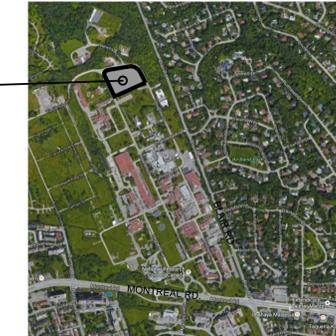


GENERAL NOTES

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- PREVENT THE SPREAD OF DUST & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION.
- MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.
- COORDINATE ALL SHUTDOWNS WITH THE DEPARTMENTAL REPRESENTATIVE.
- PROVIDE ALL LABOUR AND MATERIAL REQUIRED TO FORM A COMPLETE, FUNCTIONAL SYSTEM AS DESCRIBED ON DRAWINGS.



M-38 SITE

NORTH



DRAWING LIST

ARCHITECTURAL

- A00 - COVER
- A01 - FOUNDATION PLAN
- A02 - GROUND FLOOR PLAN
- A03 - 2ND FLOOR PLAN
- A04 - ROOF PLAN
- A04a - ROOF DETAILS
- A05 - ELEVATIONS
- A05a - ELEVATIONS
- A06 - BUILDING SECTIONS
- A07 - WALL SECTIONS & DETAILS
- A08 - WALL SECTIONS & DETAILS
- A09 - WALL SECTIONS & DETAILS
- A10 - WALL SECTIONS & DETAILS
- A11 - SECTION & PLAN DETAILS
- A12 - SECTION & PLAN DETAILS
- A13 - SECTION & PLAN DETAILS
- A14 - SECTION & PLAN DETAILS
- A15 - SCHEDULES
- A16 - STAIR PLAN, SECTION AND DETAILS

STRUCTURAL

- S01 - STRUCTURAL FOUNDATION PLANS AND DETAILS
- S02 - STRUCTURAL FOUNDATION DETAILS
- S03 - STRUCTURAL SECOND FLOOR PLAN AND DETAILS
- S04 - STRUCTURAL ROOF PLAN AND DETAILS
- S05 - STRUCTURAL WALL ELEVATIONS
- S06 - STRUCTURAL WALL ELEVATIONS AND DETAILS
- S07 - STRUCTURAL STEAM PIPE TRENCHING PLAN AND DETAILS

MECHANICAL

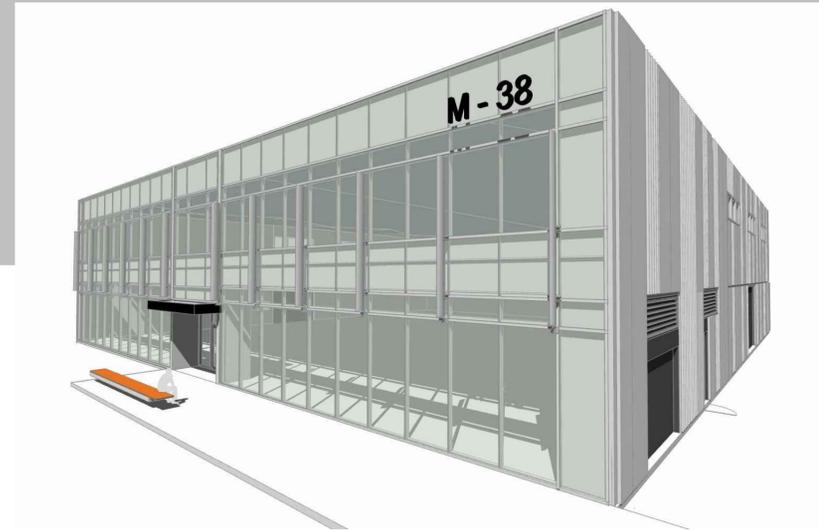
- M01 - GROUND FLOOR SANITARY AND DOMESTIC COLD WATER LAYOUT
- M02 - GROUND FLOOR VENTILATION, SANITARY, STORM AND DOMESTIC COLD WATER LAYOUT
- M03 - SECOND FLOOR CIRCULATING FANS AND STORM WATER PIPING LAYOUT
- M04 - SECOND FLOOR CIRCULATING FANS AND STORM WATER PIPING LAYOUT
- M05 - ROOF LAYOUT CIRCULATING FANS AND STORM WATER PIPING LAYOUT
- M06 - TRENCH ROUTING FROM M36 TO M38
- M07 - MECHANICAL PIPING LAYOUT

ELECTRICAL

- E01: ELECTRICAL SITE PLAN
- E02: MANHOLE AND GROUNDING
- E03: TYPICAL DUCT BANK
- E04: GROUND FLOOR LIGHTING AND HVAC POWER
- E05: SECOND FLOOR LIGHTING AND PANEL SCHEDULE

CIVIL

- C01 - TOPOGRAPHIC SURVEY
- C01 - SITE PLAN
- C03 - SPECIFICATIONS AND NOTES
- C04 - GRADING AND SERVICES PLAN
- C05 - DETAILS
- C06 - DETAILS



LEGEND

APPLICABLE TO ALL ARCHITECTURAL DRAWINGS :

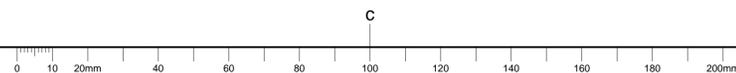
- DRAWING NOTE
- BUILDING SECTION REFERENCE
- DETAIL NUMBER
- WALL SECTION REFERENCE
- DRAWING NUMBER
- DETAIL REFERENCE
- DOOR TAG
- WALL TYPE
- CEILING TYPE
- CEILING TAG
- CEILING HEIGHT IN mm, AFF
- ELEVATION HEIGHT
- ELEVATION DATUM (IN PLAN)
- NEW WALL
- NEW FOUNDATION WALL, SEE STRUCTURAL DRAWINGS.
- NEW 1 HR FIRE RATED WALL ASSEMBLY
- NEW DOOR

ABBREVIATIONS

- | | | | |
|------|---------------------------------|-----|--------------------------------|
| Ø | DIAMETER | #R | RISERS |
| AWB | ALUMINUM WALL BASE | RD | ROOF DRAIN |
| C | CENTRE LINE | REV | REVERSE |
| CONC | CONCRETE | RSD | ROLLING STEEL DOOR |
| CMU | CONCRETE MASONRY UNIT | RWB | RESILIENT WALL BASE |
| C/W | COMPLETE WITH | SD | SOAP DISPENSOR |
| DA | DOOR ACTUATOR BUTTON | SIM | SIMILAR |
| DMNT | DEMOUNTABLE | SN | STAIN FINISH |
| DN | DOWN | SP | SPRINKLER HEAD |
| DWG | DRAWING | TG | TEMPERED GLASS |
| EPST | EXPOSED STRUCTURE AND ROOF DECK | TI | TAPERED INSULATION |
| EPT | EPOXY PAINT | T/O | TOP OF |
| EQ | EQUAL | TPS | THERMALLY BROKEN PRESSED STEEL |
| EX | EXISTING | TYP | TYPICAL |
| EXT. | EXTERIOR | U/S | UNDERSIDE |
| FD | FLOOR DRAIN | WD | WOOD |
| FFL | FINISHED FLOOR LEVEL | WGB | WATERPROOF GYPSUM BOARD |
| FHC | RECESSED FIRE HOSE CABINET | | |
| FLR | FLOOR | | |
| FRP | FIBREGLASS REINFORCED PLASTIC | | |
| GB | GYPSUM BOARD | | |
| GL | INSULATED GLASS, SEE SPECS | | |
| HM | HOLLOW METAL | | |
| HS | HOOK STRIP | | |
| INT. | INTERIOR | | |
| MF | PREFINISHED METAL FLASHING | | |
| NTS | NOT TO SCALE | | |
| OC | ON CENTER | | |
| PF | PRE-FINISHED | | |
| PS | PRESSED STEEL | | |
| PT | PAINT | | |

- EXTERIOR WALL**
150mm INSULATED METAL PANELS
- EXTERIOR CURTAIN WALL**
ALUMINUM CURTAIN WALL SYSTEM
- EXTERIOR CURTAIN WALL @ SPANDREL PANEL**
SPANDREL GLASS PANEL
GALVANIZED METAL BACK PAN
INFILLED WITH MINERAL FIBRE INSULATION.
- FOUNDATION WALL**
13mm FIBER REINFORCED CEMENT BOARD PANEL TO 400mm BELOW GRADE
75mm RIGID INSULATION FASTENED TO CONCRETE WALL
POURED CONCRETE WALL. SEE STRUCTURAL DRAWINGS AND SPECS
- EXTERIOR RECESSED ENTRY WALL**
4mm COMPOSITE ALUMINUM CLADDING SYSTEM.
COMMERCIAL GRADE WEATHER BARRIER
13mm GLASS MAT EXTERIOR GRADE G.B.
190mm ALUMINUM CURTAIN WALL BACK SECTION
C/W GALV. METAL BACK PAN
INFILL BACK PAN CAVITY WITH MINERAL FIBRE INS.
PRE-FINISHED METAL INFILL PANELS FASTENED TO BACK SECTIONS ON INTERIOR SIDE
- EXTERIOR INFILL PANEL**
4mm COMPOSITE ALUMINUM CLADDING SYSTEM.
50mm GALV. METAL 'Z' CHANNELS
COMMERCIAL GRADE WEATHER BARRIER
13mm GLASS MAT EXTERIOR GRADE G.B.
150mm INFILL BETWEEN STRUCTURAL STEEL FRAMING WITH SPRAY TYPE INSULATION
- FLOOR ASSEMBLY**
FUTURE CONCRETE SLAB ON GRADE. SEE STRUCTURAL DRAWINGS AND SPECS
- FLOOR ASSEMBLY**
62MM POURED CONCRETE TOPPING, SEE STRUCTURAL DRAWINGS AND SPECS
38MM METAL DECK. SEE STRUCTURAL DRAWINGS AND SPECS
OPEN WEB STEEL JOIST. SEE STRUCTURAL DRAWINGS AND SPECS

- ROOF ASSEMBLY**
- 2-PLY MODIFIED BITUMEN ROOF MEMBRANE
- 6mm PROTECTION BOARD
- TAPERED INSULATION, THICKNESS VARIES, SEE ROOF PLAN
- 2 LAYERS OF 75mm POLYISOCYANURATE INSULATION, SHIP-LAPPED JOINTS
- 13mm GLASS MAT EXTERIOR GRADE ROOF SHEATHING
- CONTINUOUS VAPOUR RETARDER
- ROOF DECK, SEE STRUCTURAL DRAWINGS
- OPEN WEB STEEL JOISTS, SEE STRUCTURAL DRAWINGS
- PARAPET ASSEMBLY**
2-PLY MODIFIED BITUMEN ROOF MEMBRANE
19MM PRESSURE TREATED PLYWOOD SHEATHING PRIMED
150mm GALV. METAL STUDS AT 400mm OC
INFILLED WITH 150mm MINERAL FIBRE INSULATION
- CURB ASSEMBLY**
2-PLY MODIFIED BITUMEN ROOF MEMBRANE
19MM PRESSURE TREATED PLYWOOD SHEATHING PRIMED
MIN. 92mm GALV. METAL STUDS AT 400mm OC
INFILL STUD CAVITY WITH SPRAY TYPE INSULATION
- CANOPY ASSEMBLY**
2-PLY MODIFIED BITUMEN ROOF MEMBRANE
6mm PROTECTION BOARD
SLOPED INSULATION
13mm GLASS MAT EXTERIOR GRADE ROOF SHEATHING
CONTINUOUS VAPOUR RETARDER
ROOF DECK, SEE STRUCTURAL DRAWINGS
- CANOPY PARAPET**
4mm COMPOSITE ALUMINUM CLADDING SYSTEM.
COMMERCIAL GRADE WEATHER BARRIER
16MM PRESSURE TREATED PLYWOOD SHEATHING PRIMED
89mmX38mm PRESSURE TREATED WOOD
16mm PRESSURE TREATED PLYWOOD SHEATHING PRIMED
2-PLY MODIFIED BITUMEN ROOF MEMBRANE
- CANOPY SOFFIT**
4mm COMPOSITE ALUMINUM CLADDING SYSTEM.
22mm GALVANIZED FURRING CHANNELS
COMMERCIAL GRADE WEATHER BARRIER
13mm GLASS MAT EXTERIOR GRADE SHEATHING
150mm GALV. METAL JOISTS @400mm O.C. MIN.
INFILL STUD CAVITY WITH SPRAY TYPE INSULATION
AS INDICATED. REFER TO DETAILS ON A12
STRUCTURAL STEEL CHANNELS. SEE STRUCTURAL DRAWINGS



No.	Date	Revision	By:
2	AUG 29 2016	ISSUED FOR TENDER	KWC
1	JUNE 28 2016	ISSUED FOR REVIEW	KWC

Date Printed: _____ Date imprimée: _____

kwc 383 Parkdale Avenue, Suite 201
 Ottawa Ontario Canada K1Y 4R4
KWC ARCHITECTS INC.
 PHONE: (613) 238-2117
 FAX: (613) 238-6595
 E MAIL: kwc@kwc-arch.com

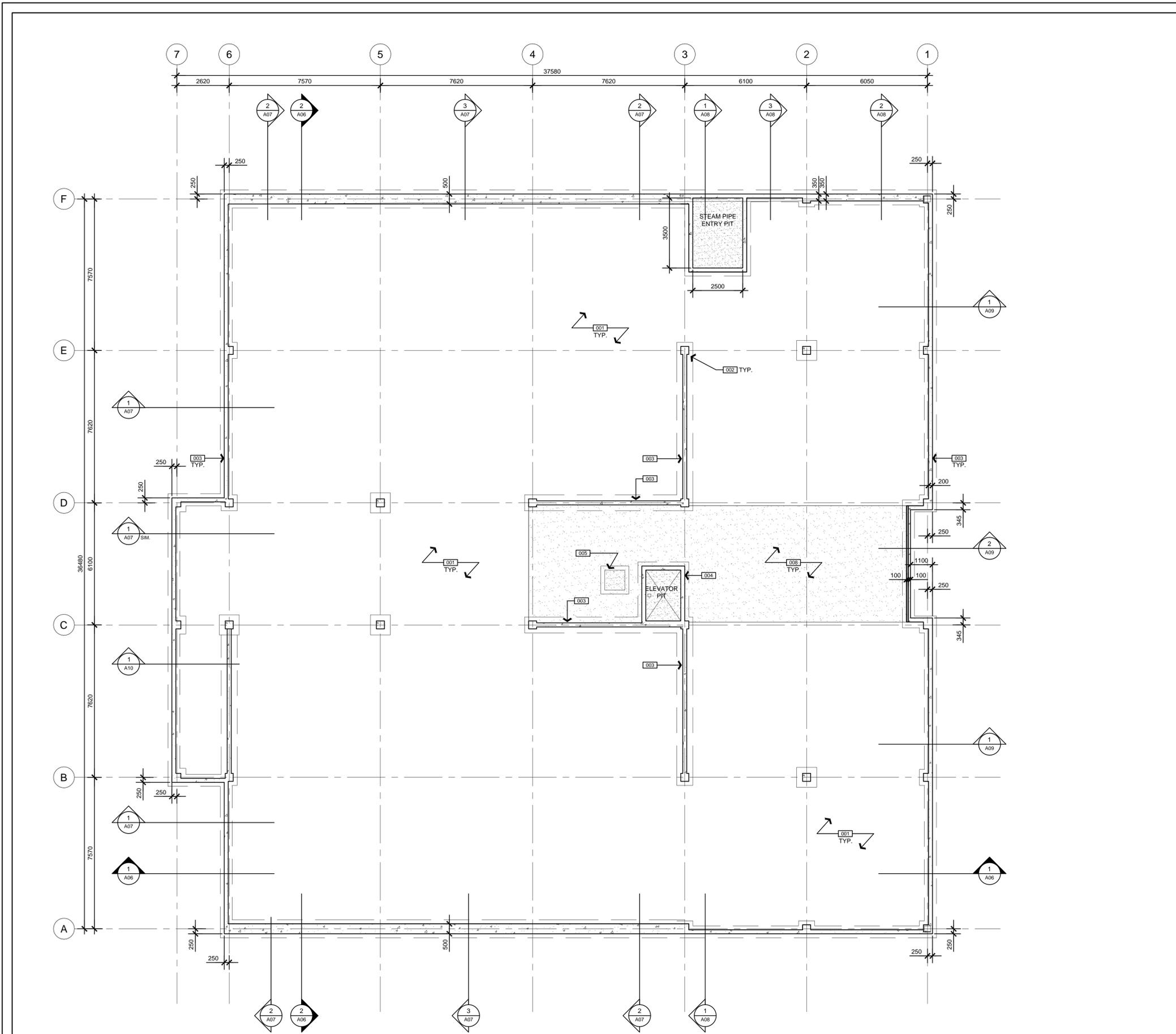
- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité

	A Detail no. No. du détail	
	B Location drawing no. sur dessin no.	
	C Drawing no. dessin no.	

project **BUILDING M-38** projet
FLEXIBLE RESEARCH FACILITY
 1200 MONTREAL ROAD CAMPUS
 OTTAWA, ON

drawing **COVER SHEET** dessin

designed	MM	conçu	date	05/2016	date
drawn	SS,CD	dessiné	scale	AS NOTED	échelle
checked	MM	vérifié	sheet	of/de	feuille
approved		approuvé	W.O.no.		D.T.no.
dwg.no.					dessin no.
5044-A00					



1 FOUNDATION PLAN
A01 SCALE = 1:100

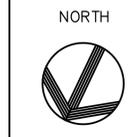
GENERAL NOTES
 A. PRIOR TO COMMENCEMENT OF WORK, NOTIFY DEPARTMENTAL REPRESENTATIVE OF ANY DISCREPANCIES NOTED IN THE CONTRACT DOCUMENTS.
 B. ALL GRID TO GRID DIMENSIONS ARE PLUS/MINUS. PRIOR TO COMMENCEMENT OF WORK, REVIEW SITE CONDITIONS AND VERIFY ALL DIMENSIONS. NOTIFY DEPARTMENTAL REPRESENTATIVE OF ANY DISCREPANCIES.
 C. DO NOT SCALE DRAWINGS.
 D. ALL DIMENSIONS ARE INDICATED IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

DRAWING NOTES - SHEET A01
 THESE NOTES APPLY TO DRAWING SHEET A01 ONLY
 001 UNEXCAVATED. REFER TO STRUCTURAL.
 002 CONCRETE PIER. REFER TO STRUCTURAL FOR PIER AND FOOTING SIZES.
 003 CONCRETE FOUNDATION WALL REFER TO STRUCTURAL.
 004 ELEVATOR PIT. REFER TO STRUCTURAL.
 005 ELEVATOR SUMP PIT. REFER TO STRUCTURAL AND MECHANICAL.
 006 NOT USED
 007 NOT USED
 008 AREA OF CONCRETE SLAB ON GRADE. REFER TO STRUCTURAL.



GENERAL NOTES

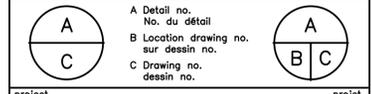
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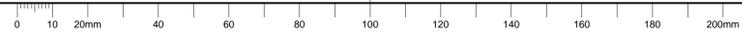


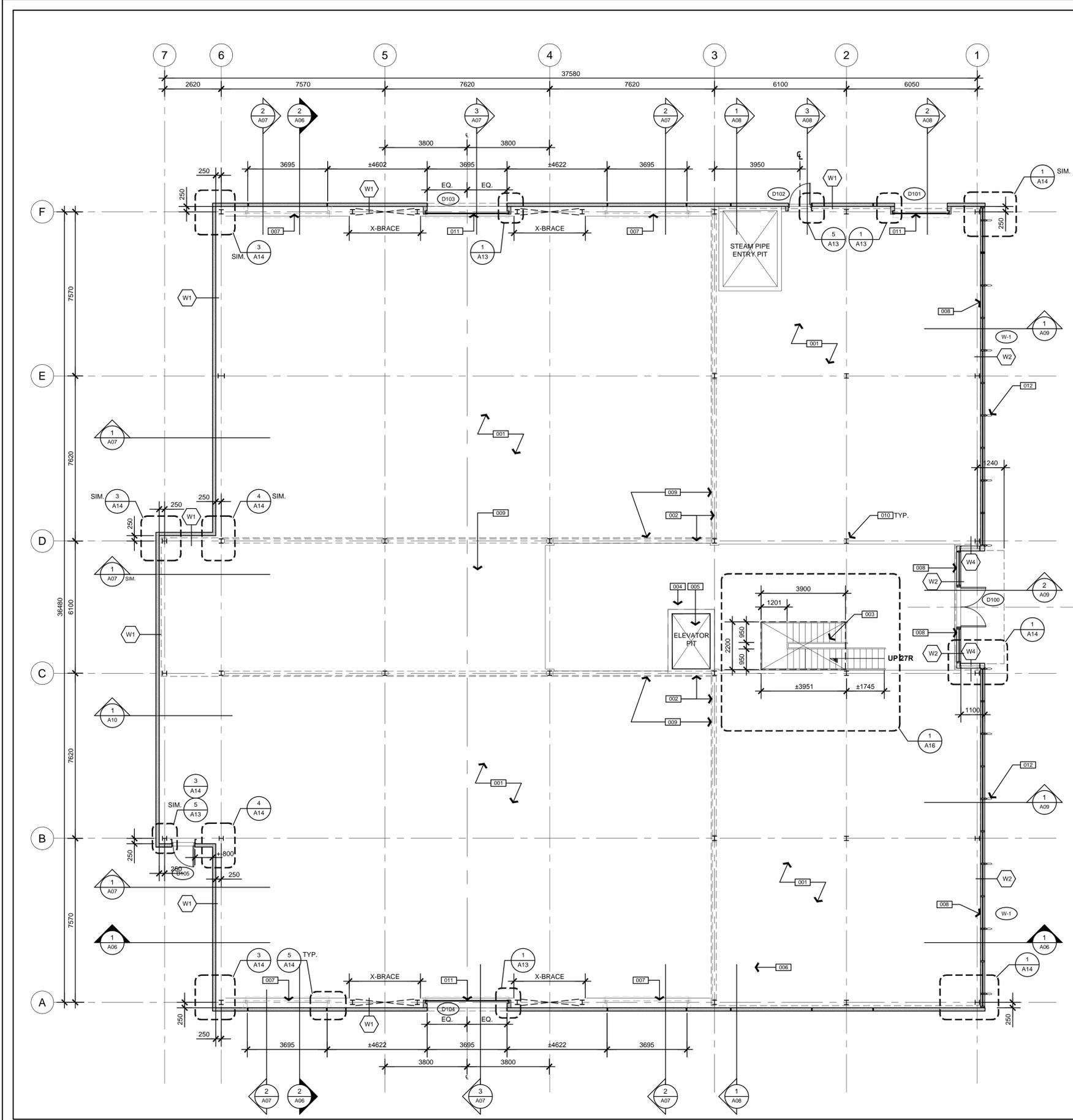
project **BUILDING M-38 FLEXIBLE RESEARCH FACILITY** projet
1200 MONTREAL ROAD CAMPUS OTTAWA, ON

drawing **FOUNDATION PLAN** dessin

designed MM	conçu	date 05/2016	date
drawn SS, CD	dessiné	scale AS NOTED	échelle
checked MM	vérifié	sheet of/de	feuille
approved	approuvé	W.O.no.	D.T.no.

dwg.no. **5044-A01** dessin no.





1 GROUND FLOOR PLAN
A02 SCALE = 1:100

GENERAL NOTES

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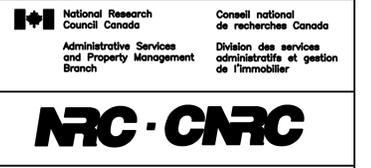
C. DO NOT SCALE DRAWINGS.

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DRAWING NOTES - SHEET A02

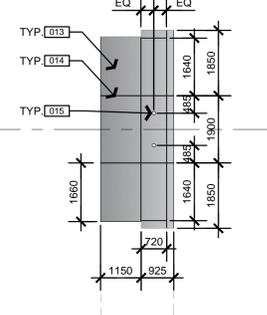
THESE NOTES APPLY TO DRAWING SHEET A02 ONLY

001 GRANULAR GROUND COVER.
002 FUTURE WALL.
003 STAIR TO SECOND FLOOR.
004 FUTURE ELEVATOR SHAFT.
005 ELEVATOR PIT, BELOW.
006 STEAM PIPE ENTRY PIT.
007 FUTURE OVERHEAD DOOR.
008 CURTAIN WALL SYSTEM.
009 LIMIT OF 2nd FLOOR LEVEL, ABOVE.
010 STRUCTURAL STEEL COLUMN. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS.
011 OVERHEAD DOOR
012 FIN TYPE SOLAR SHADE ABOVE
013 METAL COMPOSITE PANEL
014 TYPICAL 15MM METAL REVEAL IN COMPOSITE PANEL
015 INDICATES LIGHT FIXTURE RECESSED INTO COMPOSITE PANEL. REFER TO ELECTRICAL
016 INDICATES NOTCH FOR SCUPPER.

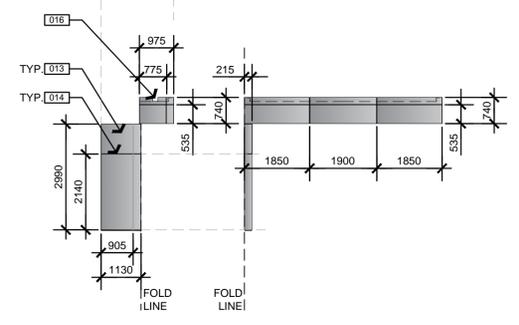


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2 CANOPY RCP
A02 SCALE = 1:100



3 CANOPY ELEV
A02 SCALE = 1:100

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2	AUG 29 2016	ISSUED FOR TENDER	KWC
1	JUNE 28 2016	ISSUED FOR REVIEW	KWC

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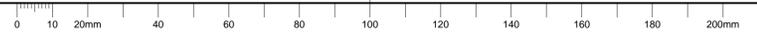
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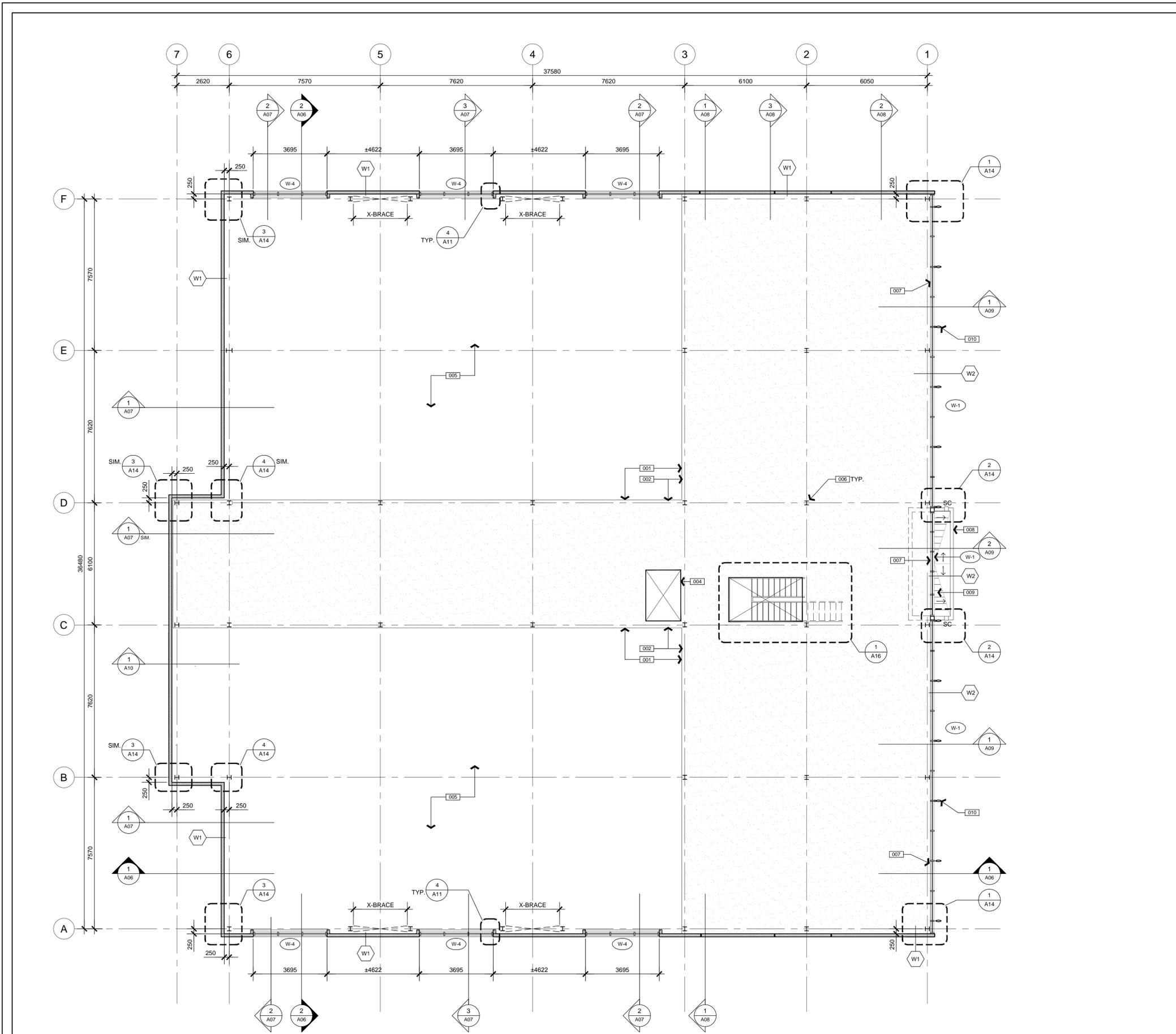
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FAX (613) 238-6595
E MAIL kwc@kwc-arch.com

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project		projet	
BUILDING M-38			
FLEXIBLE RESEARCH FACILITY			
1200 MONTREAL ROAD CAMPUS			
OTTAWA, ON			
drawing		dessin	
GROUND FLOOR PLAN			
designed	MM	conçu	date
			05/2016
drawn	SS, CD	dessiné	scale
			AS NOTED
checked	MM	vérifié	sheet of/de
			feuille
approved	MM	approuvé	W.O.no. D.T.no.
dwg.no.		dessin no.	
5044-A02			





1 2nd FLOOR PLAN
A03 SCALE = 1:100

GENERAL NOTES

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C. DO NOT SCALE DRAWINGS.

D. ALL DIMENSIONS ARE INDICATED IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

DRAWING NOTES - SHEET A03

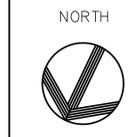
THESE NOTES APPLY TO DRAWING SHEET A03 ONLY

001 EDGE OF SECOND FLOOR.
002 FUTURE WALL.
003 NOT USED.
004 FLOOR OPENING FOR FUTURE ELEVATOR.
005 OPEN TO BELOW.
006 STRUCTURAL STEEL COLUMN. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS.
007 CURTAIN WALL SYSTEM.
008 CANOPY ROOF BELOW.
009 INDICATES SLOPED INSULATION.
010 ADJUSTABLE FIN TYPE SOLAR SHADE



GENERAL NOTES

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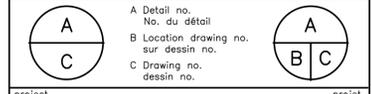
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Ottawa Ontario Canada K1Y 4R4

KWC ARCHITECTS INC.

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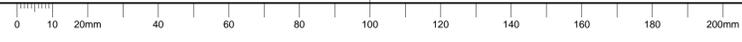
project **BUILDING M-38** projet
FLEXIBLE RESEARCH FACILITY

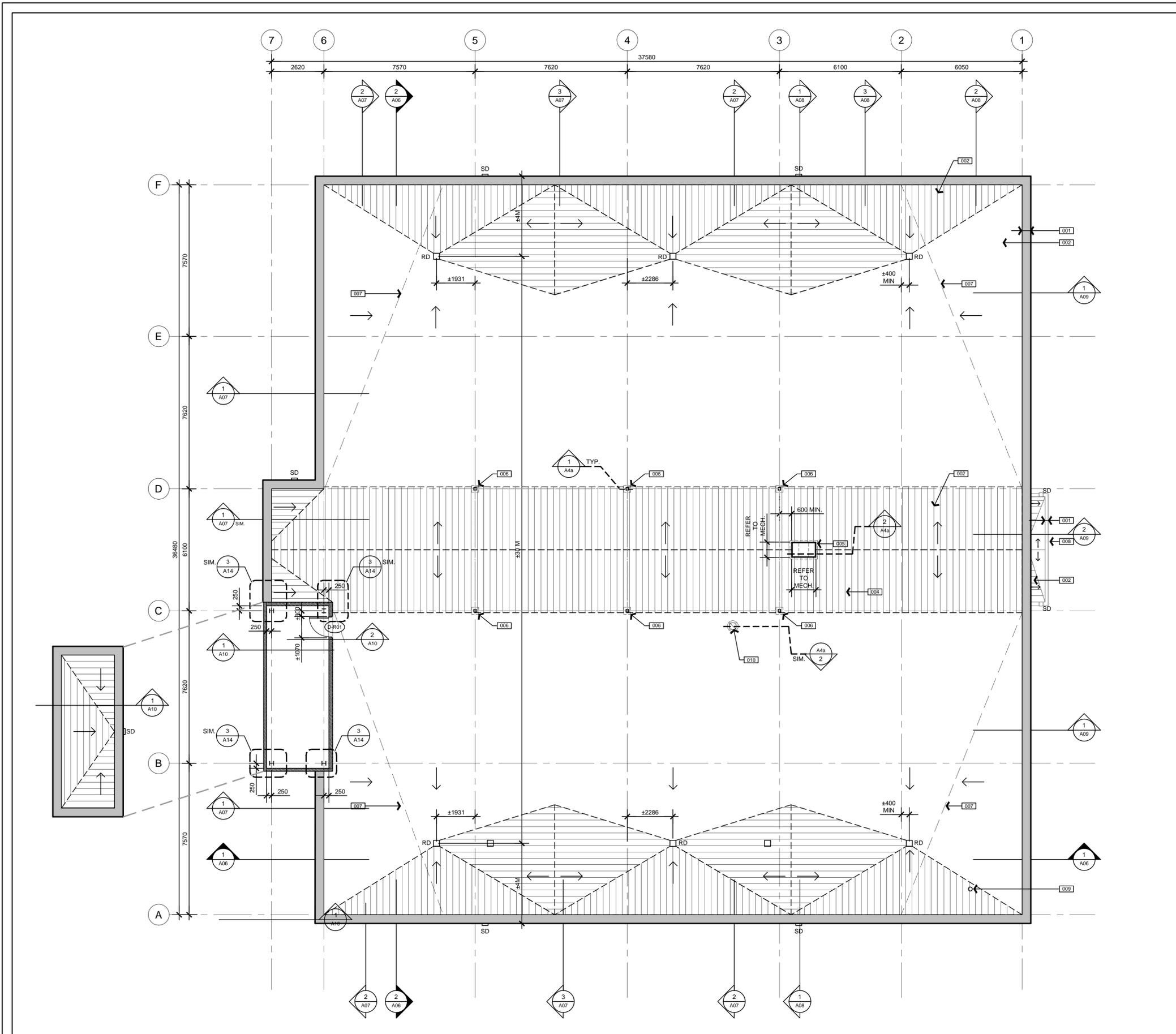
1200 MONTREAL ROAD CAMPUS
OTTAWA, ON

drawing **2nd FLOOR PLAN** dessin

designed MM	conçu	date 05/2016	date
drawn SS, CD	dessiné	scale AS NOTED	échelle
checked MM	vérifié	sheet of/de	feuille
approved	approuvé	W.O.no.	D.T.no.

dwg.no. **5044-A03** dessin no.





1 ROOF PLAN
A04 SCALE = 1:100

GENERAL NOTES

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C. DO NOT SCALE DRAWINGS.

D. ALL DIMENSIONS ARE INDICATED IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

DRAWING NOTES - SHEET A04

THESE NOTES APPLY TO DRAWING SHEET A04 ONLY

001 ROOF PARAPET. REFER TO DETAILS.

002 HATCH DENOTES AREA OF SLOPED INSULATION.

003 (RESERVED).

004 FUTURE ELEVATOR SHAFT OVER-RUN.

005 LOCATION OF ROOFTOP UNIT. REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS.

006 STEEL POST EXTENSION ABOVE ROOF FINISH. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS.

007 APPROXIMATE LOCATION OF SLOPING STRUCTURE. REFER TO STRUCTURAL DRAWINGS.

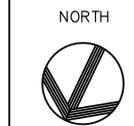
008 CANOPY ROOF BELOW

009 ROOF PENETRATION FOR ELECTRICAL CONDUIT REFER TO ELECTRICAL.

010 LOCATION OF EXHAUST UNIT. REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS.

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Ottawa Ontario Canada K1Y 4R4

KWC ARCHITECTS INC.

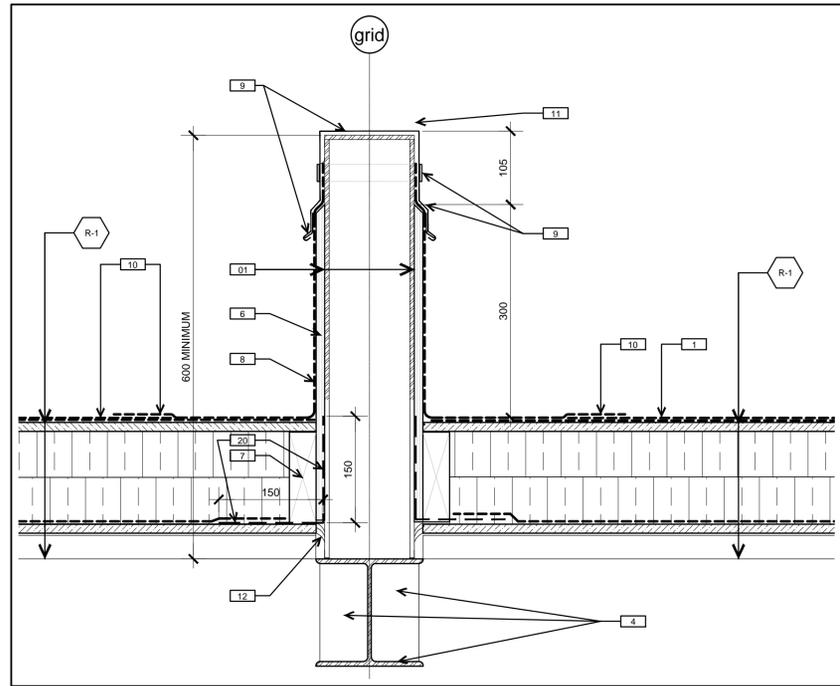
PHONE (613) 238-2117
FAX (613) 238-6595
E MAIL kwc@kwc-arch.com

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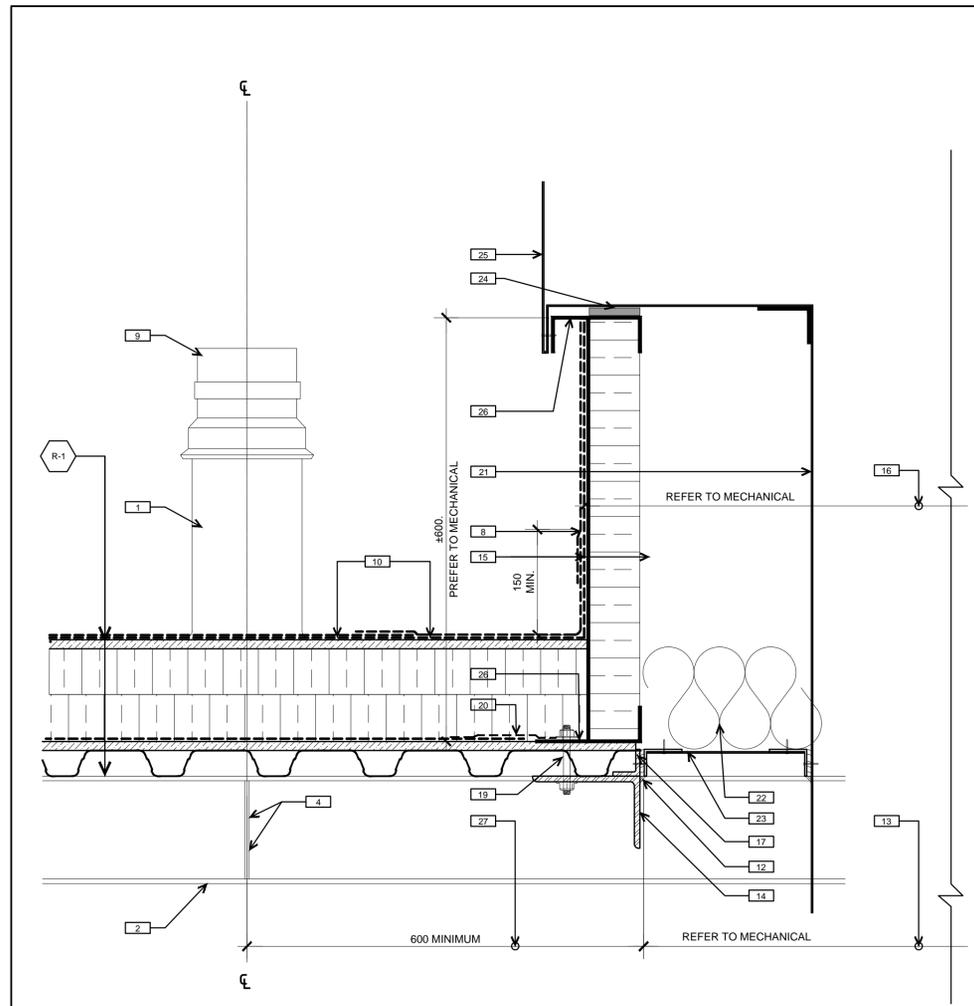
Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité

A Detail no. / No. du détail
B Location drawing no. / sur dessin no.
C Drawing no. / dessin no.

project	BUILDING M-38 FLEXIBLE RESEARCH FACILITY			project
location	1200 MONTREAL ROAD CAMPUS OTTAWA, ON			
drawing	ROOF PLAN			
designed	MM	conçu	05/2016	date
drawn	SS, CD	dessiné	AS NOTED	échelle
checked	MM	vérifié	sheet of/de	feuille
approved	MM	approuvé	W.O.no.	D.T.no.
dwg.no.	5044-A04			dessin no.



1 SECTION DETAIL
A04c SCALE = 1: 5



2 SECTION DETAIL
A04c SCALE = 1: 5

GENERAL NOTES

- A. PRIOR TO COMMENCEMENT OF WORK, NOTIFY DEPARTMENTAL REPRESENTATIVE OF ANY DISCREPANCIES NOTED IN THE CONTRACT DOCUMENTS.
- B. ALL GRID TO GRID DIMENSIONS ARE PLUS/MINUS. PRIOR TO COMMENCEMENT OF WORK, REVIEW SITE CONDITIONS AND VERIFY ALL DIMENSIONS. NOTIFY DEPARTMENTAL REPRESENTATIVE OF ANY DISCREPANCIES.
- C. DO NOT SCALE DRAWINGS.
- D. ALL DIMENSIONS ARE INDICATED IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

DRAWING NOTES - SHEET A04

THESE NOTES APPLY TO DRAWING SHEET A04 ONLY

1. NEW GALVANIZED STEEL STUB POST WELDED TO STRUCTURAL BEAM UNDER ROOF'S STEEL DECK. TYPICAL OF 6. REFER TO STRUCTURAL.
2. NOT USED
3. NOT USED
4. STEEL BEAM AND STIFFNER PLATE. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS. PROVIDE NEW PAINT FINISH.
5. NOT USED
6. PROVIDE PRESSURE TREATED PLYWOOD BOX AROUND NEW STUB POST. CUT TOP END TO SLOPE. TYPICAL.
7. PROVIDE PRESSURE TREATED WOOD BLOCKING AROUND BASE OF NEW STUB POST. TYPICAL.
8. CARRY ROOFING MEMBRANE UP OVER CURB AS SHOWN. TYPICAL.
9. PROVIDE NEW PRE-FINISHED METAL FLASHING CAP COMPLETE WITH CLIP ALL AROUND NEW CURB AS SHOWN.
10. EXTEND ROOFING MEMBRANE. ALIGN AND OVERLAP INTO 2 PLY SYSTEM. TYPICAL.
11. PROVIDE CONTINUOUS SEAL.
12. PROVIDE CONTINUOUS SEALANT AT PERIMETER OF DECK OPENING AND NEW STEEL.
13. PROVIDE NEW ROOF CLEAR OPENING FOR MECHANICAL DUCTING. REFER TO MECHANICAL.
14. STEEL ANGLE FRAME TO SUPPORT MECHANICAL OPENING AND EQUIPMENT. REFER STRUCTURAL. COORDINATE WITH MECHANICAL.
15. PROVIDE PREMANUFACTURED INSULATED GALVANIZED METAL MECHANICAL CURB.
16. OUTSIDE DIMENSION OF TOP OF CURB TO BE DETERMINED BY MECHANICAL REQUIREMENTS. REFER TO MECHANICAL.
17. NEW STEEL ANGLE FRAMING AROUND NEW ROOF OPENING. REFER TO STRUCTURAL. PAINT FINISH.
18. TOP OF CURB TO BE 300 MM ABOVE TOP OF STEEL BEAM SUPPORT. COORDINATE WITH MECHANICAL AND STRUCTURAL.
19. PROVIDE 9 MM DIAMETER NUT AND BOLT. ALL SIDES OF REMANUFACTURED CURB. REFER TO MANUFACTURERS INSTRUCTIONS FOR BOLT SPACING.
20. EXTEND AND SEAL NEW VAPOUR RETARDER MEMBRANE ACROSS EXISTING ROOF SHEATHING AND OVER LAP ON PREMANUFACTURED CURB FLANGE. SEAL ALL OVERLAPS.
21. NEW MECHANICAL DUCT.
22. FILL BETWEEN NEW DUCT AND PERIMETER STEEL ANGLE WITH SEMI-RIGID MINERAL FIBRE INSULATION.
23. PROVIDE PRE-FINISHED METAL PERIMETER CLOSURE TRIM AND SECURE TO STEEL ANGLE. PROVIDE CLEARANCE OF 12MM BETWEEN CLOSURE TRIM AND DUCT. FILL CLEARANCE WITH SEALANT.
24. COMPRESSION GASKET
25. ROOF TOP UNIT. REFER TO MECHANICAL
26. PREMANUFACTURED CURB FLANGE
18. COORDINATE THIS DIMENSION WITH MECHANICAL AND STRUCTURAL.



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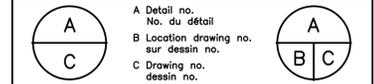
No.	Date	Revision	By:
2	AUG 29 2016	ISSUED FOR TENDER	KWC
1	JUNE 28 2016	ISSUED FOR REVIEW	KWC

Date Printed Date imprimée



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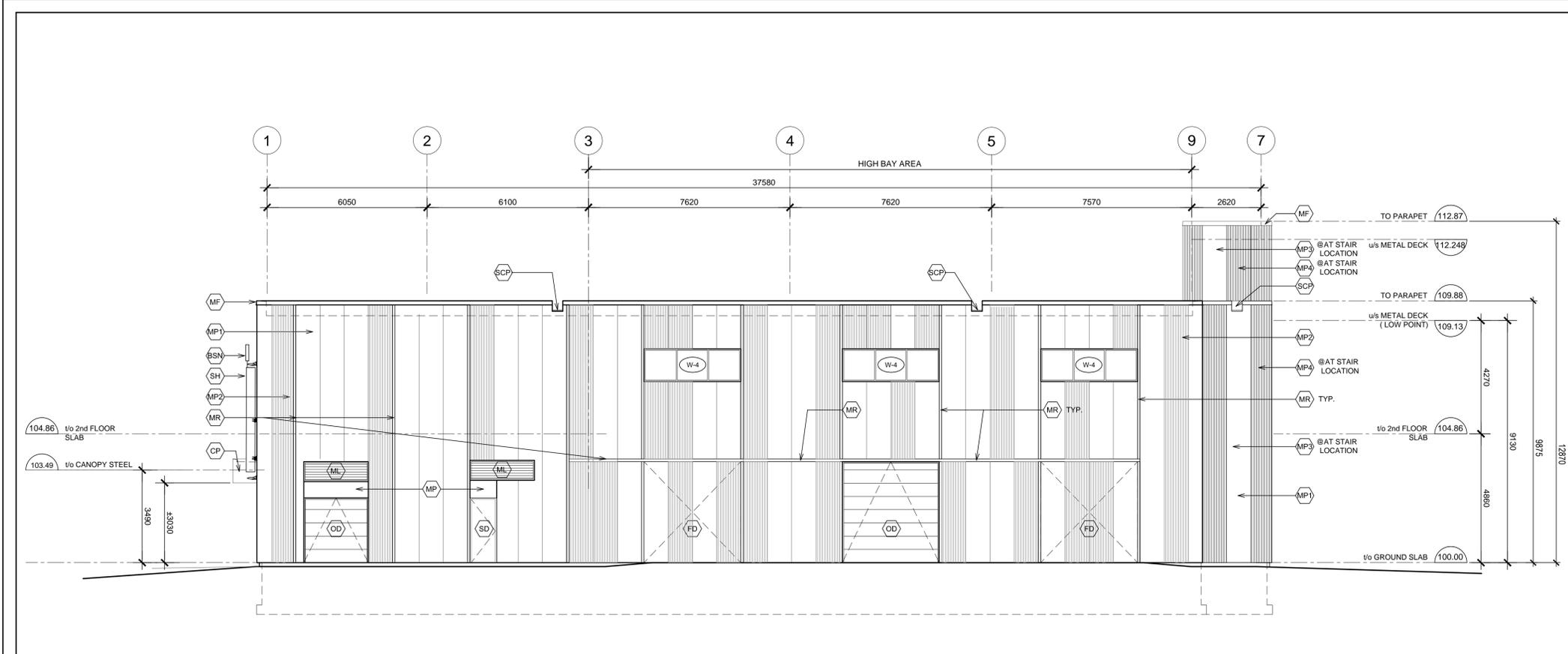


project **BUILDING M-38** projet
FLEXIBLE RESEARCH FACILITY
1200 MONTREAL ROAD CAMPUS
OTTAWA, ON

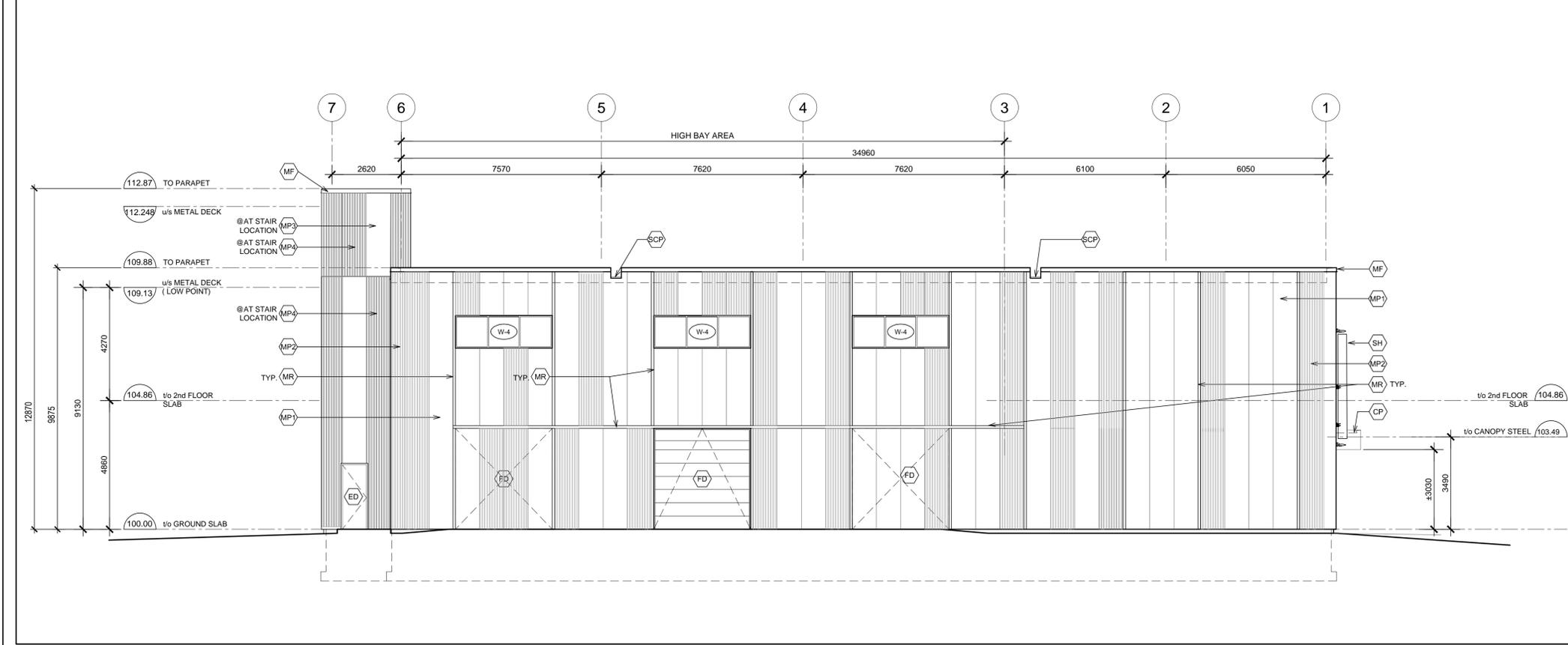
drawing **ROOF DETAILS** dessin

designed MM	conçu	date 05/2016	date
drawn CD	dessiné	scale AS NOTED	échelle
checked MM	vérifié	sheet of/de	feuille
approved	approuvé	W.O.no.	D.T.no.

dwg.no. **5044-A04a** dessin no.



1
A05
ELEVATION
SCALE = 1:100



2
A05
ELEVATION
SCALE = 1:100

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- LEGEND - SHEET A05/A05a**
- (MP1) METAL PANEL - TYPE 1 - COLOUR 1
 - (MP2) METAL PANEL - TYPE 2 - COLOUR 1
 - (MP3) METAL PANEL - TYPE 1 - COLOUR 2
 - (MP4) METAL PANEL - TYPE 2 - COLOUR 2
 - (CP) COMPOSITE PANEL - TYPE 1
 - (CW) CURTAIN WALL
 - (G) GLAZING
 - (SP) SPANDREL PANEL
 - (MF) PRE-FINISHED METAL FLASHING
 - (OD) OVERHEAD ROLL UP DOOR
 - (ED) ENTRANCE/EXIT DOOR
 - (SD) SERVICE DOOR
 - (SC) PAINTED STEEL COLUMN
 - (ML) PREFINISHED METAL LOUVER
 - (MR) PREFINISHED METAL REVEAL
 - (SCP) OVERFLOW SCUPPER
 - (SH) ALUMINUM SOLAR SHADE
 - (FD) FUTURE DOOR
 - (BNS) BUILDING SIGN (BY DEPARTMENTAL REPRESENTATIVE)
 - (AC) ALUMINUM COVER



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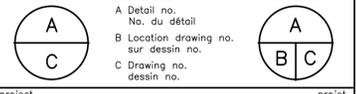
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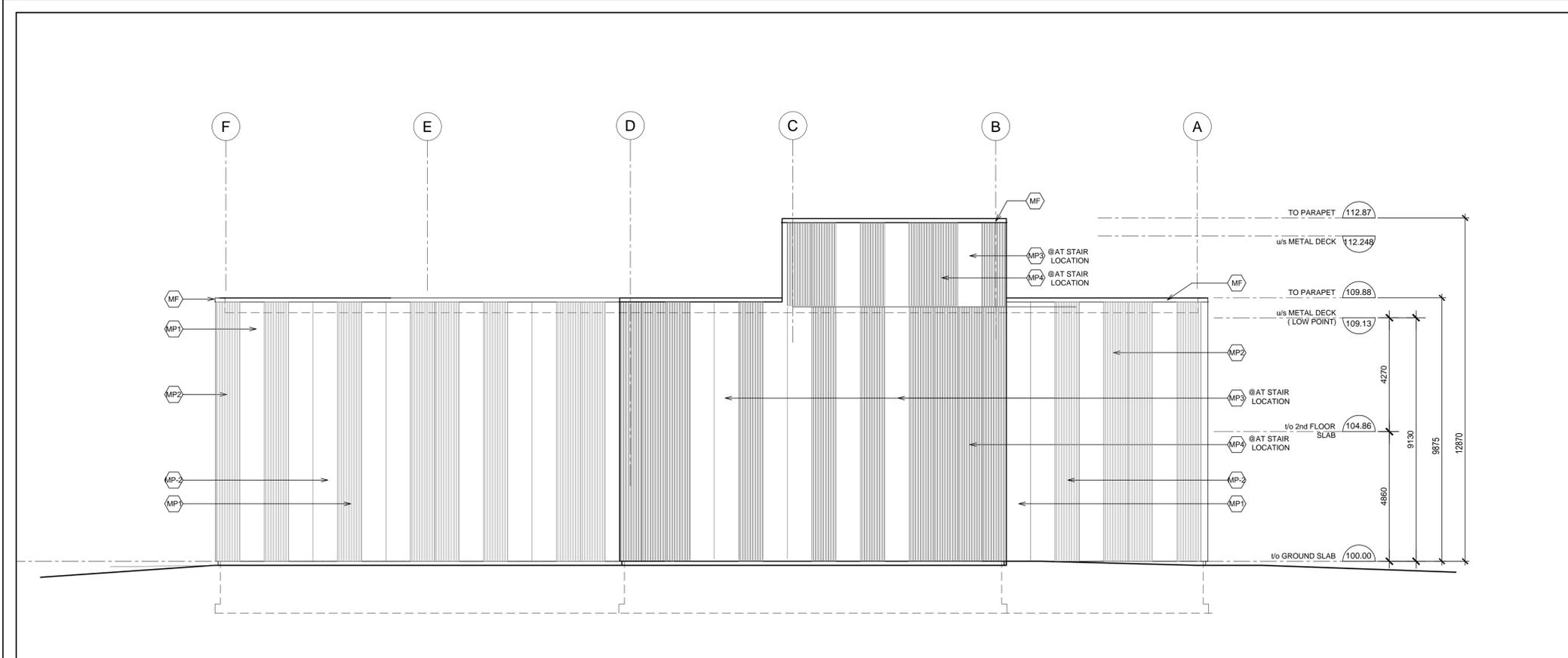


project **BUILDING M-38 FLEXIBLE RESEARCH FACILITY** projet

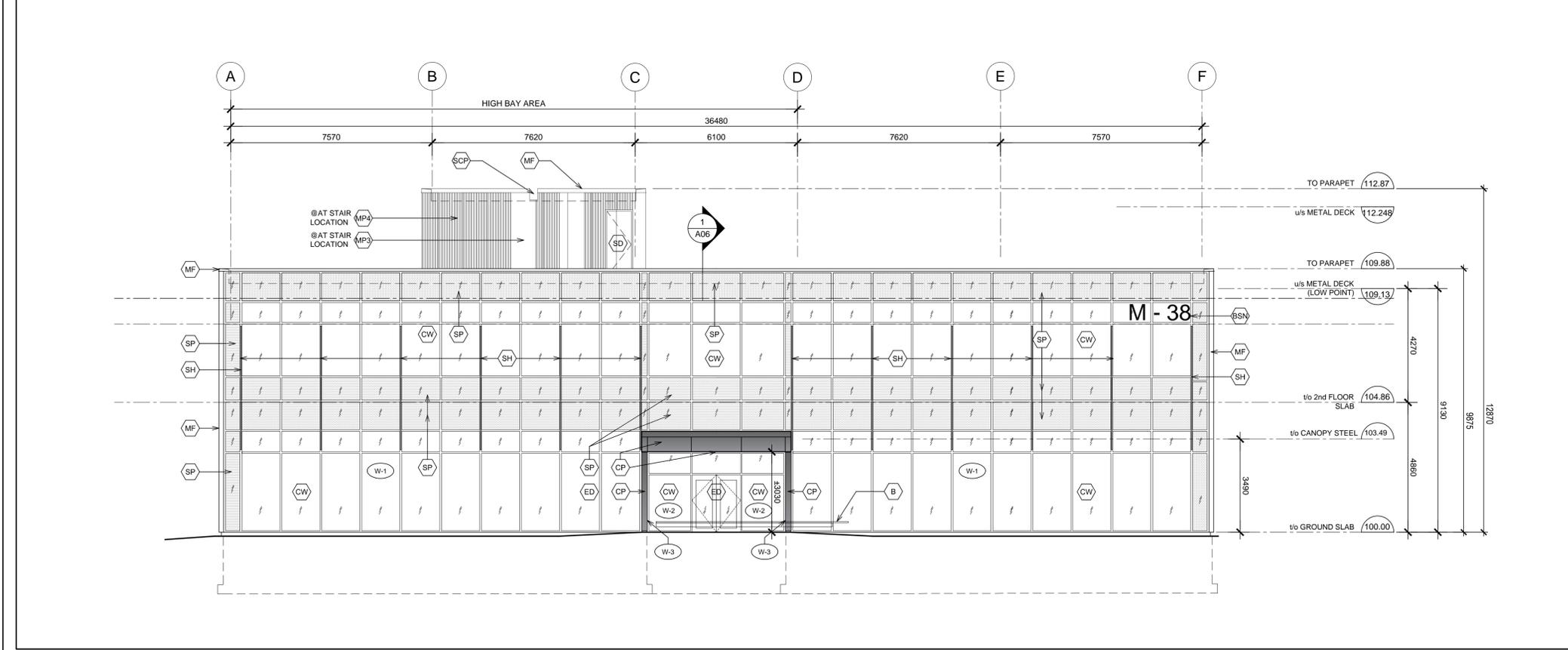
1200 MONTREAL ROAD CAMPUS OTTAWA, ON

drawing **BUILDING ELEVATIONS** dessin

designed MM	conçu	date 05/2016	date
drawn CD	dessiné	scale AS NOTED	échelle
checked MM	vérifié	sheet of/de	feuille
approved	approuvé	W.O.no.	D.T.no.
dwg.no. 5044-A05			dessin no.



1
A05a
ELEVATION
SCALE = 1:100



2
A05a
ELEVATION
SCALE = 1:100

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 MP3 METAL PANEL - TYPE 1 - COLOUR 2
 MP4 METAL PANEL - TYPE 2 - COLOUR 2
 CP COMPOSITE PANEL - TYPE 1
 CW CURTAIN WALL
 G GLAZING
 SP SPANDREL PANEL
 MF PRE-FINISHED METAL FLASHING
 OD OVERHEAD ROLL UP DOOR
 ED ENTRANCE/EXIT DOOR
 SD SERVICE DOOR
 SC PAINTED STEEL COLUMN
 ML PREFINISHED METAL LOUVER
 MR PREFINISHED METAL REVEAL
 SCF OVERFLOW SCUPPER
 SH ALUMINUM SOLAR SHADE
 FD FUTURE DOOR
 BNS BUILDING SIGN (BY DEPARTMENTAL REPRESENTATIVE)
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Date Printed: _____ Date imprimée: _____

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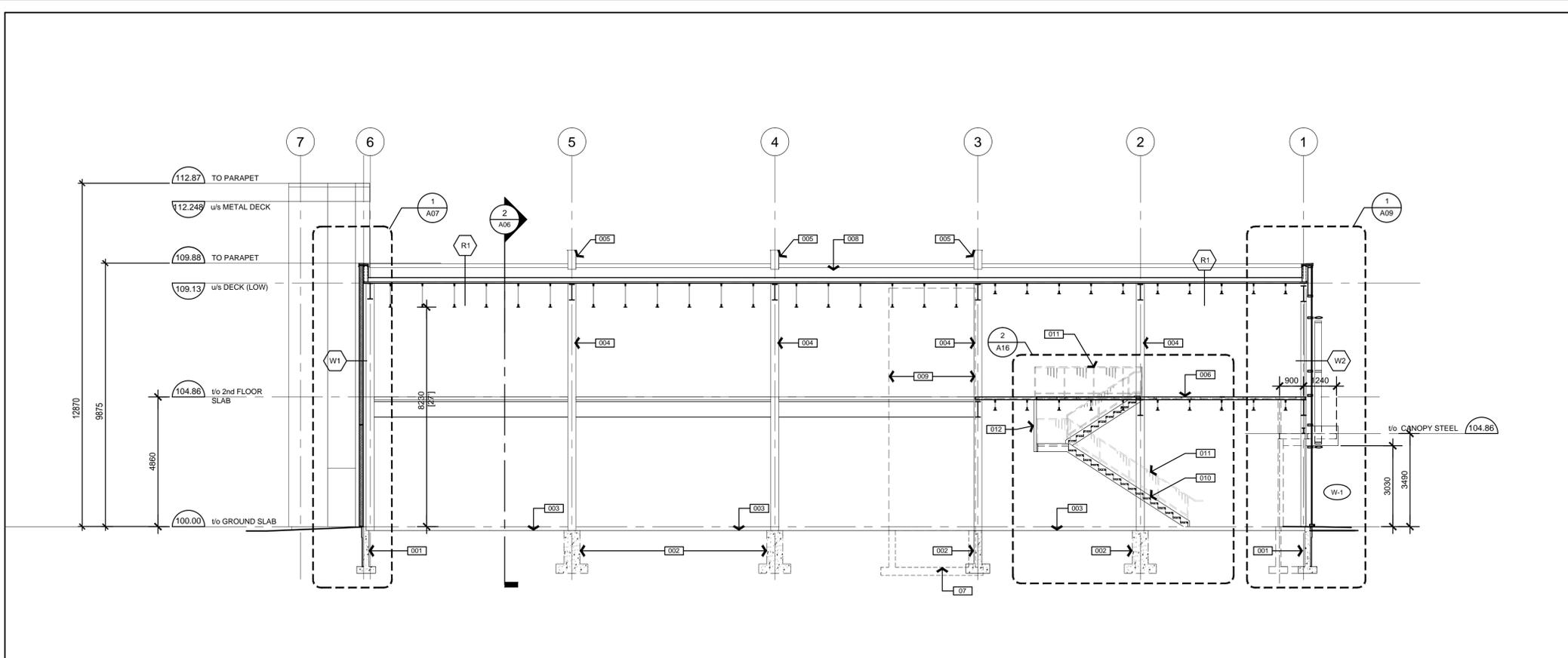
project: **BUILDING M-38 FLEXIBLE RESEARCH FACILITY** projet

1200 MONTREAL ROAD CAMPUS OTTAWA, ON

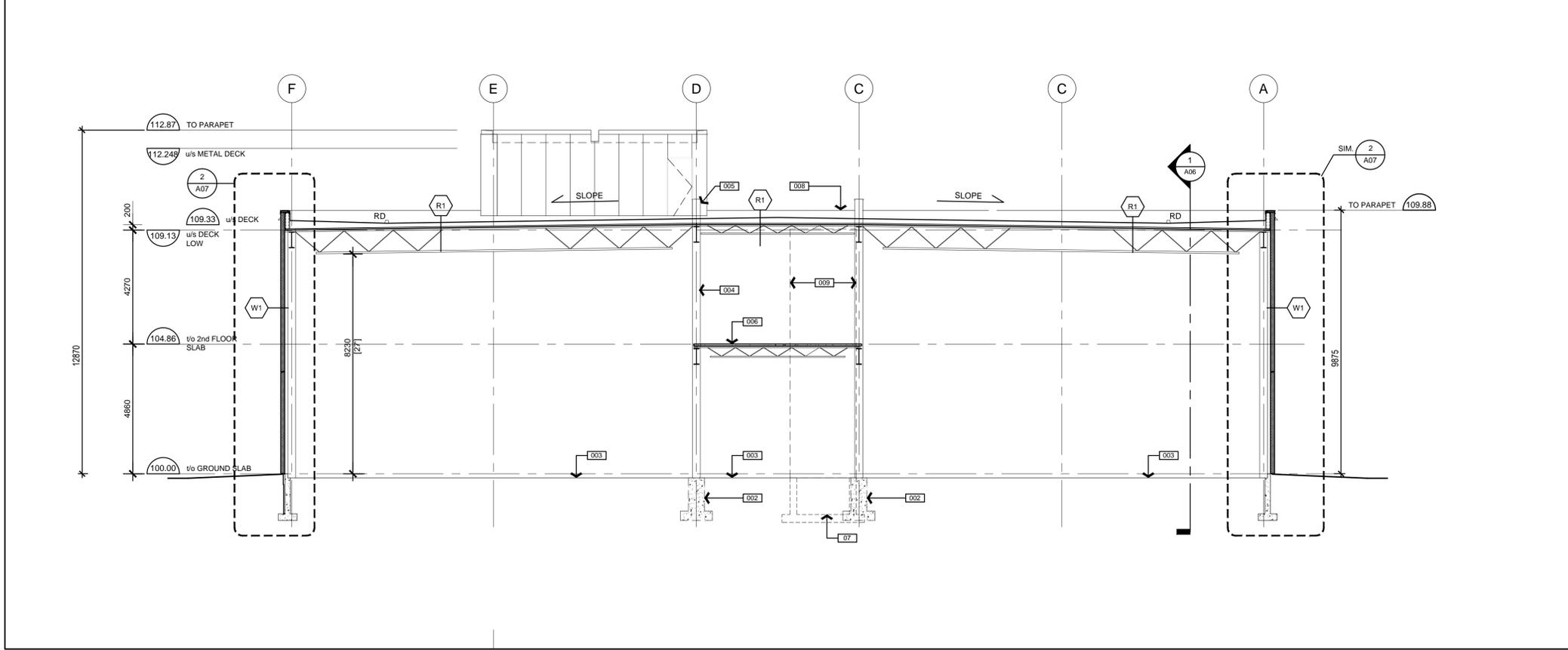
drawing: **BUILDING ELEVATIONS** dessin

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approved		approuvé	W.O.no.		D.T.no.

dwg.no. 5044-A05a dessin no.



1
A06 SECTION 1
SCALE = 1:100



2
A06 SECTION 2
SCALE = 1:100

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DRAWING NOTES - SHEET A05

THESE NOTES APPLY TO DRAWING SHEET A05 ONLY

001 PERIMETER FOUNDATION WALL AND FOOTING. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS.

002 PIER FOUNDATION AND FOOTING. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS.

003 COMPACTED GRANULAR FILL.

004 LINE OF STEEL POST, BEYOND.

005 STEEL POST EXTENSION ABOVE ROOF FINISH BEYOND.

006 TOP OF SECOND FLOOR.

007 ELEVATOR PIT, BEYOND.

008 ROOF PARAPET, BEYOND.

009 FUTURE ELEVATOR SHAFT.

010 STEEL STAIR TO 2ND FLOOR. REFER TO A16

011 FUTURE STAIR AND GUARD RAILS NOT IN CONTACT REFER TO A16

012 STAIR LANDING SUPPORTED FROM STEEL HSS SECTIONS HUNG FROM STRUCTURE ABOVE.



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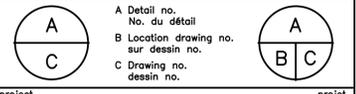
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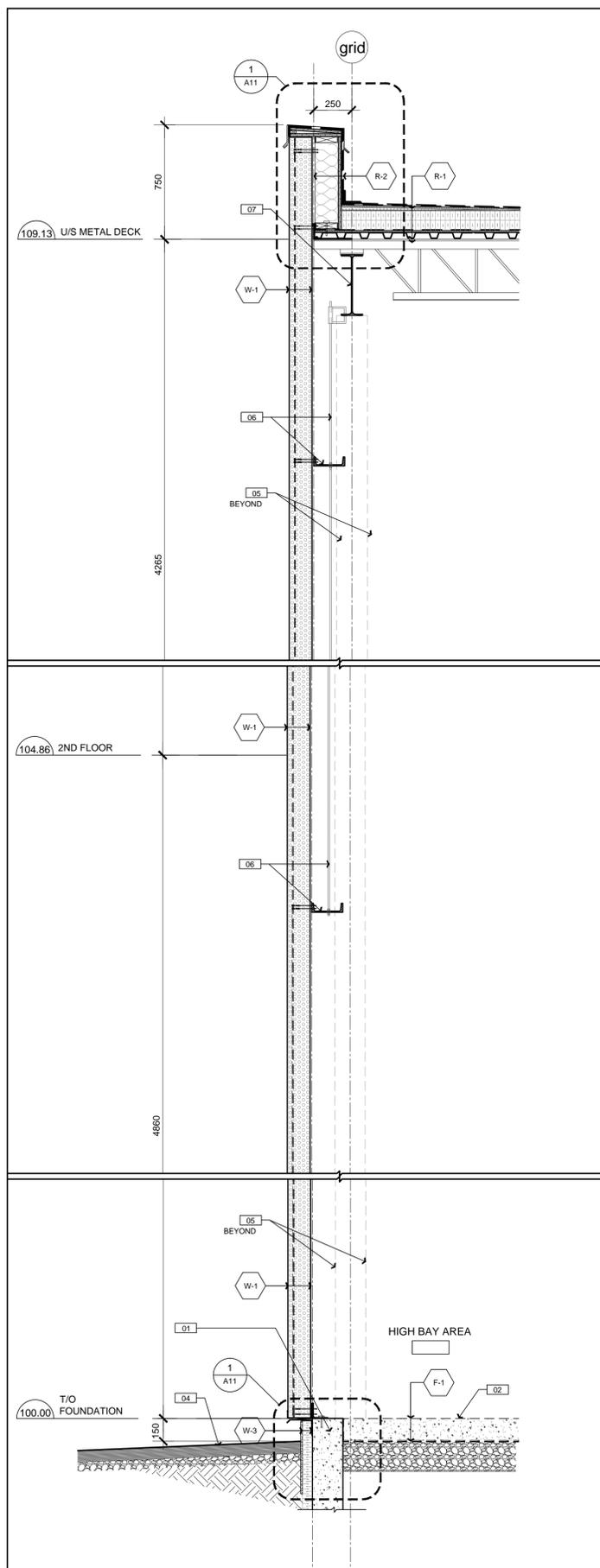
project **BUILDING M-38 FLEXIBLE RESEARCH FACILITY** projet

1200 MONTREAL ROAD CAMPUS OTTAWA, ON

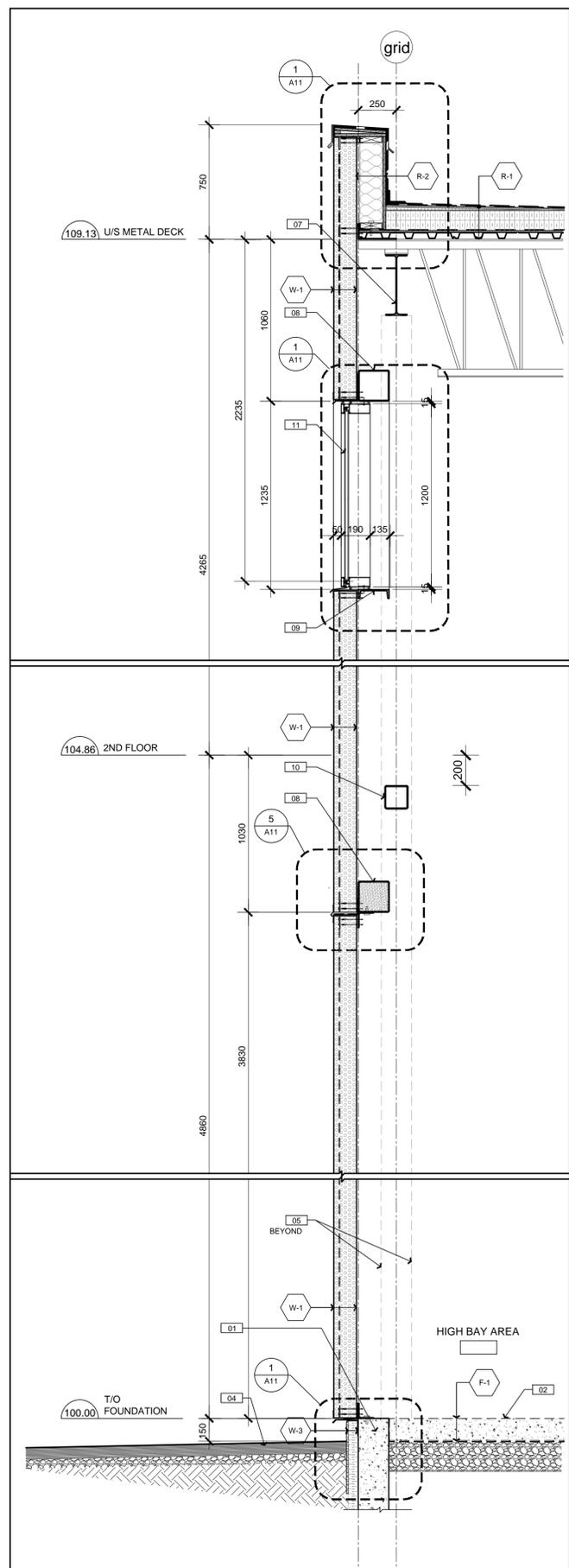
drawing **BUILDING SECTIONS** dessin

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drawn SS, CD	dessiné	scale AS NOTED	échelle
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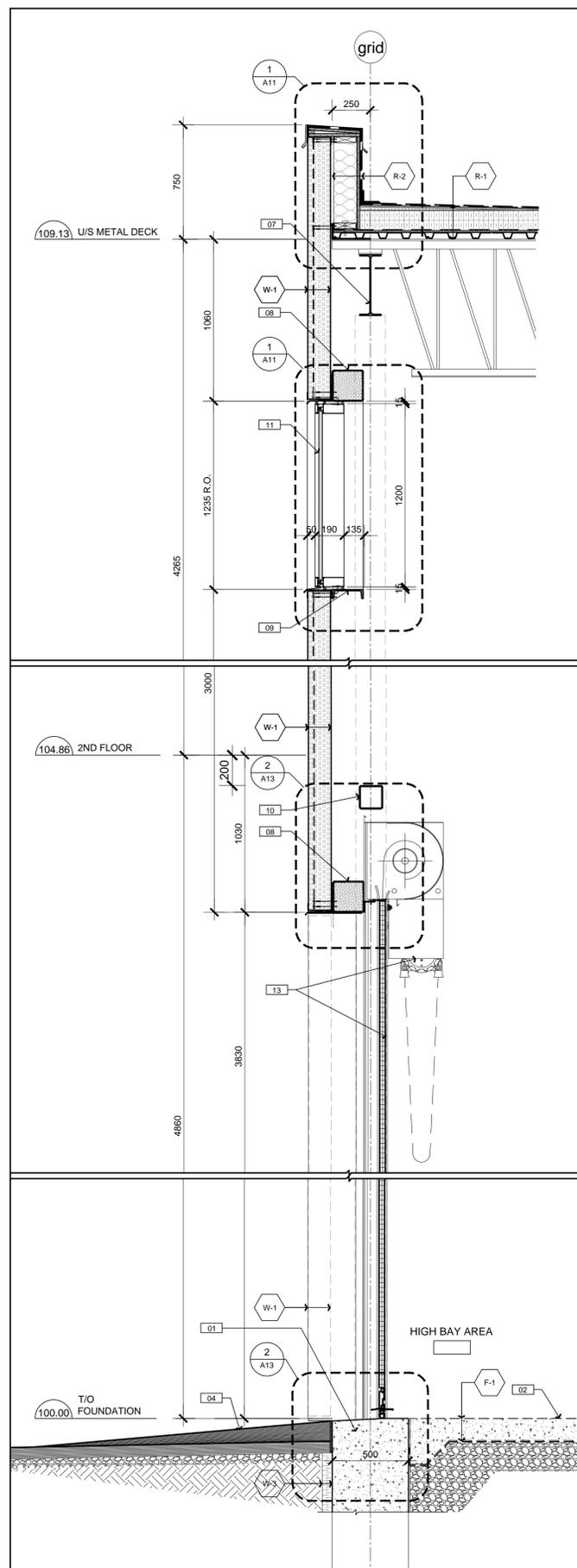
dwg.no. **5044-A06** dessin no.



1
A07 WALL SECTION
SCALE = 1:20



2
A07 WALL SECTION
SCALE = 1:20



3
A07 WALL SECTION
SCALE = 1:20

- GENERAL NOTES**
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- DRAWING NOTES - SHEET A07**
THESE NOTES APPLY TO DRAWING SHEET A07 ONLY
- CONCRETE**
- CONCRETE FOUNDATION WALL. REFER TO STRUCTURAL.
 - INDICATES FUTURE SLAB. REFER TO STRUCTURAL.
 - INDICATES POURED CONCRETE ENTRANCE SIDEWALK REFER TO CIVIL.
 - INDICATES FINISHED GRADE.
- STEEL**
- STEEL COLUMN. REFER TO STRUCTURAL.
 - STEEL 'C' CHANNEL GIRTS & SAG RODS SUPPORTED FROM STRUCTURE ABOVE. REFER TO STRUCTURAL.
 - STEEL BEAM. REFER TO STRUCTURAL.
 - STEEL HSS GIRTS. REFER TO STRUCTURAL.
 - STEEL 'C' CHANNEL GIRTS. REFER TO STRUCTURAL.
 - STEEL HSS. REFER TO STRUCTURAL.
- OPENINGS**
- NOT USED.
 - ALUMINUM WINDOW. REFER TO A/15 W-4
 - NOT USED.
 - INDICATES INSULATED COIL TYPE OVERHEAD DOOR CW METAL TRACKS AND OVERHEAD COMPARTMENT.
 - NOT USED.
 - NOT USED.
- CLADDING**
- NOT USED.
- OTHER**
- NOT USED.



GENERAL NOTES

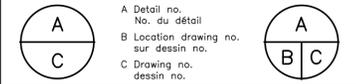
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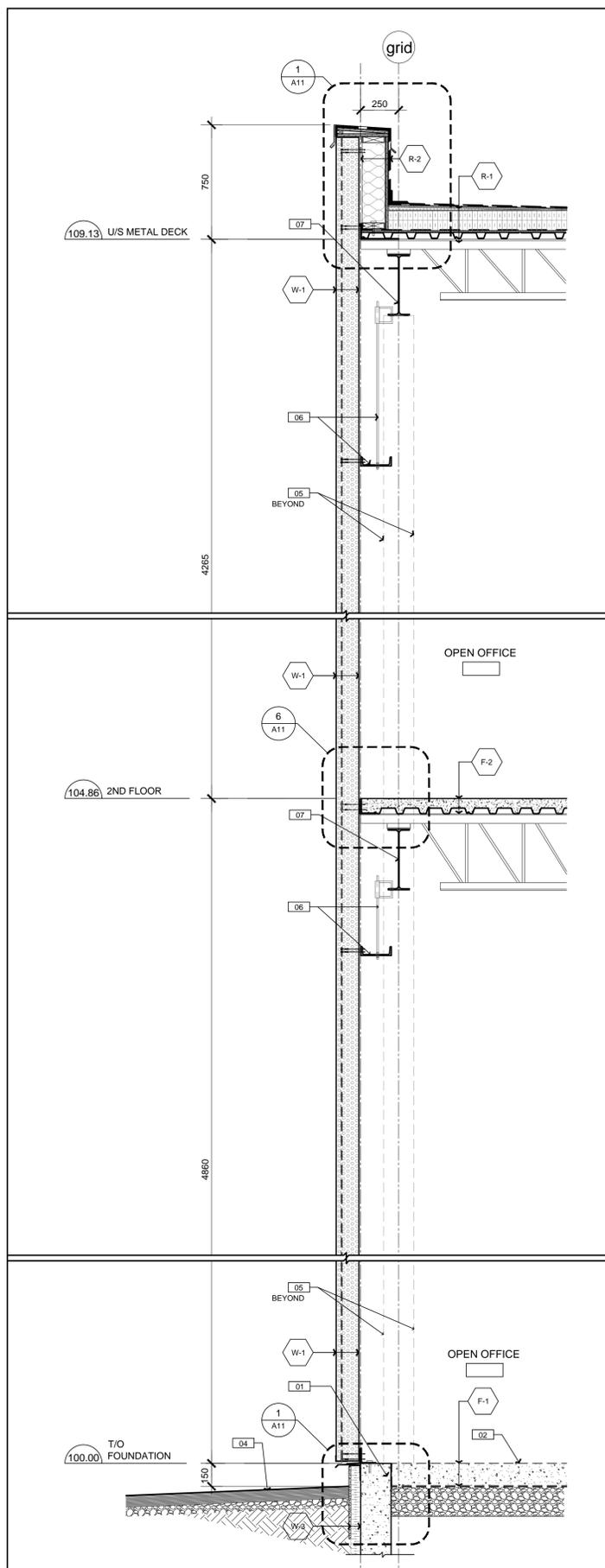


project
BUILDING M-38
FLEXIBLE RESEARCH FACILITY
1200 MONTREAL ROAD CAMPUS
OTTAWA, ON

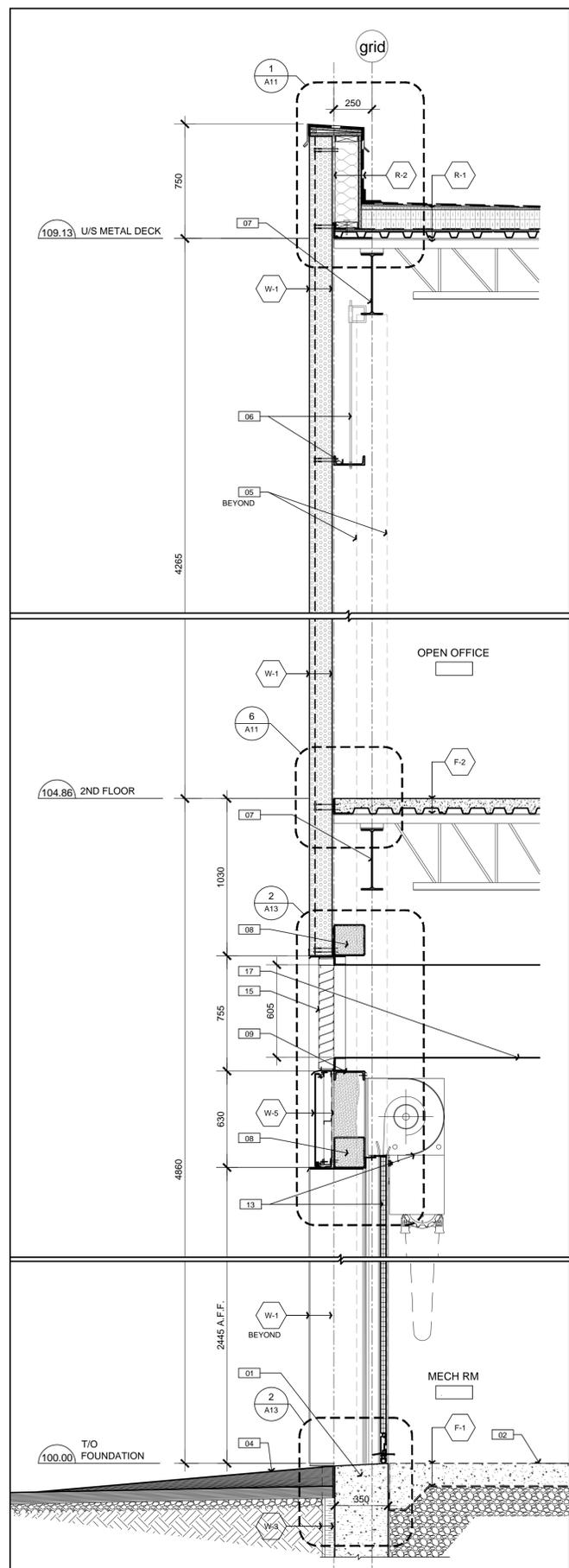
design
DETAILS

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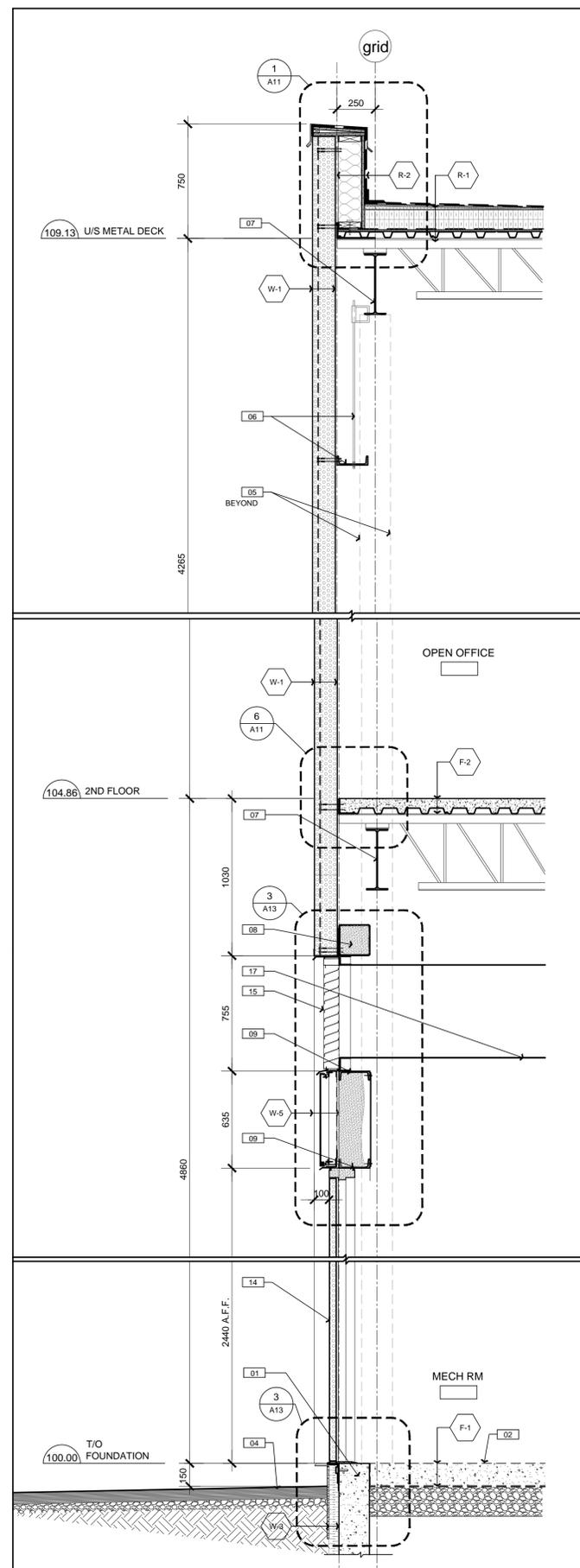
dwg.no. 5044-A07
dessin no.



1
A08 WALL SECTION
SCALE = 1:20



2
A08 WALL SECTION
SCALE = 1:20



3
A08 WALL SECTION
SCALE = 1:20

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DRAWING NOTES - SHEET A08
THESE NOTES APPLY TO DRAWING SHEET A08 ONLY

- CONCRETE**
- 01 CONCRETE FOUNDATION WALL. REFER TO STRUCTURAL.
 - 02 INDICATES FUTURE SLAB. REFER TO STRUCTURAL.
 - 03 INDICATES POURED CONCRETE ENTRANCE SIDEWALK. REFER TO CIVIL.
 - 04 INDICATES FINISHED GRADE.
- STEEL**
- 05 STEEL COLUMN. REFER TO STRUCTURAL.
 - 06 STEEL 'C' CHANNEL GIRT & SAG RODS SUPPORTED FROM STRUCTURE ABOVE. REFER TO STRUCTURAL.
 - 07 STEEL BEAM. REFER TO STRUCTURAL.
 - 08 STEEL HSS GIRT. REFER TO STRUCTURAL. INFILL HSS GIRTS W/ SPRAY TYPE INSULATION @ WINDOW AND OVERHEAD DOOR LOCATIONS.
 - 09 STEEL 'C' CHANNEL GIRT. REFER TO STRUCTURAL.
 - 10 STEEL HSS. REFER TO STRUCTURAL.
- OPENINGS**
- 11 NOT USED.
 - 12 NOT USED.
 - 13 INDICATES INSULATED COIL TYPE OVERHEAD DOOR C/W METAL TRACKS AND OVERHEAD COMPARTMENT.
 - 14 INSULATED FIBRE REINFORCED PLASTIC. DOOR AND FRAME.
 - 15 PRE-FINISHED MECHANICAL LOUVRE. REFER TO MECHANICAL.
- CLADDING**
- 16 NOT USED.
- OTHER**
- 17 METAL DUCT. REFER TO MECHANICAL.

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2	AUG 29 2016	ISSUED FOR TENDER	KWC
1	JUNE 28 2016	ISSUED FOR REVIEW	KWC

Date Printed: _____ Date imprimée: _____

kwc 383 Parkdale Avenue, Suite 201
Ottawa Ontario Canada K1Y 4R4

KWC ARCHITECTS INC.

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- Verify all dimensions and site conditions and be responsible for same
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A C	A Detail no. No. du détail	A B C
	B Location drawing no. sur dessin no.	
	C Drawing no. dessin no.	

project: **BUILDING M-38 FLEXIBLE RESEARCH FACILITY**

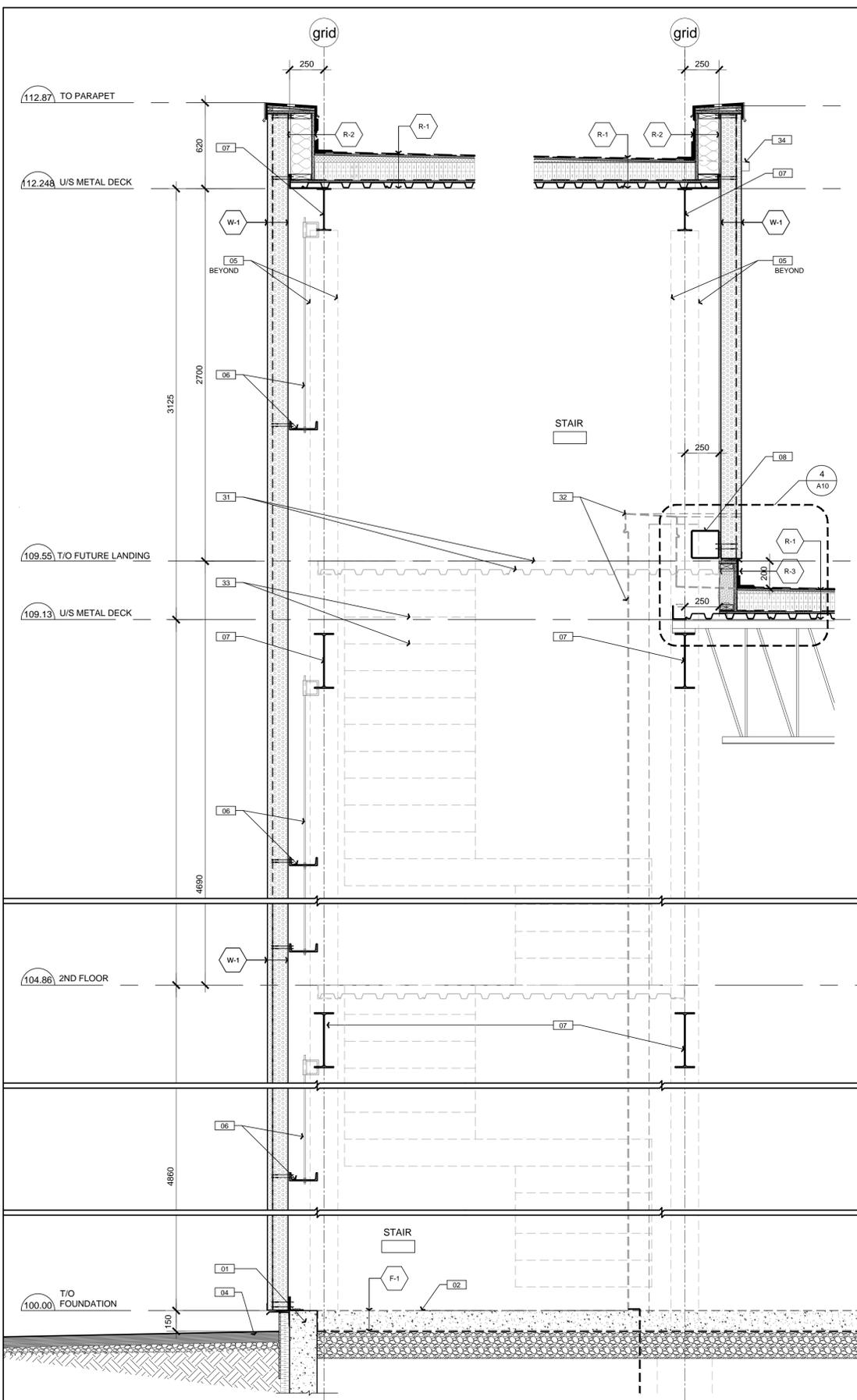
1200 MONTREAL ROAD CAMPUS OTTAWA, ON

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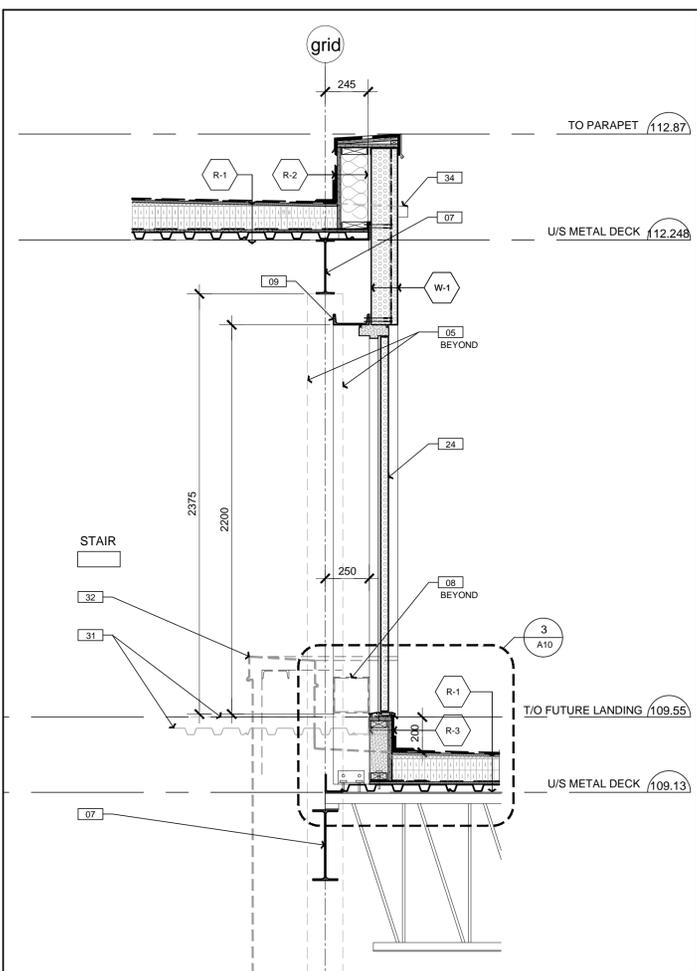
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checked	MM	vérifié	sheet	of/de	feuille
approved		approuvé	W.O.no.		D.T.no.

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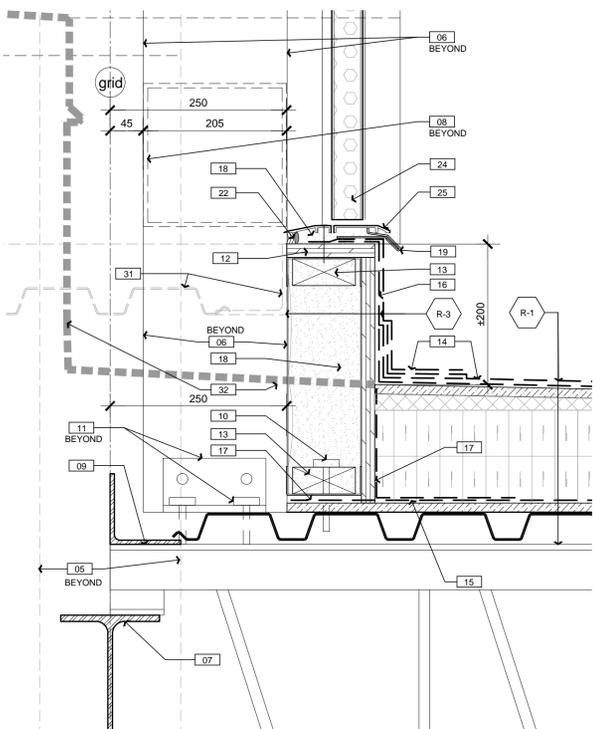
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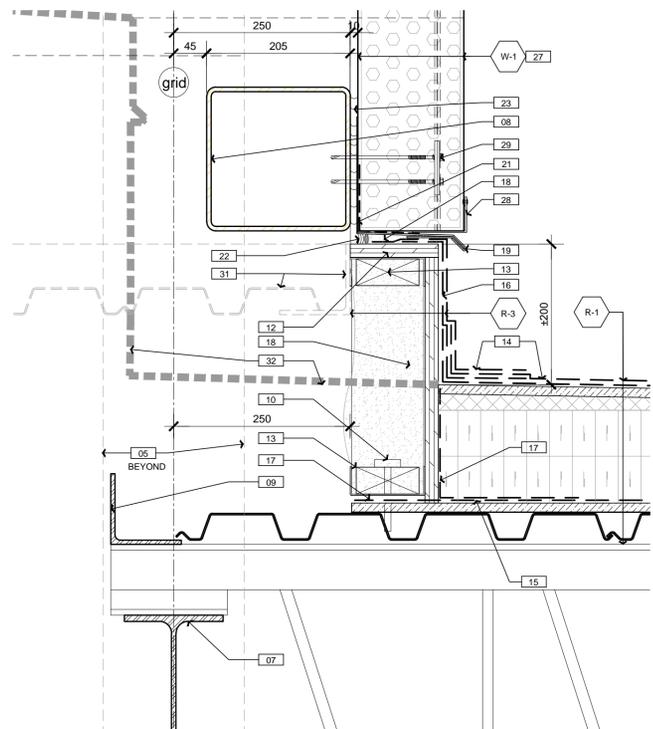
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SCALE = 1:20



2
A10 WALL SECTION
SCALE = 1:20



3
A10 SECTION DETAIL
SCALE = 1:5



4
A10 SECTION DETAIL
SCALE = 1:5

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- C. DO NOT SCALE DRAWINGS.
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DRAWING NOTES - SHEET A10

- THESE NOTES APPLY TO DRAWING SHEET A10 ONLY
- CONCRETE**
- 01 CONCRETE FOUNDATION WALL. REFER TO STRUCTURAL.
 - 02 INDICATES FUTURE SLAB. REFER TO STRUCTURAL.
 - 03 NOT USED.
 - 04 INDICATES FINISHED GRADE.
- STEEL**
- 05 STEEL COLUMN. REFER TO STRUCTURAL.
 - 06 STEEL 'C' CHANNEL GIRT & SAG RODS SUPPORTED FROM STRUCTURE ABOVE. REFER TO STRUCTURAL.
 - 07 STEEL BEAM. REFER TO STRUCTURAL.
 - 08 STEEL HSS GIRT AS INDICATED. REFER TO STRUCTURAL.
 - 09 STEEL PERIMETER ANGLE. REFER TO STRUCTURAL.
 - 10 LIGHT GAUGE CURB FRAMING ANCHORED TO METAL DECK.
 - 11 STEEL JAMB CHANNEL FASTENED TO BASE ANGLE AND FASTENED TO METAL DECK. COORDINATE WITH STRUCTURAL.
- WOOD, PLASTIC, COMPOSITES**
- 12 19MM PRESSURE-TREATED PLYWOOD SHEATHING.
 - 13 PRESSURE-TREATED WOOD BLOCKING NESTED WITHIN METAL FRAMING WHERE INDICATED.
- THERMAL & MOISTURE PROTECTION**
- 14 CONTINUOUS ROOFING MEMBRANE.
 - 15 CONTINUOUS VAPOUR RETARDER.
 - 16 EXTEND NEW ROOFING MEMBRANE UP OVER TOP OF FRAMED PARAPET CURB.
 - 17 EXTEND/OVERLAP AND ADHERE BARRIER / MEMBRANE AND PROVIDE CONTINUOUS SEAL TO SUBSTRATE.
 - 18 INFILL CAVITY W/ CONTINUOUS SPRAY TYPE INSULATION.
 - 19 PRE-FINISHED METAL FLASHING W/ CONTINUOUS DRIP-EDGE AS INDICATED.
 - 20 NOT USED.
 - 21 SELF ADHERED THRU WALL FLASHING MEMBRANE.
 - 22 CONTINUOUS SEALANT AND BACKER ROD.
- OPENINGS**
- 23 CONTINUOUS SEALANT.
 - 24 INSULATED FIBRE REINFORCED PLASTIC DOOR AND FRAME ANCHORED TO STEEL STRUCTURE PROVIDE THERMALLY BROKEN AND GASKETED DOOR FRAME.
 - 25 THERMALLY BROKEN ALUMINUM DOOR THRESHOLD. SET THRESHOLD IN MIN 2 CONTINUOUS BEADS OF SEALANT.
- CLADDING**
- 26 NOT USED.
 - 27 150MM INSULATED METAL PANEL.
 - 28 PRE-FINISHED METAL TRIM FASTENED TO INSULATED METAL PANEL.
 - 29 CONCEALED SELF TAPPING FASTENERS. CONFIGURATION, SPACING TYPE AND SIZE AS PER MANUFACTURERS RECOMMENDATION.
 - 30 NOT USED.
- OTHER**
- 31 INDICATES FUTURE STAIR LANDING ASSEMBLY. NOT PART OF CONTRACT.
 - 32 LINE OF ROOF PARAPET BEHIND.
 - 33 INDICATES FUTURE STAIR SLAB. NOT PART OF CONTRACT.
 - 34 SCUPPER BEYOND.



GENERAL NOTES

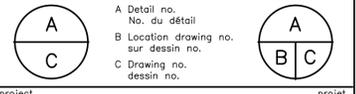
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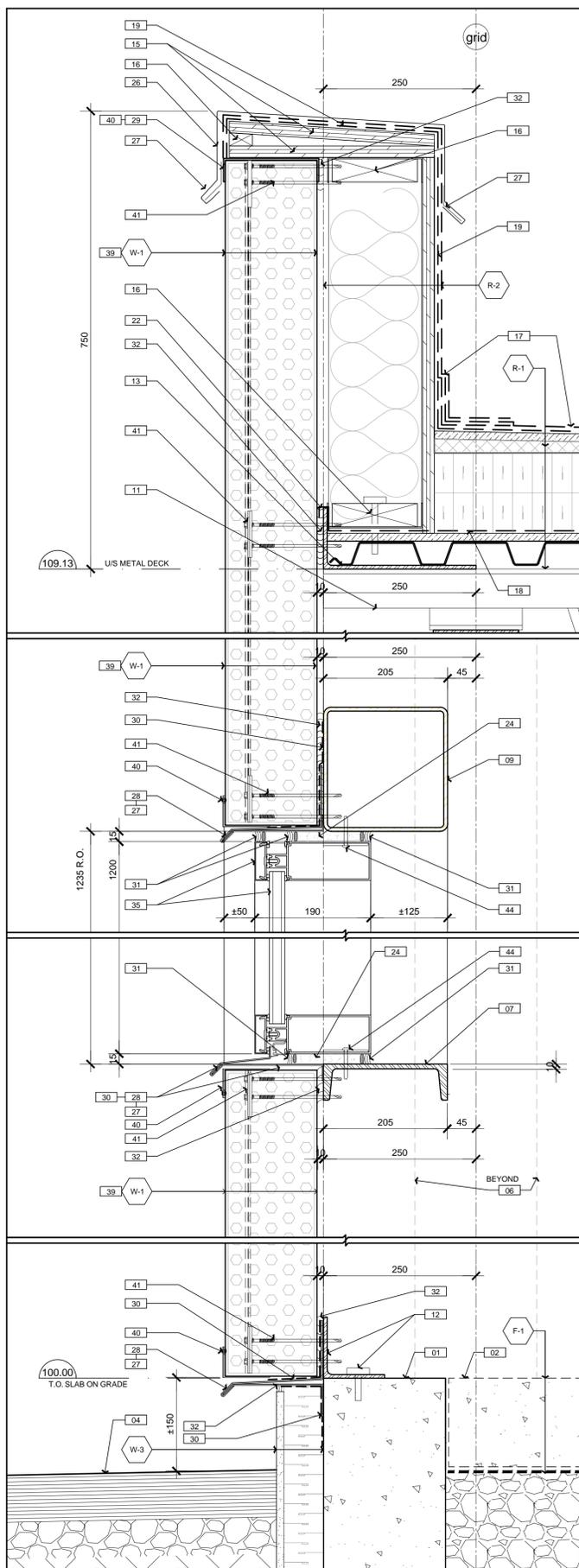


project: **BUILDING M-38 FLEXIBLE RESEARCH FACILITY**
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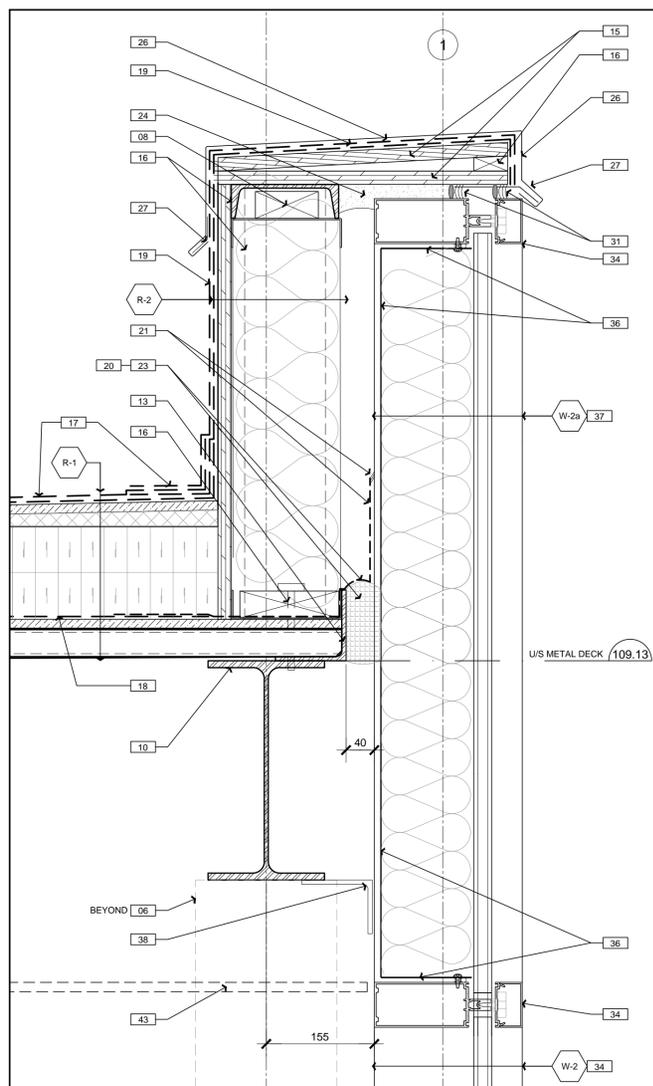
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checked	MM	vérifié	sheet	of/de	feuille
approved		approuvé	W.O.no.		D.T.no.

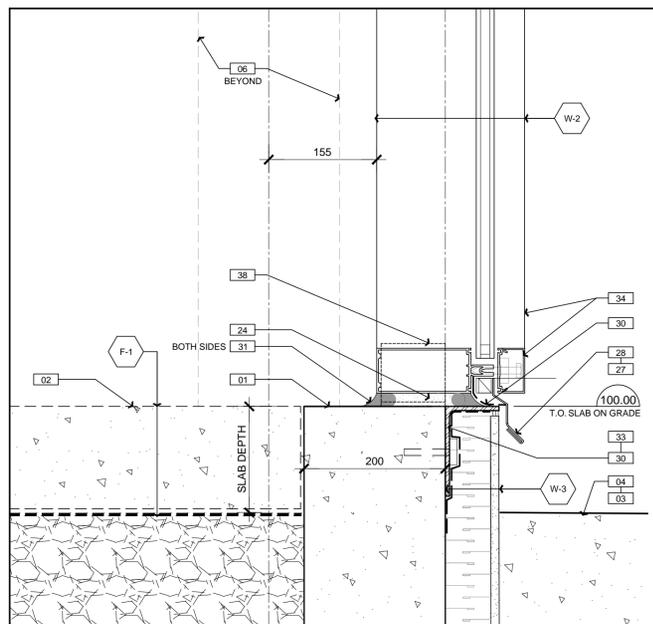
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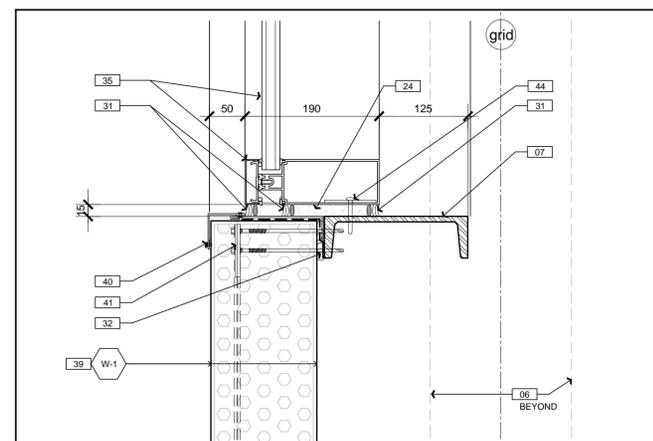
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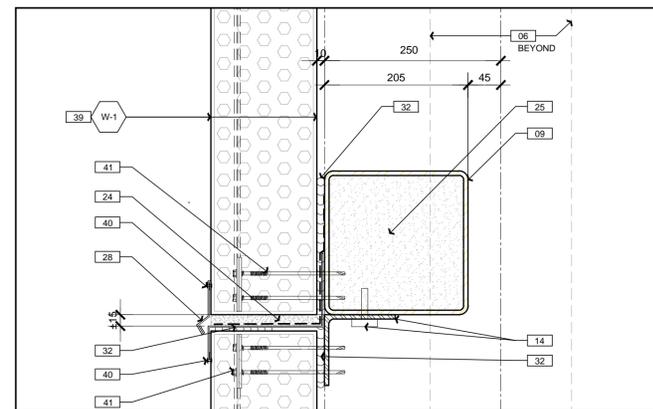
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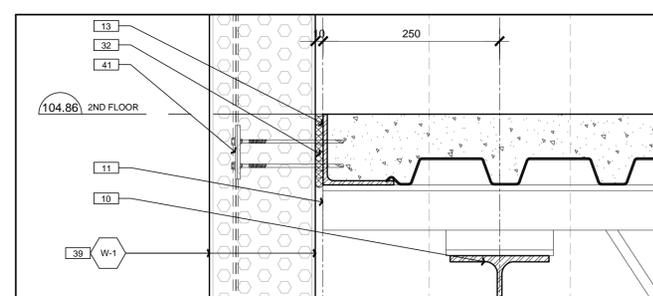
3 SECTION DETAIL
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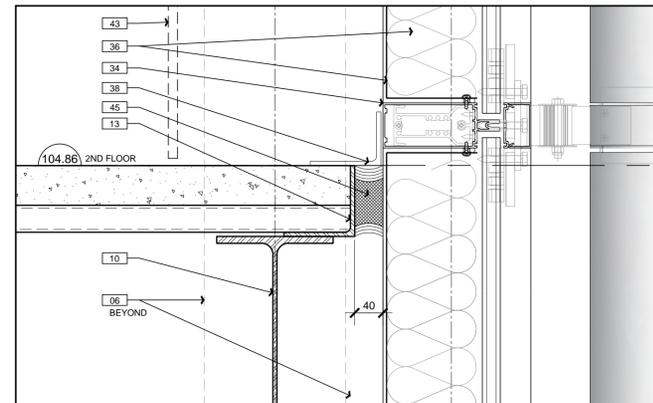
4 PLAN DETAIL
A11 SCALE = 1:5



5 SECTION DETAIL
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6 SECTION DETAIL
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7 SECTION DETAIL
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DRAWING NOTES - SHEET A11
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- CONCRETE**
- 01 CONCRETE FOUNDATION WALL. REFER TO STRUCTURAL.
 - 02 INDICATES FUTURE SLAB. REFER TO STRUCTURAL.
 - 03 INDICATES POURED CONCRETE ENTRANCE SIDEWALK. REFER TO CIVIL.
 - 04 INDICATES FINISHED GRADE.
 - 05 NOT USED.
 - 06 STEEL COLUMN. REFER TO STRUCTURAL.
 - 07 STEEL 'C' CHANNEL GIRT. REFER TO STRUCTURAL.
 - 08 CONTINUOUS 150MM STEEL PARAPET CHANNEL CAP AND STEEL 100MM HSS POSTS @ 600MM O.C. ANCHORED TO METAL DECK.
 - 09 STEEL HSS GIRT AS INDICATED. REFER TO STRUCTURAL.
 - 10 STEEL BEAM. REFER TO STRUCTURAL.
 - 11 OPEN-WEB STEEL JOIST. REFER TO STRUCTURAL.
 - 12 100MM X 100MM X 6MM GALVANIZED STEEL ANGLE MECHANICALLY FASTENED WITH CONCRETE ANCHOR TO FOUNDATION WALL. PROVIDE ISOLATION GASKET BETWEEN STEEL ANGLE AND TOP OF FOUNDATION WALL.
 - 13 STEEL PERIMETER ANGLE. REFER TO STRUCTURAL.
 - 14 MINIMUM 16 GA. METAL ANGLE MECHANICALLY FASTENED TO HSS/C-CHANNEL STEEL AT FUTURE DOOR LOCATIONS FOR EASY REMOVAL WHEN FUTURE DOORS ARE INSTALLED.
- WOOD, PLASTIC, COMPOSITES**
- 15 19MM PRESSURE-TREATED PLYWOOD SHEATHING.
 - 16 PRESSURE-TREATED WOOD BLOCKING NESTED WITHIN METAL FRAMING WHERE INDICATED.
- THERMAL & MOISTURE PROTECTION**
- 17 CONTINUOUS ROOFING MEMBRANE.
 - 18 CONTINUOUS VAPOUR RETARDER.
 - 19 EXTEND NEW ROOFING MEMBRANE UP OVER TOP OF FRAMED PARAPET CURB.
 - 20 LOCATION OF CONTINUOUS EXPANSION LOOP IN MEMBRANE.
 - 21 EXTEND NEW SELF ADHERED MEMBRANE AND ADHERE TO EXISTING CURTAIN WALL BACK PAN.
 - 22 EXTEND/OVERLAP AND ADHERE BARRIER / MEMBRANE AND PROVIDE CONTINUOUS SEAL TO STEEL PERIMETER FRAMING.
 - 23 CONTINUOUS FOAM GASKET.
 - 24 INFILL CAVITY W/ CONTINUOUS SPRAY TYPE INSULATION.
 - 25 INFILL HSS GIRTS W/ SPRAY TYPE INSULATION @ WINDOW OVERHEAD DOOR AND FUTURE OVERHEAD DOOR LOCATIONS.
 - 26 PRE-FINISHED METAL PARAPET CAP.
 - 27 CONTINUOUS DRIP-EDGE W/ STARTER STRIP.
 - 28 PRE-FINISHED METAL FLASHING W/ CONTINUOUS DRIP-EDGE AS INDICATED.
 - 29 CONTINUOUS PRE-FINISHED METAL CLOSURE CAP.
 - 30 SELF ADHERED THRU WALL FLASHING MEMBRANE.
 - 31 CONTINUOUS SEALANT AND BACKER ROD.
 - 32 CONTINUOUS SEALANT. PROVIDE FIRE RATED SEALANT @ TOP AND BOTTOM OF PERIMETER ANGLE @ ALL 2ND FLOOR ASSEMBLY LOCATIONS. REFER TO DETAILS 6/A11.
 - 33 CONTINUOUS 75MM X 125MM X 6MM GALVANIZED LEDGER ANGLE ANCHOR LEDGER ANGLE TO CONCRETE FOUNDATION WALL @ 600MM MIN. O.C. W/ GALVANIZED CONCRETE ANCHORS.
- OPENINGS**
- 34 ALUMINUM CURTAIN WALL SYSTEM.
 - 35 ALUMINUM WINDOW. REFER TO A/15 W-4
 - 36 CURTAIN WALL BACK PAN. INFILL PAN CAVITY WITH MINERAL FIBRE INSULATION.
 - 37 ALUMINUM CURTAIN WALL SYSTEM GLAZED SPANDREL PANEL.
 - 38 METAL SUPPORT BRACKET/ANGLE FOR ALUMINUM CURTAIN WALL. SIZE, TYPE LOCATION AND SPACING BY MANUFACTURER. PROVIDE DIALECTICAL ISOLATION TAPE BETWEEN DIFFERENT METALS.
- CLADDING**
- 39 150MM INSULATED METAL PANEL.
 - 40 PRE-FINISHED METAL TRIM CAP FASTENED TO INSULATED METAL PANEL.
 - 41 CONCEALED SELF TAPPING FASTENERS. CONFIGURATION, SPACING TYPE AND SIZE AS PER MANUFACTURERS RECOMMENDATION.
 - 42 NOT USED.
- OTHER**
- 43 INDICATES FUTURE WALL/CEILING FRAMING NOT IN CONTRACT.
 - 44 ANCHOR ALUMINUM WINDOW TO STEEL GIRT.
 - 45 INFILL GAP WITH MINERAL FIBRE INSULATION AND PROVIDE CONTINUOUS FIRE RATED 1HR SEALANT @ TOP AND BOTTOM OF PERIMETER STEEL AT 2ND FLOOR.

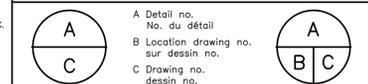
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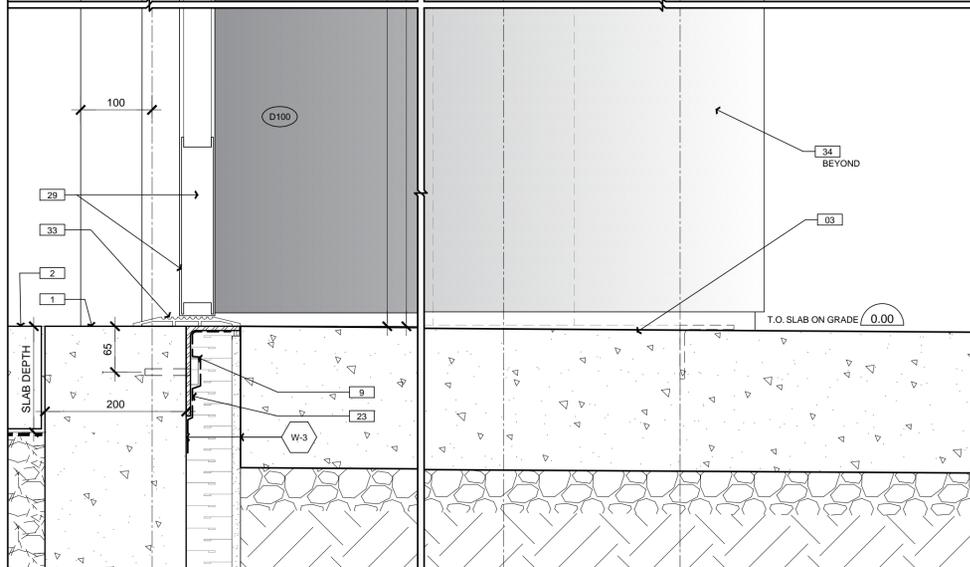
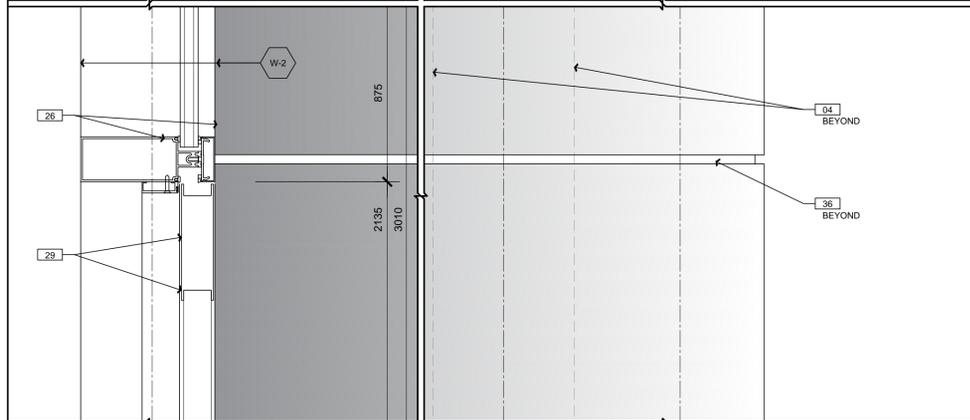
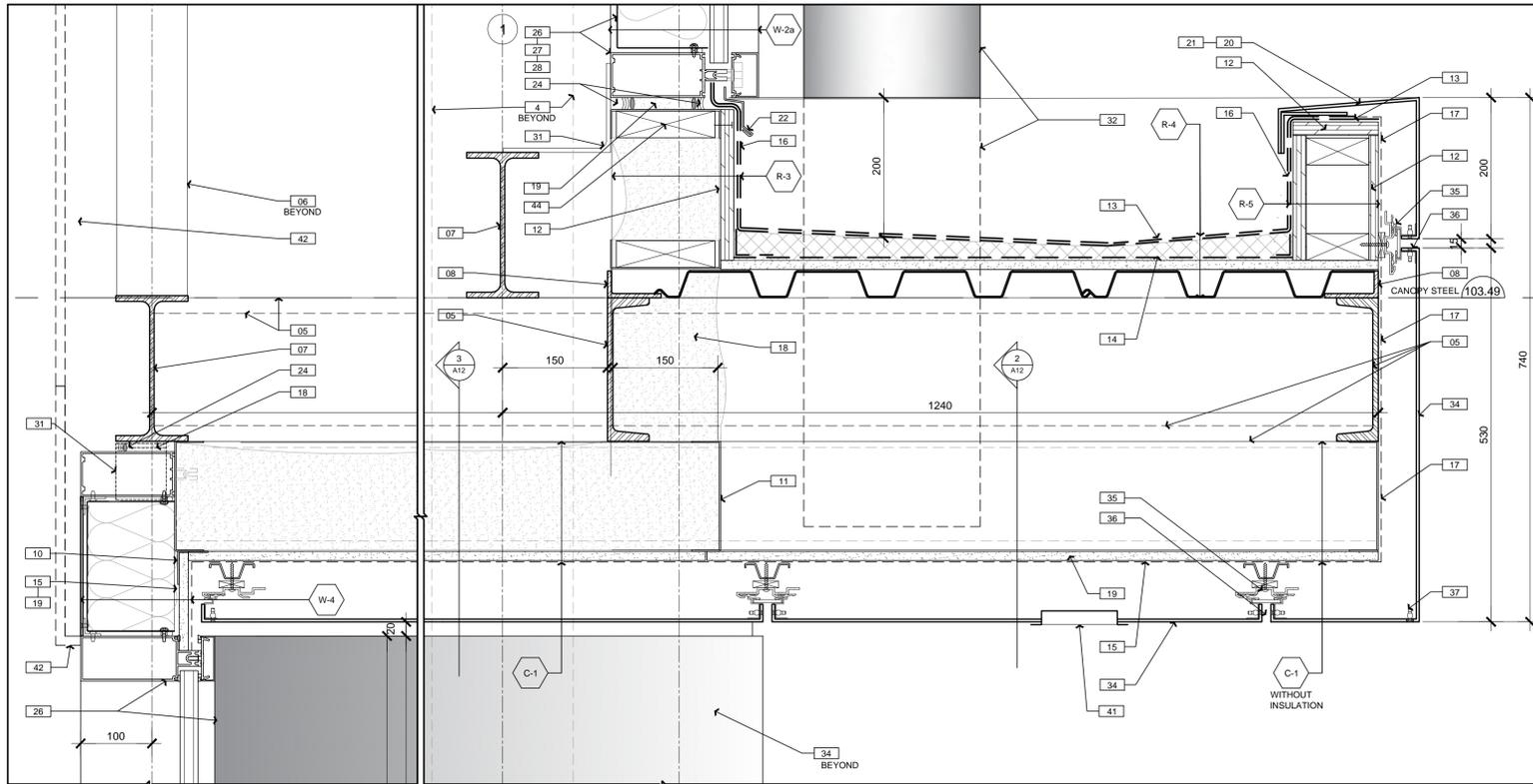
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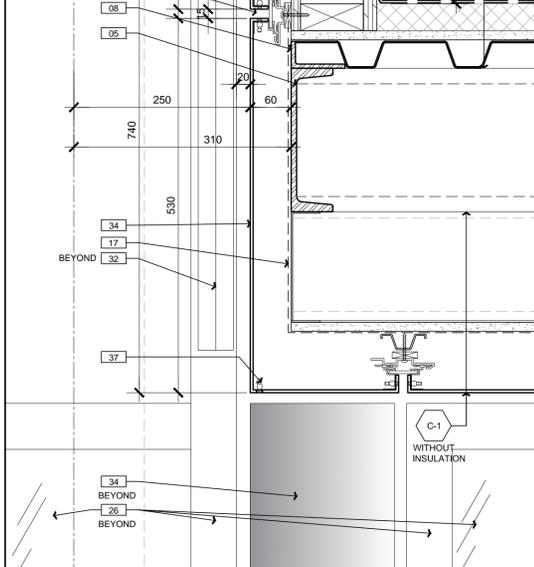
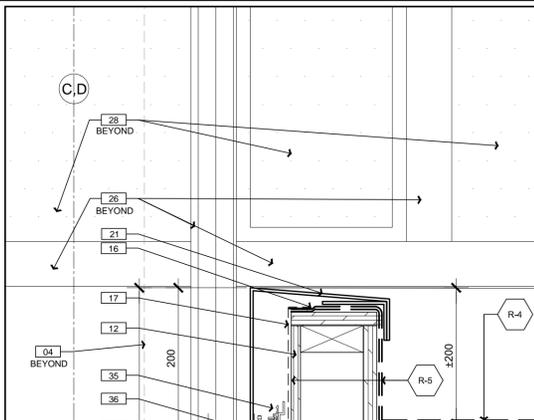
project
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 OTTAWA, ON

drawing **DETAILS** dessin

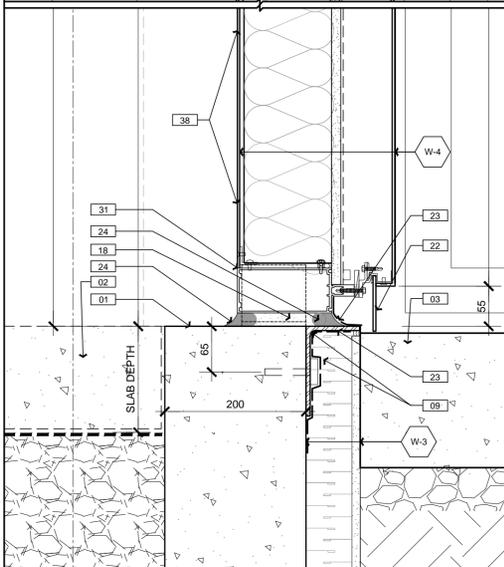
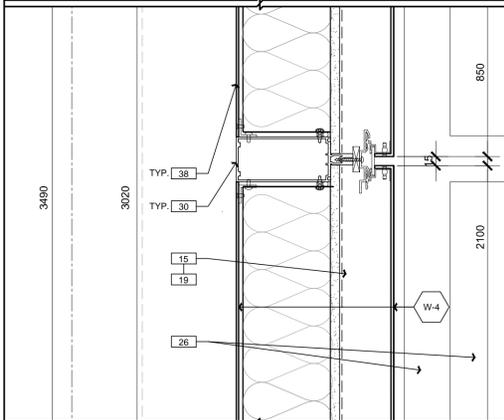
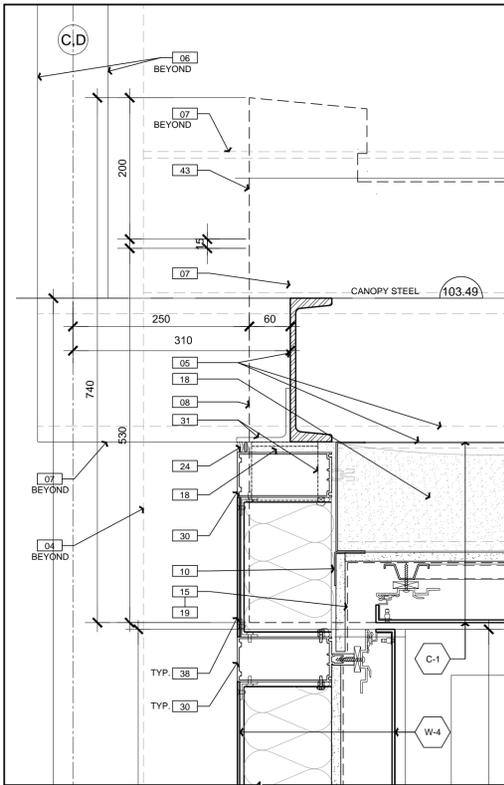
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approved	approuvé	W.O.no.	D.T.no.
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5044-A11			



1 SECTION DETAIL
A12 SCALE = 1:5



2 SECTION DETAIL
A12 SCALE = 1:5



3 SECTION DETAIL
A12 SCALE = 1:5

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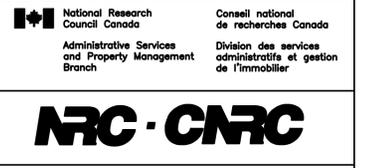
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DRAWING NOTES - SHEET A12

THESE NOTES APPLY TO DRAWING SHEET A12 ONLY

- CONCRETE**
- 01 CONCRETE FOUNDATION WALL REFER TO STRUCTURAL.
 - 02 INDICATES FUTURE SLAB. REFER TO STRUCTURAL.
 - 03 INDICATES POURED CONCRETE ENTRANCE SIDEWALK REFER TO CIVIL.
- STEEL**
- 04 STEEL COLUMN. REFER TO STRUCTURAL.
 - 05 STEEL 'C' CHANNEL. REFER TO STRUCTURAL.
 - 06 STEEL HSS POST. REFER TO STRUCTURAL.
 - 07 STEEL BEAM. REFER TO STRUCTURAL.
 - 08 STEEL PERIMETER ANGLE. REFER TO STRUCTURAL.
 - 09 CONTINUOUS 75MM X 125MM X 6MM GALVANIZED LEDGER ANGLE. ANCHOR LEDGER ANGLE TO CONCRETE FOUNDATION WALL @ 600 MM MIN. O.C. W/ GALVANIZED CONCRETE ANCHORS.
 - 10 PROVIDE ADDITIONAL GALVANIZED LIGHT GAUGE FASTENING ANGLES/CLIPS TO SUIT.
 - 11 150MM BRIDGING CHANNEL BETWEEN SOFFIT JOISTS. LOCATE AS INDICATED.
- WOOD, PLASTIC, COMPOSITES**
- 12 19MM PRESSURE-TREATED PLYWOOD SHEATHING.
- THERMAL & MOISTURE PROTECTION**
- 13 CONTINUOUS ROOFING MEMBRANE.
 - 14 CONTINUOUS VAPOUR RETARDER.
 - 15 CONTINUOUS COMMERCIAL GRADE WEATHER BARRIER.
 - 16 EXTEND NEW ROOFING MEMBRANE UP OVER TOP OF FRAMED PARAPET CURB.
 - 17 EXTEND/OVERLAP BARRIER/MEMBRANE UP OVER STEEL CANOPY STRUCTURE AND PARAPET BLOCKING/FRAMING. CONTINUOUSLY SEAL OVER TOP OF PARAPET CURB.
 - 18 INFILL CAVITY W/ CONTINUOUS SPRAY TYPE INSULATION.
 - 19 EXTERIOR GRADE GLASS MAT SHEATHING.
 - 20 PRE-FINISHED COMPOSITE ALUMINUM PARAPET CAP.
 - 21 METAL FASTENING CLIPS BY COMPOSITE ALUMINUM MANUFACTURER.
 - 22 PRE-FINISHED METAL FLASHING W/ CONTINUOUS DRIP-EDGE AS INDICATED.
 - 23 SELF ADHERED THRU WALL FLASHING MEMBRANE.
 - 24 CONTINUOUS SEALANT AND BACKER ROD.
 - 25 CONTINUOUS SEALANT.
- OPENINGS WINDOWS**
- 26 ALUMINUM CURTAIN WALL WINDOW SYSTEM.
 - 27 CURTAIN WALL BACK PAN. INFILL PAN CAVITY WITH MINERAL FIBRE INSULATION.
 - 28 ALUMINUM CURTAIN WALL SYSTEM GLAZED SPANDREL PANEL.
 - 29 ALUMINUM CURTAIN WALL ENTRY DOOR SYSTEM.
 - 30 ALUMINUM CURTAIN WALL BACK SECTION SUPPORTS FOR COMPOSITE METAL CLADDING.
 - 31 METAL SUPPORT BRACKET/ANGLE FOR ALUMINUM CURTAIN WALL. SIZE, TYPE LOCATION AND SPACING BY MANUFACTURER. PROVIDE DIALECTICAL ISOLATION TAPE BETWEEN DIFFERENT METALS.
 - 32 VERTICAL SOLAR SHADE BEYOND.
- DOORS**
- 33 THERMALLY BROKEN ALUMINUM DOOR THRESHOLD. SET THRESHOLD IN MIN 2" CONTINUOUS BEADS OF SEALANT.
- CLADDING**
- 34 4MM COMPOSITE ALUMINUM CLADDING SYSTEM.
 - 35 COMPOSITE ALUMINUM CLADDING CONNECTOR. TYPICAL.
 - 36 COMPOSITE ALUMINUM DRY JOINT REVEAL BETWEEN PANELS. TYPICAL.
 - 37 PROVIDE WEEP BAFFLE AND DRIP @ EDGE OF COMPOSITE PANEL.
 - 38 INDICATES PREFINISHED METAL PANEL FASTENED TO INTERIOR SIDE OF CURTAIN WALL BACK SECTIONS W. GALV. METAL CLIPS AND SELF TAPPING MECHANICAL FASTENERS.
 - 39 NOT USED
 - 40 NOT USED
 - 41 INDICATES LOW PROFILE RECESSED LIGHT FIXTURE IN SOFFIT. REFER TO CANOPY ARCHITECTURAL RCP DRAWING ON 2/A02 FOR LOCATION. REFER TO ELECTRICAL FOR LIGHT SPECIFICATIONS.
 - 42 INDICATES FUTURE WALL/CEILING FRAMING NOT IN CONTRACT.
 - 43 INDICATES LINE OF CANOPY EDGE.
 - 44 PROVIDE PRESSURE TREATED WOOD BLOCKING NESTED WITHIN METAL PARAPET FRAMING



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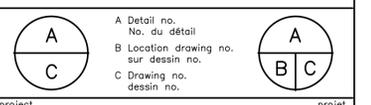
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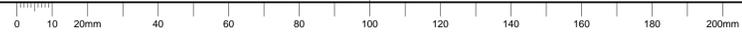
project: **BUILDING M-38 FLEXIBLE RESEARCH FACILITY**

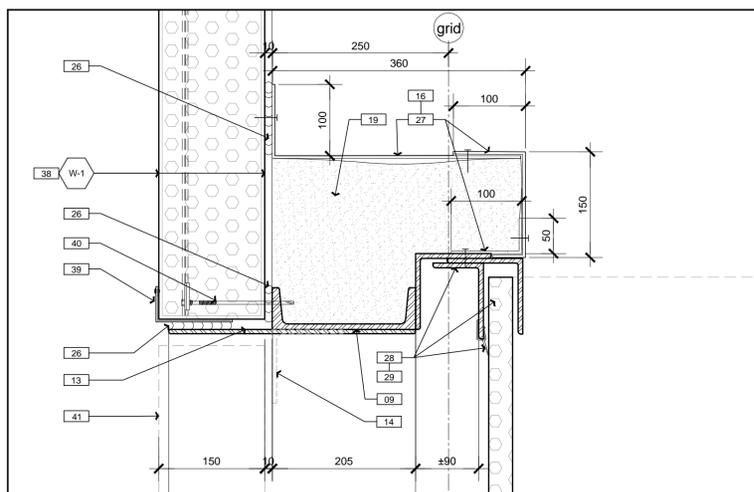
1200 MONTREAL ROAD CAMPUS OTTAWA, ON

drawing: **DETAILS**

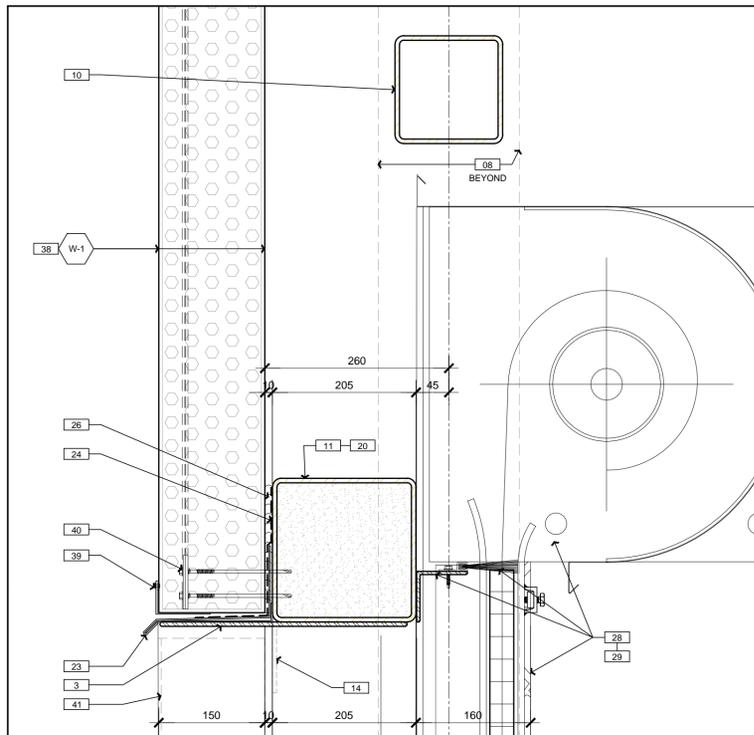
designed	MM	conçu	05/2016	date
drawn	CD	dessiné	AS NOTED	échelle
checked	MM	vérifié	sheet of/de	feuille
approved	MM	approuvé	W.O.no.	D.T.no.

dwg.no. **5044-A12** dessin no. _____

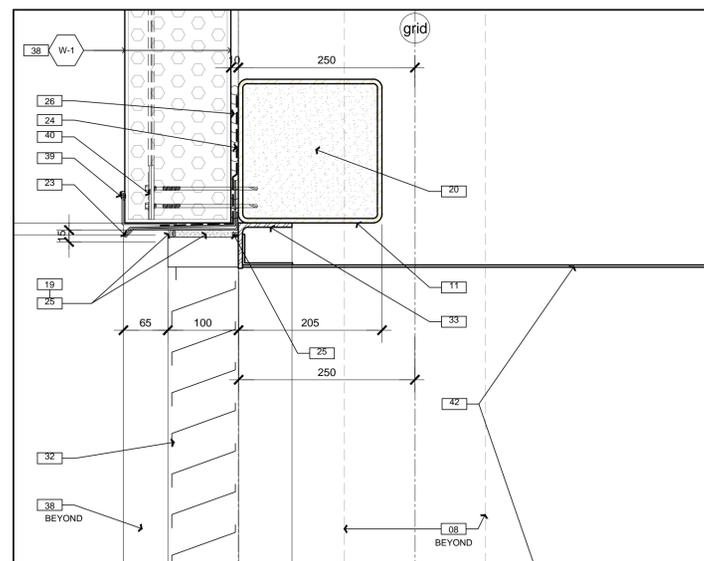




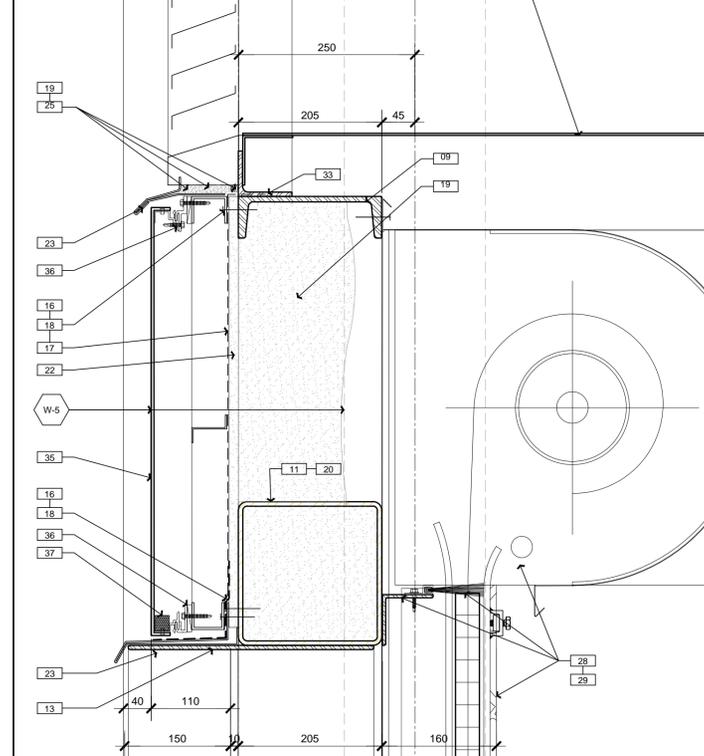
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SCALE = 1:5



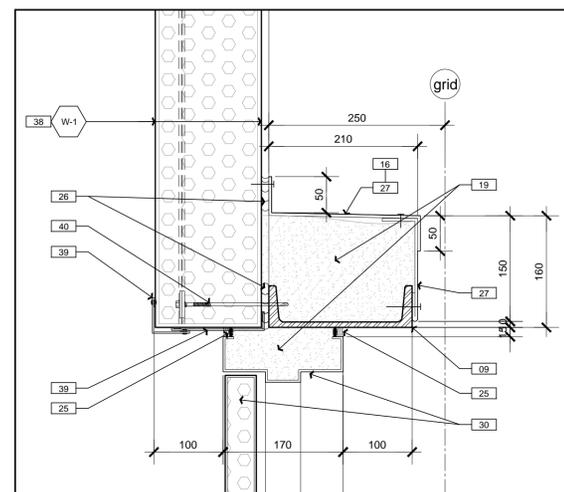
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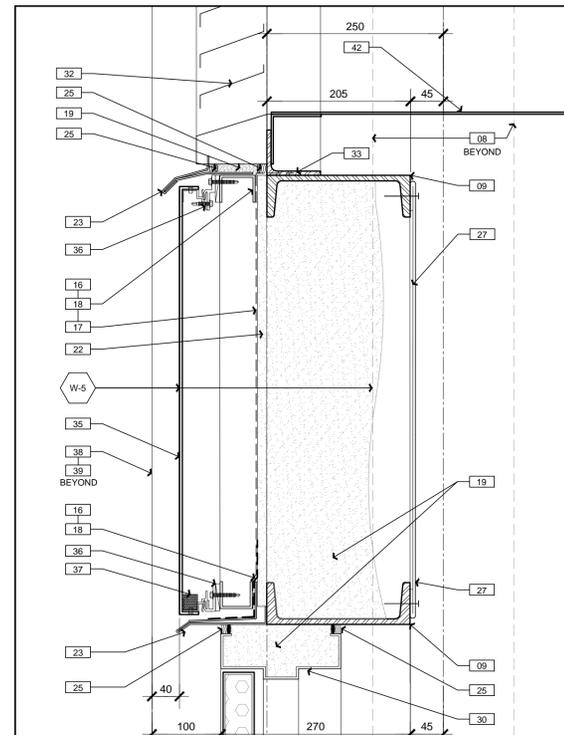
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A13 PLAN DETAIL
SCALE = 1:5



3
A13 SECTION DETAIL
SCALE = 1:5



5
A13 PLAN DETAIL
SCALE = 1:5



4
A13 SECTION DETAIL
SCALE = 1:5

GENERAL NOTES

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DRAWING NOTES - SHEET A13
THESE NOTES APPLY TO DRAWING SHEET A13 ONLY

CONCRETE

- CONCRETE FOUNDATION WALL. REFER TO STRUCTURAL.
- INDICATES FUTURE SLAB. REFER TO STRUCTURAL.
- INDICATES POURED CONCRETE ENTRANCE SIDEWALK. REFER TO CIVIL.
- INDICATES FINISHED GRADE.
- INDICATE SLOPED ASPHALT PAVING CURB.
- FUTURE SLAB TO BE THICKENED AT OVERHEAD DOOR LOCATIONS.
- 13MM ASPHALT IMPREGNATED FIBER BOARD.

STEEL

- STEEL COLUMN. REFER TO STRUCTURAL.
- STEEL 'C' CHANNEL GIRT. REFER TO STRUCTURAL.
- STEEL HSS GIRT AS INDICATED. REFER TO STRUCTURAL.
- STEEL HSS. REFER TO STRUCTURAL.
- NOT USED.
- 6MM X 360MM STEEL PLATE WELDED TO JAMB & HEAD WELDED TO STEEL CHANNEL SUPPORT FRAMING. PAINT FINISH.
- MINIMUM 16 GA. METAL ANGLE MECHANICALLY FASTENED TO HSS-C CHANNEL STEEL AT FUTURE DOOR LOCATIONS FOR EASY REMOVAL WHEN FUTURE DOORS ARE INSTALLED.
- CONTINUOUS 75MM X 125MM X 6MM GALVANIZED LEDGER ANGLE ANCHOR LEDGER ANGLE TO CONCRETE FOUNDATION WALL @ 600MM MIN. O.C. W/ GALVANIZED CONCRETE ANCHORS.
- PROVIDE ADDITIONAL GALVANIZED LIGHT GAUGE FRAMING FASTENING ANGLES AND CHANNELS TO SUIT.

THERMAL & MOISTURE PROTECTION

- CONTINUOUS COMMERCIAL GRADE WEATHER BARRIER.
- EXTEND/OVERLAP AND ADHERE BARRIER / MEMBRANE AND PROVIDE CONTINUOUS SEAL TO STEEL PERIMETER FRAMING.
- INFILL CAVITY W/ CONTINUOUS SPRAY TYPE INSULATION.
- INFILL HSS GIRTS W/ SPRAY TYPE INSULATIO @ WINDOW AND OVERHEAD DOOR LOCATIONS.
- NOT USED.
- EXTERIOR GRADE GLASS MAT SHEATHING.
- PRE-FINISHED METAL FLASHING W/ CONTINUOUS DRIP-EDGE AS INDICATED.
- SELF ADHERED THRU WALL FLASHING MEMBRANE.
- CONTINUOUS SEALANT AND BACKER ROD.
- CONTINUOUS SEALANT.
- PRE-FINISHED METAL COVER OVER INSULATED CAVITY. FASTEN WITH SELF TAPPING SCREWS. HEM EDGES OF METAL AND PROVIDE FASTENING ANGLES AS INDICATED.

OPENINGS

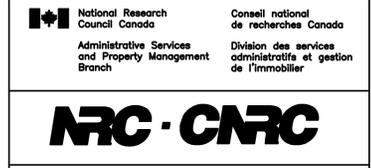
- INDICATES INSULATED COIL TYPE OVERHEAD DOOR CW METAL TRACKS AND OVERHEAD COMPARTMENT.
- CONTINUOUS PERIMETER WEATHER STRIPPING/ SWEEPS FOR OVER HEAD DOOR.
- INSULATED FIBRE REINFORCED PLASTIC DOOR AND FRAME ANCHORED TO STEEL STRUCTURE. PROVIDE THERMALLY BROKEN AND GASKETED DOOR FRAME.
- THERMALLY BROKEN ALUMINUM DOOR THRESHOLD. SET THRESHOLD IN MIN 2 CONTINUOUS BEADS OF SEALANT.
- PRE-FINISHED METAL LOUVER. REFER TO MECHANICAL.
- 75MM X 75MM X 6MM LOUVER SUPPORT ANGLES/SUPPORT BRACKETS. MECHANICALLY FASTEN LOUVERS TO ANGLE AND ANGLES TO STEEL.
- 350MM X 100MM GALVANIZED BENT METAL ANGLE CAST INTO CONCRETE FOUNDATION WALL. ANGLE SLOPED TO DRAIN.

CLADDING

- 4MM COMPOSITE ALUMINUM CLADDING SYSTEM.
- COMPOSITE ALUMINUM CLADDING CONNECTOR. TYPICAL.
- PROVIDE WEEP BAFFLE AND DRIP @ EDGE OF COMPOSITE PANEL.
- 150MM INSULATED METAL PANEL.
- PRE-FINISHED METAL TRIM FASTENED TO INSULATED METAL PANEL.
- CONCEALED SELF TAPPING FASTENERS. CONFIGURATION, SPACING TYPE AND SIZE AS PER MANUFACTURERS RECOMMENDATION.

OTHER

- INDICATES INSULATED PANEL TO BE REMOVED IN FUTURE.
- METAL DUCT. REFER TO MECHANICAL.



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No.	Date	Revision	By:
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1	JUNE 28 2016	ISSUED FOR REVIEW	KWC

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KWC ARCHITECTS INC.

PHONE: (613) 238-2117
FAX: (613) 238-6595
E MAIL: kwc@kwc-arch.com

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- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité

A	A Detail no. No. du détail	A
B	B Location drawing no. sur dessin no.	B/C
C	C Drawing no. dessin no.	

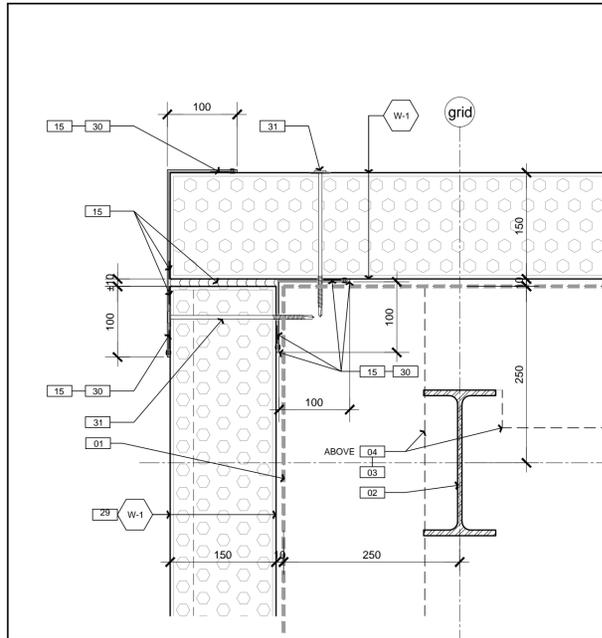
project: **BUILDING M-38 FLEXIBLE RESEARCH FACILITY**

1200 MONTREAL ROAD CAMPUS OTTAWA, ON

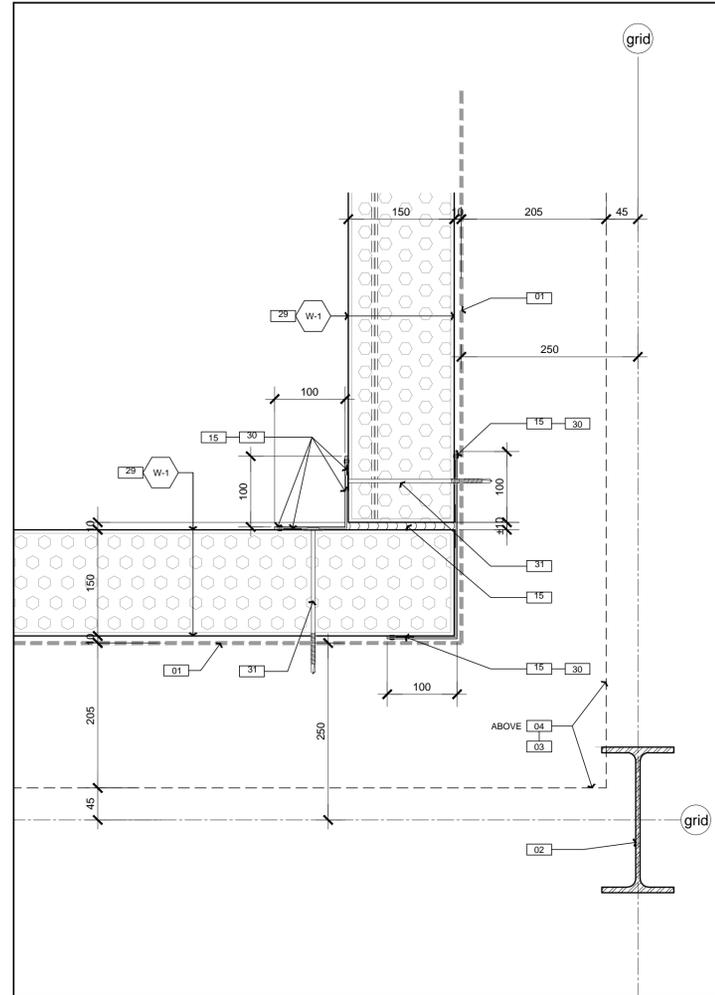
drawing: **DETAILS**

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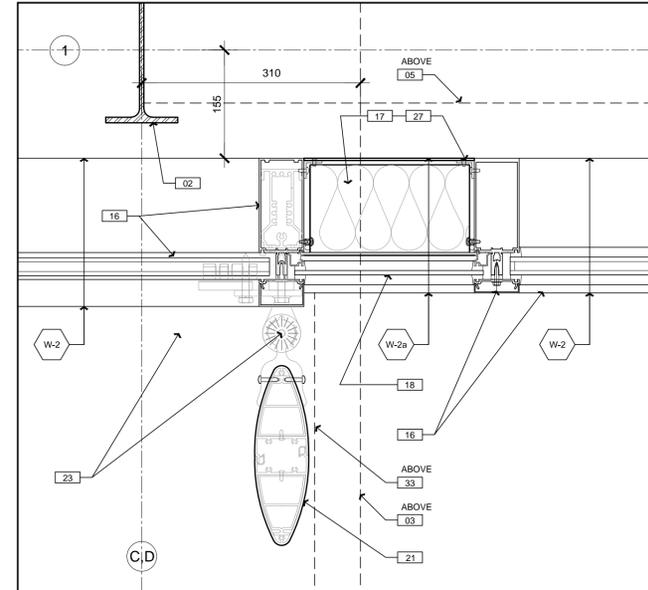
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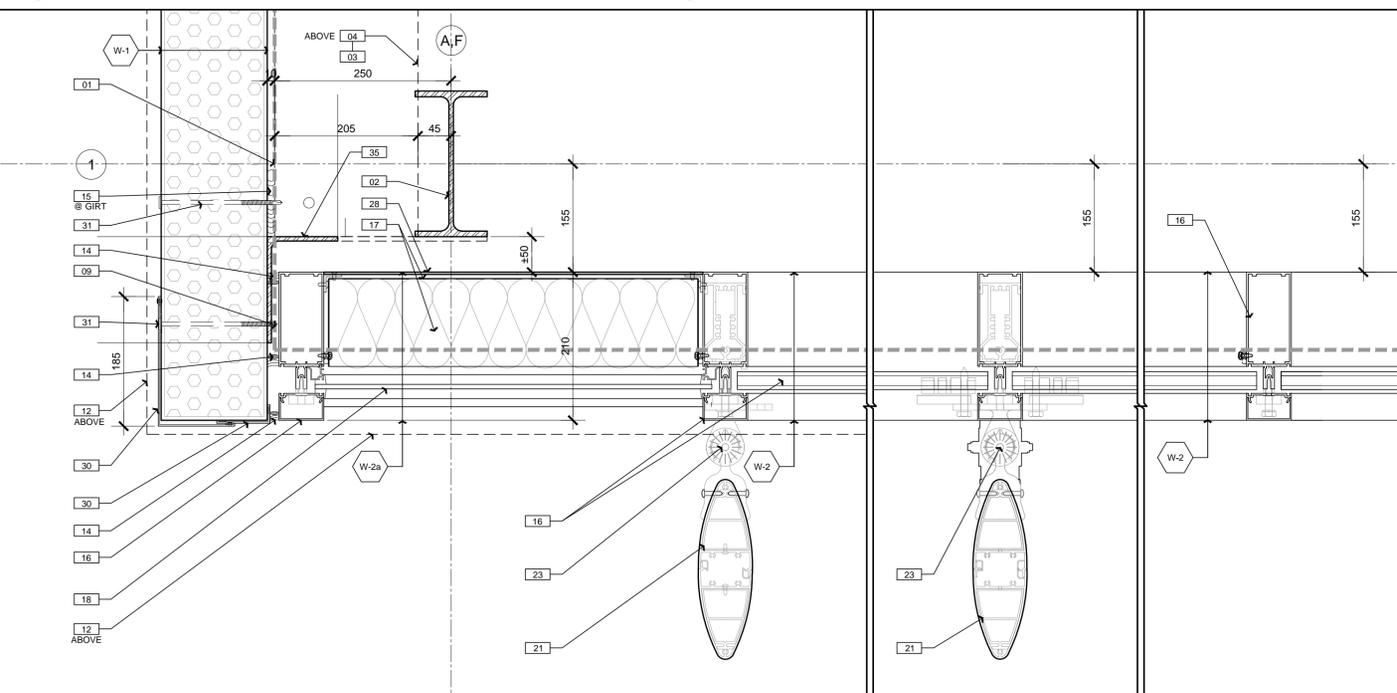
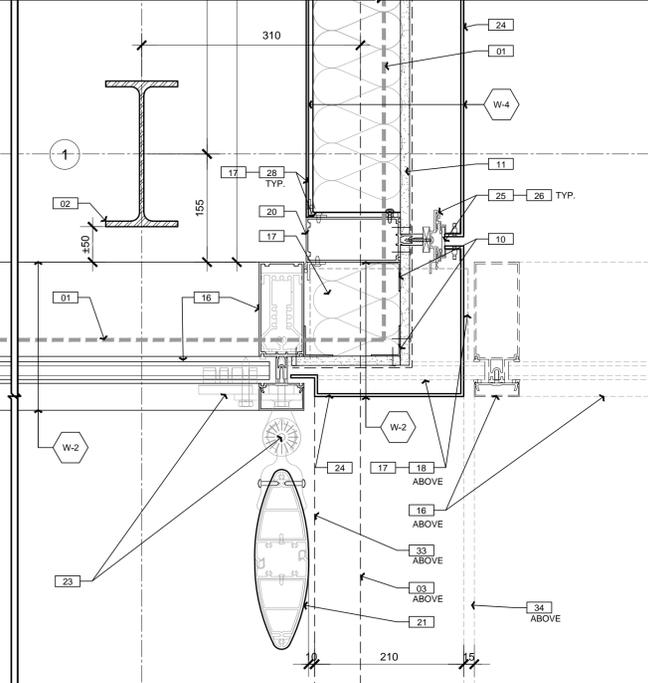
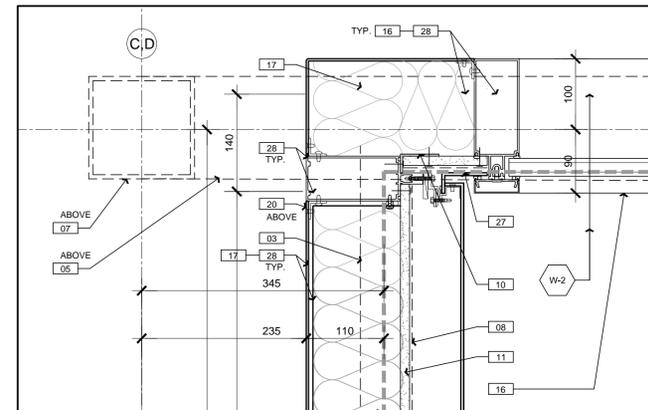
3 PLAN DETAIL
A14 SCALE = 1:5



4 PLAN DETAIL
A14 SCALE = 1:5



2 PLAN DETAIL
A14 SCALE = 1:5



1 PLAN DETAIL
A14 SCALE = 1:5

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DRAWING NOTES - SHEET A14
 THESE NOTES APPLY TO DRAWING SHEET A14 ONLY

CONCRETE
 01 EXTERIOR EDGE OF POURED CONCRETE FOUNDATION WALL. REFER TO STRUCTURAL.

STEEL
 02 STEEL COLUMN. REFER TO STRUCTURAL.
 03 STEEL 'C' CHANNEL. REFER TO STRUCTURAL.
 04 STEEL HSS/ CHANNEL GIRT AS INDICATED. REFER TO STRUCTURAL.
 05 STEEL BEAM. REFER TO STRUCTURAL.
 06 MINIMUM 16 GA. METAL ANGLE MECHANICALLY FASTENED TO HSS/C-CHANNEL STEEL AT FUTURE DOOR LOCATIONS FOR EASY REMOVAL WHEN FUTURE DOORS ARE INSTALLED.
 07 STEEL HSS. REFER TO STRUCTURAL.

THERMAL & MOISTURE PROTECTION
 08 CONTINUOUS COMMERCIAL GRADE WEATHER BARRIER.
 09 INFILL CAVITY W/ CONTINUOUS SPRAY TYPE INSULATION.
 10 PROVIDE ADDITIONAL GALVANIZED LIGHT GAUGE FRAMING ANGLES AND CHANNELS TO SUIT.
 11 EXTERIOR GRADE GLASS MAT SHEATHING.
 12 PRE-FINISHED METAL PARAPET CAP.
 13 NOT USED.
 14 CONTINUOUS SEALANT AND BACKER ROD.
 15 CONTINUOUS SEALANT.

OPENINGS WINDOWS
 16 ALUMINUM CURTAINWALL/WINDOW SYSTEM.
 17 CURTAIN WALL BACK PAN. INFILL PAN CAVITY WITH MINERAL FIBRE INSULATION.
 18 ALUMINUM CURTAIN WALL SYSTEM GLAZED SPANDREL PANEL.
 19 NOT USED.
 20 ALUMINUM CURTAIN WALL BACK SECTION SUPPORTS FOR COMPOSITE METAL CLADDING.
 21 INDICATES 300MM ADJUSTABLE FIN TYPE VERTICAL PRE-FINISHED METAL CURTAIN WALL SYSTEM SOLAR SHADE.
 22 NOT USED.
 23 METAL SUPPORT BRACKET FOR CURTAIN WALL SOLAR SHADE. SIZE, TYPE LOCATION AND SPACING BY MANUFACTURER.

CLADDING
 24 4MM COMPOSITE ALUMINUM CLADDING SYSTEM.
 25 COMPOSITE ALUMINUM CLADDING CONNECTOR. TYPICAL.
 26 COMPOSITE ALUMINUM DRY JOINT REVEAL BETWEEN PANELS. TYPICAL.
 27 4MM COMPOSITE ALUMINUM TYPICAL DRY JOINT INFILL TRIM.
 28 INDICATES PREFINISHED METAL PANEL FASTENED TO INTERIOR SIDE OF CURTAIN WALL BACK SECTIONS W. GALV. METAL CLIPS AND SELF TAPPING MECHANICAL FASTENERS.
 29 150MM INSULATED METAL PANEL.
 30 PRE-FINISHED METAL TRIM CAP FASTENED TO INSULATED METAL PANEL.
 31 CONCEALED SELF TAPPING FASTENERS. CONFIGURATION, SPACING TYPE AND SIZE AS PER MANUFACTURERS RECOMMENDATION. WHERE FASTENER CANNOT BE CONCEALED PROVIDE EXPOSED FASTENERS ALIGNED AND AT EVENLY SPACED INTERVALS. AVOID DENTING OR DIMPLING INSULATED METAL PANEL.
 32 NOT USED

OTHER
 33 LINE OF CANOPY EXTERIOR EDGE.
 34 LINE OF CANOPY REVEAL.
 35 PROVIDE ADDITIONAL 150X 100MM X 6MM VERTICAL STEEL BENT PLATE @ WELDED TO BASE ANGLE AND HORIZONTAL GIRTS FOR ADDITIONAL PANEL SUPPORT. REFER TO STRUCTURAL.

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2	AUG 29 2016	ISSUED FOR TENDER	KWC
1	JUNE 28 2016	ISSUED FOR REVIEW	KWC

Date Printed: _____ Date imprimée: _____

kwc
 383 Parkdale Avenue, Suite 201
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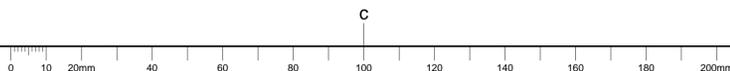
- Verify all dimensions and site conditions and be responsible for same
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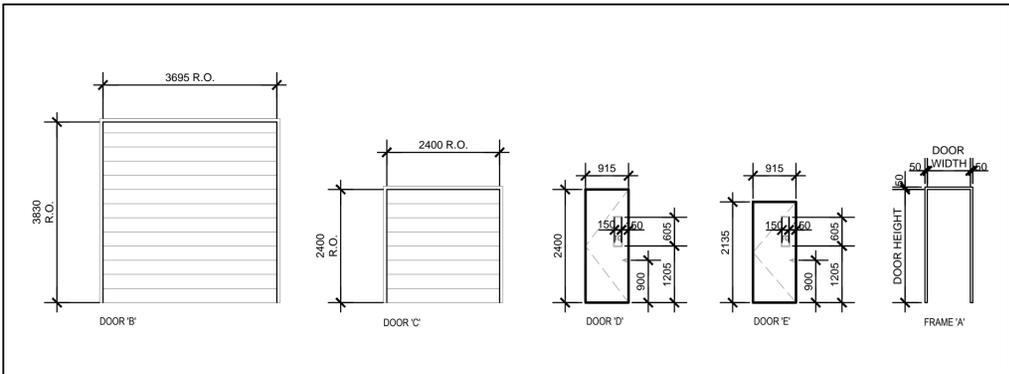
A Detail no. / No. du détail
 B Location drawing no. / sur dessin no.
 C Drawing no. / dessin no.

project: **BUILDING M-38 FLEXIBLE RESEARCH FACILITY**
 1200 MONTREAL ROAD CAMPUS OTTAWA, ON

drawing: **DETAILS**

designed	MM	conçu	date	05/2016	date
drawn	CD	dessiné	scale	AS NOTED	échelle
checked	MM	vérifié	sheet	of/de	feuille
approved	MM	approuvé	W.O.no.		D.T.no.
dwg.no.	5044-A14				dessin no.





1 DOOR ELEVATIONS
A15 SCALE = 1: 75

DOOR NO.	DOOR						GLAZ'G		FRAME			NOTES
	WIDTH	HEIGHT	THICKN.	MAT.	FIN.	ELEV.	MAT.	MAT.	FIN.	ELEV.		
D100	2-915	2135	45	AL	AN	'A'	--	AL	AN	'A'	DOUBLE ENTRANCE DOORS-INSULATED	
D101	2400	2400	45	M	PRE-F	'D'	--	ST	PT	-	REFER TO DETAILS 1,3 A/13, INSULATED METAL	
D102	915	2400	45	FRP	PT	'B'	--	FRP	PT	'A'	INSULATED	
D103	3695	3830	45	M	PRE-F	'B'	--	PS	PT	-	REFER TO DETAILS 1,2 A/13 INSULATED METAL	
D104	3695	3830	45	M	PRE-F	'C'	TG	ST	PT	-	REFER TO DETAILS 1,2 A/13 INSULATED METAL	
D105	915	2400	45	FRP	PT	'D'	TG	FRP	PT	'A'	INSULATED	
DR01	915	2135	45	FRP	PT	'E'	TG	FRP	PT	'A'	INSULATED	

3 DOOR SCHEDULE
A15

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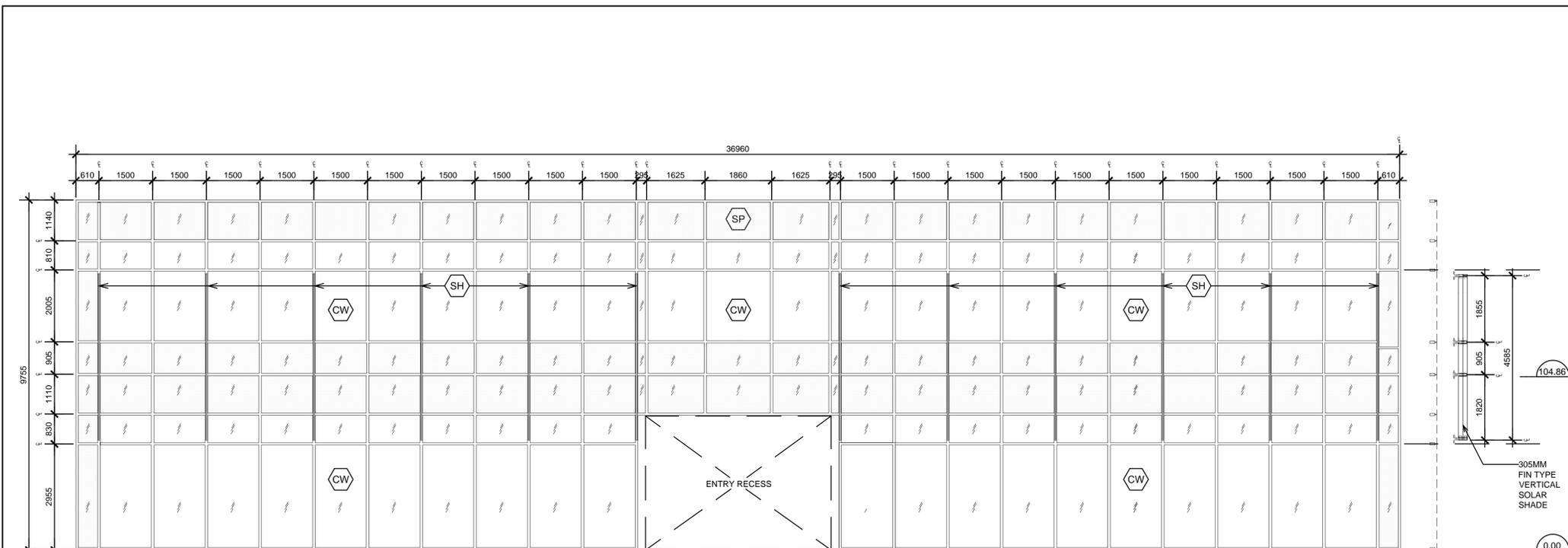
LEGEND - SHEET A15

- (CW) ALUMINUM CURTAIN WALL
- (SH) PRE FINISHED ALUMINUM SOLAR SHADE
- (/ /) INDICATES SPANDREL PANEL
- (/ /) INDICATES CLEAR GLASS PANEL



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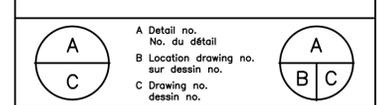
2 WINDOW ELEVATIONS
A15 SCALE = 1: 75

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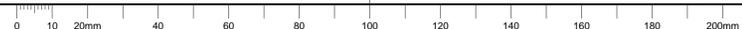


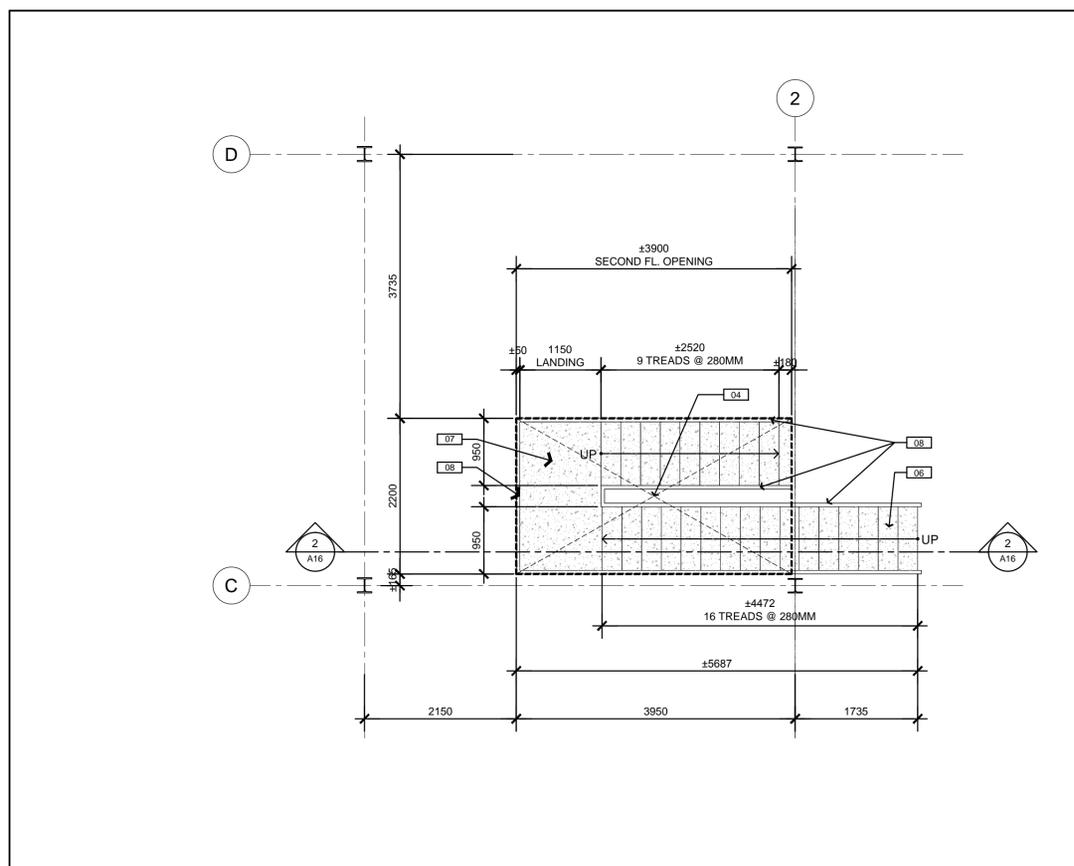
project / projet
BUILDING M-38
FLEXIBLE RESEARCH FACILITY
1200 MONTREAL ROAD CAMPUS
OTTAWA, ON

drawing / dessin
SCHEDULES

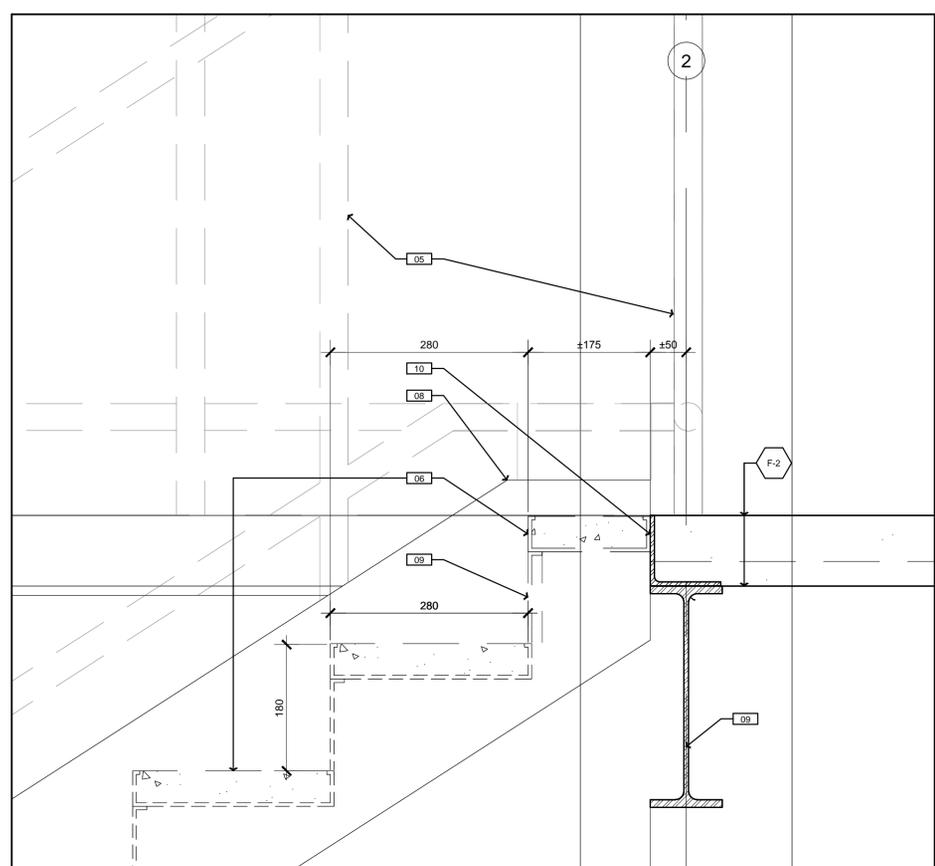
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dwg.no.	dessin no.		

5044-A15

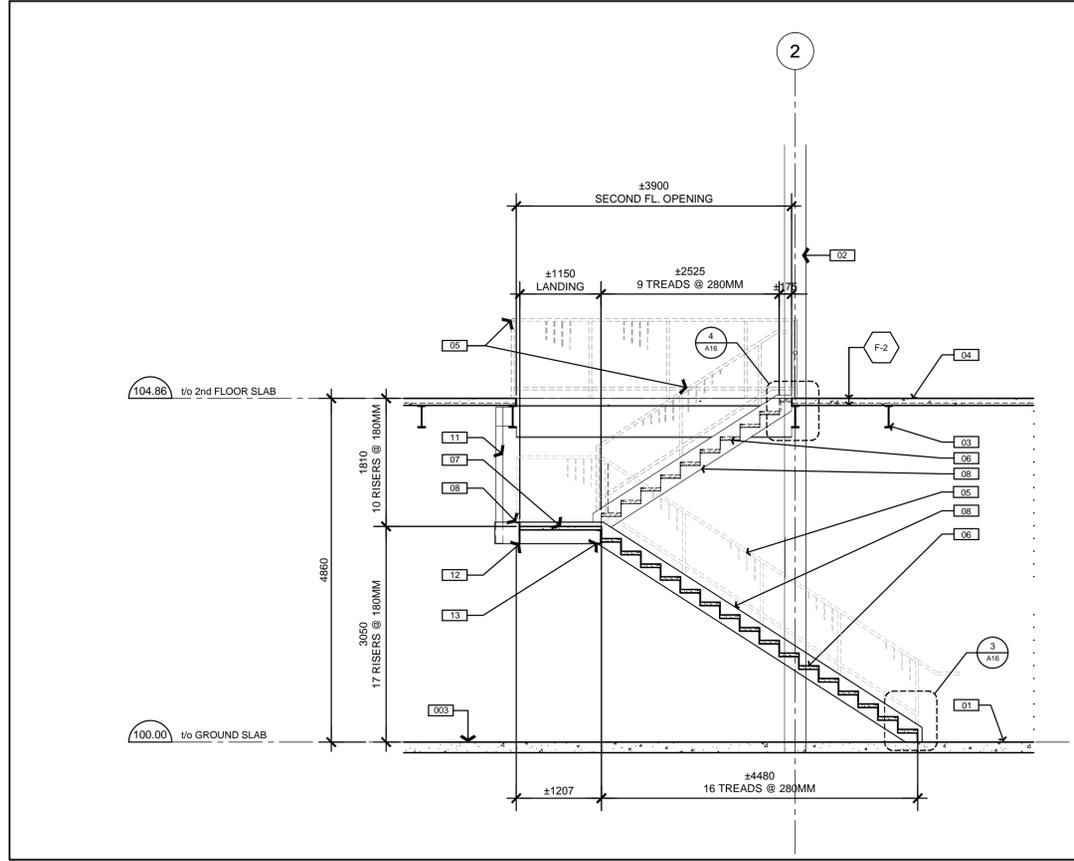




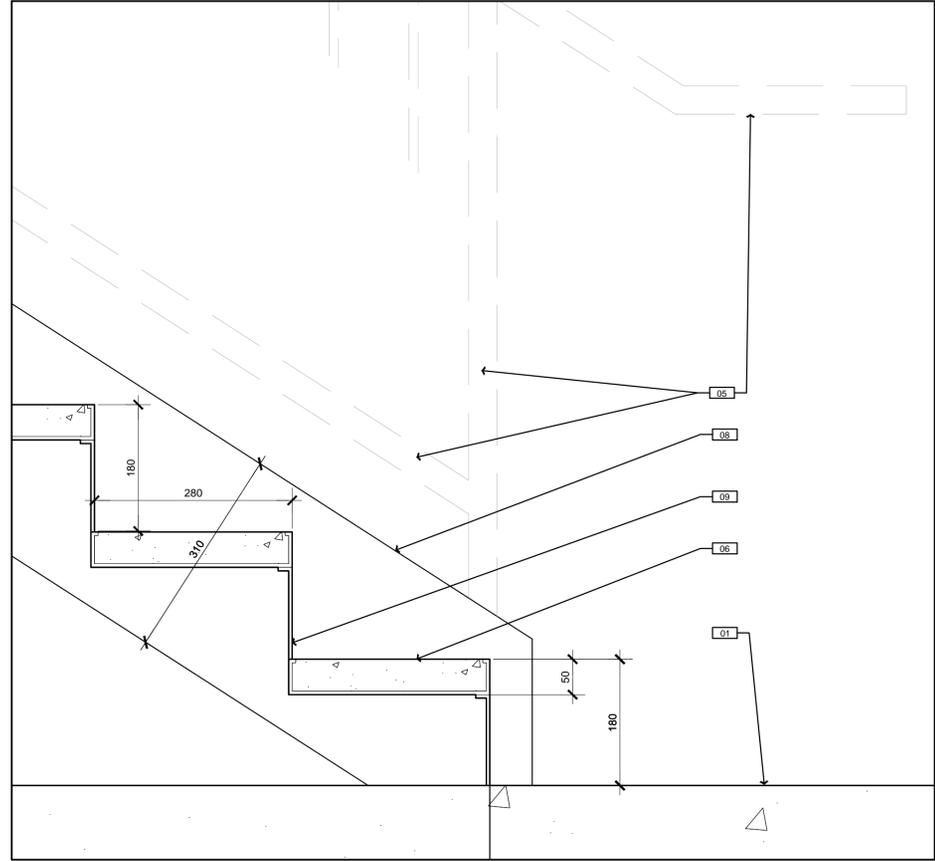
1
A16 ENLARGED PLAN
SCALE = 1:50



4
A16 TYP. STAIR SECTION DETAIL
SCALE = 1:10



2
A16 SECTION 2
SCALE = 1:50



3
A16 TYP. STAIR SECTION DETAIL
SCALE = 1:10

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DRAWING NOTES - SHEET A16
THESE NOTES APPLY TO DRAWING SHEET A16 ONLY

- CONCRETE SLAB ON GRADE. REFER TO STRUCTURAL.
- STEEL COLUMN. REFER TO STRUCTURAL.
- INDICATES STEEL BEAM BEYOND. REFER TO STRUCTURAL.
- INDICATES OPENING IN SECOND FLOOR ASSEMBLY ABOVE COORDINATE WITH STRUCTURAL.
- FUTURE GUARD RAIL AT EDGE OF LANDING NOT IN CONTRACT. PERIMETER STAIRS GUARD HANDRAILS, TOP RAIL, BOTTOM RAIL, MID POST END POSTS AND BALUSTERS NOT IN CONTACT.
- CONCRETE FILLED STEEL PAN STAIRS, PAINT FINISH TO STEEL PAN.
- CONCRETE FILLED STEEL PAN STAIR LANDING, PAINT FINISH TO STEEL PAN.
- 310MM STEEL CRANK STRINGER, PAINT FINISH.
- FOLDED STEEL PLATE RISER, PAINT FINISH.
- STEEL PERIMETER ANGLE. REFER TO STRUCTURAL.
- HSS STEEL POST C/W BRACKETS WELDED TO AND SUSPENDED FROM STEEL FLOOR BEAM ABOVE.
- 310MM STEEL LANDING CROSS MEMBER AT BACK OF LANDING, PAINT FINISH.
- 200 STEEL CHANNEL @ FRONT OF LANDING.



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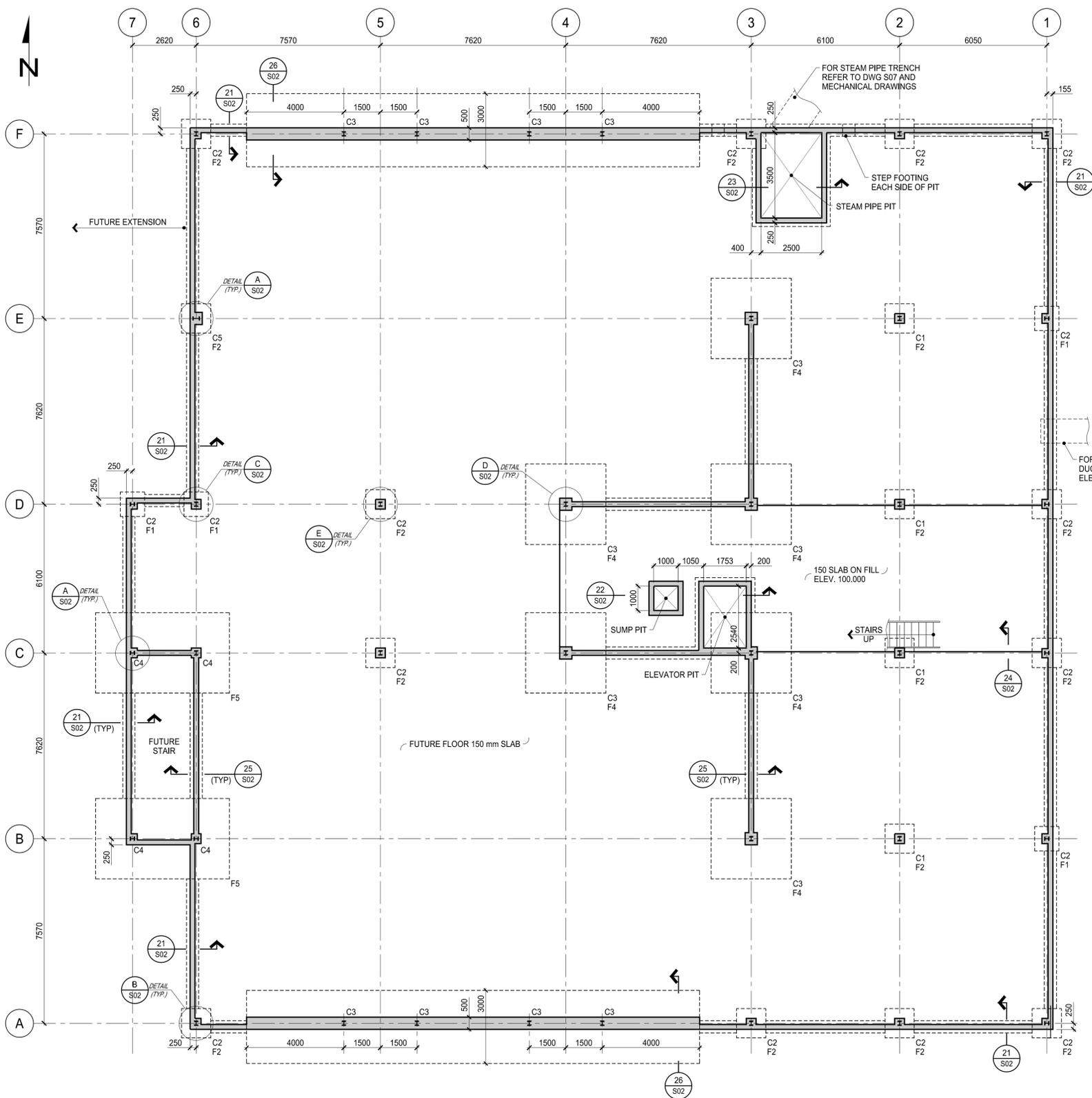
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project
BUILDING M-38
FLEXIBLE RESEARCH FACILITY
1200 MONTREAL ROAD CAMPUS
OTTAWA, ON
drawing
STAIR PLAN, SECTION + DETAILS

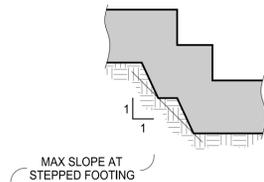
designed	MM	conçu	date	05/2016
drawn	CD	dessiné	scale	AS NOTED
checked	MM	vérifié	sheet	of/de
approved		approuvé	W.O.no.	D.T.no.

dwg.no. 5044-A16
dessin no.

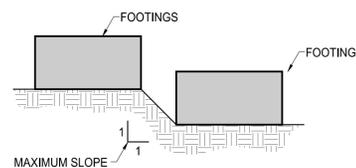


FOUNDATION / GROUND FLOOR PLAN

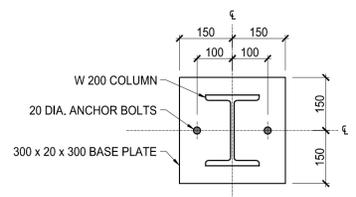
- SCALE = 1:100
- GROUND FLOOR ELEV. 100.000 (100.600 ELEVATION GEODETIC)
 - LIVE LOAD 24 kPa



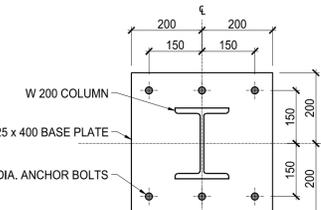
11 DETAIL
S01 SCALE = 1:20



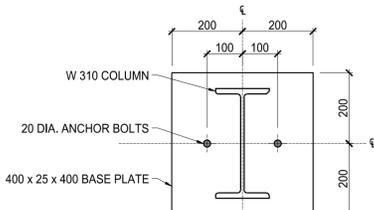
12 DETAIL
S01 SCALE = 1:20 (DETAIL OF ADJACENT EXCAVATIONS FOR FOOTINGS SIMILAR DETAIL AT PIPING)



A DETAIL
S01 SCALE = 1:20



B DETAIL
S01 SCALE = 1:20



C DETAIL
S01 SCALE = 1:20

GENERAL NOTES:

- THE CONTRACTOR SHALL EXCAVATE THE ROCK TO AN ELEVATION OF 1650 mm BELOW THE GROUND FLOOR SLAB.
- ALL FOOTINGS SHALL BEAR ON SOLID ROCK.
- REFER TO "GEOTECHNICAL INVESTIGATION PROPOSED FLEXIBLE LABORATORY FACILITY M-26 NATIONAL RESEARCH COUNCIL CANADA (NRC) - PREPARED BY GOLDER ASSOCIATES, DATED JANUARY 2016.
- BACKFILL SHALL BE GRADED CRUSHED STONE COMPACTED TO 95% MODIFIED PROCTOR DRY DENSITY.
- FOR LOCATION AND SIZE OF FLOOR, WALL AND ROOF OPENINGS, REFER TO MECHANICAL DRAWINGS.

CONCRETE:

- CONCRETE COVER (CLEAR TO REINFORCING STEEL)
 - U/S FOOTING = 75 mm
 - FOOTING SIDES AND TOP = 50 mm
 - WALLS = 38 mm
 - PIERS = 50 mm
- CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 25 MPa.
- NOTIFY THE ENGINEER BEFORE EACH CONCRETE POUR.
- REINFORCING STEEL SHALL CONFORM TO CSA G30.18-09, GRADE 400.
- HORIZONTAL WALL REINFORCING STEEL SHALL BE CONTINUOUS WITH CORNER BARS.
- THE CONTRACTOR SHALL TAKE THREE CONCRETE COMPRESSION TEST CYLINDERS FOR EACH CONCRETE POUR. ONE SHALL BE TESTED AT 7 DAYS AND TWO AT 28 DAYS.
- THE CONTRACTOR SHALL SUBMIT FOR REVIEW SHOP DRAWINGS AND BAR LISTS FOR THE REINFORCING STEEL.
- THE CONCRETE FLOOR SLAB SHALL RECEIVE A STEEL-TROWELED FINISH, AND WATER-CURED FOR A PERIOD OF 7 DAYS. THE SLAB SHALL BE SAW-CUT INTO PANELS NOT EXCEEDING 8.0 m x 8.0 m, 48 HOURS AFTER SLAB IS POURED.
- ALL CONCRETE WORK SHALL CONFORM TO CSA A23.1-00 AND CSA A23.2-00.
- PROOFROLL SUBGRADE AND PROVIDE 200 mm CRUSHED STONE UNDER SLABS ON GRADE. THE SLABS ON GRADE SHALL BE 150 mm THICK AND REINFORCED WITH 15M @ 300 EACH WAY MID. DEPTH.

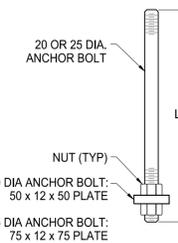
FOOTING SCHEDULE

MARK	SIZE	REINFORCING
F1	1000 x 1000 x 600	6 - 15M T+B EACH WAY
F2	1200 x 1200 x 600	8 - 15M T+B EACH WAY
F3	1500 x 1500 x 600	12 - 15M T+B EACH WAY
F4	3300 x 3300 x 600	11 - 25M T+B EACH WAY
F5	5500 x 3300 x 600	15M @ 300 T+B EACH WAY

COLUMN SCHEDULE

MARK	SIZE	BASE PLATE	ANCHOR BOLTS	BASE PLATE DETAIL
C1	W 200 x 52	300 x 20 x 300	2 - 20 DIA.	A
C2	W 200 x 59	300 x 20 x 300	2 - 20 DIA.	A
C3	W 200 x 71	400 x 25 x 400	6 - 25 DIA.	B
C4	W 200 x 59	400 x 25 x 400	6 - 25 DIA.	B
C5	W 310 x 67	400 x 25 x 400	2 - 20 DIA.	C

REFER TO DETAIL AB/S01 FOR LENGTH OF ANCHOR BOLTS AND WASHER SIZE



AB DETAIL
S01 SCALE = 1:5

(L SHALL BE SUCH THAT THE BOTTOM OF THE ANCHOR BOLT IS 150 mm ABOVE THE BOTTOM OF THE FOOTING)



No.	Date	Revision	By:	Pr:
1	AUG. -2016	ISSUED FOR TENDER	R.L.	
0	JULY 6, 2016	PRELIMINARY	R.L.	

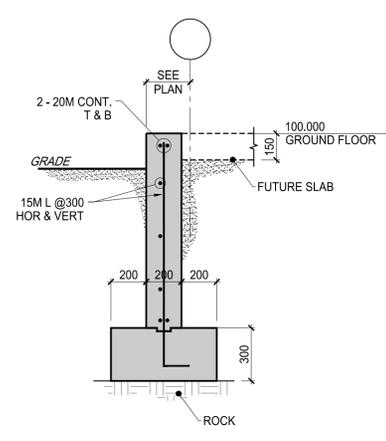
- Verify all dimensions and site conditions and be responsible for same.
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.



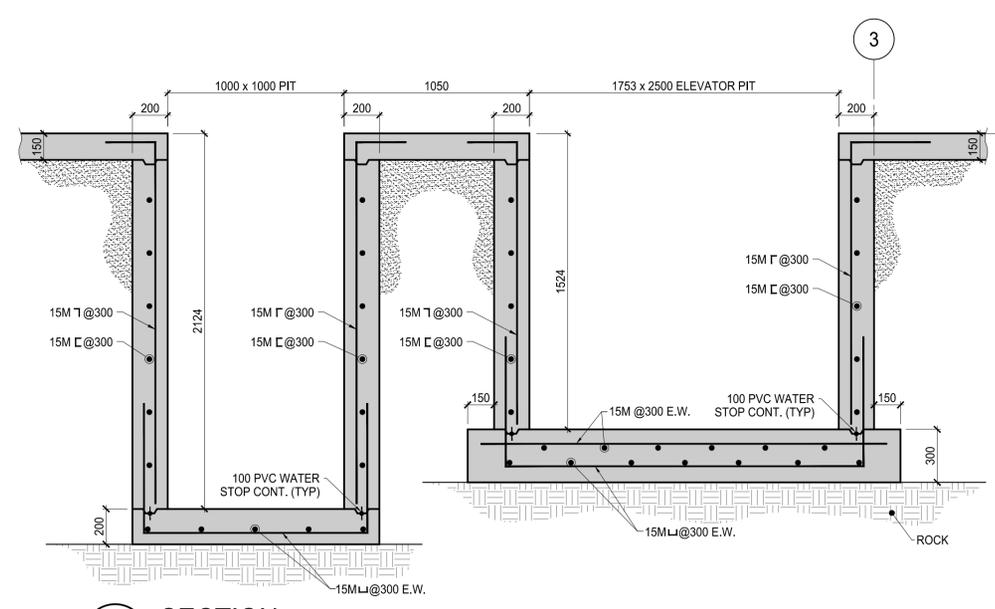
**BUILDING M-38
FLEXIBLE RESEARCH FACILITY
MONTREAL ROAD CAMPUS**

**STRUCTURAL:
FOUNDATION PLAN AND DETAILS**

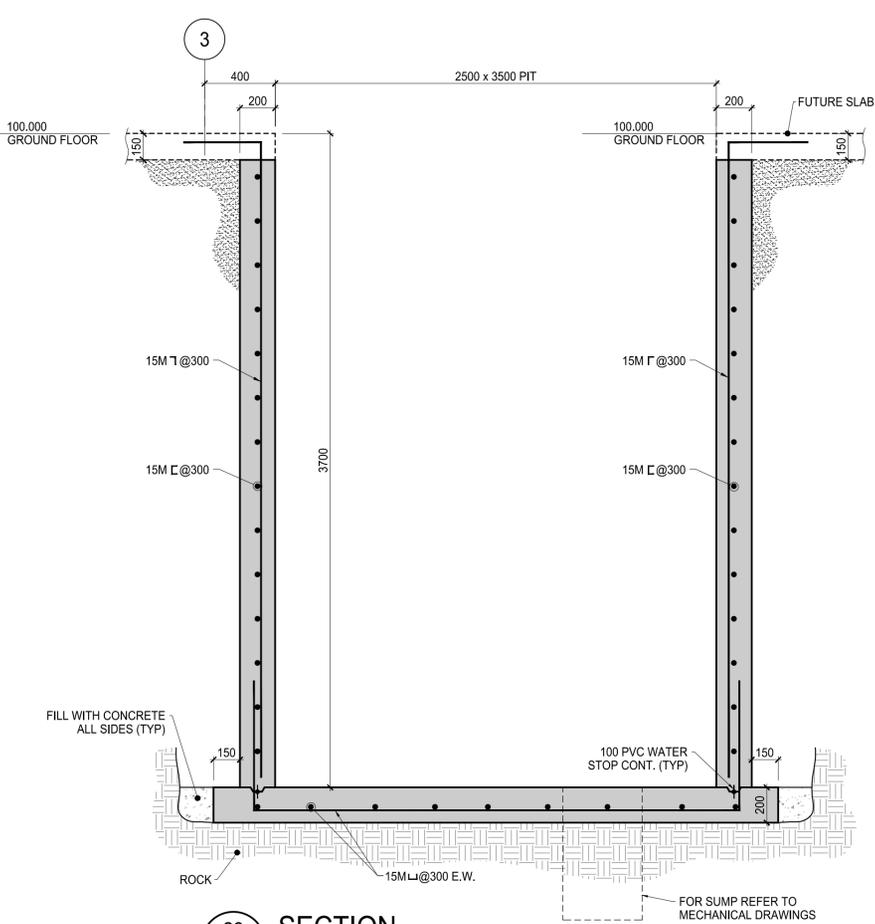
designed	compu	date	date
R.L.		JUNE, 2016	
drawn	dessiné	scale	échelle
M.P.		AS SHOWN	
checked	vérifié	sheet	feuille
R.L.		S01 of/ de S07	
approved	approuvé	W.O.no.	D.T.no.



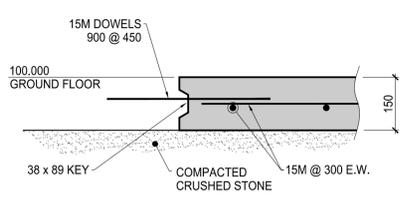
21 SECTION
 S02 SCALE = 1:20
 (TYPICAL UNLESS NOTED)



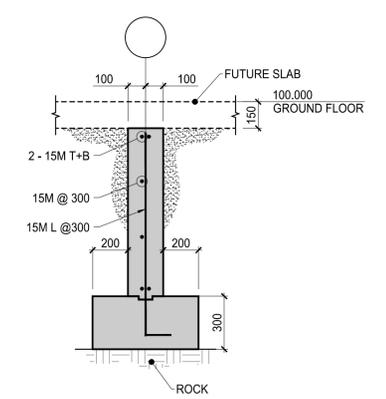
22 SECTION
 S02 SCALE = 1:20



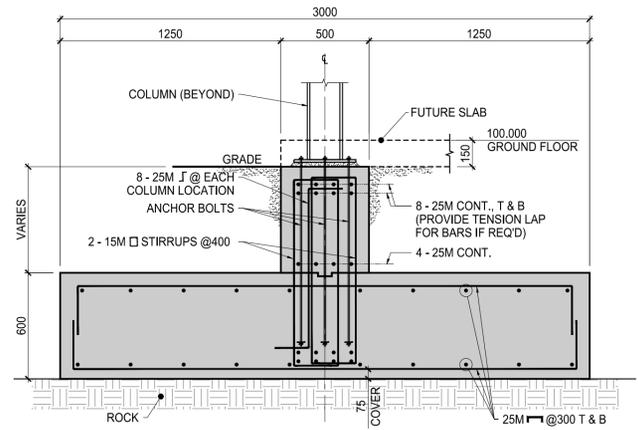
23 SECTION
 S02 SCALE = 1:20



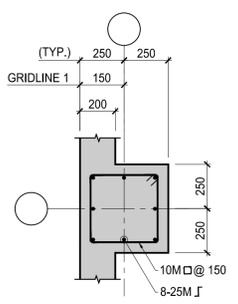
24 SECTION
 S02 SCALE = 1:10



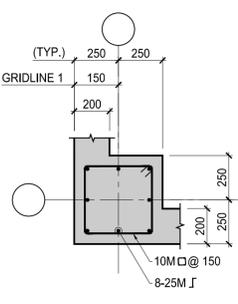
25 SECTION
 S02 SCALE = 1:20
 (TYPICAL INTERIOR WALL U/I)



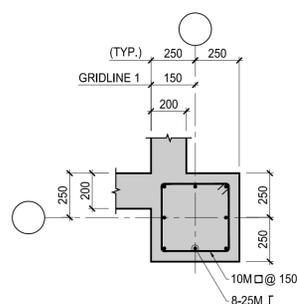
26 SECTION
 S02 SCALE = 1:20



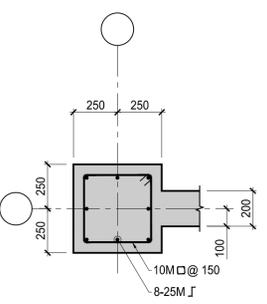
A DETAIL
 S02 SCALE = 1:20



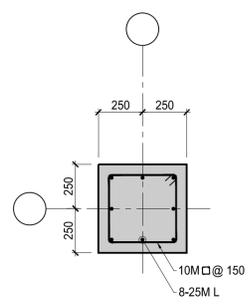
B DETAIL
 S02 SCALE = 1:20



C DETAIL
 S02 SCALE = 1:20



D DETAIL
 S02 SCALE = 1:20



E DETAIL
 S02 SCALE = 1:20

No.	Date	Revision	By:	Pr:
1	AUG. -2016	ISSUED FOR TENDER	R.L.	
0	JULY 6,2016	PRELIMINARY	R.L.	

- Verify all dimensions and site conditions and be responsible for same.
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.

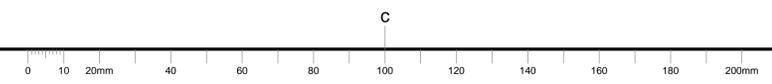
A	A Detail no. No. du détail	A
C	B Location drawing no. sur dessin no.	B C
	C Drawing no. dessin no.	

project / projet
BUILDING M-38
FLEXIBLE RESEARCH FACILITY
 MONTREAL ROAD CAMPUS

drawing / dessin
STRUCTURAL:
FOUNDATION DETAILS

designed / conçu	R.L.	date	JUNE, 2016	date
drawn / dessiné	M.P.	scale / échelle	AS SHOWN	échelle
checked / vérifié	R.L.	sheet / feuille	S02 of/de S07	feuille
approved / approuvé		W.O.no.		D.T.no.

dwg.no. / dessin no.
5049-S02



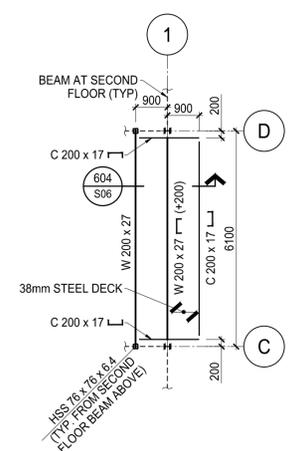
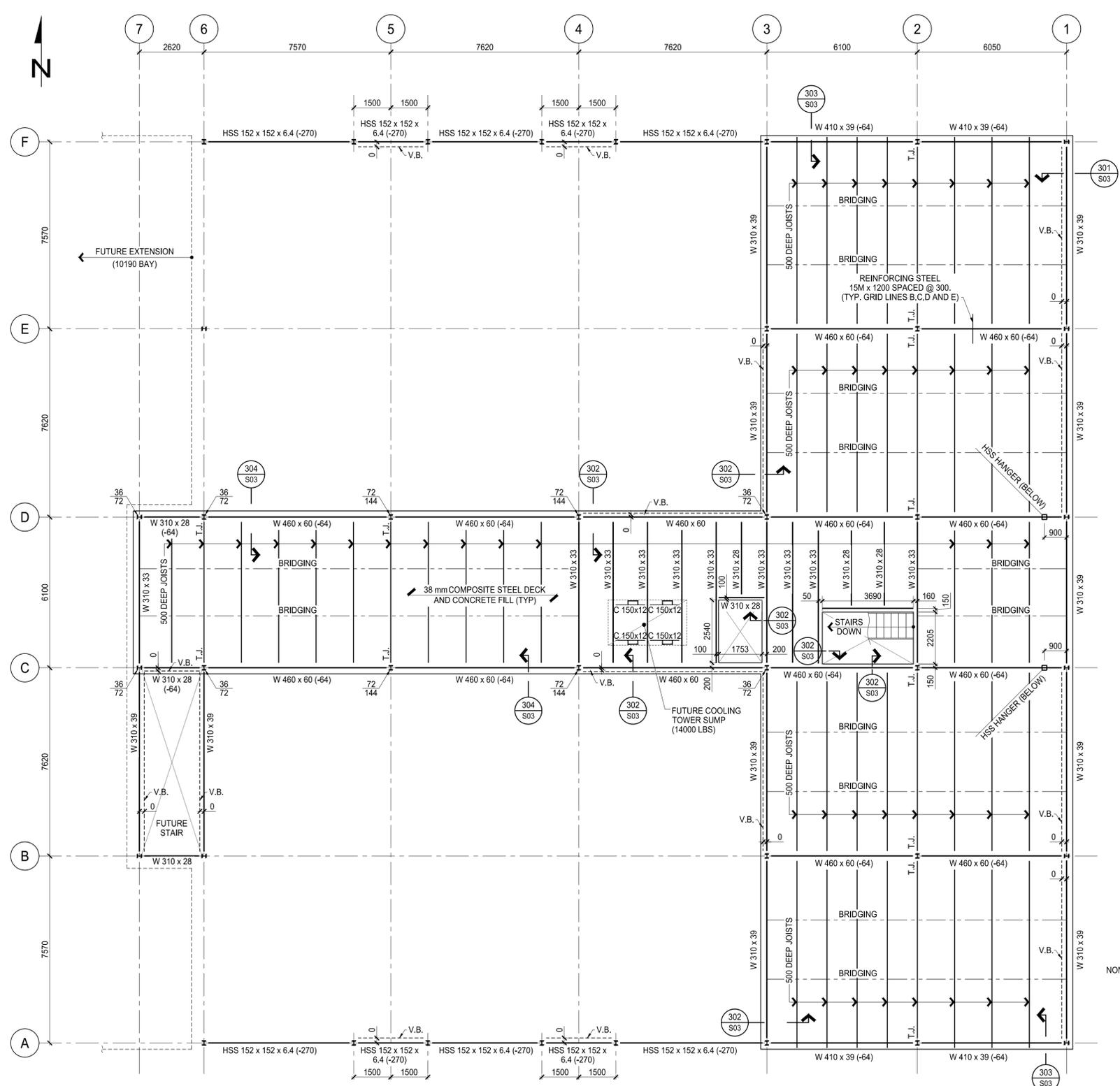


GENERAL NOTES:

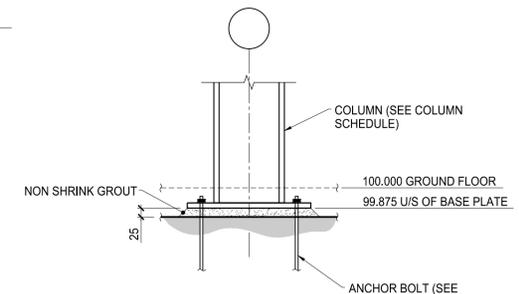
- STRUCTURAL STEEL:**
- ALL STRUCTURAL STEEL SHALL CONFORM TO CSA G40.20-04 AND CSA G40.21-04, GRADE 350.
 - ALL STRUCTURAL STEEL SHALL RECEIVE ONE SHOP COAT OF PRIMER CONFORMING TO CAN/CSG 1-40.97, "ANTI-CORROSIVE STRUCTURAL STEEL ALKYD PRIMER."
 - ALL WELDING MATERIALS SHALL CONFORM TO CSA W48.06.
 - WELDING SHALL CONFORM TO CSA W59-03 (R2008) AND SHALL BE CARRIED OUT BY WELDERS QUALIFIED BY THE CANADIAN WELDING BUREAU.
 - THE CONTRACTOR SHALL SUBMIT FOR REVIEW SHOP DRAWINGS FOR REVIEW, INCLUDING ERECTION AND SHOP DETAIL DRAWINGS, BEFORE THE START OF FABRICATION.
 - THE STEEL CONTRACTOR SHALL VERIFY DIMENSIONS ON SITE BEFORE THE START OF FABRICATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
 - ALL STRUCTURAL STEEL WORK SHALL CONFORM TO CSA S16-09.

- STEEL FLOOR AND ROOF JOISTS:**
- STEEL JOISTS SHALL BE DESIGNED FOR THE UNFACTORED LOADS NOTED ON THE DRAWINGS.
 - THE JOISTS SHALL BE DESIGNED FOR AN ADDITIONAL LIVE LOAD OF 2225 N, LOCATED ANYWHERE ALONG THE LENGTH OF THE JOIST.
 - JOIST SHOES SHALL BE 64 mm OR 125 mm DEEP.
 - THE JOIST SUPPLIER SHALL SUBMIT FOR REVIEW SHOP DRAWINGS AND DESIGN CALCULATIONS FOR ALL JOISTS.

- STEEL DECK:**
- STEEL DECK SHALL CONFORM TO ASTM A653M, GRADE 200.
 - ROOF DECK SHALL BE 38 mm DEEP x 0.91 mm.
 - FLOOR DECK SHALL BE COMPOSITE, 38 mm DEEP x 0.91 mm.
 - DECK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A653M.
 - THE DECK SHALL BE CONTINUOUS OVER 3 SPANS MINIMUM AND SHALL BE FASTENED TO SUPPORTING MEMBERS WITH #12 HEX HEAD SCREWS AT 150 mm SPACING AT PERIMETER A 300 mm SPACING AT INTERIOR BEAMS.
 - SUBMIT SHOP DRAWINGS FOR FLOOR AND ROOF DECK INSTALLATION.



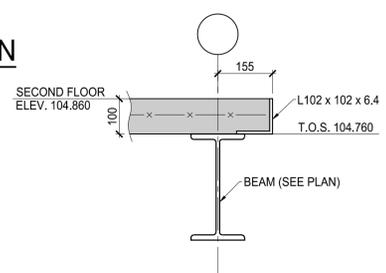
CANOPY PLAN
 SCALE = 1:100
 T.O.S. =
 DESIGN LIVE LOAD = 4.80 kPa (100 LBS / SQ.FT.)



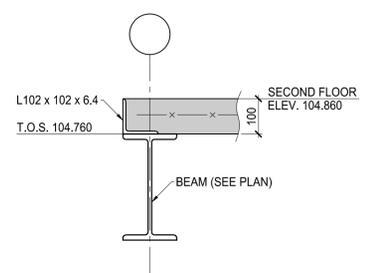
306 DETAIL
 SCALE = 1:10
 (TYPICAL COLUMN DETAIL AT BASE PLATE)

SECOND FLOOR PLAN

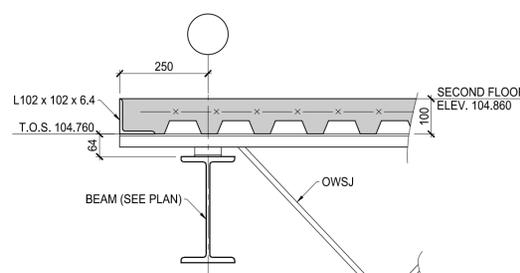
SCALE = 1:100
 T.O.S. = 104.760 U/N
 V.B. = VERTICAL BRACING
 T.J. = TIE JOIST
 DESIGN LOADS
 DEAD LOAD = 2.88 kPa (60 LBS / SQ.FT.)
 LIVE LOAD = 4.80 kPa (100 LBS / SQ.FT.)
 DL DESIGN COLUMN FOR ADDITIONAL FUTURE UNFACTORED LOADS IN kN
 CONTRACTOR SHALL COORDINATE ELEVATOR SHAFT SIZE WITH ELEVATOR SHOP DRAWINGS.



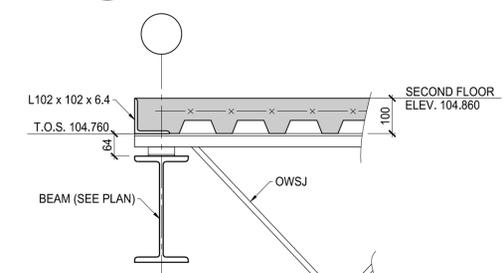
301 SECTION
 SCALE = 1:10



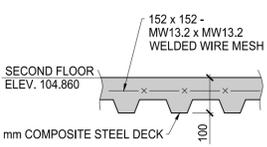
302 SECTION
 SCALE = 1:10
 (TYPICAL FOR ALL SIDES OF FLOOR OPENINGS)



303 SECTION
 SCALE = 1:10



304 SECTION
 SCALE = 1:10



305 DETAIL
 SCALE = 1:10
 (TYPICAL FLOOR CONSTRUCTION)

No.	Date	Revision	By	Pr.
1	AUG. -2016	ISSUED FOR TENDER	R.L.	
0	JULY 6,2016	PRELIMINARY	R.L.	

- Verify all dimensions and site conditions and be responsible for same.
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.

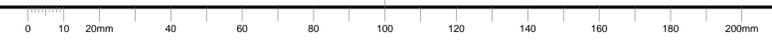
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B	Location drawing no. sur dessin no.	B
C	Drawing no. dessin no.	C

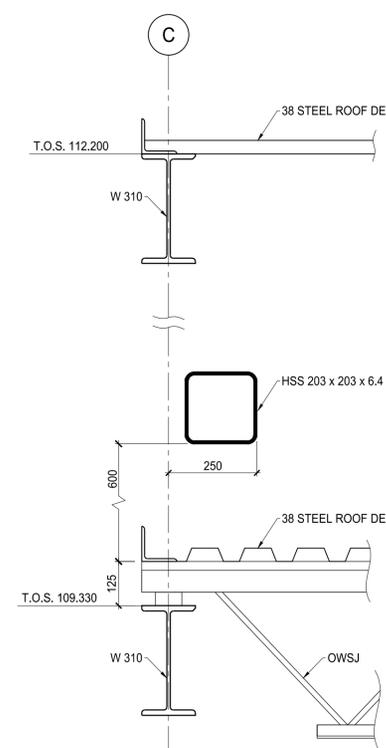
project: **BUILDING M-38 FLEXIBLE RESEARCH FACILITY MONTREAL ROAD CAMPUS**

STRUCTURAL: SECOND FLOOR PLAN AND DETAILS

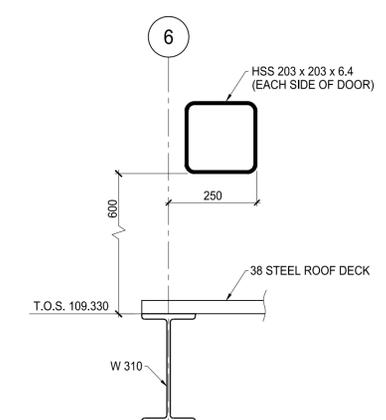
designed	compu	date	date
R.L.		JUNE, 2016	
drawn	dessiné	scale	échelle
M.P.		AS SHOWN	
checked	vérifié	sheet	feuille
R.L.		S03 of/ de S07	
approved	approuvé	W.O.no.	D.T.no.

dwg. no. **5049-S03** dessin no.

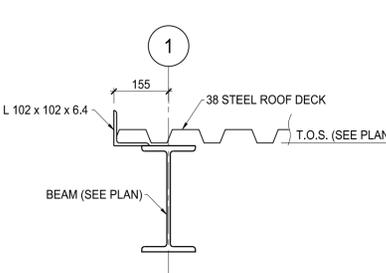




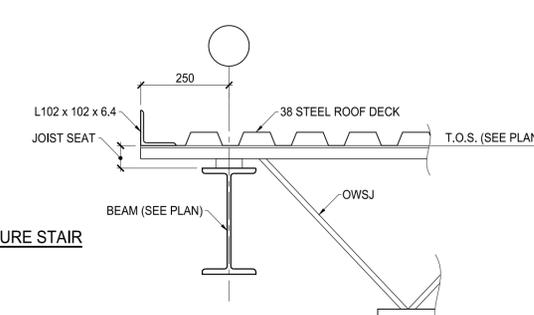
405 SECTION
 S04 SCALE = 1:10



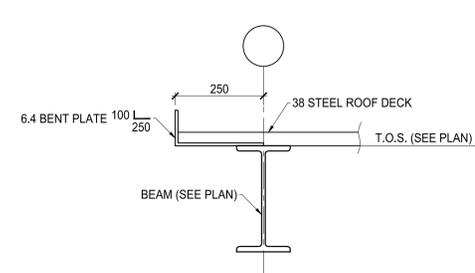
404 SECTION
 S04 SCALE = 1:10



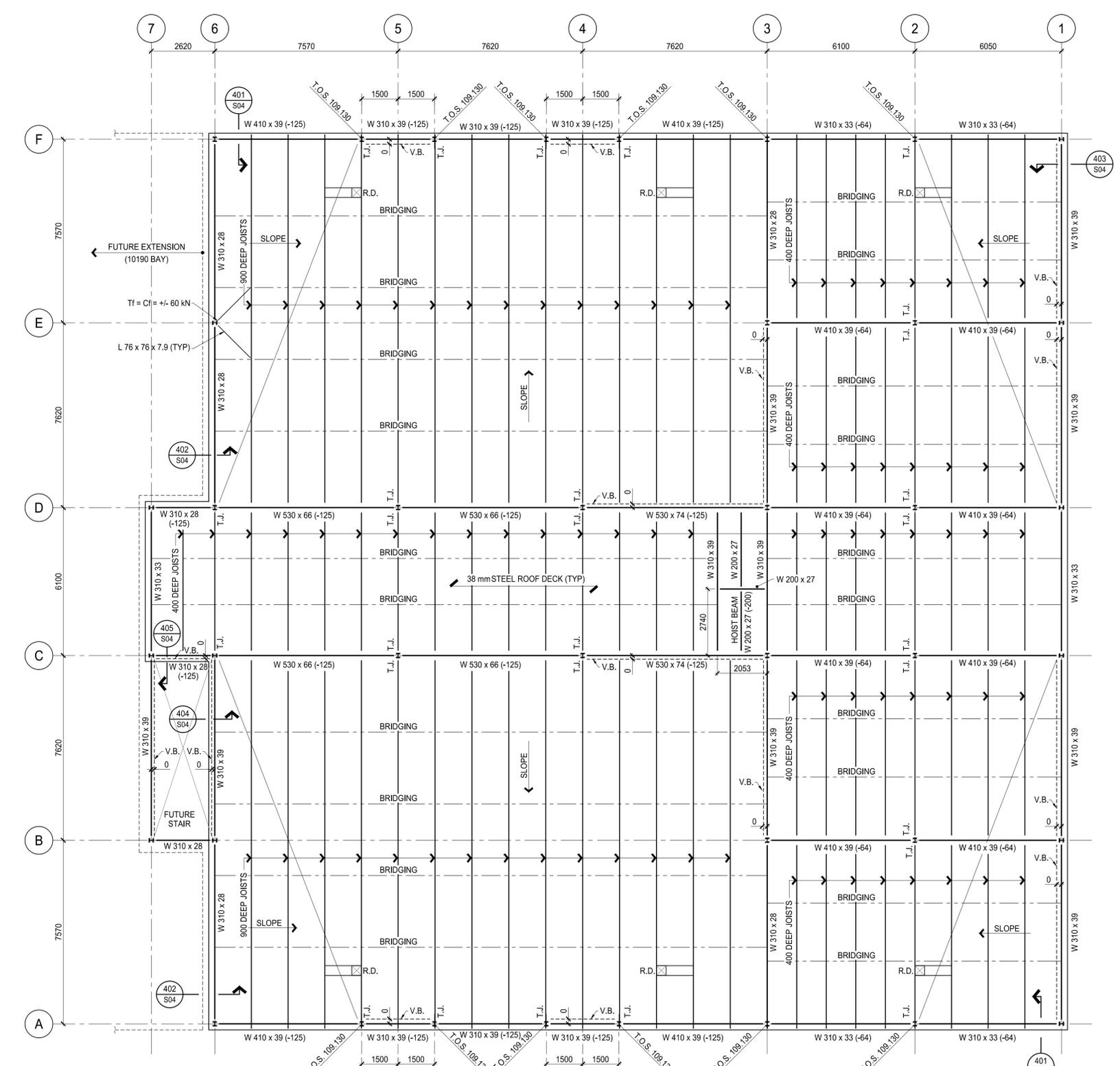
403 SECTION
 S04 SCALE = 1:10



401 SECTION
 S04 SCALE = 1:10



402 SECTION
 S04 SCALE = 1:10

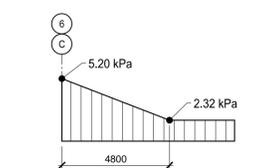


ROOF PLAN
 SCALE = 1:100

T.O.S. = 109.330 U/N
 V.B. = VERTICAL BRACING
 T.J. = TIE JOIST
 R.D. = ROOF DRAIN

DESIGN LOADS
 DEAD = 1.75 kPa (35 LBS/SQ. FT.)
 LIVE = 2.32 kPa (48 LBS/SQ. FT.)

DESIGN COLUMNS C3, C4, D3 AND D4 FOR ADDITIONAL LOAD OF 10,000 LBS FOR FUTURE COOLING TOWER. EXTEND COLUMNS 600 mm ABOVE ROOF.



SNOW ACCUMULATION LOADS AT FUTURE STAIR
 N.T.S.

HIGH ROOF PLAN
 SCALE = 1:100

T.O.S. = 112.200
 V.B. = VERTICAL BRACING

DESIGN LOADS
 DEAD = 1.75 kPa (35 LBS/SQ. FT.)
 LIVE = 2.30 kPa (48 LBS/SQ. FT.)

No.	Date	Revision	By:
1	AUG. -2016	ISSUED FOR TENDER	R.L.
0	JULY 6,2016	PRELIMINARY	R.L.

- Verify all dimensions and site conditions and be responsible for same.
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.

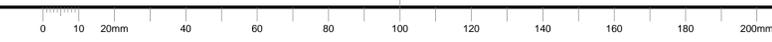
Detail no.	Location drawing no.
A	B
C	C

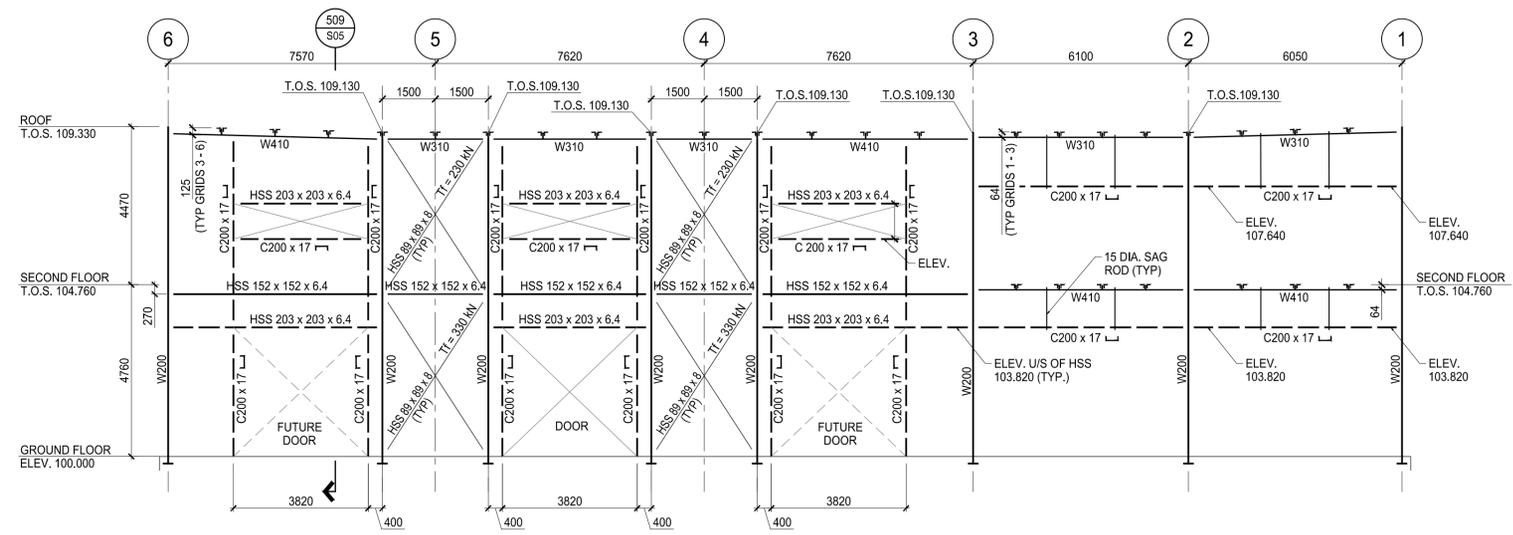
BUILDING M-38
FLEXIBLE RESEARCH FACILITY
 MONTREAL ROAD CAMPUS

STRUCTURAL:
ROOF PLAN AND DETAILS

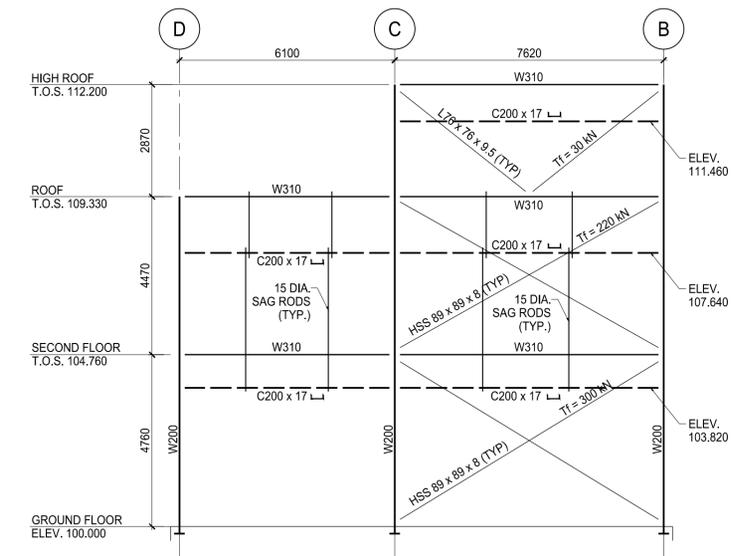
designed	compd	date	date
R.L.		JUNE, 2016	
drawn	dessiné	scale	échelle
M.P.		AS SHOWN	
checked	vérifié	sheet	feuille
R.L.		S04	of/de S07
approved	approuvé	W.O.no.	D.T.no.

dwg no. **5049-S04** dessin no.

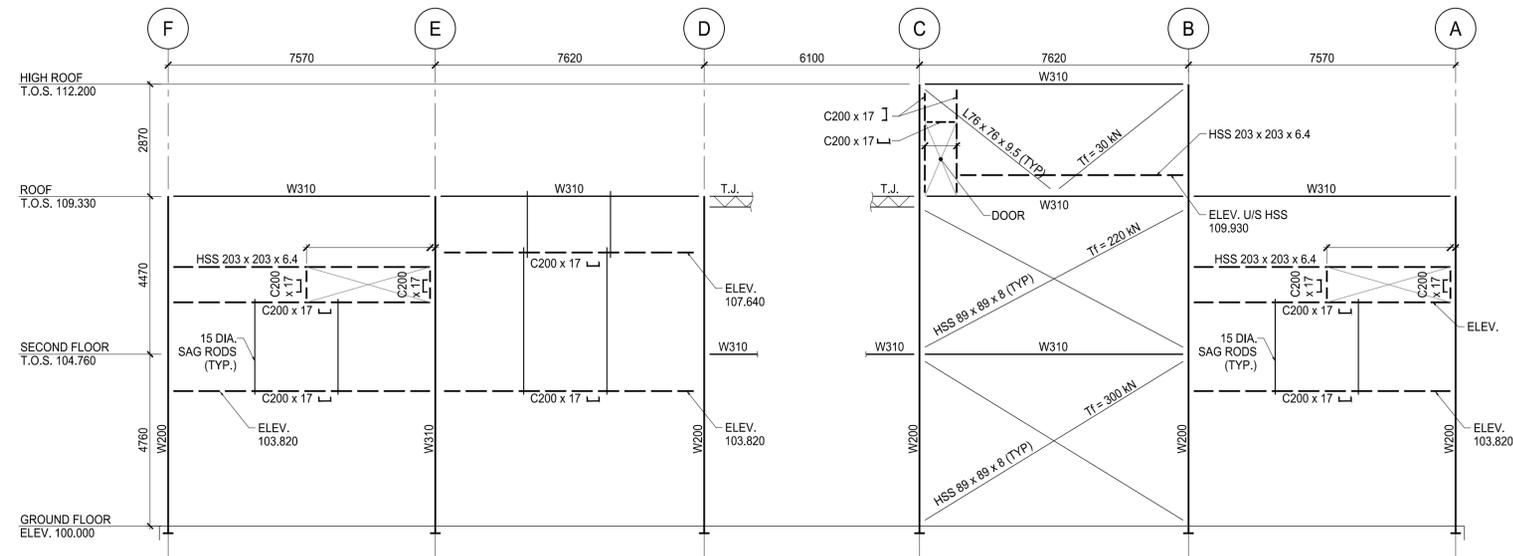




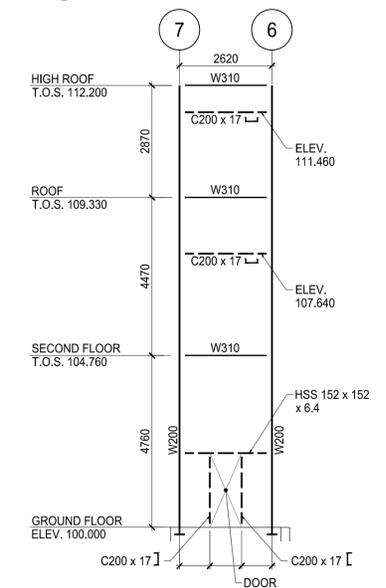
501 ELEVATION - GRID LINE A
 SCALE = 1:100
 GIRTS AND LINTELS



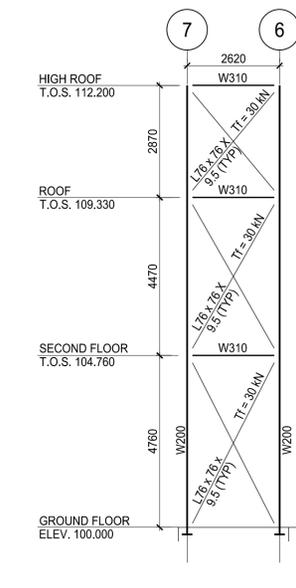
505 ELEVATION - GRID LINE 7
 SCALE = 1:100
 GIRTS AND LINTELS



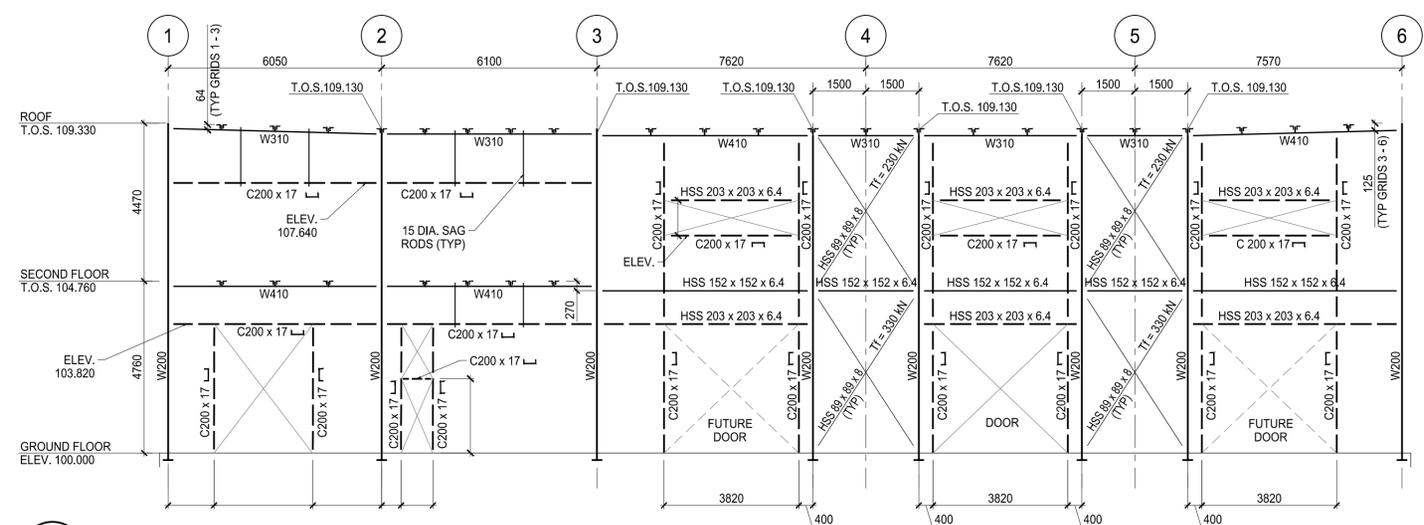
502 ELEVATION - GRID LINE 6
 SCALE = 1:100
 GIRTS AND LINTELS



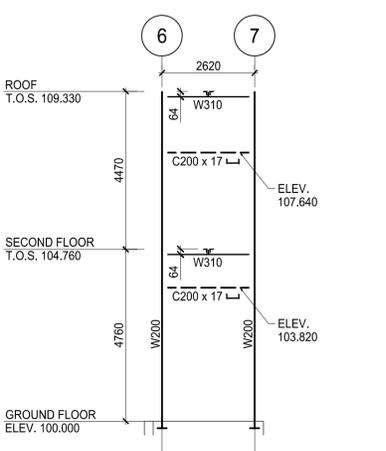
506 ELEVATION - GRID LINE B
 SCALE = 1:100
 GIRTS AND LINTELS



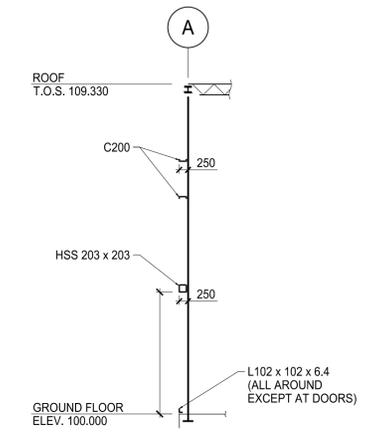
507 ELEVATION - GRID LINE C
 SCALE = 1:100
 GIRTS AND LINTELS



503 ELEVATION - GRID LINE F
 SCALE = 1:100
 GIRTS AND LINTELS



508 ELEVATION - GRID LINE D
 SCALE = 1:100
 GIRTS AND LINTELS

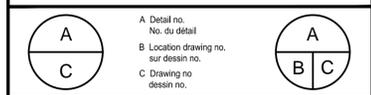


509 SECTION
 SCALE = 1:100

(TYPICAL WALL SECTION LOCATING GIRTS AND LINTELS SHOWN --- ON WALL ELEVATIONS)

No.	Date	Revision	By:	Pr:
1	AUG. -2016	ISSUED FOR TENDER	R.L.	
0	JULY 6, 2016	PRELIMINARY	R.L.	

- Verify all dimensions and site conditions and be responsible for same.
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.

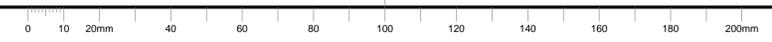


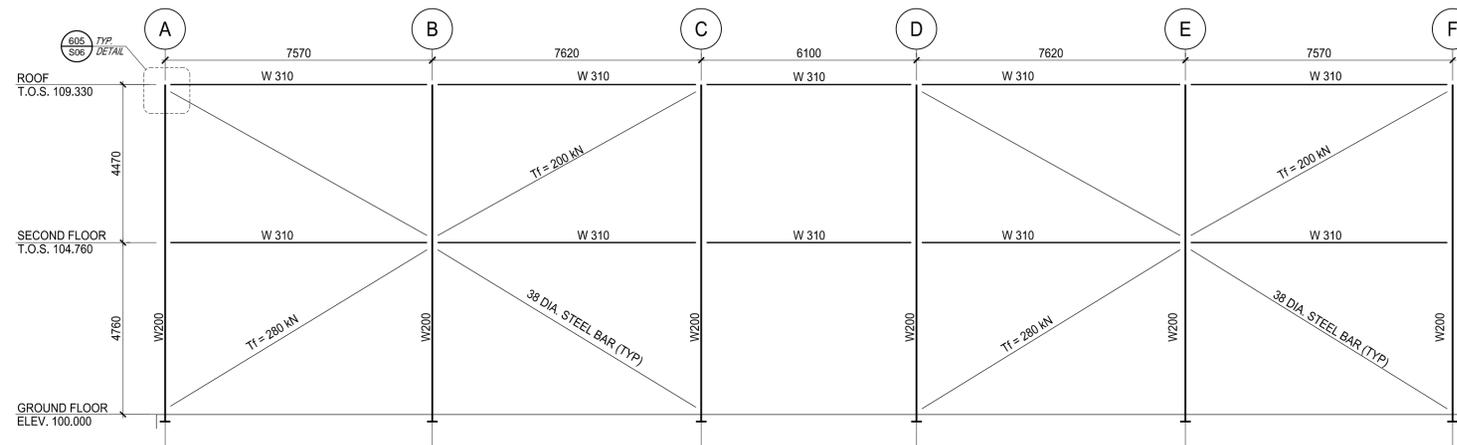
BUILDING M-38
FLEXIBLE RESEARCH FACILITY
 MONTREAL ROAD CAMPUS

STRUCTURAL:
WALL ELEVATIONS

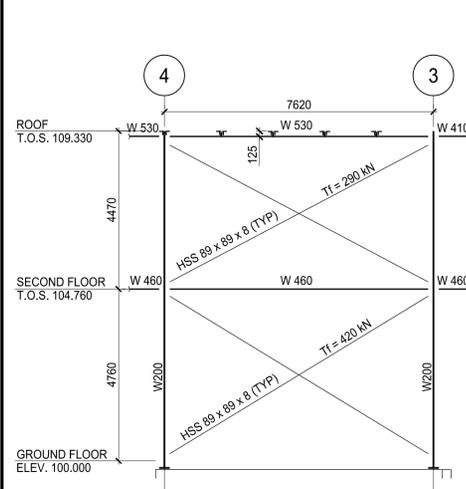
designed	conçu	date	date
R.L.		JUNE, 2016	
drawn	dessiné	scale	échelle
M.P.		AS SHOWN	
checked	vérifié	sheet	feuille
R.L.		S05 of S07	
approved	approuvé	W.O.no.	D.T.no.

dwg. no. **5049-S05** dessin no.

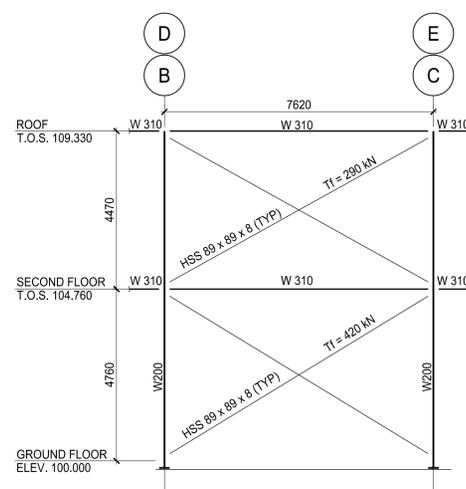




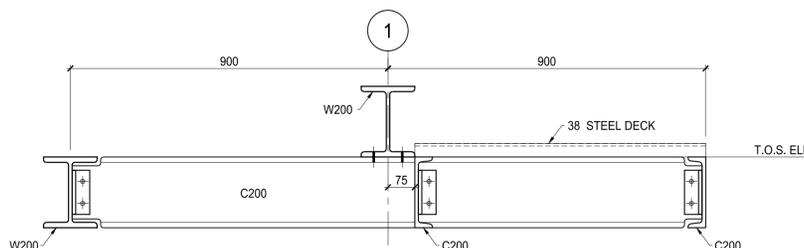
601 ELEVATION - GRID LINE 1
 S06 SCALE = 1:100



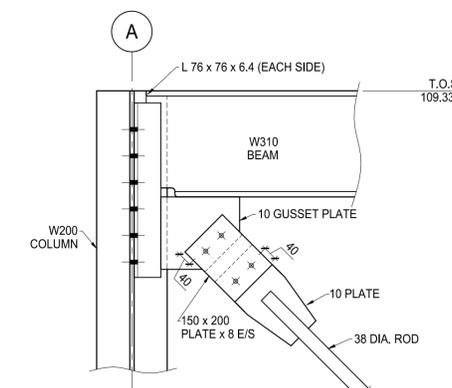
602 ELEVATION - GRID LINE C AND D
 S06 SCALE = 1:100



603 ELEVATION - GRID LINE 3
 S06 SCALE = 1:100



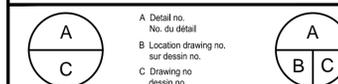
604 SECTION
 S06 SCALE = 1:10



605 DETAIL (SIMILAR AT EACH END)
 S06 SCALE = 1:10

No.	Date	Revision	By:	Pr:
1	AUG. -2016	ISSUED FOR TENDER	R.L.	
0	JULY 6,2016	PRELIMINARY	R.L.	

- Verify all dimensions and site conditions and be responsible for same.
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.



project projet

**BUILDING M-38
 FLEXIBLE RESEARCH FACILITY
 MONTREAL ROAD CAMPUS**

drawing dessin

**STRUCTURAL:
 WALL ELEVATIONS AND DETAILS**

designed R.L. comp'd date JUNE, 2016 date

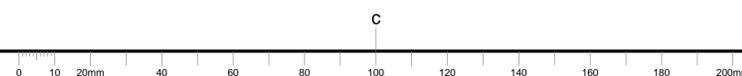
drawn M.P. dessin'd scale AS SHOWN echelle

checked R.L. vérifié sheet S06 of/de S07 feuille

approved approuvé W.O.no. D.T.no.

dwg.no. dessin no.

5049-S06





GENERAL NOTES:

CIVIL WORK:

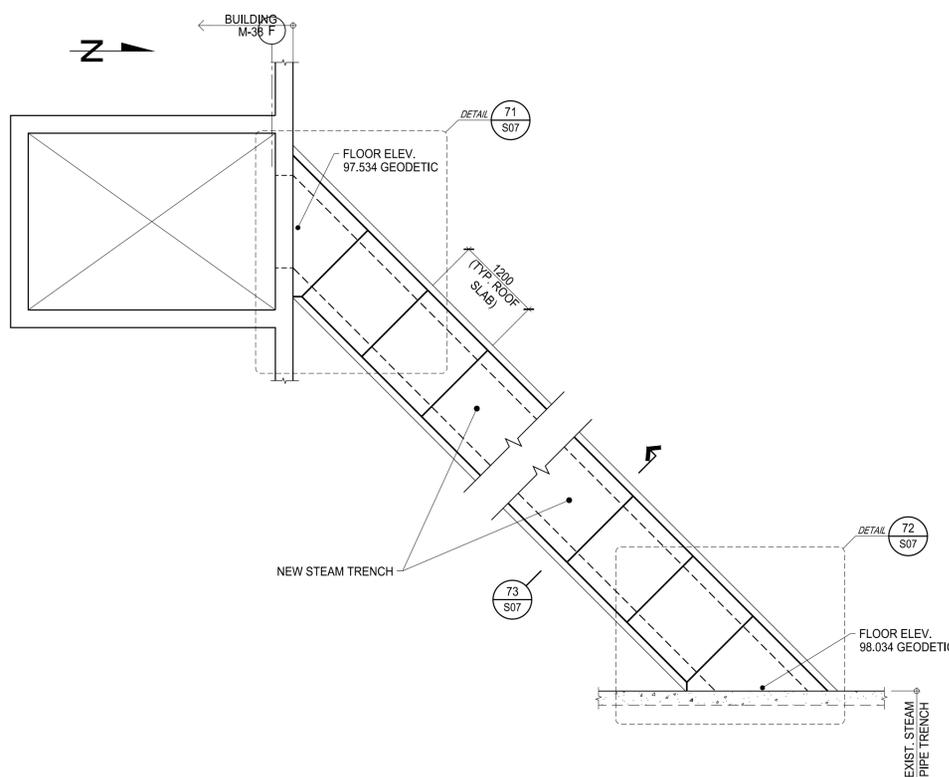
- EXCAVATE, AS REQUIRED, TO ELEVATIONS SHOWN ON MECHANICAL DRAWINGS.
- BACKFILL AGAINST CONCRETE BLOCK WALLS AND MINIMUM 75 mm ABOVE ROOF SLABS WITH SAND AND COMPACT TO 95% PROCTOR DRY DENSITY.
- THE REMAINDER OF THE BACKFILL SHALL BE 20 mm GRADED CRUSHED STONE COMPACTED TO 95% PROCTOR DRY DENSITY.
- AT ROADWAY, REINSTATE ASPHALT PAVEMENT.
- IN OTHER AREAS, PLACE MINIMUM OF 100 mm TOP SOIL AND GRASS SEED.

CONCRETE WORK:

- CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 35 MPa, WITH 6% ENTRAINED AIR.
- REINFORCING STEEL SHALL CONFORM TO CSA G30.18-09, GRADE 400.
- CONCRETE COVER TO REINFORCING STEEL SHALL BE AS FOLLOWS:
 - CONCRETE SLABS = 75 mm
 - PRECAST CONCRETE SLABS = 50 mm
- THE CONTRACTOR SHALL SUBMIT BAR LISTS AND PLACING DRAWINGS FOR THE REINFORCING STEEL.
- THE CONTRACTOR SHALL TAKE THREE CONCRETE COMPRESSION TEST CYLINDERS FOR EACH CONCRETE POUR. ONE SHALL BE TESTED AT 7 DAYS AND TWO AT 28 DAYS.
- THE CONCRETE FLOOR SLABS SHALL RECEIVE A WOOD FLOAT FINISH.
- THE PRECAST CONCRETE SLAB SUPPLIER SHALL SUBMIT SHOP DRAWINGS FOR CONCRETE ROOF SLABS.
- ALL CONCRETE WORK SHALL CONFORM TO CSA A23.1-04 AND CSA A23.2-04.
- NOTIFY THE ENGINEER BEFORE EACH CONCRETE POUR.

MEMBRANE:

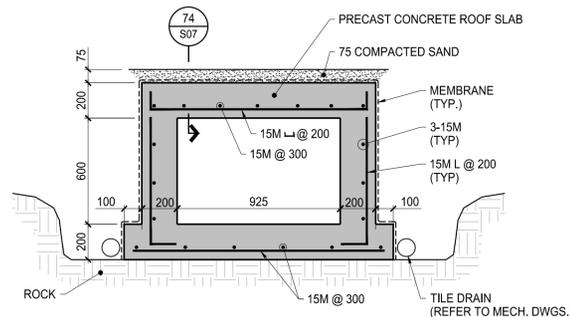
- THE MEMBRANE SHALL BE SUPREMA COLPHENE TORCH 'N' STICK, OR EQUIVALENT, AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- THE CONTRACTOR SHALL SUBMIT TECHNICAL LITERATURE FOR THE PROPOSED MEMBRANE.



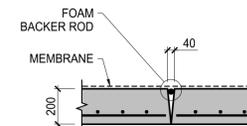
KEY PLAN OF STEAM TRENCH

SCALE = 1:50

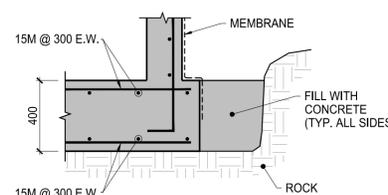
- FOR LOCATION AND ELEVATION, REFER TO CIVIL AND MECHANICAL DRAWINGS.
- FOR STEAM PIPE ANCHORAGES, REFER TO MECHANICAL DRAWINGS.



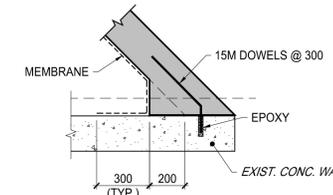
73 SECTION
 S07 SCALE = 1:20



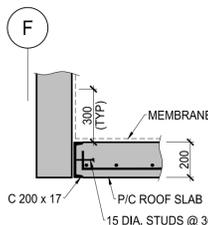
74 SECTION
 S07 SCALE = 1:20



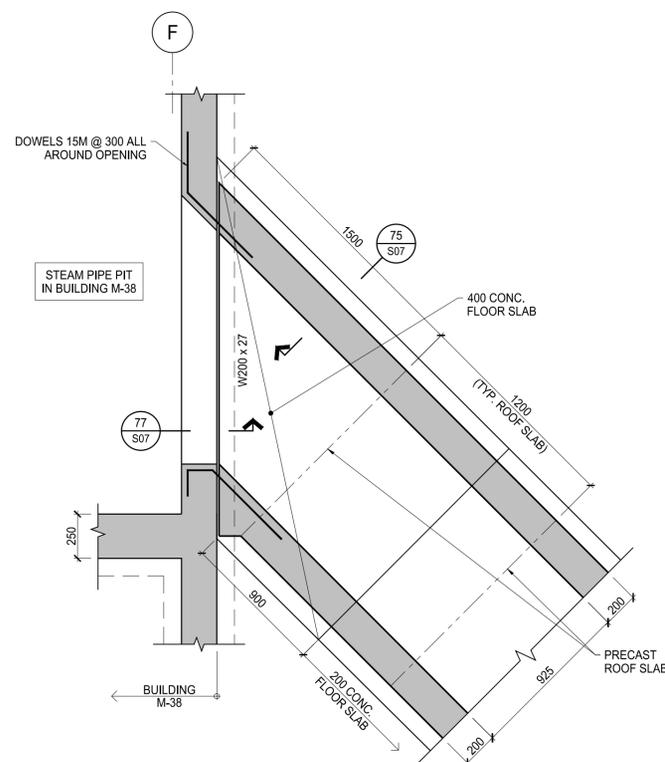
75 SECTION
 S07 SCALE = 1:20



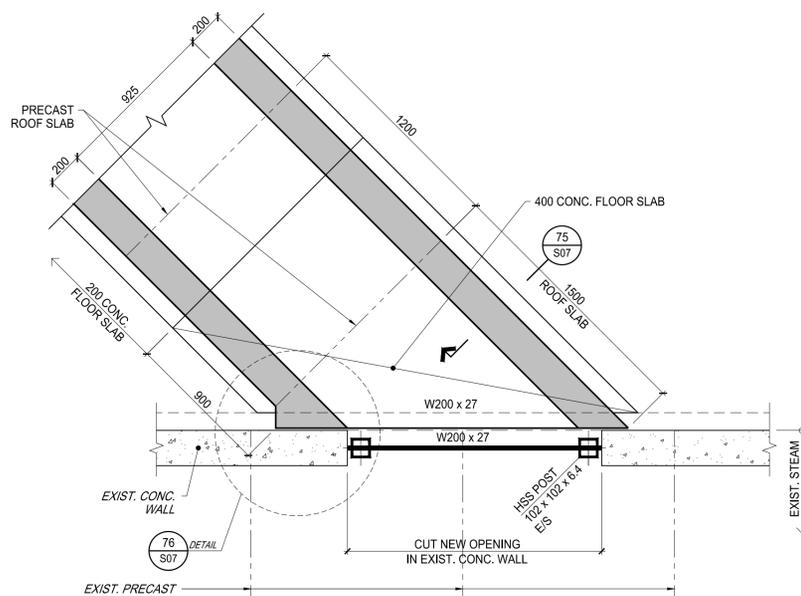
76 SECTION (PROVIDE SIMILAR DETAIL AT JUNCTION WITH BUILDING M-38)
 S07 SCALE = 1:20



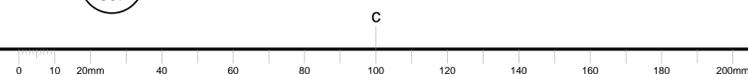
77 SECTION (DETAIL SIMILAR AT NORTH END OF TRENCH)
 S07 SCALE = 1:20



71 DETAIL
 S07 SCALE = 1:20



72 DETAIL
 S07 SCALE = 1:20



No.	Date	Revision	By:	Pr:
0	AUG - 2016	ISSUED FOR TENDER	R.L.	

- Verify all dimensions and site conditions and be responsible for same.
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.

A	A Detail no. No. du détail	A
C	B Location drawing no. sur dessin no.	B C
	C Drawing no. dessin no.	

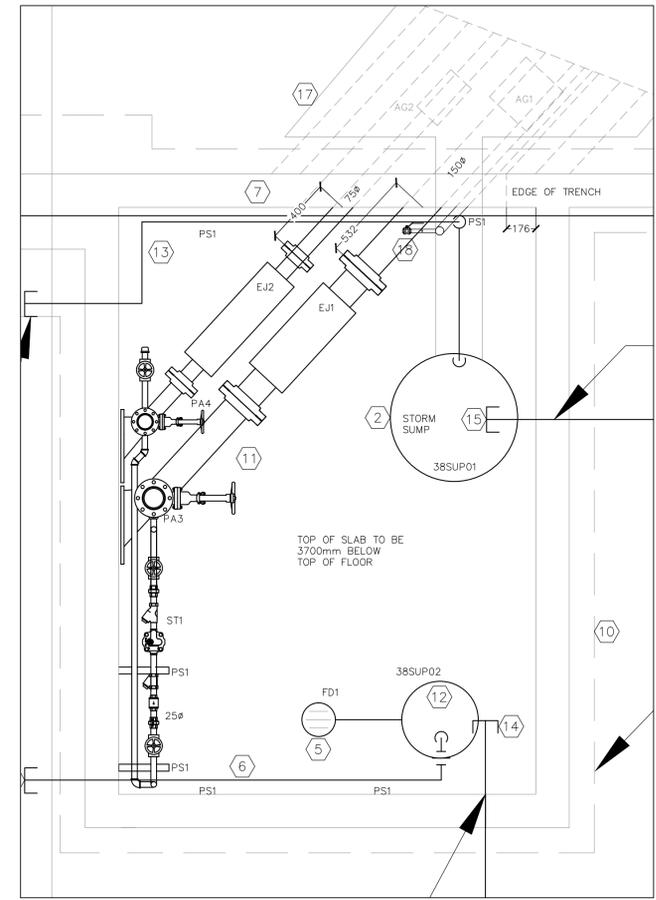
project / projet
BUILDING M-38
FLEXIBLE RESEARCH FACILITY
 MONTREAL ROAD CAMPUS

drawing / dessin
STRUCTURAL:
STEAM PIPE TRENCH PLAN AND DETAILS

designed / conçu	R.L.	date	JUNE, 2016	date
drawn / dessiné	M.P.	scale / échelle	AS SHOWN	échelle
checked / vérifié	R.L.	sheet / feuille	S07	of / de S07
approved / approuvé		W.O.no. / D.T.no.		

dwg. no. / dessin no.
5049-S07

- NOTES:
1. NEW SANITARY PIPE TO BE CAPPED FOR FUTURE USE.
 2. NEW STORM WATER SUMP:
 SIZE: 752x914mm, BASIN MATERIAL: POLY, 100# INLET HUB, OUTLET: 50#x2 AND 75# VENT C/W DUPLEX COVER AND PIPE SEALS. STANDARD OF ACCEPTANCE: MANUFACTURER: ZOELLER, MODEL: 31-0046, EXACT LOCATION TO BE COORDINATED ON SITE WITH NRC.
 3. DOMESTIC COLD WATER PIPING SHALL EXTEND UP TO 600mm ABOVE FINISHED FLOOR. PROVIDE THRUST BLOCK AT VERTICAL END OF PIPING. SEE CIVIL DRAWINGS FOR TRUSS BLOCK DETAIL.
 4. PROVIDE A NEW FLOOR DRAIN IN ELEVATOR PIT, PROVIDE A NEW 75# DRAIN PIPE FROM FLOOR DRAIN TO SUMP. PIPE SHALL EXTEND 200mm INTO SUMP (38SUP03). SEAL PIPE WITH A NEW LINK-SEAL (LS-316) AND WS STAINLESS STEEL WALL SLEEVE, EXACT SIZE OF LINK SEAL TO BE SIZED BY MANUFACTURER TO SUIT DRAIN PIPE. PROVIDE A NEW P-TRAP IN BASE OF SUMP.
 5. PROVIDE A NEW CONTINUOUS RUN OF 19# PEX TUBING (CROSS-LINKED POLYETHYLENE TO CSA B137.5) FROM FLOOR DRAIN TO 1 METER AFF IN PIT.
 6. NEW 50# VENT PIPING FROM SUMP TO BE CAPPED FOR FUTURE USE.
 7. NEW STEAM AND STEAM CONDENSATE PIPING ENTERING BUILDING. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION ON TRENCH.
 8. CONTRACTOR SHALL CONNECT TO DOMESTIC COLD WATER, STORM MAIN AND SANITARY MAIN AT APPROXIMATELY 1 METER FROM PERIMETER OF BUILDING. REFER TO CIVIL DRAWINGS FOR EXACT LOCATION AND CONNECTION INVERTS. CONTRACTOR SHALL PROVIDE A TRANSITION FITTING BETWEEN INTERIOR AND EXTERIOR PIPING.
 9. EXTEND 75# VENT PIPING TO THIS LOCATION AND CAP FOR FUTURE USE. INVERT AT CAP 99.950.
 10. NEW 102mm# PERFORATED PVC WEAVING TILE C/W FABRIC SILT SOCK. PROVIDE 450mm WIDEX300mm HIGH COARSE OF 19mm CLEAN STONE AROUND PERIMETER OF FOOTING. NEW TILE SHALL RUN CONTINUALLY AROUND FULL PERIMETER OF BUILDING AND STEAM PIT AND DRAIN INTO SUMP (38SUP01) LOCATED IN PIT.
 11. PROVIDE A NEW ISOLATION VALVE ON NEW STEAM AND CONDENSATE PIPE, TO BE C/W BLANK FLANGE ON DISCHARGE OF VALVE.
 12. NEW SANITARY SUMP:
 SIZE: 457x762mm, BASIN MATERIAL: POLY, 75# INLET GROMMET HUB, OUTLET: 50# AND 50# VENT C/W COVER AND PIPE SEAL HUBS. STANDARD OF ACCEPTANCE: MANUFACTURER: ZOELLER, MODEL: 31-0091, EXACT LOCATION TO BE COORDINATED ON SITE WITH NRC. CONNECT NEW FLOOR DRAIN PIPING TO BASIN, PROVIDE REDUCER AS REQUIRED.
 13. NEW 75# VENT PIPING FROM SUMP TO BE CAPPED FOR FUTURE USE.
 14. NEW 100# SANITARY PIPING TO EXTEND 200mm INTO SUMP AND CAPPED FOR FUTURE USE.
 15. NEW 100# STORM WATER PIPING TO EXTEND 200mm INTO SUMP AND CAPPED FOR FUTURE USE.
 16. NEW BURIED STORM WATER PIPING SHALL EXTEND UP TO 300mm AFF AND REDUCE TO 100mm# STORM WATER PIPING SHALL CONNECT TO INTERIOR STORM WATER PIPING WITH A CLASS 150 FLANGE CONNECTION. PROVIDE A TRUSS BLOCK ON TURNING ELBOW ON 150# STORM WATER PIPING. SEE CIVIL DRAWINGS FOR TRUSS BLOCK DETAIL.
 17. NEW 102mm# PERFORATED PVC WEAVING TILE C/W FABRIC SILT SOCK. PROVIDE 450mm WIDEX300mm HIGH COARSE OF 19mm CLEAN STONE ALONG FULL LENGTH OF EACH SIDE OF TRENCH. PIPE NEW WEAVING TILE ON EACH SIDE OF TRENCH INTO SUMP (38SUP01).
 18. OFFSET 50# AIR PIPING UP TO 1.5 METERS ABOVE BASE OF SUMP, PROVIDE ISOLATION VALVE ON VERTICAL SECTION OF PIPING AND CAP. SEE PIPING SCHEMATIC.
 19. EXTEND NEW SANITARY PIPING TO 600mm ABOVE FINISHED FLOOR AND CAP FOR FUTURE USE.
 20. EXTEND 100# VENT PIPING TO THIS LOCATION AND CAP FOR FUTURE USE.



2 PIPING LAYOUT IN PIT
 M01

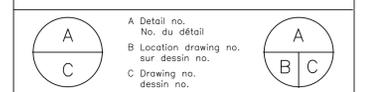
GENERAL PROJECT NOTES:

1. CONTRACTOR TO VERIFY ALL DIMENSIONS AND CLEARANCES ON SITE PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES AND/OR OMISSIONS TO DEPARTMENTAL REPRESENTATIVE.
2. CONTRACTORS MUST VISIT THE SITE AND FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK PRIOR TO PROJECT COMMENCEMENT.
3. ALL TRADES TO COORDINATE WORK ON SITE, WITH APPROVAL OF DEPARTMENTAL REPRESENTATIVE TO AVOID ANY CONFLICTS AND/OR INTERFERENCE.
4. ANY AND ALL REQUIRED SHUTDOWNS SHALL BE COORDINATED WITH DEPARTMENTAL REPRESENTATIVE.
5. INSTALLATION OF ALL SYSTEMS SHALL BE IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS.
6. CONTRACTOR TO BE RESPONSIBLE FOR REINSTATEMENT AND REPAIR OF ANY DAMAGED CAUSED INSIDE AND OUTSIDE AREA OF WORK.
7. PROVIDE MILL TEST REPORT FOR ALL PIPING USED.
8. THE CONTRACTOR IS RESPONSIBLE TO ORGANIZE AND ARRANGE FOR ALL LICENSE AND WELDING PROCEDURES AND WELDERS QUALIFICATION VERIFICATION BY TSSA. THIS SHALL ALSO INCLUDE INSPECTION COSTS ASSOCIATED WITH TSSA.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING OF ALL LABOR AND MATERIAL NECESSARY TO BLANK OFF SECTION OF PIPING BEING TESTED AND REMOVE ITEMS WHICH CANNOT SUSTAIN TEST PRESSURE.
10. CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH ALL TESTING AND INSPECTIONS WHICH SHALL INCLUDE BUT NOT BE LIMITED TO RADIOGRAPHY TESTING. RADIOGRAPHY REPORT SHALL BE COMPLETED BY INDIVIDUAL CERTIFIED TO CAN-CSSB-48.9712 OR EQUIVALENT.
11. CONTRACTOR SHALL PROVIDE RECORDS OF THE ALL PRESSURE TESTS, DATA ON INSTRUMENTATION USED AND CALIBRATION INFORMATION OF EQUIPMENT USED. ALL PRESSURE TEST RESULTS SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: DATE/TIME OF TEST, PIPE SECTION BEING TESTED, TESTING FLUID, STARTING TEST PRESSURE, ENDING TEST PRESSURE, DURATION OF TEST, FULL RANGE OF PRESSURE GAUGE, OUTSIDE TEMPERATURE, INDIVIDUAL/COMPANY COMPLETING TEST, INDEPENDENT INDIVIDUAL/COMPANY WITNESSING TEST, TSSA INSPECTOR NAME PRESENT DURING TEST IF DIFFERENT THEN ABOVE. PRESSURE SCALE ON ANY TESTING GAUGE SHALL NOT EXCEED 1.2 TIMES TEST PRESSURE.
12. THIS DRAWING SET WAS PREPARED FOR TENDER PURPOSES AND IS INTENDED TO CONVEY GENERAL INSTALLATION REQUIREMENTS OF NEW PIPING. CONTRACTOR IS RESPONSIBLE TO VERIFY SITE CONDITIONS AND MEASUREMENTS AT TIME OF BIDDING. SUBMITTAL OF TENDER SHALL MEAN THE ACCEPTANCE OF SITE CONDITIONS. AS SUCH CONTRACTOR WILL BE RESPONSIBLE TO PROVIDE ANY OFFSETS OR ADJUSTMENTS INCLUDING EXTRA FITTINGS AND/OR OTHER MATERIAL AND LABOR WHICH MAY BE REQUIRED TO SUIT SITE CONDITION AND MEASUREMENTS.
13. PROVIDE SHOP DRAWINGS FOR REVIEW BY NRC. SHOP DRAWINGS SHALL BE REVIEWED BY NRC BEFORE MATERIAL AND/OR EQUIPMENT IS PURCHASED BY THE CONTRACTOR.
14. CONTRACTOR SHALL SCAN EXISTING CONCRETE. SCAN RESULTS SHALL BE SUBMITTED TO NRC FOR REVIEW PRIOR TO CORING HOLES FOR PIPING.
15. CONTRACTOR CERTIFICATION AND QUALIFICATIONS REQUIREMENTS FOR STEAM, STEAM CONDENSATE AND COMPRESSED AIR PIPING:
 1. CERTIFICATE OF AUTHORIZATION FROM TSSA (PV 09397) TO UNDERTAKE WORK ON PROCESS PIPING B31.1. NO WORK ON PIPING SHALL START UNTIL NRC HAS CONFIRMED THAT CONTRACTOR HAS A VALID TSSA CERTIFICATE.
 2. SUBMIT WELDING PROCEDURE FOR ALL WELDING TYPES.
 3. COPY OF A VALID WELDING QUALIFICATION RECORD FOR ALL EMPLOYEES THAT COMPLETE WELDING.
 4. TSSA REGISTRATION NUMBER TO BE PROVIDED BY NRC.
 5. CONTRACTOR SHALL ARRANGE FOR A SITE KICKOFF MEETING BETWEEN THE CONTRACTOR, TSSA AND NRC BEFORE ANY WORK ON THE PIPING SYSTEM SHALL START.
 6. REGISTRATION OF THE PIPING SYSTEM WITH TSSA SHALL BE BY NRC. ALL TSSA INSPECTIONS/TESTING RELATED SCHEDULING/COSTS SHALL BE BY THE CONTRACTOR.

0	29 08 2016	ISSUE FOR TENDER	R.G.C
No.	Date	Revision	By:

Date Printed: _____ Date Imprimée: _____

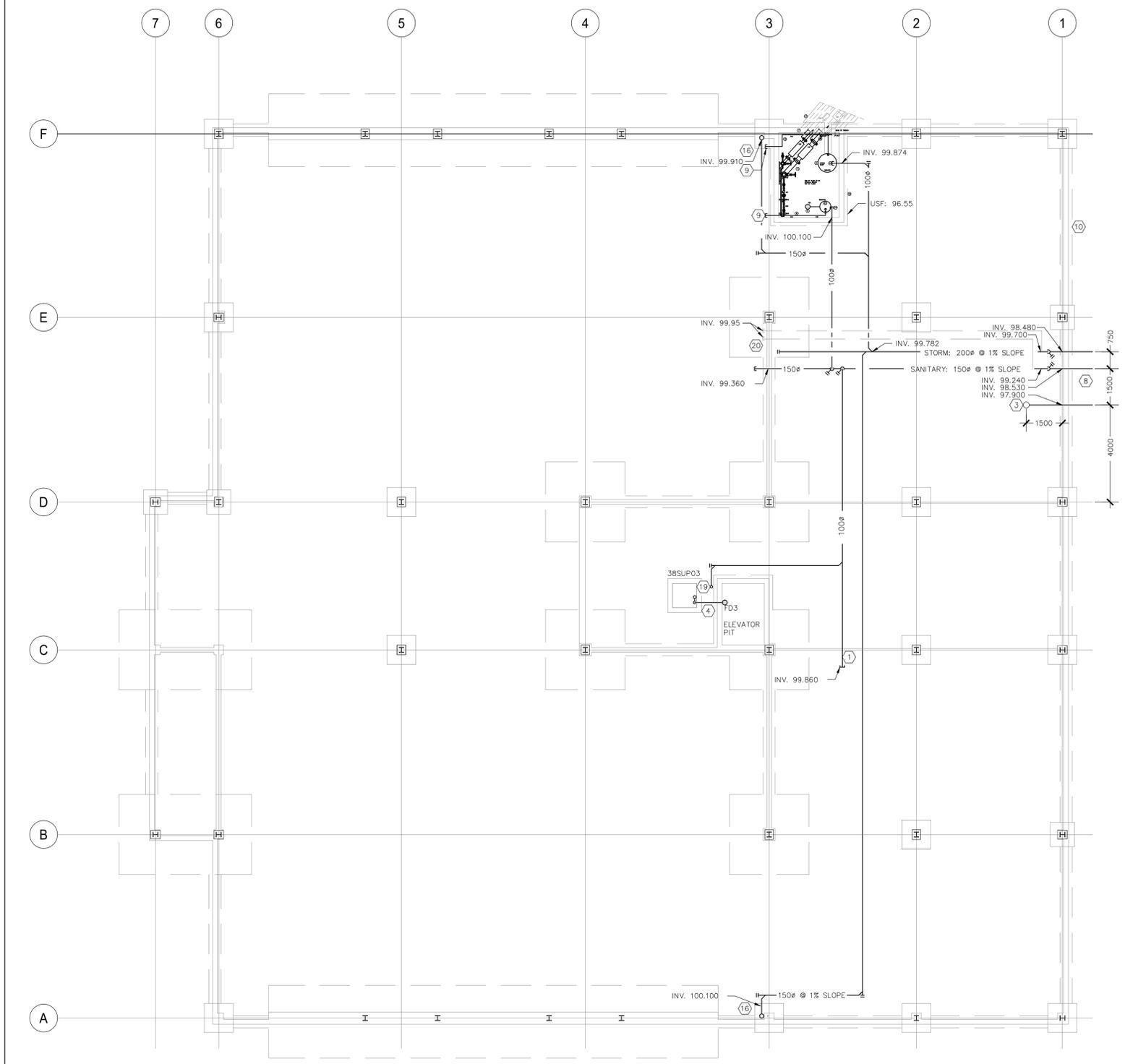
- o Verify all dimensions and site conditions and be responsible for same
- o Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité



project: **BUILDING M-38 FLEXIBLE RESEARCH FACILITY**
 1200 MONTREAL ROAD CAMPUS OTTAWA, ON

drawing: **GROUND FLOOR SANITARY, STEAM AND DOMESTIC COLD WATER LAYOUT**

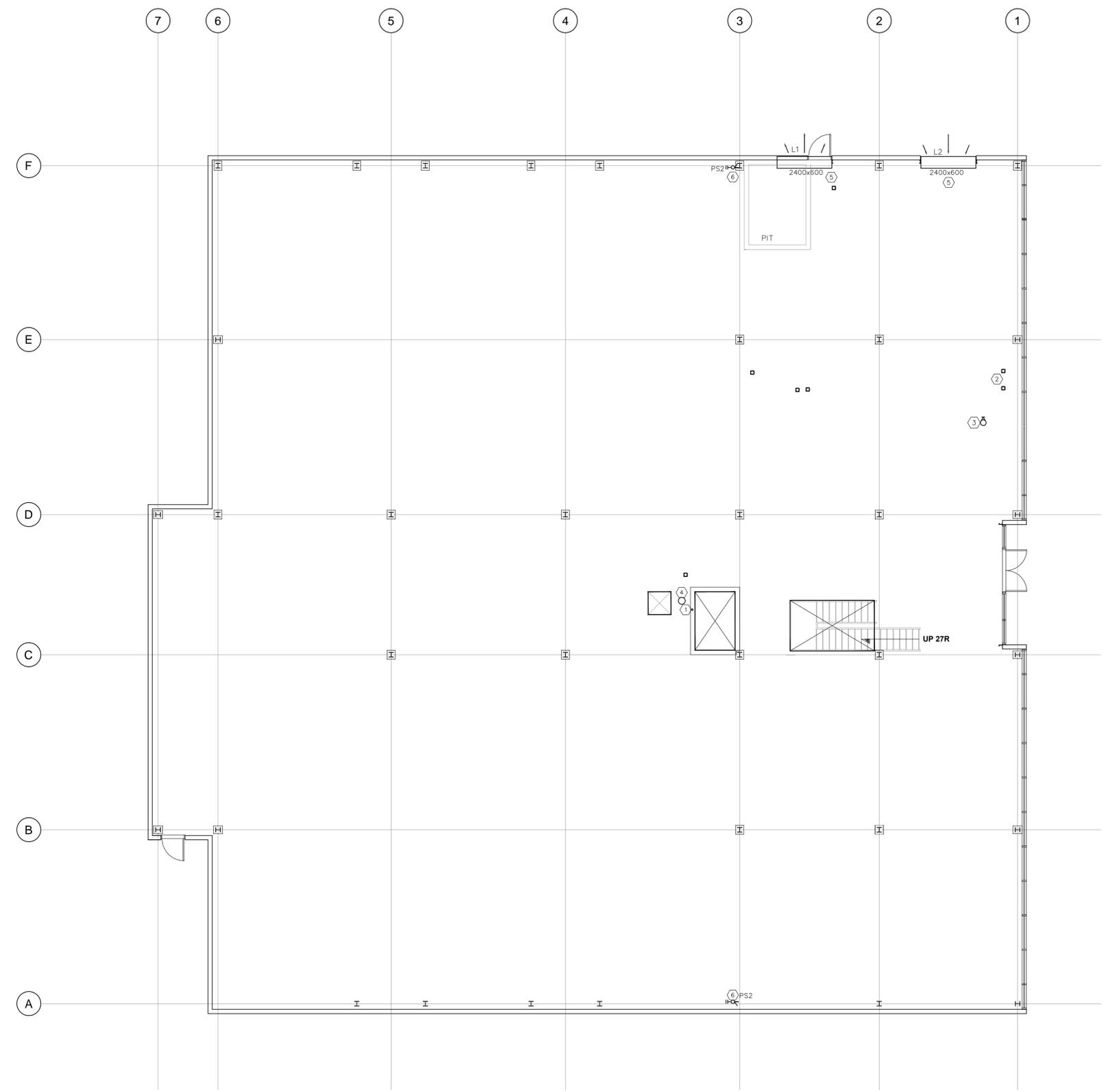
designed	RGC	conçu	date	AUG 29, 2016	date
drawn	RGC	dessiné	scale	AS NOTED	échelle
checked	BV	vérifié	sheet	1 of/de 14	feuille
approved	BV	approuvé	W.O.no.		D.T.no.
dwg.no.	5044-M01				



ALL PIPING INVERTS ARE RELATIVE TO GEODETIC ELEVATIONS.

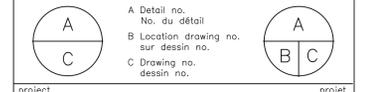


- NOTES:
1. PROVIDE 100# OPENING IN CEILING FOR FUTURE VENT.
 2. TYPICAL NEW SANITARY AND STORM WATER CLEANOUTS.
 3. DOMESTIC COLD WATER PIPING SHALL EXTEND UP TO 600mm AFF AND BE C/W A CLASS 150 SUPERVISED ISOLATION BUTTERFLY VALVE AND CAP. STANDARD OF ACCEPTANCE FOR FOR ISOLATION VALVE: MANUFACTURER: HENRY PRATT BUTTERFLY VALVES. MODEL 62FH-MD12S-Y1850.
 4. 300mm# OPENING FOR FUTURE EXHAUST DUCTWORK IN CEILING OF GROUND FLOOR.
 5. CONTRACTOR SHALL CAP NEW DUCTWORK 400mm INTO BUILDING.
 6. DROP IN VERTICAL SECTION OF STEEL PIPING.



0	29 08 2016	ISSUE FOR TENDER	R.G.C
No.	Date	Revision	By: Pdr:

- Date Printed: _____ Date imprimée: _____
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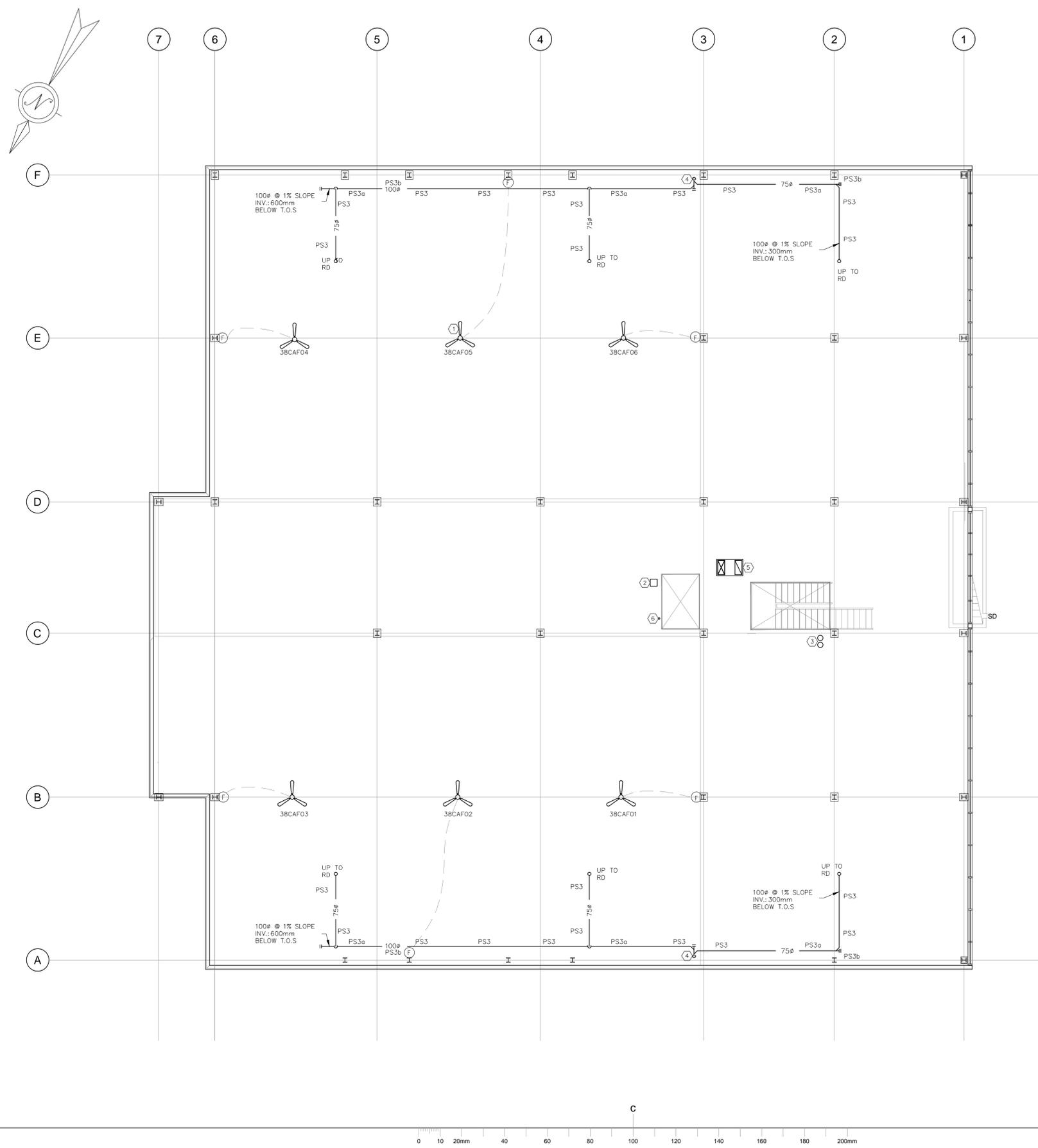


project
BUILDING M-38
FLEXIBLE RESEARCH FACILITY
 1200 MONTREAL ROAD CAMPUS
 OTTAWA, ON

drawing
GROUND FLOOR
VENTILATION, SANITARY, STORM AND
DOMESTIC COLD WATER LAYOUT

designed	RGC	conçu	date	AUG 29, 2016	date
drawn	RGC	dessiné	scale	AS NOTED	échelle
checked	BV	vérifié	sheet	2 of/de 14	feuille
approved	BV	approuvé	W.O.no.		D.T.no.

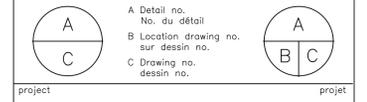
dwg.no. **5044-M02** dessin no.



- NOTES:
- TYPICAL OF 6 NEW CEILING FANS (38CAFO1 TO 06). STANDARD OF ACCEPTANCE: MANUFACTURER: CANARM. MODEL: CP60 HPWP AND DR36CP6HP DROP ROD MOTOR: 120V, HIGH AMPS: 0.84, C/W 914.4 mm DROP ROD TO BE SUPPLIED AND INSTALLED BY MECHANICAL AND WIRED BY ELECTRICAL, C/W FRMCS CONTROLLER AND MOUNTING KIT. CONTROLLER TO BE MOUNTED ON WALL BY ELECTRICAL, EXACT LOCATION TO BE COORDINATED ON SITE WITH NRC. SEE FAN SUPPORT DETAIL (FS1).
 - NEW 325x325mm OPENING IN ROOF FOR EXHAUST DUCTWORK, SEE FAN DETAIL.
 - TWO NEW 300ø SUPPLY AND EXHAUST OPENINGS IN FLOOR.
 - NEW STORM WATER PIPING TO DROP DOWN AT THIS LOCATION. C/W WITH PS3 PIPE SUPPORT.
 - 1225x800mm OPENING IN ROOFING FOR FUTURE SUPPLY AND EXHAUST DUCTWORK TO/FROM THE NEW 38HRU01.
 - NEW 75ø VENT PIPE TO EXTEND 400 mm BELOW ROOF DECK FOR FUTURE USE. PROVIDE PIPE CLAMP ON EACH SIDE OF STEEL DECK TO SECURE VENT PIPE.

0	29 08 2016	ISSUE FOR TENDER	R.G.C.
No.	Date	Revision	By: / Par:

- Date Printed / Date imprimée
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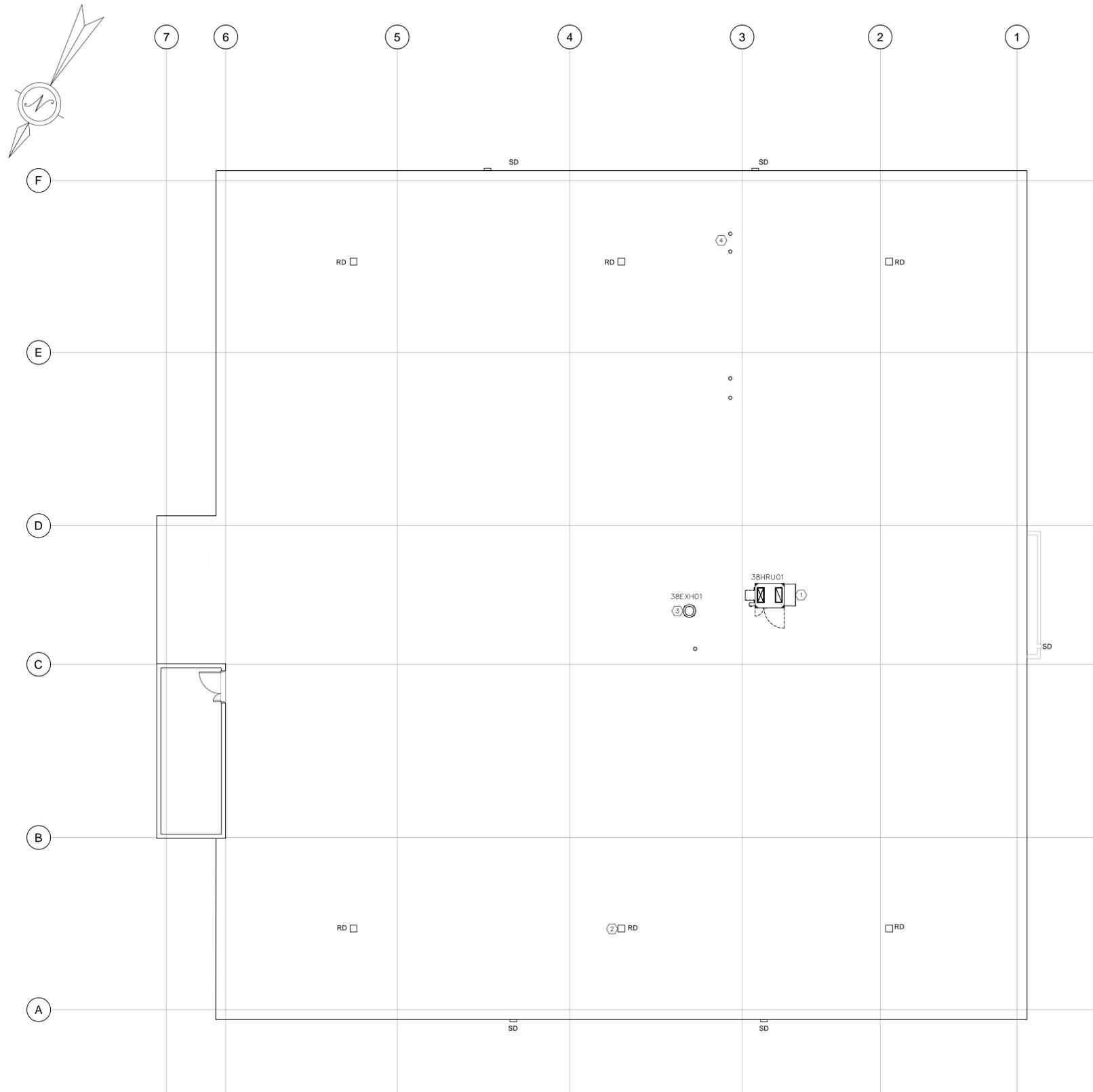


project / projet
BUILDING M-38
FLEXIBLE RESEARCH FACILITY
1200 MONTREAL ROAD CAMPUS
OTTAWA, ON

drawing / dessin
SECOND FLOOR
CIRCULATING FANS AND
STORM WATER PIPING LAYOUT

designed / conçu	RGC	date	AUG 29, 2016
drawn / dessiné	RGC	scale	AS NOTED
checked / vérifié	BV	sheet	3 of/de 14 feuille
approved / approuvé	BV	W.O.no.	D.T.no.
dwg.no.	5044-M03	dessin no.	

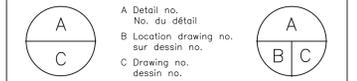
- NOTES:
- PROVIDE A NEW ENERGY RECOVERY VENTILATOR. STANDARD OF ACCEPTANCE : MANUFACTURER: RENEW AIRE, MODEL: HE2XRT, MOTOR: 240V/1Ø, 2x1.5 H.P., C/W 1.12x0.96x0.36 METER FACTORY MANUFACTURER CURB, EXACT LOCATION TO BE COORDINATED ON SITE.
 - TYPICAL OF 6 NEW ROOF DRAINS. EXACT LOCATION TO BE COORDINATED ON SITE.
 - SEE EXHAUST FAN (38EXH01) DETAIL.
 - FIVE NEW ROOF VENTS UP THROUGH ROOF. EXACT LOCATION TO BE COORDINATED ON SITE WITH NRC. CONTRACTOR SHALL PROVIDE TEMPORARY CAP OVER VENTS. PIPE SHALL EXTEND 400mm INTO BUILDING. PROVIDE PIPE CLAMP ON EACH SIDE OF STEEL DECK TO SECURE VENT PIPE.



No.	Date	Revision	By:
0	29 08 2016	ISSUE FOR TENDER	R.G.C

Date Printed: _____ Date imprimée: _____

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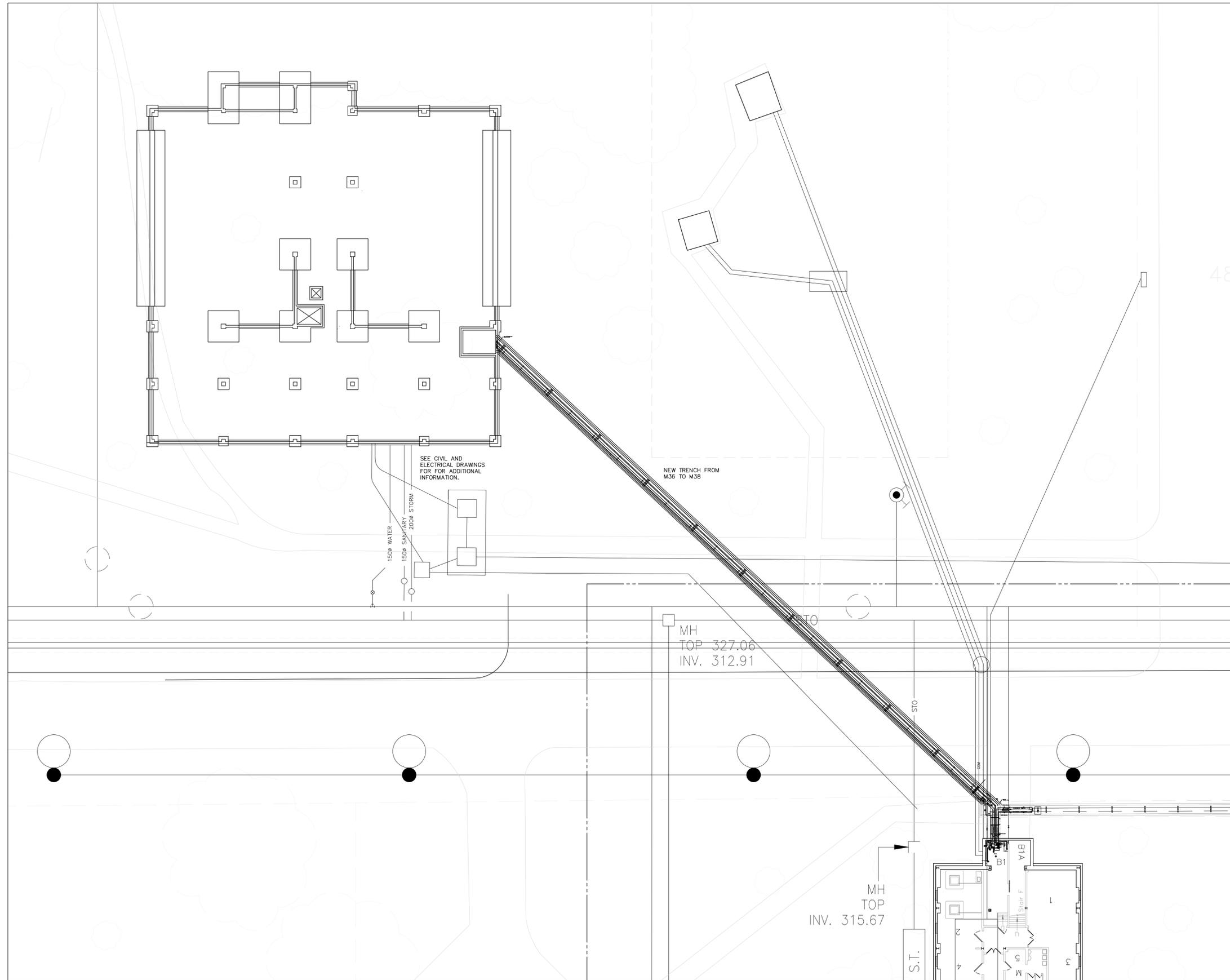


project
BUILDING M-38
FLEXIBLE RESEARCH FACILITY
 1200 MONTREAL ROAD CAMPUS
 OTTAWA, ON

drawing
ROOF LAYOUT

designed	conçu	date	date
RGC		AUG 29, 2016	
drawn	dessiné	scale	échelle
RGC		AS NOTED	
checked	vérifié	sheet	feuille
BV		4 of/ de 14	
approved	approuvé	W.O.no.	D.T.no.
BV			

dwg.no. **5044-M04** dessin no.



No.	Date	Revision	By:	Pgr.
0	29 08 2016	ISSUE FOR TENDER	R.G.C	

Date Printed: Date imprimée

- Verify all dimensions and site conditions and be responsible for same
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A	A Detail no. No. du détail	A
C	B Location drawing no. sur dessin no.	B
	C Drawing no. dessin no.	C

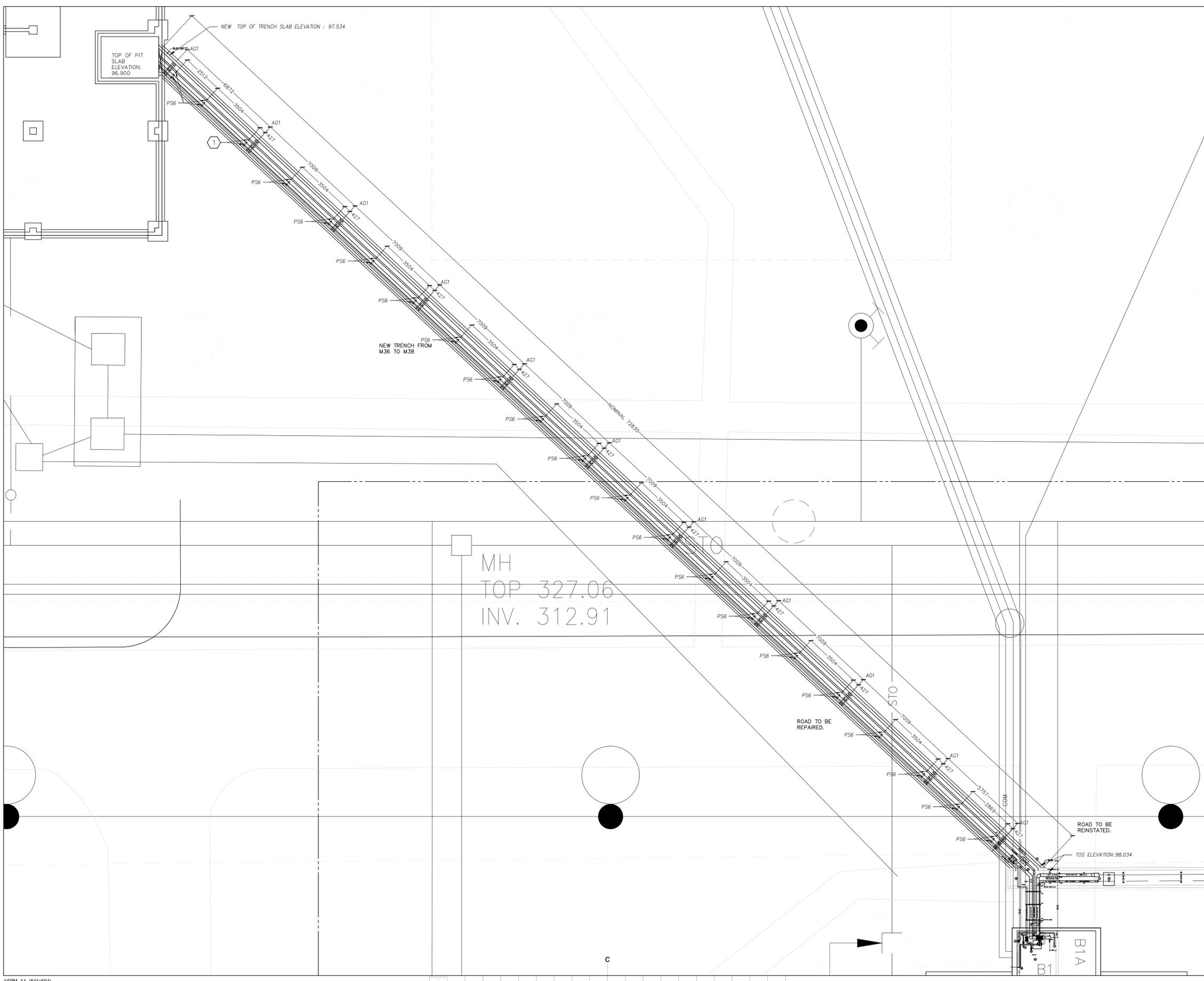
project
BUILDING M-38
FLEXIBLE RESEARCH FACILITY
 1200 MONTREAL ROAD CAMPUS
 OTTAWA, ON

drawing
TRENCH ROUTING FROM M36 TO M38

designed	RGC	conçu	date	AUG 29, 2016	date
drawn	RGC	dessiné	scale	1:200	échelle
checked	BV	vérifié	sheet	5 of/ de 14	feuille
approved	BV	approuvé	W.O.no.		D.T.no.

dwg.no. 5044-M05 dessin no.

NOTES:
 1. TYPICAL OF 21 PIPE SUPPORTS (P56) FOR STEAM AND STEAM CONDENSATE PIPING LOCATED IN NEW TRENCH AT LOCATIONS INDICATED.



No.	Date	Revision	By:	For:
0	29 08 2016	ISSUE FOR TENDER	R.G.C	

Date Printed: _____ Date imprimée: _____
 • Verify all dimensions and site conditions and be responsible for same
 • Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité

A	A Detail no. No. du détail	A
C	B Location drawing no. sur dessin no.	B
	C Drawing no. dessin no.	C

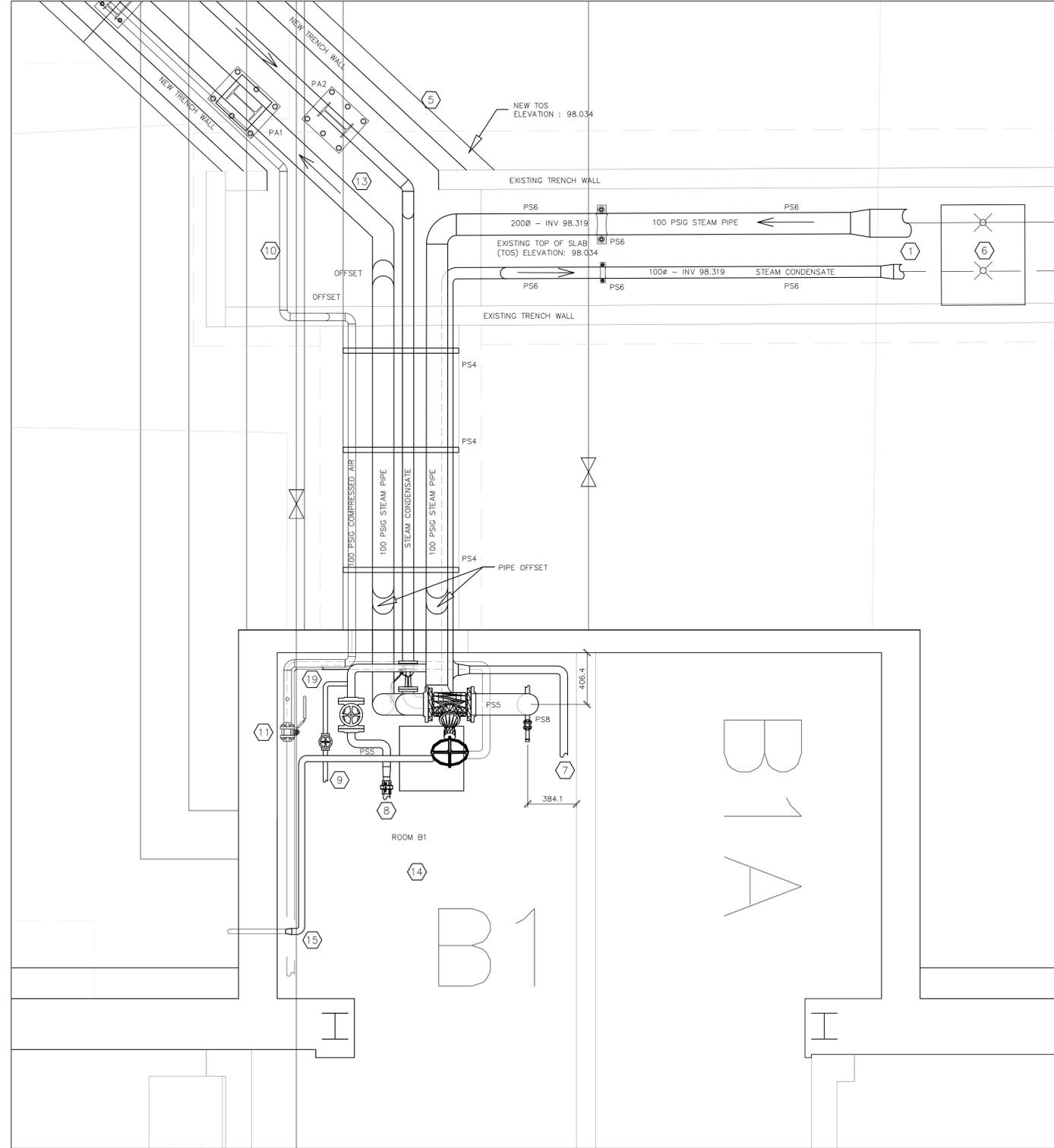
project: **BUILDING M-38**
FLEXIBLE RESEARCH FACILITY
 1200 MONTREAL ROAD CAMPUS
 OTTAWA, ON

drawing: **TRENCH AND PIPING ROUTING FROM M36 TO M38**

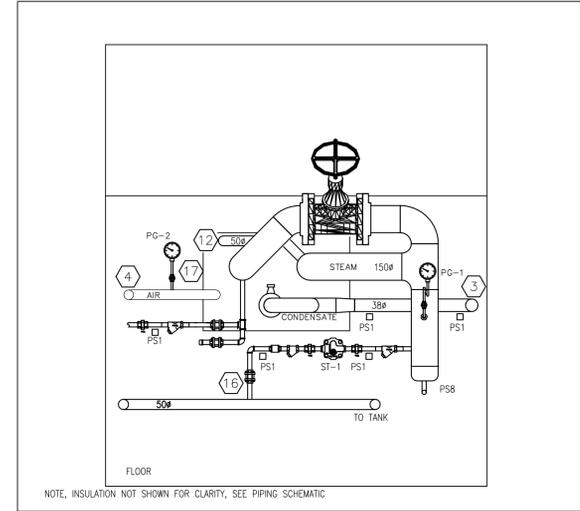
designed	RGC	conçu	date	AUG 29, 2016	date
drawn	RGC	dessiné	scale		échelle
checked	BV	vérifié	sheet	6 of/ de 14	feuille
approved	BV	approuvé	W.O.no.		D.T.no.

dwg.no. **5044-M06** dessin no.

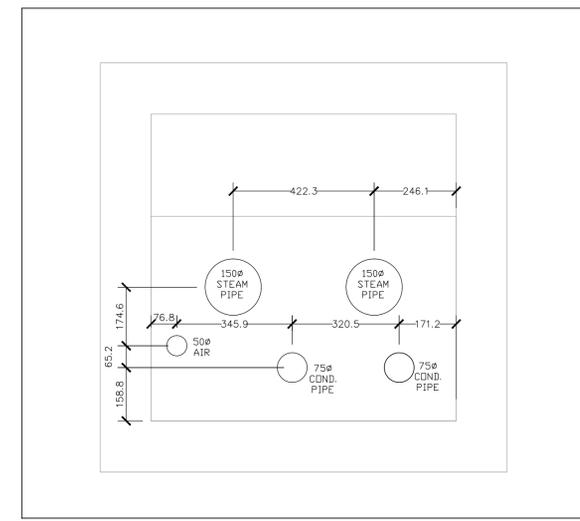
- NOTES:
- CONNECT NEW STEAM AND STEAM CONDENSATE PIPING TO EXISTING PIPING IN THIS APPROXIMATE LOCATION.
 - NEW STEAM TRAP ASSEMBLY AND CONDENSATE RETURN PIPING, SEE PIPING SCHEMATIC, EXACT ROUTING TO BE COORDINATED ON SITE WITH NRC.
 - CONNECT NEW PIPING TO DISCHARGE OF EXISTING PUMP.
 - NEW COMPRESSED AIR PIPING TO RUN ALONG EXTERIOR WALL AND BE CAPPED FOR FUTURE USE.
 - NEW TRENCH FROM M36 TO M38, SEE STRUCTURAL FOR ADDITIONAL INFORMATION.
 - EXISTING PIPE ANCHORS TO REMAIN.
 - NEW PIPING TO EXTEND TO DISCHARGE OF PUMP.
 - NEW PIPING TO CONNECT TO INLET OF EXISTING STEAM CONTROL VALVE.
 - CONNECT NEW PIPING TO EXISTING BYPASS PIPE.
 - NEW 50Ø COMPRESSED AIR PIPING FROM M36 TO M38.
 - NEW COMPRESSED AIR PIPING TO BE CAPPED FOR FUTURE USE.
 - NEW STEAM PIPING TO EXISTING STEAM CONTROL VALVE.
 - CUT OPENING IN EXISTING WALL AT THIS APPROXIMATE LOCATIONS, SEE STRUCTURAL DRAWINGS.
 - DUE TO COMPLEXITY, CONFINED SPACE ISSUES AND RESTRICTED ACCESS THE CONTRACTOR SHALL ALLOW FOR EXTRA COORDINATION WITH NRC IN THE TRENCH AND ROOM B1 OF M36.
 - CONNECT NEW PIPE TO EXISTING VENT PIPE AT THIS APPROXIMATE LOCATION.
 - NEW CONDENSATE PIPE SHALL CONNECT TO EXISTING 50Ø STEAM CONDENSATE PIPING RUNNING ALONG PERIMETER OF WALL, TYPICAL OF 2.
 - NOMINAL 914.4x609mm EXISTING OPENING FROM EXISTING TRENCH.



1 PIPING LAYOUT IN TRENCH AND IN ROOM B1 IN BUILDING M36
 M07



2 SIMPLIFIED ELEVATION VIEW OF PIPING IN ROOM B1
 M07

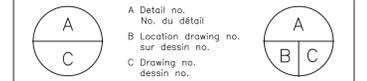


3 PIPING ENTERING BASEMENT OF M36
 M07

No.	Date	Revision	By
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- Verify all dimensions and site conditions and be responsible for same
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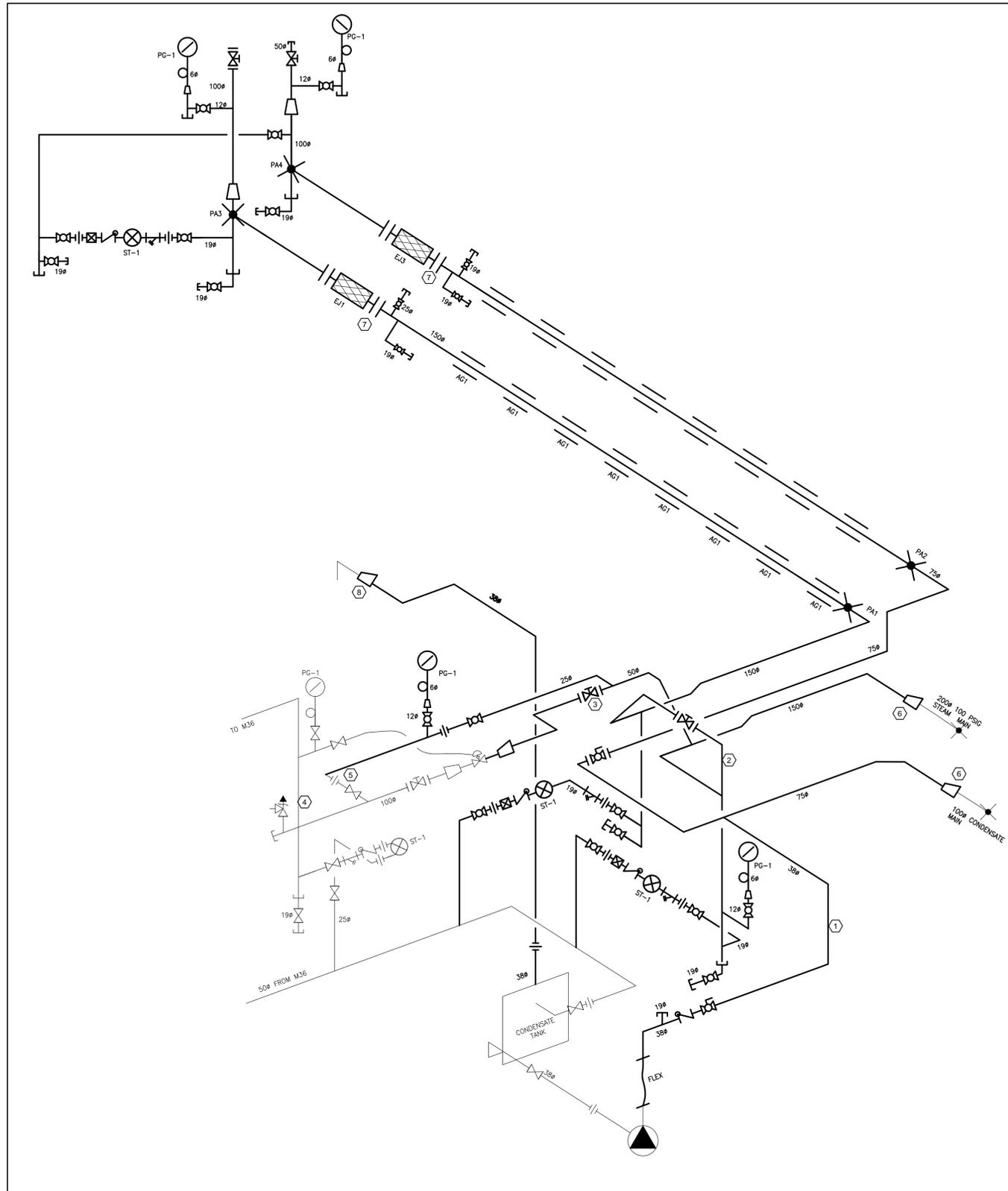


project: **BUILDING M-38 FLEXIBLE RESEARCH FACILITY**
 1200 MONTREAL ROAD CAMPUS OTTAWA, ON

drawing: **MECHANICAL PIPING LAYOUT**

designed	conçu	date	date
RGC		AUG 29, 2016	
drawn	dessiné	scale	échelle
RGC		AS NOTED	
checked	vérifié	sheet	feuille
BV		7 of/de 14	
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BV			

dwg.no. **5044-M07** dessin no.

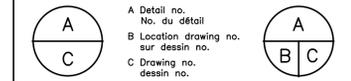


- NOTES:
1. NEW INSULATED STEAM CONDENSATE PIPING.
 2. NEW INSULATED STEAM PIPING.
 3. NEW FLANGED VALVE, EXACT ORIENTATION OF VALVE TO BE COORDINATED ON SITE WITH NRC (TYPICAL).
 4. EXISTING PIPING TO REMAIN.
 5. CONNECT NEW STEAM CONDENSATE PIPING TO EXISTING BYPASS PIPE.
 6. CONNECT NEW PIPING TO EXISTING PIPING WITH AN ECCENTRIC REDUCER.
 7. SPECIAL REQUIREMENTS FOR INSTALLATION OF EJ1 AND EJ2. CONTRACTOR SHALL PROVIDE THE FOLLOWING TEMPORARY EQUIPMENT/MATERIAL:
 1. PROVIDE A BLIND FLANGE ON INLET FLANGE LOCATED IN PIT.
 2. PROVIDE TEMPORARY STEAM TRAP ASSEMBLY (ST1) ON 1/2" DRAIN PIPE. CONTRACTOR SHALL SUPPLY 100 PSIG STEAM INTO PIPING FOR 24 HOUR TO ALLOW THE PIPING TO HEAT/EXPAND. ONCE PIPING HAS EXPANDED THE CHANGE IN PIPING LENGTH SHALL BE MEASURED BY NRC. NRC SHALL THEN PROVIDE THE CONTRACTOR WITH THE LENGTH THAT THE EXPANSION JOINT (EJ1 AND EJ2) SHALL BE PRE-COMPRESSED PRIOR TO INSTALLING EJ1 AND EJ2.
 8. CONNECT NEW CONDENSATE VENT PIPING TO EXISTING VENT PIPE.

MECHANICAL PIPING LEGEND	
SYMBOL	DESCRIPTION
	GATE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	GLOBE VALVE
	GENERAL VALVE
	CHECK VALVE
	VERTICAL ISOLATION VALVE
	2-WAY CONTROL VALVE (DDC)
	SAFETY RELIEF VALVE
	PRESSURE REGULATING VALVE
	PRESSURE CONTROL VALVE
	PIPE UP
	PIPE DOWN
	STEAM TRAP
	STEAM MOISTURE SEPARATOR
	STRAINER
	EXPANSION JOINT
	ALIGNMENT GUIDE
	PIPE ANCHOR
	FLEXIBLE HOSE
	REDUCER - CONCENTRIC
	REDUCER - ECCENTRIC
	UNION
	DIELECTRIC COUPLING
	PIPE CAP
	HYDRONIC (FIN-TUBE) HEATING UNIT
	CONTROL LINE
	PRESSURE GAUGE WITH COCK
	PRESSURE GAUGE WITH PIGTAIL
	FLOW DIRECTION ARROW
	CONTINUATION BREAK
	PRESSURE SENSOR
	DRAWING NOTES
	THERMOMETER (DDC)
	FLOW METER
	STEAM DIFFUSER

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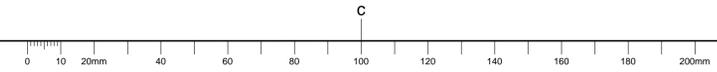
project
BUILDING M-38
FLEXIBLE RESEARCH FACILITY
 1200 MONTREAL ROAD CAMPUS
 OTTAWA, ON

drawing
PIPING SCHEMATIC AND MECHANICAL LEGEND

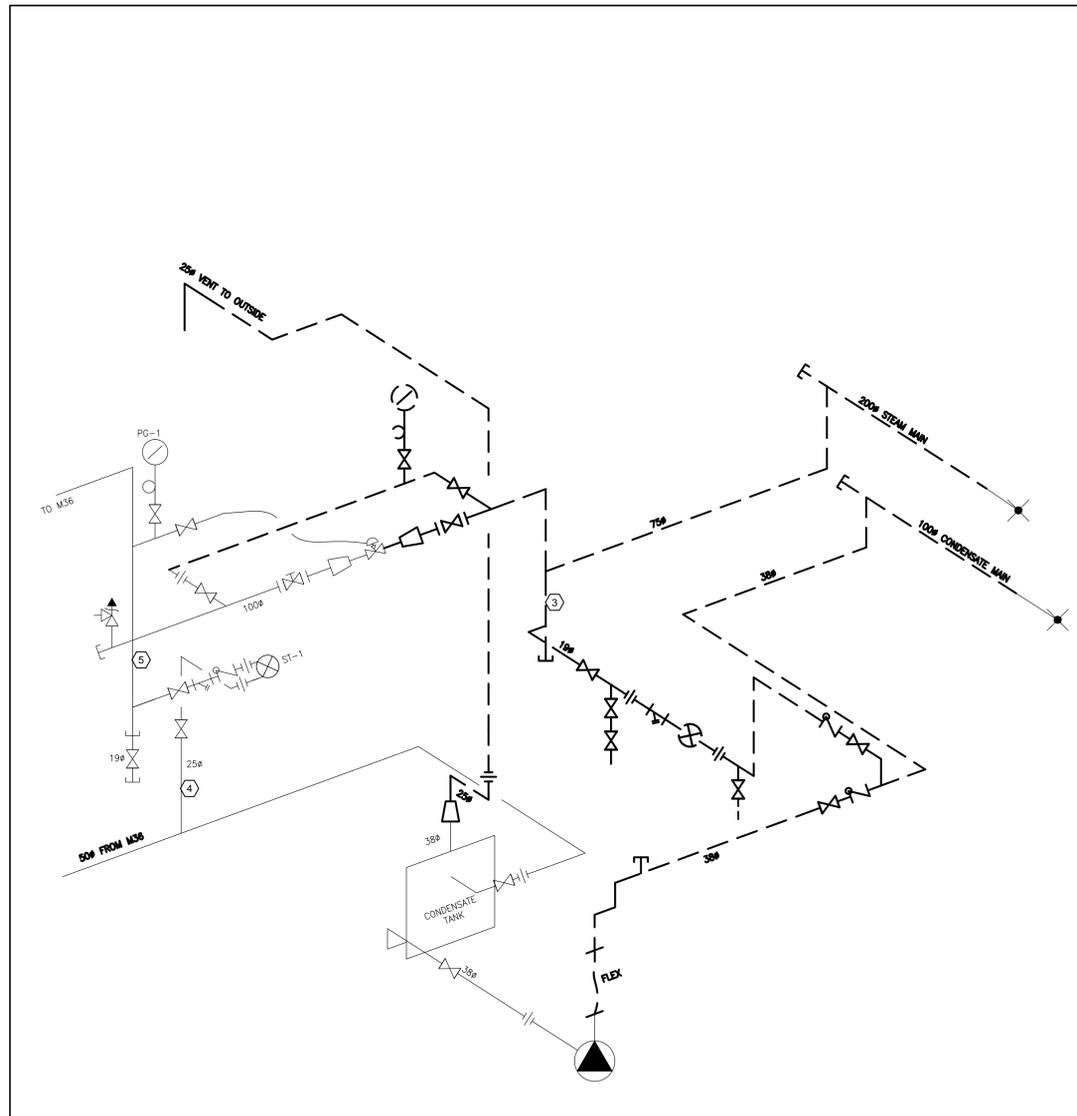
designed	RGC	conçu	date	AUG 29, 2016	date
drawn	RGC	dessiné	scale	AS NOTED	échelle
checked	BV	vérifié	sheet	8 of/de 14	feuille
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dwg.no. **5044-M08** dessin no.

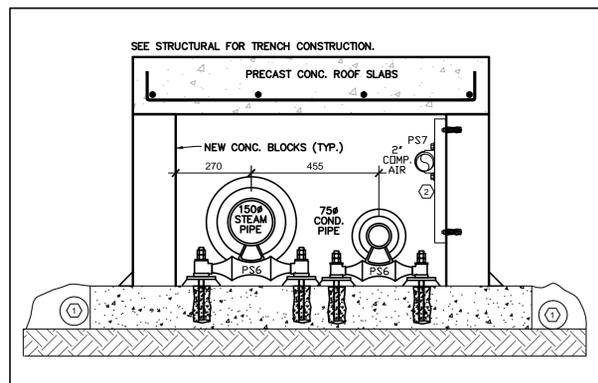
1 STEAM AND STEAM CONDENSATE PIPING SCHEMATIC
 M08



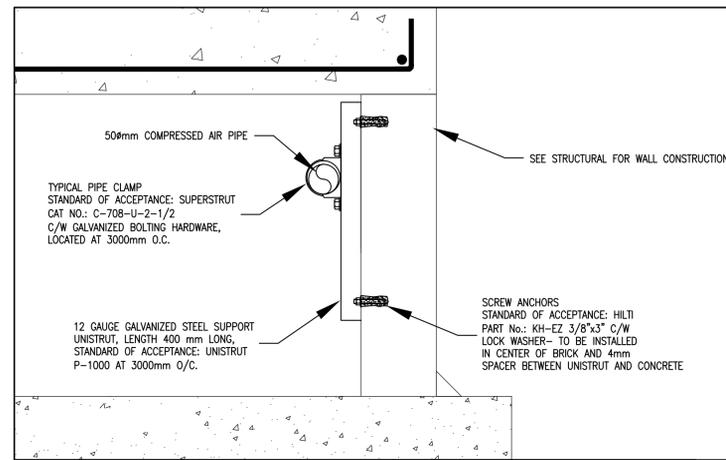
- NOTES:
- NEW 102mmØ PERFORATED PVC WEeping TILE C/W FABRIC SILT SOCK. PROVIDE 450mm WIDEX300mm HIGH COARSE OF 19mm CLEAN STONE ALONG FULL LENGTH OF EACH SIDE OF TRENCH. PIPE NEW WEeping TILE ON EACH SIDE OF TRENCH INTO SUMP (SSSUPO1).
 - PROVIDE A NEW 50Ø COMPRESSED AIR PIPE FROM M36 TO M38. ONCE PRESSURE TEST IS COMPLETED CONTRACTOR SHALL PRESSURIZE PIPE AT M36 TO 50 PSIG WITH 99.99% PURE NITROGEN AND VENT PIPING AT M38 DOWN TO 5 PSIG, PRESSURIZE/VENT CYCLE SHALL BE REPEATED 3 TIMES TO REMOVE AIR IN PIPE. ONCE PIPING HAS BEEN PURGED OF AIR CONTRACTOR SHALL PRESSURIZE PIPING TO 14 PSIG AND CAP ALL VALVES FOR FUTURE USE.
 - EXISTING INSULATED STEAM AND STEAM CONDENSATE PIPING LOCATED IN EXISTING TUNNEL AND IN ROOM B1 OF M36 TO BE REMOVED.
 - EXISTING STEAM CONDENSATE PIPING TO REMAIN.
 - EXISTING STEAM PIPING TO REMAIN.



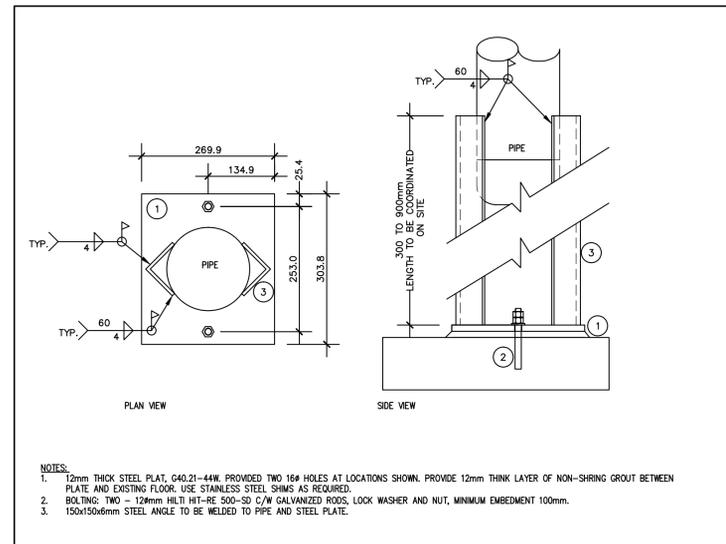
1 STEAM AND STEAM CONDENSATE DEMOLITION SCHEMATIC
 M09



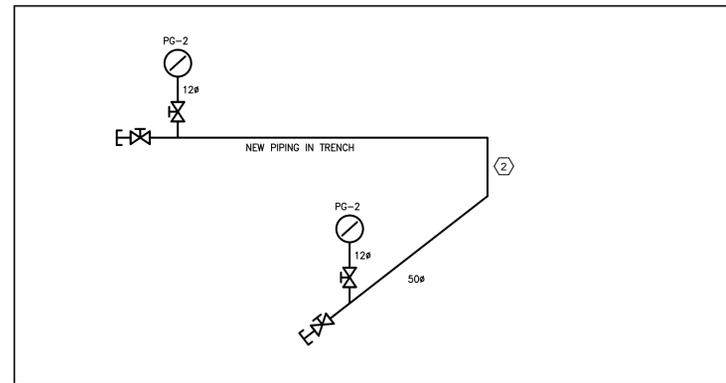
2 TYPICAL BURIED TRENCH CROSS SECTION
 M09



3 MECHANICAL PIPE SUPPORT - PS7
 M09



4 MECHANICAL PIPE SUPPORT - PS8
 M09

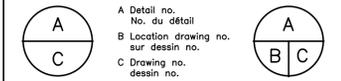


5 COMPRESSED AIR PIPING SCHEMATIC
 M09

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project: BUILDING M-38 FLEXIBLE RESEARCH FACILITY
 1200 MONTREAL ROAD CAMPUS OTTAWA, ON

drawing: PIPING SCHEMATICS AND DETAILS

designed	conçu	date	date
RGC		AUG 29, 2016	
drawn	dessiné	scale	échelle
RGC		AS NOTED	
checked	vérifié	sheet	feuille
BV		9 of/de 14	
approved	approuvé	W.O.no.	D.T.no.
BV			

dwg.no. 5044-M09 / dessin no.

SUPPLY FAN SCHEDULE											
No.	LOCATION	DRIVE TYPE	FAN TYPE	CFM	S.P. IN WG.	FAN RPM	SONES	VOLTAGE	AMPS	MOTOR (HP)	REMARKS
38EXH01	ROOF	DIRECT	IN-LINE	700	0.3	1550	18.4	115	--	0.25	STANDARD OF ACCEPTANCE: GREENHECK MODEL: G-095-VG (VERY GREEN FAN MOTOR) WITH 0 TO 10VDC CONTROL WIRE INPUT
NOTE: 1. TO BE C/W FACTORY MANUFACTURER CURB, 0-10 VOLT CONTROL WIRING, GRAVITY BACK DRAFT DAMPER, AND TEMPERATURE CONTROLLER. EXACT LOCATION TO BE COORDINATED ON SITE. 2. ALTERNATE/S MANUFACTURER: PENNBARRY											

FLOOR DRAINS

STANDARD OF ACCEPTANCE MANUFACTURER : JAY R. SMITH

REF	MODEL No.	FIXTURE DESCRIPTION
FD1	2010C-19#	FINISHED AREA FLOOR DRAIN WITH CAST IRON BODY, REVERSIBLE CLAMPING COLLAR, ADJUSTABLE STRAINER ASSEMBLY AND ROUND, TRAP PRIMER CONNECTION, 3 NPS NO-HUB CONNECTION.
FD2	2005Y-19#	FINISHED AREA FLOOR DRAIN WITH CAST IRON BODY, REVERSIBLE CLAMPING COLLAR, ADJUSTABLE STRAINER ASSEMBLY AND ROUND, TRAP PRIMER CONNECTION, 3 NPS NO-HUB CONNECTION.
FD3	1510T	75mmØ GALVANIZED SCUPPER DRAIN, C/W GRATE.
FFD1	1.30H	UNFINISHED AREA FUNNEL FLOOR DRAIN WITH CAST IRON BODY, REVERSIBLE CLAMPING COLLAR, WEEPHOLES, ADJUSTABLE STRAINER ASSEMBLY, ROUND MEDIUM DUTY GRATE AND OVAL FUNNEL.

EXTERNAL LOUVERS

STANDARD OF ACCEPTANCE: MANUFACTURER: VENTEX

REF	L1	L2
MODEL	2430	2430
SIZE	100(t)x2400(w)x600(h)	100(t)x2400(w)x600(h)
FREE AREA	56.6%	56.6%
AIRFLOW	L/s	1650
FACE VELOCITY	m/s	2.1
PRESSURE DROP	Pa	9
FINISH	ALUMINIUM	ALUMINIUM
REMARKS	CONTINUOUS LINE CONSTRUCTION	

EXPANSION JOINTS

STANDARD OF ACCEPTANCE: MANUFACTURER: HYSPAN

EJ1 6 NPS, CLASS 300 RF FLANGE COMPRESSION: 8" (202.2mm) EXTENSION: 2" (50.8mm) HYSPAN-TYPE 3501-360-8 DESIGN PRESSURE: 300 PSIG TO BE C/W CRN#	EJ2 3 NPS, CLASS 150 RF FLANGE COMPRESSION: 8" (202.2mm) EXTENSION: 2" (50.8mm) HYSPAN-TYPE 3501-140-8 DESIGN PRESSURE: 150 PSIG TO BE C/W CRN#
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ROOF DRAINS

STANDARD OF ACCEPTANCE MANUFACTURER : JAY R. SMITH

REF	MODEL No.	FIXTURE DESCRIPTION
RD	10B3Y-CAN E-R-C-G	"RAINTROL" FLOW CONTROL ROOF DRAIN - 1 WEIR, 387mmØ, GALVANIZED CAST IRON BODY WITH NO-HUB CONNECTION, SOLID EXTENSION, SUMP RECEIVER, UNDER DECK CLAMP, FLASHING CLAMP/RAINTROL FLOW CONTROL WEIR COMBINATION AND SECURED 280mm CAST IRON DOME (SOLID EXTENSION TO SUIT ROOF CONSTRUCTION). MAXIMUM FLOW AT 6" WATER: 34.5 USGPM/WEIR. DRAIN TO BE C/W A NO-HUB COUPLING - STANDARD OF ACCEPTANCE: MANUFACTURER: FERROCO INC. TYPE - HEAVY DUCT NO-HUB COUPLING PART - SIZE TO SUIT.

HIGH PRESSURE STEAM AND CONDENSATE PIPING REQUIREMENTS

DESIGN PRESSURE (PSIG)	125
DESIGN TEMPERATURE (°F)	-20 TO 353
OPERATING PRESSURE (PSIG)	100
PIPING SCHEDULE	STEAM-SCH 40
TEST PRESSURE (PSIG)	1.5xDESIGN-HYDROSTATIC/1.2xDESIGN PNEUMATIC WATER OR AIR
TESTING FLUID	WATER OR AIR
TEST DURATION (MIN.)	90
RADIOGRAPHY	100% IN TRENCH AND 10% OUTSIDE TRENCH
SYSTEM DESIGN STANDARD:	ASME B31.1
PIPE CONNECTION	<= 50# NPS - THREADED/WELDED/FLANGED > 50# - WELDED/FLANGED
DESIGN CODE	B31.1
FITTINGS	B16.5
FLANGES	B16.5-A105
NUTS	B18.2.2-A194-Gr 7
BOLTS	B18.2.1-A193-Gr B7
GASKETS	B16.20/B16.21
THREADS	B16.5/B16.11
PIPING MATERIAL	A106/A53 - Gr B - SEAMLESS
VALVES	B16.34
FLANGE CLASS	STEAM 300, STEAM CONDENSATE 150

NOTE: REGISTRATION OF SYSTEM WITH TSSA TO BE BY NRC.

COMPRESSED AIR CARBON STEEL PIPE

DESIGN PRESSURE (PSIG)	125
DESIGN TEMPERATURE (°F)	-20 TO 160
OPERATING PRESSURE (PSIG)	100
PIPING SCHEDULE	SCH 40.
TEST PRESSURE (PSIG)	DESIGN PNEUMATIC
TESTING FLUID	99% PURE NITROGEN
TEST DURATION (HOURS)	48
RADIOGRAPHY	NA
SYSTEM DESIGN STANDARD:	ASME B31.1
PIPE CONNECTION	<= 50# NPS - THREADED/WELDED/FLANGED > 50# - WELDED/FLANGED
DESIGN CODE	B31.1
FITTINGS	B16.5
FLANGES	B16.5-A105
NUTS	B18.2.2-A194-Gr 7
BOLTS	B18.2.1-A193-Gr B7
GASKETS	B16.20/B16.21
THREADS	B16.5/B16.11
PIPING MATERIAL	A106/A53 - Gr B - SEAMLESS
VALVES	B16.34
FLANGE CLASS	150

NOTE: REGISTRATION OF SYSTEM WITH TSSA TO BE BY NRC.

PRESSURE GAUGE (PG-#)

TAG	PG-1	PG-2
WORKING FLUID	STEAM/CONDENSATE	AIR
MAXIMUM SYSTEM PRESSURE (kPa)	860	860
MAXIMUM SYSTEM TEMPERATURE (°C)	150	150
POINTER	ANODIZED BLACK	ANODIZED BLACK
MINIMUM SYSTEM TEMPERATURE (°C)	70	70
CONNECTION (NPT)	1/4	1/4
CONNECTION TYPE	S.T	S.T
BOURDON TUBE	S.T	S.T
ACCURACY (FULL SCALE)	1%	1%
CANADIAN REGISTRATION NUMBER	YES	YES
CASE MATERIAL	S.T	S.T
CONNECTION	LOWER/S.T	LOWER/S.T
DIAL SIZE	100mm	100mm
GLYCERIN FILLED	NO	NO
STANDARD - ASME	B40.100	B40.100
INTERNAL MATERIAL	S.T	S.T
GAUGE DUAL SCALES: PSIG (kPa)	0-160	0-160
STANDARD OF ACCEPTANCE MANUFACTURERS	WKA, WEISS, WINTERS (PFF)	
NOTES:	- ALL GAUGES C/W WHITE FACE WITH BLACK FIGURES, ALUMINIUM POINTER, ISOLATION VALVE. - PROVIDE PIGTAIL SIPHON AND SAFETY GLASS FOR STEAM PIPING. - STAINLESS STEEL = S.T, THERMO PLASTIC - T.P	

STEAM TRAP (ST) SCHEDULE:

TAG	ST-1
TYPE	BUCKET
MAX. OPERATING PRESSURE (PSIG)	100
MAX. ALLOWABLE TEMPERATURE (°F)	450
MAX. ALLOWABLE PRESSURE (PSIG)	250
SIZE (IN)	3/4
CONNECTION	F-NPT
CANADIAN REGISTRATION NUMBER	REQUIRED
BODY MATERIAL	CAST IRON
INTERNAL MATERIAL	STAINLESS STEEL
CAPACITY (LB/HR)	1700 @ 60 PSIG DIFF.
DRIFICE (INCH)	13/64
STANDARD OF ACCEPTANCE MANUFACTURER	SPIRAX SARCO
MODEL	B2-125
NOTES:	ST-1 TO BE C/W INTEGRAL STRAINER AND BIMETAL AIR VENT

DRAINAGE WASTE AND VENT PIPING BELOW GRADE

WORKING FLUID	SANITARY, STORM AND VENT
DESIGN TEMPERATURE: F (°C)	41 TO 120 (5 TO 48.8)
DESIGN PRESSURE: PSIG (kPa)	15 (103)
PIPING SCHEDULE	SCH 40
TEST PRESSURE	1.5xDESIGN-HYDROSTATIC
TESTING FLUID	WATER
TEST DURATION (HOURS.)	24
PIPE SIZES	40 TO 150mm
PIPE CONNECTION	SOLVENT WELDED
DESIGN CODE	CSA B181.2 AND CAN/ULC S102.2
SOLVENT CEMENT	ASTM D2564
FLAME SPREAD RATING	PIPE 10/FITTINGS 15
MATERIAL STANDARD OF ACCEPTANCE: MANUFACTURER: IPEX INC. PRODUCT: SYSTEM 15	

GENERAL NOTES:
 1. ALL PIPING TO BE INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS AND NATION BUILDING CODE.
 2. BEDDING AND COVER MATERIAL: MINIMUM THICKNESS (BEDDING, COVER, AND SIDES): 150mm MATERIAL: OPSS GRANULAR "A" COMPACTED TO 95% STANDARD PROCTOR DENSITY (SPMDD)
 3. PRESSURE TEST SHALL BE COMPLETED AND INSPECTED BY NRC PRIOR TO BACKFILLING PIPING.

DOMESTIC WATER PIPING BELOW GRADE

WORKING FLUID	DOMESTIC WATER
DESIGN TEMPERATURE: F (°C)	40 TO 140 (5 TO 60)
DESIGN PRESSURE: PSIG (kPa)	125 (861)
PIPING SCHEDULE	SCH 80
TEST PRESSURE	1.5xDESIGN-HYDROSTATIC
TESTING FLUID	WATER
TEST DURATION (MINUTES)	90
PIPE SIZES	40 TO 150mm
PIPE CONNECTION	SOLVENT WELDED
DESIGN CODE	CSA, ASTM F441, ULC-102.2
SOLVENT CEMENT	ASTM D2564
FLAME SPREAD RATING	PIPE 10/FITTINGS 15
FITTINGS	ASTM D2467
MATERIAL STANDARD OF ACCEPTANCE: MANUFACTURER: IPEX INC. PRODUCT: XIRTEC 140 (PVC)	

GENERAL NOTES:
 1. ALL PIPING TO BE INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS AND NATION BUILDING CODE.
 2. BEDDING AND COVER MATERIAL: MINIMUM THICKNESS (BEDDING, COVER, AND SIDES): 150mm MATERIAL: OPSS GRANULAR "A" COMPACTED TO 95% STANDARD PROCTOR DENSITY (SPMDD)
 3. PRESSURE TEST SHALL BE COMPLETED AND INSPECTED BY NRC PRIOR TO BACKFILLING PIPING.

STORM WATER PIPING ABOVE GRADE

WORKING FLUID/GAS	STORM WATER
DESIGN TEMPERATURE: F (°C)	-20 TO 120 (-28.8 TO 48.8)
DESIGN PRESSURE: PSIG (kPa)	50 (344)
PIPING SCHEDULE	SCH 40
TEST PRESSURE	1.5xDESIGN-HYDROSTATIC
TESTING FLUID	WATER
TEST DURATION (MIN.)	90
RADIOGRAPHY	NA
SYSTEM DESIGN STANDARD:	ASME B31.1
PIPE CONNECTION	VICTAULIC GROOVED - RIGID
DESIGN CODE	B31.1
FITTINGS	B16.5
FLANGES	B16.5-A105
NUTS	B18.2.2-A194-Gr 7
BOLTS	B18.2.1-A193-Gr B7
GASKETS	B16.20/B16.21
THREADS	B16.5/B16.11
PIPING MATERIAL	A106 or A53 - Gr B
VALVES	B16.34
FLANGE CLASS	150

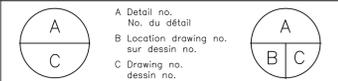
GENERAL NOTES:
 1. PIPING TO BE INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS AND NATION BUILDING CODE.
 2. STANDARD OF ACCEPTANCE GROOVED FITTINGS, RIGID COUPLINGS, GASKETS: MANUFACTURER: VICTAULIC
 FITTINGS:
 ELBOWS: 90°-No. 10, 45°-No. 11.
 TEES: BULLHEAD-No. 20, REDUCING-No. 25
 LATERAL: 45°-No. 30, 45° REDUCING-No. 30-R
 REDUCER: CONCENTRIC-No. 50, ECCENTRIC-No. 51
 CAP: NO. 60
 GASKET: STANDARD
 COUPLING: STYLE 107N
 3. STORM WATER PIPING TO BE INSULATED, SEE SPECIFICATIONS.

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No. Date Revision By: Pgr.

Date Printed Date imprimee

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité



project projet

BUILDING M-38
FLEXIBLE RESEARCH FACILITY
 1200 MONTREAL ROAD CAMPUS
 OTTAWA, ON

drawing dessin
SCHEDULES

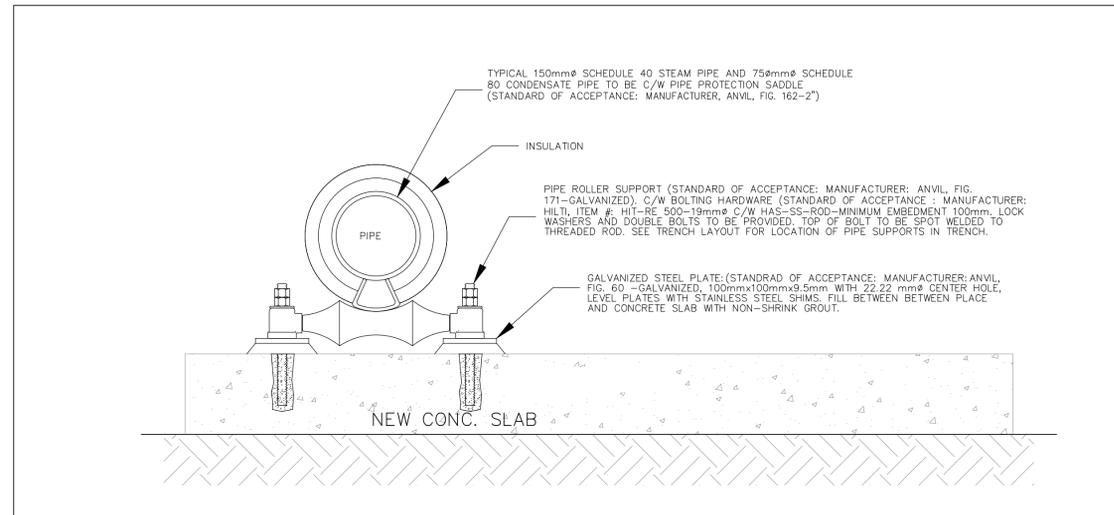
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RGC		AUG 29, 2016	

drawn	dessiné	scale	échelle
RGC		AS NOTED	

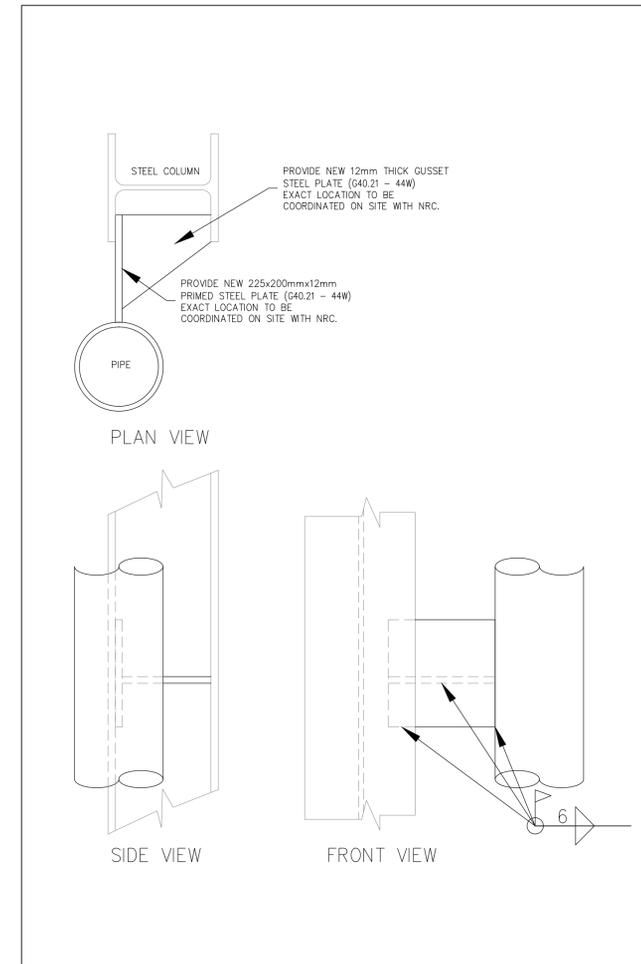
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BV		10	of/de	14

approved	approuvé	W.O.no.	D.T.no.
BV			

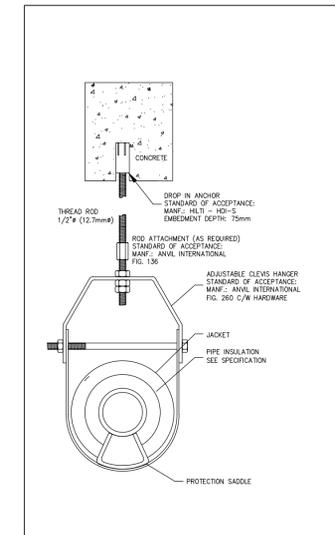
dwg.no.	dessin no.
5044-M10	



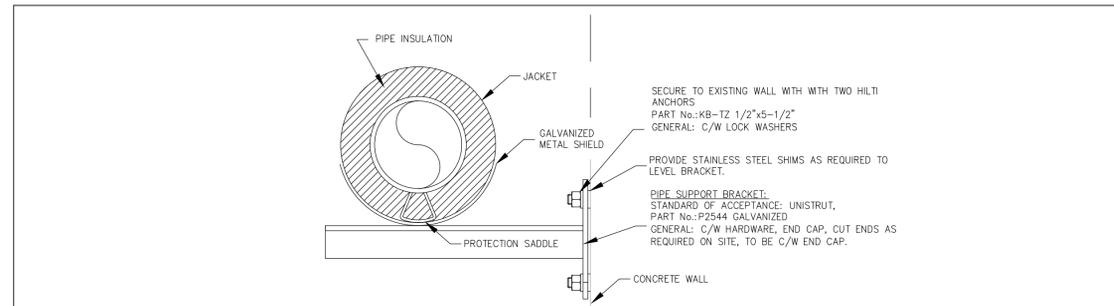
1 TYPICAL TRENCH STEAM AND STEAM CONDENSATE ROLLER SUPPORT (PS6)
 M11 SCALE =NA



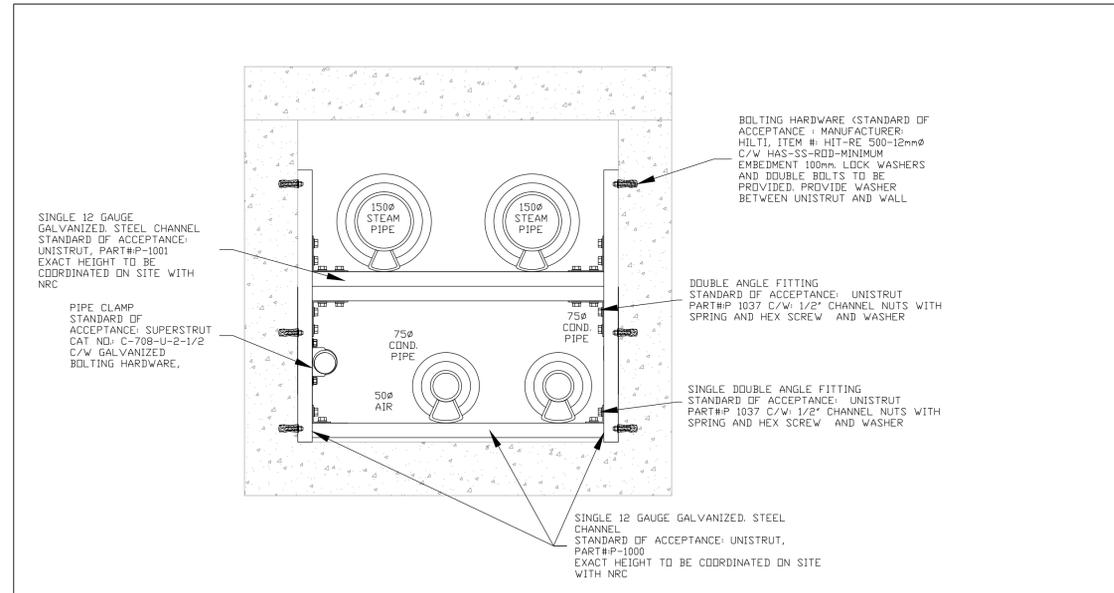
4 MECHANICAL PIPE SUPPORT DETAIL - PS2
 M11 SCALE =NA



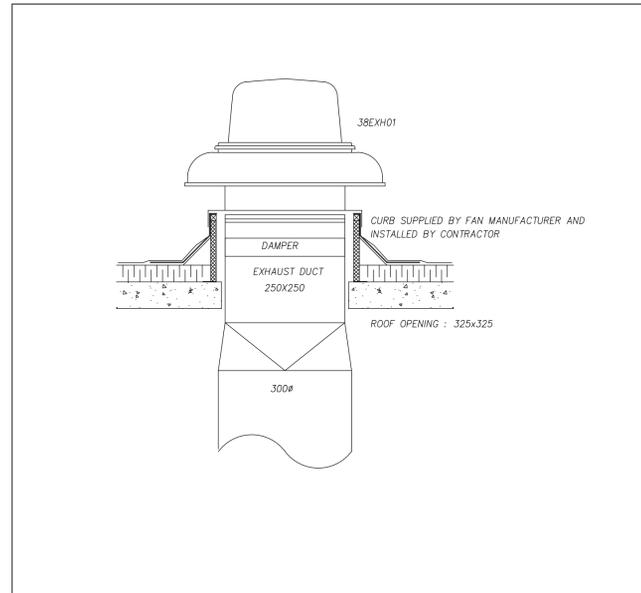
6 MECHANICAL PIPE SUPPORT - PS5
 M11



2 MECHANICAL PIPE SUPPORT - PS1
 M11 SCALE =NA



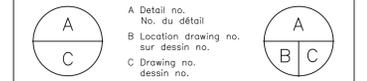
3 MECHANICAL PIPE SUPPORT - PS4
 M11



5 EXHAUST FAN (38EXH01) DETAIL
 M11

0	29 08 2016	ISSUE FOR TENDER	R.G.C
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- Date Printed: _____ Date imprimée: _____
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 - Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité



project: **BUILDING M-38 FLEXIBLE RESEARCH FACILITY**
 1200 MONTREAL ROAD CAMPUS OTTAWA, ON

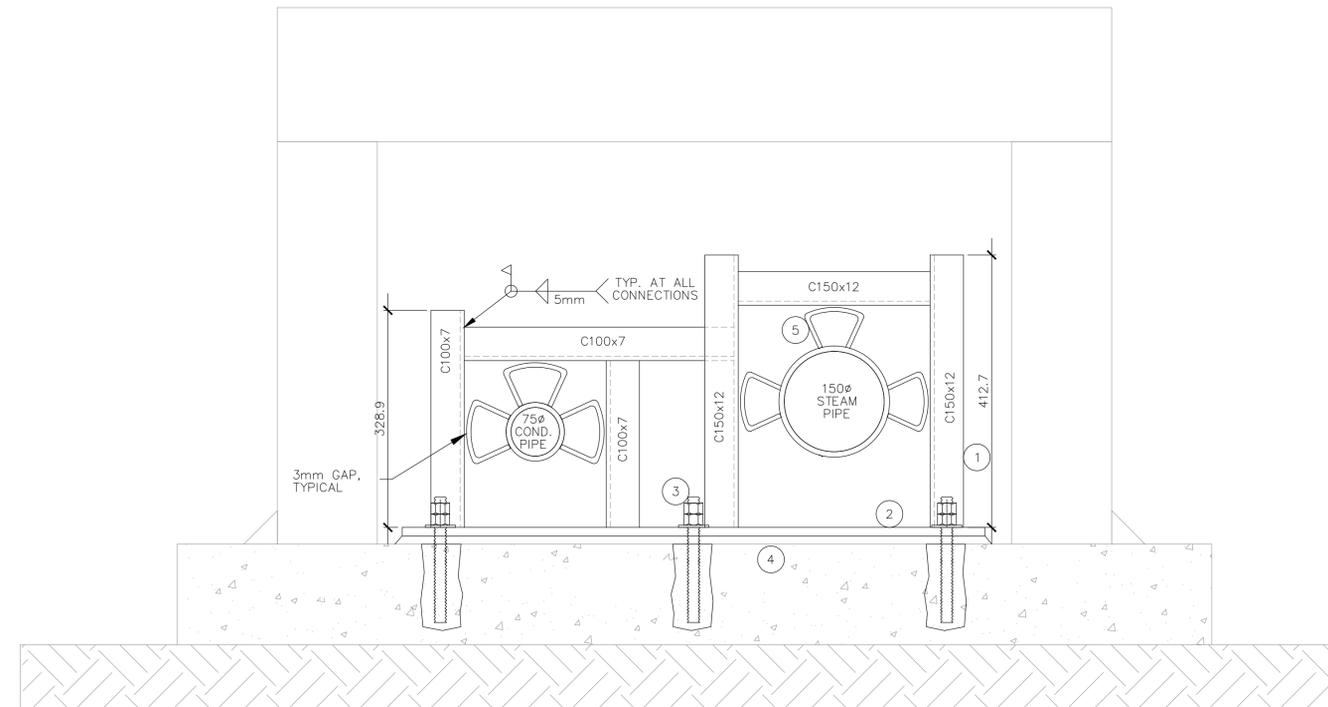
drawing: **SUPPORTS DETAILS**

designed	RGC	conçu	date	AUG 29, 2016	date
drawn	RGC	dessiné	scale	AS NOTED	échelle
checked	BV	vérifié	sheet	11 of/de 14	feuille
approved	BV	approuvé	W.O.no.		D.T.no.

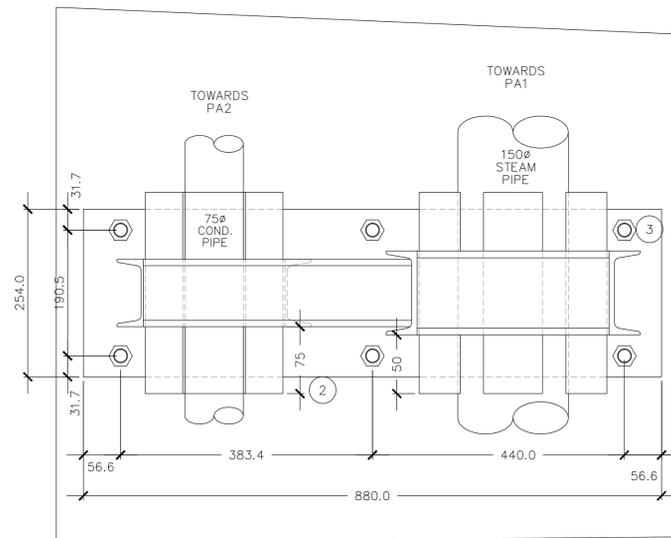
dwg.no. **5044-M11** dessin no.

GENERAL STEEL NOTES: APPLIES TO ALL STEEL FOR MECHANICAL SUPPORTS:
 1. ALL STEEL IN TRENCH TO BE HOT DIPPED GALVANIZING TO CAN/CSA S164 - MIN. COATING OF 600 GRAMS PER SQUARE METER.
 2. WELDING MATERIAL SHALL CONFORM TO CSA W48.06.
 3. WELDING SHALL CONFORM TO CSA W59-03 (R2008).
 4. WELDER SHALL BE QUALIFIED TO CANADIAN WELDING BUREAU.
 5. UNLESS STATED ALL STEEL SHALL BE HAVE A MINIMUM OF ONE COAT OF PRIMER (CSA B1-49-97) - ANTI-CORROSIVE STRUCTURAL STEEL PRIMER.

SEE STRUCTURAL FOR TRENCH CONSTRUCTION.



ELEVATION VIEW



PLAN VIEW

NOTES:

1. HOT DIPPED GALVANIZED STEEL CHANNEL - CSA G40.21-44W.
2. HOT DIPPED GALVANIZED STEEL 12mm THICK PLATE, CSA G40.21.
3. BOLTING: SIX - 19.05mmØ HILTI HIT-RE 500-SØ C/W GALVANIZED RODS, LOCK WASHERS AND DOUBLE NUTS, MINIMUM EMBEDMENT 125mm. TOP OF NUT TO BE SPOT WELDED TO ROD. MECHANICAL CONTRACTOR TO COORDINATE LOCATION OF BOLTS WITH STRUCTURAL CONTRACTOR TO ENSURE THAT STRUCTURAL REINFORCING DOES NOT INTERFERE WITH BOLTING LOCATIONS. DRILL 20mmØ HOLE IN PLATE TO SUIT BOLTING LOCATIONS.
4. 12mm THICK CONTINUOUS LAYER OF NON-SHRINK GROUT, PROVIDE STAINLESS STEEL SHIMS AS REQUIRED TO INSTALL PLATE.
5. TYPICAL PIPE COVERING PROTECTION SADDLE. STANDARD OF ACCEPTANCE: ANVIL INTERNATIONAL, FIGURE 162: 2". INTERIOR TO BE FILLED WITH INSULATION.

1
M12

CUSTOM STEAM ALIGNMENT GUIDE IN TUNNEL (AG1)

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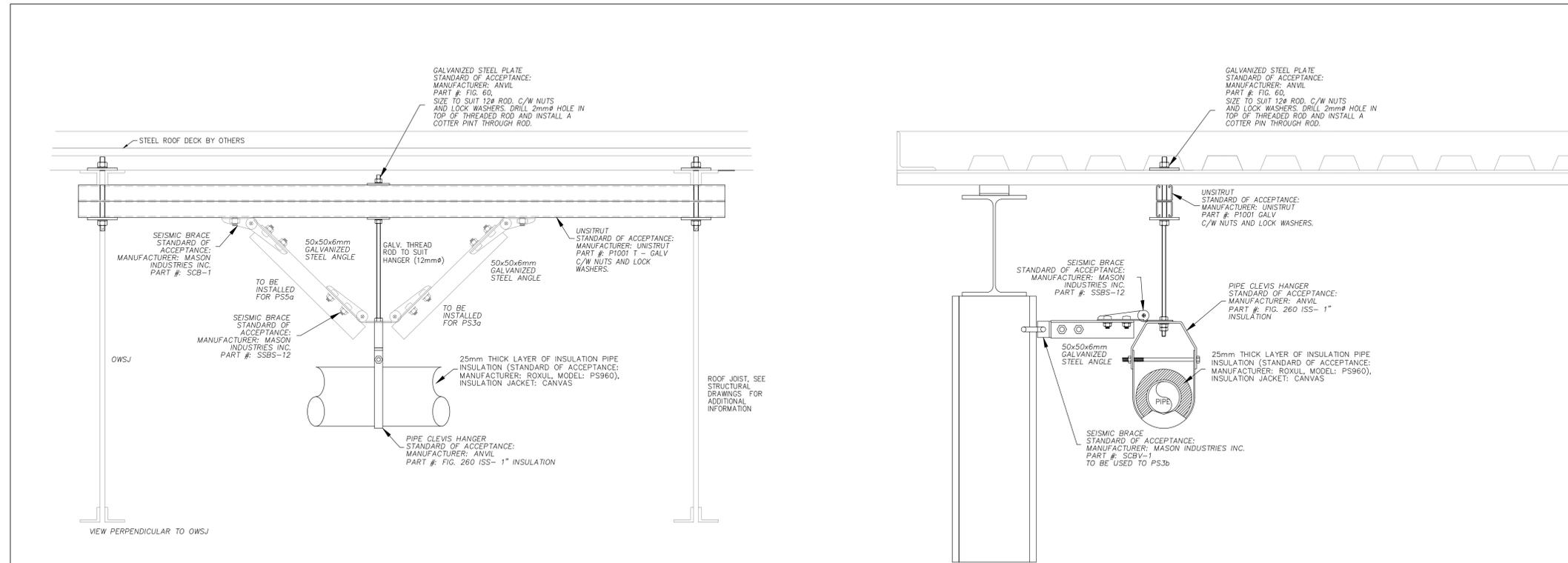


project: **BUILDING M-38 FLEXIBLE RESEARCH FACILITY**
 1200 MONTREAL ROAD CAMPUS OTTAWA, ON

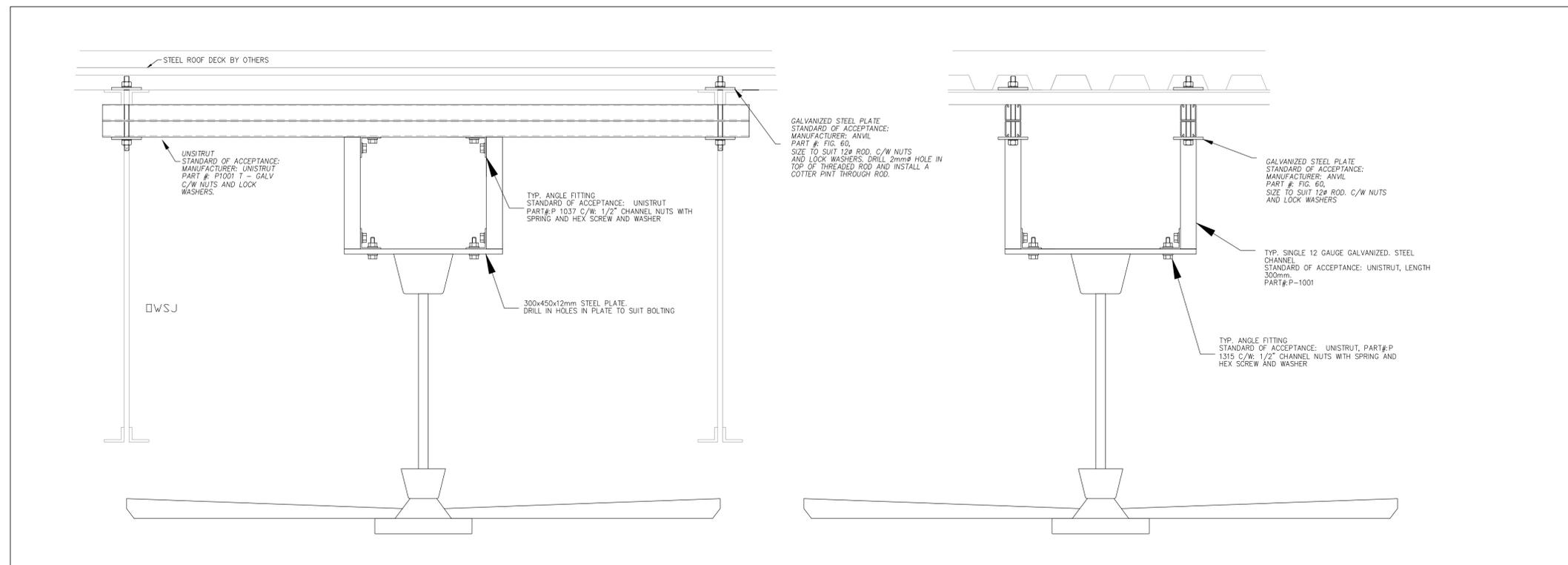
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designed	conçu	date	date
RGC		AUG 29, 2016	
drawn	dessiné	scale	échelle
RGC		AS NOTED	
checked	vérifié	sheet	feuille
BV		12 of/ de 14	
approved	approuvé	W.O.no.	D.T.no.
BV			

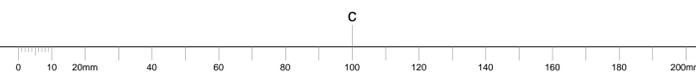
dwg.no.: **5044-M12**



1 MECHANICAL PIPE SUPPORT DETAIL – PS3, PS3a AND PS3b
 M13 SCALE = NA



2 CEILING FAN SUPPORT DETAIL (FS1)
 M13 SCALE = NA



0	29 08 2016	ISSUE FOR TENDER	R.G.C
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Date Printed: _____ Date imprimée: _____

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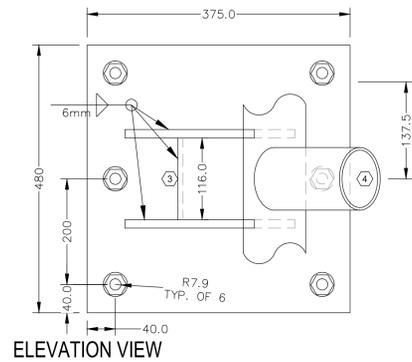
A	A Detail no. No. du détail	A
B	B Location drawing no. sur dessin no.	B
C	C Drawing no. dessin no.	C

project **BUILDING M-38**
FLEXIBLE RESEARCH FACILITY
 1200 MONTREAL ROAD CAMPUS
 OTTAWA, ON

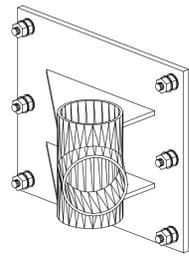
drawing **SUPPORTS DETAILS** dessin

designed	RGC	conçu	date	AUG 29, 2016	date
drawn	RGC	dessiné	scale	AS NOTED	échelle
checked	BV	vérifié	sheet	13 of/de 14	feuille
approved	BV	approuvé	W.O.no.		D.T.no.

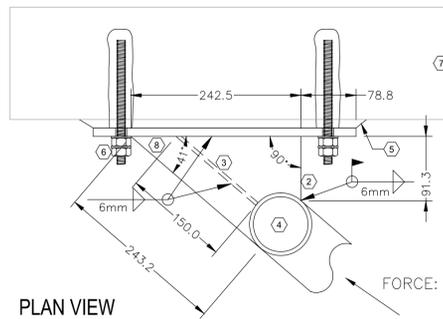
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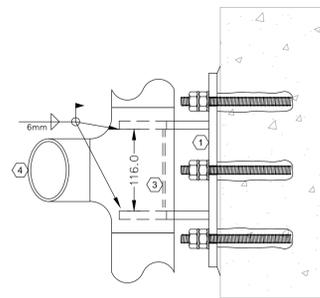
ELEVATION VIEW



ISOMETRIC VIEW



PLAN VIEW



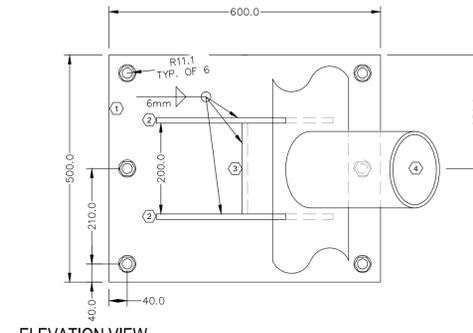
SIDE VIEW

FORCE: 2302 LBS

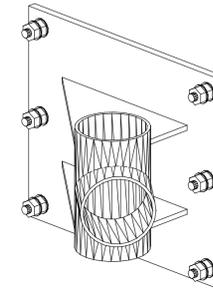
ITEM DESCRIPTION

- 12mm THICK HOT DIPPED GALVANIZED STEEL PLAT, G40.21-44W. PROVIDED SIX HOLES AT LOCATIONS SHOWN. CONTRACTOR SHALL SUBMIT FABRICATION DRAWING TO NRC. FABRICATION DRAWING SHALL BE REVIEWED BY NRC PRIOR TO FABRICATING ANCHOR.
- 12mm THICK HOT DIPPED GALVANIZED STEEL PLAT, G40.21-44W. CUT END OF PLATE TO SUIT PIPE RADIUS.
- VERTICAL SECTION OF A 12mm THICK HOT DIPPED GALVANIZED STEEL PLAT, G40.21-44W. CUT END TO SUIT PIPE RADIUS AND PLATE ANGLE.
- NEW 150Ø STEAM PIPE.
- 12mm THICK CONTINUOUS LAYER OF NON-SHRINK GROUT, PROVIDE STAINLESS STEEL SHIMS AS REQUIRED TO INSTALL PLATE.
- BOLTING: SIX - 12mm HILTI HIT-RE 500-SD C/W SS RODS, LOCK WASHERS AND DOUBLE NUTS, MINIMUM EMBEDMENT 200mm.
- NEW CONCRETE, SEE STRUCTURAL.
- EXACT ANGLE TO BE DETERMINED ONCE TRENCH HAS BEEN CONSTRUCTED AND PIPING LAYOUT FINALIZED ON SITE.

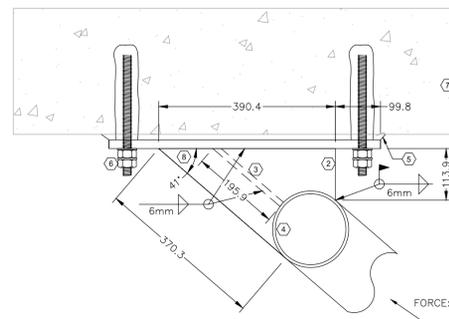
1 PIPE ANCHOR (PA4)
M14



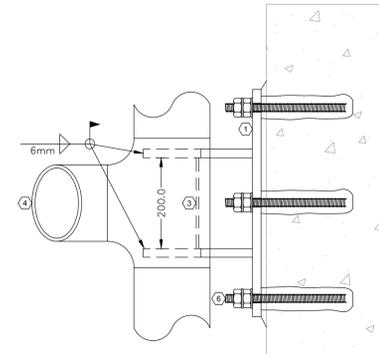
ELEVATION VIEW



ISOMETRIC VIEW



PLAN VIEW



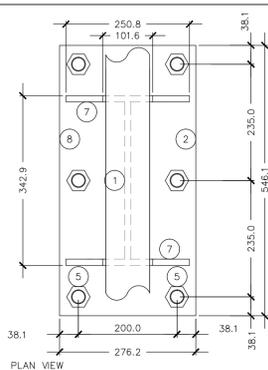
SIDE VIEW

FORCE: 9916 LBS

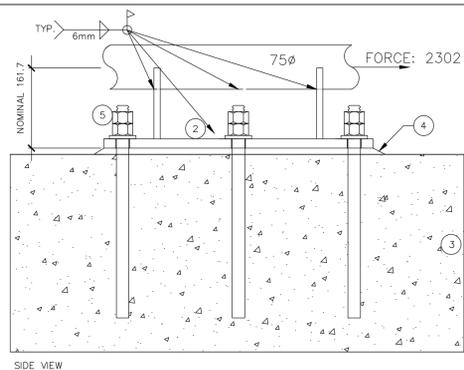
ITEM DESCRIPTION

- 19mm THICK HOT DIPPED GALVANIZED STEEL PLAT, G40.21-44W. PROVIDED SIX HOLES AT LOCATIONS SHOWN. CONTRACTOR SHALL SUBMIT FABRICATION DRAWING TO NRC. FABRICATION DRAWING SHALL BE REVIEWED BY NRC PRIOR TO FABRICATING ANCHOR.
- 12mm THICK HOT DIPPED GALVANIZED STEEL PLAT, G40.21-44W. CUT END OF PLATE TO SUIT PIPE RADIUS.
- VERTICAL SECTION OF A 12mm THICK HOT DIPPED GALVANIZED STEEL PLAT, G40.21-44W. CUT END TO SUIT PIPE RADIUS AND PLATE ANGLE.
- NEW 150Ø STEAM PIPE.
- 12mm THICK CONTINUOUS LAYER OF NON-SHRINK GROUT, PROVIDE STAINLESS STEEL SHIMS AS REQUIRED TO INSTALL PLATE.
- PROVIDE NOMINAL 12mm THICK LAYER OF NON-SHRINK GROUT BETWEEN NEW PLACE AND NEW CONCRETE WALL.
- BOLTING: SIX - 19mm HILTI HIT-RE 500-SD C/W SS RODS, LOCK WASHERS AND DOUBLE NUTS, MINIMUM EMBEDMENT 200mm.
- NEW CONCRETE, SEE STRUCTURAL.
- EXACT ANGLE TO BE DETERMINED ONCE TRENCH HAS BEEN CONSTRUCTED AND PIPING LAYOUT FINALIZED ON SITE.

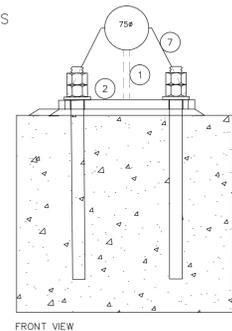
2 PIPE ANCHOR (PA3)
M14



PLAN VIEW



SIDE VIEW



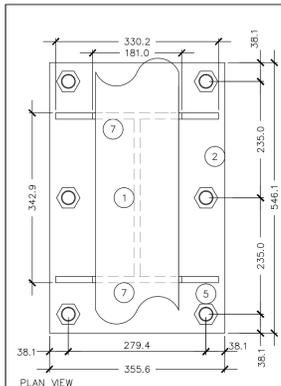
FRONT VIEW

FORCE: 2302 LBS

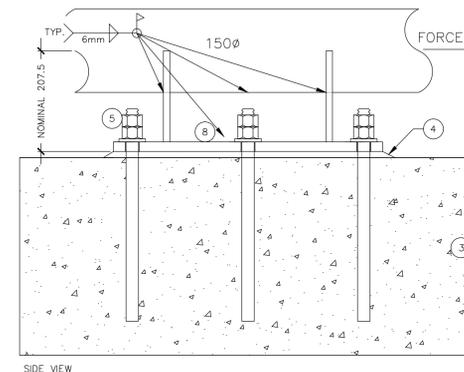
NOTES:

- HOT DIPPED GALVANIZED STEEL 10mm THICK PLATE (G40.21 - 44W) TO BE CONTINUOUSLY WELDED TO NEW PIPE AND PLATES.
- HOT DIPPED GALVANIZED STEEL 19mm THICK PLATE (G40.21 - 44W) TO BE CONTINUOUSLY WELDED TO NEW PLATES, DRILL 6 - 20mm HOLES IN PLATE TO SUIT BOLTING.
- NEW CONCRETE, SEE STRUCTURAL.
- 12mm THICK LAYER OF NON-SHRINK GROUT.
- BOLTING: SIX - 19.05mm HILTI HIT-RE 500-SD C/W GALVANIZED RODS, LOCK WASHERS AND DOUBLE NUTS, MINIMUM EMBEDMENT 340mm. TOP OF NUT TO BE SPOT WELDED TO ROD. MECHANICAL CONTRACTOR TO COORDINATE LOCATION OF BOLTS WITH STRUCTURAL CONTRACTOR TO ENSURE THAT STRUCTURAL REINFORCING DOES NOT INTERFERE WITH BOLTING LOCATIONS.
- CONTRACTOR SHALL SUBMIT FABRICATION DRAWING TO NRC. FABRICATION DRAWING SHALL BE REVIEWED BY NRC PRIOR TO FABRICATING ANCHOR.
- HOT DIPPED GALVANIZED STEEL 10mm THICK PLATE (G40.21 - 44W) TO BE CONTINUOUSLY WELDED TO NEW PIPE AND PLATES, CUT END TO SUIT PIPE RADIUS.

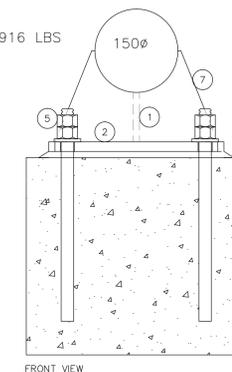
3 PIPE ANCHOR (PA2)
M14



PLAN VIEW



SIDE VIEW



FRONT VIEW

FORCE: 9916 LBS

NOTES:

- HOT DIPPED GALVANIZED STEEL 12.7mm THICK PLATE (G40.21 - 44W) TO BE CONTINUOUSLY WELDED TO NEW PIPE AND PLATES.
- HOT DIPPED GALVANIZED STEEL 19mm THICK PLATE (G40.21 - 44W) TO BE CONTINUOUSLY WELDED TO NEW PLATES, DRILL 6 - 20mm HOLES IN PLATE TO SUIT BOLTING.
- NEW CONCRETE, SEE STRUCTURAL.
- 12mm THICK LAYER OF NON-SHRINK GROUT.
- BOLTING: SIX - 25.4mm HILTI HIT-RE 500-SD C/W GALVANIZED RODS, LOCK WASHERS AND DOUBLE NUTS, MINIMUM EMBEDMENT 340mm. TOP OF NUT TO BE SPOT WELDED TO ROD. MECHANICAL CONTRACTOR TO COORDINATE LOCATION OF BOLTS WITH STRUCTURAL CONTRACTOR TO ENSURE THAT STRUCTURAL REINFORCING DOES NOT INTERFERE WITH BOLTING LOCATIONS.
- CONTRACTOR SHALL SUBMIT FABRICATION DRAWING TO NRC. FABRICATION DRAWING SHALL BE REVIEWED BY NRC PRIOR TO FABRICATING ANCHOR.
- HOT DIPPED GALVANIZED STEEL 12.7mm THICK PLATE (G40.21 - 44W) TO BE CONTINUOUSLY WELDED TO NEW PIPE AND PLATES, CUT END TO SUIT PIPE RADIUS.

4 PIPE ANCHOR (PA1)
M14

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project: **BUILDING M-38**
FLEXIBLE RESEARCH FACILITY
 1200 MONTREAL ROAD CAMPUS
 OTTAWA, ON

drawing: **PIPE ANCHOR DETAILS** / dessin

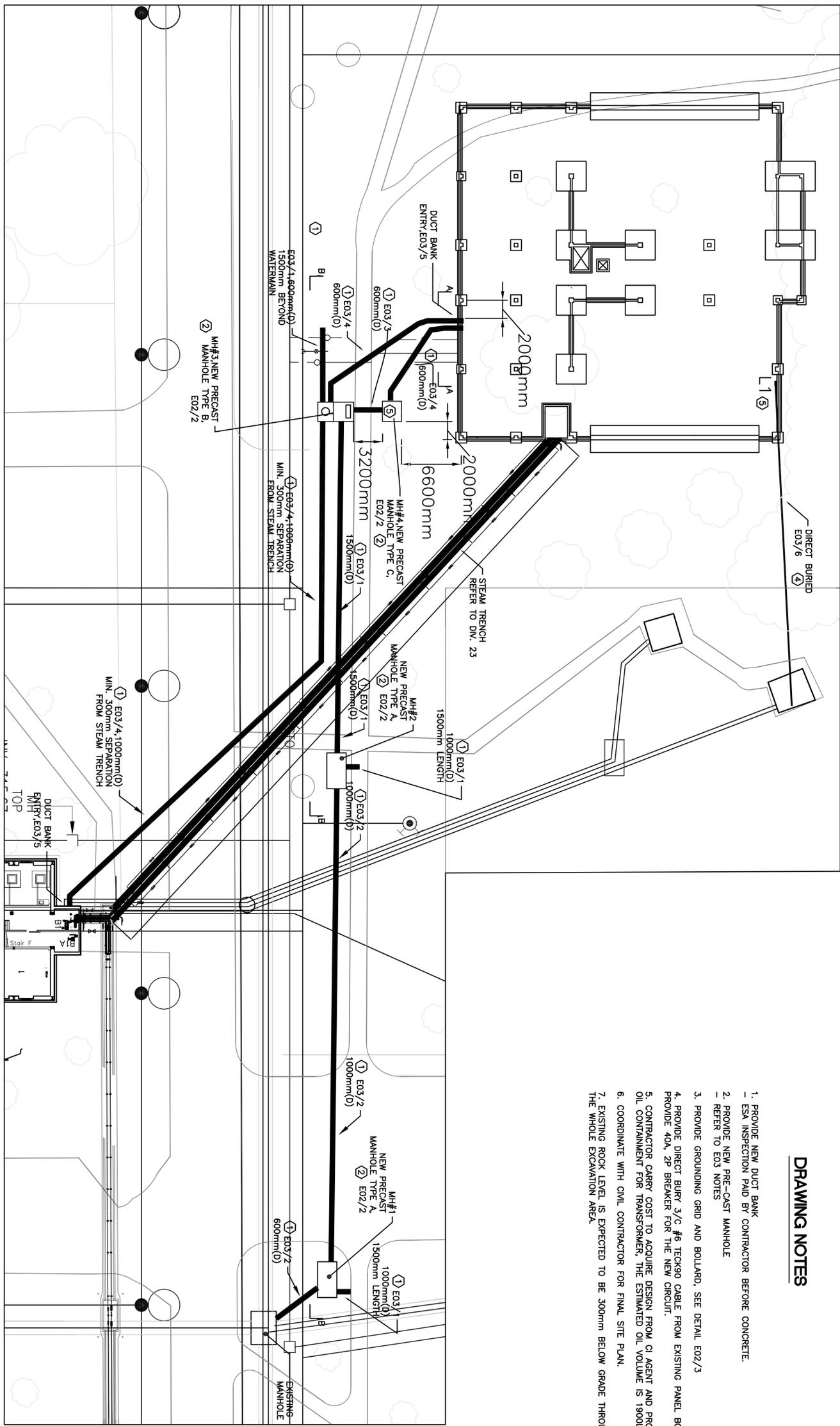
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drawn	RGC	dessiné	scale	AS NOTED	échelle
checked	BV	vérifié	sheet	14 of/de 14	feuille
approved	BV	approuvé	W.O.no.		D.T.no.

dwg.no. / dessin no. **5044-M14**

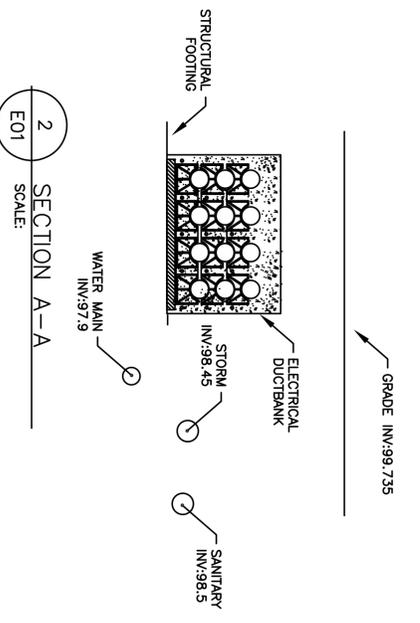
GENERAL NOTES

1. PROVIDE NEW DUCT BANK
- ESA INSPECTION PAID BY CONTRACTOR BEFORE CONCRETE.
2. PROVIDE NEW PRE-CAST MANHOLE
- REFER TO E03 NOTES
3. PROVIDE GROUNDING GRID AND BOLLARD. SEE DETAIL E02/3
4. PROVIDE DIRECT BURY 3/C #6 T6K90 CABLE FROM EXISTING PANEL BOARD.
5. PROVIDE 40A, 2P BREAKER FOR THE NEW CIRCUIT.
6. CONTRACTOR CARRY COST TO ACQUIRE DESIGN FROM C/ AGENT AND PROVIDE OIL CONTAINMENT FOR TRANSFORMER, THE ESTIMATED OIL VOLUME IS 1900L TFS
7. COORDINATE WITH CIVIL CONTRACTOR FOR FINAL SITE PLAN.
8. EXISTING ROCK LEVEL IS EXPECTED TO BE 300mm BELOW GRADE THROUGHOUT THE WHOLE EXCAVATION AREA.

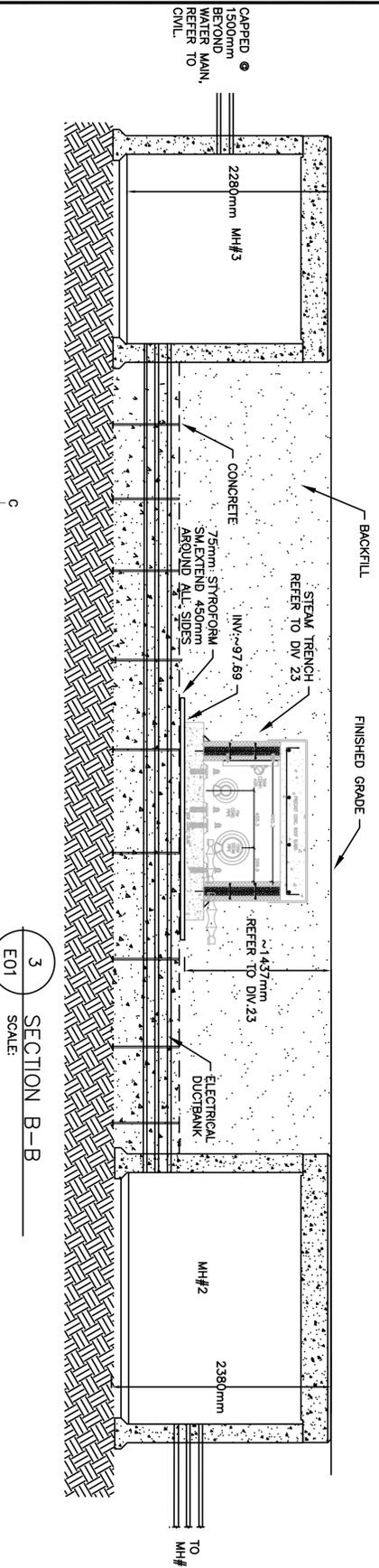
DRAWING NOTES



1 SITE PLAN
 SCALE: 1:250



2 SECTION A-A
 SCALE: E01



3 SECTION B-B
 SCALE: E01

A		A	
B		B	
C		C	

A Detail no.
 B Location drawing no.
 C Drawing no.
 design no.

No.	Date	Revision	Date Imprime
0	AUG/2016	ISSUED FOR TENDER	KKL

Date Printed Aug/2016

o Verify all dimensions and site conditions and be responsible for same
 o Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité

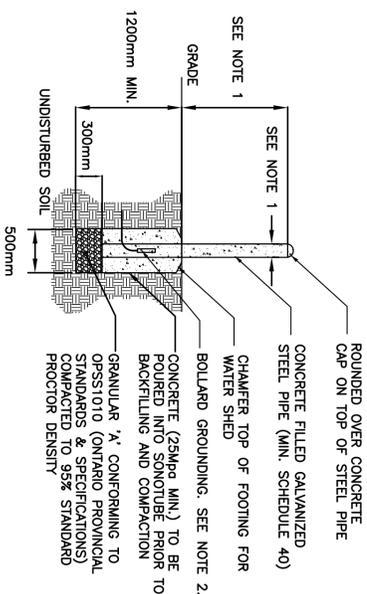
P CONTRACTOR IS RESPONSIBLE FOR REPAIR OF COMPONENT CAUSED BY CONSTRUCTION ACTIVITIES.

PROJECT BUILDING M-38 FLEXIBLE RESEARCH FACILITY MONTREAL ROAD CAMPUS		DESIGN ELECTRICAL SITE PLAN	
designed KKL	comp'd date AUG/2016	drawing KKL	design AS NOTED
checked FG	verify sheet E01 of/4e E05	approved FC	approve A1-006303-01
drawing no. 5044-E01		design no.	

NRCC - CNRC

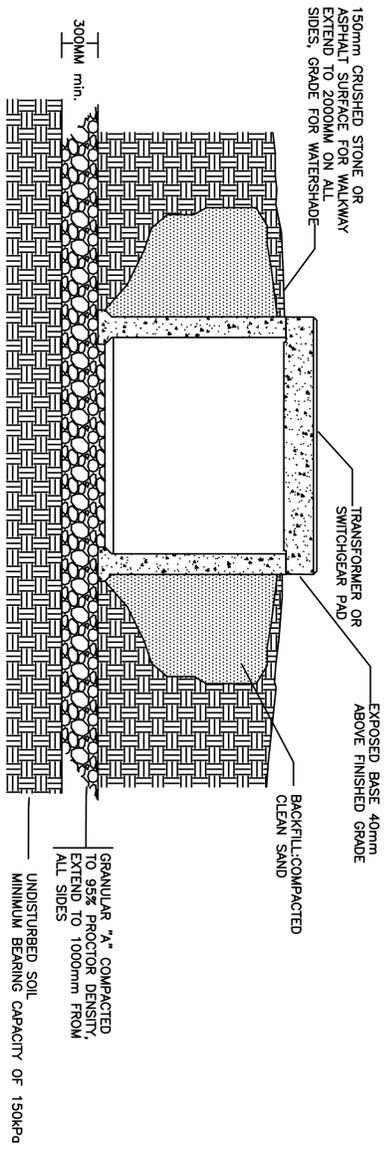
GENERAL NOTES

- A READ THIS DRAWING IN CONJUNCTION WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS.
- B CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS SHOWN PRIOR TO DEMOLITION OR OMISSIONS TO NRC DEPARTMENTAL REPRESENTATIVE.
- C CONTRACTORS MUST VISIT THE SITE & FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK.
- D PREVENT THE SPREAD OF DUST & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION.
- E MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.
- F FILL ALL HOLES, PATCH & PAINT ALL SURFACES IN CONTRACT AREA.
- G REMOVE JEANS REMAINS AND DISPOSE OF OFF SITE UNLESS OTHERWISE NOTED.
- H PROVIDE LABELS TO NEW DEVICES TO INDICATE POWER SOURCE. UPDATE PANEL SCHEDULES AFTER JOB COMPLETION.
- I THE WORD "PROVIDE" MEANS SUPPLY, INSTALL, CONNECT AND TEST.
- J THE WORD "WIRING" MEANS WIRES/CABLE AND RACEWAY.
- K ALL WIRE TO BE IN EMT UNLESS OTHERWISE NOTED.
- L COORDINATE ALL SHUTDOWNS WITH THE NRC DEPARTMENTAL REPRESENTATIVE. OUTAGE IS ONLY SCHEDULED DURING WERKEND OR AFTER HOUR, UNLESS OTHERWISE SPECIFIED.
- M ANY WERKEND OUTAGE MUST BE CARRIED BETWEEN FRIDAY 1800 AND MONDAY 0300 ANY AFTER HOUR OUTAGE MUST BE CARRIED BETWEEN SAME DAY 1800 AND NEXT DAY 0300.
- N ALL LOADS TO BE RESUMED AT THE END OF OUTAGE.
- O CONTRACTOR TO VERIFY INTEGRITY OF EXISTING RACEWAY BEFORE PULLING CABLE/WIRE.
- P ALWAYS PERFORM SCAN BEFORE CORE DRILL. VERIFY PHASING AND ROTATION, MATCH EXISTING SYSTEM.
- Q CONTRACTOR IS RESPONSIBLE FOR REPAIR OF DAMAGE TO ANY EXISTING BUILDING COMPONENT CAUSED BY CONSTRUCTION ACTIVITIES.

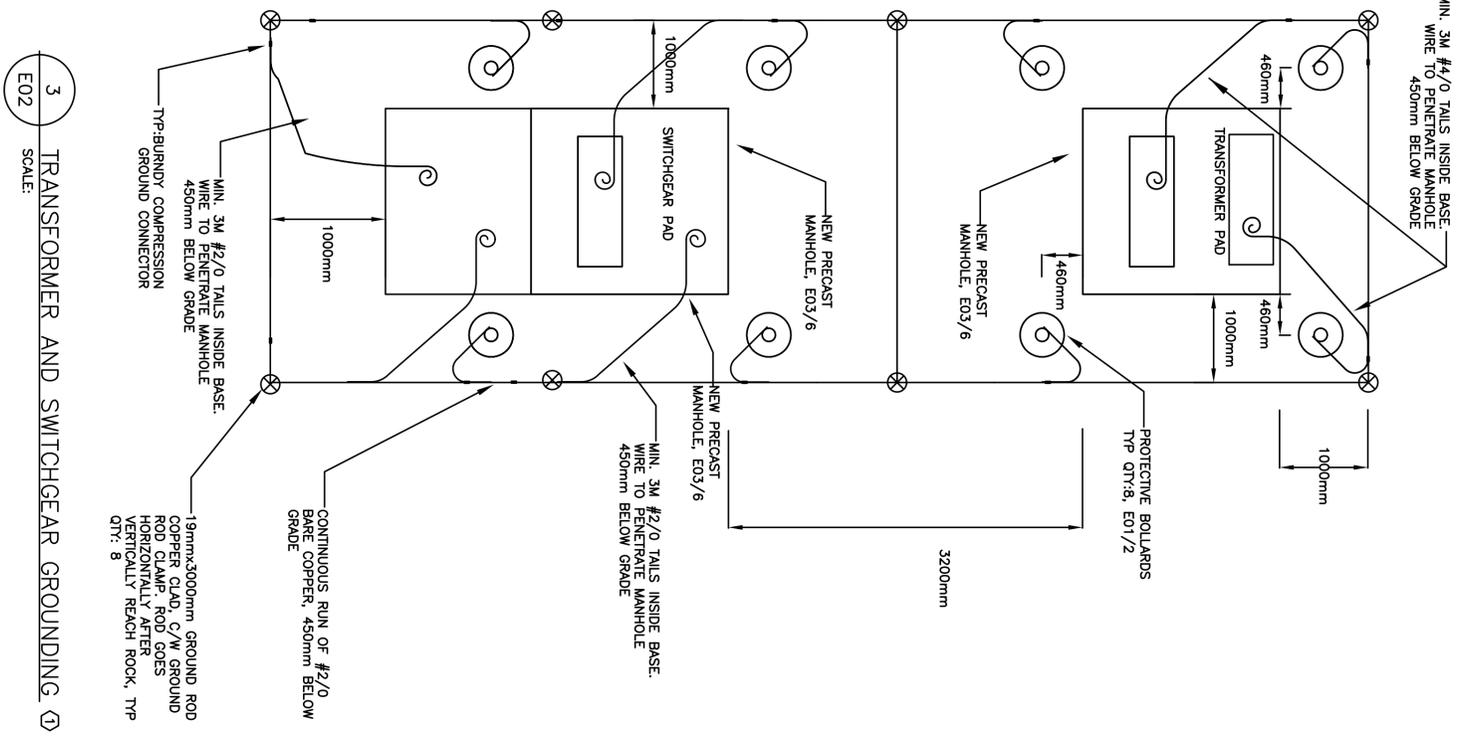


- BOLLARD INSTALLATION NOTES:**
- PROTECTIVE BOLLARD PIPE DIMENSIONS:
 HEIGHT 1200mm, DIAMETER 150mm.
 - CONNECT BOLLARD TO GROUND GRID WITH PIPE AND 1200mm OF #2/0 AWG CABLE TO BE INTERCONNECTED WITH GROUND GRID.
 - PROVIDE BOLLARD SLEEVE GUARD.

1 BOLLARD DETAIL
 E02 SCALE:



2 TYPICAL MANHOLE
 E02 SCALE:



3 TRANSFORMER AND SWITCHGEAR GROUNDING
 E02 SCALE:

DRAWING NOTES

- PROVIDE NEW GROUND GRID
- ELECTRODE AND GROUND WIRE TO BE FILLED WITH 3mm CONDUIT ALL AROUND.
- ESA INSPECTION BEFORE BACKFILLING
- CARRY COST TO HAVE SCHNEIDER OR Eaton TO TEST GROUND GRID RESISTANCE, PROVIDE TEST REPORT.
- PROVIDE PRECAST MANHOLE
- TYPE A: USI E-36 ELECTRICAL MANHOLE WITH COVER ALUMINUM HATCH, 2.38m(H)x1.830m(W)x3660mm, 25kN/m distributed lateral load
- TYPE B: USI E-37 ELECTRICAL MANHOLE WITH E13PS COVER, 2.3m(H)x1.830m(W)x3660mm
- TYPE C: USI E-13 TRANSFORMER/SWITCHGEAR BASE, 1.5m(H)x2108mm(W)x2235mm, 25kN/m distributed lateral load, provide temporary steel cover.
- CONTRACTOR TO CARRY COST TO HAVE BEARING SURFACES INSPECTED IN THE FIELD BY A PROFESSIONAL GEOTECHNICAL ENGINEER PRIOR TO PLACING CONCRETE. GEOTECHNICAL TESTING AGENCY TO BE APPROVED BY THE GEO ENGINEER AND PAID FOR BY THE CONTRACTOR.

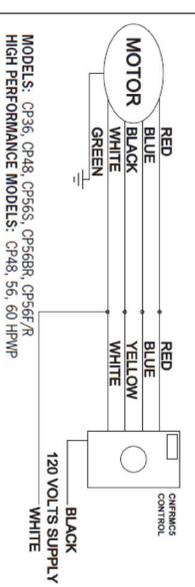


<p>designed KXL congru date AUG/2016 date</p>	
<p>drawn KXL dessin scale AS NOTED échelle</p>	
checked FG vérifié sheet E01 of/ de E05 feuille	approved RC approuvé W.O. no. A1-006903-01 D.T. no.
<p>dwg. no. 5044-E02 dessin no.</p>	
<p>Project BUILDING M-38 FLEXIBLE RESEARCH FACILITY project</p>	
<p>Project MONTREAL ROAD CAMPUS dessin</p>	
<p>drawing MANHOLE AND GROUNDING dessin</p>	
<p>Date Printed Aug/2016 Date imprimée</p>	
<p>o Verify all dimensions and site conditions and be responsible for same o Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité</p>	
<p>A Detail no. B Location drawing no. C Drawing no. A C</p>	
<p>No. 0 Date AUG/2016 Revision ISSUED FOR TENDER KXL Date Aug/2016 Révision ISSUED FOR TENDER KXL</p>	

DRAWING NOTES

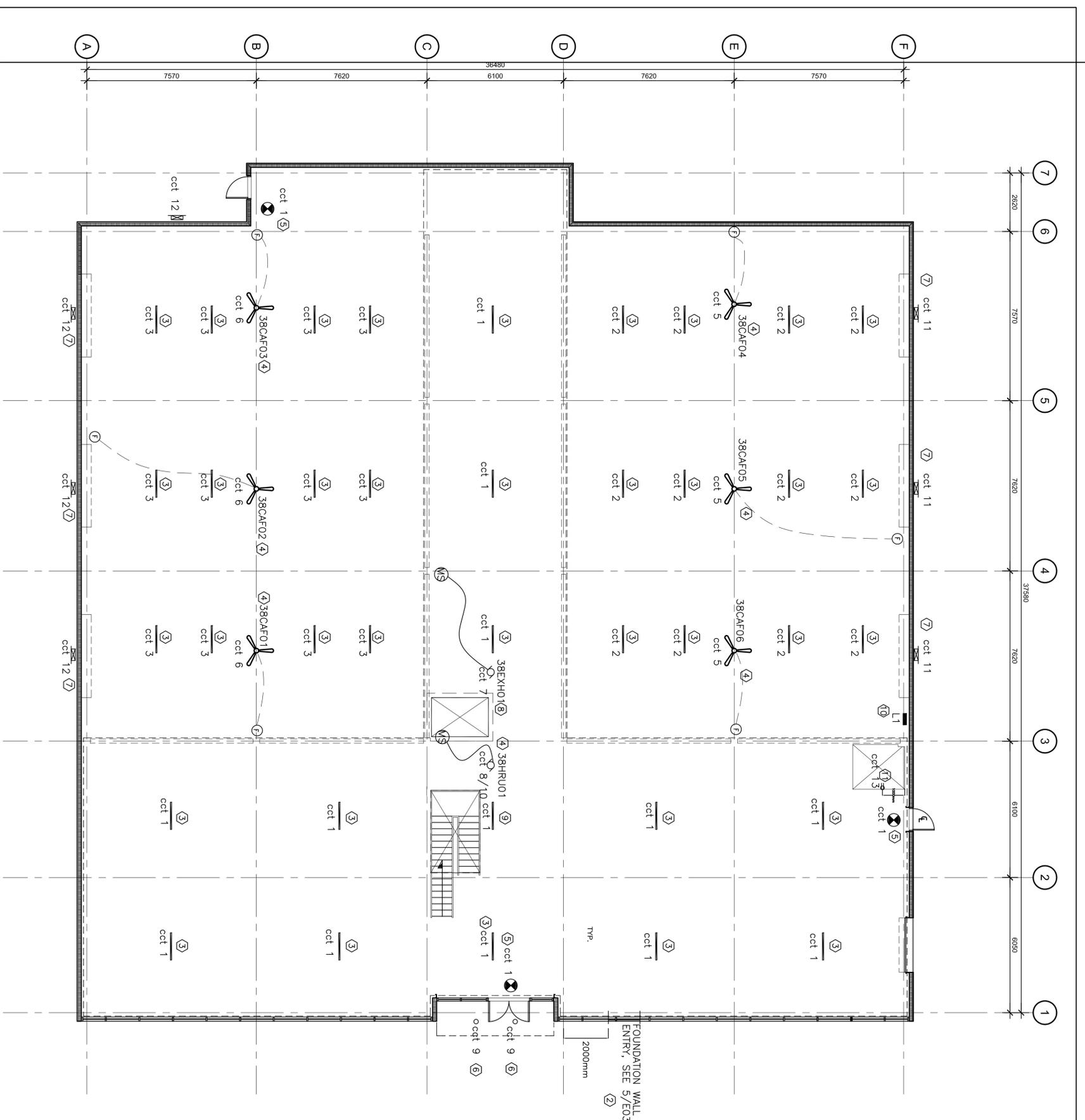
- CORE DRILL FOUNDATION WALL FOR DUCT BANK ENTRY.
- DUCT BANK ENTRY AS SHOWN, PROVIDE BELL END FOR EACH DUCT.
- PROVIDE TEMPORARY LIGHTING SYSTEM
 - PHILIPS CFI FLUXSTREAM LINEAR LED, 3900 LUMEN, 4000K, 0-10V DIMMING, 120V, 4' LENGTH
 - HIGH BAY AREA: TOTAL QTY: 24, PROVIDE UNISTRUT CHAIN SUSPENDED FROM CEILING SLAB, 12' PROVIDE UNISTRUT CHAIN SUSPENDED FROM CEILING SLAB AT 3M AFF. CIRCUIT AS SHOWN.
 - PROVIDE WIRING BACK TO PANEL BREAKER.
- PROVIDE POWER TO CEILING FAN
 - PROVIDE 12AWG TECK90 FROM PANEL L1, CIRCUIT AS SHOWN.
 - PROVIDE 20A, 3P SWITCH ATTACHED TO EACH FAN ENCLOSURE, WIRE THERMOSTAT CONTROLLER SUPPLIED BY DIV.23 AS PER MANUFACTURER INSTRUCTION, TYPICAL 4 WIRE + GND FROM CONTROLLER TO FAN MOTOR AS PER DETAIL E02/3.
 - EXACT LOCATION COORDINATE WITH DIV. 23
- PROVIDE LED PHOTOGRAM EXIT LIGHT
 - LUMATELL US SERIES, 120VAC, SELF-POWERED.
 - QTY: 3
 - 120VAC CIRCUIT AS INDICATED.
- PROVIDE CANOPY UNDER SOFFIT FIXTURE:
 - PHILIPS LIGHTOLIER SLIMSURFACE LED DOWNLIGHT
 - 5" ROUND, 650LM, 35K CCT, 80 CRI
 - CAT: S5R835K7AL, QTY: 2
 - (1) PHOTOCELL LOCATE IN CENTER OF CANOPY TO CONTROL BOTH LIGHTS.
- PROVIDE CONDUIT AND BACK BOX RECESSED IN CANOPY, JUNCTION BOX INSIDE BUILDING TRANSMISSION TO INDOOR WIRING BACK TO PANEL.
- PROVIDE WALL PACK LED LIGHTING FIXTURE
 - SPAUDLING LARDEDO LMC SERIES
 - 2039LM, 5000K, DARK BRONZE FINISH, C/W PHOTOCELL
 - CAT: LMC-18LU-SK-1-PC1, QTY: 7
 - MOUNT ABOVE HIGH BAY DOOR
 - PVC CONDUIT THROUGH WALL, JUNCTION BOX INSIDE BUILDING TRANSMISSION TO INDOOR WIRING BACK TO PANEL.
- PROVIDE POWER TO ELEVATOR EXHAUST FAN
 - ELEVATOR EXHAUST FAN: PROVIDE 2/C 12AWG TECK90 FROM PANEL L1, 120V CIRCUIT TO 20A 1P WEATHER PROOF SWITCH ATTACHED TO FAN ENCLOSURE, PROVIDE MANUAL STARTER, TOGGLE TYPE, 1 POLE, AUTO-OFF-HAND SELECTOR, PILOT LIGHT, SQ D CLASS 2510, CAT:FG71P.
 - MANUAL STARTER TO BE PLACED AS SHOWN
 - EXACT LOCATION COORDINATE WITH DIV. 23
- PROVIDE POWER TO ENERGY RECOVERY VENTILATOR
 - ENERGY RECOVERY VENTILATOR: PROVIDE 3/C 10AWG TECK90 FROM PANEL L1, 240V CIRCUIT TO 30A 2P WEATHER PROOF SWITCH ATTACHED TO EACH FAN ENCLOSURE, PROVIDE MANUAL STARTER, TOGGLE TYPE, 2 POLE, AUTO-OFF-HAND SELECTOR, PILOT LIGHT, SQ D CLASS 2510, CAT:FG72P.
 - MANUAL STARTER TO BE PLACED AS SHOWN
 - EXACT LOCATION COORDINATE WITH DIV. 23
- PROVIDE SQ D NOOD PANEL L1, 240CCT 125V/250V, 1PH, 100A, SERVICE ENTRANCE RATED MAIN BREAKER C/W 008 BRANCH BREAKERS AS PER E03/2, SURFACE MOUNT ON WALL.
- PROVIDE SURFACE MOUNT 15A, 120V GFI RECEPTACLE, 1200MM ABOVE PIT FLOOR, 2/C 12 TECK90 CABLE FROM PANEL L1.

Both Updraft & Downdraft Using Canam CNFRMC5 Control



MODELS: CP36, CP48, CP56S, CP56BR, CP56F/R
HIGH PERFORMANCE MODELS: CP48, 56, 60 HPWP

TYPICAL CEILING FAN WIRING

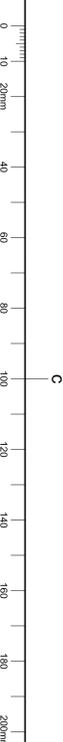


GROUND FLOOR PLAN

1 E04

SCALE: 1:100

ASPM A1 (8/13/94)



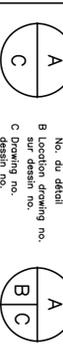
NRCC-CNRC

GENERAL NOTES

- READ THIS DRAWING IN CONJUNCTION WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS.
- CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION AND REPORT ANY ERRORS OR OMISSIONS TO NRC DEPARTMENTAL CONTRACTORS. MUST VISIT THE SITE & FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK.
- PREVENT THE SPREAD OF DUST & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION.
- MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.
- FILL ALL HOLES, PATCH & PAINT ALL SURFACES IN CONTRACT AREA. COLOR SCHEME TO MATCH EXISTING.
- REMOVE MEANS REMOVE AND DISPOSE OF PROVIDE LABELS TO IDENTIFY ALL WORK TO INDICATE POWER SOURCE, UPDATE PANEL SCHEDULES AFTER JOB COMPLETION.
- THE WORD "PROVIDE" MEANS SUPPLY, INSTALL, CONNECT AND TEST.
- THE WORD "WIRING" MEANS WIRES/CABLE AND RACEWAY.
- ALL WIRE TO BE IN EMT UNLESS OTHERWISE NOTED.
- COORDINATE ALL SHUTDOWNS WITH THE NRC DEPARTMENTAL REPRESENTATIVE. OUTAGE IS ONLY SCHEDULED DURING WEEKEND OR AFTER HOUR, UNLESS OTHERWISE SPECIFIED BY NRC REPRESENTATIVE.
- ANY WEEKEND OUTAGE MUST BE CARRIED BETWEEN 1800 AND MONDAY 0300. BETWEEN 1800 AND NEXT DAY 0300.
- ALL LOADS TO BE RESUMED AT THE END OF OUTAGE.
- CONTRACTOR TO VERIFY INTEGRITY OF EXISTING RACEWAY BEFORE PULLING CABLE/WIRE.
- ALWAYS PERFORM SCAN BEFORE CORE DRILL.
- N VERIFY PHASING AND ROTATION, MATCH EXISTING SYSTEM.
- P CONTRACTOR IS RESPONSIBLE FOR REPAIR OF ANY DAMAGES TO ANY EXISTING BUILDING COMPONENT CAUSED BY CONSTRUCTION ACTIVITIES.

No.	Date	Revision	By:	KXL
0	AUG/2016	ISSUED FOR TENDER		
Date Printed: 00 MM YYYY		Date Imprime:		

Verify all dimensions and site conditions and be responsible for same
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Project: BUILDING M-38 FLEX HOUSE

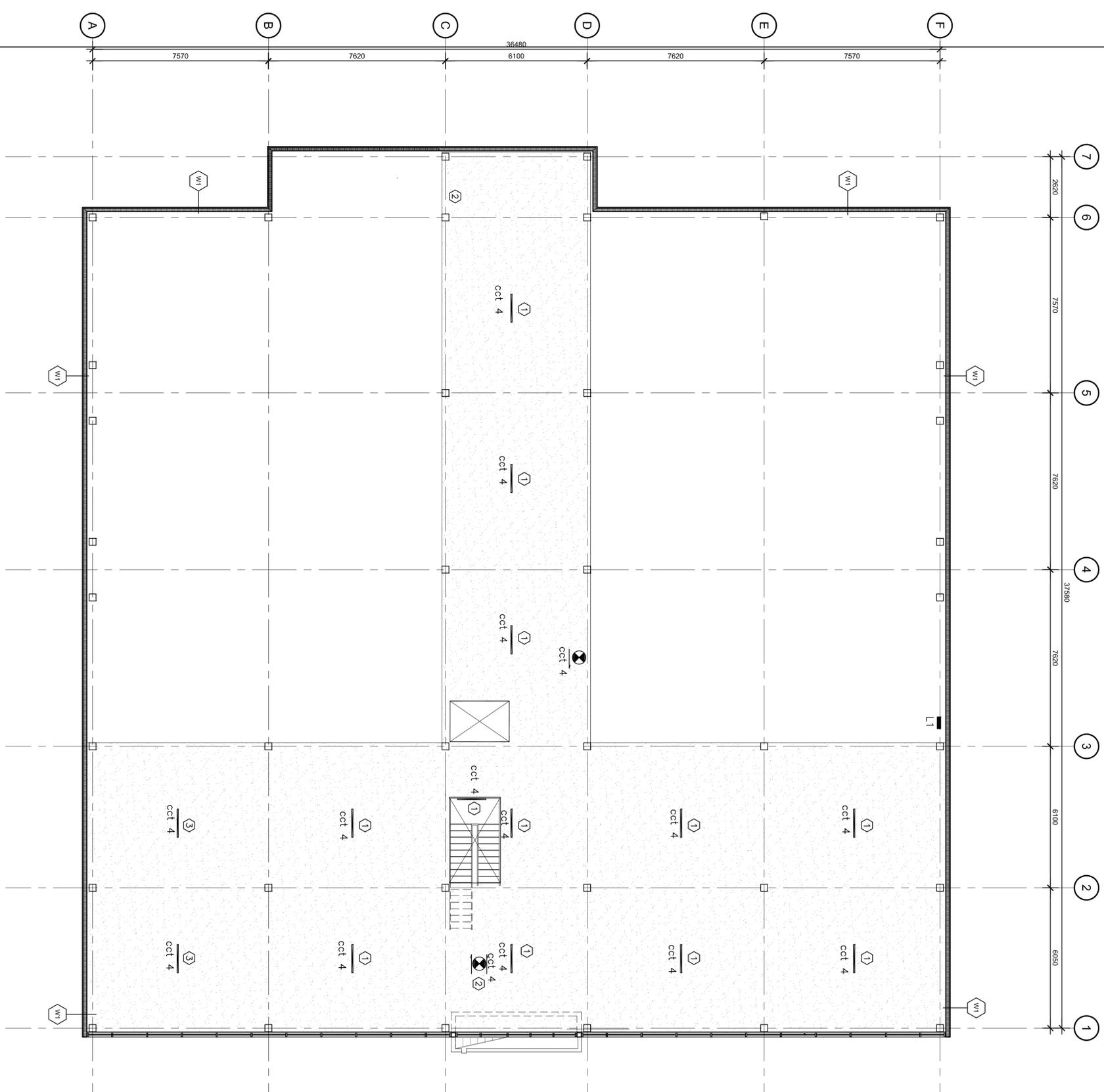
Project: MONTREAL ROAD CAMPUS

Drawing: GROUND FLOOR LIGHTING AND HVAC POWER

designed	KXL	conçu	date	AUG/2016	date
drawn	KXL	dessiné	échelle	AS NOTED	échelle
checked	FG	vérifié	sheet	E04 of/4e	feuille
approved	RC	approuvé	W.O.no.	A1-006303-01	D.T.no.
dwg.no.	5044-E04	dessin no.			

DRAWING NOTES

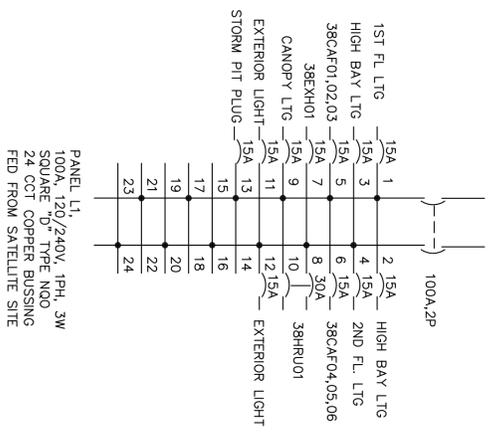
1. PROVIDE TEMPORARY LIGHTING SYSTEM
 - PHILIPS CFL FLUXSTREAM LINEAR LED, 3900 LUMEN, 4000K, 0-10V DIMMING, 120V, 4' LENGTH
 CAT: LF4FR3940UDZ1
 - TOTAL QTY: 14
 - MEZZ. LEVEL, PROVIDE UNISTRUT CHAIN SUSPENDED FROM CEILING SLAB AT 3M AFF. CIRCUIT AS SHOWN.
 - STAIRWELL WALL MOUNT AT 2.5M AFF.
 - PROVIDE WIRING BACK TO PANEL BREAKER.
2. PROVIDE LED PICTOGRAM EXIT LIGHT
 - LUMACELL LS SERIES, 120VAC, SELF-POWERED.
 - TOTAL QUANTITY: 3
 - 120VAC CIRCUIT AS INDICATED.



1 SECOND FLOOR PLAN
SCALE: 1:100



2 PANEL SCHEDULE
SCALE: E05



PANEL L1,
100A, 120V/240V, 1PH, 3W
SQUARE "D" TYPE NCO
24 CCT COPPER BUSSING
FED FROM SATELLITE SITE

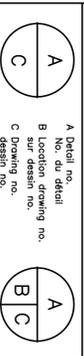
NRCC-CNRC
 National Research Council Canada
 Administrative Services
 Division des services administratifs et gestion
 Branch

GENERAL NOTES

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- CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION AND REPORT ANY ERRORS OR DISCREPANCIES TO NRC DEPARTMENTAL CONTRACTORS. MUST VISIT THE SITE & FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK.
- PREVENT THE SPREAD OF DUST & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION.
- MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.
- FILL ALL HOLES, PATCH & PAINT ALL SURFACES IN CONTRACT AREA. COLOUR SCHEME TO MATCH EXISTING.
- REMOVE MEANS REMOVE AND DISPOSE OF PROTECTIVE MEANS OTHERWISE NOTED.
- PROVIDE LABELS TO IDENTIFY ALL INDICATED POWER SOURCE, UPDATE PANEL SCHEDULES AFTER JOB COMPLETION.
- THE WORD "PROVIDE" MEANS SUPPLY, INSTALL, CONNECT AND TEST.
- THE WORD "WIRING" MEANS WIRES/CABLE AND RACEWAY.
- ALL WIRE TO BE IN EMT UNLESS OTHERWISE NOTED.
- COORDINATE ALL SHUTDOWNS WITH THE NRC DEPARTMENTAL REPRESENTATIVE. OUTAGE IS ONLY SCHEDULED DURING WEEKEND OR AFTER HOUR, UNLESS OTHERWISE SPECIFIED BY NRC REPRESENTATIVE.
- ANY WEEKEND OUTAGE MUST BE CARRIED BETWEEN FRIDAY 1800 AND MONDAY 0300. ALL WORK MUST BE COMPLETED BY 1800 ON THE SAME DAY AND NEXT DAY 0300.
- ALL LOADS TO BE RESUMED AT THE END OF OUTAGE.
- CONTRACTOR TO VERIFY INTEGRITY OF EXISTING RACEWAY BEFORE PULLING CABLE/WIRE.
- ALWAYS PERFORM SCAN BEFORE CORE DRILL.
- VERIFY PHASING AND ROTATION, MATCH EXISTING SYSTEM.
- CONTRACTOR IS RESPONSIBLE FOR REPAIR OF ANY DAMAGES TO ANY EXISTING BUILDING COMPONENT CAUSED BY CONSTRUCTION ACTIVITIES.

No.	Date	Revision	By:	KXL
0 <td>AUG/2016 <td>ISSUED FOR TENDER <td></td> <td></td> </td></td>	AUG/2016 <td>ISSUED FOR TENDER <td></td> <td></td> </td>	ISSUED FOR TENDER <td></td> <td></td>		
Date Printed: 00 MM YYYY				

Verify all dimensions and site conditions and be responsible for same
 Verify holes has dimensions et l'etat des lieux et en assurer la responsabilité



Project: **BUILDING M-38 FLEX HOUSE**
 Montreal Road Campus
 Second Floor Lighting and Panel Schedule

designed	conçu	date	date
KXL		AUG/2016	
drawn	dessiné	scale	échelle
KXL		AS NOTED	
checked	vérifié	sheet	feuille
FG		E05 of/de	E05
approved	approuvé	W.O.no.	D.T.no.
RC		A1-006303-01	

5044-E05

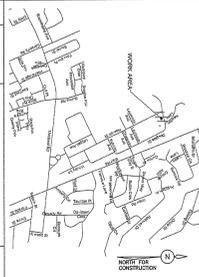
GENERAL NOTES

- CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION AND REPORT ANY DISCREPANCIES TO DEPARTMENTAL REPRESENTATIVE
- FOUNDATIONS MUST MATCH THE SITE-BUILDING FRAME SIZE RELIABLES WITH THE SCOPE OF THE WORK
- PRESENT THE SPREAD OF DIRT & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION
- MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK
- COORDINATE ALL SQUADWORK WITH THE DEPARTMENTAL REPRESENTATIVE
- RESOLVE ALL LEGAL AND MATERIAL REQUIREMENTS TO FORM A COMPLETE FUNCTIONAL SYSTEM DESCRIBED ON DRAWINGS

CMAA
 1700 CENTENNIAL AVENUE
 SUITE 1000
 MISSISSAUGA, ONTARIO L4X 1L3
 CANADA
 416-277-0000

PROFESSIONAL ENGINEER
 C. LYON
 1000 MONTREAL ROAD CAMPUS
 OTTAWA, ONTARIO
 453-3358

KEY PLAN



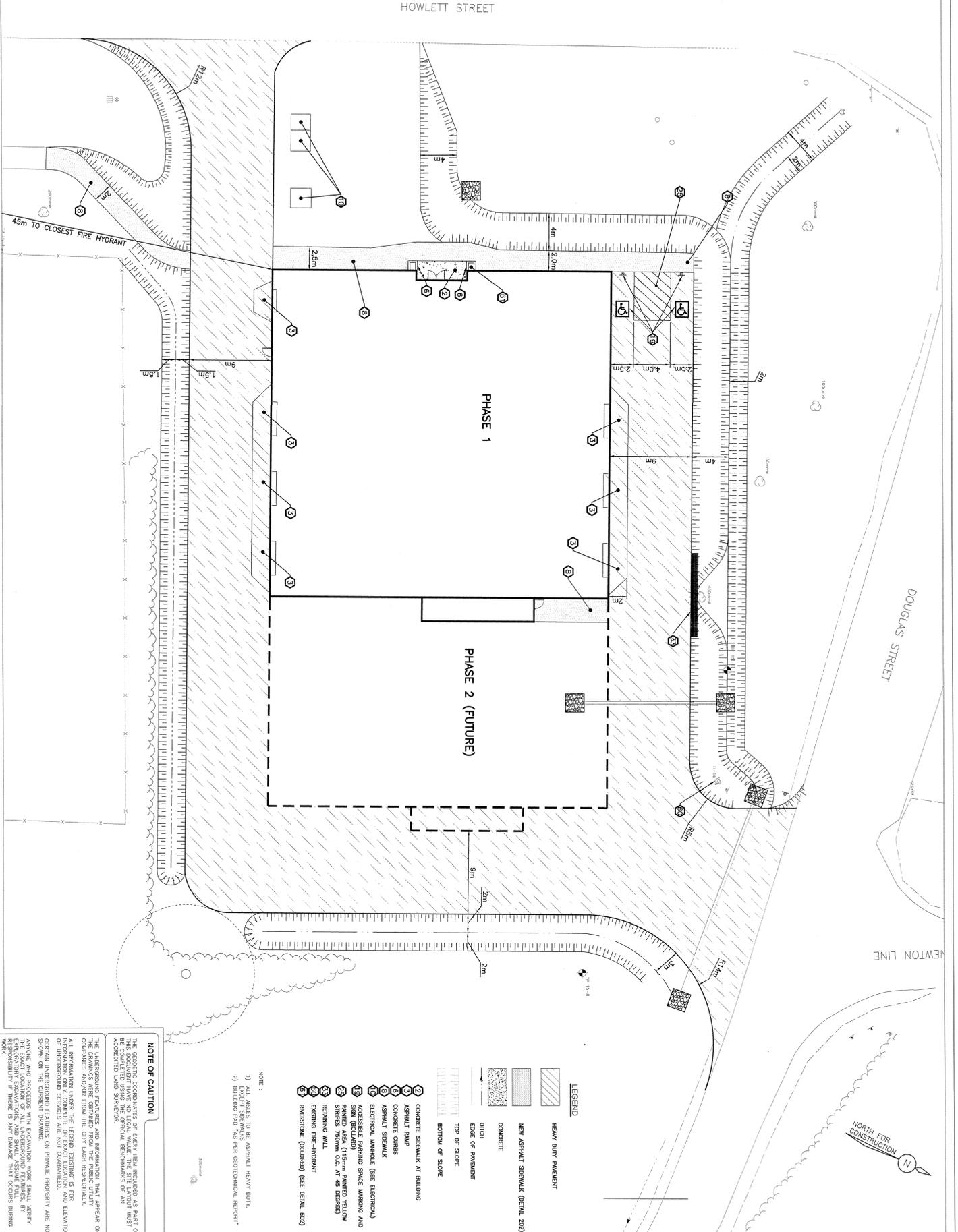
No.	Date	Revision	Date
1	4/23/2016	TRIGGER	

Project	1200 MONTREAL ROAD CAMPUS OTTAWA, ONTARIO
Contract	C. LYON
Design	C. LYON
Drawn	C. LYON
Checked	C. LYON
Approved	C. LYON
Design No.	5049-C02

Design	Drawn	Checked	Approved	Date
C. LYON	C. LYON	C. LYON	C. LYON	JULY 22, 2016

Design	Drawn	Checked	Approved	Date
C. LYON	C. LYON	C. LYON	C. LYON	JULY 22, 2016

Design	Drawn	Checked	Approved	Date
C. LYON	C. LYON	C. LYON	C. LYON	JULY 22, 2016



- LEGEND**
- HEAVY DUTY PAVEMENT
 - NEW ASPHALT SIDEWALK (DETAIL 502)
 - CONCRETE
 - DITCH
 - EDGE OF PAVEMENT
 - TOP OF SLOPE
 - BOTTOM OF SLOPE
 - CONCRETE SIDEWALK AT BUILDING
 - ASPHALT RAMP
 - CONCRETE CURBS
 - ASPHALT SIDEWALK
 - ELECTRICAL WIRING (SEE ELECTRICAL)
 - ASSESS & MARK SPACE MARKING AND SIGN (GULLAND)
 - PAINTED AREA (175mm PAINTED YELLOW STRIPES FORM O.C. AT 40 DEGREE)
 - RETAINING WALL
 - EXISTING FIRE-HYDRANT
 - RIVERSTONE (COLORED) (SEE DETAIL 502)

- NOTE:**
- 1) ALL ASSETS TO BE ASPHALT HEAVY DUTY.
 - 2) BUILDING PAD WAS PER GEOTECHNICAL REPORT.

NOTE OF CAUTION

THE UNDERGROUND FEATURES AND INFORMATION THAT APPEAR ON THIS DOCUMENT HAVE NO LEGAL VALUE. THE SITE LAYOUT MUST BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTING CONDITIONS AND FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA.

