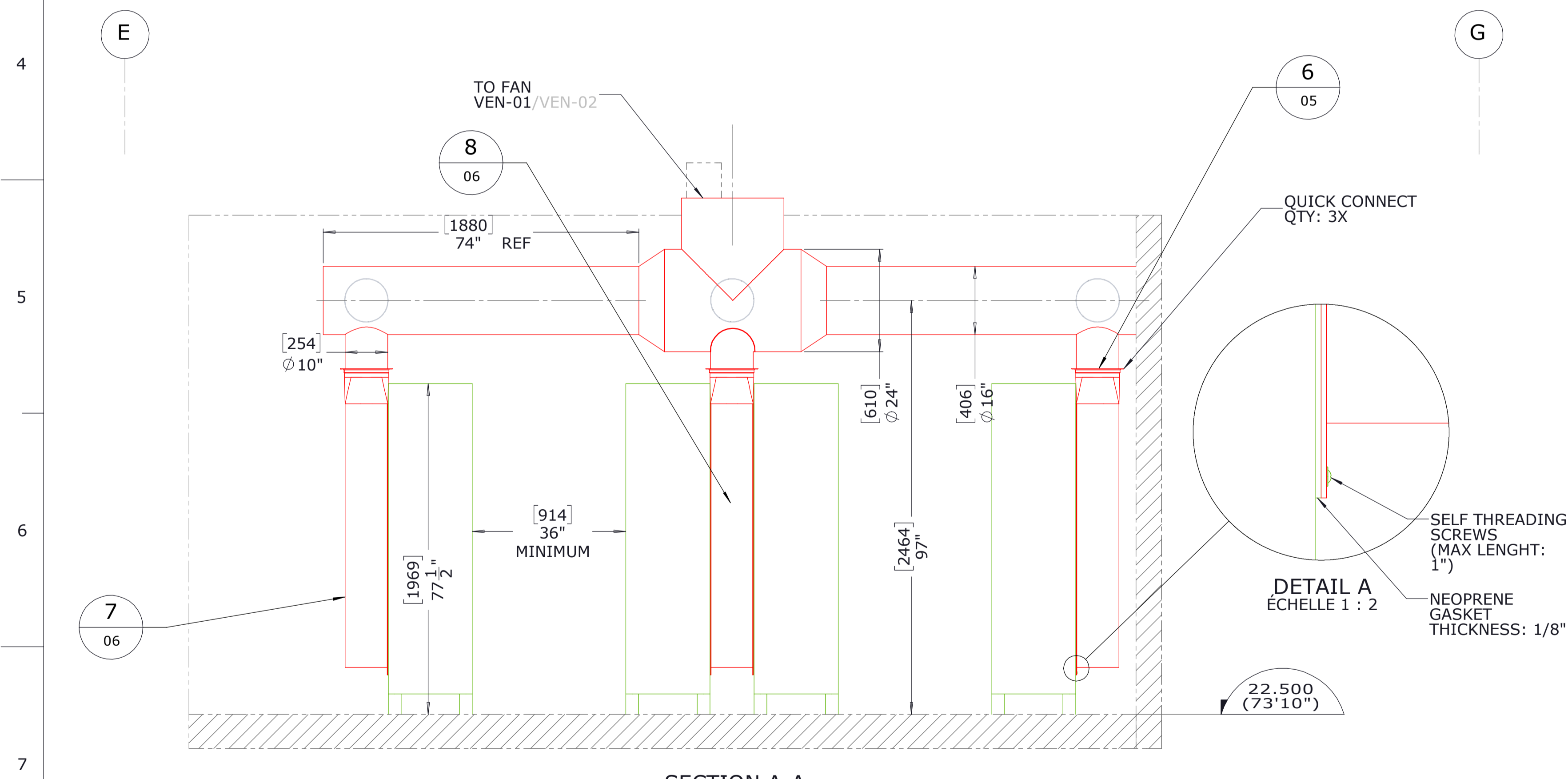
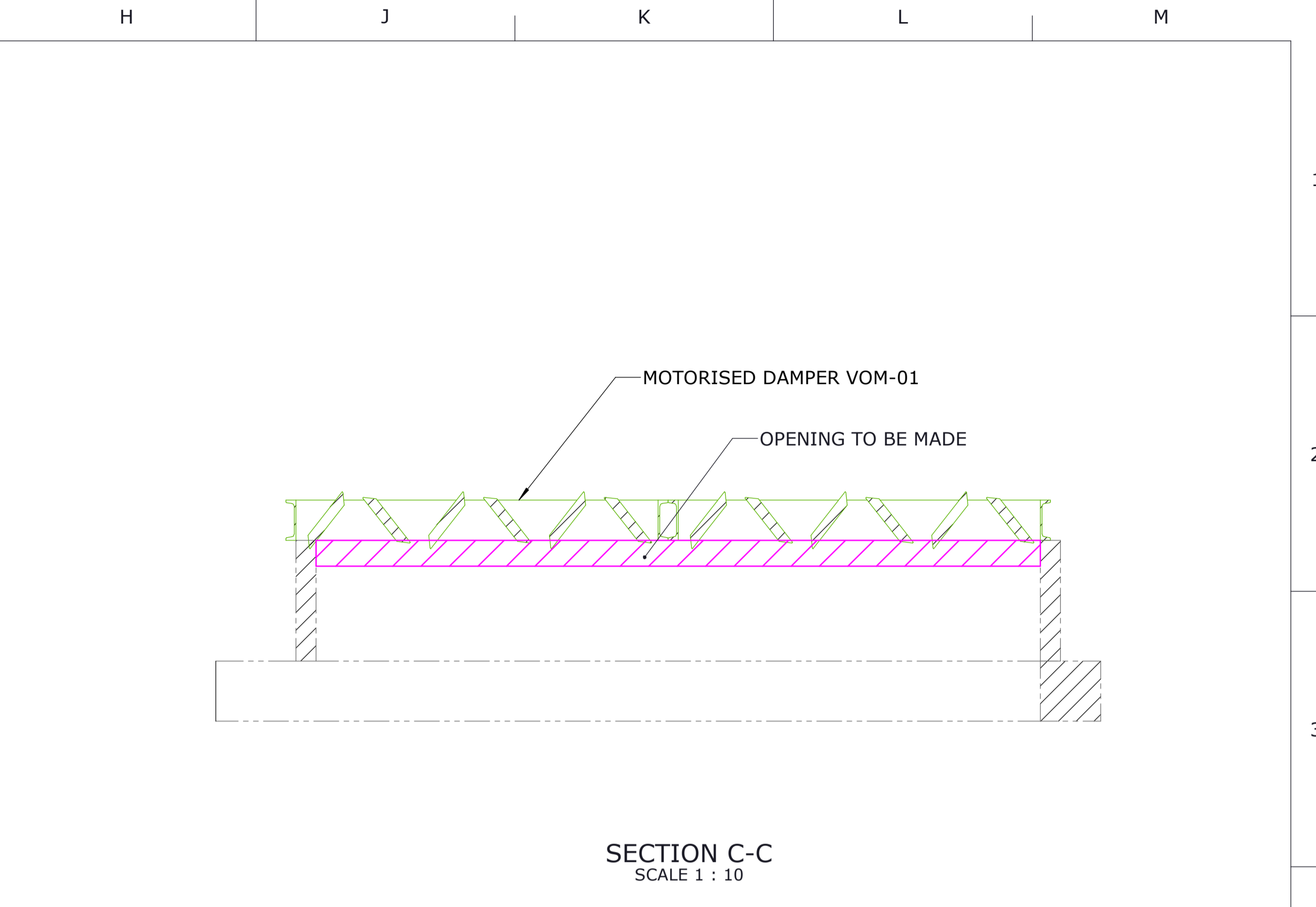
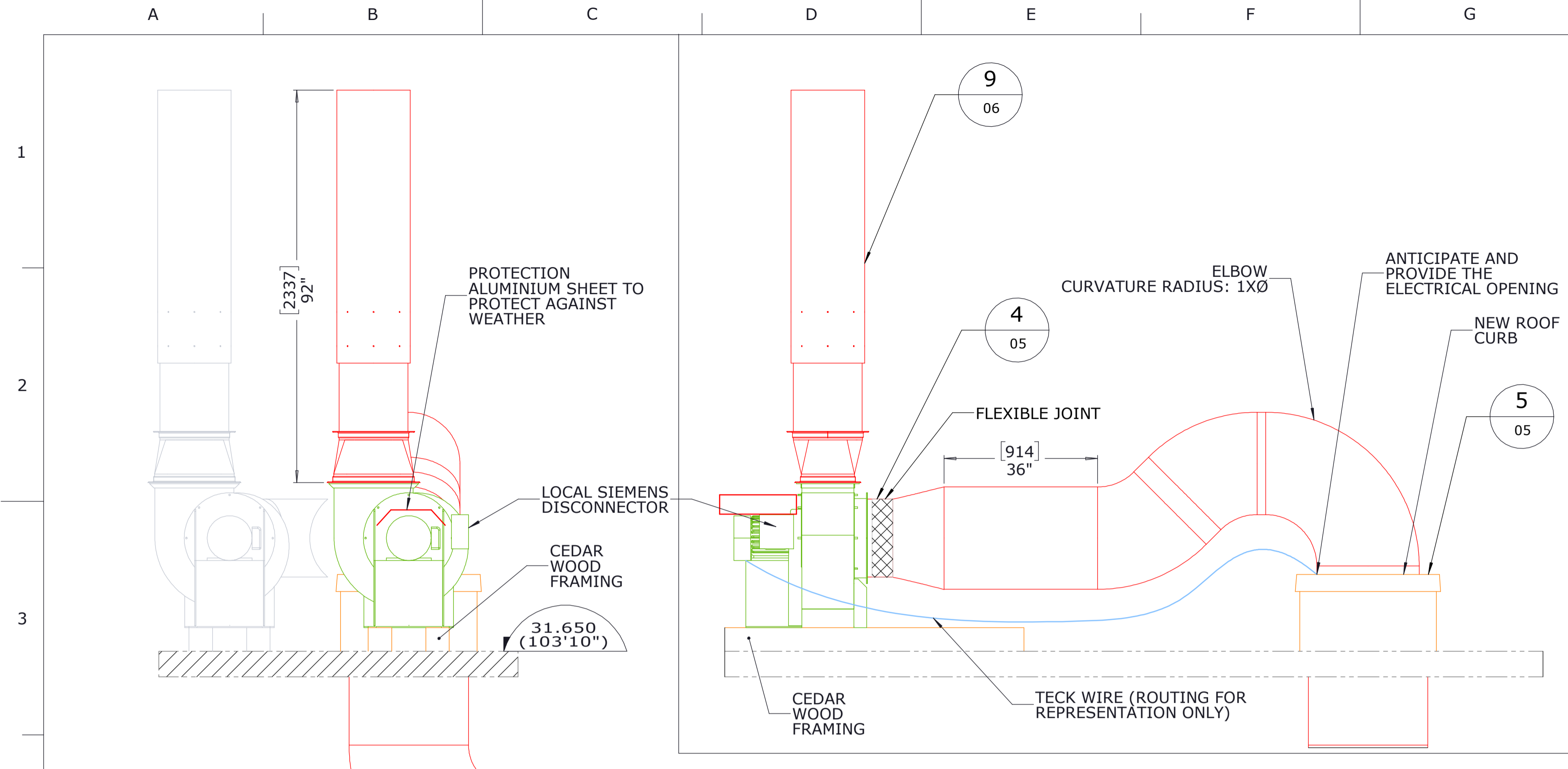
**DIS-  
S-DIS.** MV

**# LOT** 01

**# SEQUENCE** 03

**REVISION** 1

# DE PROJET PROJECT #	DIS- S-DIS.	# LOT	# SEQUENCE	REVISION
08894	MV	01	03	1



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0	2022-01-31	FOR CALL FOR TENDERS				

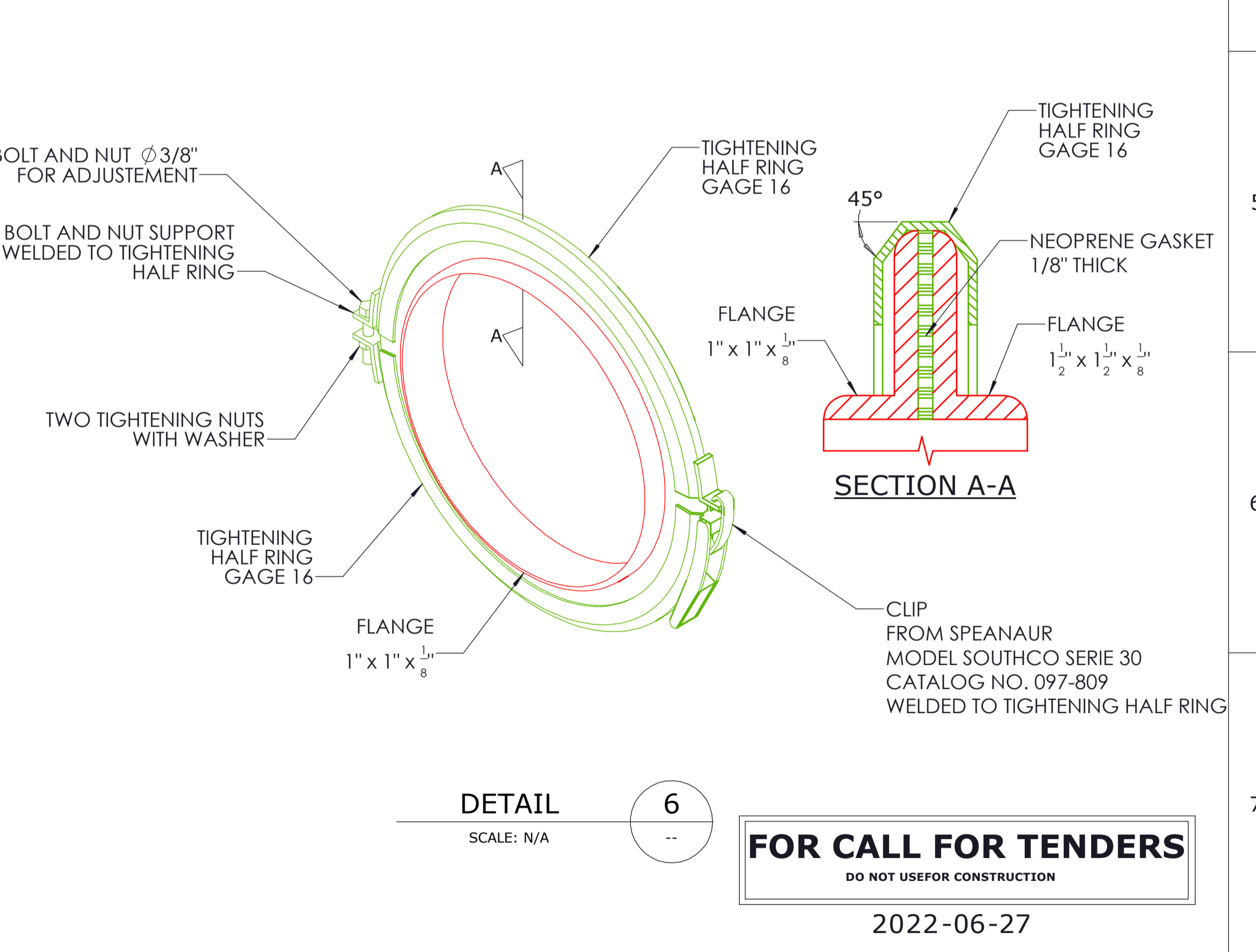
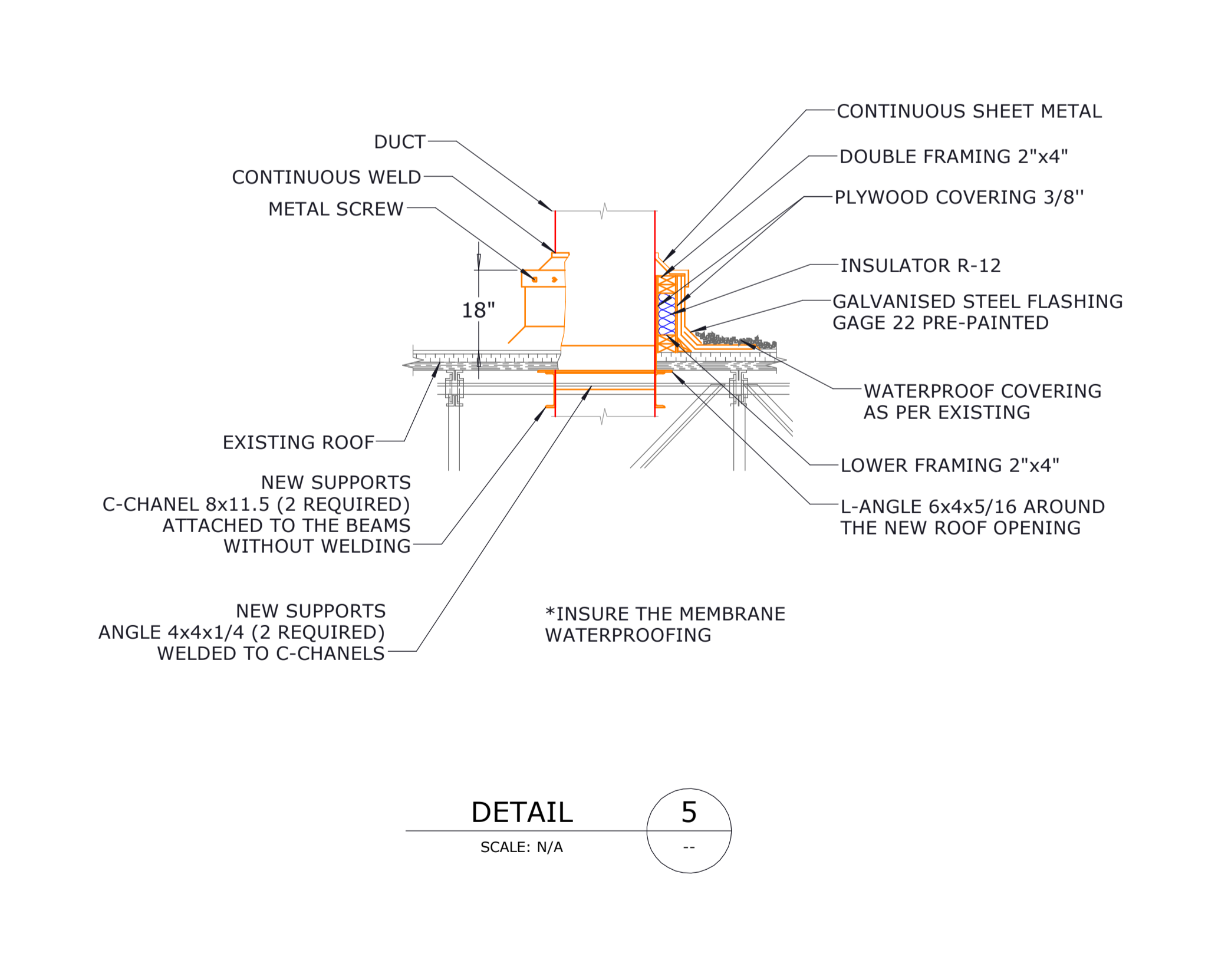
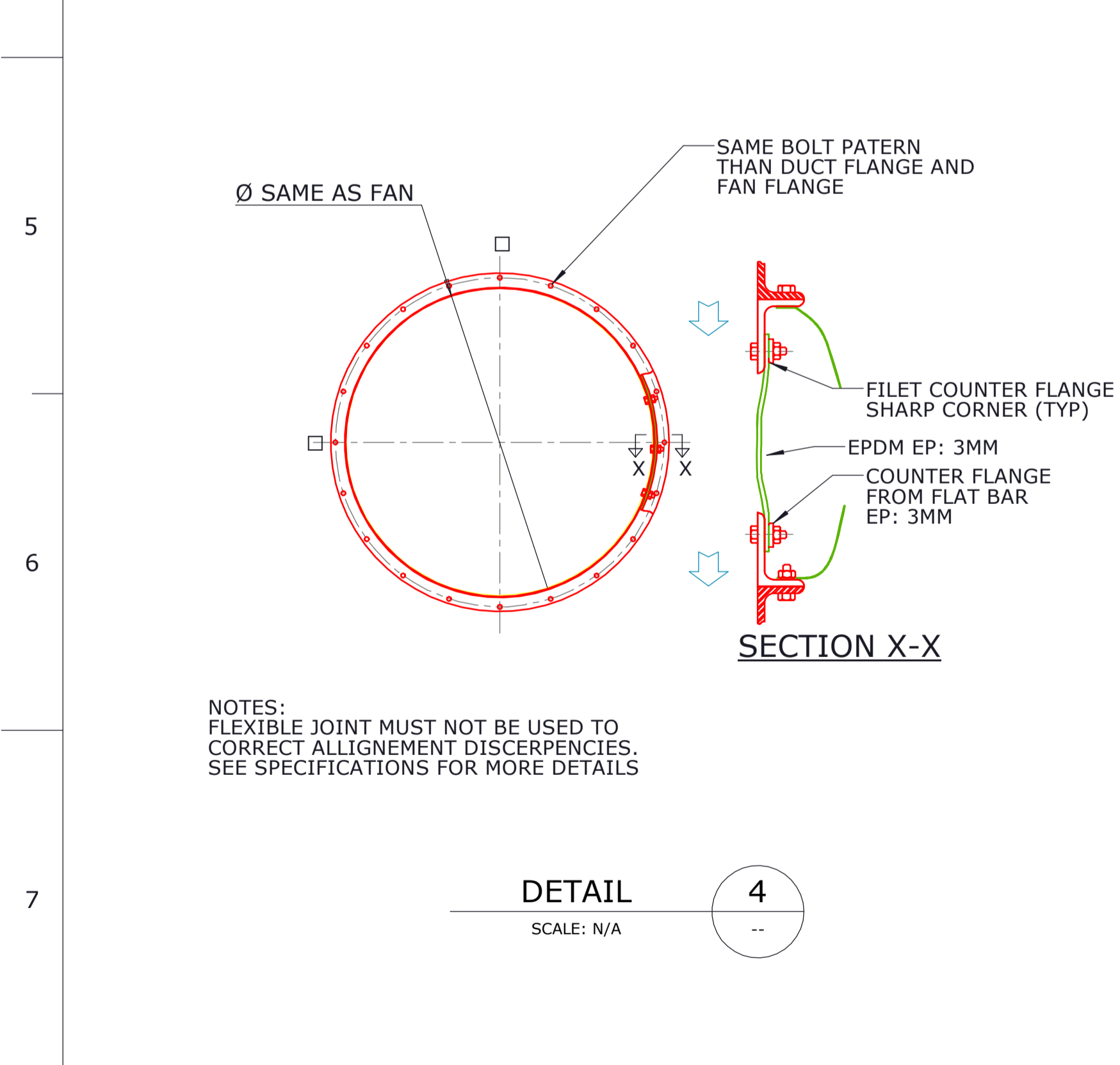
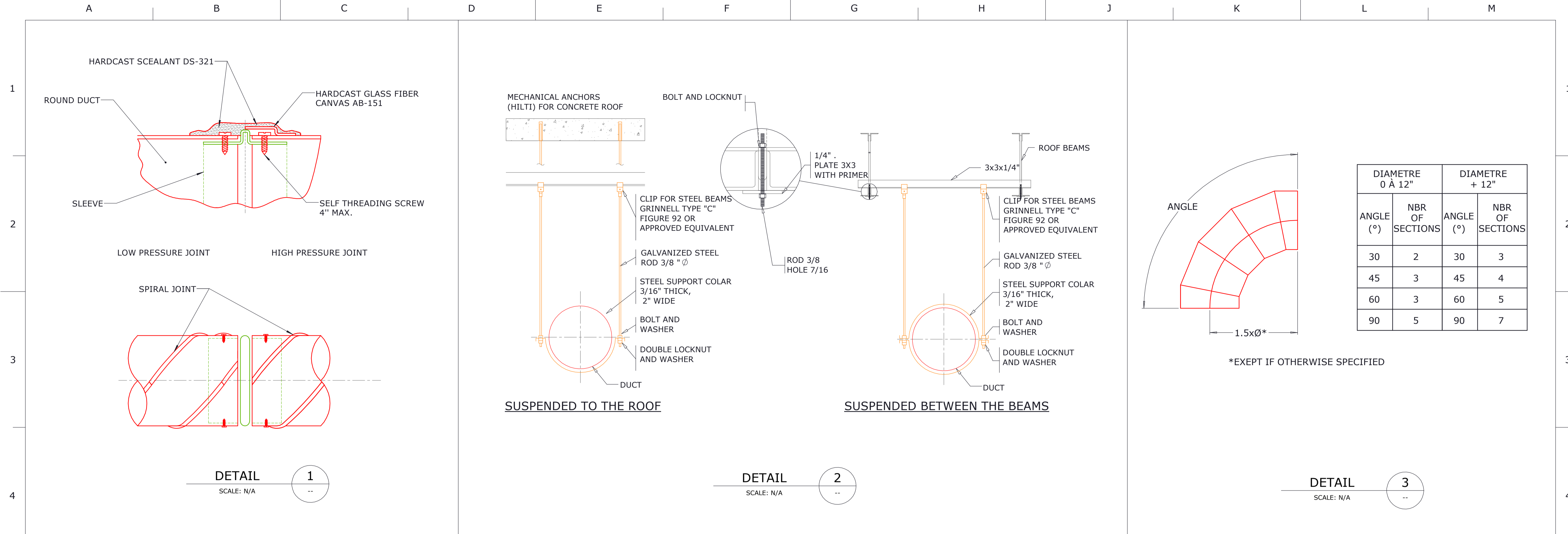
**SCEAU DU CONCEPTEUR / DESIGNER SEAL**  
**INGÉNIEUR / ENGINEER**  
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No. 0.1.Q.: 140242

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**NRC - CNRC**  
75, Boul de Mortagne, Boucherville, QC J4B 6Y4

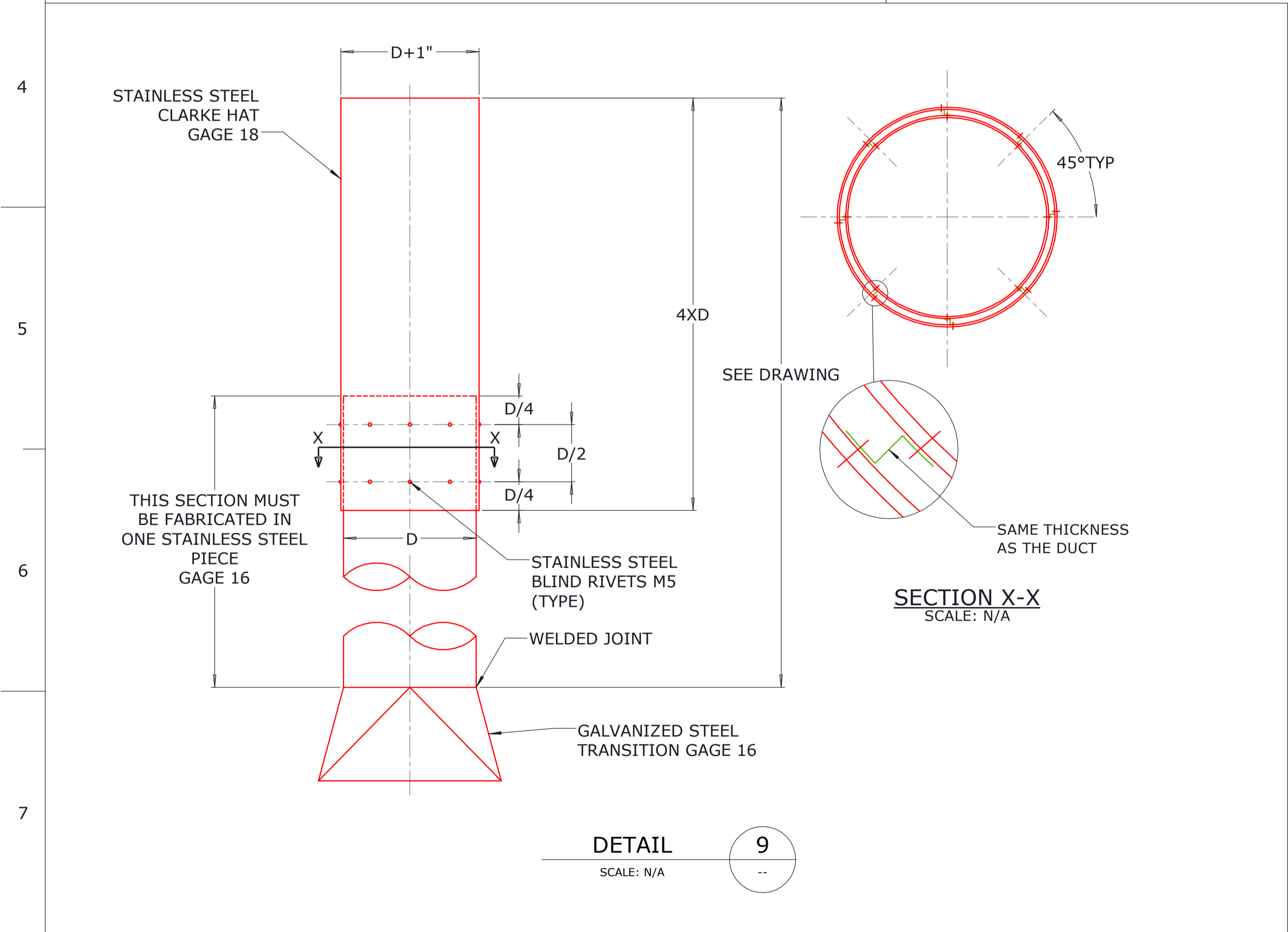
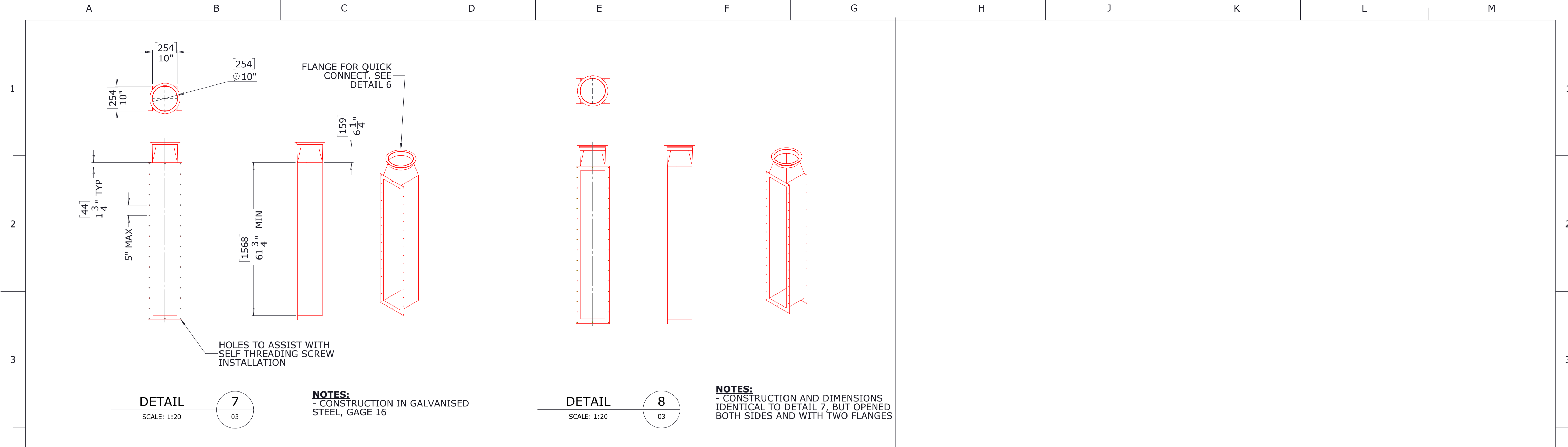
**TITRE DU PROJET / PROJECT TITLE**  
CNRC - BOUCHERVILLE BATTERIES LABORATORY VENTILATION & SECURISATION  
**DESSINATEUR / DRAFTER** NICOLAS DUGUAY  
**CHARGÉ DE PROJET / PROJECT MANAGER** NICOLAS DUGUAY  
**VÉRIFICATEUR / CONTROLLER** GERMAIN NOLET

**TITRE DU DESSIN / DRAWING TITLE**  
MECHANICAL VENTILATION SECTIONS  
**ÉCHELLE / SCALE** INDIQUATED  
**FORMAT** A1 (594mm x 841mm)  
**RÉF. CLIENT / CLIENT REF.**  
**# DE PROJET / PROJECT #** 08894  
**DIS. S-DIS.** MV  
**# LOT** 01  
**# SEQUENCE** 04  
**REVISION** 1



**FOR CALL FOR TENDERS**  
DO NOT USE FOR CONSTRUCTION  
2022-06-27

<p>CE DESSIN RESTE LA PROPRIÉTÉ INTELLECTUELLE DE BEAULIER INC. ET SON CONTENU APPARTIEN EXCLUSIVEMENT À BEAULIER ET À SON CLIENT. CE DESSIN DOIT ÊTRE RENDU SUR DEMANDE, SON CONTENU EST SECRET ET CONFIDENTIEL. IL EST ÉGALEMENT DÉFENDU DE SE SERVIR DES RENSEIGNEMENTS OBTENUS EN EXAMINANT CE DESSIN À DES FINS AUTRES QUE LA FIN SPÉCIFIQUE POUR LAQUELLE BEAULIER INC. OU LE CLIENT A AUTORISÉ L'EXAMEN DUDIT DESSIN. TOUS LES CONDUITS, TUYAUTERIES, STRUCTURE, ETC DEVRONT ÊTRE CONSTRUITS SELON LES DIMENSIONS INDICUÉS AUX PLANS. LES LONGUEURS ET LES ROUTAGES SONT MONTRÉS À TITRE INDICATIF SEULEMENT. L'ENTREPRENEUR DEVRA VALIDER LES LONGUEURS ET ROUTAGES AVANT FABRICATION ET INSTALLATION. TOUT (S) CHANGEMENT (S) MAJEUR (S) AU ROUTAGE ET AUX DIMENSIONS DE CONDUITS NE POURRA S'EFFECTUER SANS L'APPROBATION DE L'INGÉNIEUR.</p> <p>THIS DRAWING IS THE INTELLECTUAL PROPERTY OF BEAULIER INC. AND ITS CONTENT BELONGS EXCLUSIVELY TO BEAULIER INC. AND ITS CLIENT. THIS DRAWING MUST BE HANDED BACK ON DEMAND; ITS CONTENT IS SECRET AND CONFIDENTIAL. IT IS ALSO PROHIBITED TO USE ANY INFORMATION SHOWN ON THIS DRAWING FOR OTHER PURPOSES THAN THOSE SPECIFICALLY INTENDED BY BEAULIER INC. OR ITS CLIENTS. ALL DUCTING, PIPING, STRUCTURE, ETC. MUST BE CONSTRUCTED BASED ON THE DIMENSIONS SHOWN ON THE DRAWINGS. LENGTHS AND LAYOUTS SHOWN ARE THERE AS REFERENCES ONLY. CONTRACTOR SHALL VALIDATE THE LENGTHS AND LAYOUTS BEFORE FABRICATION AND INSTALLATION. ALL MAJOR MODIFICATIONS TO ANY DIMENSIONS OR LAYOUTS CANNOT BE MADE WITHOUT THE APPROVAL OF THE ENGINEER.</p>				<p><b>SCEAU DU CONCEPTEUR</b> DESIGNER SEAL</p>		<p><b>INGÉNIEUR</b> ENGINEER</p>		<p><b>CLIENT</b></p>		<p><b>TITRE DU PROJET</b> PROJECT TITLE</p>		<p><b>TITRE DU DESSIN</b> DRAWING TITLE</p>	
				<p>1400, Marie-Victorin, bureau 205, St-Bruno, Qc, Can., J3V 6B9 450-441-9100 info@beaulier.qc.ca</p>		<p>75, Boul de Mortagne, Boucherville, QC J4B 6Y4</p>		<p><b>CNRC - BOUCHERVILLE</b> <b>BATTERIES LABORATORY</b> <b>VENTILATION &amp; SECURISATION</b></p>		<p><b>MECHANICAL</b> <b>VENTILATION</b> <b>DETAILS</b></p>			
<p>1 2022-03-11 FOR CALL FOR TENDERS N.D.</p> <p>0 2022-01-31 FOR CALL FOR TENDERS N.D.</p>				<p>GERMAIN NOLET, ing. No. 0.1.Q.: 140242</p>		<p>NICOLAS DUGUAY nduguay@beaulier.qc.ca</p>		<p>NICOLAS DUGUAY nduguay@beaulier.qc.ca</p>		<p>ÉCHELLE SCALE INDIQUATED</p> <p>FORMAT A1 (594mm x 841mm)</p>			
<p>REV. DATE DESCRIPTION DE LA RÉVISION REVISION DESCRIPTION PAR BY RÉV. REV. DATE DESCRIPTION DE LA RÉVISION REVISION DESCRIPTION</p>								<p>NICOLAS DUGUAY nduguay@beaulier.qc.ca</p>		<p>REF. CLIENT CLIENT REF.</p>			
								<p>GERMAIN NOLET gnolet@beaulier.qc.ca</p>		<p># DE PROJET PROJECT # 08894</p> <p>DIS- S-DIS. MV</p> <p># LOT 01</p> <p># SEQUENCE 05</p> <p>REVISION 1</p>			



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DO NOT USE FOR CONSTRUCTION  
2022-06-27

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REV. NO.	DATE	DESCRIPTION DE LA RÉVISION REVISION DESCRIPTION	PAR BY	RÉV. NO. REV.	DATE	DESCRIPTION DE LA RÉVISION REVISION DESCRIPTION	PAR BY
1	2022-03-11	FOR CALL FOR TENDERS		N.D.			
0	2022-01-31	FOR CALL FOR TENDERS		N.D.			

**INGÉNIEUR  
ENGINEER**

**beaulier**

1400, Marie-Victorin, bureau 205, St-Bruno, Qc, Can., J3V 6B9  
450-441-9100  
info@beaulier.qc.ca

**CLIENT**

**NRC - CNRC**

75, Boul de Mortagne,  
Boucherville, QC  
J4B 6Y4

**TITRE DU PROJET  
PROJECT TITLE**

CNRC - BOUCHERVILLE  
BATTERIES LABORATORY  
VENTILATION & SECURISATION

**DESSINATEUR  
DRAFTER**  
NICOLAS DUGUAY  
nduguay@beaulier.qc.ca

**CHARGÉ DE PROJET  
PROJECT MANAGER**  
NICOLAS DUGUAY  
nduguay@beaulier.qc.ca

**VÉRIFICATEUR  
CONTROLLER**  
GERMAIN NOLET  
gnolet@beaulier.qc.ca

**TITRE DU DESSIN  
DRAWING TITLE**

MECHANICAL  
VENTILATION  
DETAILS

**ÉCHELLE  
SCALE**  
INDIQUATED

**FORMAT  
A1**  
(594mm x 841mm)

**RÉF. CLIENT  
CLIENT REF.**

# DE PROJET PROJECT #	DIS. S-DIS.	# LOT	# SEQUENCE	REVISION
08894	MV	01	06	1