

300-50 Troop Avenue  
Dartmouth, NS  
Canada

LIST OF DRAWINGS - LISTE DES DESSINS

200 STRUCTURAL  
STRUCTURE

- S201 ROOF TOP UNIT REPLACEMENT CURB REHABILITATION
- S202 DIVE SHOP AIR HANDLING UNIT REPLACEMENT - EXTERIOR WALL REHABILITATION

300 ARCHITECTURAL  
ARCHITECTURE

- A300 SITE PLAN
- A301 DEMOLITION
- A302 OPENING IN WALL
- A303 WALL CLOSURE
- A304 ROOF DETAILS

400 MECHANICAL  
MÉCANIQUE

- M400 MECHANICAL LEGENDS AND NOTES
- M401 PACKAGE 1 - LEVEL 1 DEMOLITION PLAN - NEW DUCTLESS AC UNITS
- M402 PACKAGE 1 - LEVEL 2 DEMOLITION PLAN - NEW DUCTLESS AC UNITS
- M403 PACKAGE 1 - ROOF TOP UNIT DEMOLITION AND NEW INSTALLATION PLANS
- M404 PACKAGE 1 - NEW DUCTLESS AC UNITS LEVEL 1 PLAN
- M405 PACKAGE 1 - NEW DUCTLESS AC UNITS LEVEL 2 PLAN
- M406 PACKAGE 1 - NEW DUCTLESS AC UNITS ROOF PLAN
- M407 PACKAGE 1 - ROOM 2219 AIR HANDLING UNIT REPLACEMENT
- M408 PACKAGE 1 - MECHANICAL DETAILS
- M409 PACKAGE 1 - MECHANICAL SCHEDULES
- M410 PACKAGE 1 - MECHANICAL CONTROLS & SEQUENCE OF OPERATIONS

500 ELECTRICAL  
ÉLECTRIQUE

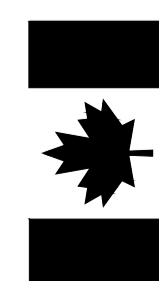
- E500 ELECTRICAL LEGEND & NOTES
- E501 PACKAGE 1 - SINGLE LINE DIAGRAM - PART II RTU ROOF TOP UNITS POWER PANEL
- E502 PACKAGE 1 - ELECTRICAL RISER I AC UNITS AND RTU ROOF TOP UNITS
- E503 PACKAGE 1 - ELECTRICAL RISER II AC UNITS AND RTU ROOF TOP UNITS
- E504 PACKAGE 1 - ELECTRICAL RISER III AC UNITS AND RTU ROOF TOP UNITS
- E505 PACKAGE 1 - RTU ROOF TOP UNITS ELECTRICAL LAYOUT
- E506 PACKAGE 1 - LEVEL 1 ELECTRICAL LAYOUT
- E507 PACKAGE 1 - LEVEL 2 ELECTRICAL LAYOUT
- E508 PACKAGE 1 - ROOM 2219 AIR HANDLING UNIT REPLACEMENT ELECTRICAL LAYOUT
- E509 PACKAGE 1 - POWER PANEL SCHEDULE
- E510 PACKAGE 1 - NEW DUCTLESS AC UNITS ROOF ELECTRICAL LAYOUT

SET NO. - SÉRIE NO.	
DATE	2022/12/06
DCC NO. - CDC NO.	KN75948
WBS NO. - NO. OTR	
PF NO. - NO. DP	
JOB NO.	TT210006

**DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B (PACKAGE 1)**

1133 Sheppard Ave. W. | Toronto | Ontario

ISSUED FOR TENDER



Government of Canada  
Gouvernement du Canada

LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ

UNCLASS | NON CLASSIFIÉ

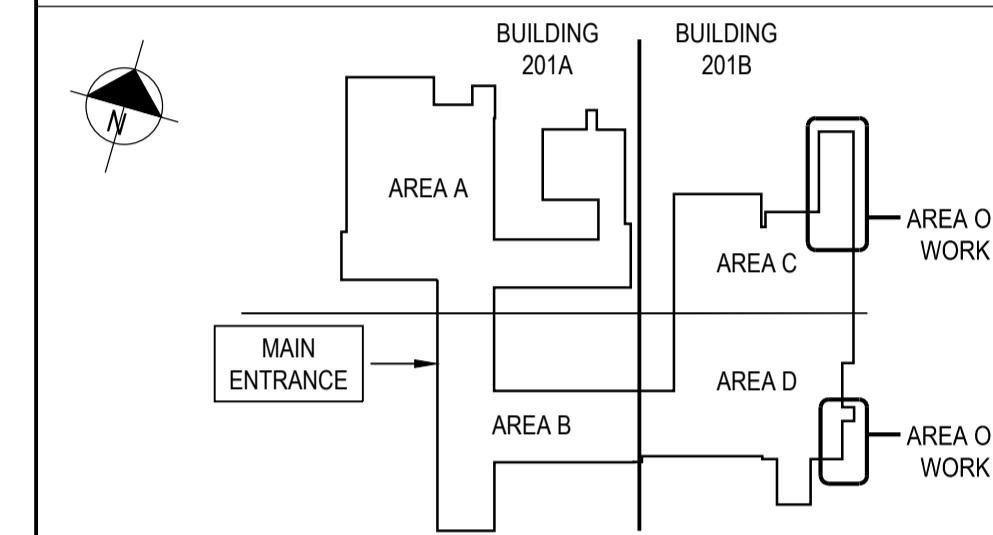
Canada

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0	2022/12/06	ISSUED FOR TENDER	D.R.
NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE  
AS NOTED  
LOCATION | EMPLACEMENT  
**1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO**

PROJECT | PROJET  
**DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B**

TRADE   MÉTIER <b>STRUCTURAL</b>	DATE 2021/07/08
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SUBJECT | SUJET  
**PACKAGE 1 -  
ROOF TOP UNIT REPLACEMENT  
CURB REHABILITATION**

DESIGNED   ÉTUDIÉ M.G.M.	REVIEWED   REVU	DES O   AGENT CONC
DRAWN   DESSINÉ M.E.M.		PROJ MGR   GEST PROJ
CHECKED   VÉRIFIÉ D.R.		DES MGR   GEST CONC
COORDINATION D.R.		FIRE   INCENDIE

WBS NO. | NO. OTP PF NO. | NO. DP

DWG. NO. | NO. DESSIN **S201**



**LOADING SUMMARY**

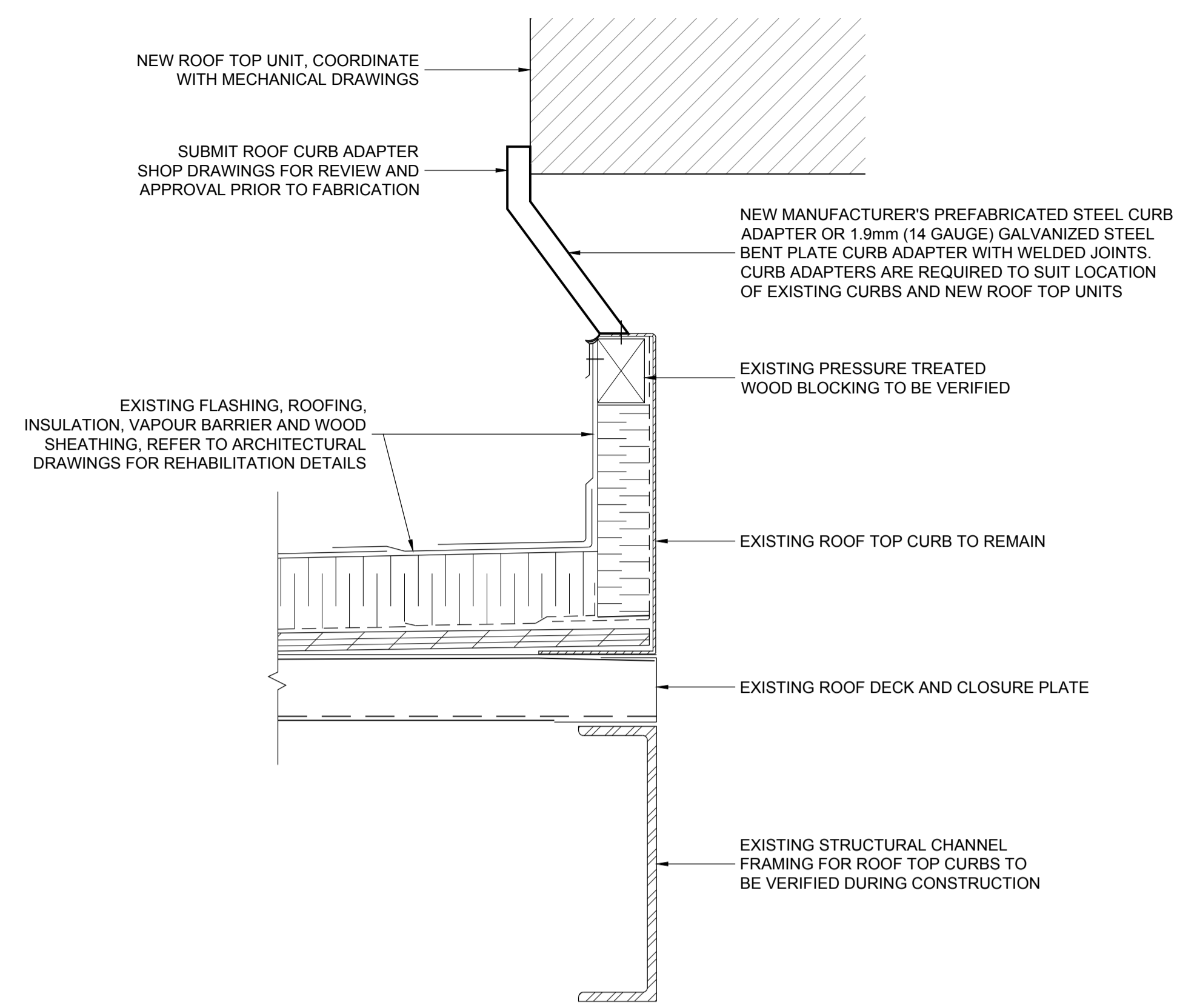
**DESIGN STANDARDS**  
- NATIONAL BUILDING CODE OF CANADA 2020, PART 4: STRUCTURAL DESIGN  
- CAN/CSA-A23.3, DESIGN OF CONCRETE STRUCTURES  
- CAN/CSA-S16, LIMIT STATES DESIGN OF STEEL STRUCTURES  
- CAN/CSA-S136, DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS  
- UNLESS OTHERWISE NOTED DESIGN CODE AND STANDARDS ARE LATEST EDITION  
- CLIMATIC DATA BASED ON N.B.C. 2020 DIVISION B TABLE C-2 (NORTH YORK)

**SNOW AND RAIN LOADS**  
- IMPORTANCE FACTOR, Is 0.9 (SLS) 1.0 (ULS)  
- GROUND SNOW LOAD, Ss 1.2 kPa  
- ASSOCIATED RAIN LOAD, Sr, 0.4 kPa  
- WIND EXPOSURE FACTOR, Cw, 1.0  
- **ROOF SNOW LOAD, S, 1.36 kPa**  
SNOW ACCUMULATION AROUND ROOF TOP UNITS PER N.B.C. 4.1.6.7(3) WHERE DIMENSION IS LESS THAN 3.0m, EFFECTS OF DRIFT SURCHARGE NEED NOT BE CONSIDERED

**WIND LOADS**  
- IMPORTANCE FACTOR, Iw 0.75 (SLS) 1.00 (ULS)  
- REFERENCE VELOCITY PRESSURE FOR STRUCTURAL MEMBERS 0.44 kPa 1/50 YEAR PROBABILITY  
- GUST FACTORS Cg:  
2.0 FOR WHOLE & MAIN STRUCTURAL MEMBERS  
2.5 FOR SMALL ELEMENTS INCLUDING CLADDING  
2.0 FOR INTERNAL PRESSURES  
- BUILDING INTERNAL PRESSURE CATEGORY **2**

**SEISMIC LOADS**  
LOCATION: NORTH YORK  
- IMPORTANCE FACTOR, Ie 1.0 (SLS) 1.0 (ULS)  
Sa (0.2) 0.19  
Sa (0.5) 0.11  
Sa (1.0) 0.066  
Sa (2.0) 0.021  
PGA 0.078  
Ie x S(0.2) < 0.2 THEREFORE SC1 SEISMIC CATEGORY (TABLE 4.1.8.5-B)

**SEISMIC SWAY BRACING**  
IN ACCORDANCE WITH N.B.C. DIV. B, ARTICLE 4.1.8.18(2), OF SEISMIC CLASS SC1 OR SC2, NON-STRUCTURAL COMPONENTS (CATEGORIES 6 THROUGH 22 OF TABLE 4.1.8.18 OF THE N.B.C.) NEED NOT BE DESIGNED FOR THE LATERAL FORCE Vp. THIS EXEMPTION IS NOT APPLICABLE TO POST-DISASTER BUILDINGS.



**3 MECHANICAL UNIT CURB REHABILITATION**  
SCALE: 1:200

**GENERAL**

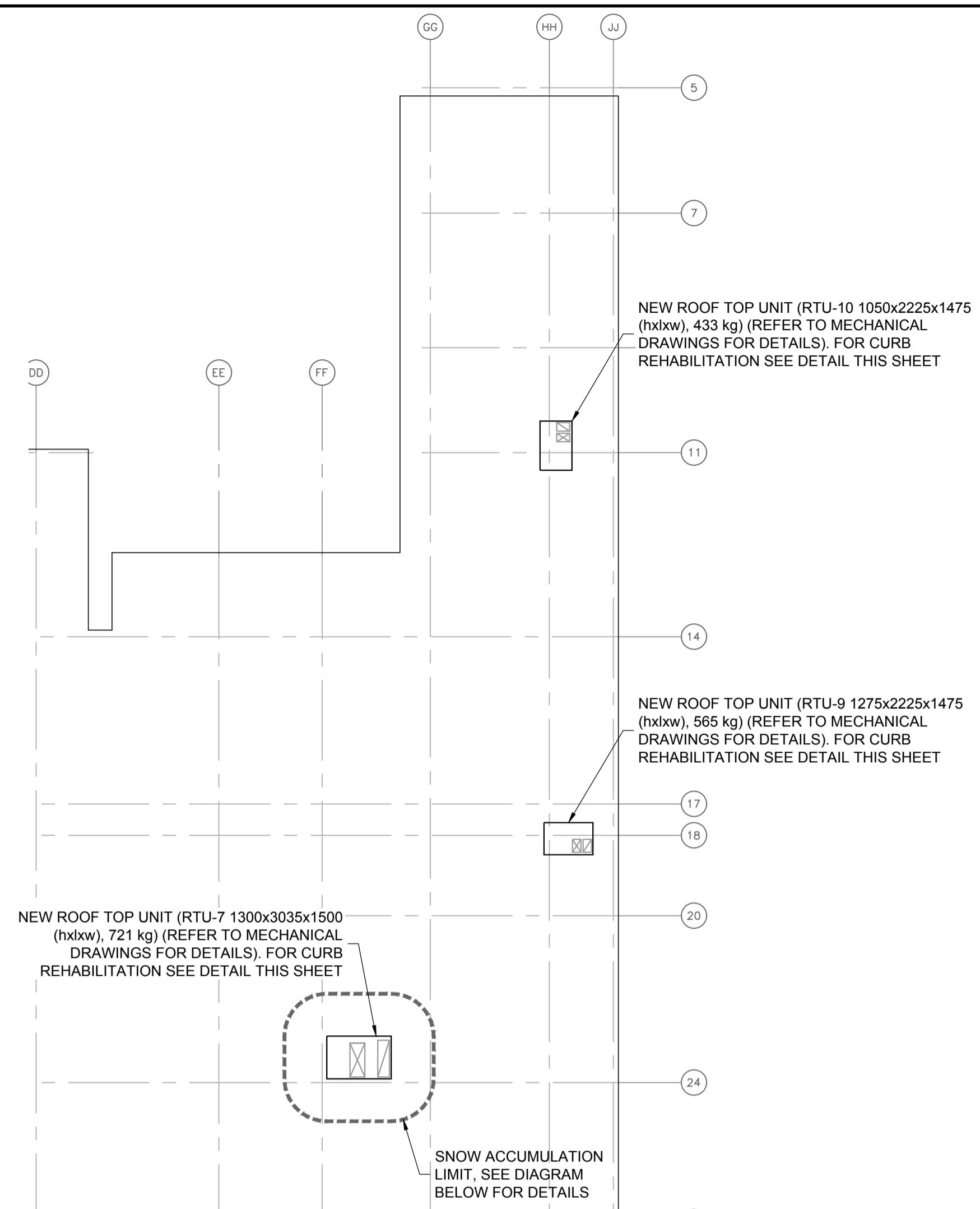
1. READ STRUCTURAL DRAWINGS IN CONJUNCTION WITH SPECIFICATIONS AND ALL OTHER CONTRACT DRAWINGS.
2. CHECK ALL DIMENSIONS SHOWN ON STRUCTURAL DRAWINGS WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS AND REPORT ANY INCONSISTENCIES TO THE DCC REPRESENTATIVE AND CONSULTANT PRIOR TO PROCEEDING WITH THE WORK.
3. REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR LOCATION OF OPENINGS, PITS, BASES, SUMPS, TRENCHES, SLEEVES, DEPRESSIONS, GROOVES, AND CHAMFERS NOT INDICATED ON THE STRUCTURAL DRAWINGS.
4. DESIGN LIVE LOADS FOR EACH PORTION OF THE STRUCTURE ARE INDICATED ON THE DRAWINGS. DO NOT EXCEED THESE LOADS DURING CONSTRUCTION.
5. FEATURES OF CONSTRUCTION NOT FULLY SHOWN ARE OF SAME CHARACTER AS THOSE NOTED FOR SIMILAR CONDITIONS.
6. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AND NATIONAL BUILDING CODES, LATEST EDITION, INCLUDING ALL CURRENT REVISIONS, WITH ALL OTHER APPLICABLE REGULATIONS, AND WITH GOOD CONSTRUCTION PRACTICE. IN ADDITION, ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH DCC GENERAL GUIDELINES FOR CONSTRUCTION ACTIVITIES.
7. EXISTING UTILITIES TO BE LOCATED PRIOR TO START OF CONSTRUCTION AND PROTECTED/MOVED AS REQUIRED DURING CONSTRUCTION. COORDINATE PROTECTION AND/OR TEMPORARY RELOCATION OF UTILITIES WITH OWNER, AT CONTRACTORS COST.
8. COORDINATE WITH ALL OTHER DISCIPLINES INCLUDING MECHANICAL, ELECTRICAL AND COMMUNICATIONS, FOR ALL OPENINGS, DEPRESSIONS AND EMBEDDED COMPONENTS IN WALLS AND SLABS.

**STRUCTURAL STEEL**

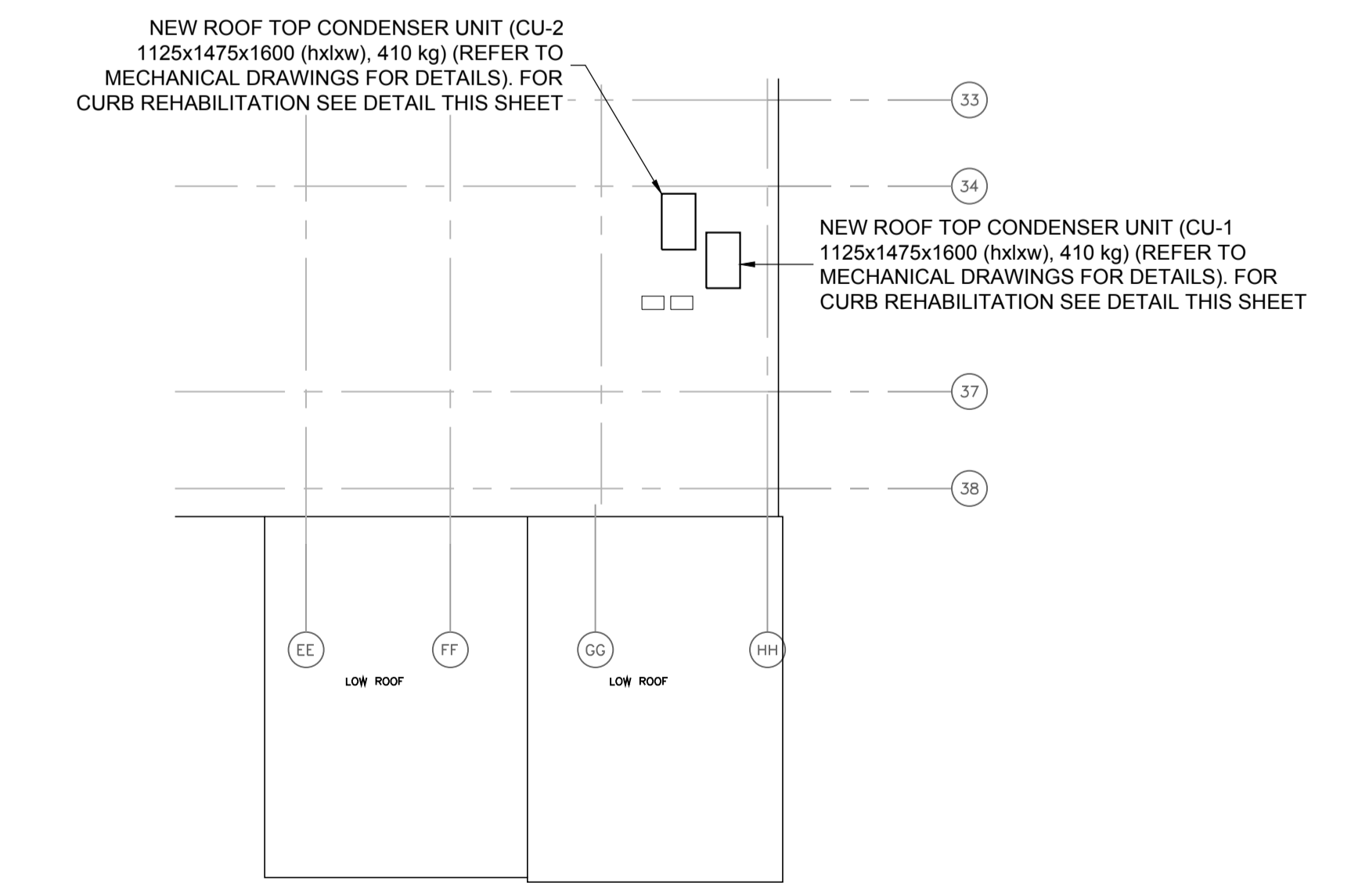
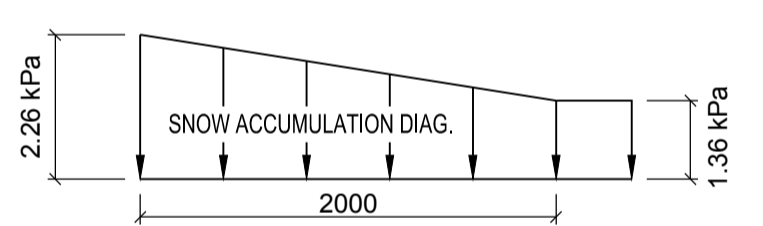
- GENERAL**
1. ALL STRUCTURAL STEEL WORK, INCLUDING DESIGN OF ALL COMPONENTS, SHALL BE CARRIED OUT IN ACCORDANCE WITH CAN/CSA-S16 EXCEPT WHERE OTHERWISE NOTED.
  2. ALL WELDING SHALL BE CARRIED OUT IN ACCORDANCE WITH CSA STANDARD W59-13. THE FABRICATOR SHALL BE FULLY APPROVED BY THE CANADIAN WELDING BUREAU IN CONFORMANCE WITH THE CSA STANDARD W47.1.
- MATERIALS**
1. PROVIDE NEW STRUCTURAL STEEL AND OPEN WEB STEEL JOISTS CONFORMING WITH CSA STANDARD G40.21 UNLESS OTHERWISE NOTED IN SPECIFICATIONS. PROVIDE GRADE 350W FOR ROLLED SHAPES AND PLATES, AND GRADE 350W FOR HOLLOW STRUCTURAL SECTIONS. ALL STRUCTURAL STEEL SHALL BE PRIME PAINTED IN THE SHOP.
  2. ROOF DECK TO BE 38mm DEEP AND SHALL BE DESIGNED IN ACCORDANCE WITH CSA STANDARD S-136 "COLD FORMED STEEL STRUCTURAL MEMBERS" AND SHALL BE FABRICATED FROM G-90 COMMERCIAL TEMPERED ROLLED GALVANIZED STEEL CONFORMING TO ASTM A-446 (LATEST EDITION) GRADE A. BASE STEEL NOMINAL THICKNESS SHALL BE MINIMUM 0.76mm.
  3. PROVIDE ALL NECESSARY SEALANTS AND CAULKING AS REQUIRED TO ENSURE A WEATHERTIGHT INSTALLATION.
  4. HOT DIP GALVANIZE ALL STEEL LINTELS, SHELF ANGLES, + EXTERIOR STRUCTURAL STEEL IN EXTERIOR WALLS, CANOPIES AND ALL STEEL EXPOSED TO WEATHER.
  5. GROUTING FOR BASE PLATES AND BEARING PLATES SHALL BE A CEMENTITIOUS NON-SHRINK TYPE.
  6. ALL EXPOSED STAINLESS STEEL TO BE GRADE 316, OTHERWISE TO BE GRADE 304.

**EXECUTION**

1. ERECT STRUCTURAL STEEL AS INDICATED IN ACCORDANCE WITH CAN/CSA-S16 AND IN CONFORMANCE WITH THE SHOP DRAWINGS.
2. ALL BOLTS SHALL BE TIGHTENED BY USING A SUITABLE TORQUE WRENCH, TORQUING AS REQUIRED IN CAN/CSA-S16.
3. PROVIDE A MINIMUM BEARING LENGTH FOR BEAMS OF 150 ON MASONRY AND 100 ON STRUCTURAL STEEL EXCEPT WHERE NOTED OTHERWISE ON THE DRAWINGS.
4. WELD BASE PLATE TO COLUMNS TO FULLY DEVELOP ANCHOR BOLTS.
5. PROVIDE 5mm THICK CAP PLATE ON ALL COLUMNS UNLESS NOTED OTHERWISE.
6. PROVIDE MINIMUM 175x16 BEARING PLATES x175 FOR ALL STRUCTURAL STEEL c/w 2-15Ø ANCHORS UNLESS OTHERWISE NOTED. INCREASE SIZE AS REQUIRED.



**1 PARTIAL ROOF PLAN - ROOF TOP UNITS**  
SCALE: 1:200



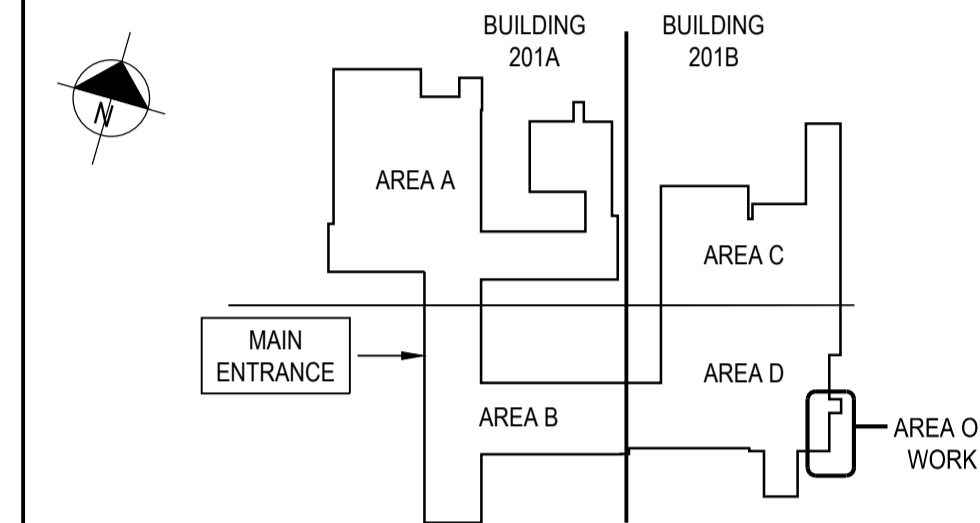
**2 PARTIAL ROOF PLAN - ROOF TOP UNITS**  
SCALE: 1:200

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NO.	DATE	REVISION	APPR.

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AS NOTED

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PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

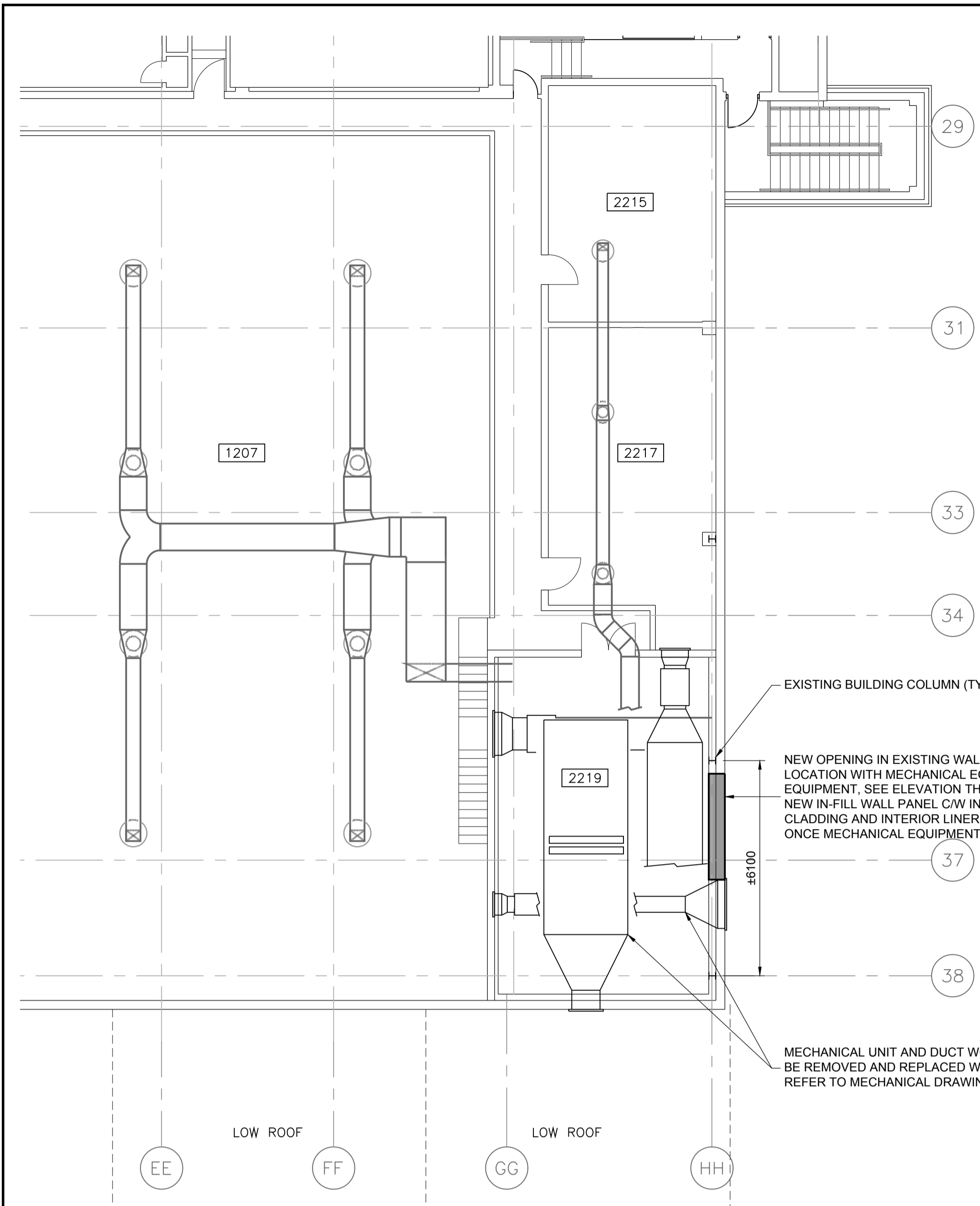
TRADE | MÉTIER  
STRUCTURAL  
DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
DIVE SHOP AIR HANDLING UNIT  
REPLACEMENT - EXTERIOR WALL  
REHABILITATION

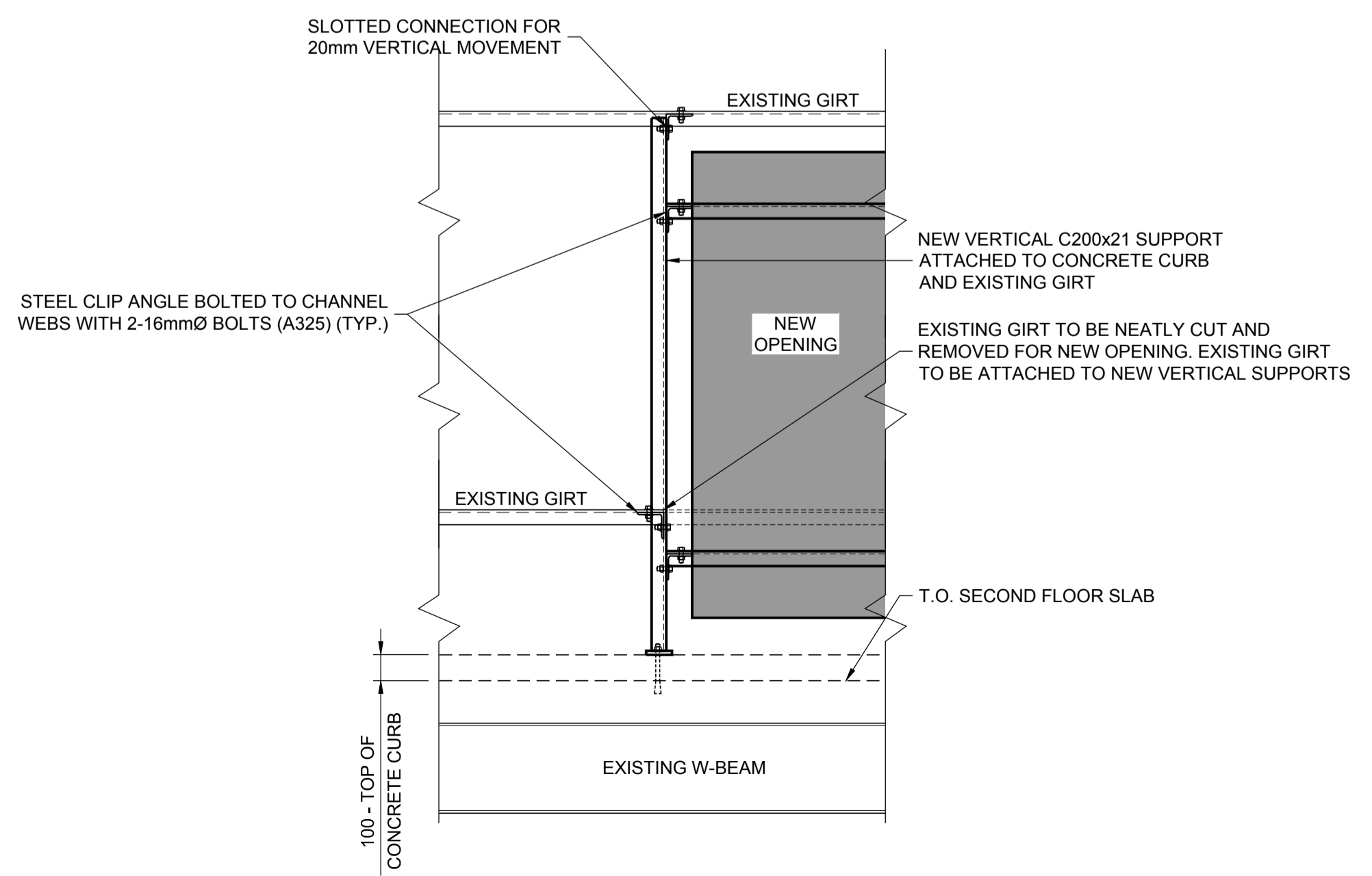
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DRAWN   DESSINÉ		DES MGR   GEST CONC
M.E.M.		
CHECKED   VÉRIFIÉ		FIRE   INCENDIE
D.R.		
COORDINATION		
D.R.		

WBS NO. | NO. OTP  
PF NO. | NO. DP

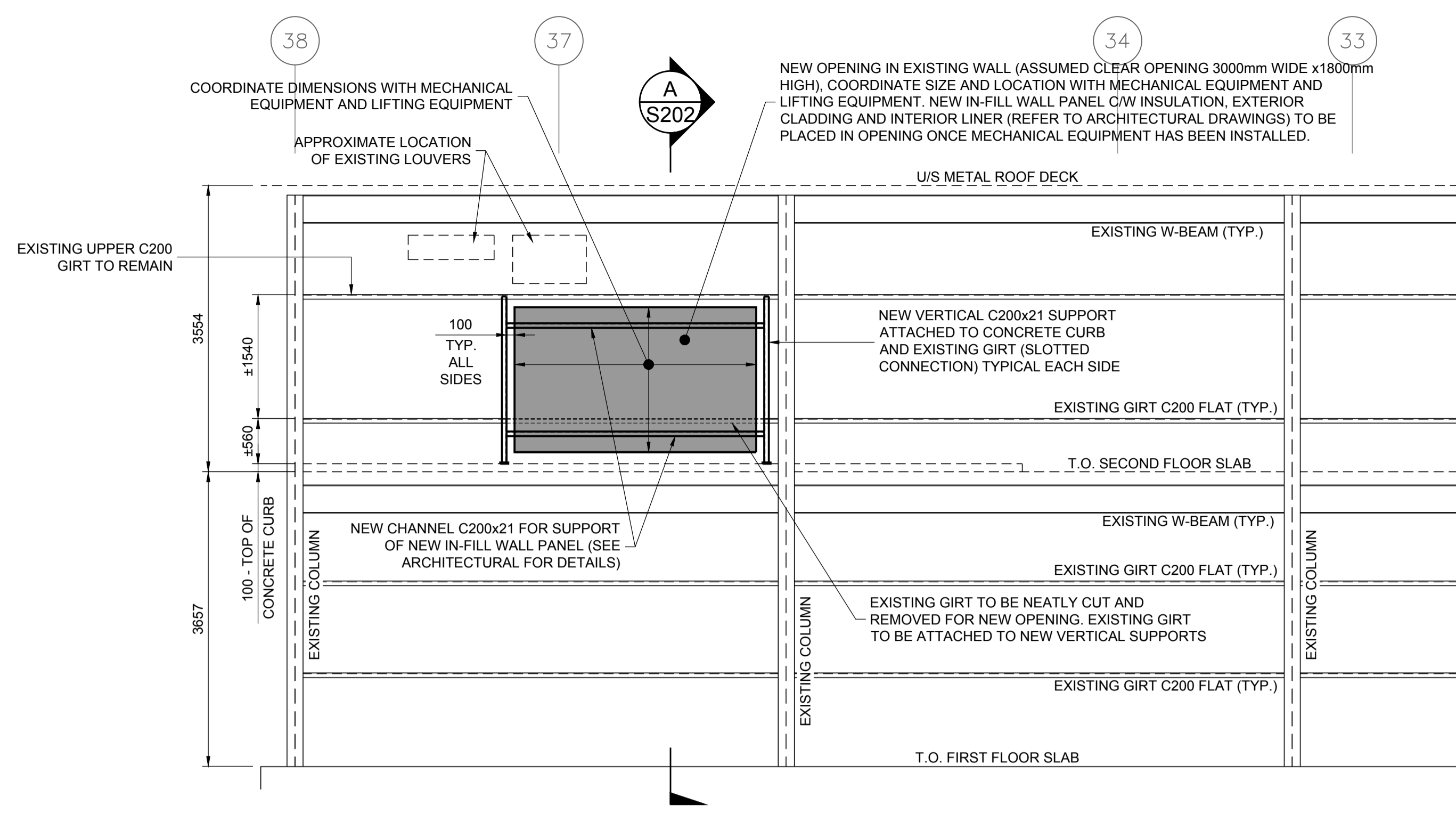
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S202



**1 PARTIAL FLOOR PLAN - DIVE SHOP WALL REHABILITATION**  
S202 SCALE: 1:100

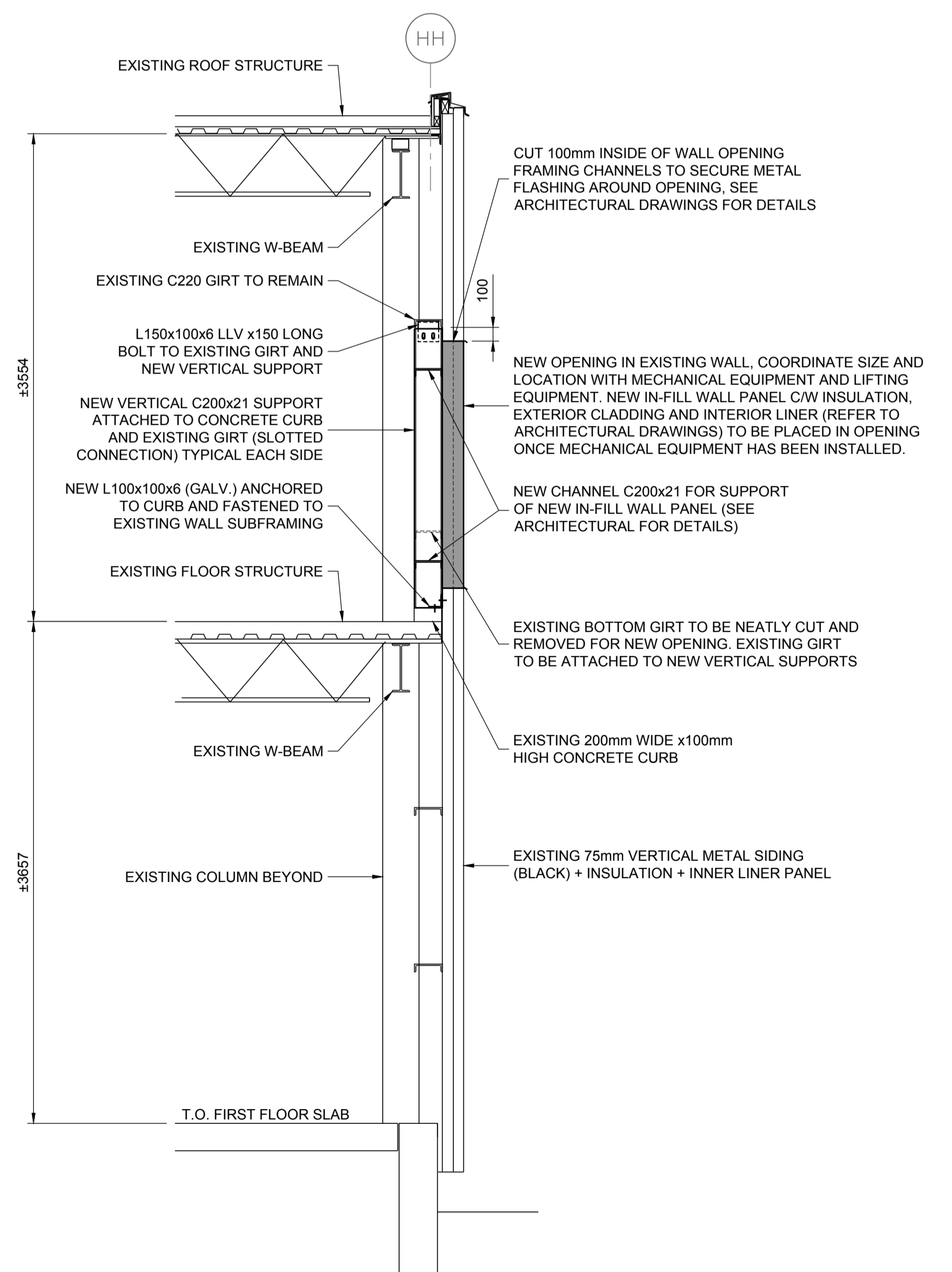


**3 NEW FRAMING CONNECTION DETAIL**  
S202 SCALE: 1:20



**2 PARTIAL FRAMING ELEVATION ALONG GIRL LINE HH**  
S202 SCALE: 1:50

**NOTE:**  
FIELD VERIFY ALL DIMENSIONS  
PRIOR TO FABRICATION



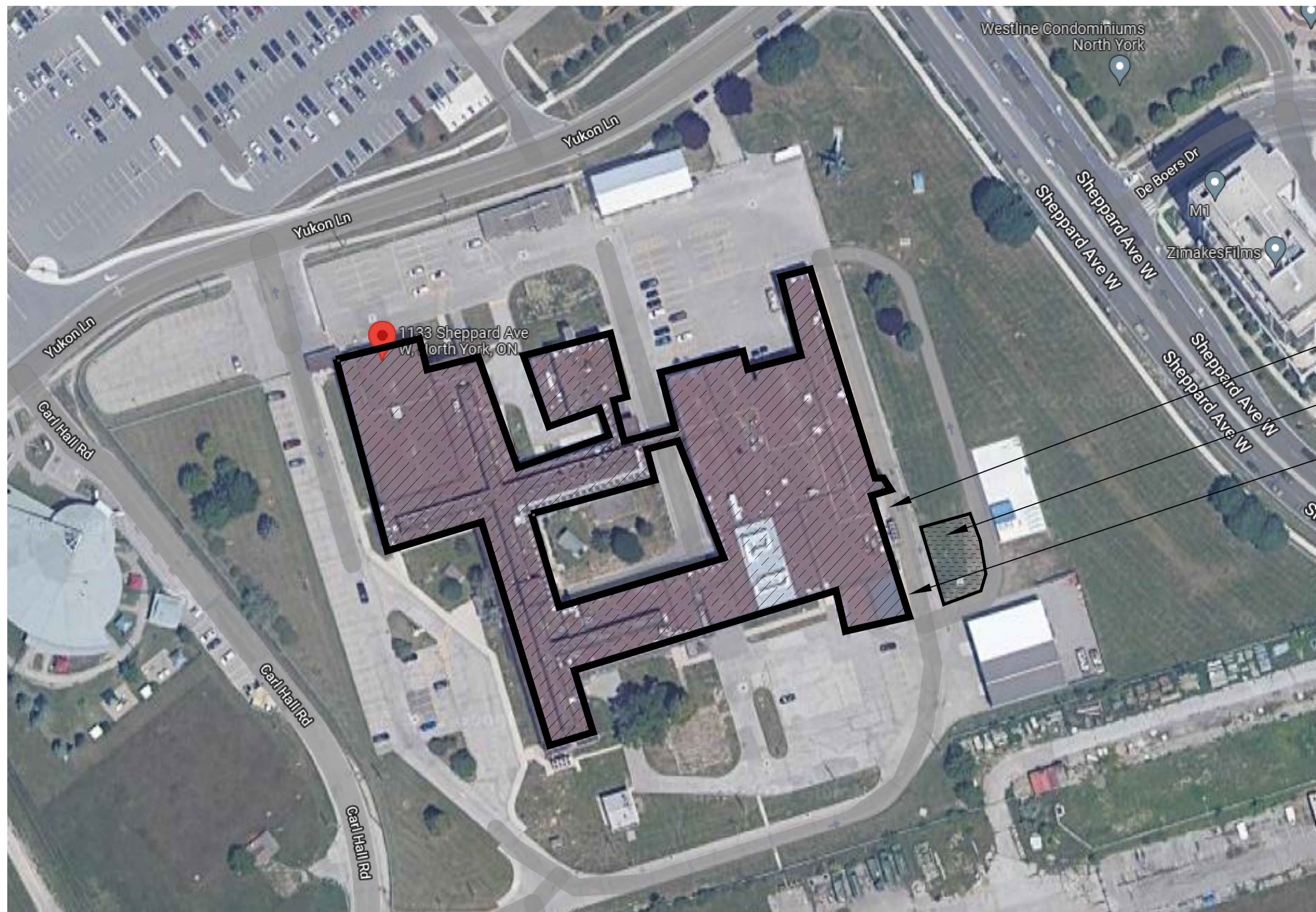
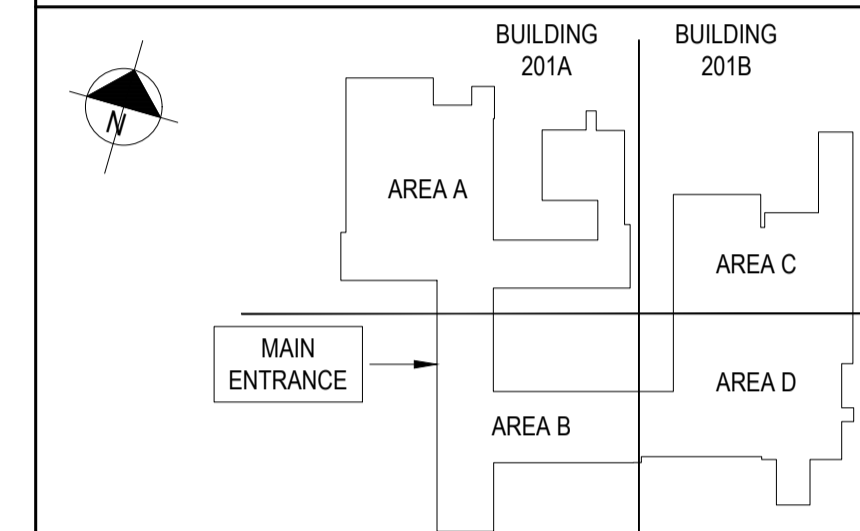
**A WALL SECTION**  
S202 SCALE: 1:30

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MAINTAIN EXISTING FIRE ROUTE ALL TIME. TEMPORARY CLOSURES MUST BE COORDINATED WITH DCC REPRESENTATIVE

CONTRACTOR'S LAYDOWN AREA

TEMPORARY SCAFFOLDING WITH STAIR FOR CONTRACTOR ACCESS TO 2ND LEVEL MECHANICAL FLOOR (ROOM 2219). SCAFFOLDING AND STAIR MUST BE MAINTAINED THROUGHOUT THE COURSE OF THE PROJECT. MEANS OF ACCESS TO THIS AREA FROM INSIDE WILL NOT BE ALLOWED DURING CONSTRUCTION.

**1** DETAIL WINDOW  
A300 SCALE: 1:5

**GENERAL CONSTRUCTION NOTES FOR SEQUENCE OF WORK:**

- ACCESS ROOF FROM EXTERIOR AREA NEAR CONTRACTOR'S LAYDOWN AREA. COORDINATE WITH DCC REPRESENTATIVE FOR ACCESS REQUIREMENT. REFER TO SECTION 01 14 00 WORK RESTRICTIONS
- AT THE END OF EACH WORK DAY, CONTRACTOR SHALL BE RESPONSIBLE TO CLOSE, SECURE AND RESTRICT ALL MEANS OF ACCESS TO ROOF FROM THE SCAFFOLDING. TEMPORARY HOARDING OR FENCING SHALL BE A FIXED TYPE WITH LOCKABLE GATE WHICH CAN BE CLOSED AT THE END OF THE DAY. IN ADDITION, THE SCAFFOLDING SHALL HAVE PHYSICAL RESTRICTION TO RESTRICT ACCESS. CONSULT WITH DCC REPRESENTATIVE
- ACCESS TO INTERIOR AREAS MUST BE COORDINATED WITH DCC REPRESENTATIVE
- EXISTING ROOF, ROOFING SYSTEM AND WATERPROOFING MUST BE PROTECTED. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING ROOFING.
- INSTALL A PERMANENT SCAFFOLDING SYSTEM TO ACCESS ROOM NUMBER 2219 MECHANICAL ROOM.
- HAZMAT ABATEMENT
  - REFER TO HAZMAT REPORT
  - CONDUCT SELECTIVE ABATEMENT FOR IMPACTED AREAS INCLUDING PAINT, INSULATION...ETC, AS NEEDED FOR THE WORK.

**GENERAL CONSTRUCTION NOTES:**

- COORDINATE ALL WORK WITH MECHANICAL & ELECTRICAL DRAWINGS.
- DO NOT SCALE DRAWINGS. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
- THE CONTRACTOR IS TO REVIEW AND VERIFY THAT ALL DIMENSIONS, ELEVATIONS, DATUMS, AND INFORMATION SHOWN ARE CORRECT. VERIFY ALL DIMENSIONS ON SITE.
- PRIOR TO COMMENCEMENT OF WORK, REPORT ANY DISCREPANCIES TO THE DCC REPRESENTATIVE.
- VARIATIONS AND MODIFICATIONS TO WORK SHOWN WILL NOT BE PERMITTED WITHOUT THE WRITTEN PERMISSION OF THE DCC REPRESENTATIVE.
- NO REPRODUCTION OF THE DRAWINGS MAY BE MADE WITHOUT THE WRITTEN CONSENT OF THE DCC REPRESENTATIVE AND ALL REPRODUCTION MUST BEAR THE NAME OF THE DCC REPRESENTATIVE.
- COORDINATE WITH DCC REPRESENTATIVE FOR ANY INTERRUPTIONS OF BUILDING SERVICES FOR THE DURATION OF THE PROJECT.
- THE CONTRACTOR SHALL NOTIFY THE DCC REPRESENTATIVE OF ANY EQUIPMENT OR ELECTRICAL APPARATUS WHICH MAY VARY FROM THAT INDICATED IN THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PERIODICALLY REMOVING ALL DEBRIS AND TO KEEP THE WORK AREA IS CLEAN AT ALL TIMES.
- PROVIDE TEMPORARY PROTECTION TO ADJACENT SURFACES NOT AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. ENSURE THAT DEBRIS IS REMOVED FROM EACH SPACE.
- MAINTAIN THE INTEGRITY OF ALL LIFE/SAFETY SYSTEMS AND REQUIRED EXISTS AT ALL TIMES THROUGHOUT THE DURATION OF THIS PROJECT.
- PATCH, REPAIR, AND REFINISH DAMAGED OR PENETRATIONS TO AREAS, SURFACES AS A RESULT OF NEW CONSTRUCTION, OR IN THE TRANSPORTATION OF MATERIALS AT THE SITE.
- PROVIDE CONTINUOUS ISOLATION PROTECTION AT AND BETWEEN ALL DISSIMILAR METALS/BUILDING COMPONENTS

**GENERAL DEMOLITION NOTES:**

- IT IS CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR DISCONNECTION OF ALL EXISTING SERVICES BEFORE REMOVAL.
- THE DRAWINGS SHOWN ARE DIAGRAMMATIC. THE DRAWINGS MAY NOT REPRESENT "AS-BUILT" CONDITIONS.
- NO EXTRAS WILL BE ALLOWED FOR FAILURE OF THE CONTRACTOR IN COMPLETING A THOROUGH REVIEW OF THE SITE PRIOR TO SUBMITTING TENDER PRICE.
- ISOLATE DEMOLITION AREA PRIOR AND DURING DEMOLITION USING HOARDING AND CONTROLLED MEANS OF ENTRY/EXIT.
- MAKE GOOD ALL EXISTING SURFACE WHERE DEMOLITION OCCUR, MATCH EXISTING SURFACE WHERE AFFECTED SURFACE ARE NOT REQUIRED TO BE COVERED BY NEW, UNLESS OTHERWISE NOTED.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT AND ASSESS EACH AREA AND TO FULFILL THE INTENT OF DEMOLITION INDICATED IN THE CONTRACT DOCUMENTS. CONTRACTOR TO COORDINATE DEMOLITION DRAWINGS AND NOTES WITH ALL CONSULTANT'S DEMOLITION DRAWINGS.
- CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO DEMOLITION WORK, PROBLEMS OR DISCREPANCIES IN THE DRAWING TO BE REPORTED AT ONCE TO THE DCC REPRESENTATIVE.
- THE OWNER RESERVE THE RIGHT TO SALVAGE ANY ITEMS IDENTIFIED TO BE REMOVED.
- CONTRACTOR TO REVIEW ALL ITEMS TO BE DEMOLISHED WITH OWNER TO IDENTIFY ANY ITEMS TO BE SALVAGED PRIOR TO START OF DEMOLITION. CONTRACTOR TO SUBMIT DETAILED DEMOLITION PROCEDURES FOR REVIEW AND APPROVAL PRIOR TO WORK

NO.	DATE	REVISION	APPR.
0	2023/3/13	ISSUED FOR TENDER	S.C.
B	2022/08/11	ISSUED FOR 90% SUBMISSION	S.C.
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AS NOTED

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PROJECT | PROJET  
**DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B**

TRADE | MÉTIER  
**ARCHITECTURAL** DATE  
**2022/12/06**

SUBJECT | SUJET  
**SITE PLAN.**

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
SC		
DRAWN   DESSINÉ		PROJ MGR   GEST PROJ
SC		-
CHECKED   VÉRIFIÉ		DES MGR   GEST CONC
SC		
COORDINATION		FIRE   INCENDIE

WBS NO. | NO. OTP  
- PF NO. | NO. DP  
**TT210006 KN75948**

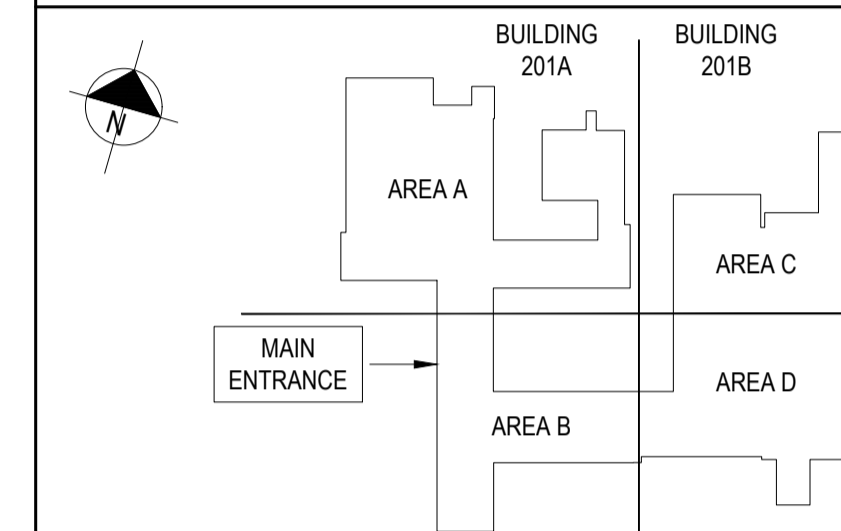
DWG. NO. | NO. DESSIN  
**A-300**

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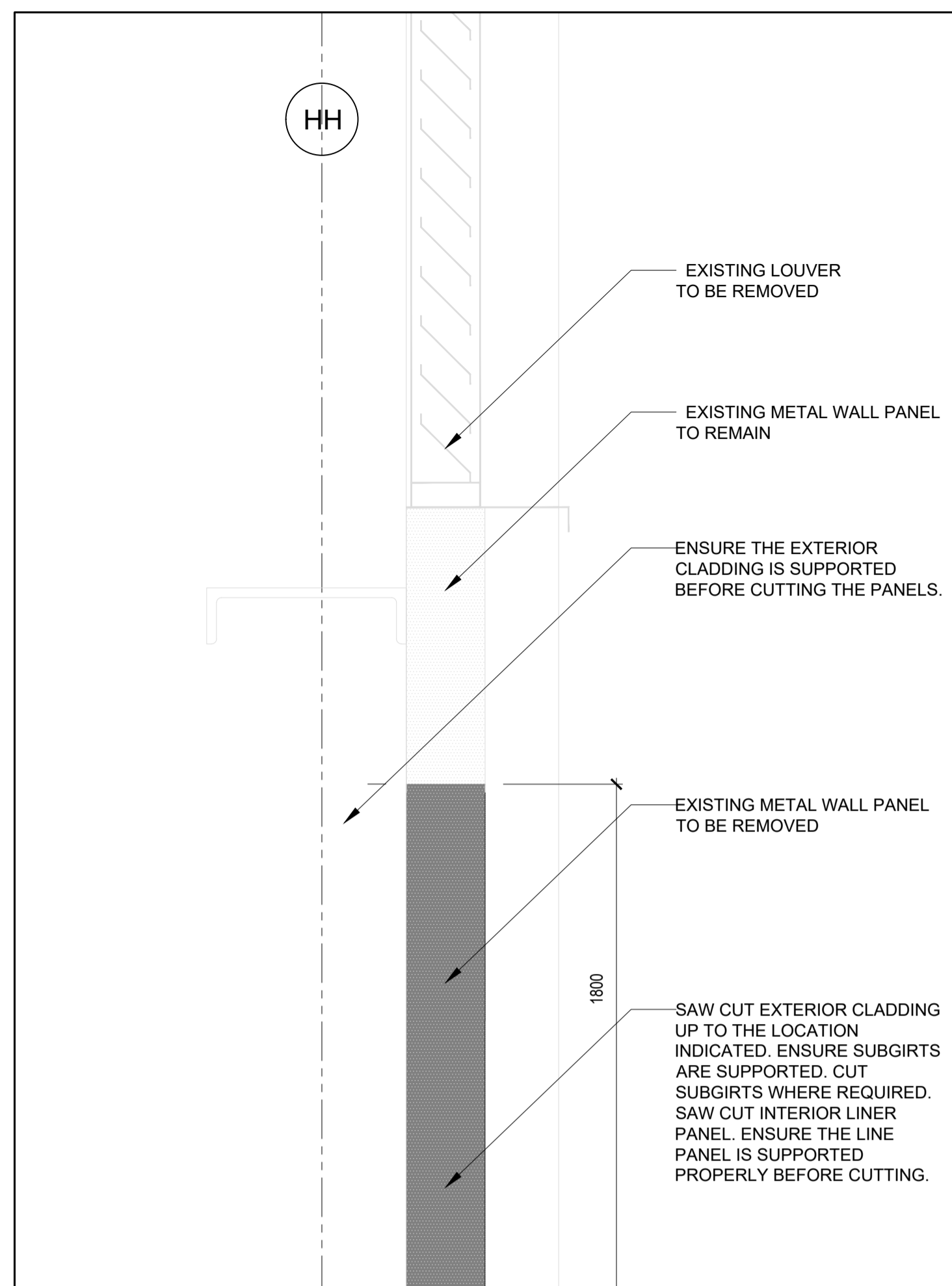
TRADE | MÉTIER  
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DATE  
2022/12/06

SUBJECT | SUJET  
DEMOLITION

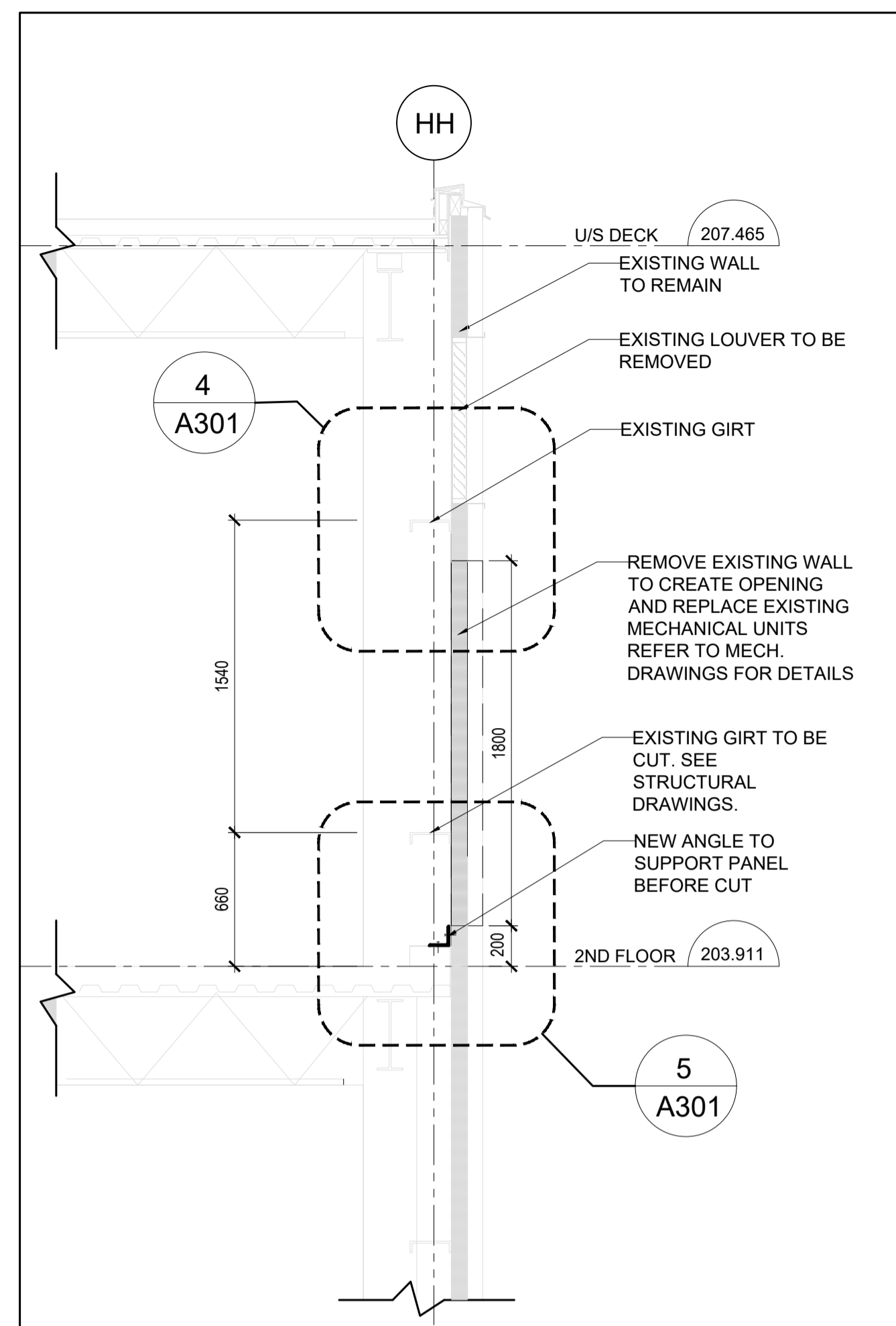
PRODUCTION	DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
	SC		
DRAWN   DESSINÉ	CHECKED   VÉRIFIÉ	COORDINATION	FIRE   INCENDIE
SC	SC		

WBS NO. | NO. OTP  
-  
PF NO. | NO. DP  
TT210006 KN75948

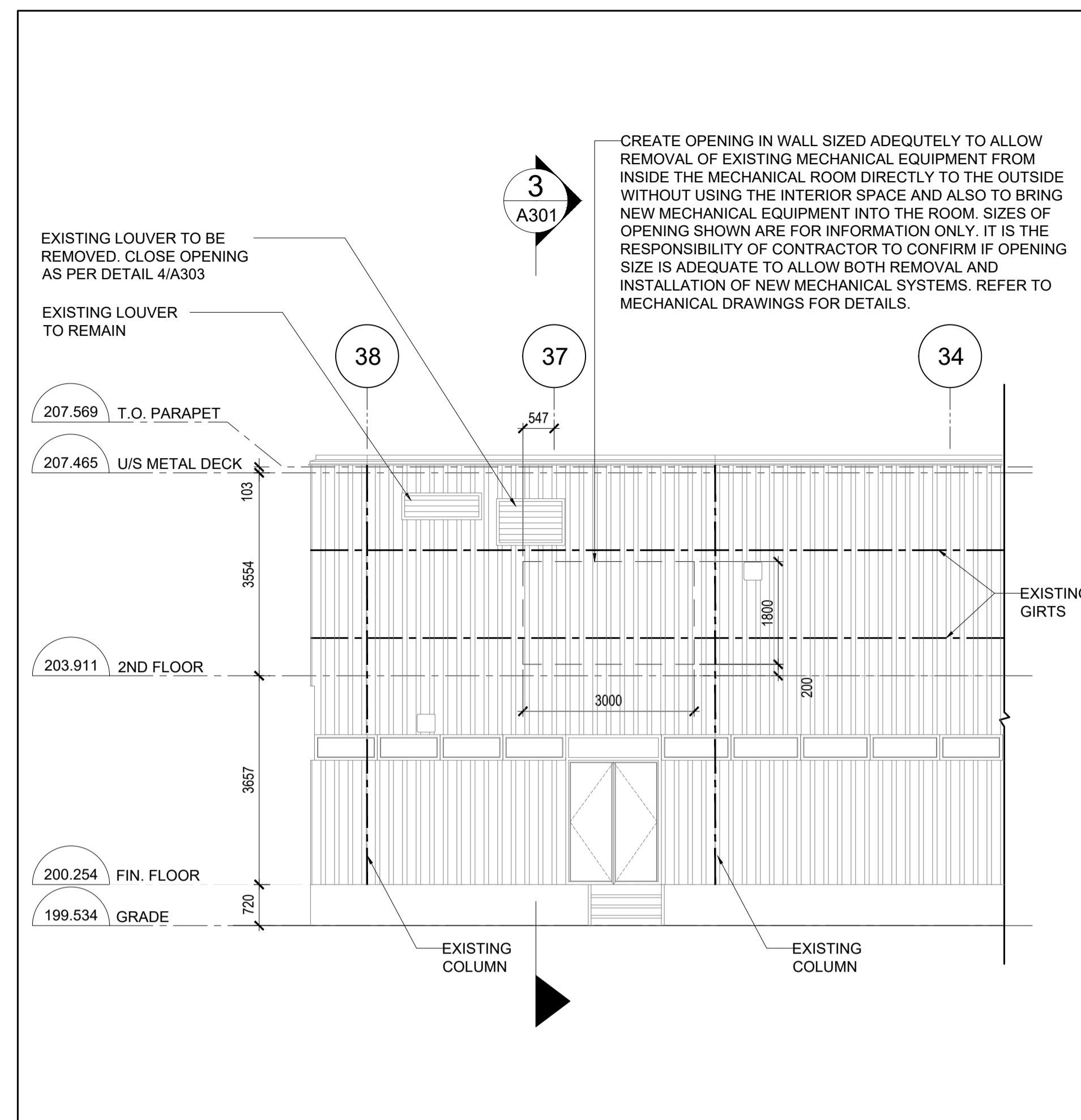
DWG. NO. | NO. DESSIN  
A-301



4 DETAIL VOID LINTEL  
A301 SCALE: 1:5

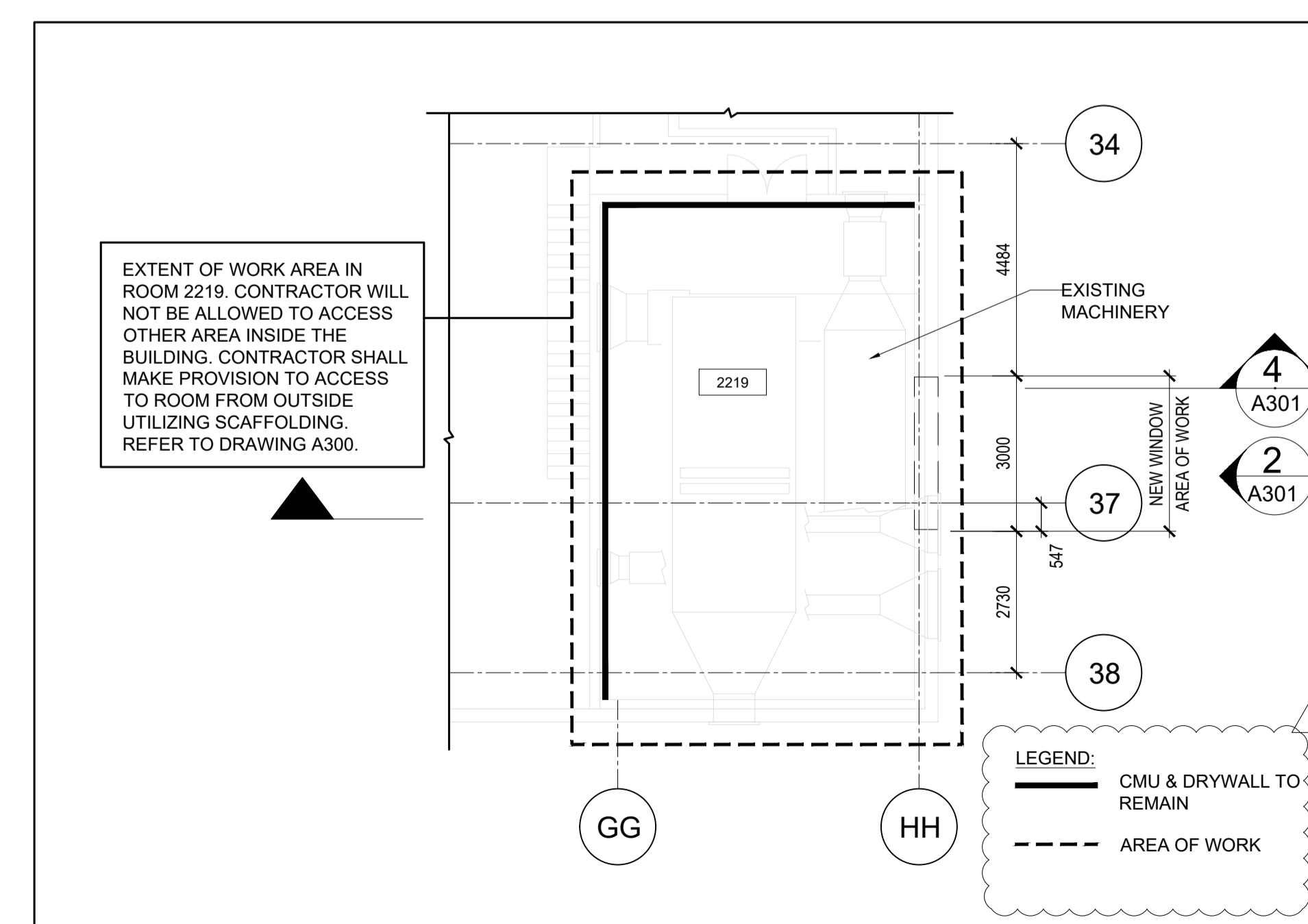


3 WALL SECTION - THROUGH THE VOID  
A301 SCALE: 1:25

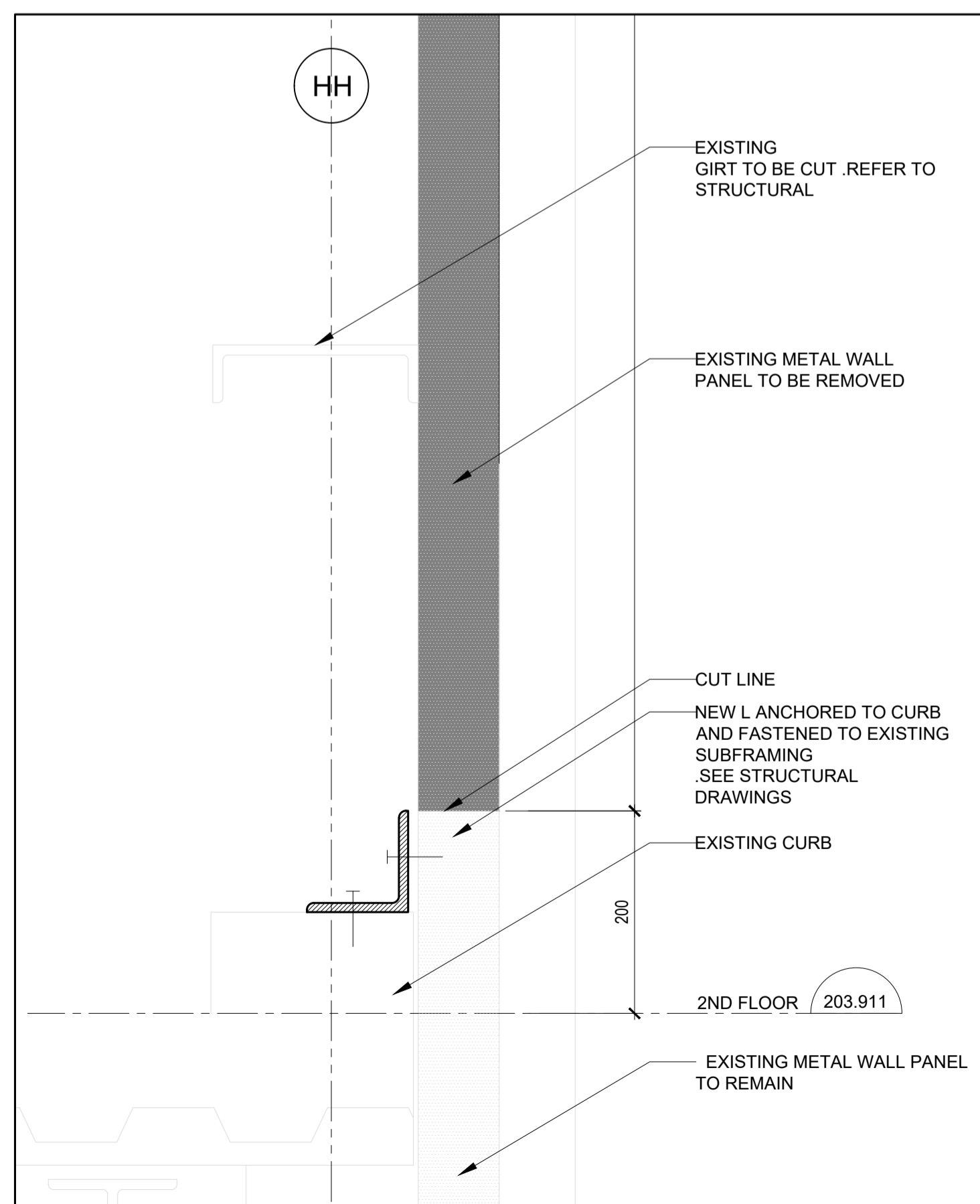


2 ELEVATION  
A301 SCALE: 1:75

NOTES:  
1. EXISTING BUILDING ELEMENTS SHOWN IN GREY AND NEW ELEMENTS SHOWN IN BLACK  
2. OPENING TO BE USED AS CONSTRUCTION ACCESS FOR ROOM 2219  
3. CONTRACTOR SHALL NOT BE ALLOWED TO ACCESS ROOM 2219 FROM INSIDE. CONTRACTOR SHALL USE THE NEW OPENING TO ACCESS THIS ROOM. CONTRACTOR SHALL PROVIDE SCAFFOLDING AND TEMPORARY STAIRS TO ACCESS ROOM 2219 DIRECTLY FROM OUTSIDE.



1 FLOOR PLAN  
A301 SCALE: 1:100



5 DETAIL VOID SILL  
A301 SCALE: 1:5

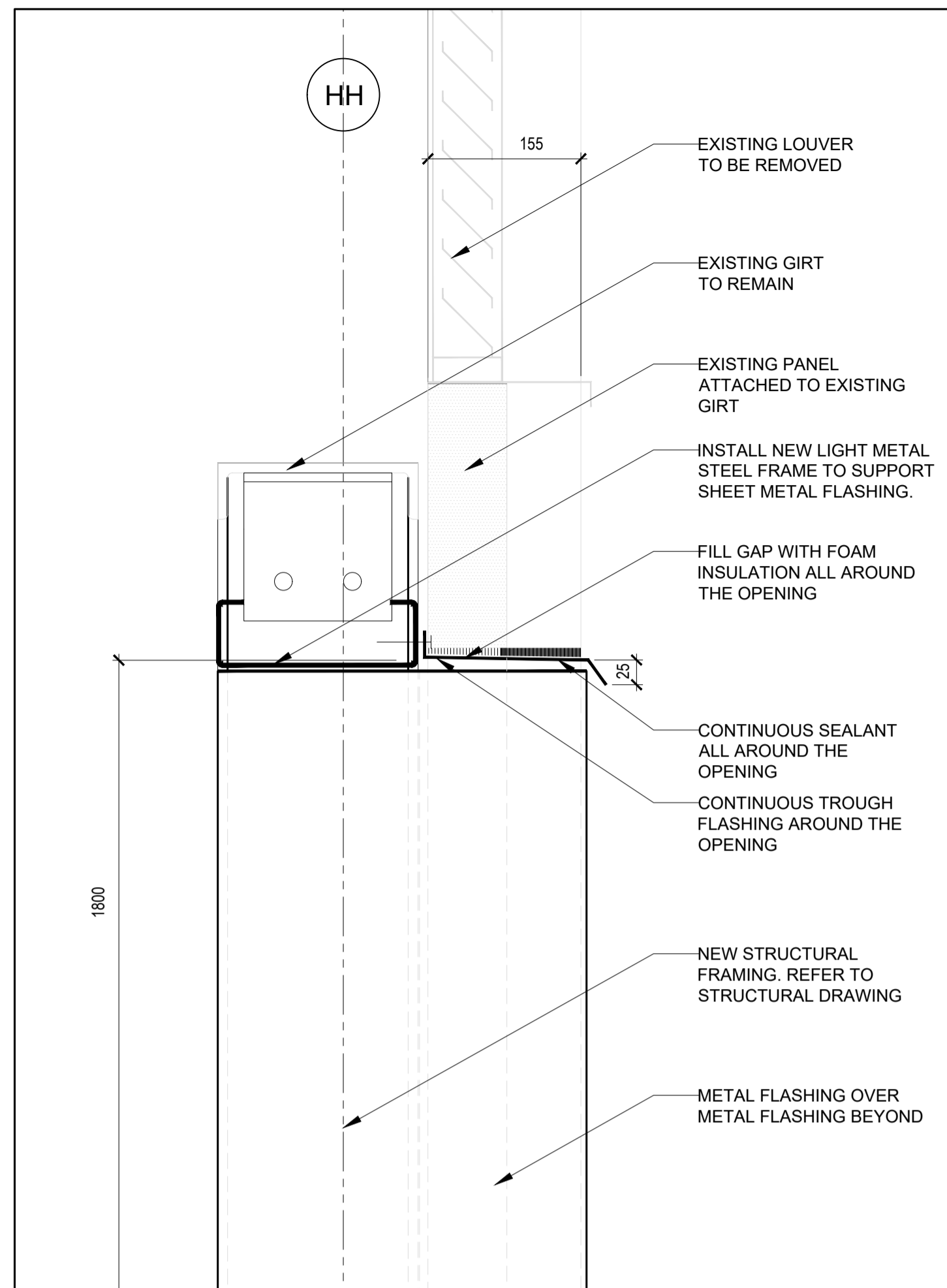
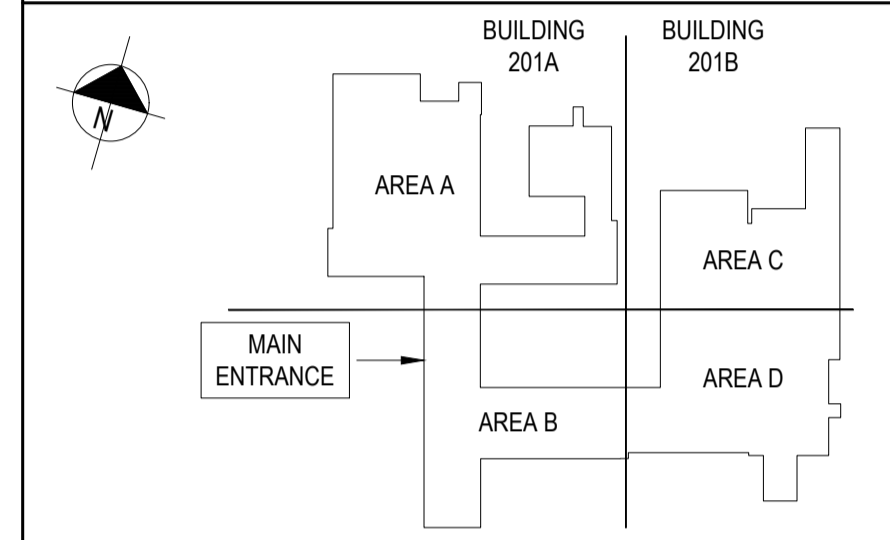
LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ  
UNCLASS | NON CLASSIFIÉ

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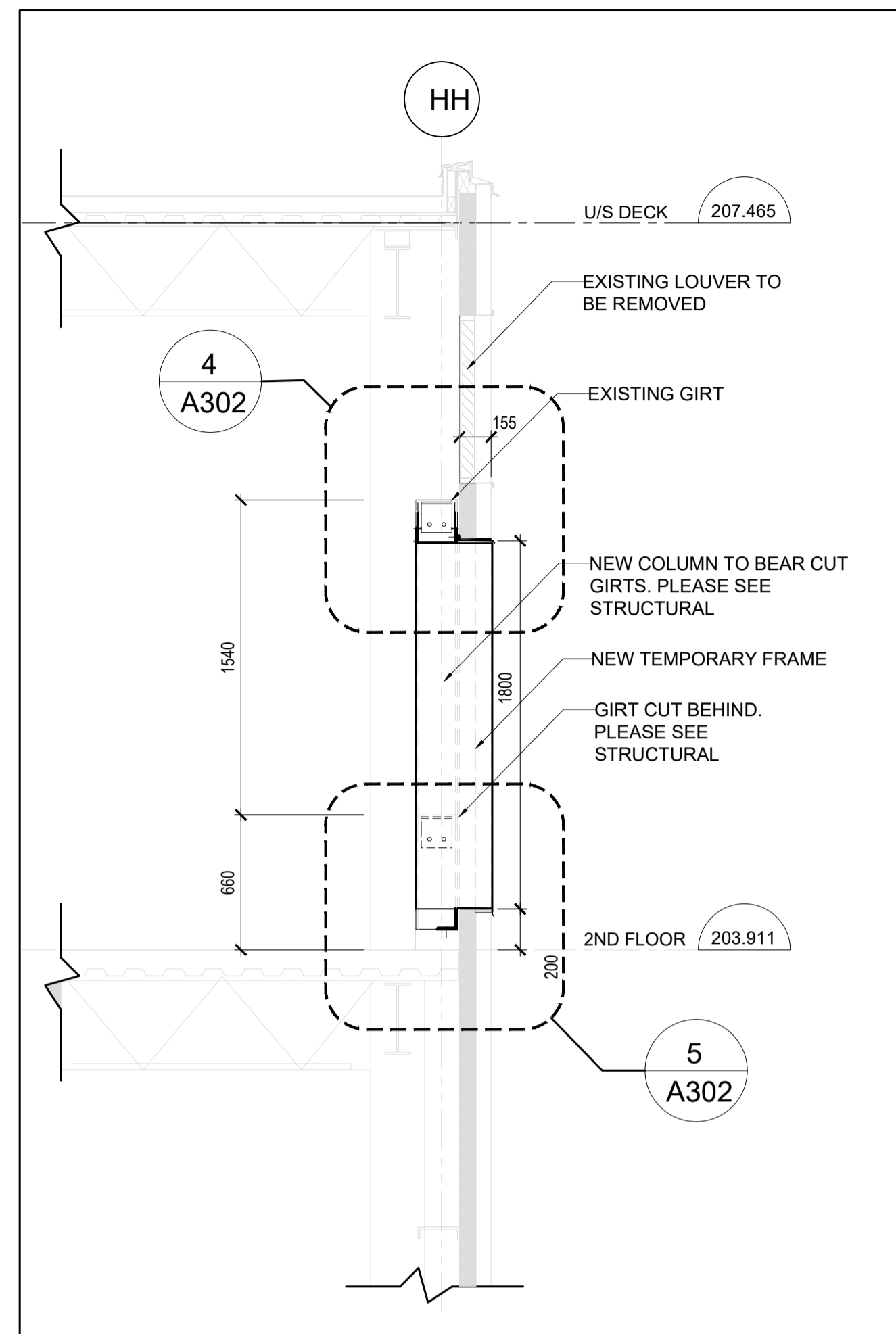
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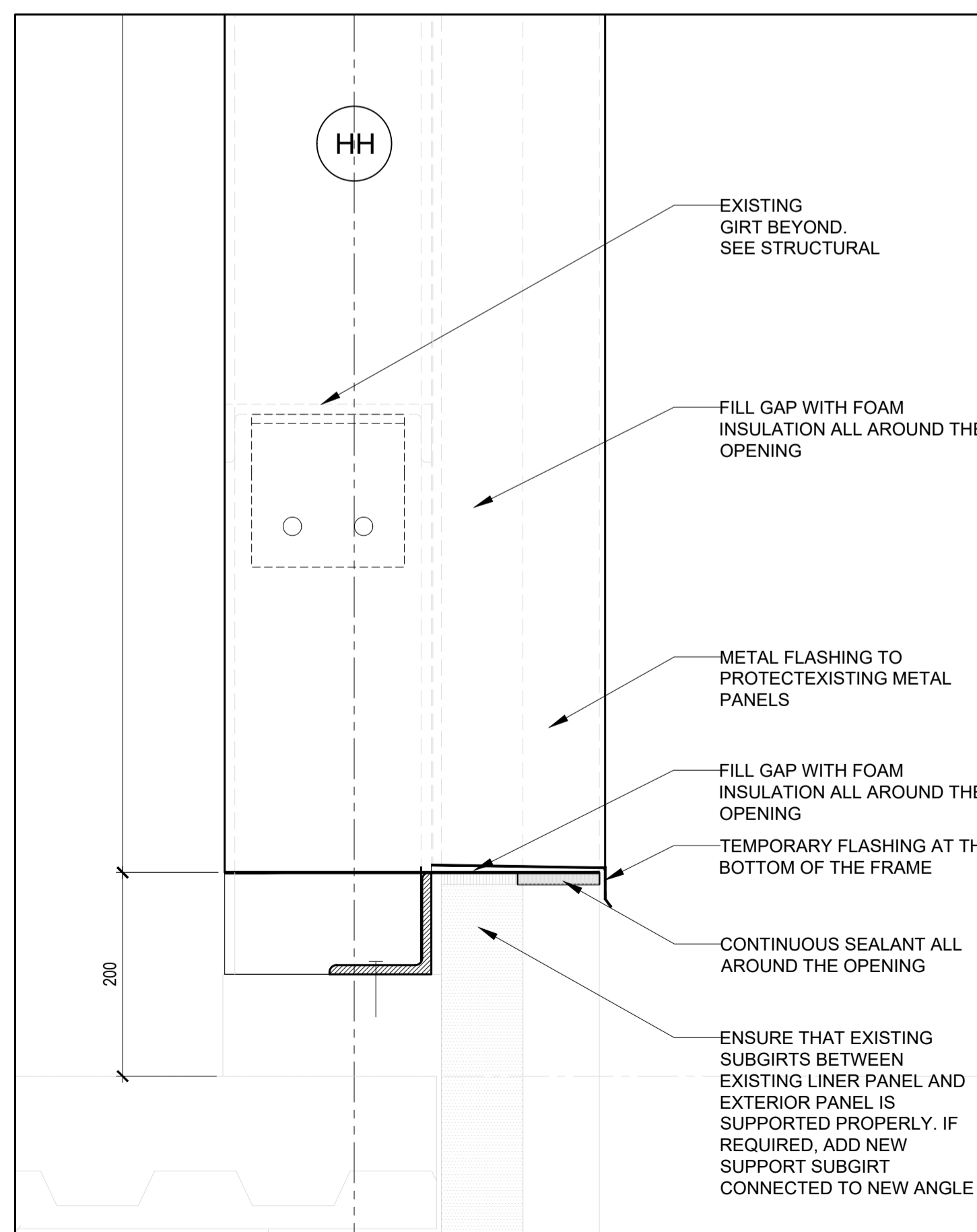
300-50 Troop Avenue  
Dartmouth, NS  
Canada



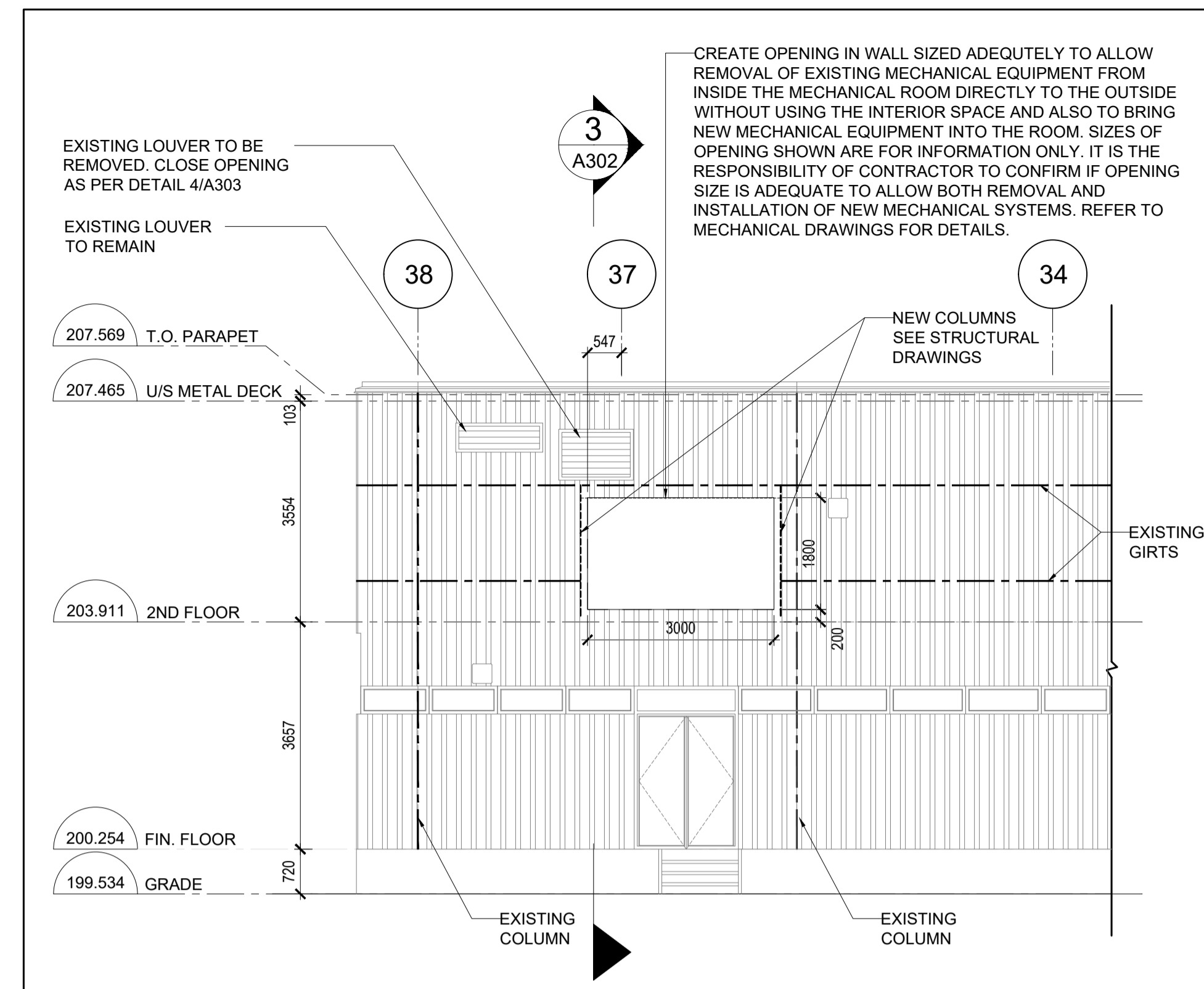
4 DETAIL SECTION  
A302 SCALE: 1:5



3 WALL SECTION  
A302 SCALE: 1:25



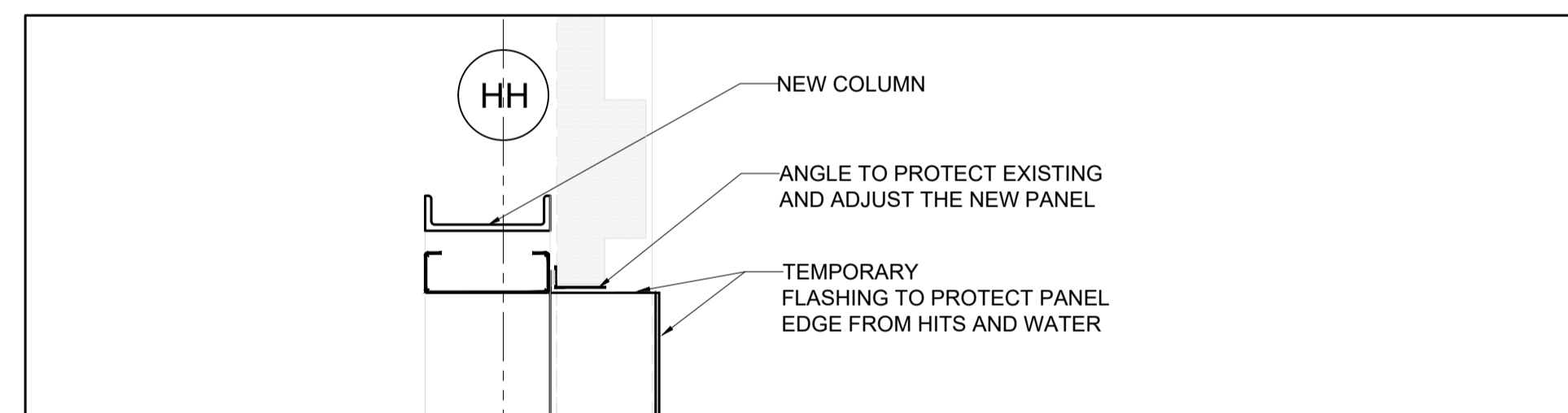
5 DETAIL SECTION  
A302 SCALE: 1:5



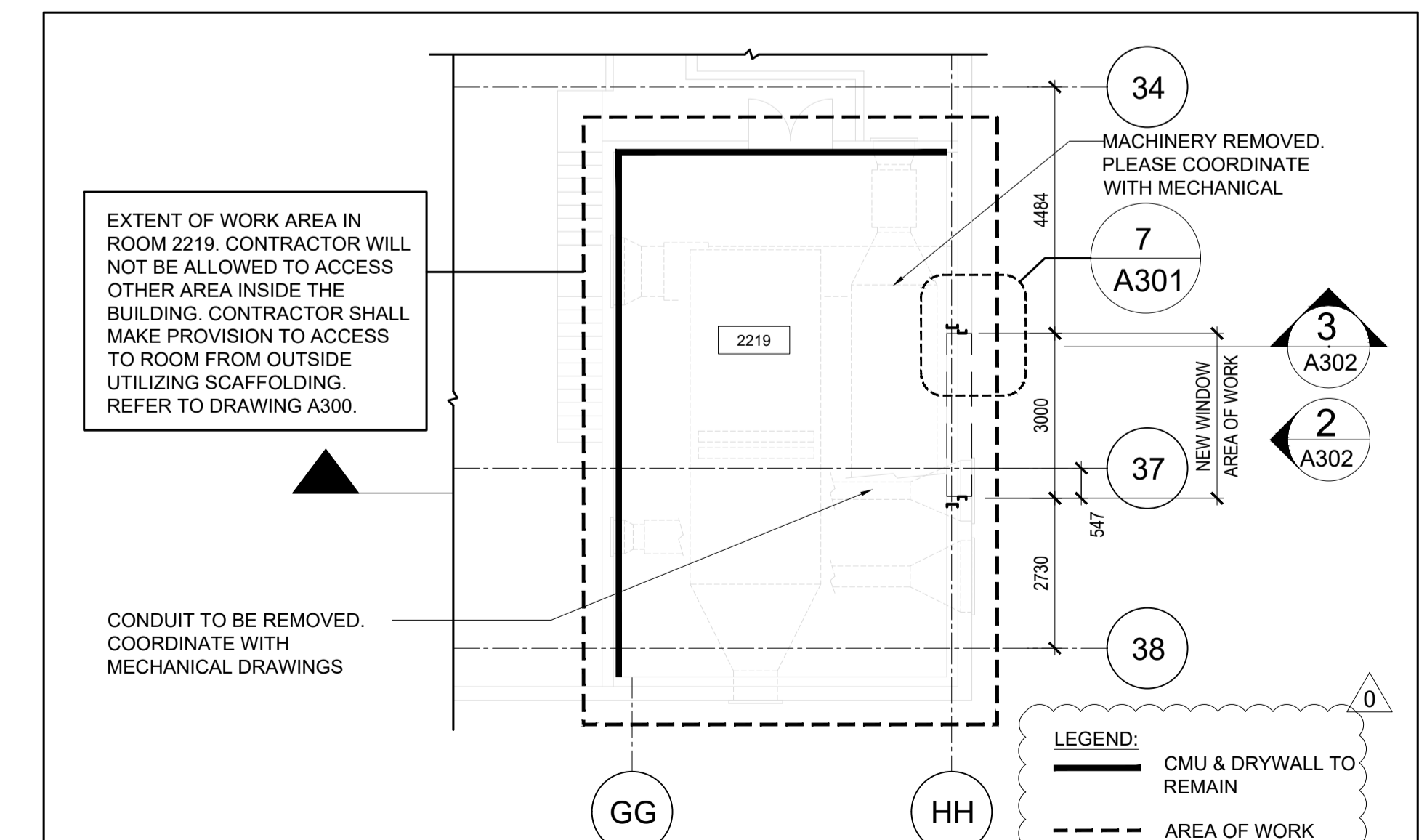
2 ELEVATION EAST  
A302 SCALE: 1:75

NOTES:

- EXISTING BUILDING ELEMENTS SHOWN IN GREY AND NEW ELEMENTS SHOWN IN BLACK
- OPENING TO BE USED AS CONSTRUCTION ACCESS FOR ROOM 2219
- CONTRACTOR SHALL NOT BE ALLOWED TO ACCESS ROOM 2219 FROM INSIDE. CONTRACTOR SHALL USE THE NEW OPENING TO ACCESS THIS ROOM. CONTRACTOR SHALL PROVIDE SCAFFOLDING AND TEMPORARY STAIRS TO ACCESS ROOM 2219 DIRECTLY FROM OUTSIDE.



6 PLAN DETAIL - JAMB  
A302 SCALE: 1:10



1 FLOOR PLAN  
A302 SCALE: 1:100

NO.	DATE	REVISION	APPR.
0	2023/3/13	ISSUED FOR TENDER	S.C.
B	2022/08/11	ISSUED FOR 90% SUBMISSION	S.C.
A	2022/09/09	ISSUED FOR 90% SUBMISSION	S.C.

SCALE | ÉCHELLE  
AS NOTED

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
ARCHITECTURAL DATE  
2022/12/06

SUBJECT | SUJET  
DEMOLITION PLANS, ELEVATIONS AND  
SECTIONS

PRODUCTION	DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
SC	SC		
DRAWN   DESSINÉ	SC		PROJ MGR   GEST PROJ
CHECKED   VÉRIFIÉ	SC		DES MGR   GEST CONC
COORDINATION			FIRE   INCENDIE

WBS NO. | NO. OTP  
- PF NO. | NO. DP  
TT210006 KN75948

DWG. NO. | NO. DESSIN  
A-302

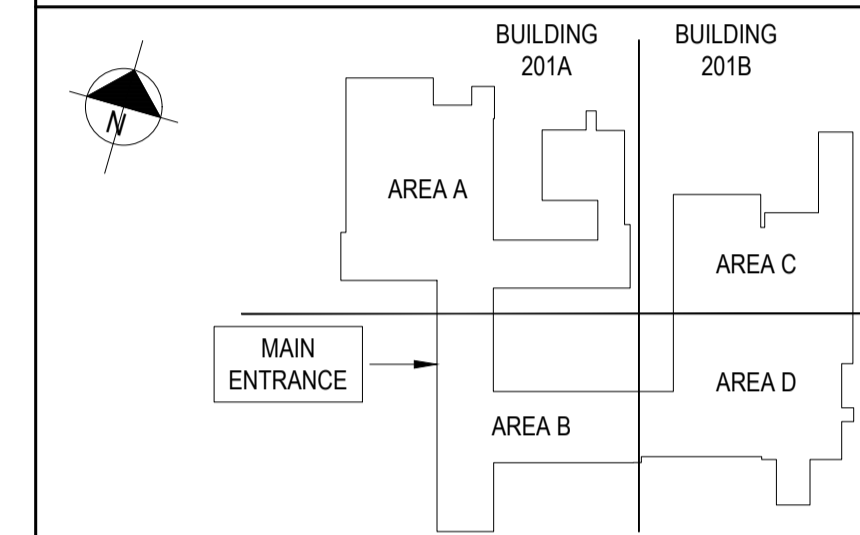
LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ  
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A	2022/09/09	ISSUED FOR 90% SUBMISSION	S.C.

SCALE | ÉCHELLE  
AS NOTED

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

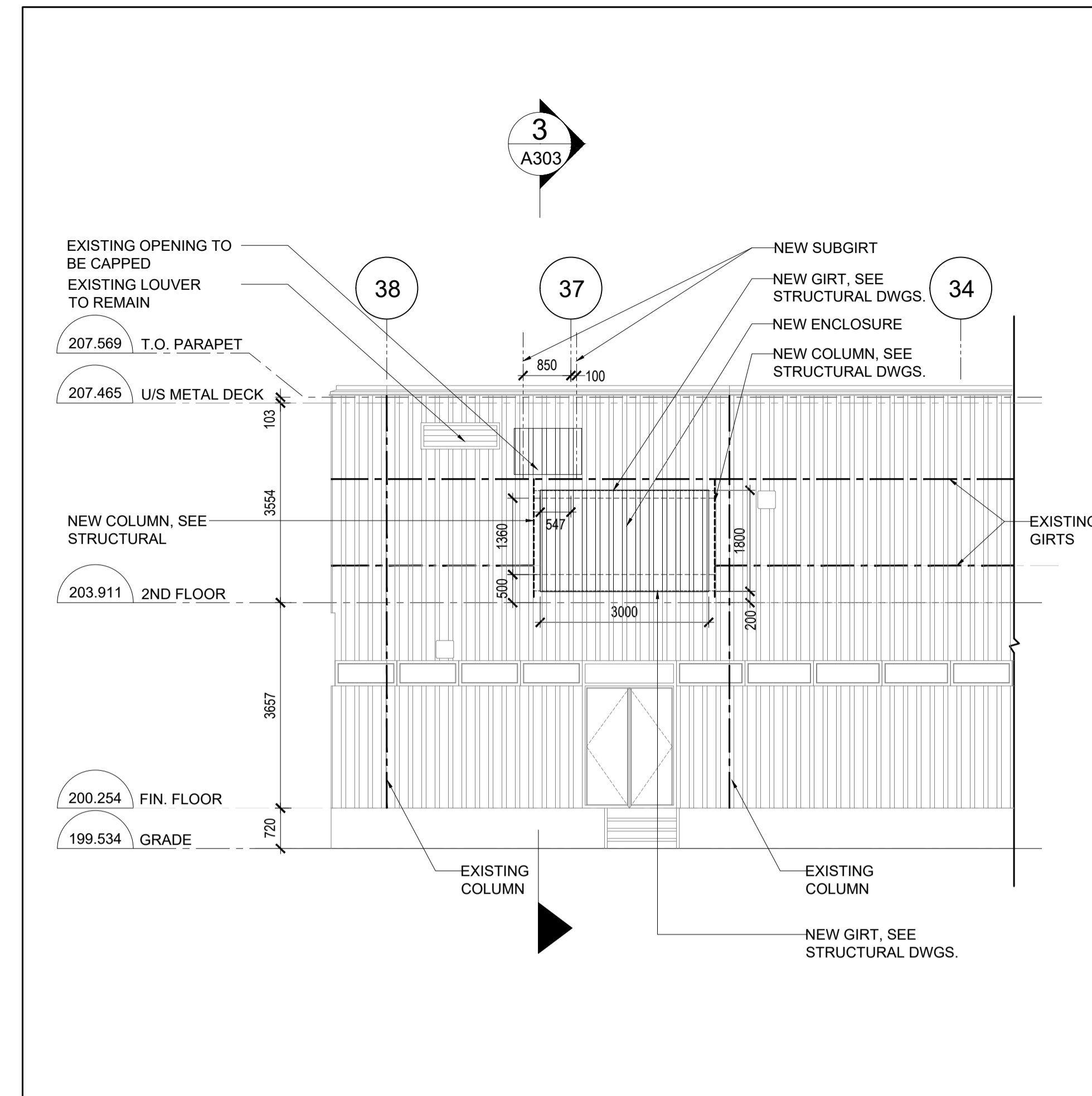
TRADE | MÉTIER  
ARCHITECTURAL  
DATE  
2022/12/06

SUBJECT | SUJET  
WALL CLOSURE

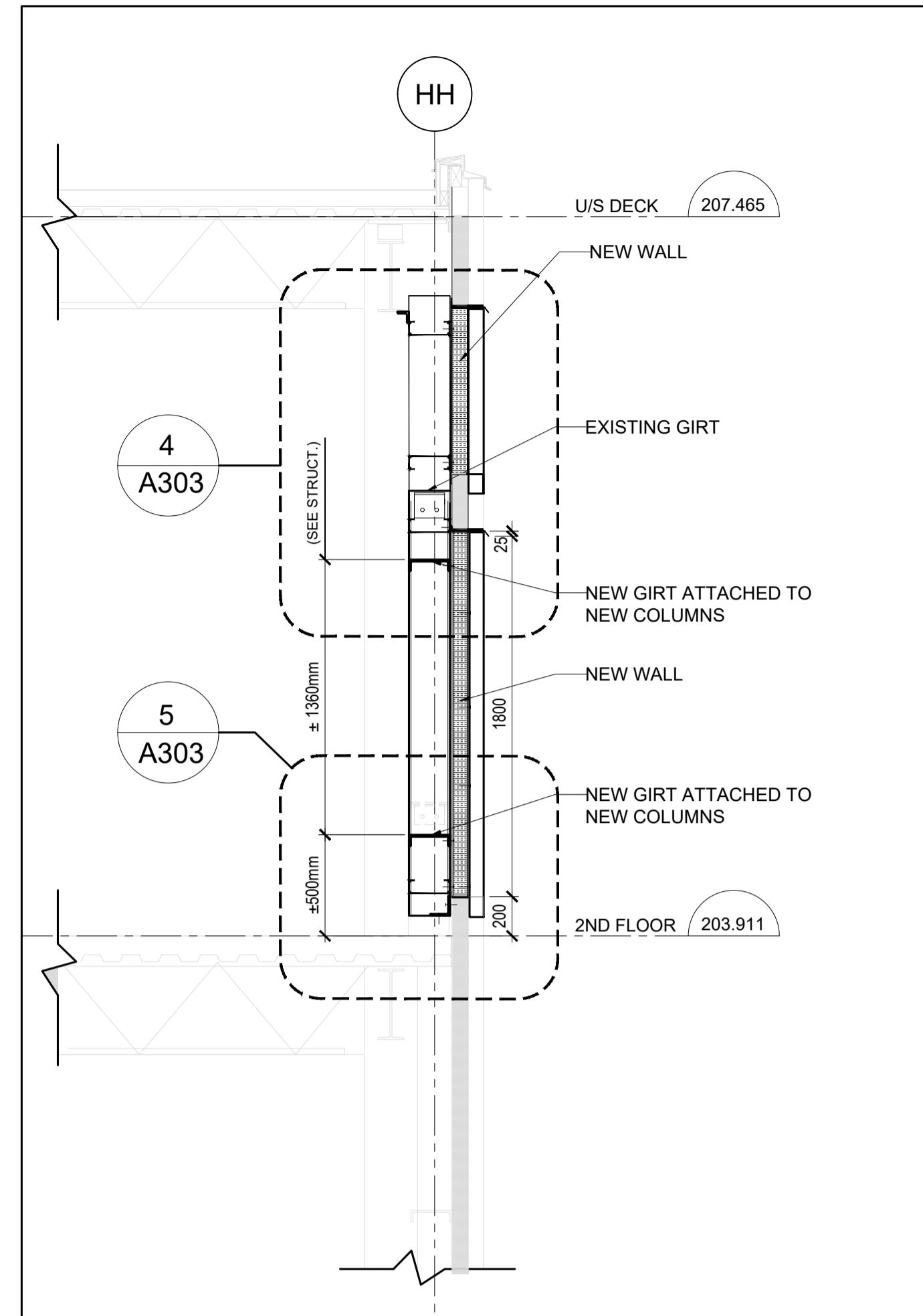
PRODUCTION	DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
SC	SC		
DRAWN   DESSINÉ	SC		PROJ MGR   GEST PROJ
CHECKED   VÉRIFIÉ	SC		DES MGR   GEST CONC
COORDINATION			FIRE   INCENDIE

WBS NO. | NO. OTP  
-  
PF NO. | NO. DP  
TT210006 KN75948

DWG. NO. | NO. DESSIN  
A-303

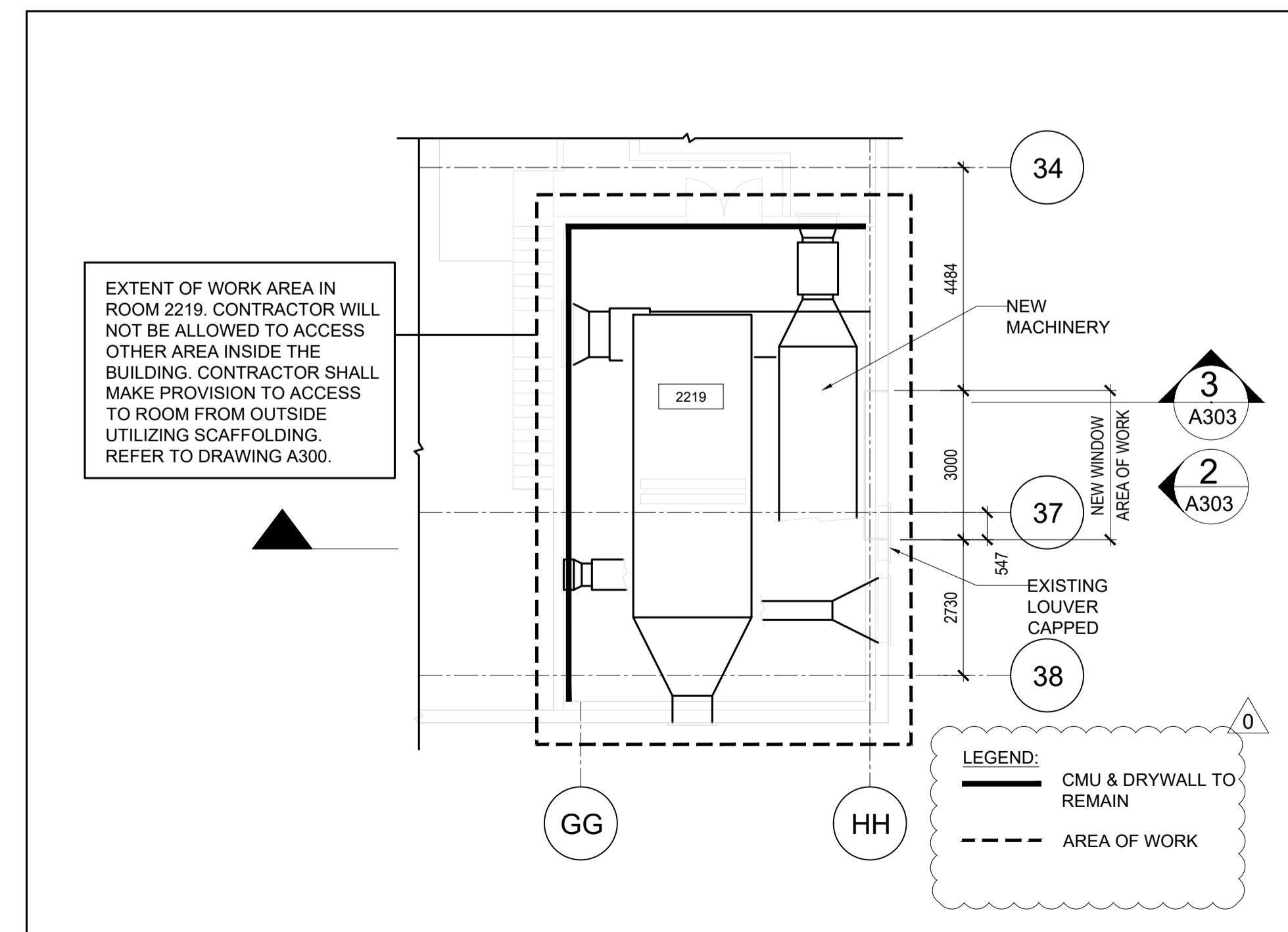


2 ELEVATION EAST  
A303 SCALE: 1:75

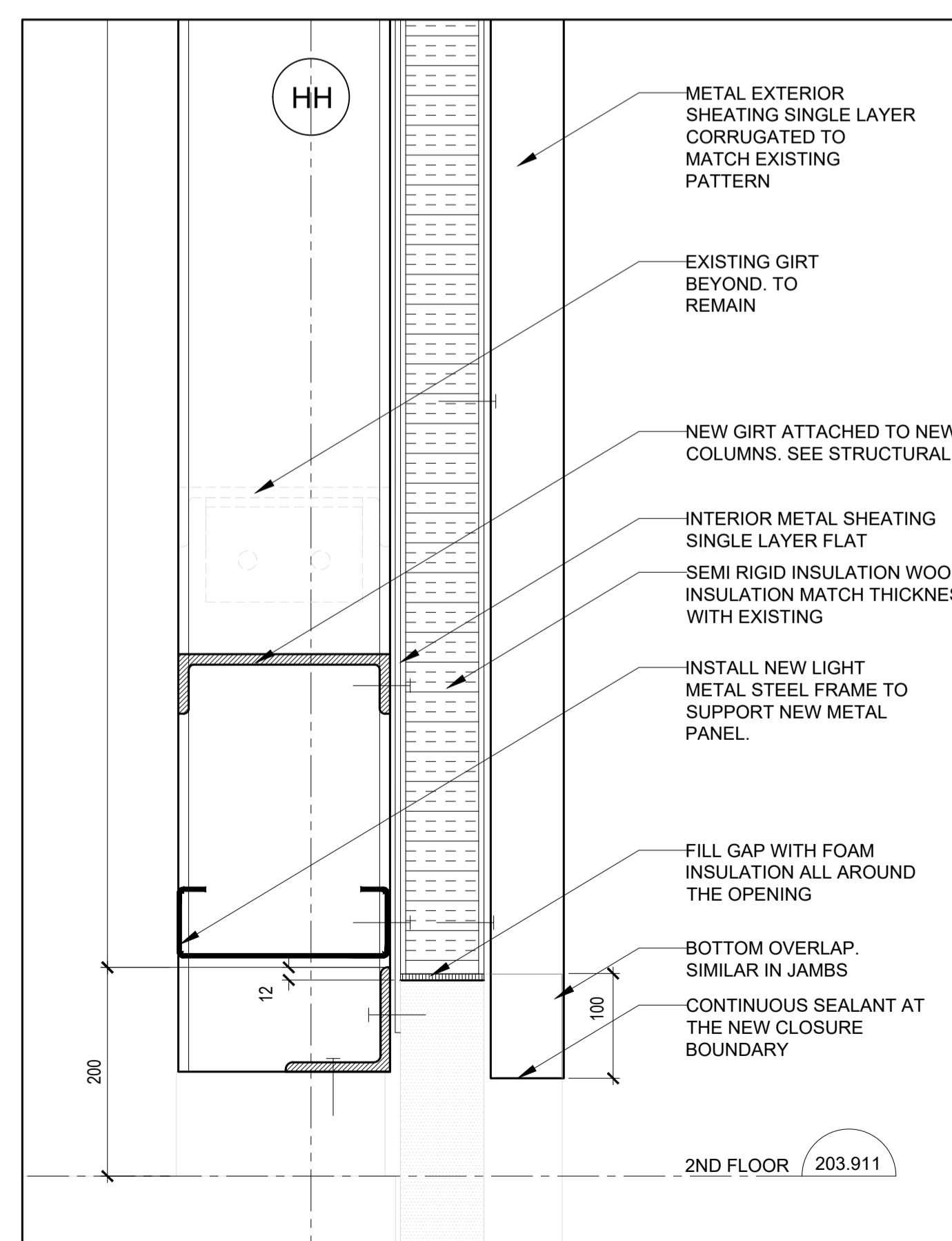


3 WALL SECTION  
A303 SCALE: 1:25

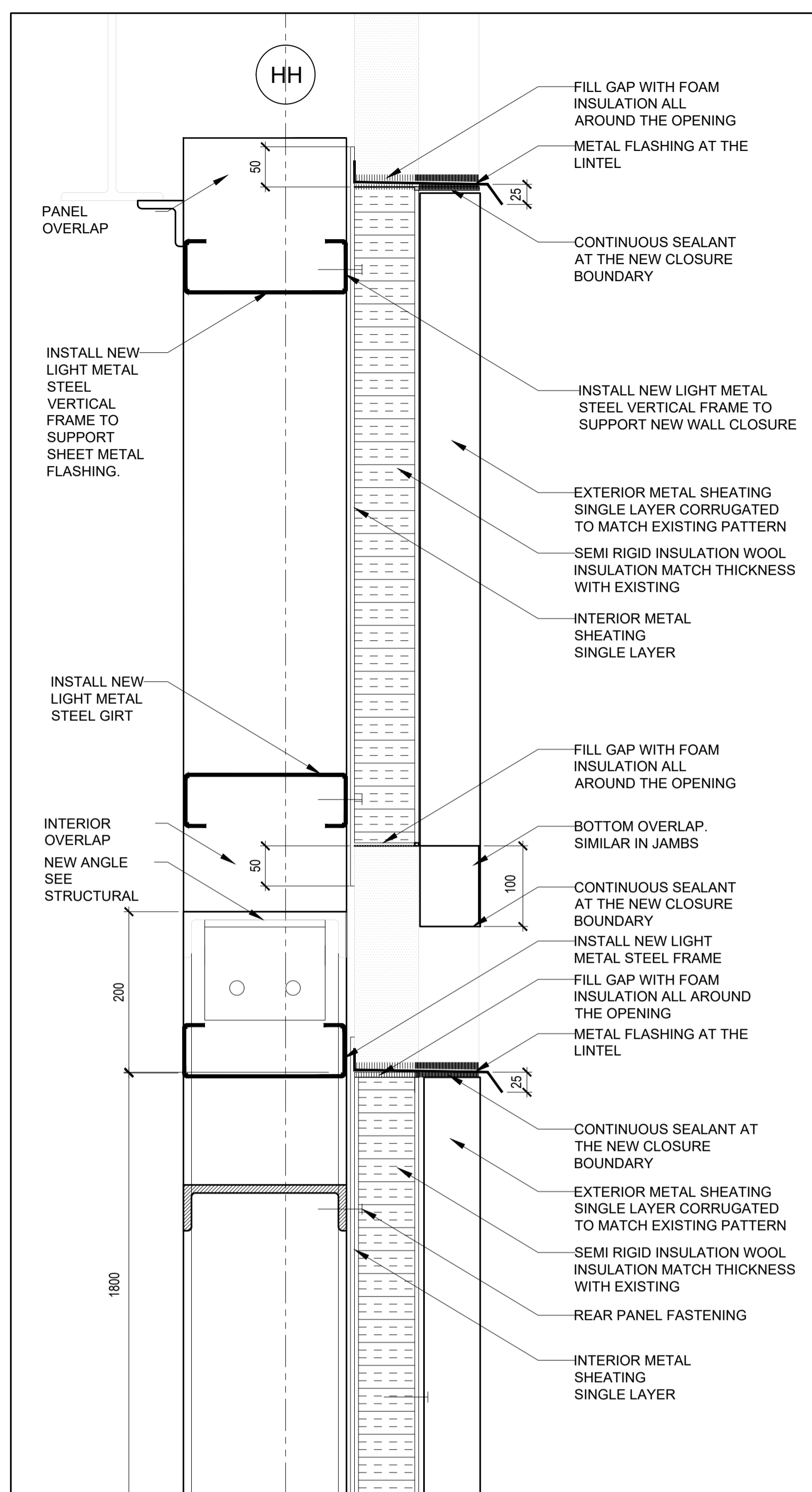
NOTES:  
1. EXISTING BUILDING ELEMENTS SHOWN IN GREY AND NEW ELEMENTS SHOWN IN BLACK  
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1 FLOOR PLAN  
A303 SCALE: 1:100



5 DETAIL SECTION  
A303 SCALE: 1:5



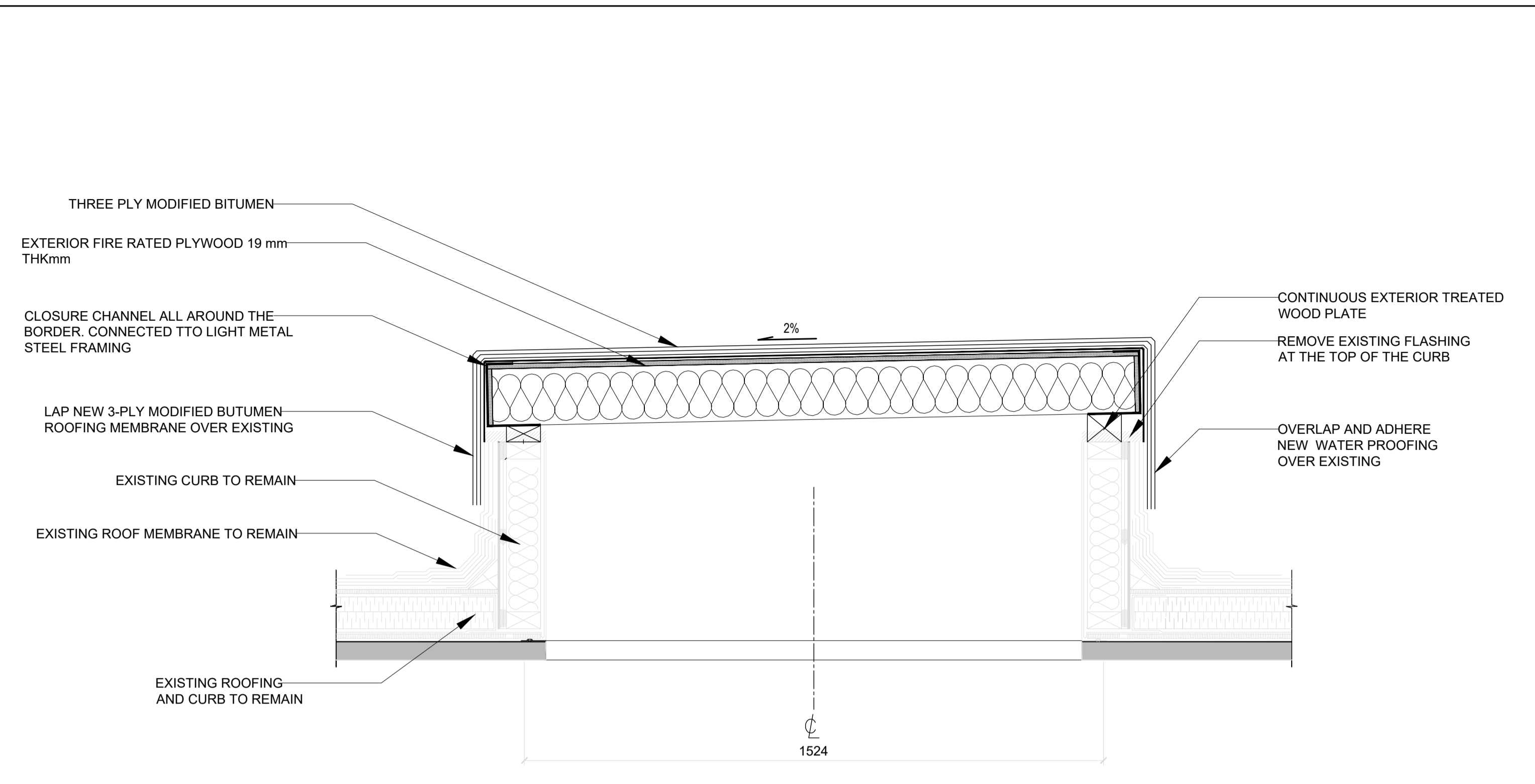
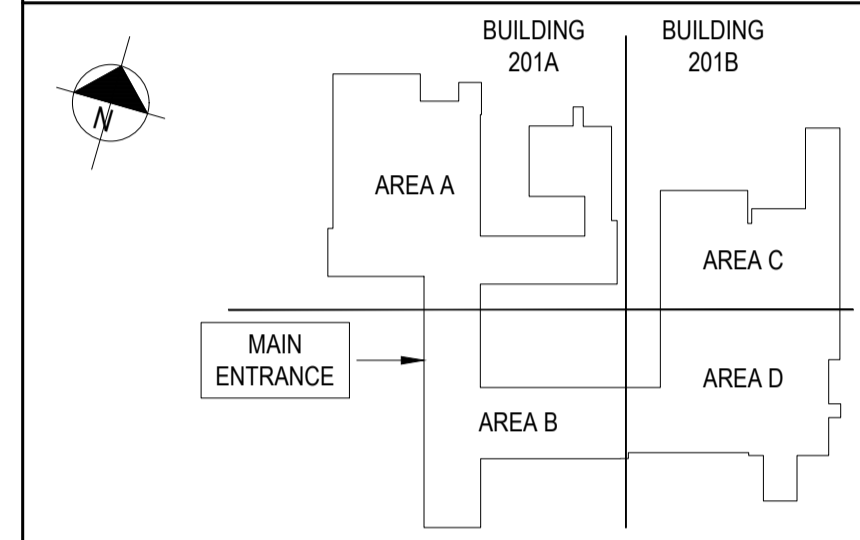
4 DETAIL SECTION  
A303 SCALE: 1:5

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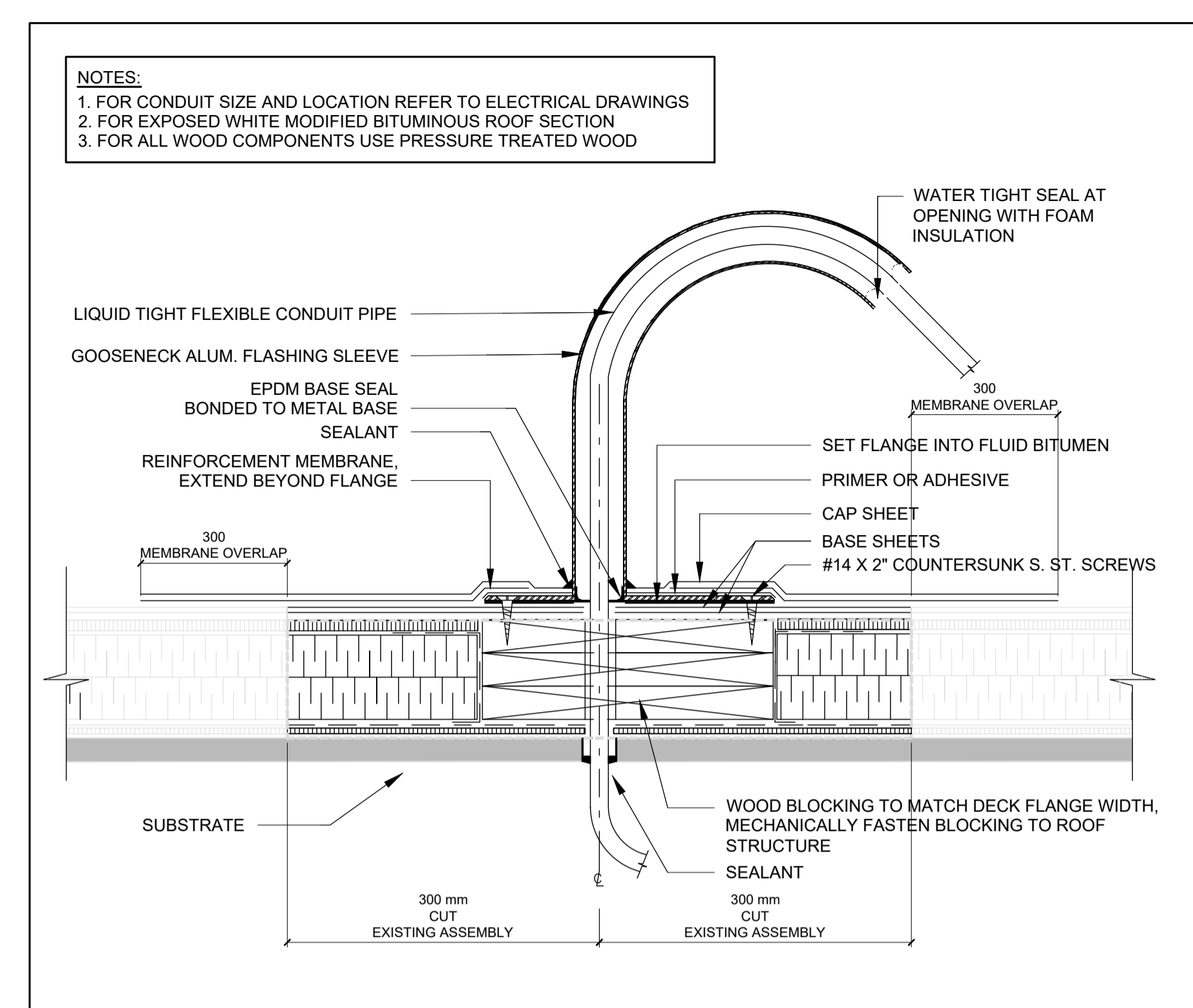
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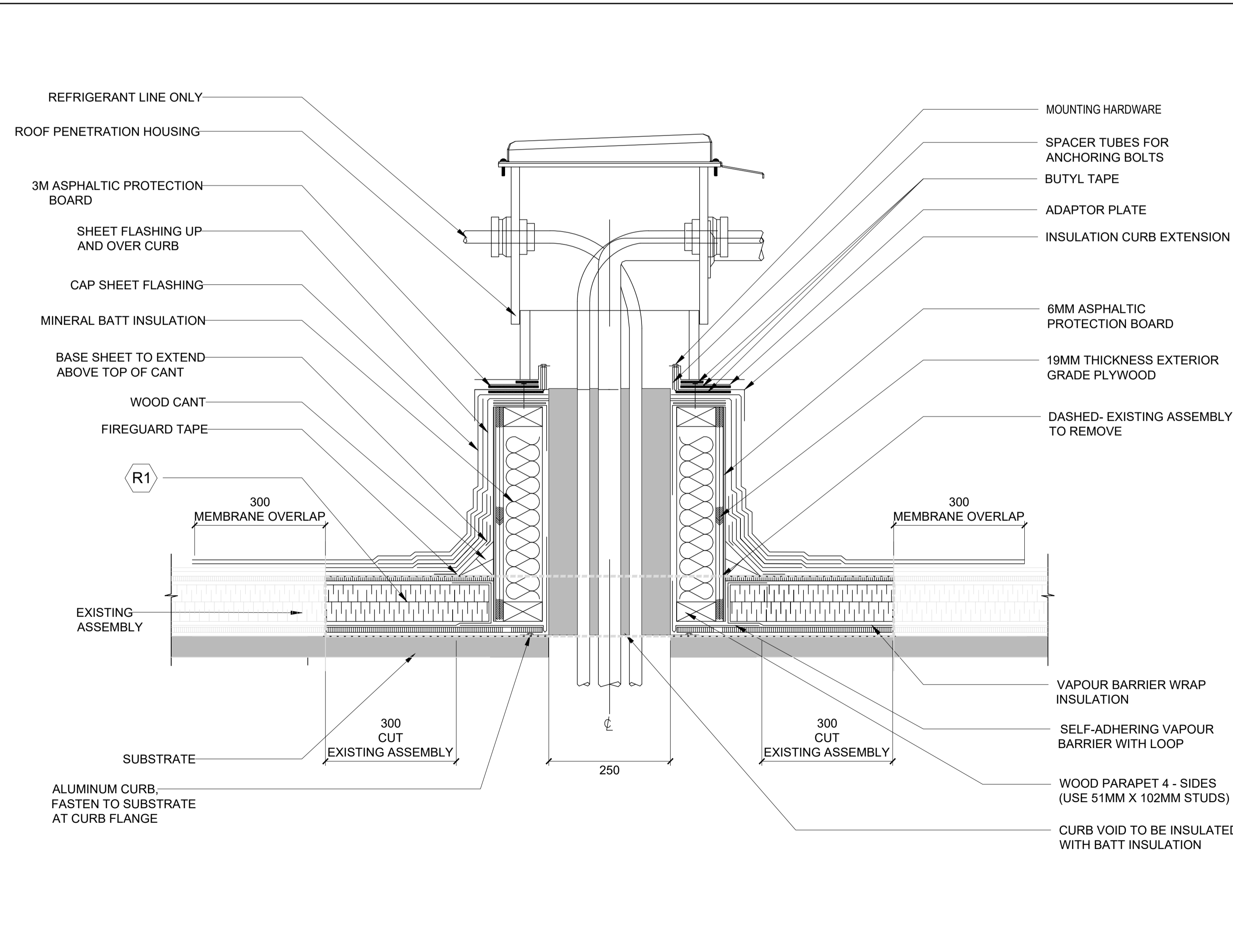
300-50 Troop Avenue  
Dartmouth, NS  
Canada



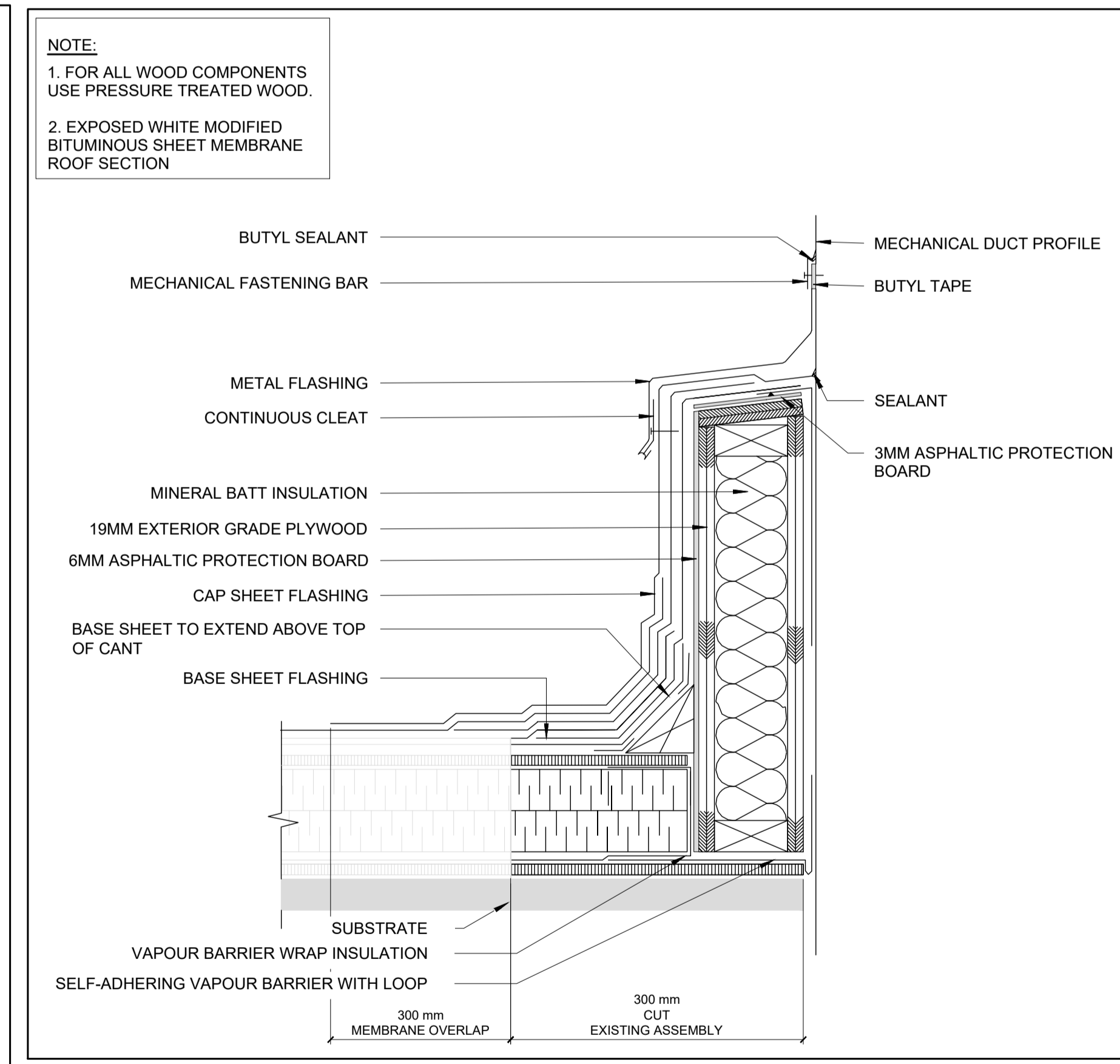
**1** DETAIL- CLOSURE OF DUCT VOID AFTER REMOVAL OF RTU 8  
SCALE: 1:10



**3** DETAIL- LIQUID TIGHT FLEXIBLE CONDUIT FLASHING DETAIL  
SCALE: 1:10



**2** DETAIL- NEW REFRIGERANT ROOF PENETRATION HOUSING  
SCALE: 1:NTS



**4** DETAIL- MECHANICAL DUCT PENETRATION DETAIL (TYPICAL)  
SCALE: 1:10

- ROOF TYPE (R1)**
- SBS MODIFIED BITUMEN CAP SHEET
  - TWO PLY SBS MODIFIED BITUMEN BASE SHEET
  - GYPSUM ROOF DECK
  - POLYISO SLOPED INSULATION TO MATCH EXISTING SLOPES
  - POLYISO INSULATION
  - VAPOUR BARRIER
  - GYPSUM ROOF DECK

- NOTES:**
- IN GREY EXISTING BUILDING. IN BLACK NEW ELEMENTS
  - FLOOR PAINTING MAY CONTAIN SILICA. PLEASE REFER TO HAZMAT REPORT (102959-000) AND SPECS ES-01-35-43 AND ES-01-14-25
  - WALLS' PAINTING MAY CONTAIN SILICA. PLEASE REFER TO HAZMAT REPORT (102959-000) AND SPECS ES-01-35-43 AND ES-01-14-2
  - PIPE FITTING AND DUCT PARGING MAY CONTAIN SILICA. PLEASE REFER TO HAZMAT REPORT (102959-000) AND SPECS ES-01-35-43 AND ES-01-14-2

NO.	DATE	REVISION	APPR.
0	2023/3/13	ISSUED FOR TENDER	S.C.
B	2022/08/11	ISSUED FOR 90% SUBMISSION	S.C.
A	2022/09/09	ISSUED FOR 90% SUBMISSION	S.C.

SCALE | ÉCHELLE  
AS NOTED  
LOCATION | EMPLACEMENT  
**1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO**  
PROJECT | PROJET  
**DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B**

TRADE | MÉTIER  
ARCHITECTURAL  
DATE  
2022/12/06

SUBJECT | SUJET  
ROOF DETAILS

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
SC		
DRAWN   DESSINÉ	PROJ MGR   GEST PROJ	
SC	-	
CHECKED   VÉRIFIÉ	DES MGR   GEST CONC	
SC		
COORDINATION	FIRE   INCENDIE	

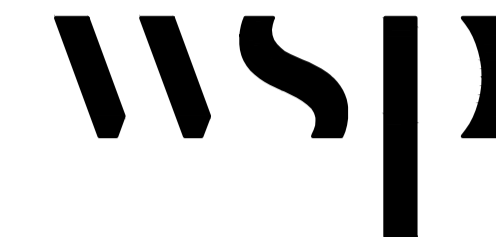
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-  
PF NO. | NO. DP  
TT210006 KN75948

DWG. NO. | NO. DESSIN  
A-304

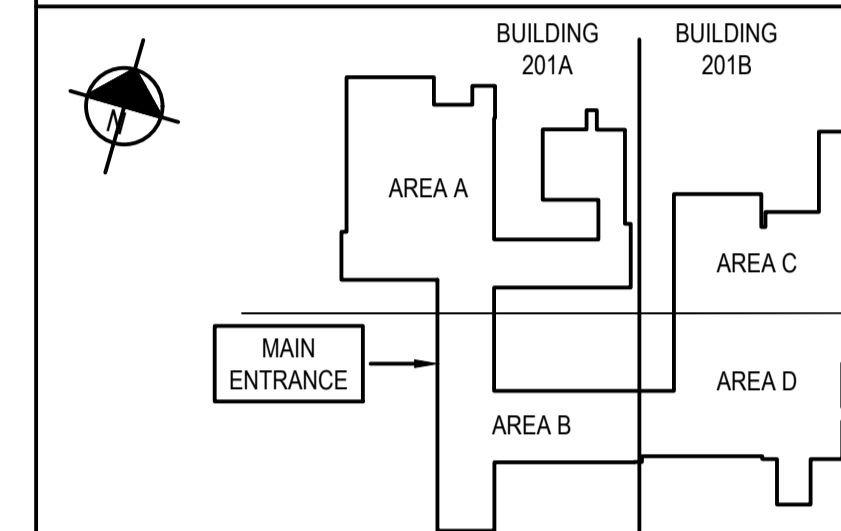


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Canada



NOTES:  
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) U.N.O.



0	2023/02/10	ISSUED FOR TENDER	D.R.
NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
Mechanical  
DATE  
2021/07/08

SUBJECT | SUJET  
**MECHANICAL LEGENDS AND NOTES**

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
A.A.		PROJ MGR   GEST PROJ
DRAWN   DESSINÉ		DES MGR   GEST CONC
E.M.		FIRE   INCENDIE
CHECKED   VÉRIFIÉ		
D.R.		
COORDINATION		
D.R.		
WBS NO.   NO. OTP	PF NO.   NO. DP	

DWG. NO. | NO. DESSIN  
M400



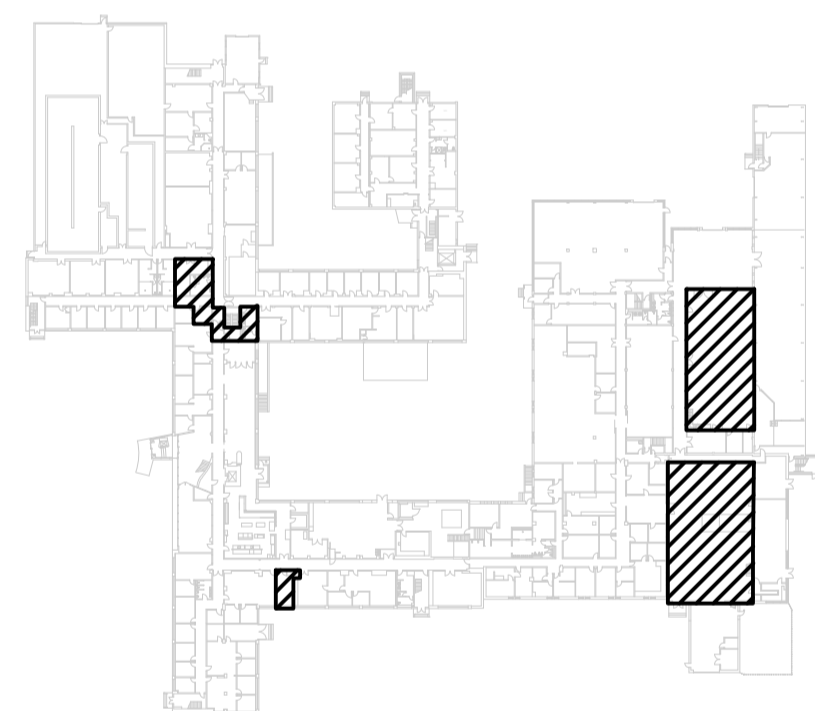
GENERAL	SYMBOL
NATIONAL PLUMBING CODE OF CANADA	NPC
ONTARIO BUILDING CODE	OBC
ROOM TAG	NAME → ROOM NUMBER → #
SCOPE OF WORK	S.O.W.

CONTROLS	SYMBOL
BUILDING AUTOMATION SYSTEM	BAS
FLOW SENSOR	FS
MOTOR STARTER	MS
DAMPER ACTUATOR	DA
MOTORIZED DAMPER	MD
LOW LIMIT SWITCH	LL
VARIABLE SPEED DRIVE	VSD
HUMIDITY SENSOR	HS
TEMPERATURE SENSOR	TS
TEMPERATURE AND HUMIDITY SENSOR	THS
STATIC PRESSURE SENSOR	SP
SMOKE DETECTOR	SD
DAMPER END SWITCH	DES
DIFFERENTIAL PRESSURE SWITCH	DP
START/STOP C/W PILOT LIGHT	SS
ANALOG INPUT	AI
ANALOG OUTPUT	AO
DIGITAL INPUT	DI
DIGITAL OUTPUT	DO
REVERSE ACTING THERMOSTAT	TR
3 WAY MOTORIZED CONTROL VALVE	

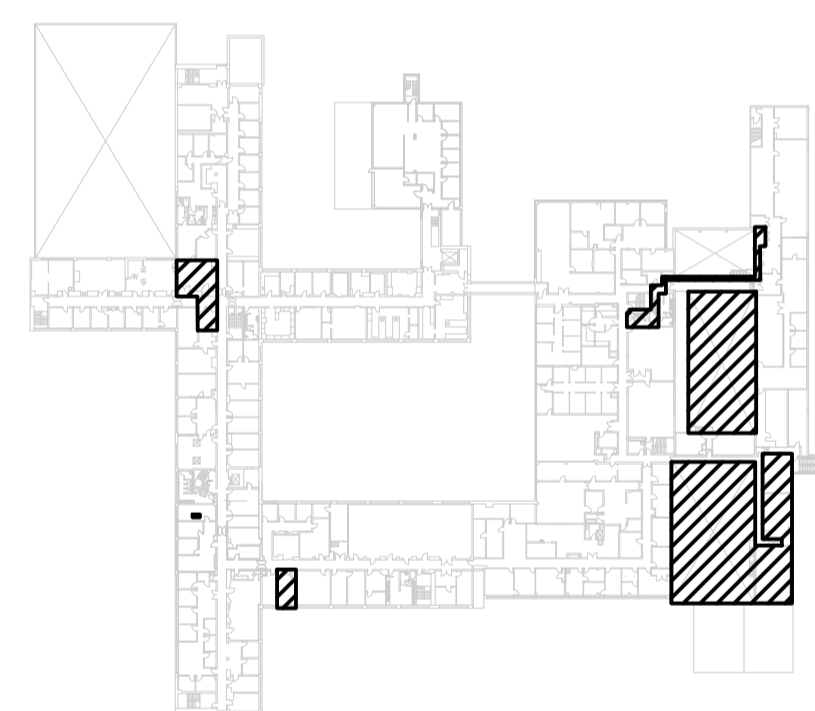
HEATING, VENTILATION & AIR CONDITIONING	SYMBOL
AIR CONDITIONING	AC
SUPPLY AIR DUCT	SIA
RETURN AIR DUCT	RIA
EXHAUST AIR DUCT	EIA
FRESH AIR DUCT	FIA
ROUND VOLUME CONTROL DAMPER	RVD
MOTORIZED VOLUME DAMPER	MVD
ABOVE FALSE CEILING	AFC
UNLESS NOTED OTHERWISE	U.N.O.
BOTTOM OF PIPE	BOP
BOTTOM OF DUCT	BOD
REFRIGERANT SUCTION	RS
REFRIGERANT DISCHARGE	RD
FRESH AIR \ SUPPLY AIR	
EXHAUST AIR \ RETURN AIR	
BALANCING DAMPER	BD
FIRE DAMPER	FD
MOTORIZED DAMPER	
ISOLATION VALVE	
BACKDRAFT DAMPER	BDD
TEMPERATURE SENSOR	TS
CONTROL WIRING	
GRILLE/DIFFUSER	XX XXX
AIR FLOW (l/s)	

- GENERAL NOTES**
- CONTRACTOR TO EXAMINE SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.
  - ANY DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATIONS AND/OR EXISTING CONDITIONS ARE TO BE BROUGHT TO THE ATTENTION OF THE DCC REPRESENTATIVE PRIOR TO COMMENCEMENT OF WORK.
  - COORDINATE ALL EQUIPMENT/SERVICE SHUT DOWN WITH DRDC & DRDC'S FACILITY MANAGEMENT.
  - ALL WORK SHALL BE COMPLETED ONCE ADEQUATE PROTECTION OF ADJACENT SPACES HAS BEEN INSTALLED. CONTRACTOR TO ENSURE MINIMAL DUST CREATION DURING WORK.
  - MAKE GOOD ALL SURFACES AFTER COMPLETION OF WORK.
  - REMOVE ALL DEBRIS AND RUBBISH FROM SITE DAILY.
  - DISPOSE OF ALL DEBRIS AS PER AUTHORITY HAVING JURISDICTION.
  - EXISTING GRILLES AND DIFFUSERS TO REMAIN UNLESS NOTED OTHERWISE.
  - COORDINATE DELIVERY OF MATERIALS AND SITE ACCESS WITH DRDC & DRDC'S FACILITY MANAGEMENT.
  - PROVIDE NEW DUCTWORK, DIFFUSERS AND GRILLES AS REQUIRED AND/OR INDICATED.
  - PROVIDE NEW EQUIPMENT AND ALL ASSOCIATED ACCESSORIES AS REQUIRED TO COMPLETE A FULLY OPERATIONAL AND MAINTAINABLE SYSTEM.
  - BALANCE THE DIFFUSERS, GRILLES, OPEN ENDED DUCTS, AND ASSOCIATED EQUIPMENT IN THE OBSERVED AREA AND SPACE TO MATCH NEW INSTALLATION.
  - PROVIDE CAULKING AND FIRE STOPPING FOR ALL MECHANICAL PENETRATIONS THROUGH FIRE SEPARATIONS.
  - CONTRACTOR IS TO BE AWARE THAT SPACES THEY ARE WORKING IN FOR DUCTLESS AC UNITS ARE HIGHLY SENSITIVE TO DUST. PRIOR TO STARTING WORK IN THESE AREAS, THE CONTRACTOR SHALL PROPOSE TO DND/DRDC/DCC TO REVIEW DUST CONTROL MEASURES TO PROTECT SENSITIVE EQUIPMENT.

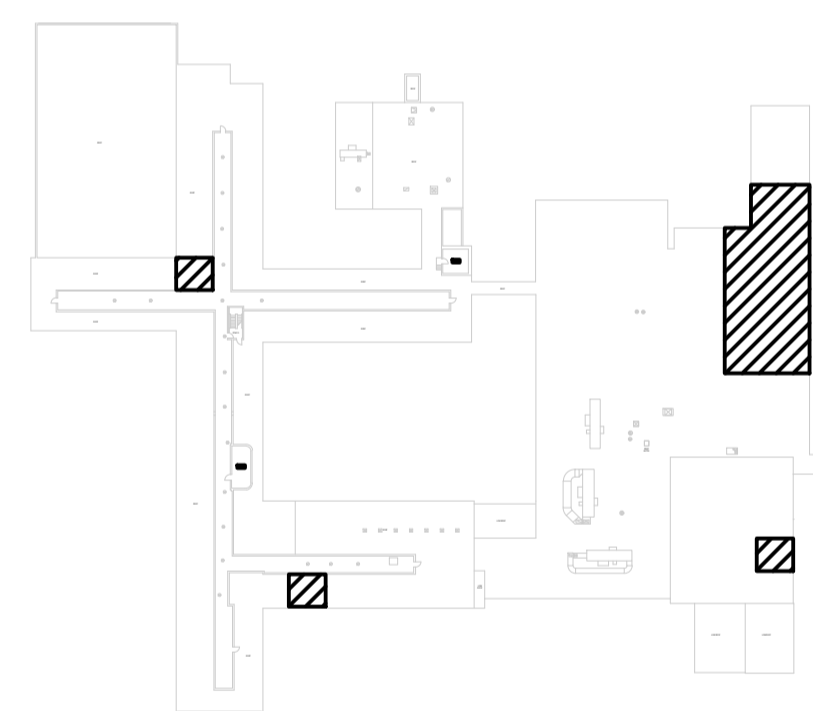
- HVAC NOTES**
- ALL INDOOR UNITS SHALL BE EQUIPPED WITH CONDENSATE PUMP U.N.O..
  - THE CONDENSATE DRAIN PIPE TO BE FIELD ROUTED TO THE NEAREST DRAIN LOCATION AND AS INDICATED. EXACT ROUTING TO BE VERIFIED ON SITE.
  - DISCHARGE THE PUMPED CONDENSATE FROM THE AC UNIT VIA 25mm Ø DRAIN RIGID PVC PIPE. RUN THE PIPE AT AT 1% SLOPE AND ON HIGHEST LEVEL IN THE ROOM TOWARDS THE NEAREST DRAIN / TIE -IN POINT LOCATION.
  - THE CONDENSATE DRAIN PIPE SHOULD BE 25mm (1") PVC RIGID PIPE IN ACCORDANCE WITH SPECIFICATION AND INSULATED AS REQUIRED.
  - WHEN DRAIN CONNECTED TO FLOOR DRAIN, PROVIDE A HUB FOR THE DRAIN WITH A CLEARANCE OF MIN. 13mm (1/2") FROM THE TOP LEVEL OF THE DRAIN.
  - REFRIGERANT PIPING TO RUN CONCEALED IN WALLS, U.N.O..
  - DUCTLESS AC UNITS TO BE EQUIPPED WITH AUDIBLE ALARMS INSIDE THE ROOM AND PROVIDE AN OUTPUT SIGNAL TO THE BAS WHEN UNITS ARE NOT OPERATING DUE TO FAILURE. REFER TO DIV. 25 SPECIFICATION.
  - ALL AC SYSTEM SHALL SEND AN ALARM SIGNAL TO OPERATOR UPON SYSTEM FAILURE.
  - CLEAN AND STORE REMOVED FANS, SUPPLY GRILLES, AND AC UNITS ON A LOCATION DETERMINED BY THE OWNER / CLIENT.



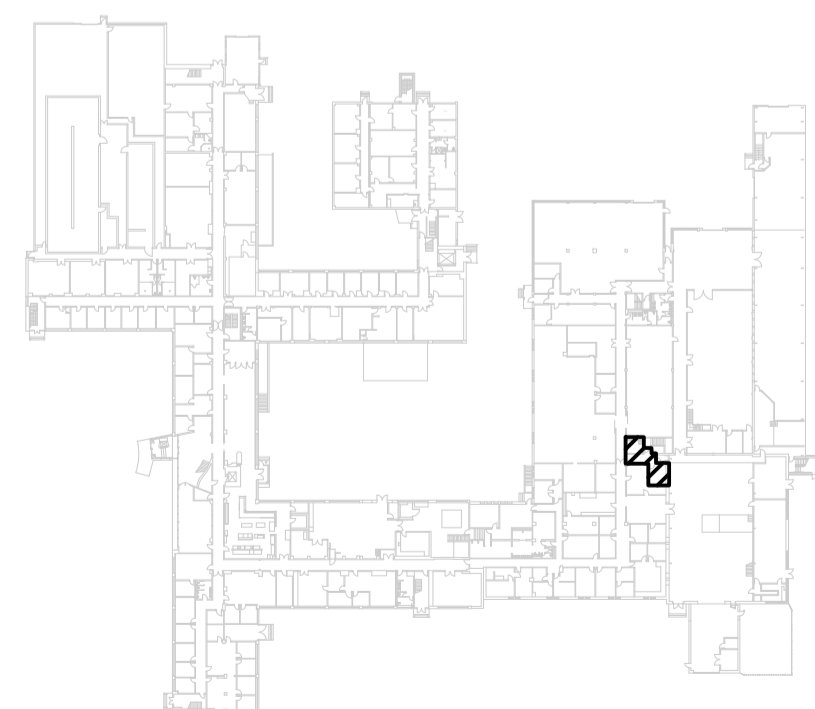
PACKAGE 1 - LEVEL 1



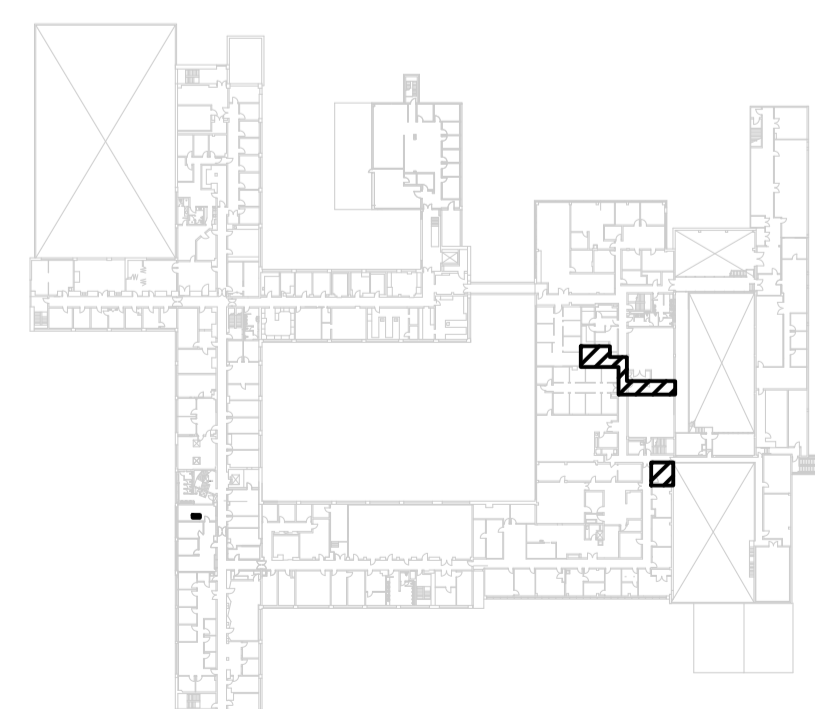
PACKAGE 1 - LEVEL 2



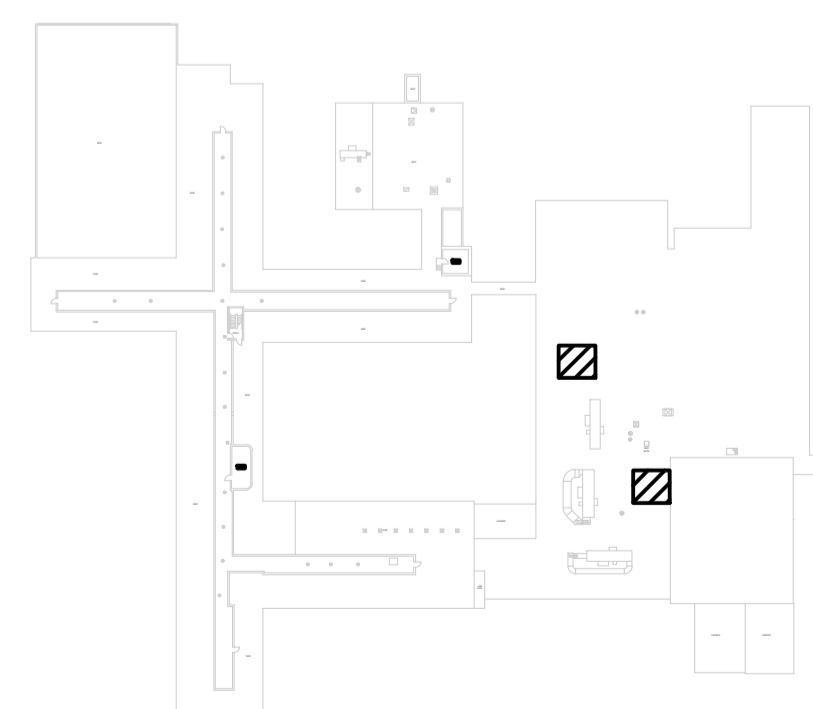
PACKAGE 1 - ROOF



PACKAGE 2 - LEVEL 1



PACKAGE 2 - LEVEL 2



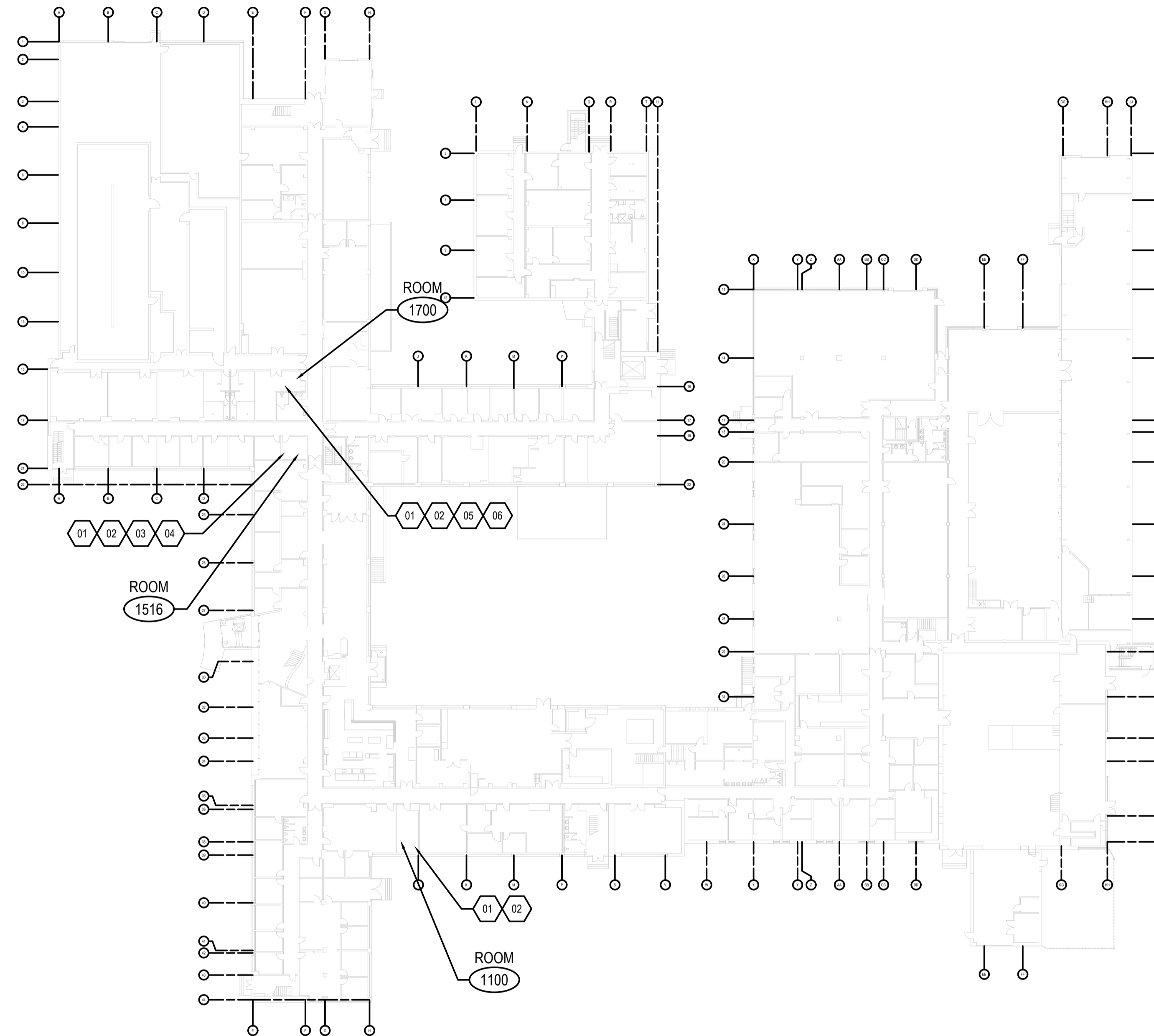
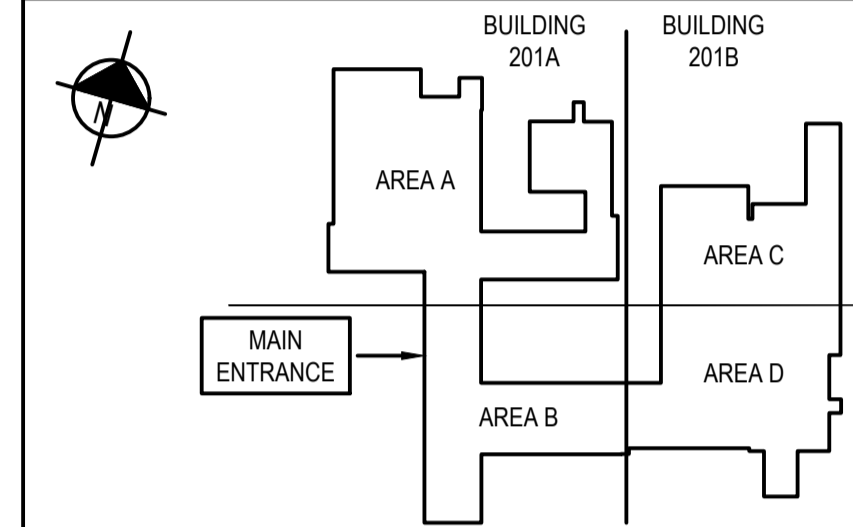
PACKAGE 2 - ROOF

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300-50 Troop Avenue  
Dartmouth, NS  
Canada



1 LEVEL 1 DEMOLITION PLAN - DUCTLESS SPLIT AC UNITS  
M401 SCALE: 1:400

NOTES:

- REFER TO DRAWING M400 FOR MECHANICAL LEGENDS AND HVAC NOTES.



NO.	DATE	REVISION	APPR.
0	2023/02/10	ISSUED FOR TENDER	D.R.

SCALE | ÉCHELLE  
1:400

LOCATION | EMBLEMMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
Mechanical  
DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
LEVEL 1 DEMOLITION PLAN -  
NEW DUCTLESS AC UNITS

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
A.A.		
DRAWN   DESSINÉ	CHECKED   VÉRIFIÉ	PROJ MGR   GEST PROJ
R.E. / E.M.		
COORDINATION	D.R.	FIRE   INCENDIE

WBS NO. | NO. OTP  
PF NO. | NO. DP

DWG. NO. | NO. DESSIN  
M401

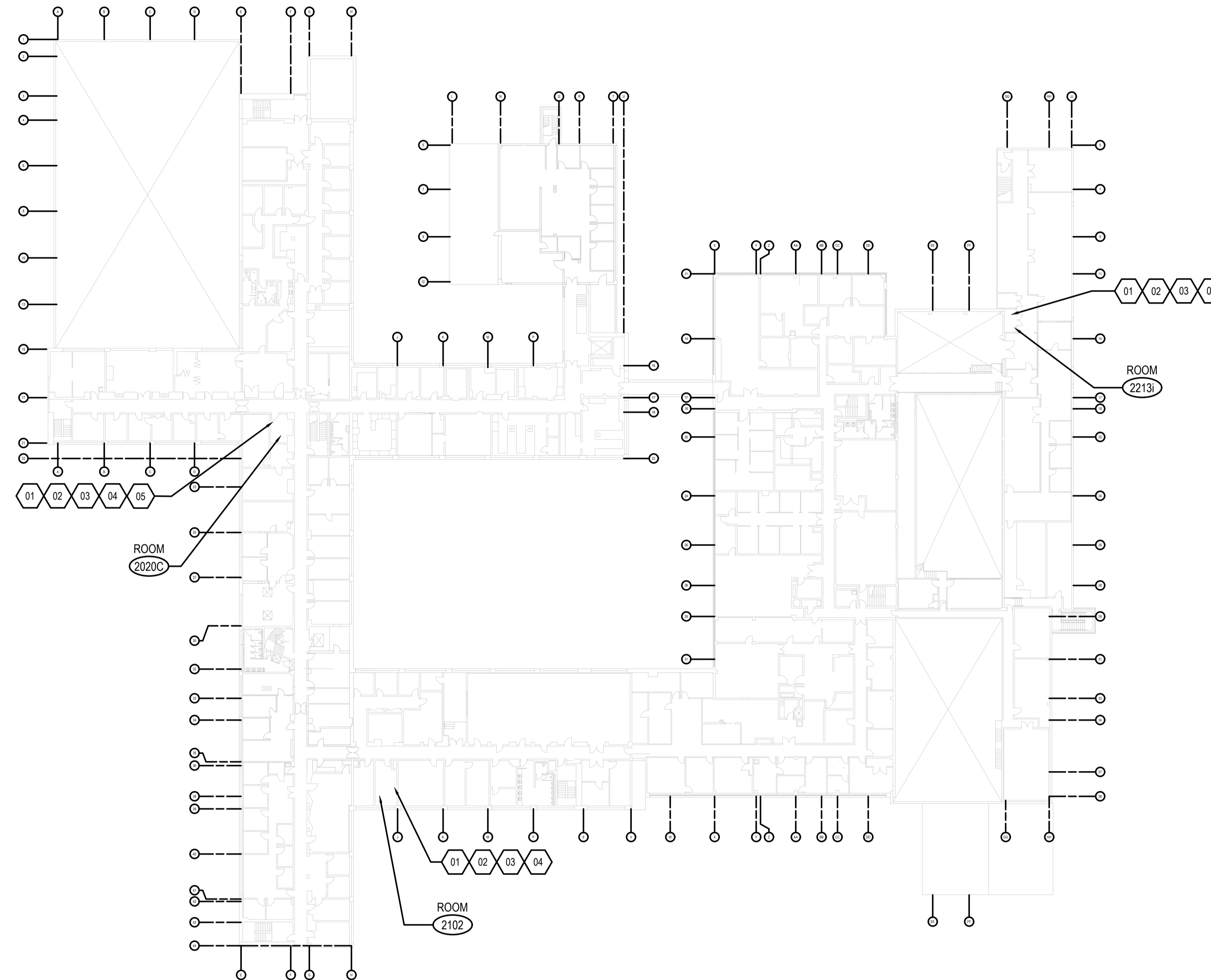
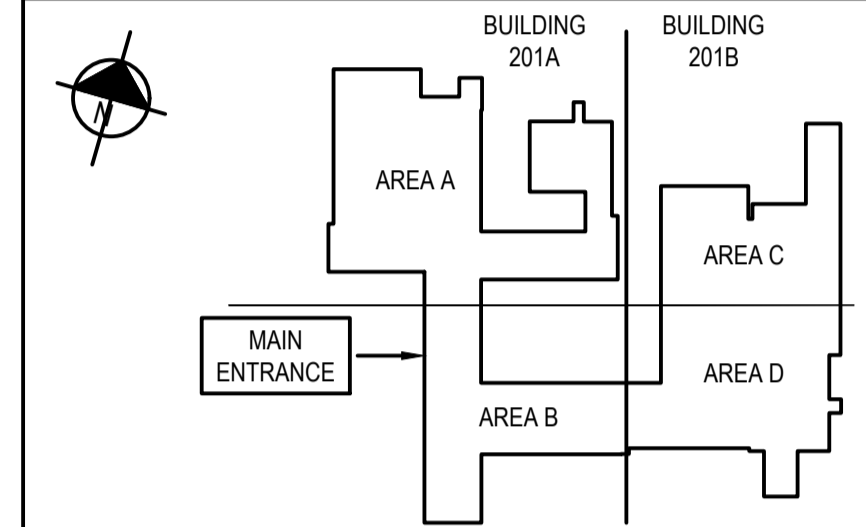
DEMOLITION NOTES	
01	DISASSEMBLE SUPPLY GRILLE AND THE SUPPLY BRANCH BACK TO THE MAIN. CAP SUPPLY AND EXHAUST AIR DUCTS AND SEAL ALL JOINTS.
02	DISCONNECT AND REMOVE THERMOSTAT AND ASSOCIATED WIRING.
03	DISCONNECT AND REMOVE ELECTRICAL POWER FEEDING THE EXHAUST FAN.
04	DISASSEMBLE FROM DUCTWORK AND REMOVE EXHAUST FAN. CAP EXHAUST DUCTS AND SEAL ALL JOINTS.
05	CLOSE THE SHUT OFF VALVES ON HEATING AND COOLING PIPING TO THE FAN COIL UNIT. DISCONNECT THE HYDRONIC PIPING FROM THE FAN COIL AND CAP THE PIPES. DISASSEMBLE AND REMOVE THE FAN COIL FROM THE DUCTWORK.
06	DISCONNECT AND REMOVE THE EXISTING AC UNIT FROM THE ROOM. DISCONNECT AND REMOVE THE AC WIRING AND ASSOCIATED THERMOSTAT.

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Canada



1 LEVEL 2 DEMOLITION PLAN - DUCTLESS SPLIT AC UNITS  
M402 SCALE: 1:400

NOTES:

- REFER TO DRAWING M400 FOR MECHANICAL LEGENDS AND HVAC NOTES.



NO.	DATE	REVISION	APPR.
0	2023/02/10	ISSUED FOR TENDER	D.R.

SCALE | ÉCHELLE  
1:400

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
Mechanical

DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
LEVEL 2 DEMOLITION PLAN -  
NEW DUCTLESS AC UNITS

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
A.A.		
DRAWN   DESSINÉ		PROJ MGR   GEST PROJ
R.E. / E.M.		
CHECKED   VÉRIFIÉ		DES MGR   GEST CONC
D.R.		
COORDINATION		FIRE   INCENDIE
D.R.		

WBS NO. | NO. OTP  
PF NO. | NO. DP

DWG. NO. | NO. DESSIN  
M402

DEMOLITION NOTES	
01	DISASSEMBLE SUPPLY GRILLE AND THE SUPPLY BRANCH BACK TO THE MAIN. CAP SUPPLY AND EXHAUST AIR DUCTS AND SEAL ALL JOINTS.
02	REMOVE THERMOSTAT AND ASSOCIATED WIRING.
03	DISCONNECT AND REMOVE ELECTRICAL POWER FEEDING THE EXHAUST FAN.
04	DISASSEMBLE FROM DUCTWORK AND REMOVE EXHAUST FAN. CAP EXHAUST DUCTS AND SEAL ALL JOINTS.
05	DISCONNECT AND REMOVE THE EXISTING AC UNIT FROM THE ROOM. DISCONNECT AND REMOVE THE AC WIRING AND ASSOCIATED THERMOSTAT

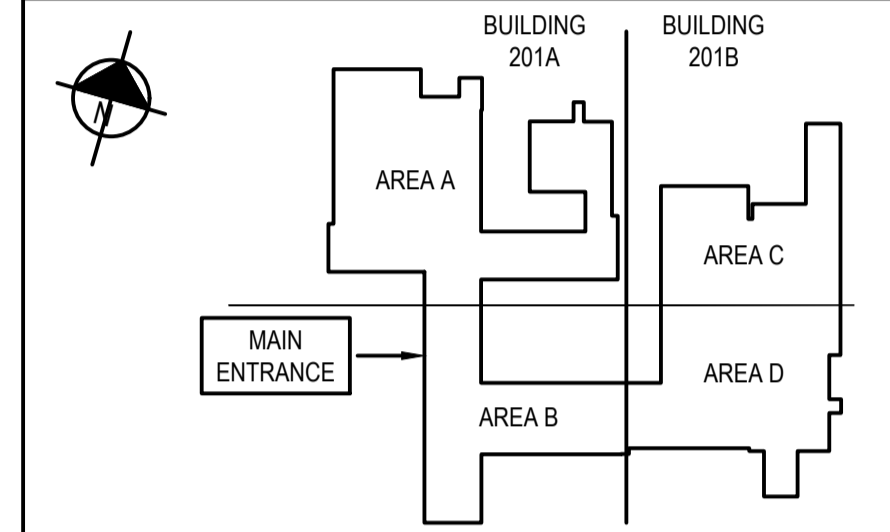
LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ  
UNCLASS | NON CLASSIFIÉ

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NOTES:

- REFER TO DRAWING M400 FOR MECHANICAL LEGENDS AND HVAC NOTES.



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NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE

1:150

LOCATION | EMPLACEMENT

1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET

DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
Mechanical

DATE  
2021/07/08

SUBJECT | SUJET

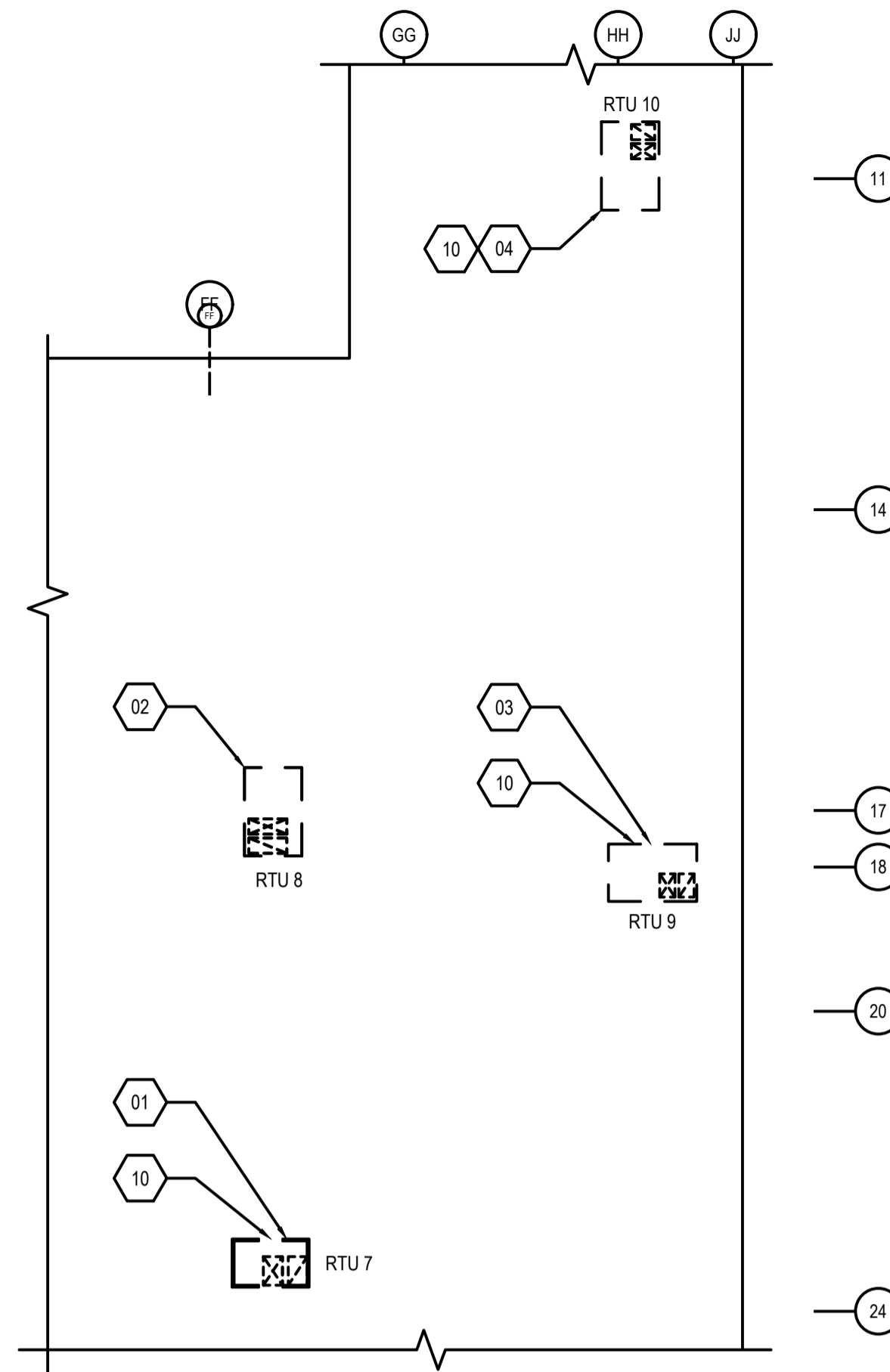
PACKAGE 1 -  
ROOF TOP UNIT DEMOLITION AND  
NEW INSTALLATION PLANS

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
A.A.		
DRAWN   DESSINÉ		PROJ MGR   GEST PROJ
R.E. / E.M.		
CHECKED   VÉRIFIÉ		DES MGR   GEST CONC
D.R.		
COORDINATION		FIRE   INCENDIE
D.R.		

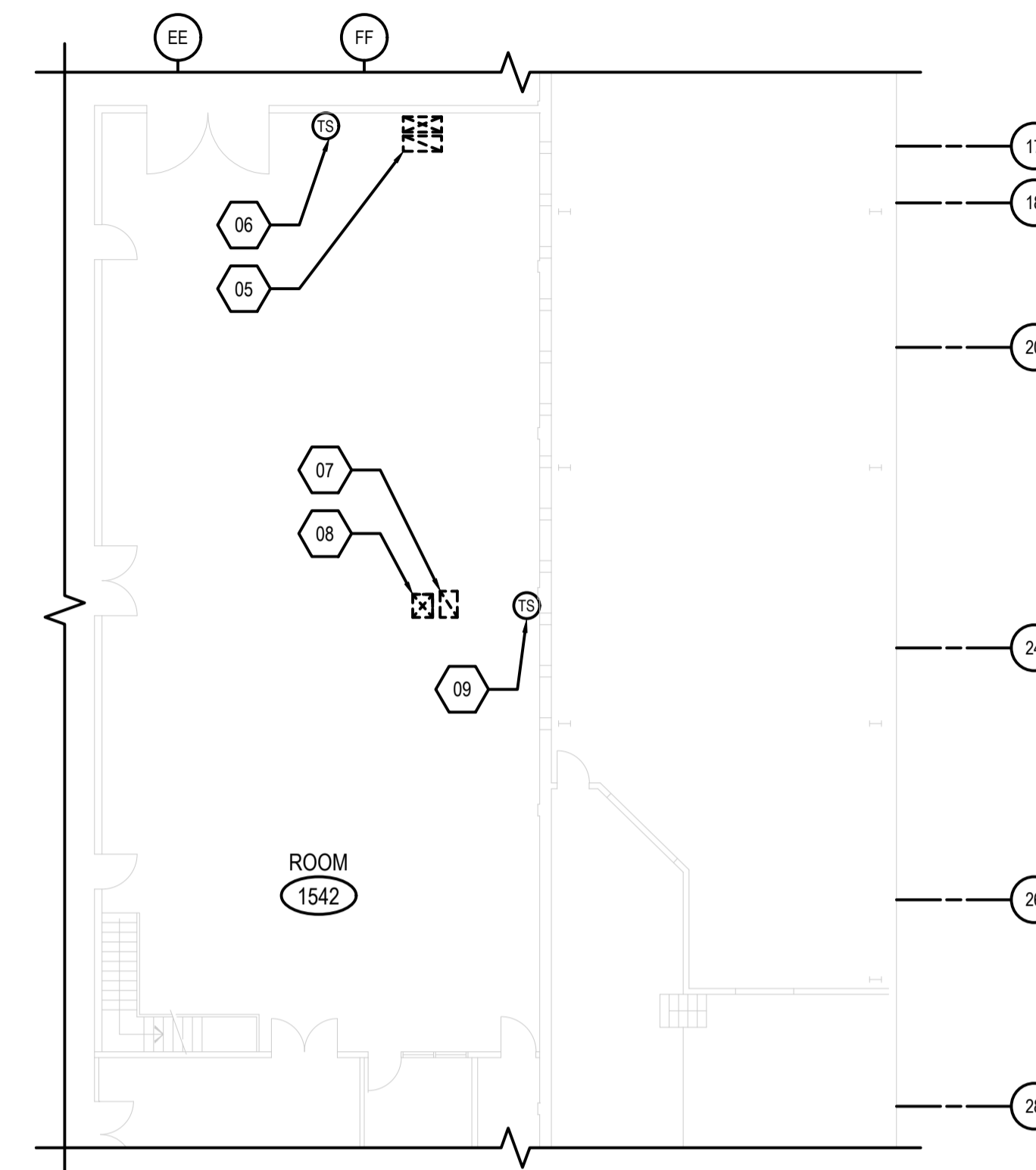
WBS NO.   NO. OTP	PF NO.   NO. DP
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DWG. NO. | NO. DESSIN

M403

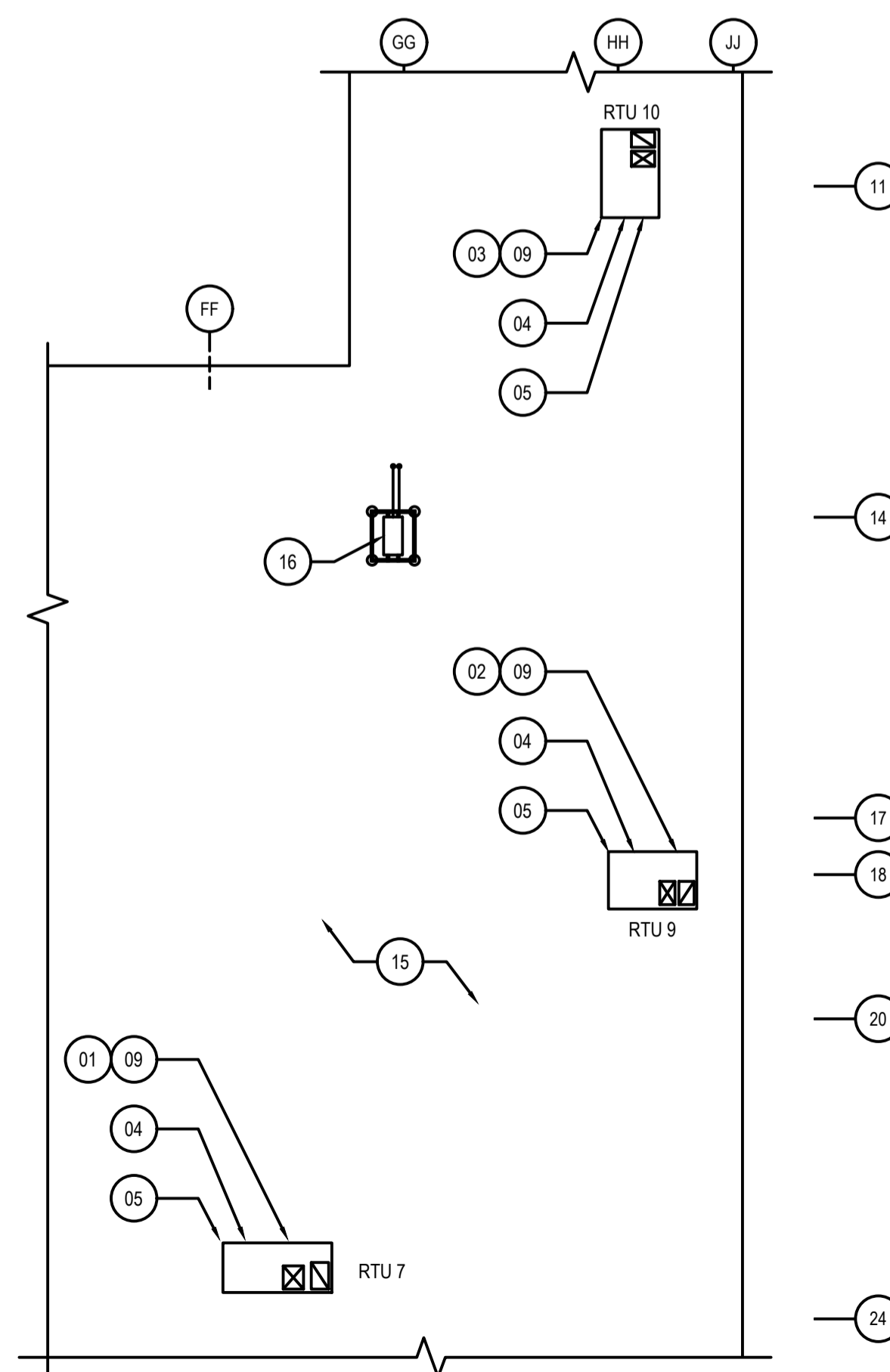


1 ROOF DEMOLITION PLAN - RTU  
M403 SCALE: 1:150

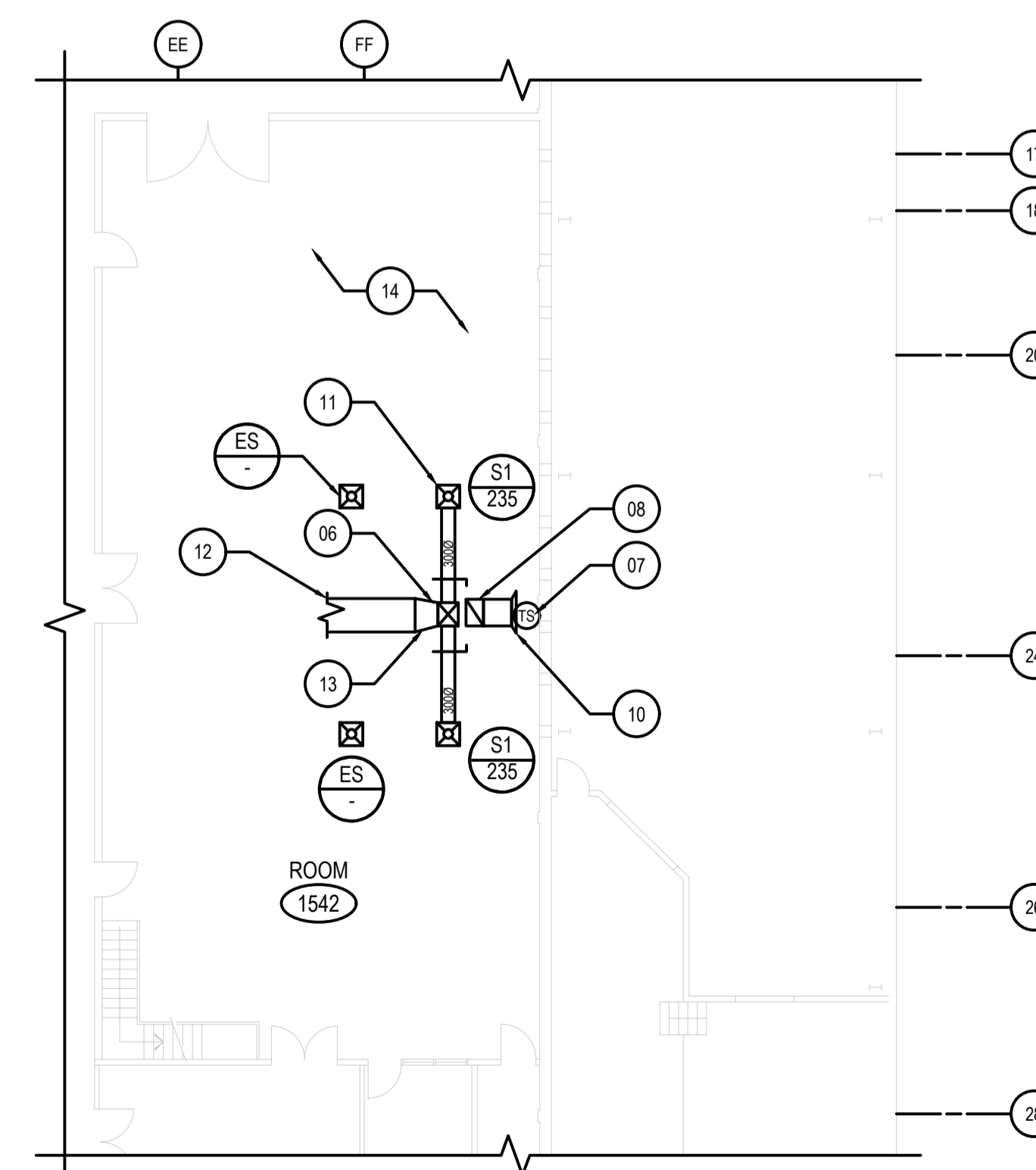


2 MECHANICAL DEMOLITION PLAN - ROOM 1542  
M403 SCALE: 1:150

DEMOLITION NOTES	
01	REMOVE EXISTING ROOF TOP UNIT (RTU-7). DISCONNECT DUCTWORK AND CAP FOR REUSE. EXISTING ELECTRICAL POWER FEED TO BE REMOVED. EXISTING ROOF CURB TO REMAIN.
02	REMOVE EXISTING ROOF TOP UNIT (RTU-8). ROOF CURB TO BE CAPPED. ELECTRICAL AND CONTROL WIRES TO BE REMOVED. DUCT WORK FROM BELOW TO BE REMOVED.
03	REMOVE EXISTING ROOF TOP UNIT (RTU-9). EXISTING DUCTWORK AND ELECTRICAL TO BE DISCONNECTED AND REMAIN FOR REUSE. EXISTING ROOF CURB TO REMAIN.
04	REMOVE EXISTING ROOF TOP UNIT (RTU-10). EXISTING DUCTWORK AND ELECTRICAL TO BE DISCONNECTED AND CAPPED FOR REUSE. EXISTING ROOF CURB TO REMAIN.
05	REMOVE EXISTING RTU-8 DUCTWORK IN ROOM 1542.
06	REMOVE EXISTING THERMOSTAT FOR RTU 8 c/w CONTROL WIRES AND CONDUITS
07	REMOVE ALL EXISTING RTU 7 RETURN DUCT (NOT SHOWN).
08	REMOVE VERTICAL SUPPLY DUCT c/w 90° ELBOW AT THE LOW POINT.
09	DISCONNECT RTU-7 THERMOSTAT WIRING. EXISTING THERMOSTAT AND ASSOCIATED WIRING TO REMAIN FOR REUSE.
10	DISCONNECT & CAP EXISTING RTU GAS SERVICE PIPE FOR REUSE.



3 NEW ROOF PLAN - RTU  
M403 SCALE: 1:150



4 NEW FLOOR PLAN - ROOM 1542  
M403 SCALE: 1:150

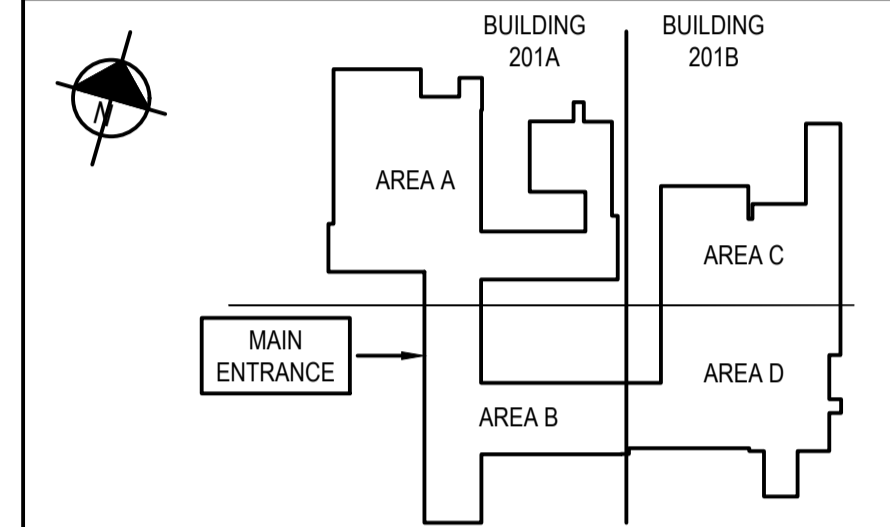
NEW INSTALLATION NOTES	
01	SUPPLY & INSTALL ROOF TOP UNIT (RTU-7) ON EXISTING ROOF CURB. MODIFY CURB IF NECESSARY TO SUIT NEW UNIT. PROVIDE NEW UPGRADED ELECTRICAL POWER SUPPLY AND CONNECT TO RTU.
02	SUPPLY & INSTALL ROOF TOP UNIT (RTU-9) ON EXISTING ROOF CURB. MODIFY CURB IF NECESSARY TO SUIT NEW UNIT. CONNECT UNIT TO EXISTING ELECTRICAL FEED.
03	SUPPLY & INSTALL ROOF TOP UNIT (RTU-10) ON EXISTING ROOF CURB. MODIFY CURB TO BE MODIFIED IF NECESSARY TO SUIT NEW UNIT. CONNECT UNIT TO EXISTING ELECTRICAL.
04	CONNECT GAS SERVICE TO THE NEW RTU c/w NEW ISOLATION VALVE, ACCESSORIES AND COMPONENTS AS REQUIRED.
05	SUPPLY & INSTALL A ROOF CURB ADAPTOR OVER EXISTING ROOF CURB FOR NEW RTU INSTALLATION.
06	SUPPLY & INSTALL NEW SUPPLY AIR DUCT 610mm X 550mm ( 24"x22" ) INCLUDING THE CONNECTION TO THE UNIT, ACOUSTIC LINER, VOLUME DAMPER WITH ACCESSORIES ( FINISH TO MATCH EXISTING )
07	CONNECT EXISTING THERMOSTAT WIRING TO THE NEW RTU
08	SUPPLY & INSTALL NEW RETURN AIR DUCT 700mm X 450mm ( 28"x18" ) INCLUDING THE CONNECTION TO THE UNIT, ACOUSTIC LINER WITH ACCESSORIES ( FINISH TO MATCH EXISTING )
09	CONNECT EXISTING DUCTWORK TO NEW RTU. PROVIDE TRANSITIONS AND OFFSETS AS NECESSARY.
10	R/A DUCT 700x500 (28"x20") c/w GOOSENECK AND WIRE MESH 500mm (20") MINIMUM CLEAR SPACE FROM THE WALL.
11	NEW DIFFUSERS TO BE ALIGNED WITH EXISTING DIFFUSERS AND AT SAME ELEVATION (TYP).
12	EXISTING S/A DUCT 1890 l/s (4000 CFM).
13	CONNECT NEW DUCT DROP TO EXISTING DUCT.
14	FIX AND PAINT ANY DAMAGED CEILINGS AND WALLS TO MATCH EXISTING.
15	ANY DAMAGED ROOF, WALL AND ANY STRUCTURE, ALL HOLES AND PENETRATIONS IN THE NEAREST AREA UP TO ONE (1) METER AROUND THE RESPECTIVE PENETRATION AFFECTED BY UNIT RELOCATION SHALL BE REPLACED, REPAIRED AND PAINTED TO MATCH EXISTING. HOLES AND PENETRATIONS SHALL BE SEALED TO MATCH EXISTING FIRE STOPPING REQUIREMENT AS NEEDED
16	REFER TO DRAWING M406 FOR WORK ASSOCIATED WITH CONDENSING UNIT CU-5.

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Canada



NOTES:

- REFER TO DRAWING M400 FOR MECHANICAL LEGENDS AND HVAC NOTES.



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NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE

AS NOTED

LOCATION | EMPLACEMENT

1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET

DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
Mechanical

DATE  
2021/07/08

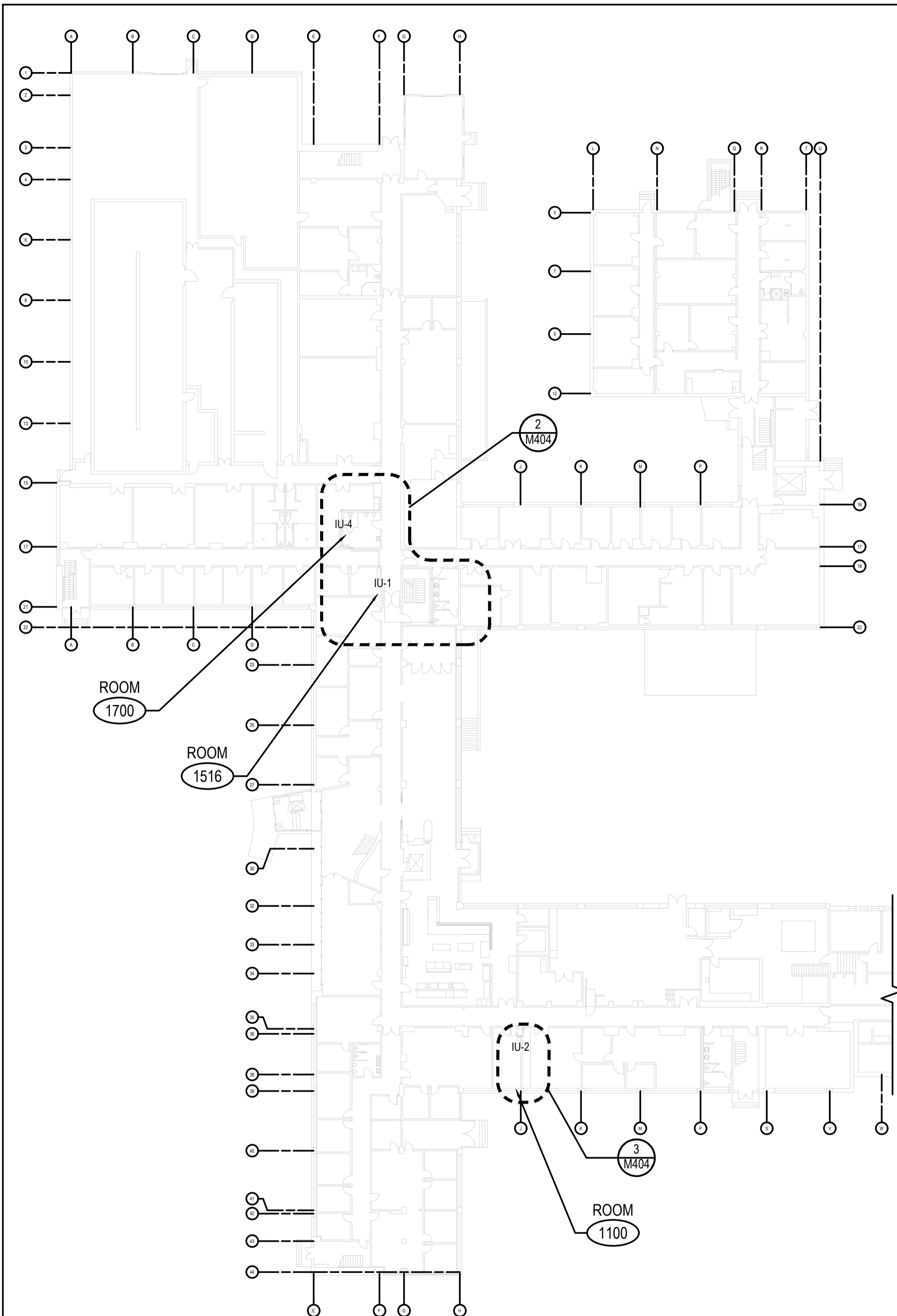
SUBJECT | SUJET

PACKAGE 1 -  
NEW DUCTLESS AC UNITS  
LEVEL 1 PLAN

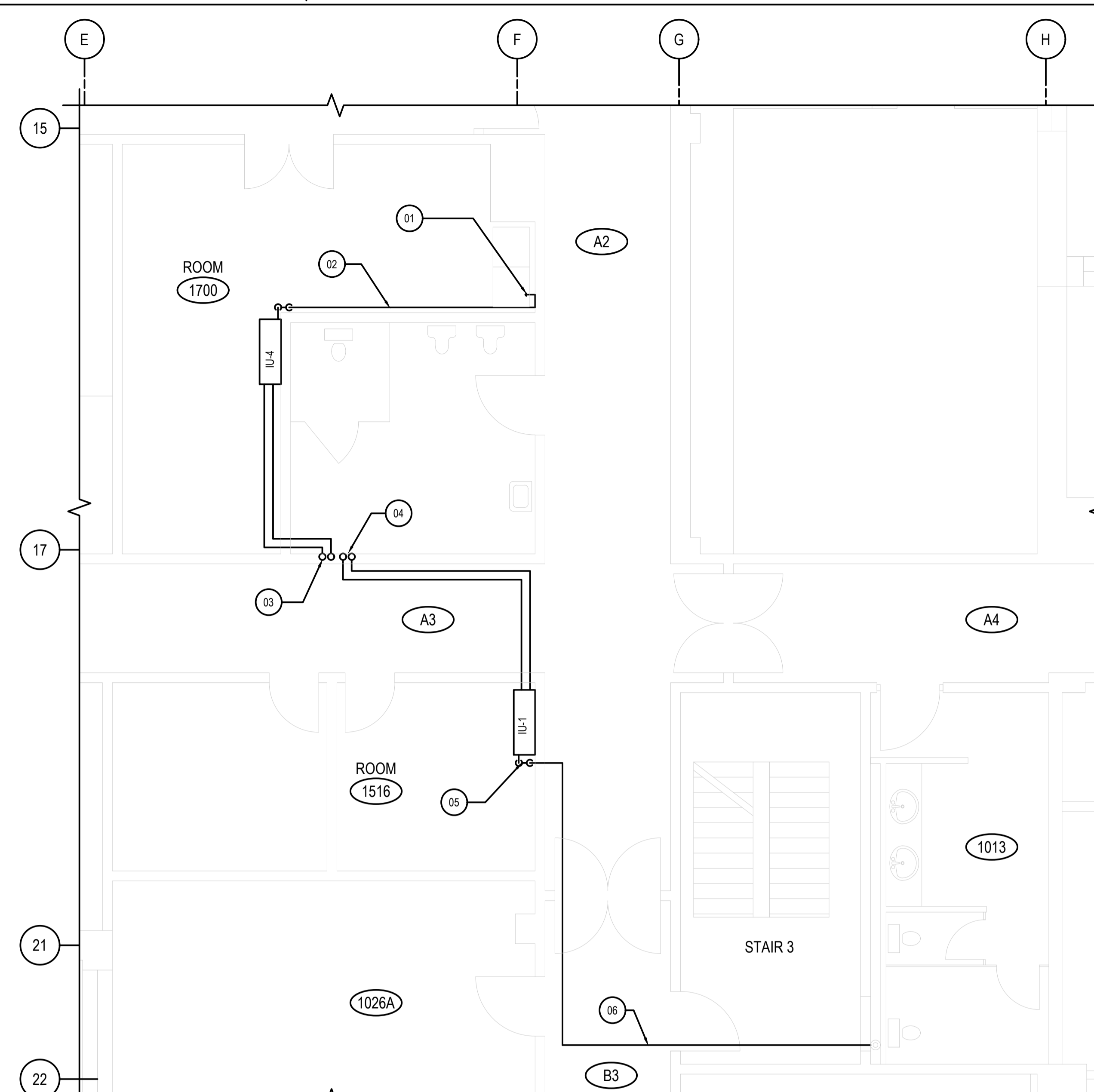
DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
A.A.		PROJ MGR   GEST PROJ
DRAWN   DESSINÉ		DES MGR   GEST CONC
R.E. / E.M.		
CHECKED   VÉRIFIÉ		
D.R.		
COORDINATION		FIRE   INCENDIE
D.R.		

WBS NO. | NO. OTP      PF NO. | NO. DP

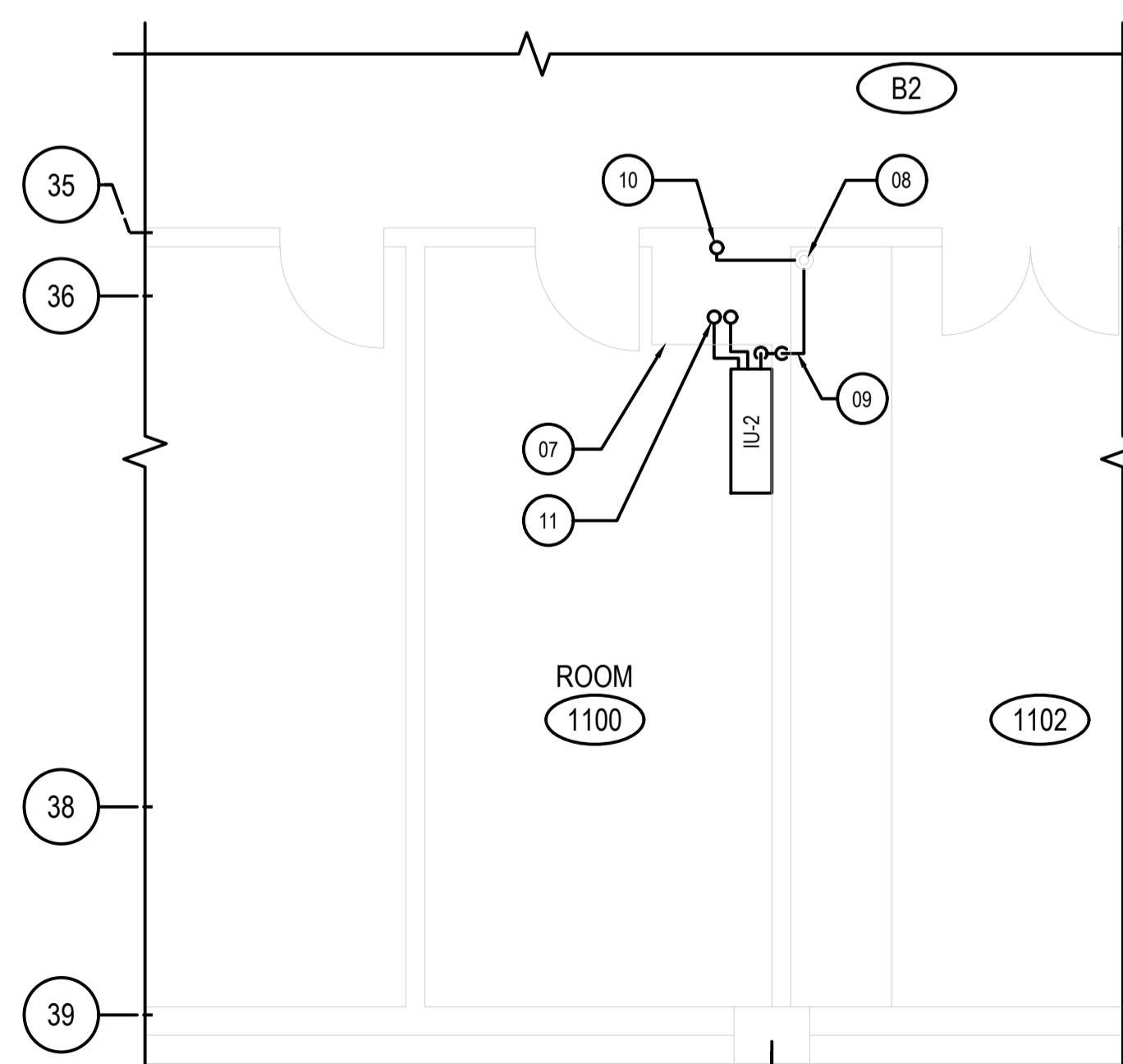
DWG. NO. | NO. DESSIN      M404



1 LEVEL 1 PLAN - NEW DUCTLESS AC UNITS  
M404 SCALE: NTS



2 ROOM 1516 & ROOM 1700 PLAN  
M404 SCALE: 1:50



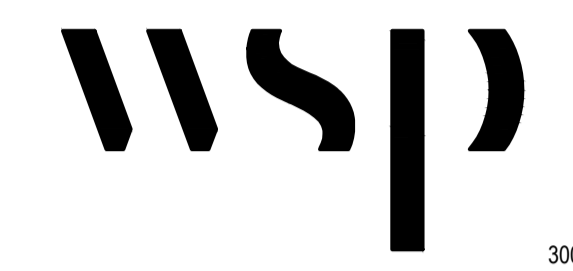
3 ROOM 1100 PLAN  
M404 SCALE: 1:50

NEW INSTALLATION NOTES	
01	TIE-IN AC DRAIN PIPE INTO THE SINK DRAIN.
02	20mm Ø AC DRAIN, SLOPE 1% UNDER THE CABINET.
03	REFRIGERANT PIPES TO CU-4 ABOVE. REFER TO DETAIL 2/M405 AND SPLIT AC SYSTEM SCHEDULE ON M409.
04	REFRIGERANT PIPES TO CU-1 ABOVE. REFER TO DETAIL 2/M405 AND SPLIT AC SYSTEM SCHEDULE ON M409.
05	20mmØ DRAIN PIPE RUN TO TIE-IN POINT AS PER MANUFACTURER RECOMMENDATIONS, NPC AND OBC. EXACT RUN AND PENETRATION TO BE FIELD VERIFIED AND CONFIRMED ON SITE.
06	RUN 20mmØ DRAIN PIPE TOWARDS SOUTH AND RUN IT PARALLEL WITH THE EXISTING CONDENSATE DRAIN FROM RM.1026A AT 1% SLOPE AND IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS, OBC AND NPC. TIE-IN TO THE EXISTING 75mm (3") STANDPIPE IN THE WALL CHASE WITH ACCESS DOOR AT RM. 1013. EXACT PENETRATION TO BE FIELD VERIFIED AND CONFIRMED ON SITE.
07	EXISTING SHAFT (PIPE CHASE) BETWEEN THE FLOORS SUGGESTED LOCATION FOR RUNNING SOME OF THE REFRIGERANT PIPES AND DRAIN PIPE FROM AC UNITS AS INDICATED. EXACT RUN AND PENETRATION TO BE FIELD VERIFIED AND CONFIRMED ON SITE.
08	EXISTING 40mm (1 1/2") VENT.
09	20mmØ DRAIN PIPE FROM AC UNIT (IU-2). TIE-IN DRAIN INTO THE EXISTING 40mm (1 1/2") VENT AS PER MANUFACTURER RECOMMENDATIONS, NPC AND OBC. EXACT PENETRATION TO BE FIELD VERIFIED AND CONFIRMED ON SITE.
10	20mmØ DRAIN PIPE FROM AC UNIT (IU-7 ABOVE (RM 2102)). TIE-IN DRAIN INTO THE EXISTING 40mm (1 1/2") VENT AS PER MANUFACTURER RECOMMENDATIONS, NPC AND OBC. EXACT PENETRATION TO BE FIELD VERIFIED AND CONFIRMED ON SITE.
11	REFRIGERANT PIPES TO CU-2 ABOVE. REFER TO DETAIL 3/M405 AND SPLIT AC SYSTEM SCHEDULE ON M409.

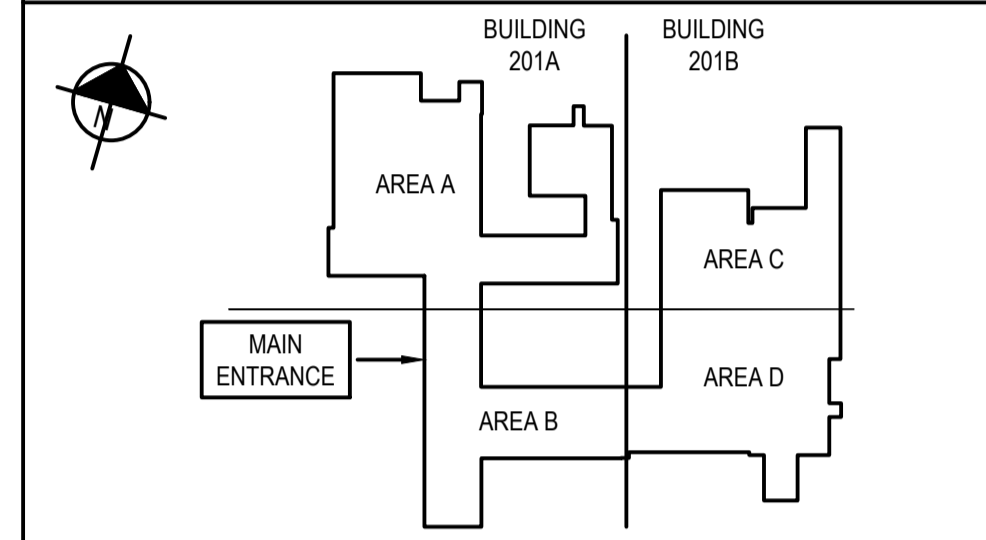
LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ  
UNCLASS | NON CLASSIFIÉ

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NOTES:  
1. REFER TO DRAWING M400 FOR MECHANICAL LEGENDS AND HVAC NOTES.



0	2023/02/10	ISSUED FOR TENDER	D.R.
NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE  
AS NOTED  
LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

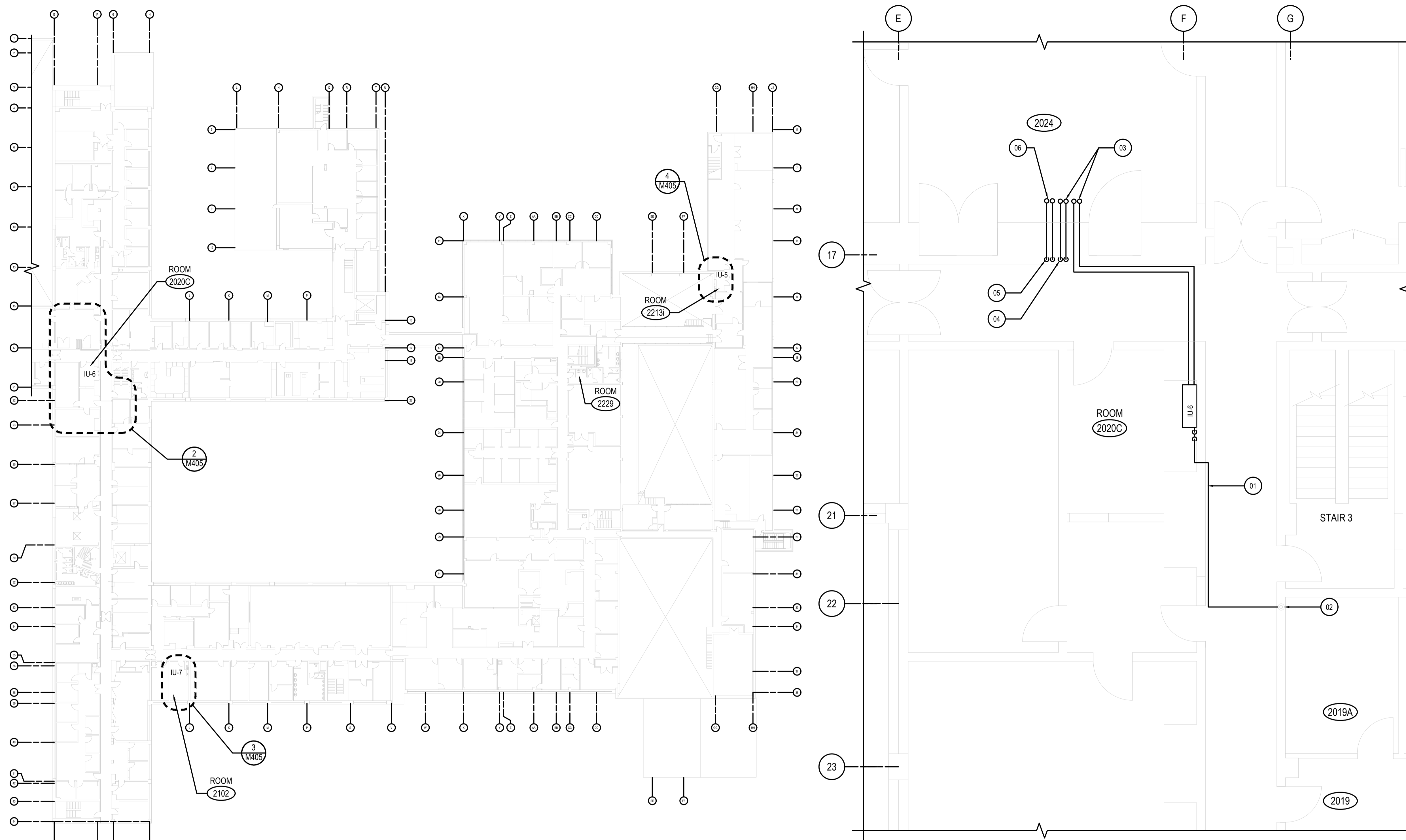
TRADE | MÉTIER  
Mechanical  
DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
NEW DUCTLESS AC UNITS  
LEVEL 2 PLAN

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
A.A.		PROJ MGR   GEST PROJ
DRAWN   DESSINÉ		DES MGR   GEST CONC
R.E. / E.M.		
CHECKED   VÉRIFIÉ		DES MGR   GEST CONC
D.R.		
COORDINATION		FIRE   INCENDIE
D.R.		

WBS NO. | NO. OTP  
PF NO. | NO. DP

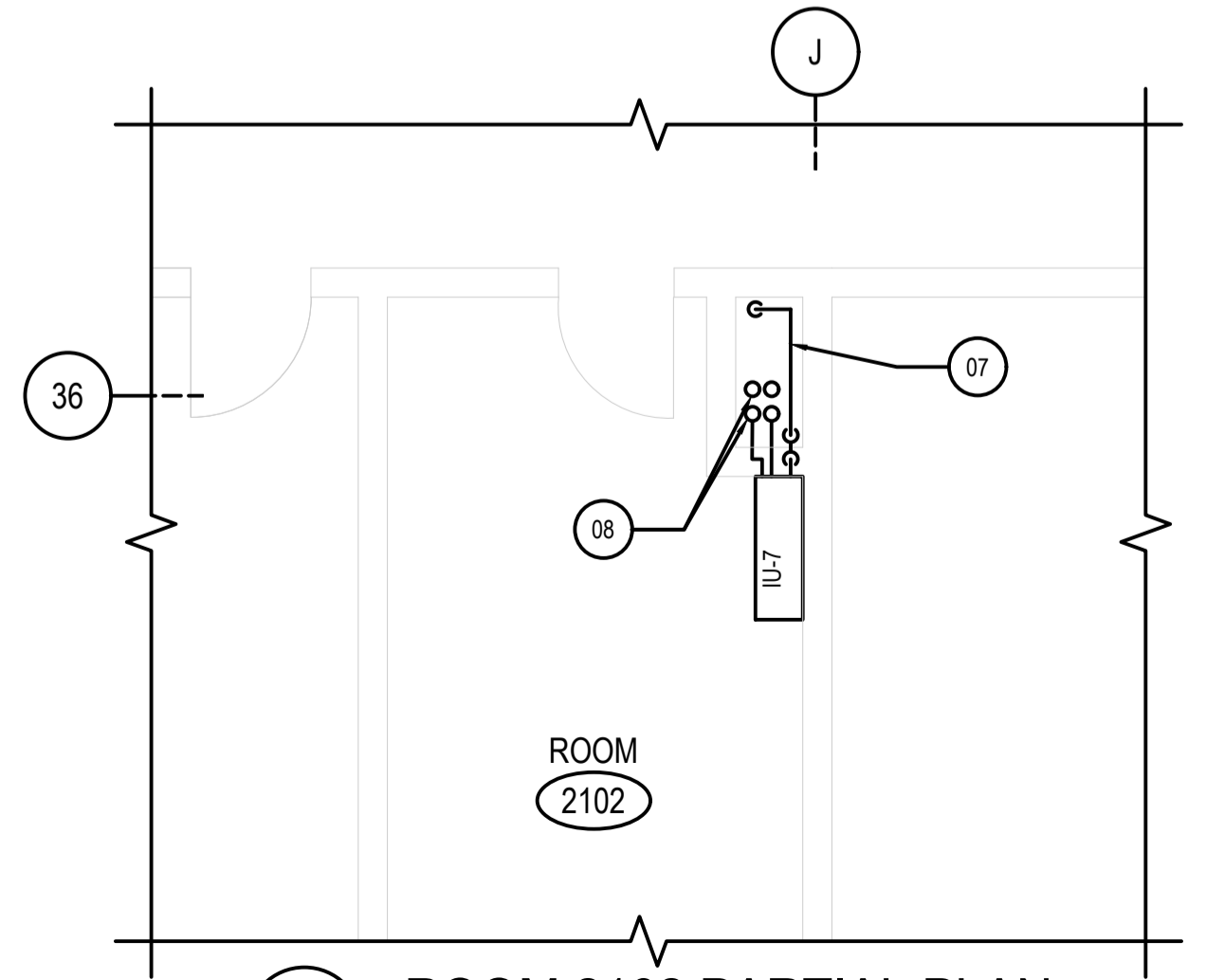
DWG. NO. | NO. DESSIN  
M405



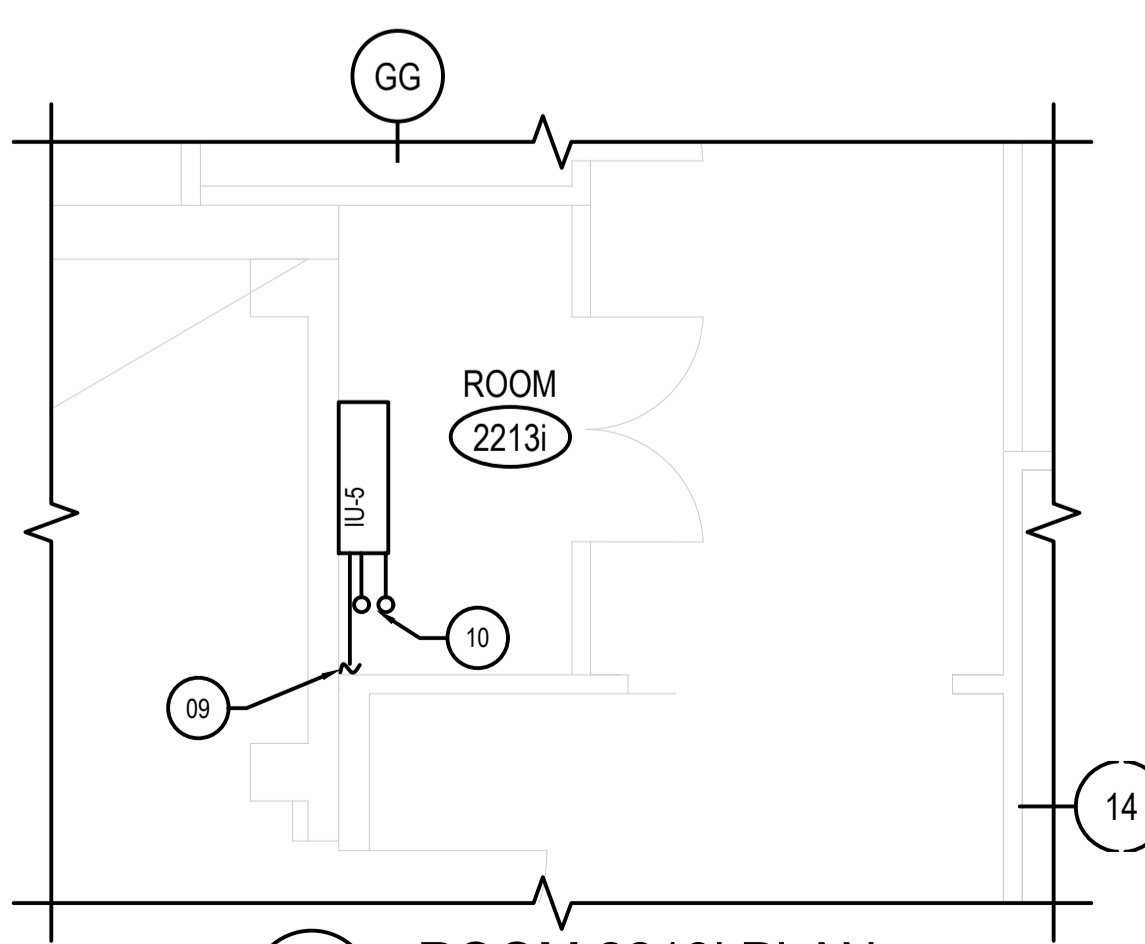
1 LEVEL 2 PLAN - NEW DUCTLESS AIR CONDITIONING UNITS  
M405 SCALE: NTS

2 ROOM 2020C PLAN  
M405 SCALE: 1:50

NEW INSTALLATION NOTES	
01	AC DRAIN LINE 20mm Ø MIN SLOPE 1% ON THE WALL AND ABOVE FALSE CEILING
02	RUN 20mmØ DRAIN PIPE FROM AC UNIT IU-6 (RM.2020C) AS INDICATED AT 1% SLOPE AND IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS, OBC AND NPC. TIE-IN TO THE EXISTING 75mm (3") STANDPIPE IN THE WALL CHASE AT RM. 2019A. EXACT PENETRATION TO BE FIELD VERIFIED AND CONFIRMED ON SITE.
03	REFRIGERANT PIPES TO CU-1 ON ROOF ABOVE. RUN THE PIPES ABOVE FALSE CEILING. REFER TO DETAILS 2/M404, 2/M406, AND SPLIT AC SYSTEM SCHEDULE ON M409.
04	REFRIGERANT PIPES FROM IU-1 BELOW. REFER TO DETAILS 2/M404, 2/M406, AND SPLIT AC SYSTEM SCHEDULE ON M409.
05	REFRIGERANT PIPES FROM IU-4 BELOW. RUN THE PIPES ABOVE FALSE CEILING. REFER TO DETAILS 2/M404, 2/M406, AND SPLIT AC SYSTEM SCHEDULE ON M409.
06	REFRIGERANT PIPES TO CU-4 ON ROOF ABOVE. REFER TO DETAILS 2/ M404, AND SPLIT AC SYSTEM SCHEDULE ON M409.
07	RUN 20mmØ DRAIN PIPE FROM AC UNIT IU-7 (RM.2102) AS INDICATED AT 1% SLOPE AND IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS, OBC AND NPC. TIE-IN TO THE EXISTING 40mm (1 1/2") VENT IN RM. 1102. EXACT PENETRATION TO BE FIELD VERIFIED AND CONFIRMED ON SITE.
08	REFRIGERANT PIPES TO CU-2 ON ROOF ABOVE. REFER TO DETAILS 3/M404, 3/M406, AND SPLIT AC SYSTEM SCHEDULE ON M409.
09	RUN 20mmØ DRAIN PIPE FROM AC UNIT IU-5 (RM.2213i) AS INDICATED AT 1% SLOPE AND ABOVE THE FALSE CEILING, AND IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS, OBC AND NPC. TIE IN TO 65mm (2 1/2") VENT IN THE WALL PIPE CHASE AT RM.2229. EXACT ROUTING TO BE FIELD VERIFIED AND CONFIRMED ON SITE.
10	REFRIGERANT PIPES TO CU-5 ABOVE. REFER TO DETAIL 4/M406 AND SPLIT AC SYSTEM SCHEDULE ON M409.



3 ROOM 2102 PARTIAL PLAN  
M405 SCALE: 1:50



4 ROOM 2213i PLAN  
M405 SCALE: 1:50

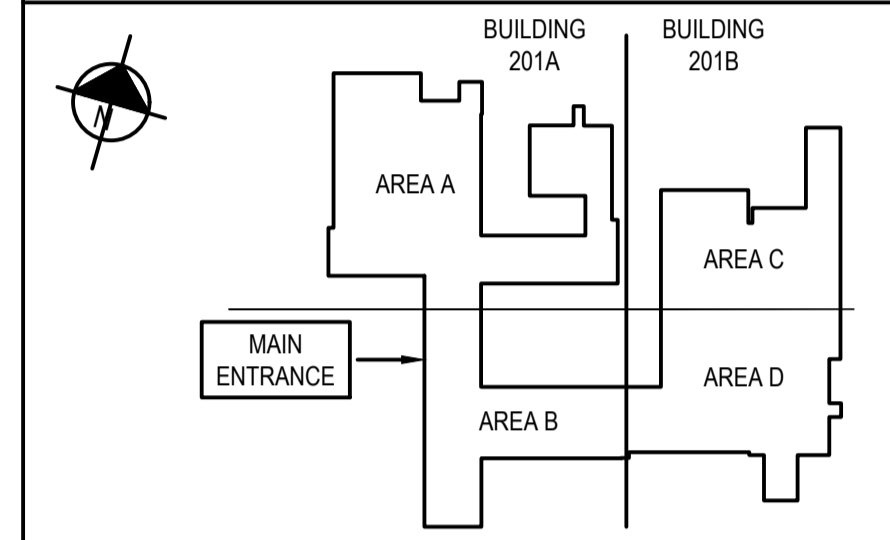
LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ  
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NOTES:

- REFER TO DRAWING M400 FOR MECHANICAL LEGENDS AND HVAC NOTES.
- LOCATE THE CONDENSING UNIT TO MAXIMUM VICINITY TO THE PIPE ROOF PENETRATIONS AND AS PER MANUFACTURER'S SERVICE DISTANCE RECOMMENDATIONS.



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SCALE | ÉCHELLE  
AS NOTED  
LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

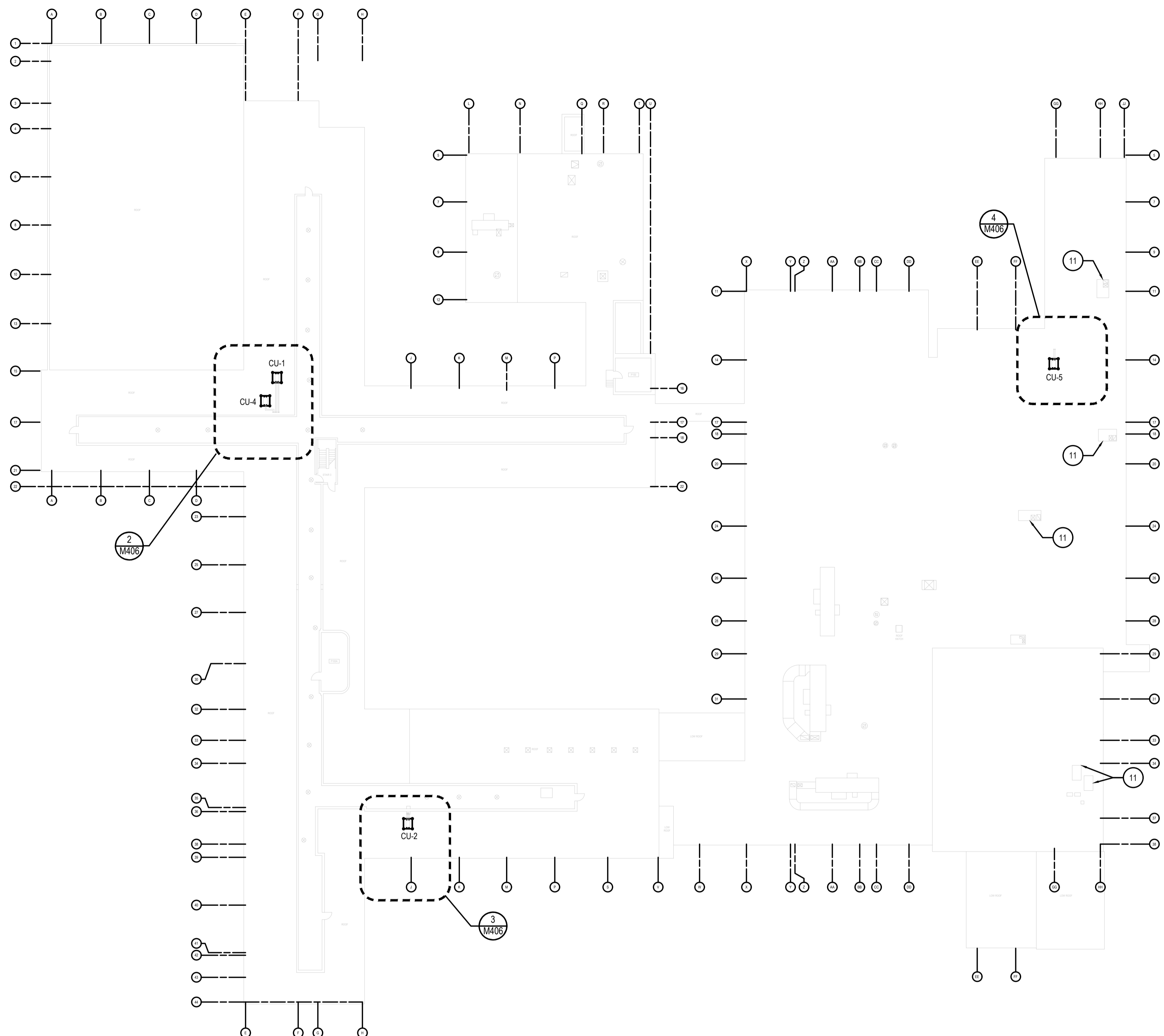
TRADE | MÉTIER  
Mechanical  
DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
NEW DUCTLESS AC UNITS  
ROOF PLAN

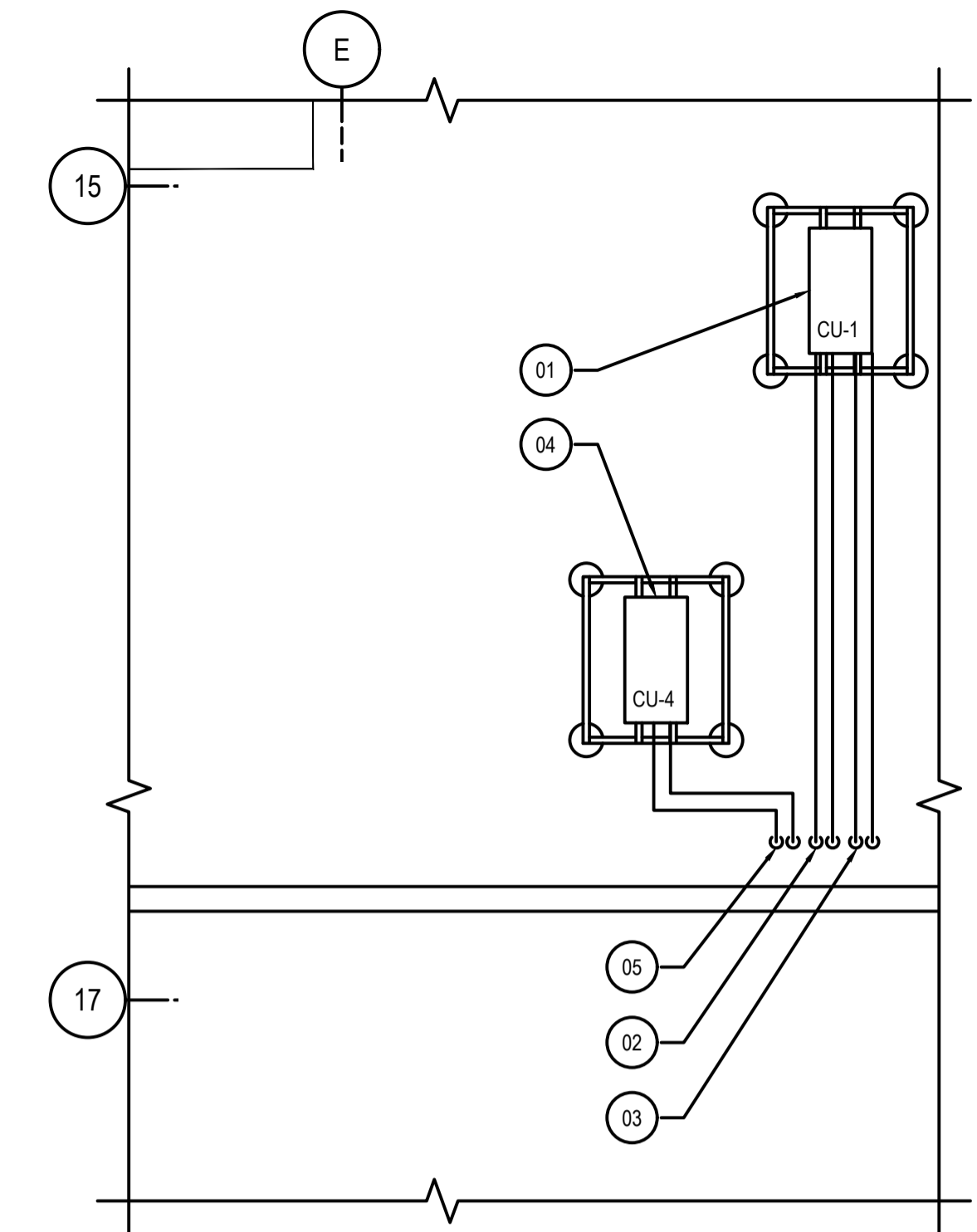
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A.A.		PROJ MGR   GEST PROJ
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R.E. / E.M.		D.R.
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D.R.		D.R.

WBS NO. | NO. OTP  
PF NO. | NO. DP

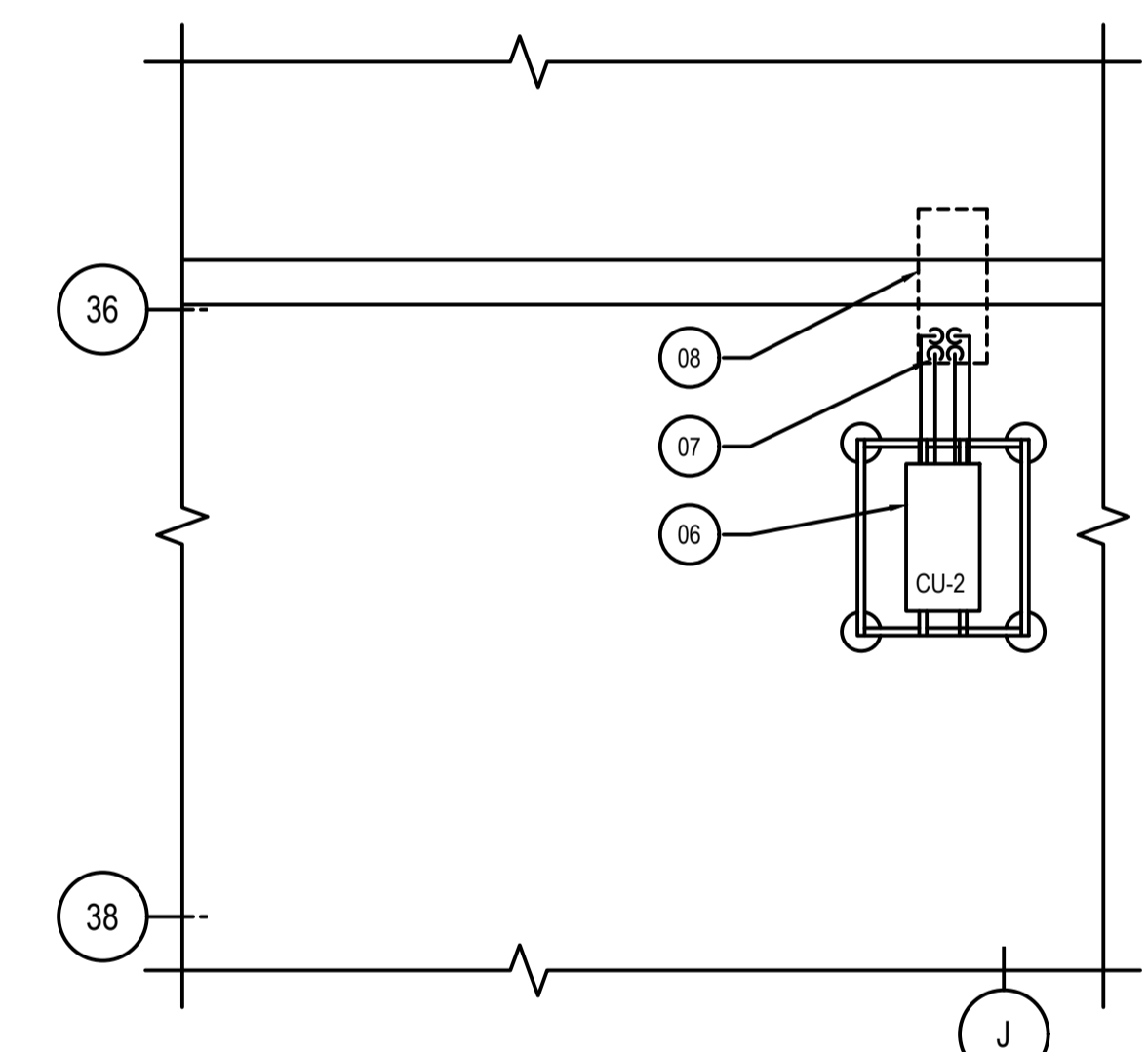
DWG. NO. | NO. DESSIN  
M406



1 ROOF PLAN - NEW DUCTLESS AIR CONDITIONING UNITS  
M406 SCALE: NTS

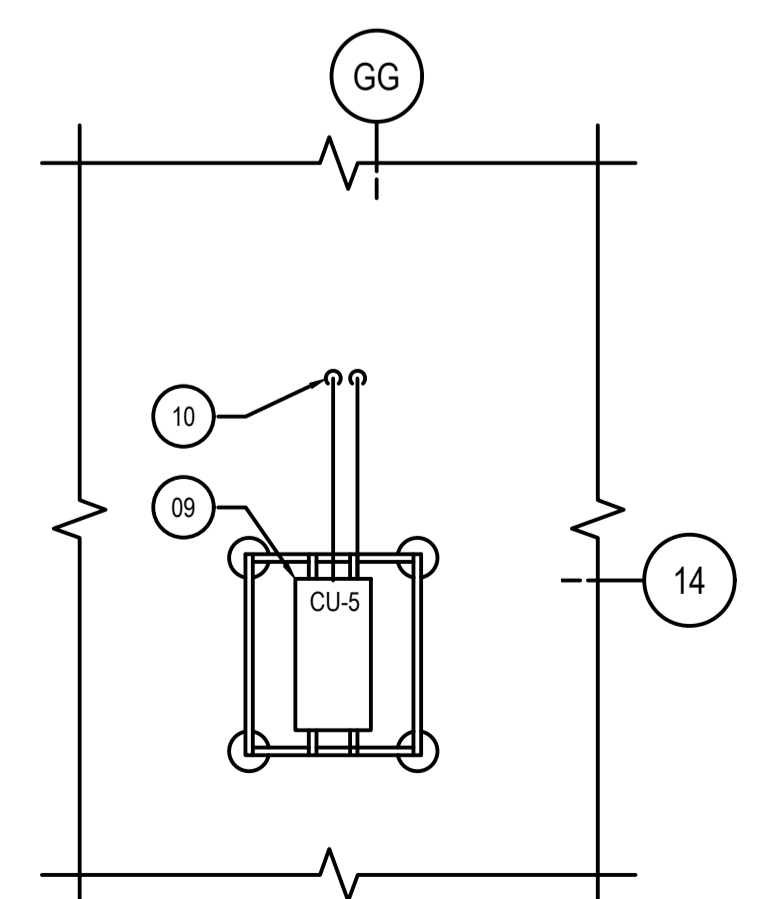


2 PARTIAL ROOF PLAN (CU-1 & CU-4)  
M406 SCALE: 1:50



3 PARTIAL ROOF PLAN (CU-2)  
M406 SCALE: 1:50

NEW INSTALLATION NOTES	
01	ROOF MOUNTED CONDENSING UNIT CU-1, SEE DETAIL 5/M408 AND SPLIT AC SYSTEM SCHEDULE ON M409.
02	REFRIGERANT PIPES FROM IU-1 BELOW. REFER TO DETAILS 2/M404, 2/M405, AND SPLIT AC SYSTEM SCHEDULE ON M409.
03	REFRIGERANT PIPES FROM IU-6 BELOW. REFER TO DETAIL 2/M405 AND SPLIT AC SYSTEM SCHEDULE ON M409.
04	ROOF MOUNTED CONDENSING UNIT CU-4, SEE DETAIL 5/M408 AND SPLIT AC SYSTEM SCHEDULE ON M409.
05	REFRIGERANT PIPES FROM IU-4 BELOW. REFER TO DETAILS 2/M404, 2/M405, AND SPLIT AC SYSTEM SCHEDULE ON M409.
06	ROOF MOUNTED CONDENSING UNIT CU-2, SEE DETAIL 5/M408 AND SPLIT AC SYSTEM SCHEDULE ON M409.
07	REFRIGERANT PIPES FROM IU-2 & IU-7 BELOW. REFER TO DETAILS 3/M404, 3/M405, AND SPLIT AC SYSTEM SCHEDULE ON M409.
08	OUTLINE OF EXISTING PIPE CHASE BELOW.
09	ROOF MOUNTED CONDENSING UNIT CU-5, SEE DETAIL 5/M408 AND SPLIT AC SYSTEM SCHEDULE ON M409.
10	REFRIGERANT PIPES FROM IU-5 BELOW. REFER TO DETAIL 4/M405 AND SPLIT AC SYSTEM SCHEDULE ON M409.
11	REFER TO DRAWING M403 & M407 FOR WORK ASSOCIATED WITH THIS EQUIPMENT.



4 PARTIAL ROOF PLAN (CU-5)  
M406 SCALE: 1:50

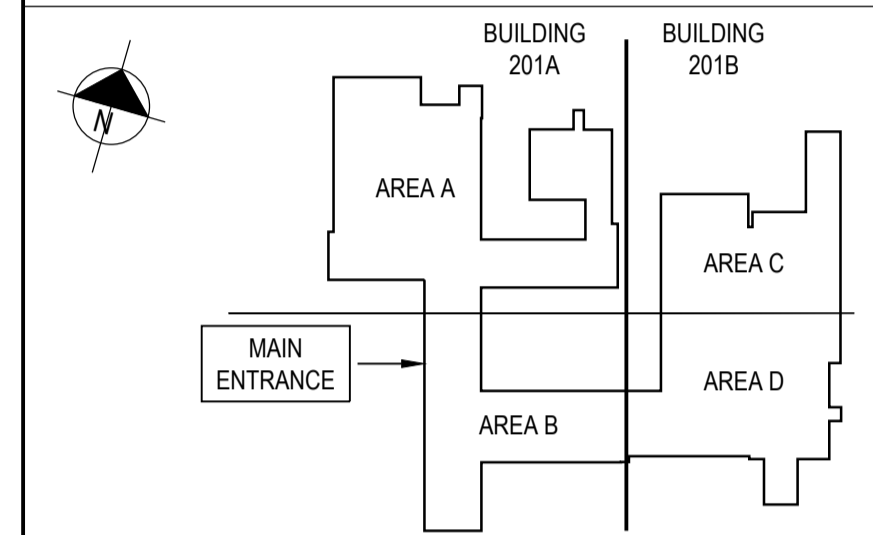
LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ  
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Canada



NOTES:

- REFER TO DRAWING M400 FOR MECHANICAL LEGENDS AND HVAC NOTES.



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NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE  
AS NOTED

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

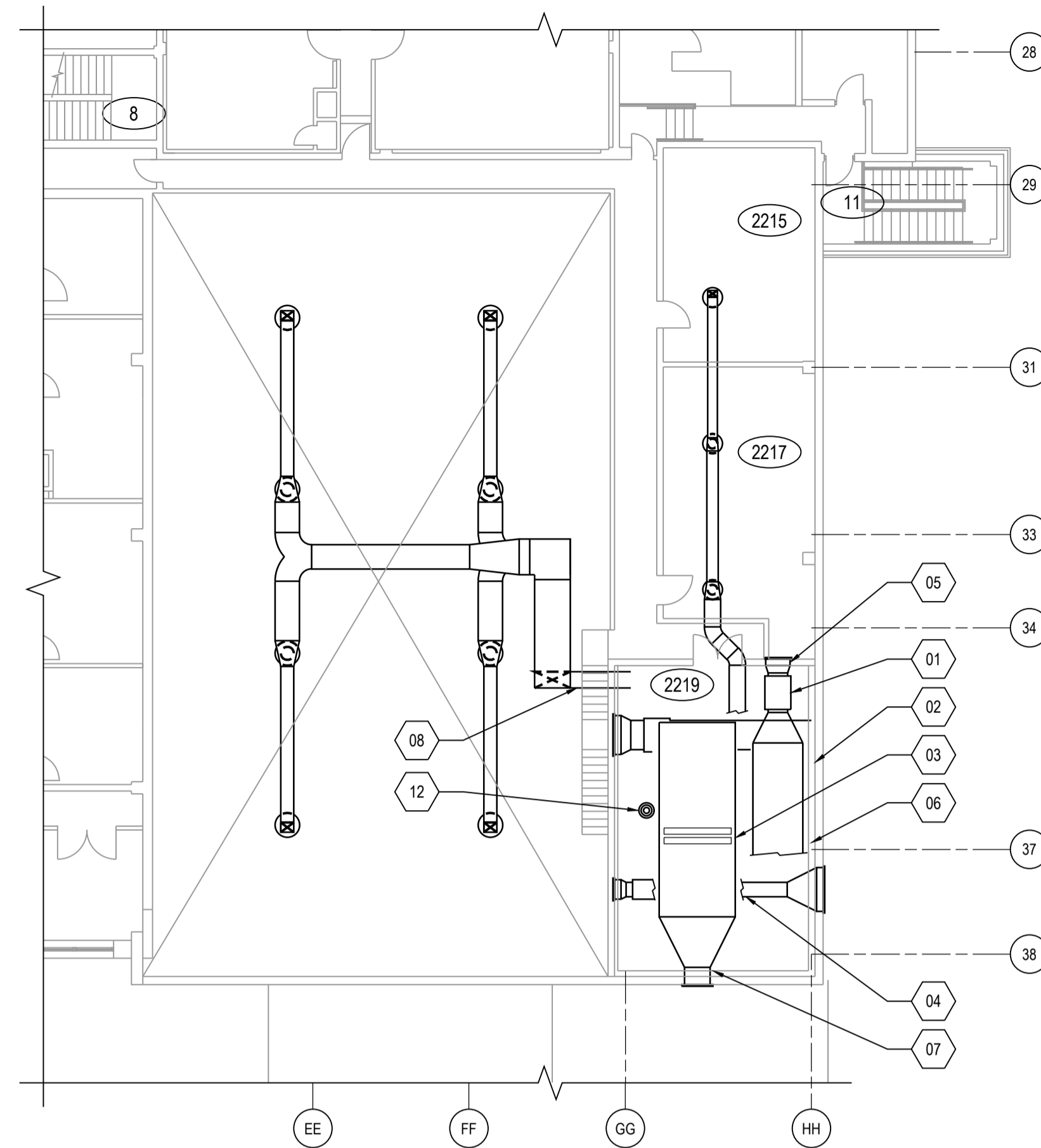
TRADE | MÉTIER  
Mechanical  
DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
ROOM 2219  
AIR HANDLING UNIT REPLACEMENT

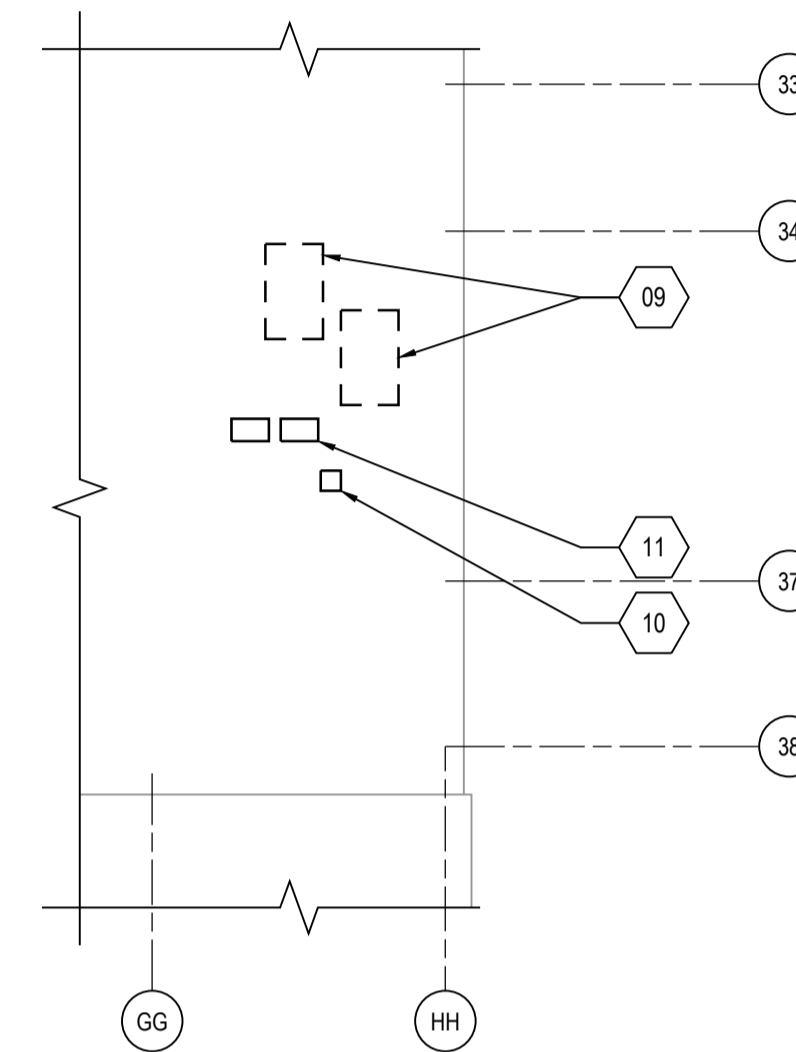
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COORDINATION D.R.	FIRE   INCENDIE

WBS NO. | NO. OTP  
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M407



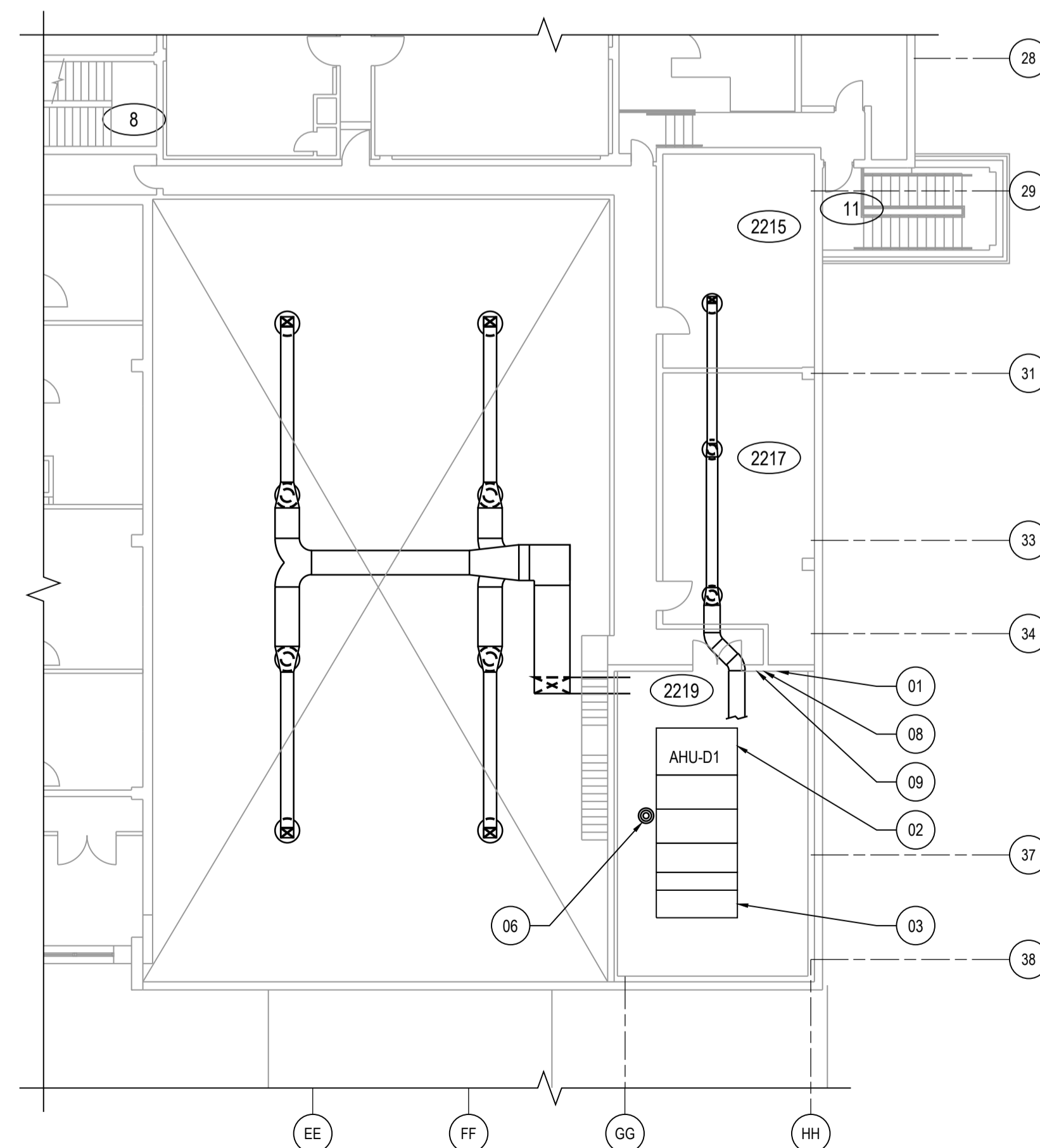
1 DEMOLITION FLOOR PLAN - ROOM 2219  
M407 SCALE: 1:150



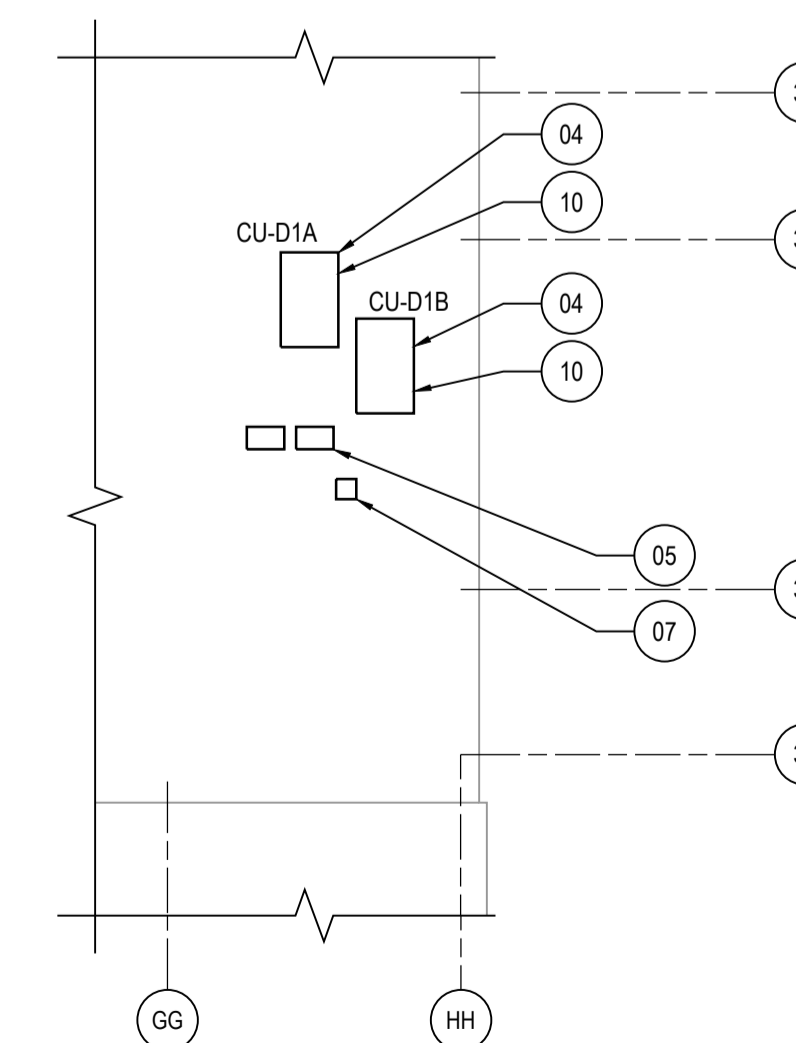
2 DEMOLITION ROOF PLAN - CU  
M407 SCALE: 1:150

DEMOLITION NOTES	
01	EXISTING SUPPLY, RETURN AND EXHAUST DUCTS TO REMAIN U.N.O. REMOVE DUCT TRANSITIONS AT RTU.
02	WALL OPENING FOR EXISTING EQUIPMENT REMOVAL AND NEW EQUIPMENT INSTALLATION. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DETAILS.
03	DISASSEMBLE EXISTING AIR HANDLING UNIT INTO PIECES SIZED TO BE REMOVED THRU WALL OPENING PROVIDED. REMOVE AND DISPOSE OF EXISTING AIR HANDLING UNIT.
04	REFER TO DRAWING M408 FOR DETAILED ELEVATION, PLAN & NOTES FOR DEMOLITION AND NEW INSTALLATION DUCTWORK.
05	REMOVE ALL EXISTING PNEUMATIC CONTROLS, ASSOCIATED ACCESSORIES, COMPONENTS AND TUBING FOR THE AHU.
06	CLOSE AND CAP EXISTING BRANCH FROM THE RETURN AIR DUCT (SIZE 1200x820) INCLUDING THE DUCT, LOUVER AND MOTORIZED DAMPER.
07	REMOVE EXISTING FRESH AIR DUCT AND DAMPER. EXISTING LOUVER TO REMAIN.
08	EXISTING DUCTING WORK IN ROOM 1207 AND OFFICES TO REMAIN.
09	REMOVE AND DISPOSE OF TWO EXISTING CONDENSING UNITS.
10	REMOVE TWO SETS OF ASSOCIATED REFRIGERANT COPPER PIPES. CONNECTING THE INDOOR UNIT AND OUTDOOR UNIT AND THE INDOOR ACCESSORIES (PIPE CHASE SIZE: 400x400).
11	EXISTING DISCONNECT SWITCHES TO REMAIN.
12	DISCONNECT AND REMOVE HOT WATER SUPPLY CONNECTION TO THE EXISTING UNIT TO THE EXISTING ISOLATION VALVE (APPROXIMATE LOCATION AT SYMBOL: ●).

ROOM 1207 HVAC WORKING NOTES	
1.	ROOM 1207: ACCESS IS RESTRICTED DURING DEMOLITION AND NEW INSTALLATION WORK.
2.	ROOM 2219: WORKER AND EQUIPMENT ACCESS SHALL BE VIA THE EAST EXTERNAL WALL OPENING OF ROOM 2219. THE OPENING DIMENSIONS ARE: WxH 2920mm x 1400mm (115" x 56").
3.	THE AIR HANDLING UNIT WILL BE BROUGHT THROUGH WALL OPENING IN SECTION (4). CONTRACTOR IS RESPONSIBLE TO ASSEMBLE UNIT INSIDE ROOM AS PER MANUFACTURER RECOMMENDATIONS.
4.	VERIFY AIR HANDLING UNIT ACCESS DOOR LOCATION PRIOR TO ORDERING THE UNIT.



3 NEW FLOOR PLAN - ROOM 2219  
M407 SCALE: 1:150



4 NEW ROOF PLAN - CU  
M407 SCALE: 1:150

NEW INSTALLATION NOTES	
01	PROVIDE NEW CONTROL SYSTEM INCLUDING ALL COMPONENTS REQUIRED AS PER SEQUENCE OF OPERATION. REFER TO DRAWING M410 FOR DETAILS.
02	SUPPLY AND INSTALL NEW AIR HANDLING UNIT.
03	PROVIDE DUCT CONNECTION c/w FLEXIBLE DUCT CONNECTORS BETWEEN EXISTING DUCT AND THE NEW UNIT. REFER TO DRAWINGS M408 AND M410 FOR DETAILS.
04	SUPPLY AND INSTALL NEW ROOF TOP CONDENSING UNIT (15 TON) ON EXISTING ROOF CURB. CURB TO BE MODIFIED IF NECESSARY TO SUIT NEW UNIT. ELECTRICAL TO BE CONNECTED TO NEW UNIT.
05	CONNECT EXISTING ELECTRICAL DISCONNECTS TO NEW UNITS.
06	PROVIDE & INSTALL GATE VALVE (64mm (2 1/2")) & BLACK STEEL PIPE (64mm (2 1/2")) TO THE NEW UNIT INCLUDING ALL REQUIRED FITTINGS, INSULATION AND ACCESSORIES.
07	CONSIDER REUSING EXISTING COPPER PIPE MAINS WITHIN THE EXISTING PIPE CHASE. COORDINATE WITH THE OWNER.
08	SUPPLY AND INSTALL COMMUNICATION WIRE FROM THE BAS PANEL TO THE WORK STATION IN THE BUILDING. COMMISSION THE NEW UNIT CONTROL SYSTEM FOR OPERATOR MONITORING AND CONTROL.
09	REVIEW AND RECONFIGURE THE EXISTING BUILDING AUTOMATION SYSTEM (BAS) TO INCORPORATE THE NEW AHU UNIT (AHU-D1), AS PER THE SPECIFICATIONS.
10	CONSIDER REUSING EXISTING REFRIGERANT PIPING TO THE MAXIMUM REASONABLE COST EFFECTIVE EXTENT. COORDINATE WITH THE OWNER.



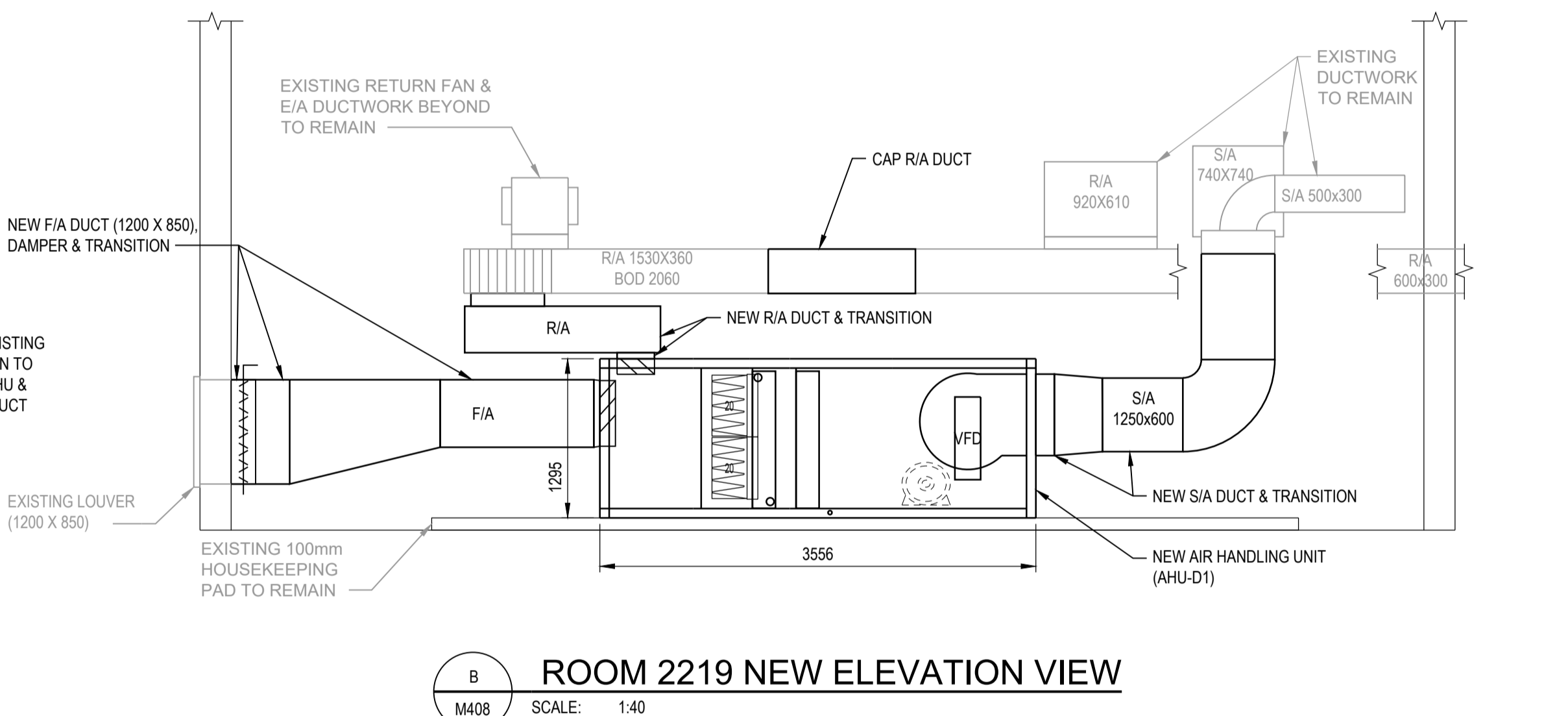
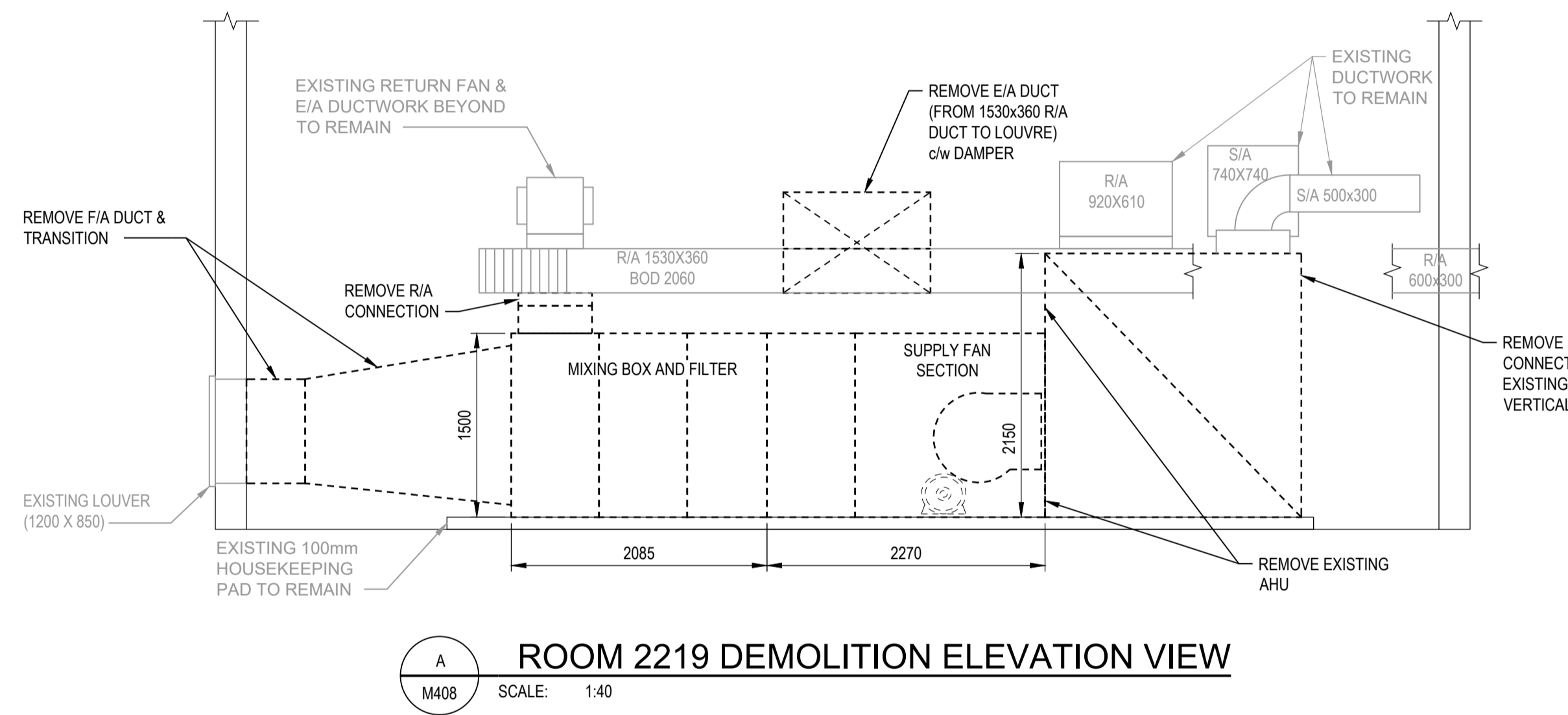
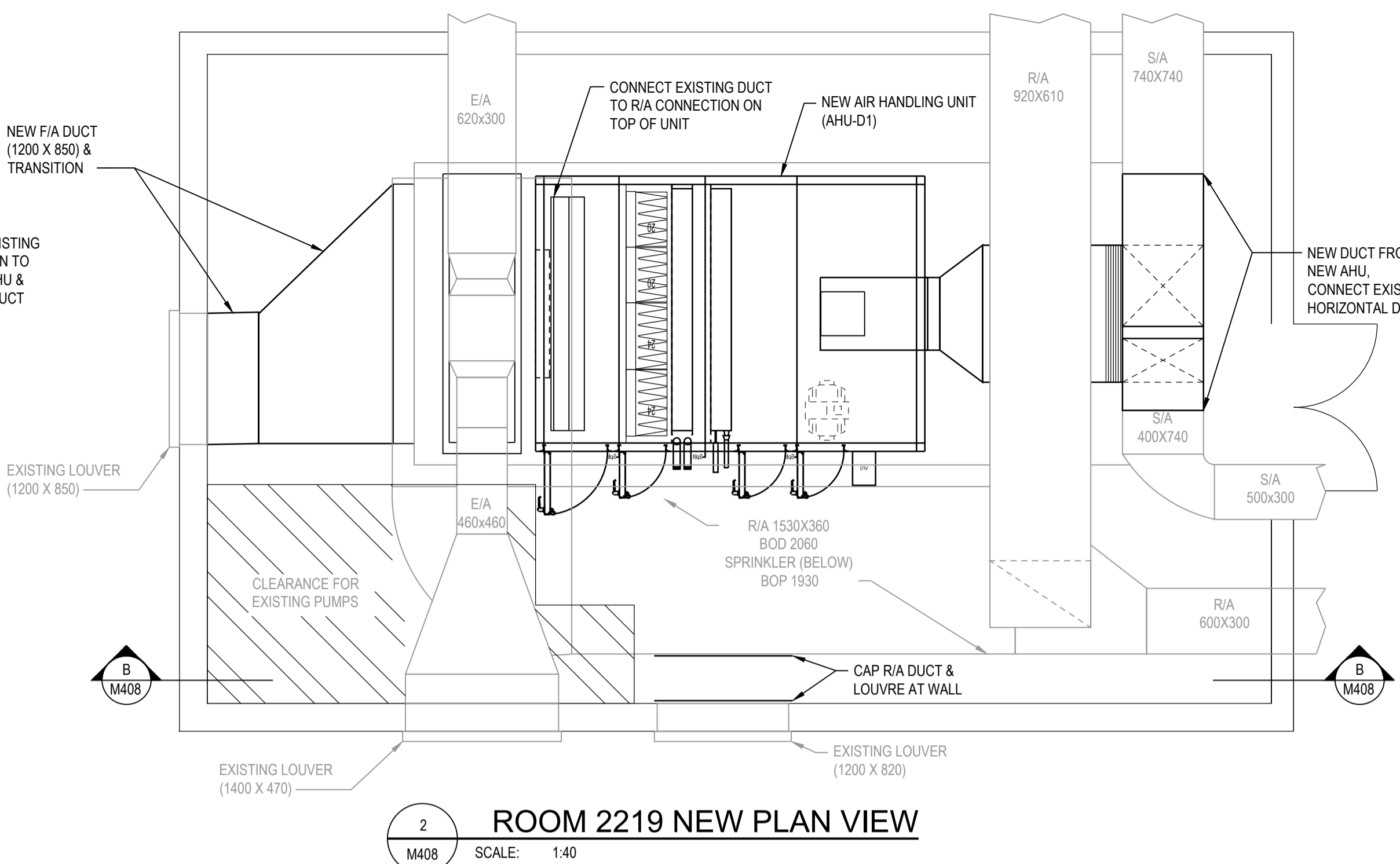
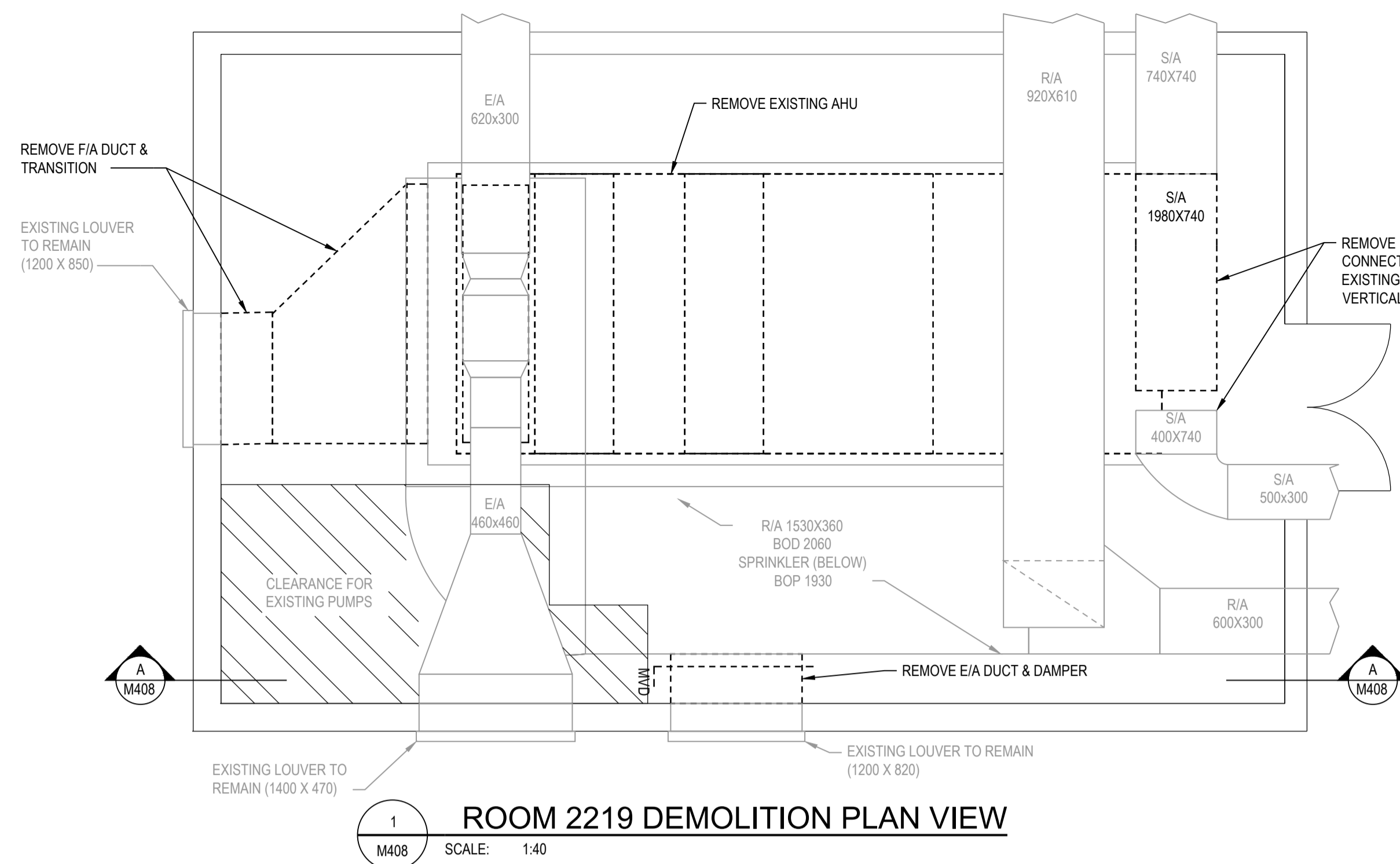
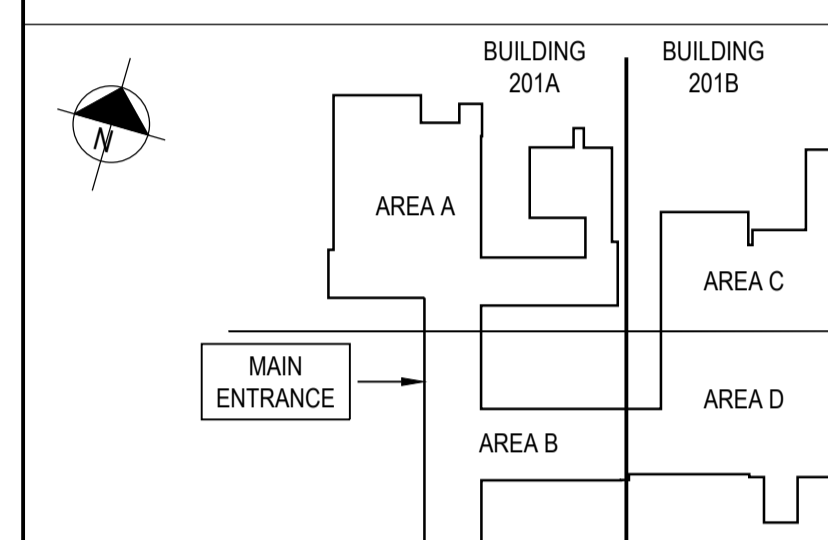
LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ  
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- NOTES:**
- REFER TO DRAWING M400 FOR MECHANICAL LEGENDS AND HVAC NOTES.
  - LOCATE THE CONDENSING UNIT TO MAXIMUM VICINITY TO THE PIPE ROOF PENETRATIONS AND AS PER MANUFACTURER'S SERVICE DISTANCE RECOMMENDATIONS.



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PROJECT | PROJET  
**DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B**

TRADE | MÉTIER  
**Mechanical**

DATE  
2021/07/08

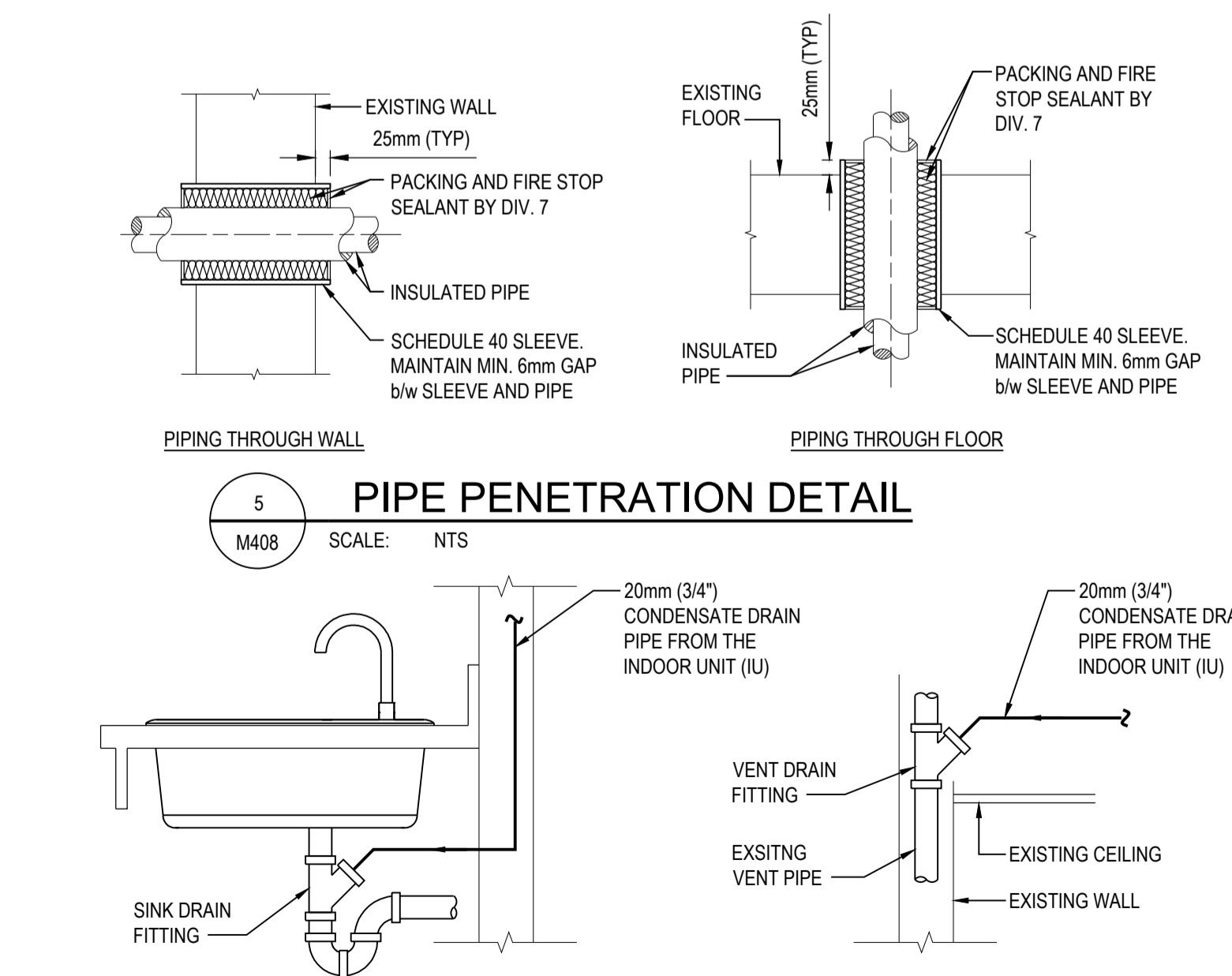
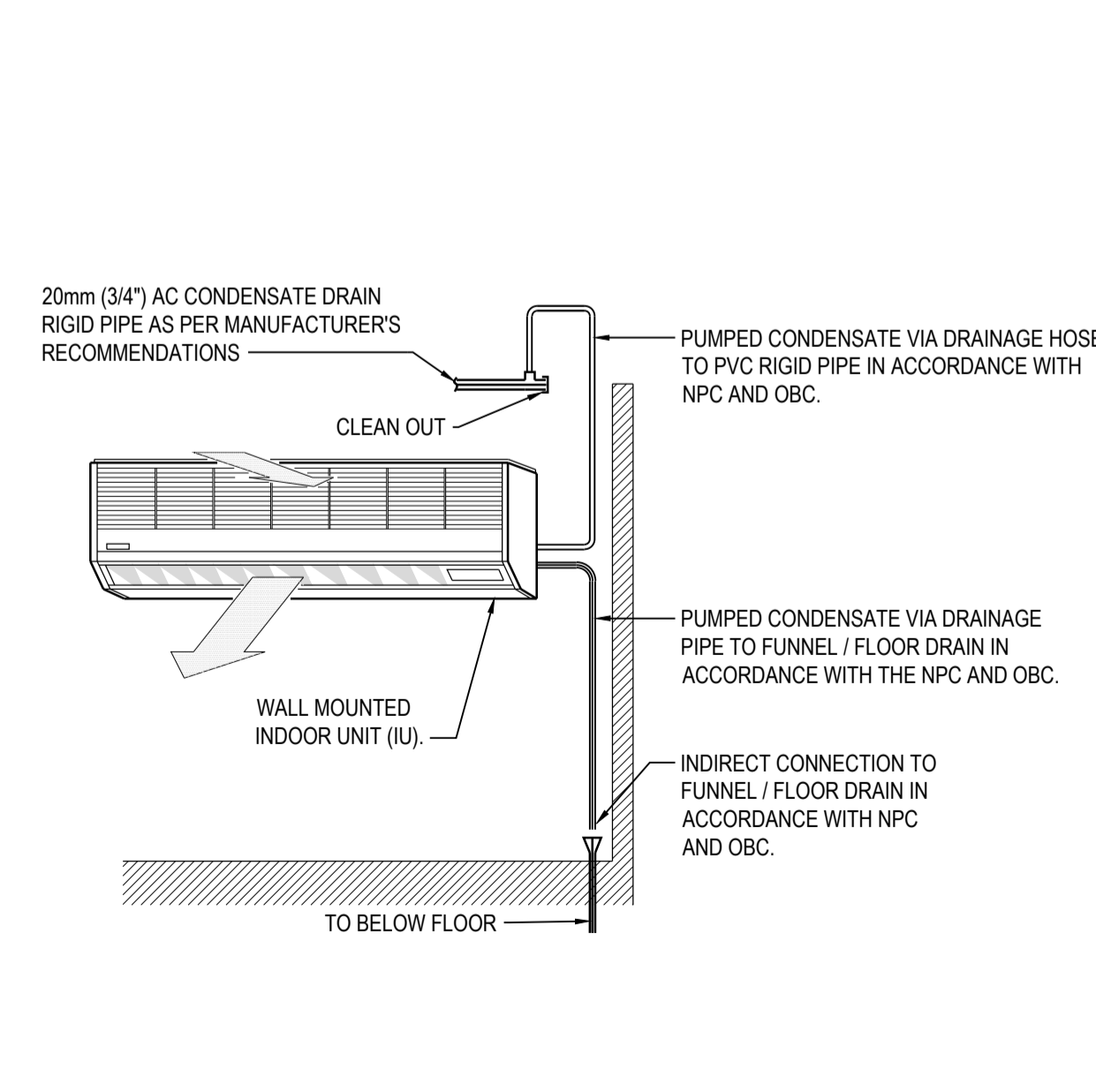
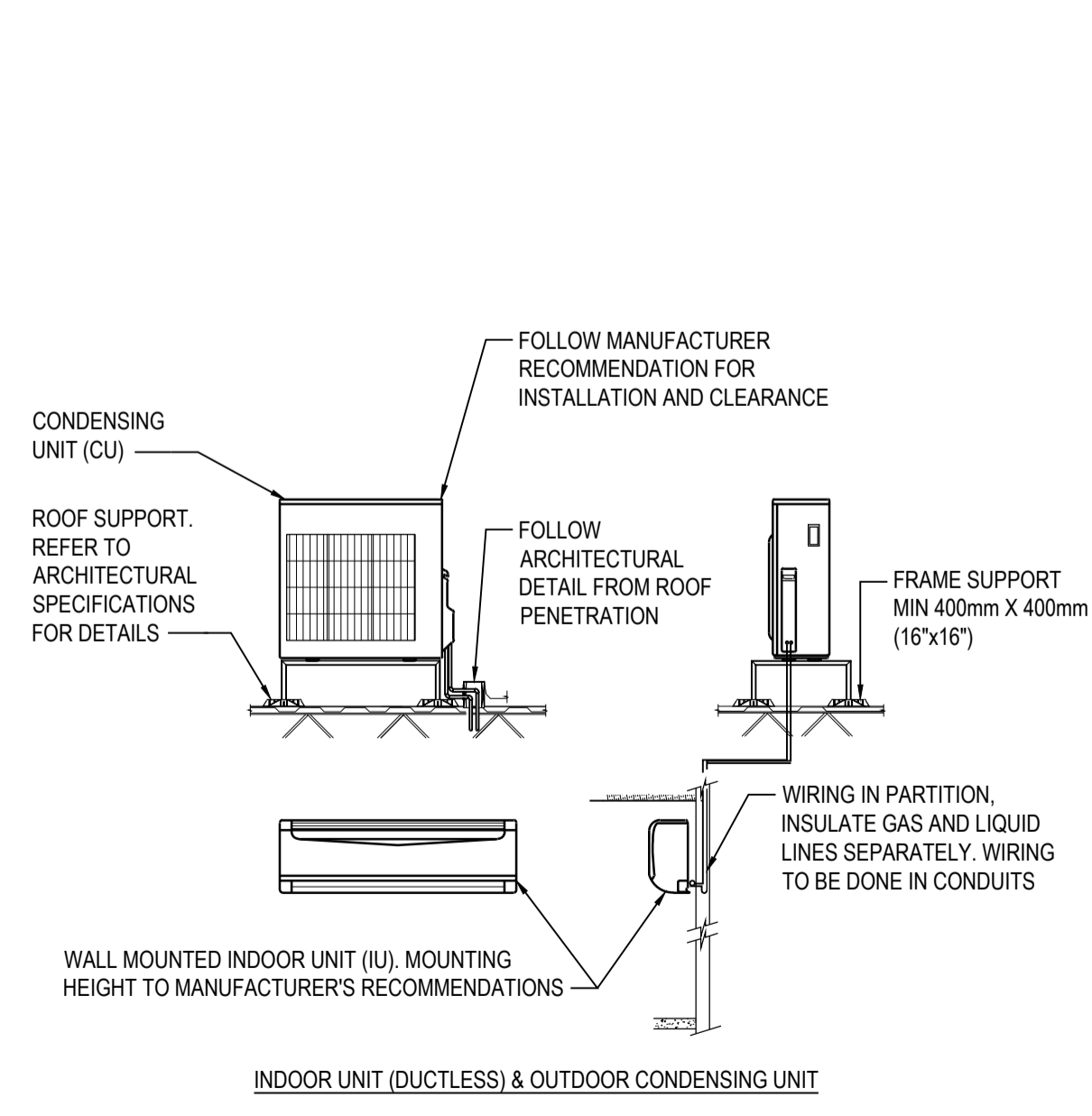
SUBJECT | SUJET  
**PACKAGE 1 -  
MECHANICAL  
DETAILS**

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
A.A.		PROJ MGR   GEST PROJ
DRAWN   DESSINÉ		DES MGR   GEST CONC
R.E. / E.M.		
CHECKED   VÉRIFIÉ		FIRE   INCENDIE
D.R.		
COORDINATION		
D.R.		

WBS NO. | NO. OTP      PF NO. | NO. DP

DWG. NO. | NO. DESSIN

M408



**ROOM 1207 & 2219  
DEMOLITION AND NEW INSTALLATION NOTES**

**SUPPLY AIR DUCT:**  
THE EXISTING S/A DUCTS SERVING OFFICES AND ROOM 1207 TO REMAIN. PROVIDE NEW UNIT DUCT CONNECTION AND TRANSITION TO EXISTING S/A DUCTS AS SHOWN IN THE DETAILS 1/M408 & 2/M408.

**RETURN AIR DUCT:**  
EXISTING R/A DUCT TO LOUVER (1400 x 470) TO BE REMOVED AND CONNECTION CAPPED, REMOVE ASSOCIATED DAMPER. LOUVER TO REMAIN. CAP LOUVER OPENING AT WALL.  
REMOVE TOP UNIT R/A CONNECTION. PROVIDE A NEW CONNECTION AND DUCT TRANSITIONS FROM THE EXISTING R/A DUCTWORK TO THE NEW AHU UNIT AS SHOWN IN DETAIL 2/M408.

**FRESH AIR DUCT:**  
ALL EXISTING F/A DUCT AND DAMPERS TO BE REMOVED. EXISTING LOUVER TO REMAIN. PROVIDE & INSTALL UNIT CONNECTION AND NEW F/A DUCT c/w DAMPER FROM EXISTING LOUVER TO NEW AHU AS SHOWN IN DETAIL 2/M408.

**EXHAUST AIR DUCT:**  
NO CHANGE

**DAMPER ACTUATORS:**  
ALL DAMPER ACTUATORS ON AIR DUCTS RELATED TO THE NEW AIR HANDLING UNIT TO BE REPLACED

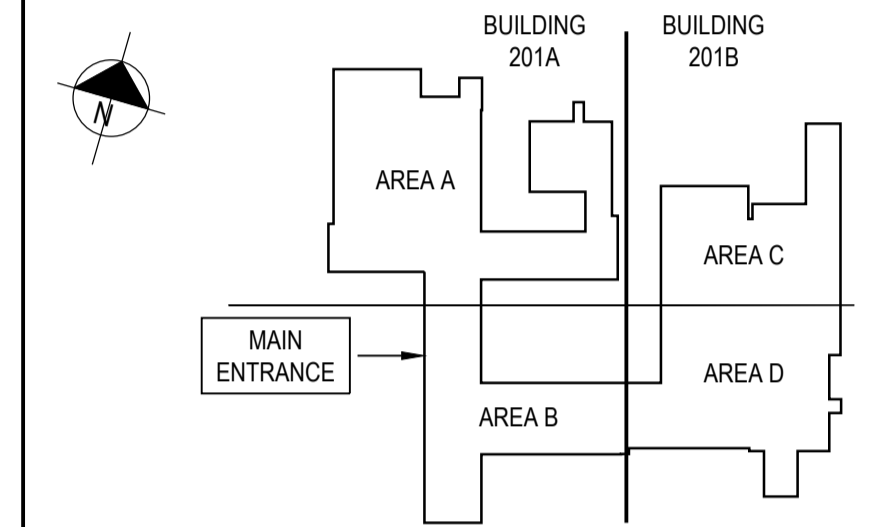


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SPLIT AC SYSTEM SCHEDULE ( Low Ambient -40 °C )																																						
TAG	LOCATION	AIRFLOW ( LOW-MEDIUM-HIGH )	COOLING CAPACITY			INDOOR UNIT TYPE	INDOOR UNIT DATA						COND. UNIT NUMBER	OUTDOOR UNIT TYPE	OUTDOOR UNIT DATA						NOTES																	
							EFFICIENCY		PIPING		WEIGHT kg	FAN MOTOR DATA			EFFICIENCY		WEIGHT kg	ELECTRICAL																				
							SEER	EER	Liq - Gas mm - mm (in.)	DRAIN mm (in.)		FLA (A)			WATTS	SEER		EER	HSPF	COP		V/PH	MCA (A)	MFA (A)														
IU-1	ROOM 1516	116-149-205	3.19	1.29	3.89	WALL MOUNT	19	12.5	6.3 - 9.5 (1/4 - 3/8)	15.9 (5/8)	9	0.36	38	CU-1	MULTI PORTS	18	12.7	12.5	3.41	62	208/1/60	21.9	25	REFRIGERANT - R410A, WIND BAFFLE, INDOOR T-STAT w/ 2 DAYS BACK UP BATTERY, CAPABLE FOR LOW TEMPERATURE OPERATION AT -40°C														
IU-6	ROOM 2020C	116-149-205	3.19	1.29	3.89	WALL MOUNT	19	12.5	6.3 - 9.5 (1/4 - 3/8)	15.9 (5/8)	9	0.36	38			IU-2	ROOM 1100	206-285-338	5.27	2.64	6.32	WALL MOUNT	18.5		12.5	6.3 - 12.7 (1/4 - 1/2)	15.9 (5/8)	15	0.5	35	CU-2	MULTI PORTS	17.7	9.2	12.2	3.89	63	208/1/60
IU-7	ROOM 2102	206-285-338	5.27	2.64	6.32	WALL MOUNT	18.5	12.5	6.3 - 12.7 (1/4 - 1/2)	15.9 (5/8)	15	0.5	35	IU-4	ROOM 1700	206-285-338	5.27	2.64	6.32	WALL MOUNT	20.3	12.5	6.3 - 12.7 (1/4 - 1/2)	15.9 (5/8)	15	0.37	48	CU-4	SINGLE/MINI	-			-	10.3	3.5	59	208/1/60	18.7
IU-5	ROOM 2213i	116-149-205	3.19	1.29	3.89	WALL MOUNT	20	12.5	6.3 - 9.5 (1/4 - 3/8)	15.9 (5/8)	9	0.23	28	CU-5	SINGLE/MINI	-	-	12	3.90	32	208/1/60	13	15	REFRIGERANT - R410A, WIND BAFFLE, INDOOR T-STAT w/ 2 DAYS BACK UP BATTERY, CAPABLE FOR LOW TEMPERATURE OPERATION AT -40°C														

\*\* GENERAL NOTE FOR ALL SPLIT AC SYSTEM, PROVIDE ALARM BUZZER INSIDE THE ROOM AND PROVIDE AN OUTPUTS SIGNAL TO THE BAS IN CASE OF SYSTEM FAILURE

AIR HANDLING UNIT SCHEDULE																					
TAG	SERVICE	SUPPLY FAN DATA (FAN c/w VFD)					DX COIL DATA													NOTES	
		AIR FLOW TOTAL	ESP	MOTOR INPUT	MOTOR ELEC	COOLING						HEATING									
						l/s	Pa	HP	V/PH	COIL QTY.	E.A.T °C DB/WB	L.A.T °C DB/WB	CAPACITY SENSIBLE (kW)	CAPACITY TOTAL (kW)	COIL QTY.	Conc Each (mm - (in.))	E.A.T °C DB	L.A.T °C DB	EWV °C		LWT °C
AHU-D1	ROOM 2219 & OFFICES	5664	254	10	575/3/60	1	26.7/19.4	15.4/14	75	106	1	63.5 (2.5)	4.4	27.4	55	48	163	PREFILTER MERV 8 , FILTER MERV 14, VFD ON THE SUPPLY FAN, BELT DRIVEN FAN, TEFC MOTOR, DX COOLING COIL, HYDRONIC HEATING COIL, DOORS SIDE LOCATION TO BE VERIFIED PRIOR TO ORDERING THE UNIT			

NEW OUTDOOR CONDENSING UNITS																					
TAG	SERVICE	COOLING PERFORMANCE				REFRIGERANT PIPING				ELECTRICAL DATA			PHYSICAL DATA				NOTES				
		TOTAL GROSS CAPACITY	AMBIENT DB TEMP	POWER INPUT	REFRIGERANT TYPE	NO. OF CIRCUITS	SUCTION OD	LIQUID OD	POWER/CONTROL WIRING KNOCKOUT	POWER	MCA	MOCP	HEIGHT	LENGTH	WIDTH	WEIGHT					
																		kW	°C	kW	mm (in.)
CU-D1A	ROOM 2219 & OFFICES	51.31	31.16	12.17	R410A	2	35 (1 3/8)	15.9 (5/8)	35 - 22.2 (1 3/8 - 7/8)	575/3/60	22.7	30	1125	1475	1600	410					
CU-D1B	ROOM 2219 & OFFICES	51.31	31.16	12.17	R410A	2	35 (1 3/8)	15.9 (5/8)	35 - 22.2 (1 3/8 - 7/8)	575/3/60	22.7	30	1125	1475	1600	410					

EXISTING - OUTDOOR CONDENSING UNITS TO BE REMOVED																					
TAG	SERVICE	MANUFACTURER	MODEL NO	COOLING PERFORMANCE				REFRIGERANT PIPING				ELECTRICAL DATA			PHYSICAL DATA				NOTES		
				TOTAL GROSS CAPACITY	AMBIENT DB TEMP	POWER INPUT	REFRIGERANT TYPE	NO. OF CIRCUITS	SUCTION OD	LIQUID OD	POWER/CONTROL WIRING KNOCKOUT	POWER	MCA	MOCP	HEIGHT	LENGTH	WIDTH	WEIGHT			
																				kW	°C
CU-D1A	ROOM 2219 & OFFICES	YORK	H1CE180A58B	55.68	29.44	18.6	R22	2	1 5/8	5/8	2 1/8 / 7/8	575/3/60	33.5	50	1114	1952	1000	390			
CU-D1B	ROOM 2219 & OFFICES	YORK	H1CE180A58B	55.68	29.44	18.6	R22	2	1 5/8	5/8	2 1/8 / 7/8	575/3/60	33.5	50	1114	1952	1000	390			

NEW - ROOFTOP AIR HANDLING UNIT SCHEDULE																					
TAG	SERVICE	COOLING ( kW )		HEATING ( kW )		SUPPLY AIR FAN					ELECTRICAL DATA			UNIT PHYSICAL DATA				NOTES			
		GROSS	SENSIBLE	INPUT	OUTPUT	AIR FLOW	ESP	SPEED	DUCT	MOTOR RATING	POWER SUPPLY	MCA	MOCP	HEIGHT	LENGTH	WIDTH	WEIGHT				
																			kW	kW	kW
RTU 7	ROOM 1542	49.32	39.33	70.33	56.85	2360	250	1590	BOTTOM	5.00	575-3-60	27.40	35.00	1300	3050	1500	721	SINGLE PACKAGED ROOF MOUNTED PACKAGED UNIT c/w DX COOLING SECTION, TWO STAGE COOLING, NATURAL GAS HEATING SECTION, TWO STAGE HEATING, SUPPLY AIR BLOWERS WITH VFD, INTELLISPEED CONTROL AND ACCESSORIES, CONDENSER FANS, ECONOMIZER, DAMPERS, R-410. FOR ADDITIONAL DETAILS REFER TO THE SPECIFICATIONS. CONTRACTOR TO PROVIDE A REMOTE THERMOSTAT (A NEW OR EXISTING) TO BE INSTALLED IN FIELD.			
RTU 9	2213A OFFICE WING	28.52	22.30	52.75	42.20	1416	250	1062	BOTTOM	3.00	575-3-60	15.50	20.00	1275	2225	1475	565	SINGLE PACKAGED ROOF MOUNTED PACKAGED UNIT c/w DX COOLING SECTION, TWO STAGE COOLING, NATURAL GAS HEATING SECTION, TWO STAGE HEATING, SUPPLY AIR BLOWERS WITH VFD, INTELLISPEED CONTROL AND ACCESSORIES, CONDENSER FANS, ECONOMIZER, DAMPERS, R-410. FOR ADDITIONAL DETAILS REFER TO THE SPECIFICATIONS. CONTRACTOR TO PROVIDE A REMOTE THERMOSTAT (A NEW OR EXISTING) TO BE INSTALLED IN FIELD.			
RTU 10	2213B OFFICE WING	19.08	14.30	35.16	28.43	944	250	1074	BOTTOM	2.00	575-3-60	9.60	15.00	1050	2225	1475	433	SINGLE PACKAGED ROOF MOUNTED PACKAGED UNIT c/w DX COOLING SECTION, SINGLE STAGE COOLING, NATURAL GAS HEATING SECTION, TWO STAGE HEATING, SUPPLY AIR BLOWERS WITH VFD, INTELLISPEED CONTROL AND ACCESSORIES, CONDENSER FANS, ECONOMIZER, DAMPERS, R-410. FOR ADDITIONAL DETAILS REFER TO THE SPECIFICATIONS. CONTRACTOR TO PROVIDE A REMOTE THERMOSTAT (A NEW OR EXISTING) TO BE INSTALLED IN FIELD.			

EXISTING - ROOFTOP AIR HANDLING UNIT SCHEDULE TO BE REMOVED																					
TAG	MANUFACTURER	MODEL	SERIAL	SERVICE	COOLING		HEATING		SUPPLY AIR FAN					ELECTRICAL DATA			UNIT PHYSICAL DATA				NOTES
					GROSS	INPUT	AIR FLOW	ESP	DUCT	MOTOR RATING	POWER SUPPLY	MCA	MOCP	HEIGHT	LENGTH	WIDTH	WEIGHT				
																		kW	kW	l/s	
RTU 7	YORK	DM120N20P5AAA1A	NMJM146061	ROOM 1542	35.16	70.33	1888	250	BOTTOM	3.00	575/3/60	22.70	25.00	1275	2225	1475	590	ALL SCHEDULE DETAILS ARE FROM THE EXISTING PLATE ON THE UNITS AND CUTSHEETS RECEIVED FROM ORIGINAL MANUFACTURER			
RTU 8	LENNOX	CHA16-120-2J	5603B06042	ROOM 1542	35.16	N/A	1888	250	BOTTOM	3.00	575/3/60	29.00	30.00	1168	2388	1524	500				
RTU 9	YORK	DM090N15B5AAA1A	NFJM076297	2213A OFFICE WING	26.37	52.75	1416	250	BOTTOM	1.50	575/3/60	16.70	20.00	1275	2225	1475	547				
RTU 10	YORK	D7CG060N09958A	NHM089761	2213B OFFICE WING	17.58	36.64	944	250	BOTTOM	1.00	575/3/60	12.10	15.00	825	2225	1450	394				

DIFFUSER & GRILLE SCHEDULE					
TAG	DESCRIPTION	NECK DIA. (mm)	FACE SIZE (mm x mm)	MAX. AIR FLOW (l/s)	NOTES
S1	SQUARE CONE DIFFUSER	300	600 x 600	260	c/w DAMPER, DUCT MOUNTED
ES	SUPPLY	-	-	-	EXISTING DIFFUSERS
ER	RETURN	-	-	-	EXISTING GRILLES

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NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE  
NO SCALE

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
Mechanical  
DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 - MECHANICAL SCHEDULES

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
A.A.		PROJ MGR   GEST PROJ
DRAWN   DESSINÉ		DES MGR   GEST CONC
R.E. / E.M.		
CHECKED   VÉRIFIÉ		FIRE   INCENDIE
D.R.		
COORDINATION		
D.R.		

WBS NO. | NO. OTP  
PF NO. | NO. DP

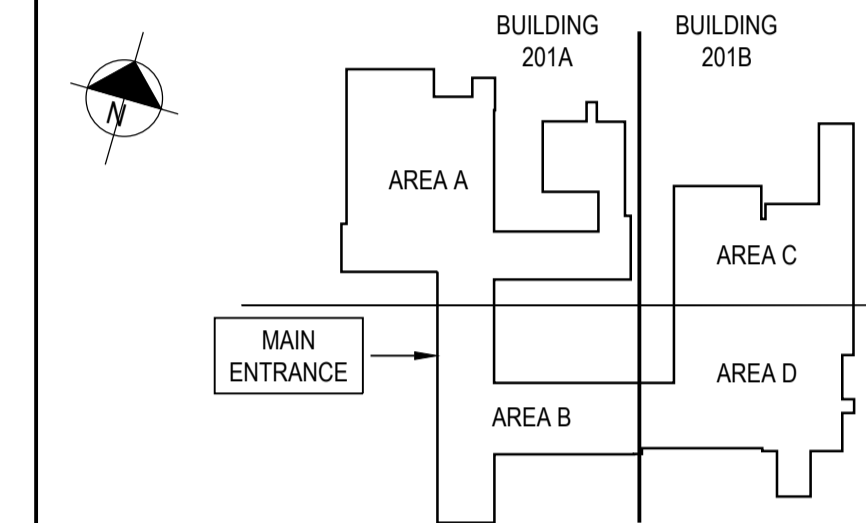
DWG. NO. | NO. DESSIN  
M409

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NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE  
NO SCALE

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
Mechanical

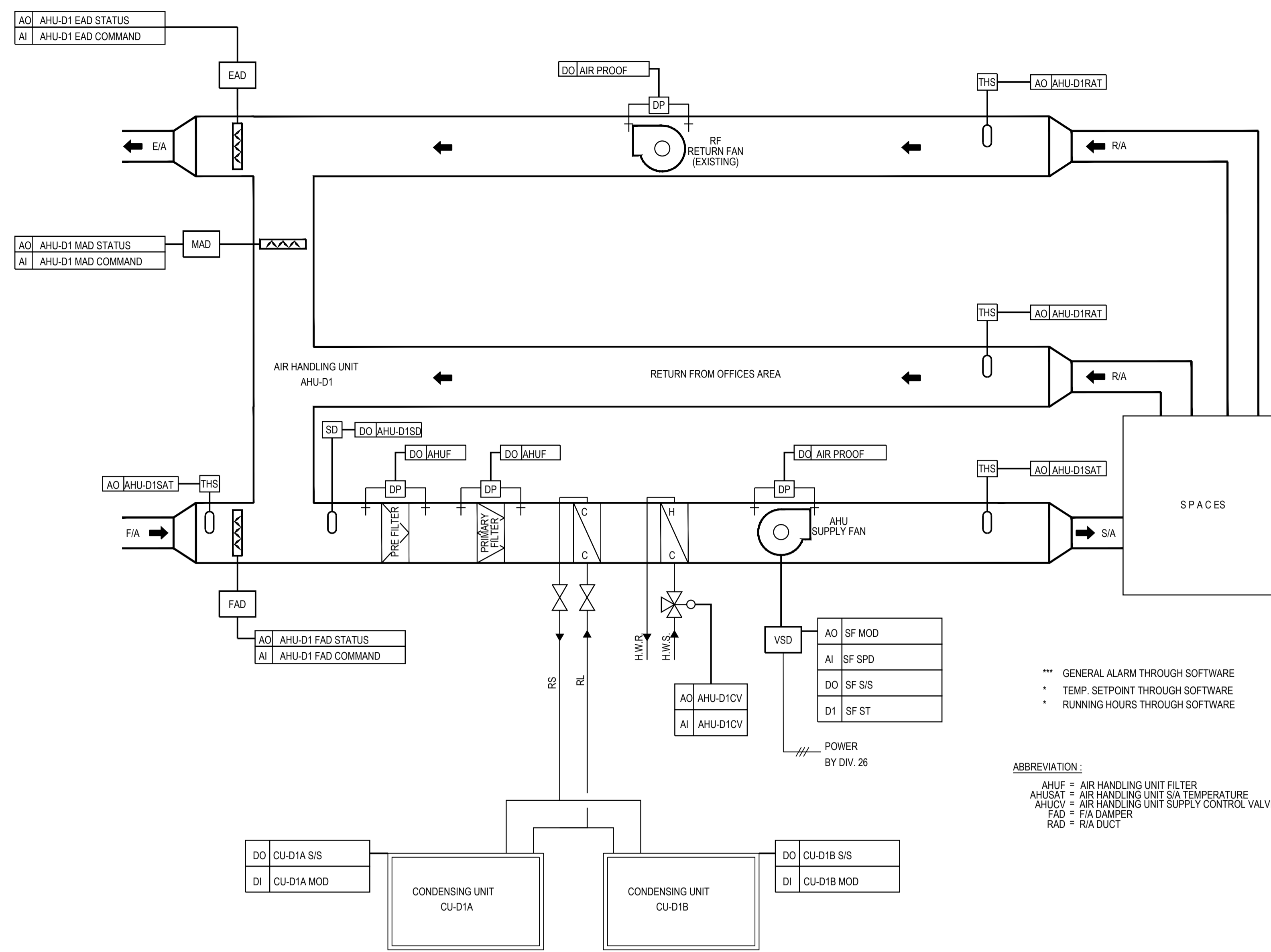
DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
MECHANICAL CONTROLS &  
SEQUENCE OF OPERATION

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
A.A.		
DRAWN   DESSINÉ		PROJ MGR   GEST PROJ
R.E. / E.M.		
CHECKED   VÉRIFIÉ		DES MGR   GEST CONC
D.R.		
COORDINATION		FIRE   INCENDIE
D.R.		

WBS NO. | NO. OTP  
PF NO. | NO. DP

DWG. NO. | NO. DESSIN  
M410



1  
M410 SCALE: NTS  
NEW AHU CONTROL DIAGRAM

**SEQUENCE OF OPERATION**

**NORMAL OPERATION**

WITH THE H-O-A SWITCH SET TO 'AUTO' POSITION, THE DIRECT DIGITAL CONTROL (DDC) CONTROLLER STARTS THE SUPPLY AND R/A FANS BASED ON THEIR PRESET TIME SCHEDULE.

CURRENT SWITCHES MONITORING THE FAN MOTORS PROVE THE FLOW OF AIR IN THE SUPPLY AND EXHAUST DUCTS. IN CASE OF NO OR LOSS OF AIR FLOW FOR 20 SECONDS, THE DDC CONTROLLER WILL STOP THE FANS AND THE AIR HANDLING UNIT (AHU-D1) CANNOT BE RUN UNTIL THE RESET SWITCH ON THE MAIN CONTROL PANEL (MCP) IS PRESSED.

DIFFERENTIAL PRESSURE SWITCHES (DP) MOUNTED ACROSS THE PRE-FILTER AND PRIMARY FILTER TO MONITOR THE RESPECTIVE FILTER CONDITION. A 'DIRTY FILTER' ALARM IS RAISED AT THE OPERATOR WORK STATION (OWS) IF ANY DP SWITCH EXCEEDS THE SETPOINT.

IN CASE OF OVER-CURRENT TRIP THE MAIN CONTROL PANEL (MCP) WILL RAISE A 'MOTOR OVER-CURRENT FAULT' ALARM ON THE OWS AND WILL DISABLE THE RESPECTIVE FANS.

**TEMPERATURE CONTROL SYSTEM**

**COOLING**  
THE DDC CONTROLLER COMPARES THE TEMPERATURE AT THE S/A DUCT SENSOR WITH ITS SETPOINT (E.G. 15°C) AND IT GENERATES A SIGNAL TO THE OUTDOOR CONDENSING UNITS TO MAINTAIN THE SETPOINT. OUTDOOR CONDENSING UNITS WORK ON AN EQUAL TIME LEAD/LAG SEQUENCING MANNER, BASED ON USER INPUT.

**HEATING**  
DURING WINTER, THE DDC CONTROLLER COMPARES THE TEMPERATURE AT THE S/A TEMPERATURE SENSOR WITH ITS SETPOINT (E.G. 20°C) AND IT GENERATES A 0-10VDC SIGNAL TO MODULATE THE 3-WAY MOTORIZED CONTROL VALVE ON THE HEATING COIL TO MAINTAIN THE SETPOINT.

**DA - DAMPER ACTUATOR CONTROL**

**OPEN AND CLOSE**  
THE FAD AND EAD WILL OPEN PROPORTIONAL TO THE MAD (IF FAD & EAD ARE OPENED 30% THE MAD IS OPENED 70%). ON NORMAL OPERATION AND UPON START UP OF THE AHU-D1, FAD TO BE OPENED TO THE POSITION DETERMINED UPON BALANCING OF THE SYSTEM TO PROVIDE THE MINIMUM FRESH AIR OF 504 l/s.

**FREE COOLING**  
IF THE R/A TEMPERATURE IS HIGHER THAN THE FRESH AIR TEMPERATURE THE FAD OPENS FROM THE MINIMUM POSITION ( WHEN AIR HUMIDITY LEVEL OF S/A DUCT IS BELOW SETPOINT - DEFAULT 50% ). IF THE RETURN TEMPERATURE DROPS BELOW THE FRESH AIR TEMPERATURE THE FAD CLOSES TO THE MINIMUM POSITION.

**ABNORMAL AIR HUMIDITY LEVELS**  
IF THE S/A HUMIDITY EXCEEDS THE SETPOINT (50% DEFAULT) FOR 20 SECONDS, THE FAD STARTS TO CLOSE TO THE MINIMUM POSITION. IF FAD IS IN THE MINIMUM POSITION AND THE HUMIDITY LEVEL EXCEEDS THE SETPOINT FOR 4 MINUTES, THE FAD IS TO CLOSE BY 50% OF THE MINIMUM POSITION AND A FAULT SIGNAL IS GENERATED TO THE OPERATOR WITH A MESSAGE 'LOW FRESH AIR ALARM'. IF THE HUMIDITY EXCEEDS THE SETPOINT FOR AN ADDITIONAL 4 MINUTES, THE FAD CLOSES TO 0% AND A FAULT SIGNAL IS GENERATED TO THE OPERATOR WITH A MESSAGE 'NO FRESH AIR'.

**OPERATION DURING FIRE CONDITION**

FIRE ALARM CONTROL PANEL (FACP)  
UNDER NORMAL CONDITIONS THE AHU-D1 SUPPLY AND RETURN FAN STARTER CIRCUITS ARE ENABLED VIA PAIRS OF NORMALLY-OPEN (NO) DRY CONTACTS WHICH ARE HELD OPEN BY THE LOCAL FACP. IF THE SMOKE DETECTOR REPORTS TO THE FACP, THESE CONTACTS CLOSE AND DISABLE THE AHU-D1. WHEN THE FIRE ALARM IS CLEARED, THE LOCAL FACP WILL RE-ENABLE THE AHU-D1; BUT THE AHU-D1 WILL NOT RESTART UNTIL THE MANUAL RESET SWITCH ON THE MCP IS PRESSED.

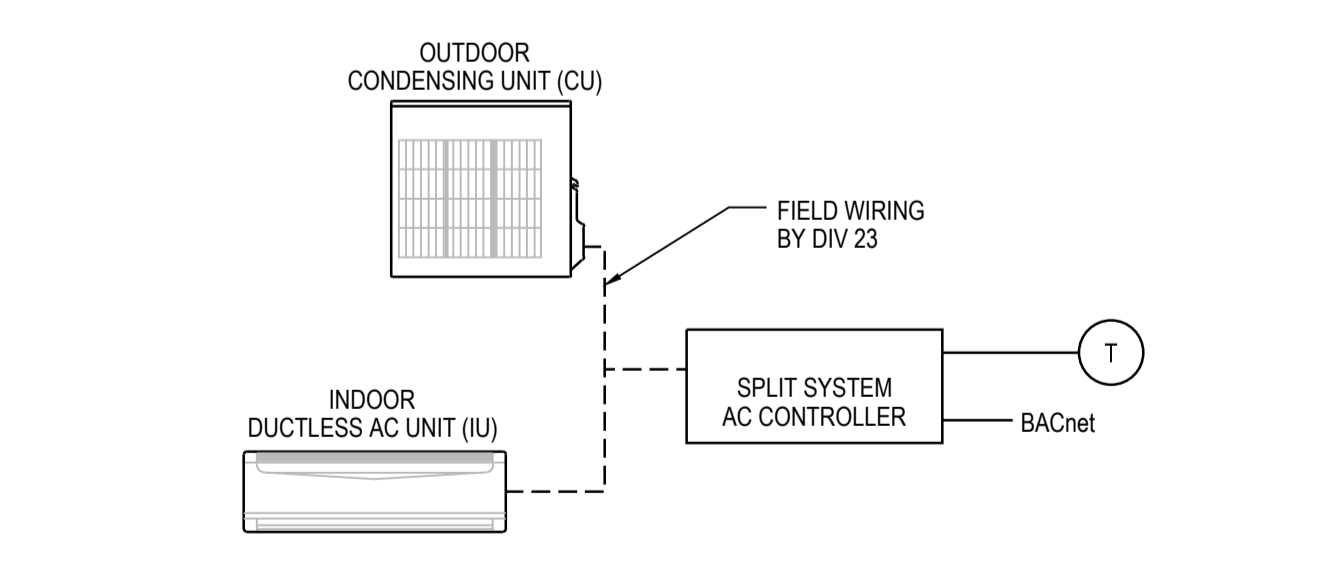
**EMERGENCY OPERATION: (SEC POWER FAILURE)**

IN CASE OF SEC POWER FAILURE THE AHU-D1 WILL SHUT DOWN. THE AHU-D1 WILL RESTART AUTOMATICALLY ON RESTORATION OF POWER.

**S/A FAN AND VFD RESPONSE\*\***

THE VFD OPERATION HAS 3 STAGES. THE VFD WILL OPERATE AT 30% (1700 l/s (3,600 CFM)) IF THE SUPPLY AND R/A TEMPERATURE DIFFERENCE IS EQUAL TO OR LESS THAN 2 DEG C. THE VFD WILL OPERATE AT 60% (3400 l/s (7,200 CFM)) IF THE SUPPLY AND R/A TEMPERATURE DIFFERENCE IS BETWEEN 3 AND 5 DEG C. THE VFD WILL OPERATE AT 100% (5664 l/s (12,000 CFM)) IF THE SUPPLY AND R/A TEMPERATURE DIFFERENCE IS GREATER THAN 6 DEG C.  
\*\* TEMPERATURE DIFFERENCE SET POINTS ARE TO BE ADJUSTABLE BY THE OPERATOR.

2  
M410 SCALE: NTS  
NEW AHU-D1 SEQUENCE OF OPERATION



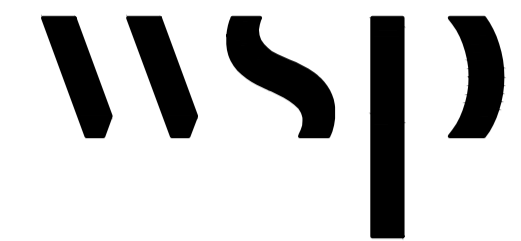
**SEQUENCE OF OPERATION**

THE UNIT PACKAGED CONTROLLER SHALL MAINTAIN ROOM TEMPERATURE SETPOINT. THE BAS SHALL MONITOR FOR STATUS, SPACE TEMPERATURE & EQUIPMENT ALARMS. THE BAS SHALL HAVE THE ABILITY TO ADJUST TEMPERATURE SETPOINT.

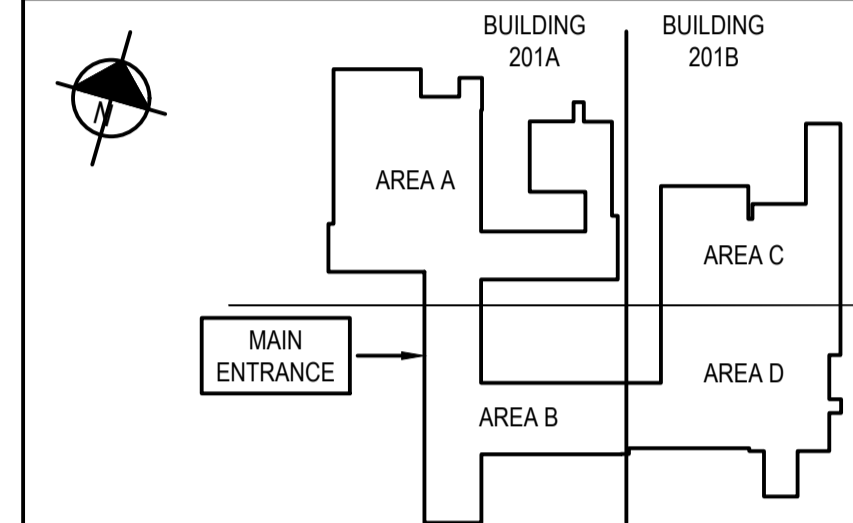
3  
M410 SCALE: NTS  
NEW DX SPLIT SYSTEM CONTROL DIAGRAM

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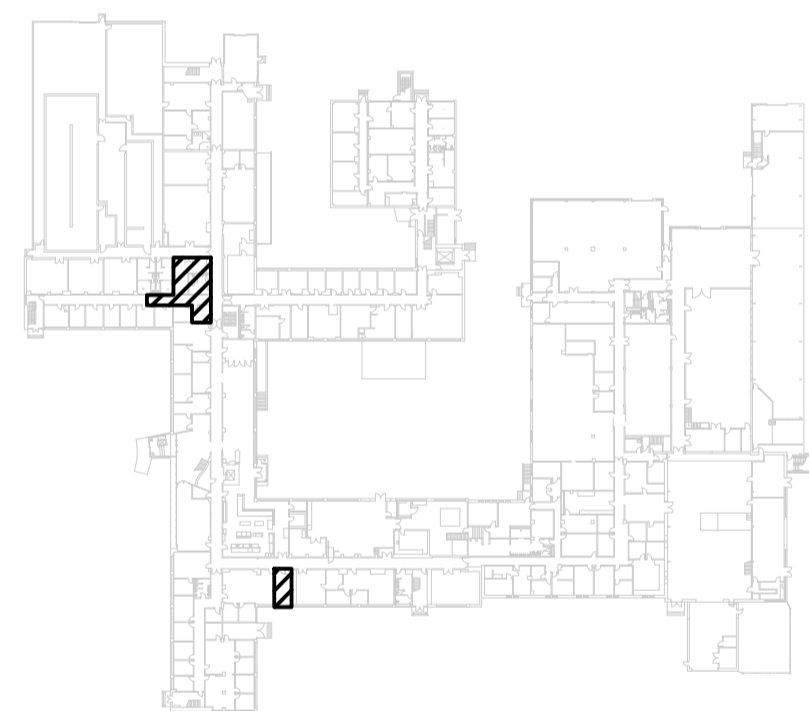


NOTES:

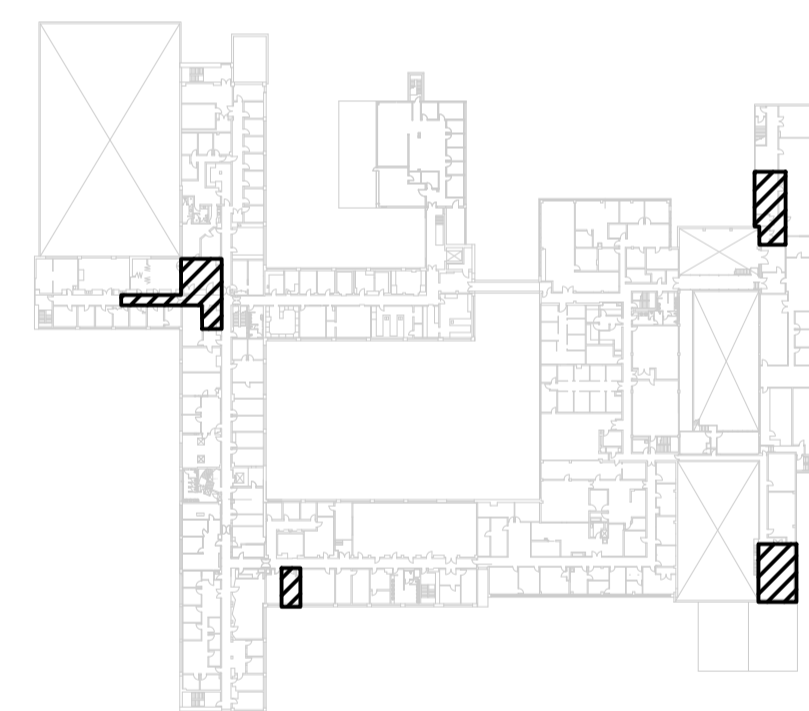
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) U.N.O.



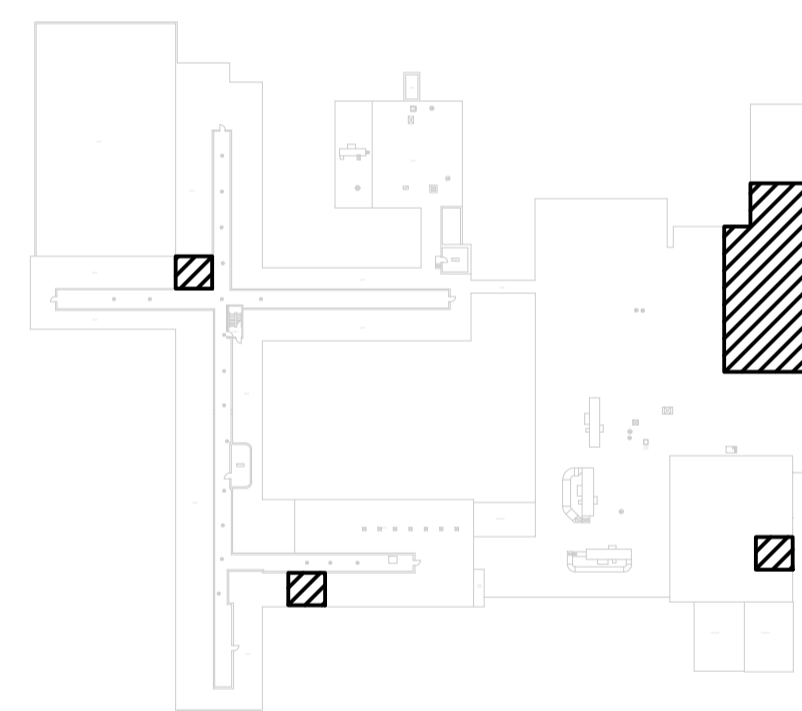
ELECTRICAL DRAWING LIST		
DRAWING NUMBER	DESCRIPTION	PACKAGE #
E500	ELECTRICAL LEGEND & NOTES	
E501	SINGLE LINE DIAGRAM - PART II - RTU ROOF TOP UNITS POWER PANEL	1
E502	ELECTRICAL RISER I - AC UNITS AND RTU ROOF TOP UNITS	1
E503	ELECTRICAL RISER II - AC UNITS AND RTU ROOF TOP UNITS	1
E504	ELECTRICAL RISER III - AC UNITS AND RTU ROOF TOP UNITS	1
E505	RTU ROOF TOP UNITS ELECTRICAL LAYOUT	1
E506	LEVEL 1 ELECTRICAL LAYOUT	1
E507	LEVEL 2 ELECTRICAL LAYOUT	1
E508	ROOM 2219 AIR HANDLING UNIT REPLACEMENT ELECTRICAL LAYOUT	1
E509	POWER PANEL SCHEDULE	1
E510	NEW DUCTLESS AC UNITS ROOF ELECTRICAL LAYOUT	1
E511	ELECTRICAL RISER III - AC UNITS AND RTU ROOF TOP UNITS	2
E512	LEVEL 1 ELECTRICAL LAYOUT	2
E513	LEVEL 2 ELECTRICAL LAYOUT	2
E514	NEW DUCTLESS AC UNITS ROOF ELECTRICAL LAYOUT	2
E515	POWER PANEL SCHEDULE	2



PACKAGE 1 - LEVEL 1



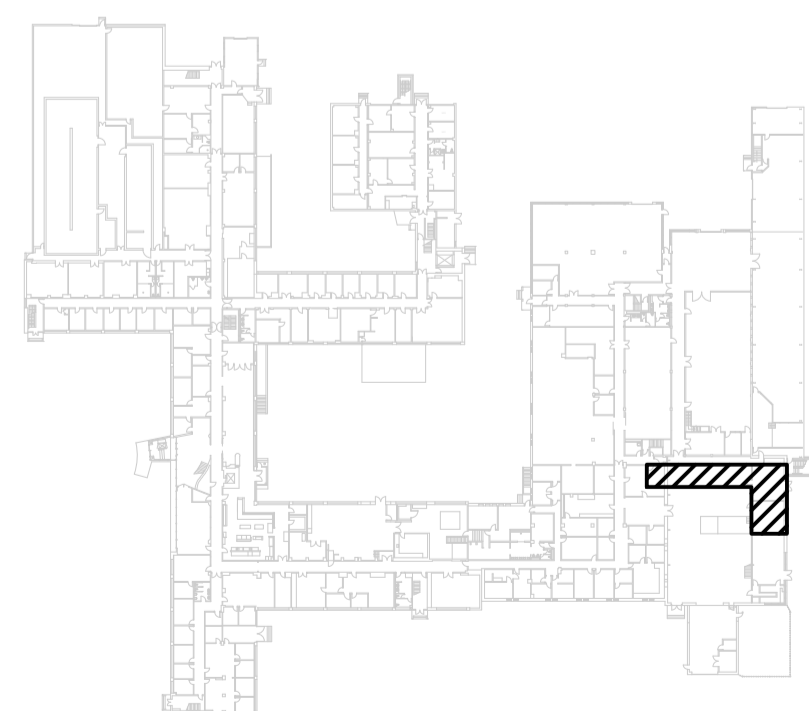
PACKAGE 1 - LEVEL 2



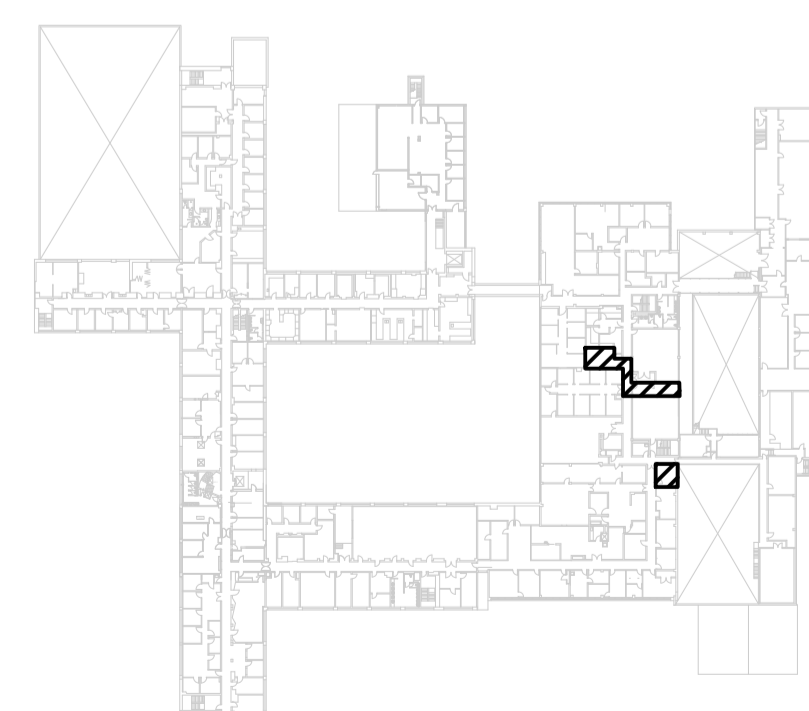
PACKAGE 1 - ROOF

HVAC DEMOLITION/MODIFICATION – GENERAL NOTES

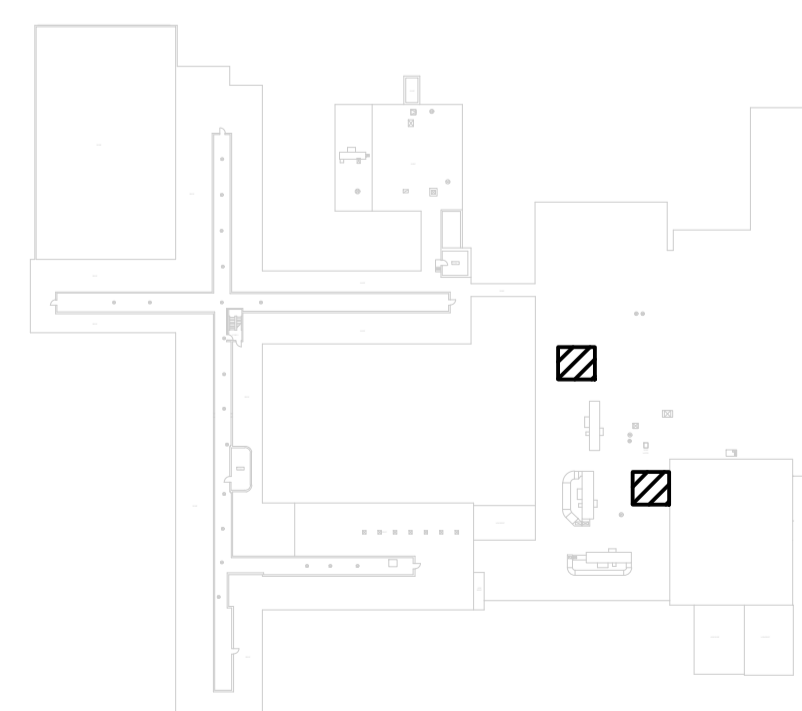
1. CONTRACTOR TO EXAMINE SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. ANY DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATIONS AND/OR EXISTING CONDITIONS ARE TO BE REFERRED TO DCC REPRESENTATIVE FOR INSTRUCTIONS BEFORE ANY WORK IS BEGUN.
3. COORDINATE ALL EQUIPMENT/SERVICE SHUTDOWN WITH DRDC & DRDC'S FACILITY MANAGEMENT CONTRACTOR.
4. CONTRACTOR IS TO BE AWARE THAT SPACES THEY ARE WORKING IN FOR DUCTLESS AC UNITS ARE HIGHLY SENSITIVE TO DUST. PRIOR TO STARTING WORK IN THESE AREAS, THE CONTRACTOR SHALL PROPOSE TO DND/DRDC/DCC TO REVIEW DUST CONTROL MEASURES TO PROTECT SENSITIVE EQUIPMENT.
5. ALL WORK SHALL BE COMPLETED ONCE ADEQUATE PROTECTION OF ADJACENT SPACES HAS BEEN INSTALLED. CONTRACTOR TO ENSURE MINIMAL DUST CREATION DURING WORK.
6. MAKE GOOD ALL SURFACES AFTER COMPLETION OF WORK. SEAL ANY ABANDONED ELECTRICAL SERVICE OPENINGS.
7. REMOVE ALL DEBRIS AND RUBBISH FROM THE SITE DAILY.
8. DISPOSE OF ALL DEBRIS AS PER AUTHORITY HAVING JURISDICTION.
9. COORDINATE DELIVERY OF MATERIALS AND SITE ACCESS WITH DRDC & DRDC'S FACILITY MANAGEMENT.
10. PROVIDE CAULKING AND FIRESTOPPING FOR ALL ELECTRICAL SERVICES PASSING THROUGH FIRE SEPARATIONS AS INDICATED ON THE ARCHITECTURAL LAYOUT.
11. PROVIDE NEW EQUIPMENT AND ALL ASSOCIATED ACCESSORIES AS REQUIRED TO COMPLETE A FULLY OPERATIONAL AND MAINTAINABLE SYSTEM.
12. SEE MANUFACTURER DRAWINGS FOR VFD INFORMATION.



PACKAGE 2 - LEVEL 1



PACKAGE 2 - LEVEL 2



PACKAGE 2 - ROOF

LEGEND	
TYPE	DESCRIPTION
⊖	15A, 125V DUPLEX RECEPTACLE. CSA TYPE 5-15R.
⊖	20A, 125V WEATHERPROOF GFI DUPLEX RECEPTACLE. CSA TYPE 5-20R. PROVIDE COVER TO PROTECT FROM MECHANICAL DAMAGE. MOUNT AT LEAST 750MM ABOVE FINISHED ROOF.

0	2023/02/10	ISSUED FOR TENDER	D.R.
NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
ELECTRICAL

DATE  
2021/07/08

SUBJECT | SUJET  
ELECTRICAL  
LEGEND & NOTES

PRODUCTION	DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
C.L.			
DRAWN   DESSINÉ			PROJ MGR   GEST PROJ
G.S.			
CHECKED   VÉRIFIÉ			DES MGR   GEST CONC
C.L.			
COORDINATION			FIRE   INCENDIE
D.R.			

WBS NO. | NO. OTP      PF NO. | NO. DP

DWG. NO. | NO. DESSIN      E500

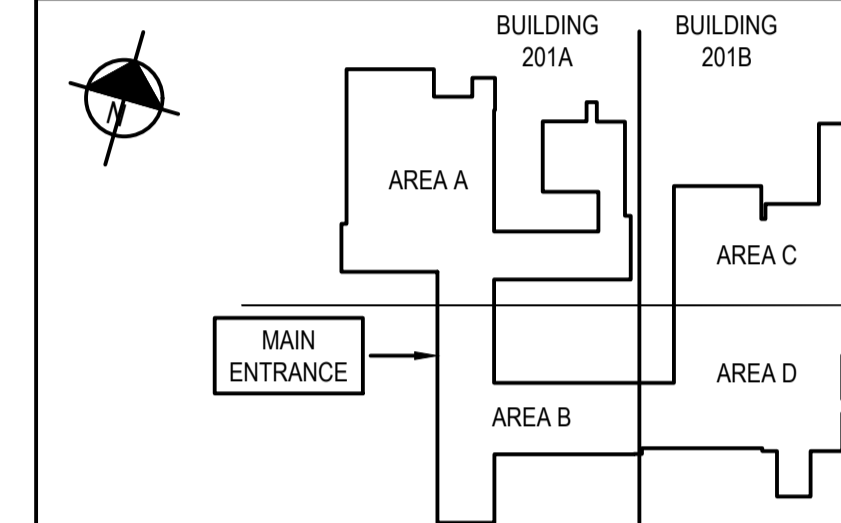
LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ  
UNCLASS | NON CLASSIFIÉ

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NOTES:

- REFER TO DRAWING E500 FOR ELECTRICAL LEGEND AND GENERAL NOTES.



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NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE

LOCATION | EMPLACEMENT  
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TORONTO  
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PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
ELECTRICAL

DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
SINGLE LINE DIAGRAM - PART II  
RTU ROOF TOP UNITS POWER PANEL

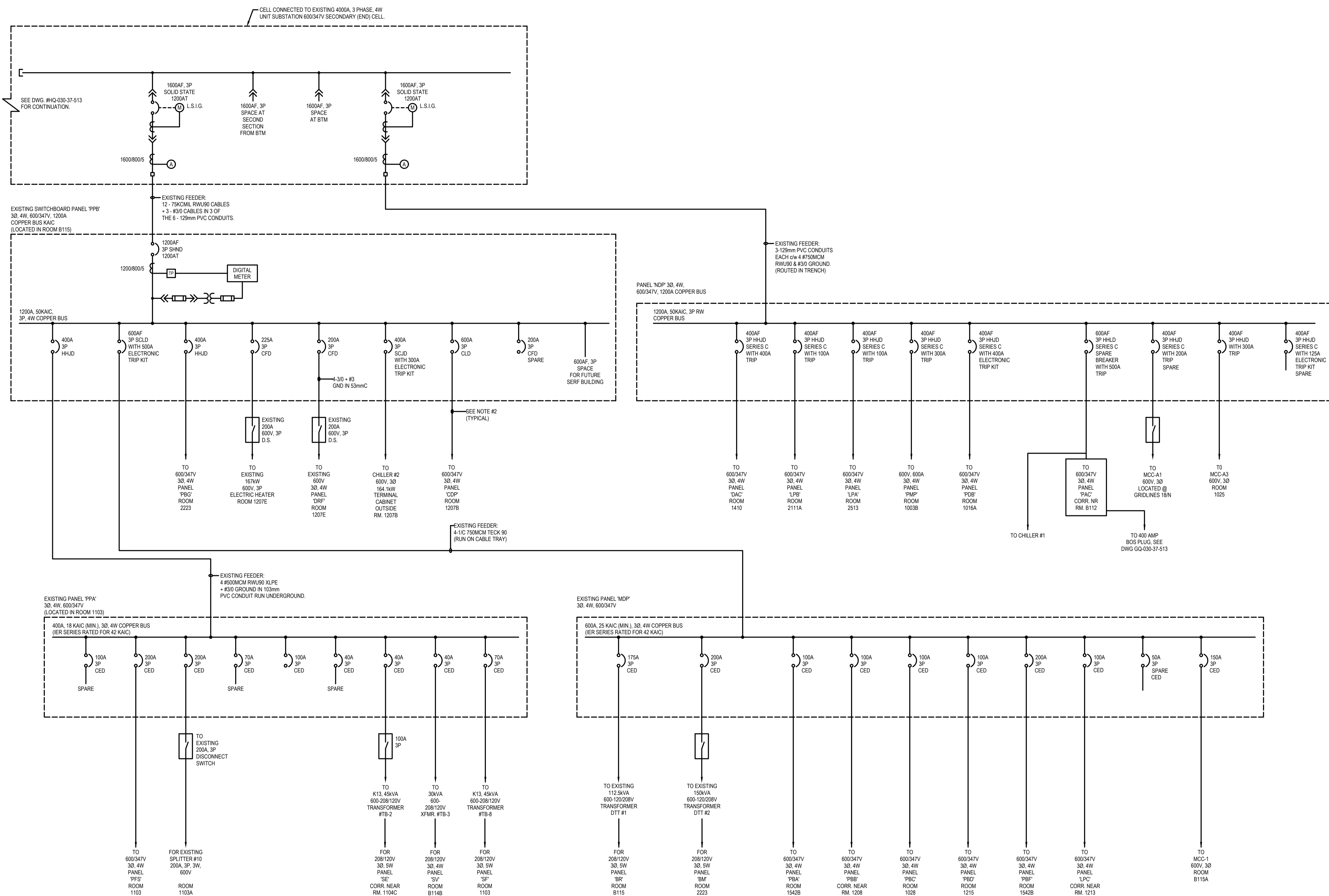
DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
C.L.		
DRAWN   DESSINÉ		PROJ MGR   GEST PROJ
G.S.		
CHECKED   VÉRIFIÉ		DES MGR   GEST CONC
C.L.		
COORDINATION		FIRE   INCENDIE
D.R.		

WBS NO. | NO. OTP

PF NO. | NO. DP

DWG. NO. | NO. DESSIN

E501



1 SINGLE LINE DIAGRAM  
E501 SCALE: N.T.S.

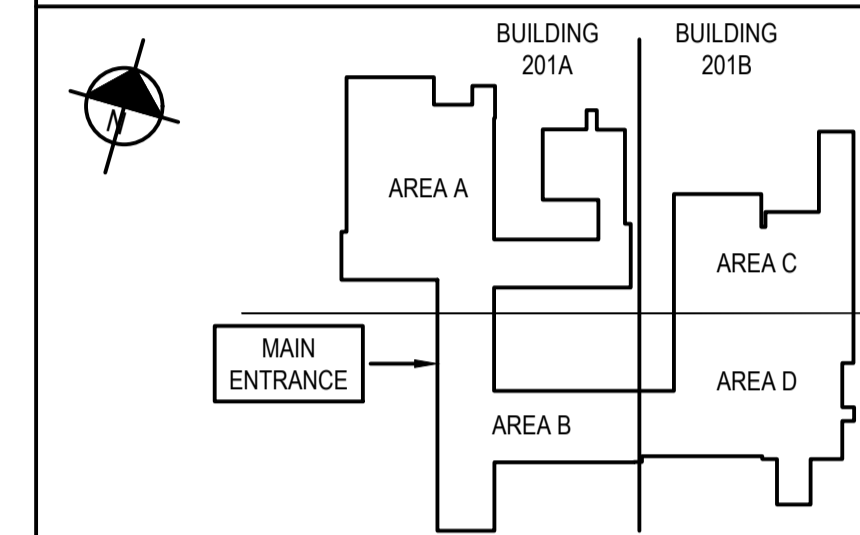
NOTES  
1. SEE DRAWING E-509 FOR PBA RTUs POWER PANEL SCHEDULE.

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NOTES:

- REFER TO DRAWING E500 FOR ELECTRICAL LEGEND AND GENERAL NOTES.



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SCALE | ÉCHELLE

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
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ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
ELECTRICAL

DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
ELECTRICAL RISER I  
AC UNITS AND RTU ROOF TOP UNITS

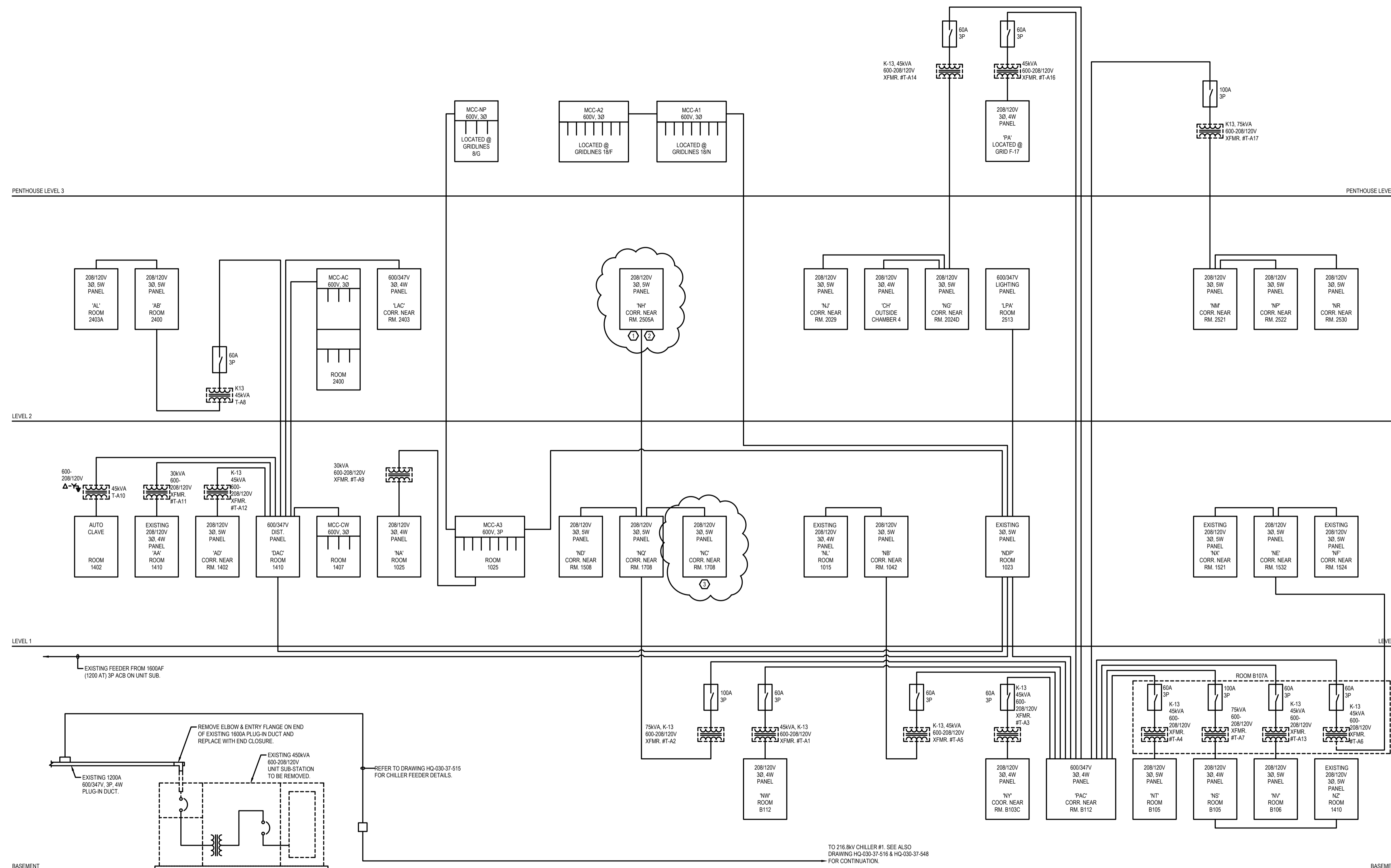
DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
C.L.		
DRAWN   DESSINÉ		PROJ MGR   GEST PROJ
G.S.		
CHECKED   VÉRIFIÉ		DES MGR   GEST CONC
C.L.		
COORDINATION		FIRE   INCENDIE
D.R.		

WBS NO. | NO. OTP

PF NO. | NO. DP

DWG. NO. | NO. DESSIN

E502



1 RISER I  
E502 SCALE: N.T.S.

ROOMS AC POWER DISTRIBUTION	
①	PANEL NH - ROOM 2020C
②	PANEL NH - ROOM 1516
③	PANEL NC - ROOM 1700

NOTES

- FOR POWER PANEL SCHEDULE SEE DRAWING E-509
- POWER PANEL SCHEDULE IS BASED ON PROVIDED DRAWINGS. CONTRACTOR SHALL VERIFY ON SITE FOR CONSISTENCY. REPORT TO DCC REPRESENTATIVE FOR ANY ISSUE FOUND.
- REFER TO PANEL SCHEDULES FOR SIZES OF FEEDERS FOR RTU AND AC UNITS.

TO 216.8kV CHILLER #1. SEE ALSO DRAWING HQ-030-37-516 & HQ-030-37-548 FOR CONTINUATION.

REMOVE ELBOW & ENTRY FLANGE ON END OF EXISTING 1600A PLUG-IN DUCT AND REPLACE WITH END CLOSURE.  
EXISTING 450kVA 600-208/120V UNIT SUB-STATION TO BE REMOVED.  
REFER TO DRAWING HQ-030-37-515 FOR CHILLER FEEDER DETAILS.

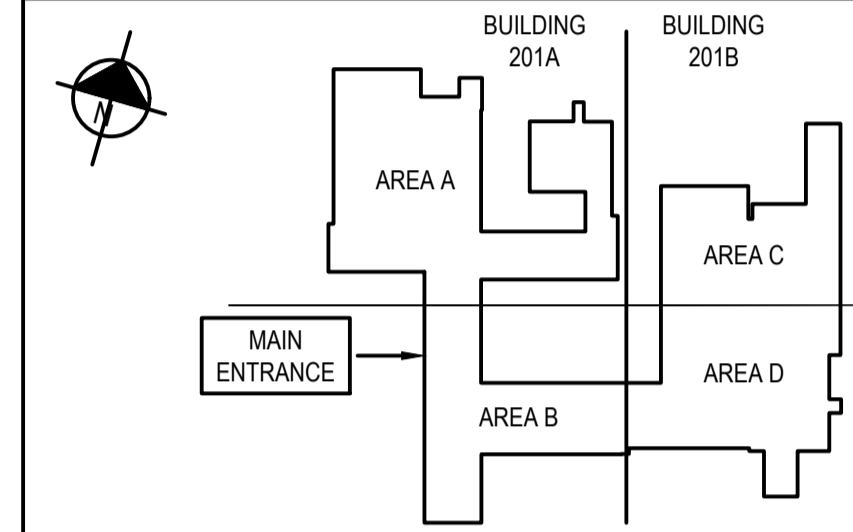
LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ  
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Dartmouth, NS  
Canada



NOTES:

- REFER TO DRAWING E500 FOR ELECTRICAL LEGEND AND GENERAL NOTES.



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NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
ELECTRICAL

DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
ELECTRICAL RISER II  
AC UNITS AND RTU ROOF TOP UNITS

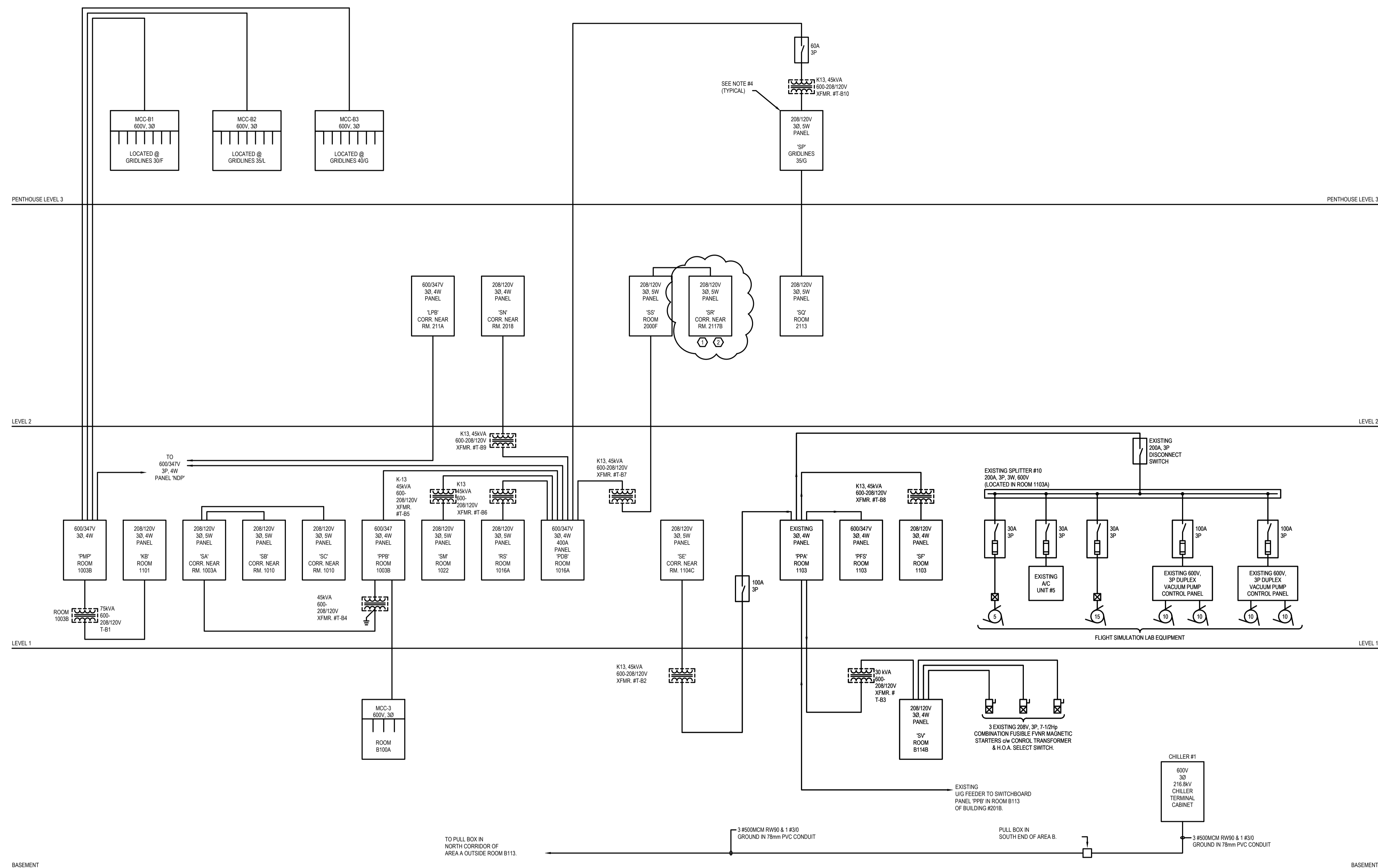
DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
C.L.		
DRAWN   DESSINÉ		PROJ MGR   GEST PROJ
G.S.		
CHECKED   VÉRIFIÉ		DES MGR   GEST CONC
C.L.		
COORDINATION		FIRE   INCENDIE
D.R.		

WBS NO. | NO. OTP

PF NO. | NO. DP

DWG. NO. | NO. DESSIN

E503



1 RISER II  
E503 SCALE: N.T.S.

ROOMS AC POWER DISTRIBUTION	
①	PANEL SR - ROOM 2102
②	PANEL SR - ROOM 1100

NOTES

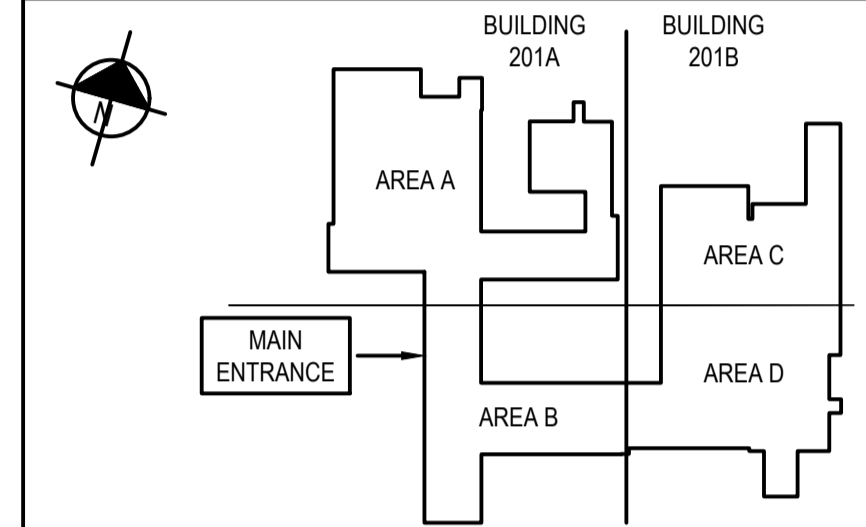
- FOR POWER PANEL SCHEDULE SEE DRAWING E-509
- POWER PANEL SCHEDULE IS BASED ON PROVIDED DRAWINGS. CONTRACTOR SHALL VERIFY ON SITE FOR CONSISTENCY. REPORT TO DCC REPRESENTATIVE FOR ANY ISSUE FOUND.
- REFER TO PANEL SCHEDULES FOR SIZES OF FEEDERS FOR RTU AND AND AC UNITS.

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Dartmouth, NS  
Canada



NOTES:

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0	2023/02/10	ISSUED FOR TENDER	D.R.
NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE

LOCATION | EMPLACEMENT

1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET

DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
ELECTRICAL

DATE  
2021/07/08

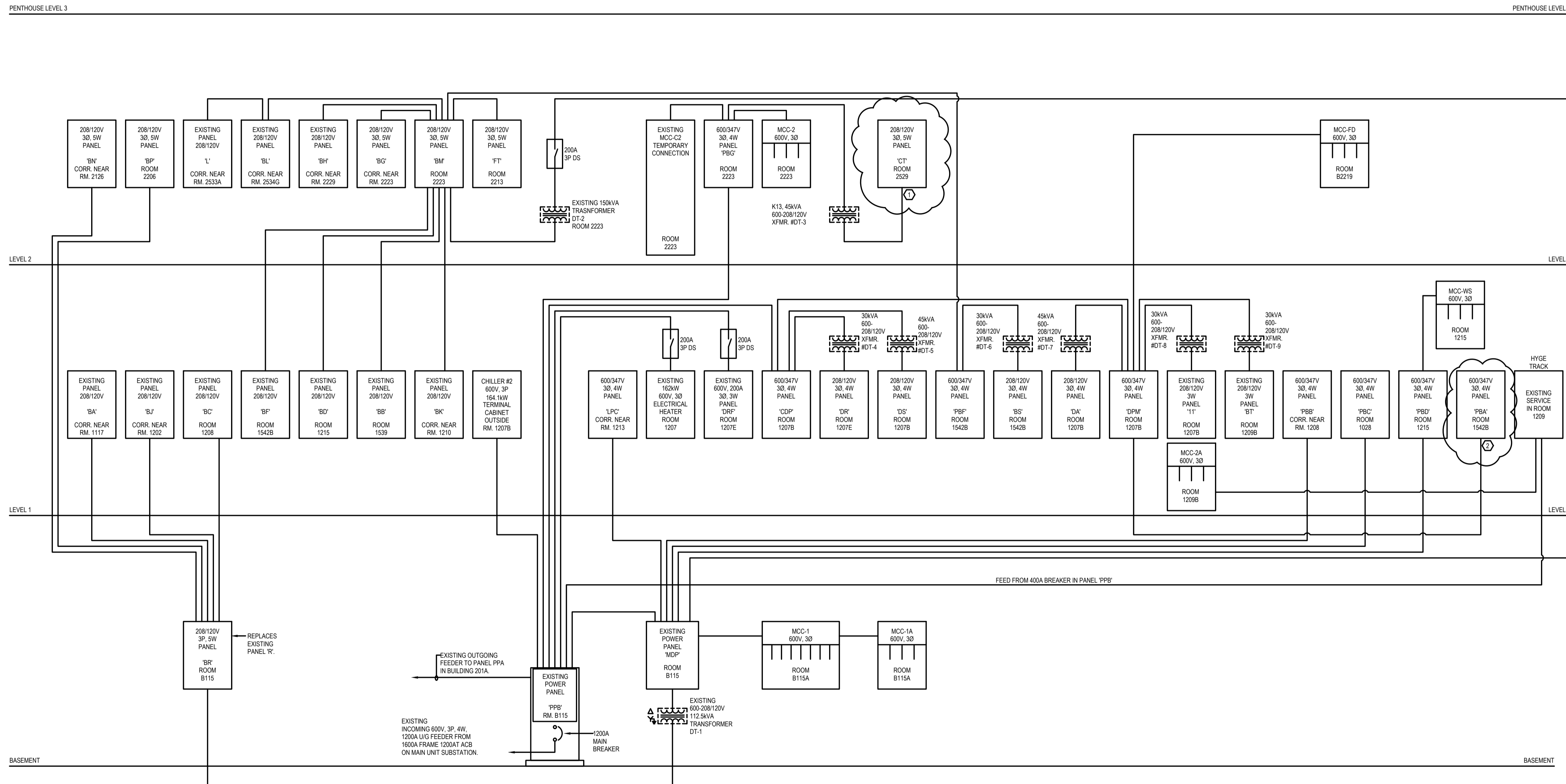
SUBJECT | SUJET

PACKAGE 1 -  
ELECTRICAL RISER III  
AC UNITS AND RTU ROOF TOP UNITS

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
C.L.		
DRAWN   DESSINÉ		PROJ MGR   GEST PROJ
G.S.		
CHECKED   VÉRIFIÉ		DES MGR   GEST CONC
C.L.		
COORDINATION		FIRE   INCENDIE
D.R.		

WBS NO. | NO. OTP      PF NO. | NO. DP

DWG. NO. | NO. DESSIN      E504



1 RISER III  
E504 SCALE: N.T.S.

ROOMS AC POWER DISTRIBUTION	
①	PANEL CT - ROOM 2213I
②	PANEL PBA - ROOF TOP UNITS RTU-7 (AND PERHAPS RTU-8, RTU-9, AND RTU-10)

NOTES

- FOR POWER PANEL SCHEDULE SEE DRAWING E-509.
- POWER PANEL SCHEDULE IS BASED ON PROVIDED DRAWINGS. CONTRACTOR SHALL VERIFY ON SITE FOR CONSISTENCY. REPORT TO DCC REPRESENTATIVE FOR ANY ISSUE FOUND.
- REFER TO PANEL SCHEDULES FOR SIZES OF FEEDERS FOR RTU AND AC UNITS.



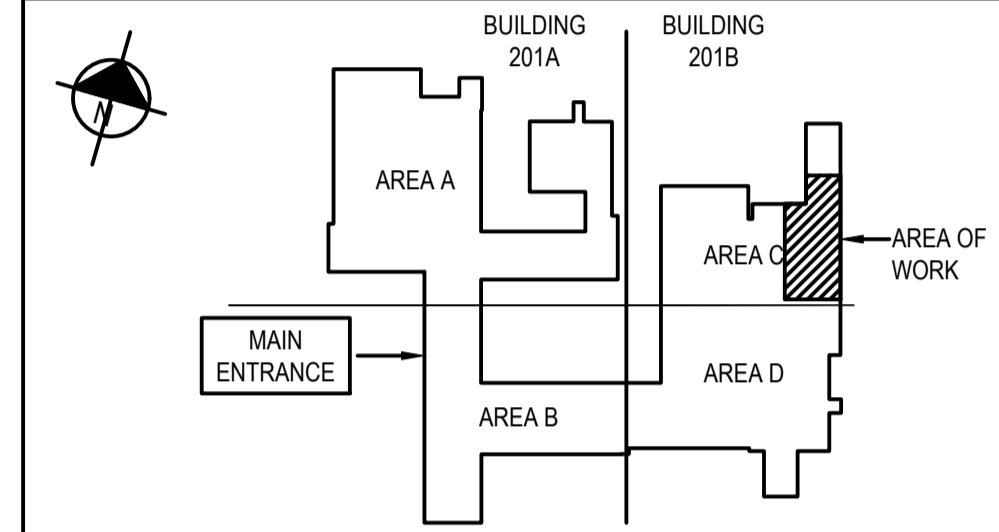
LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ  
UNCLASS | NON CLASSIFIÉ

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NOTES:

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SCALE | ÉCHELLE

LOCATION | EMPLACEMENT

1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET

DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
ELECTRICAL

DATE  
2021/07/08

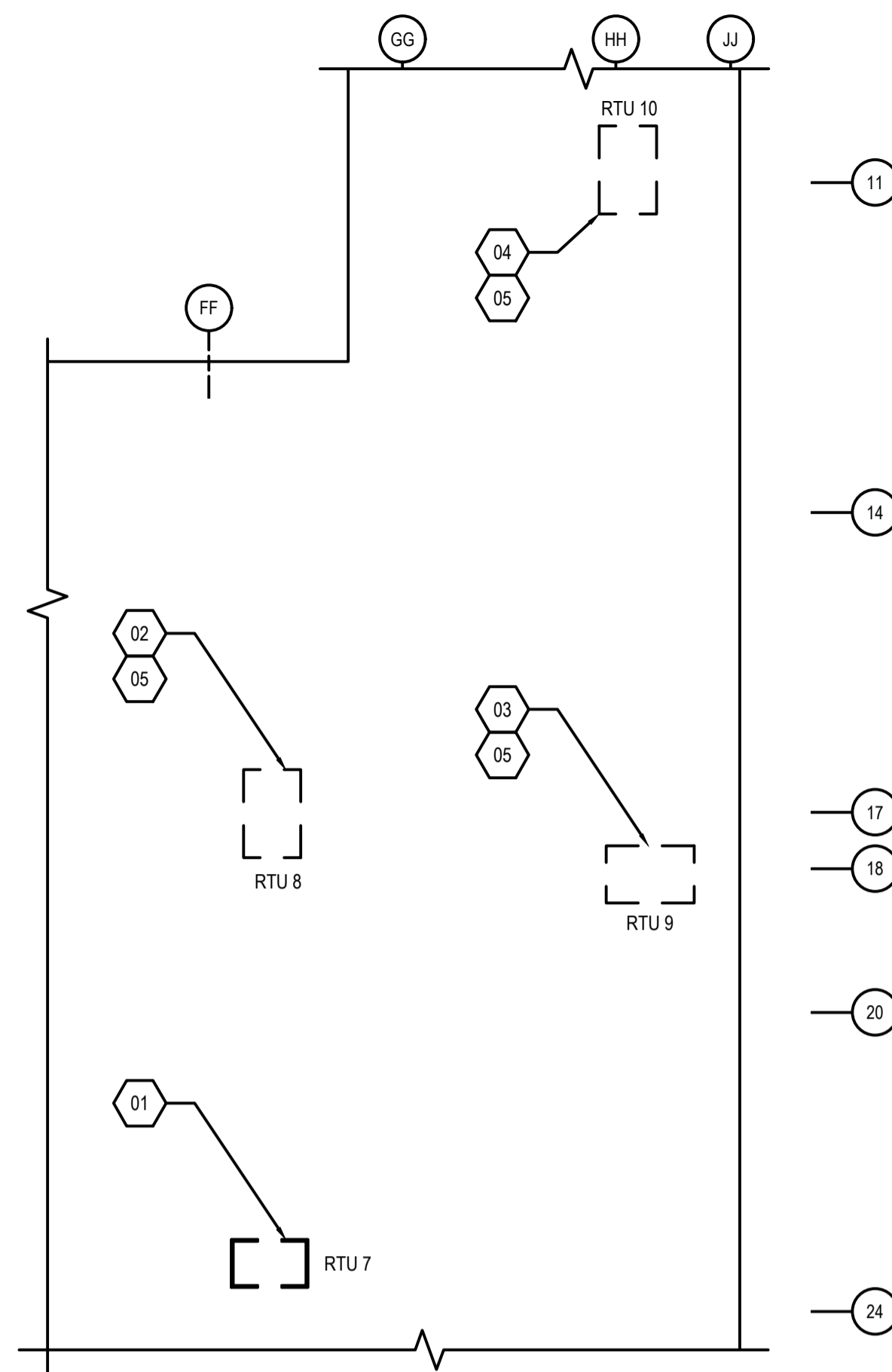
SUBJECT | SUJET

PACKAGE 1 -  
RTU ROOF TOP UNITS  
ELECTRICAL LAYOUT

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
C.L.		
DRAWN   DESSINÉ		PROJ MGR   GEST PROJ
G.S.		
CHECKED   VÉRIFIÉ		DES MGR   GEST CONC
C.L.		
COORDINATION		FIRE   INCENDIE
D.R.		

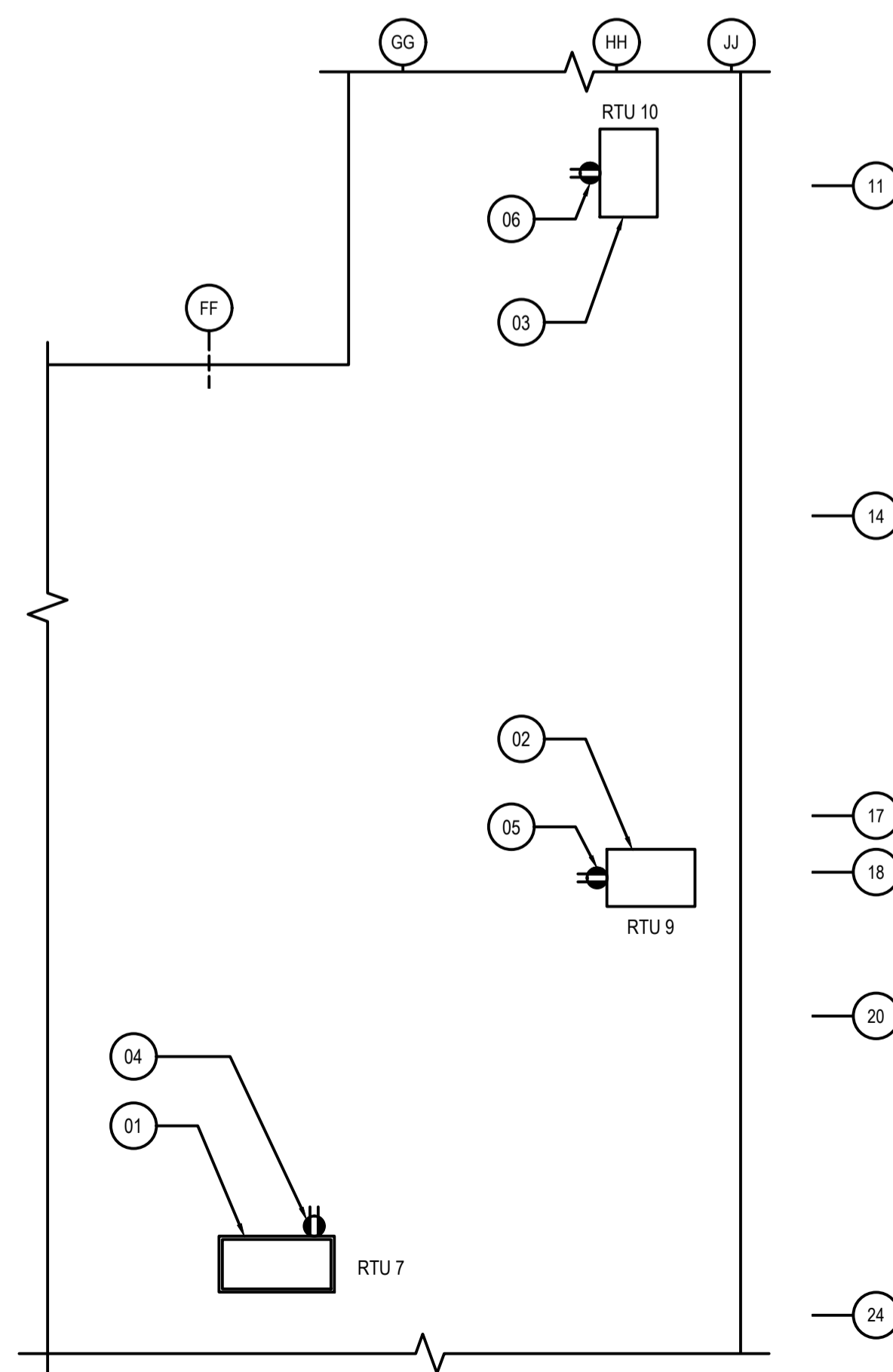
WBS NO. | NO. OTP      PF NO. | NO. DP

DWG. NO. | NO. DESSIN      E505



1 ROOF DEMOLITION PLAN - ELECTRICAL  
E505 SCALE: 1:150

DEMOLITION - KEY NOTES	
01	EXISTING ROOFTOP UNIT (RTU-7) TO BE REMOVED AND REPLACED. EXISTING ELECTRICAL CABLES AND ASSOCIATED EQUIPMENT (JUNCTION BOXES, CONDUIT, DISCONNECT, ETC) TO BE UNINSTALLED BACK TO THE POWER PANEL DISTRIBUTION. RTU-7 SHALL BE REPLACED WITH A BIGGER UNIT.
02	EXISTING ROOF TOP UNIT (RTU-8) TO BE REMOVED. EXISTING ELECTRICAL CABLES AND ASSOCIATED EQUIPMENT (JUNCTION BOXES, CONDUIT, DISCONNECT, ETC) TO BE UNINSTALLED BACK TO THE POWER PANEL DISTRIBUTION.
03	EXISTING ROOFTOP UNIT (RTU-9) TO BE REMOVED AND REPLACED. EXISTING ELECTRICAL TO BE DISCONNECTED AND REUSED IF UNDAMAGED. EXTEND AND MAKE GOOD EXISTING CABLING TO SUIT. SEE NEW PLAN FOR DETAILS.
04	EXISTING ROOF TOP UNIT (RTU-10) TO BE REMOVED AND REPLACED. EXISTING ELECTRICAL TO BE DISCONNECTED AND REUSED. SEE NEW PLAN FOR DETAILS.
05	CONTRACTOR SHALL IDENTIFY ON SITE THE EXACT CCT POSITION AND PANEL WHERE RTU-8, RTU-9, AND RTU-10 ARE CONNECTED TO.



2 NEW ROOF PLAN - ELECTRICAL  
E505 SCALE: 1:150

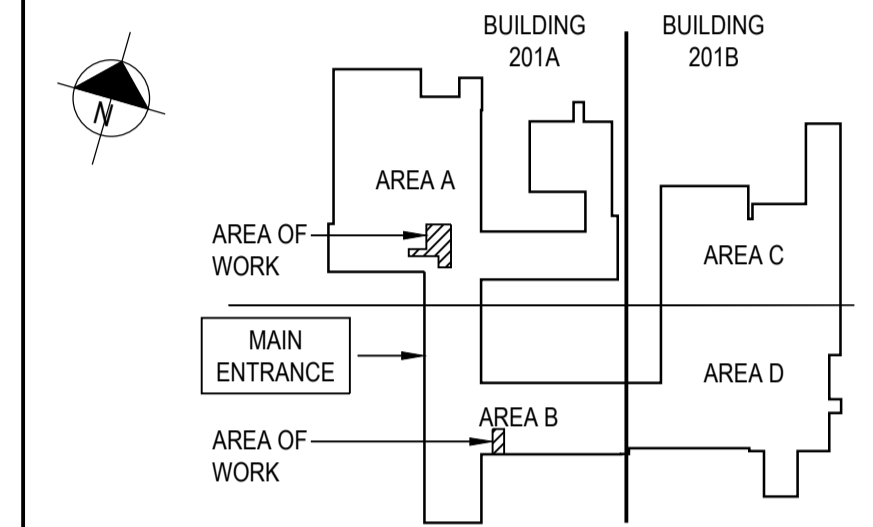
NEW INSTALLATION - KEY NOTES	
01	NEW ROOFTOP UNIT (RTU-7) TO RECEIVE NEW POWER FEED. SEE DRAWING E509 FOR DETAILS.
02	NEW ROOFTOP UNIT (RTU-9) TO REUSE EXISTING ELECTRICAL FEED, IF UNDAMAGED. EXTEND AND MAKE GOOD EXISTING CABLING TO SUIT. SEE DRAWING E509 FOR DETAILS.
03	NEW ROOFTOP UNIT (RTU-10) TO REUSE EXISTING ELECTRICAL FEED, IF UNDAMAGED. EXTEND AND MAKE GOOD EXISTING CABLING TO SUIT. SEE DRAWING E509 FOR DETAILS.
04	PROVIDE NEW ROOFTOP MAINTENANCE RECEPTACLE. PROVIDE NEW FEEDER (120V, 1PH, 20A) AS 2#12 CU, C/W #12 GROUND IN 21MM CONDUIT FROM PANEL P.P.-CT, CCT 27. PROVIDE NEW 20A BREAKER. SEE DRAWING E500 & E509 FOR DETAILS.
05	PROVIDE NEW ROOFTOP MAINTENANCE RECEPTACLE. PROVIDE NEW FEEDER (120V, 1PH, 20A) AS 2#12 CU, C/W #12 GROUND IN 21MM CONDUIT FROM PANEL P.P.-CT, CCT 29. PROVIDE NEW 20A BREAKER. SEE DRAWING E500 & E509 FOR DETAILS.
06	PROVIDE NEW ROOFTOP MAINTENANCE RECEPTACLE. PROVIDE NEW FEEDER (120V, 1PH, 20A) AS 2#12 CU, C/W #12 GROUND IN 21MM CONDUIT FROM PANEL P.P.-CT, CCT 31. PROVIDE NEW 20A BREAKER. SEE DRAWING E500 & E509 FOR DETAILS.

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NOTES:

- REFER TO DRAWING E500 FOR ELECTRICAL LEGEND AND GENERAL NOTES.



NO.	DATE	REVISION	APPR.
0	2022/12/06	ISSUED FOR TENDER	D.R.

SCALE | ÉCHELLE

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

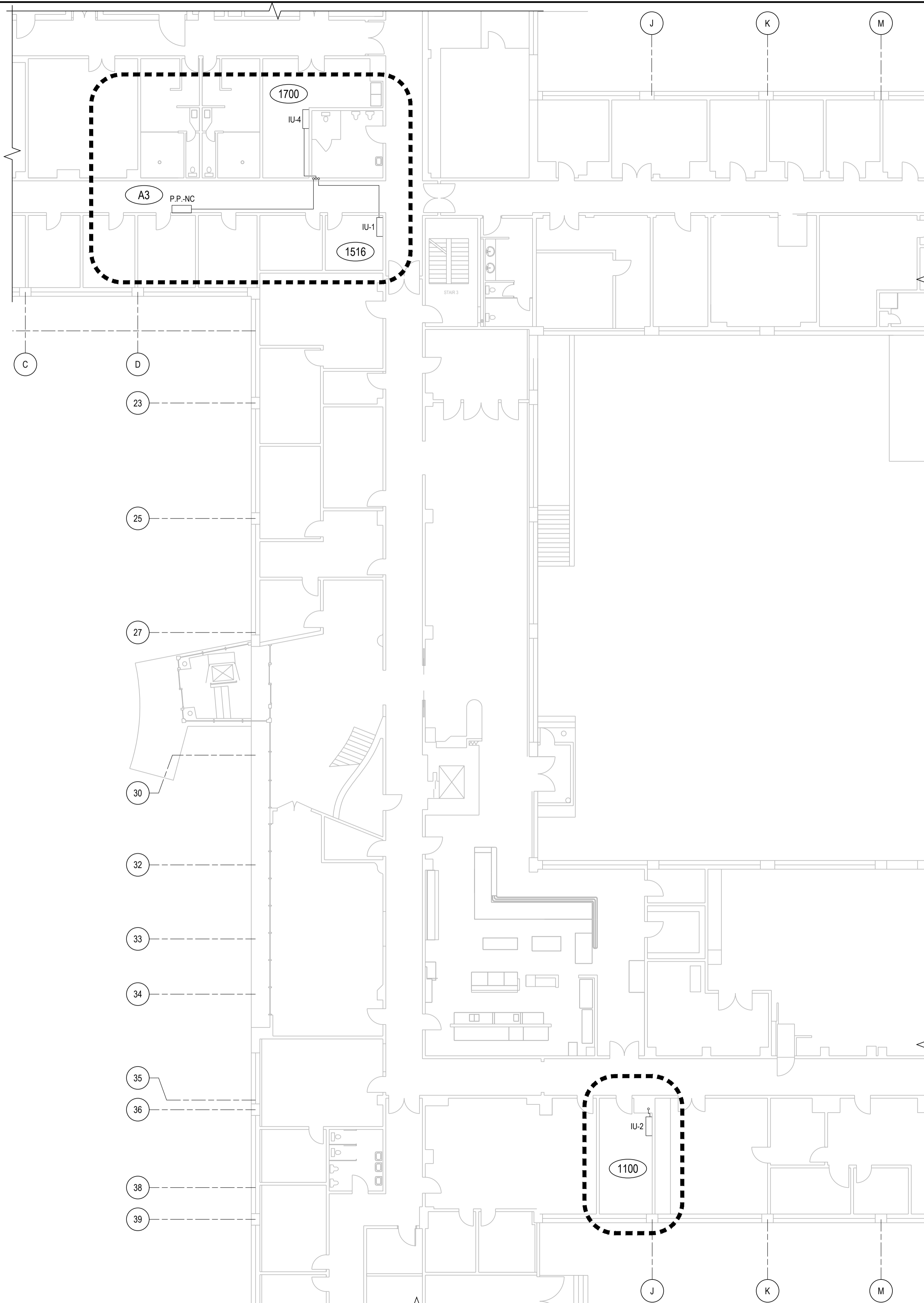
TRADE | MÉTIER  
ELECTRICAL  
DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
LEVEL 1 ELECTRICAL LAYOUT

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
C.L.		
DRAWN   DESSINÉ		PROJ MGR   GEST PROJ
G.S.		
CHECKED   VÉRIFIÉ		DES MGR   GEST CONC
C.L.		
COORDINATION		FIRE   INCENDIE
D.R.		

WBS NO. | NO. OTP PF NO. | NO. DP

DWG. NO. | NO. DESSIN E506



1 LEVEL 1 PLAN - ELECTRICAL LAYOUT  
E506 SCALE: 1:125

NOTES

- THE MAIN POWER FOR SPLIT UNITS ARE CONNECTED TO THE CONDENSER LOCATED AT ROOFTOP. SEE DRAWING E510 SHOWING CONDENSER ROOF TOP UNITS.
- FOR CONDENSER WIRING CONNECTION TO INDOOR AC UNIT, SEE E510.

AC UNIT POWER

ROOM	P.P. DISTRIBUTION
1700	NC
1516	NH (ON SECOND FLOOR)
1100	SR (ON SECOND FLOOR)

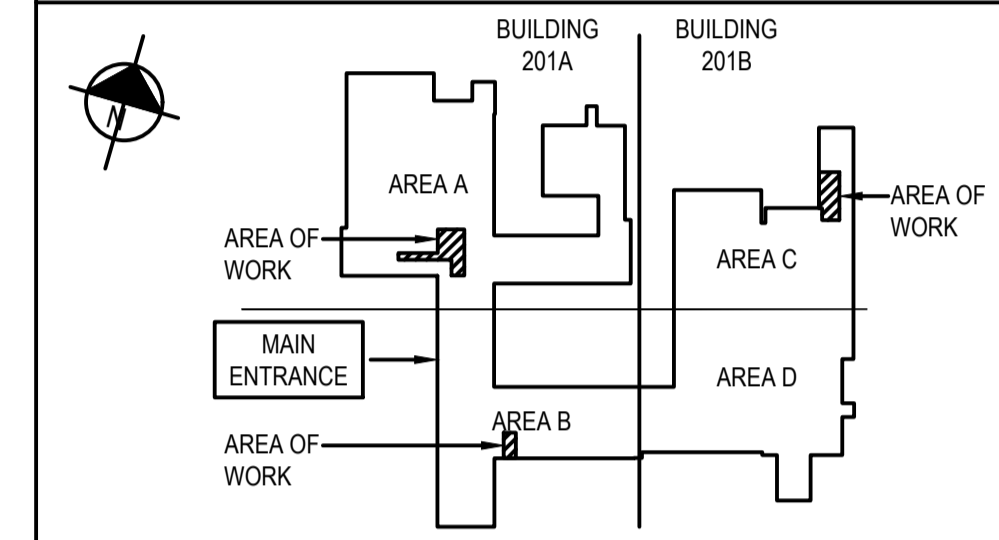
LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ  
UNCLASS | NON CLASSIFIÉ

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Canada



**NOTES:**  
1. REFER TO DRAWING E500 FOR ELECTRICAL LEGEND AND GENERAL NOTES.



NO.	DATE	REVISION	APPR.
0	2023/02/10	ISSUED FOR TENDER	D.R.

SCALE | ÉCHELLE

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

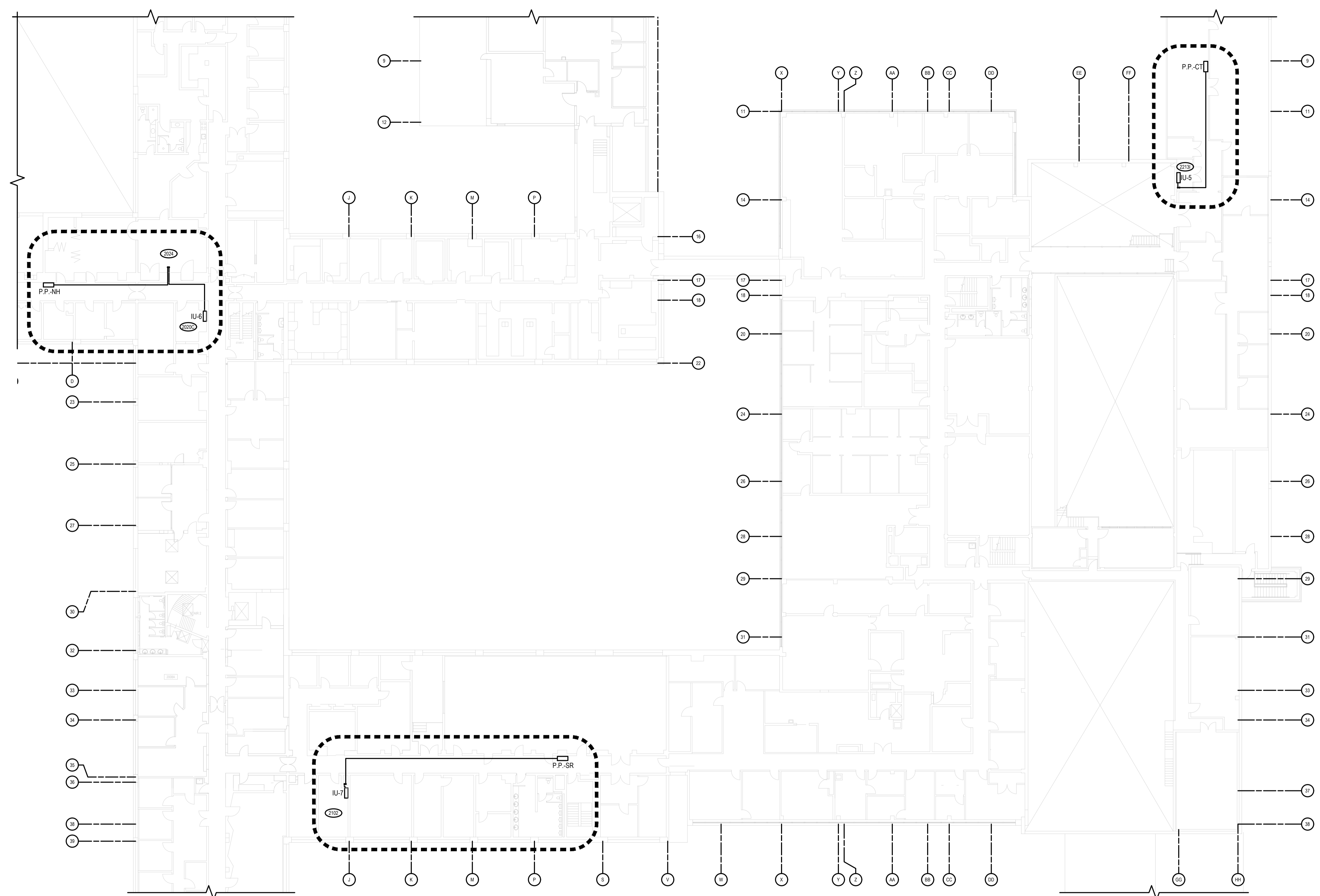
TRADE | MÉTIER  
ELECTRICAL  
DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
LEVEL 2 ELECTRICAL LAYOUT

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
C.L.		
DRAWN   DESSINÉ		PROJ MGR   GEST PROJ
G.S.		
CHECKED   VÉRIFIÉ		DES MGR   GEST CONC
C.L.		
COORDINATION		FIRE   INCENDIE
D.R.		

WBS NO. | NO. OTP  
PF NO. | NO. DP

DWG. NO. | NO. DESSIN  
E507



1 LEVEL 2 PLAN - ELECTRICAL LAYOUT  
E507 SCALE: 1:200

**NOTES**  
1. THE MAIN POWER FOR SPLIT UNITS ARE CONNECTED TO THE CONDENSER LOCATED AT ROOFTOP. SEE DRAWING E510 SHOWING CONDENSER ROOF TOP UNITS.  
2. FOR CONDENSER WIRING CONNECTION TO INDOOR AC UNIT, SEE E510.

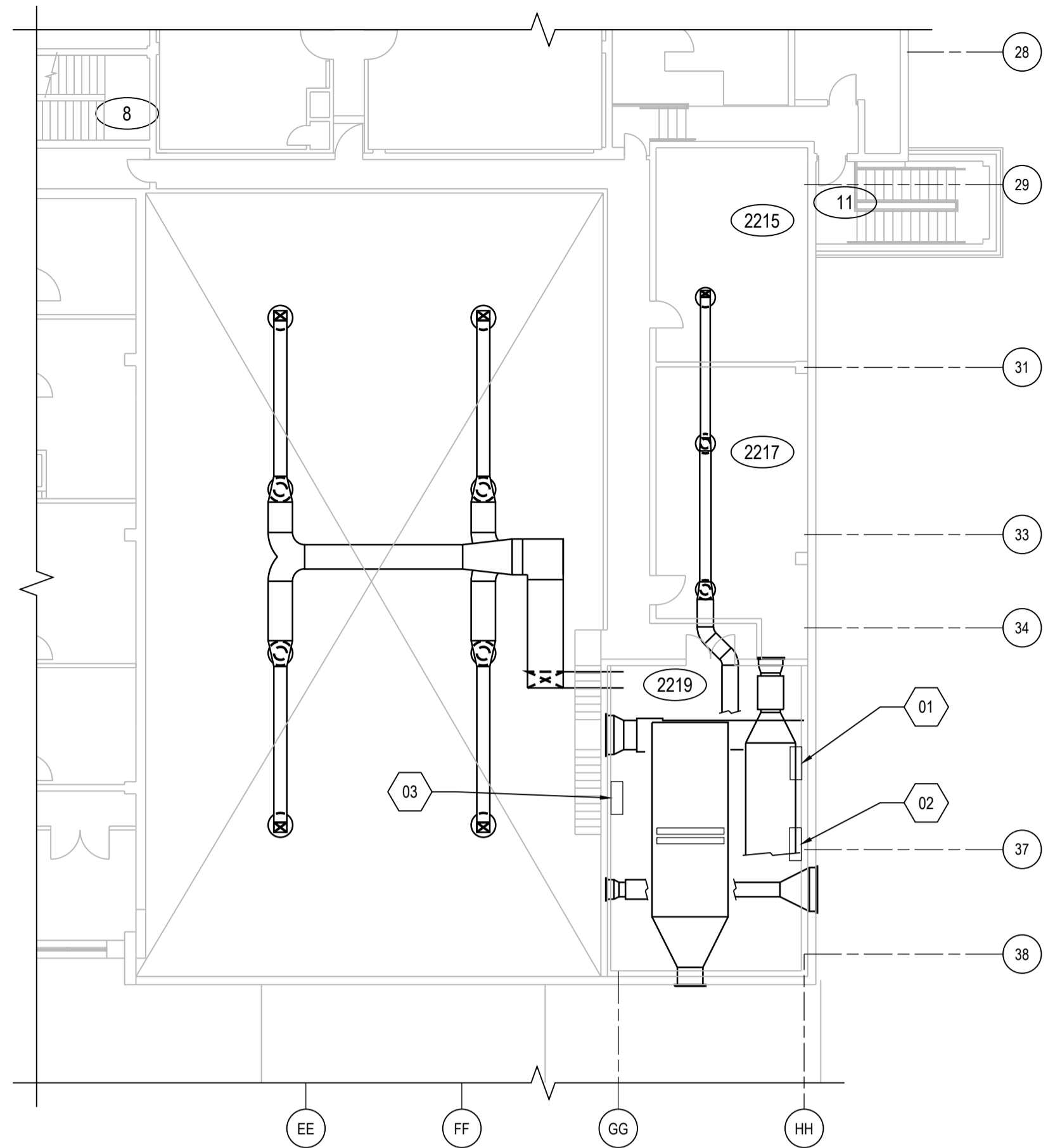
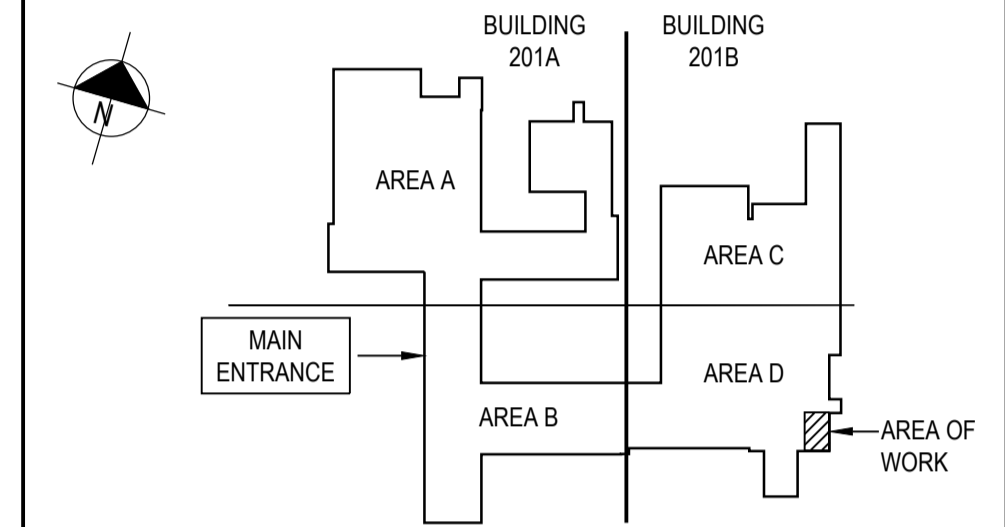
ROOM AC UNIT POWER	
ROOM	P.P. DISTRIBUTION
22131	CT
2020C	NH
2102	SR

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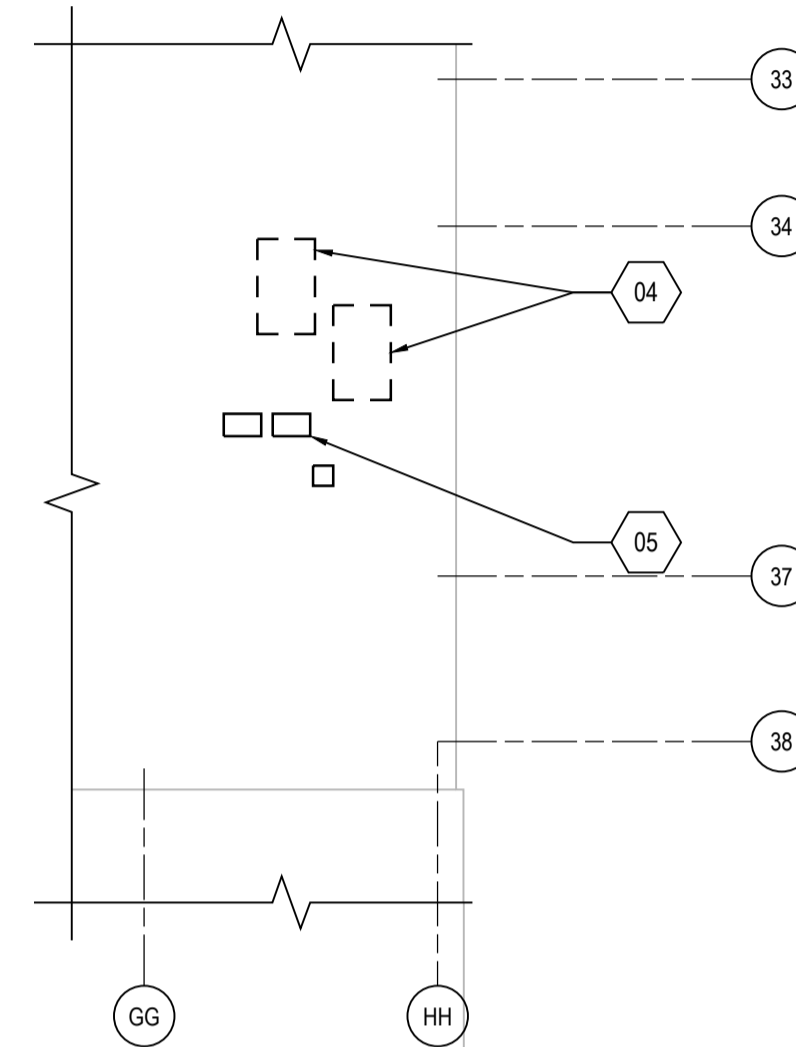
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Dartmouth, NS  
Canada



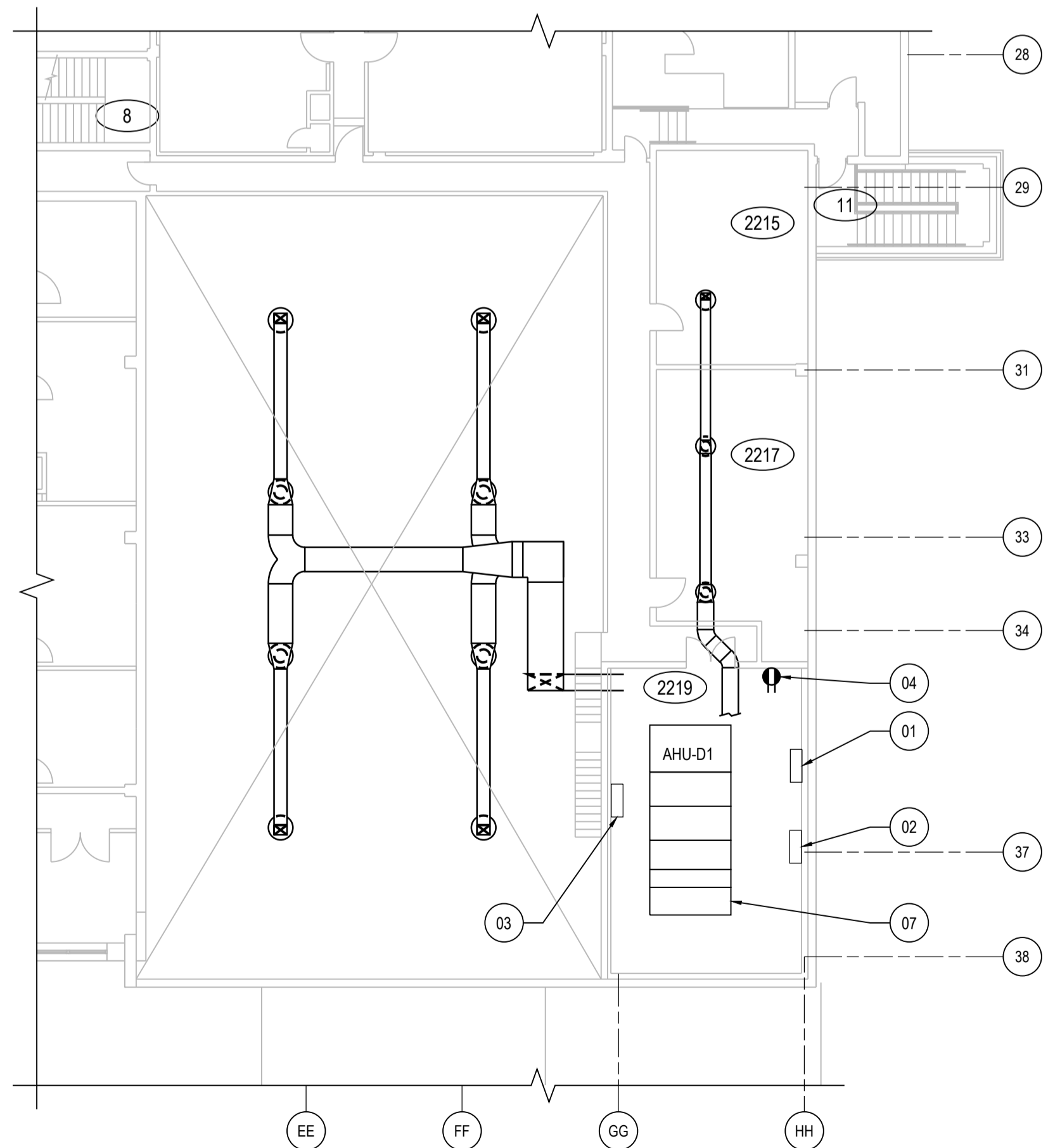
1 DEMOLITION FLOOR PLAN - ROOM 2219  
E508 SCALE: 1:150

ITEMS TO BE RELOCATED TO PREPARE THE WALL FOR CUTTING:

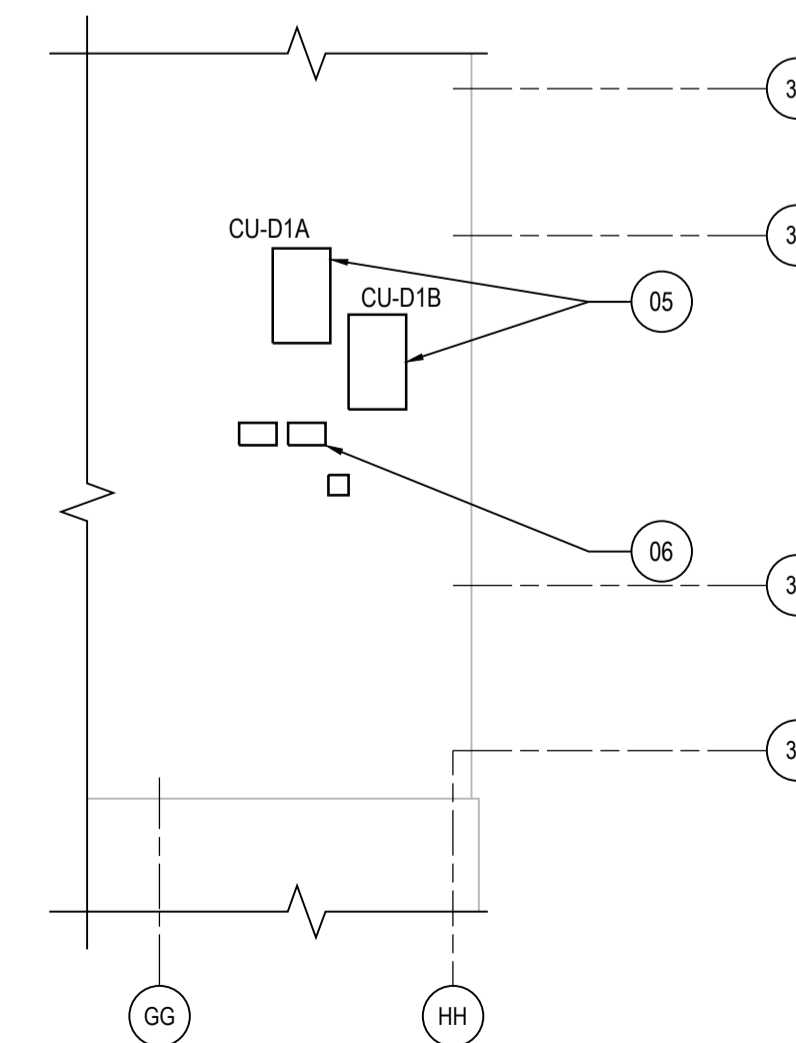
1. P5 SWITCH.
2. TWO AHU DISCONNECT SWITCHES.
3. PANELS AND JUNCTION BOXES.
4. FLUORESCENT LAMP.
5. DOUBLE POWER RECEPTACLE.
6. RELAY FOR THE FAN.
7. CONDUITS OBSTRUCTING THE CLEAR OPENING CAN BE OFFSET AND NOT NEED TO BE REMOVED.



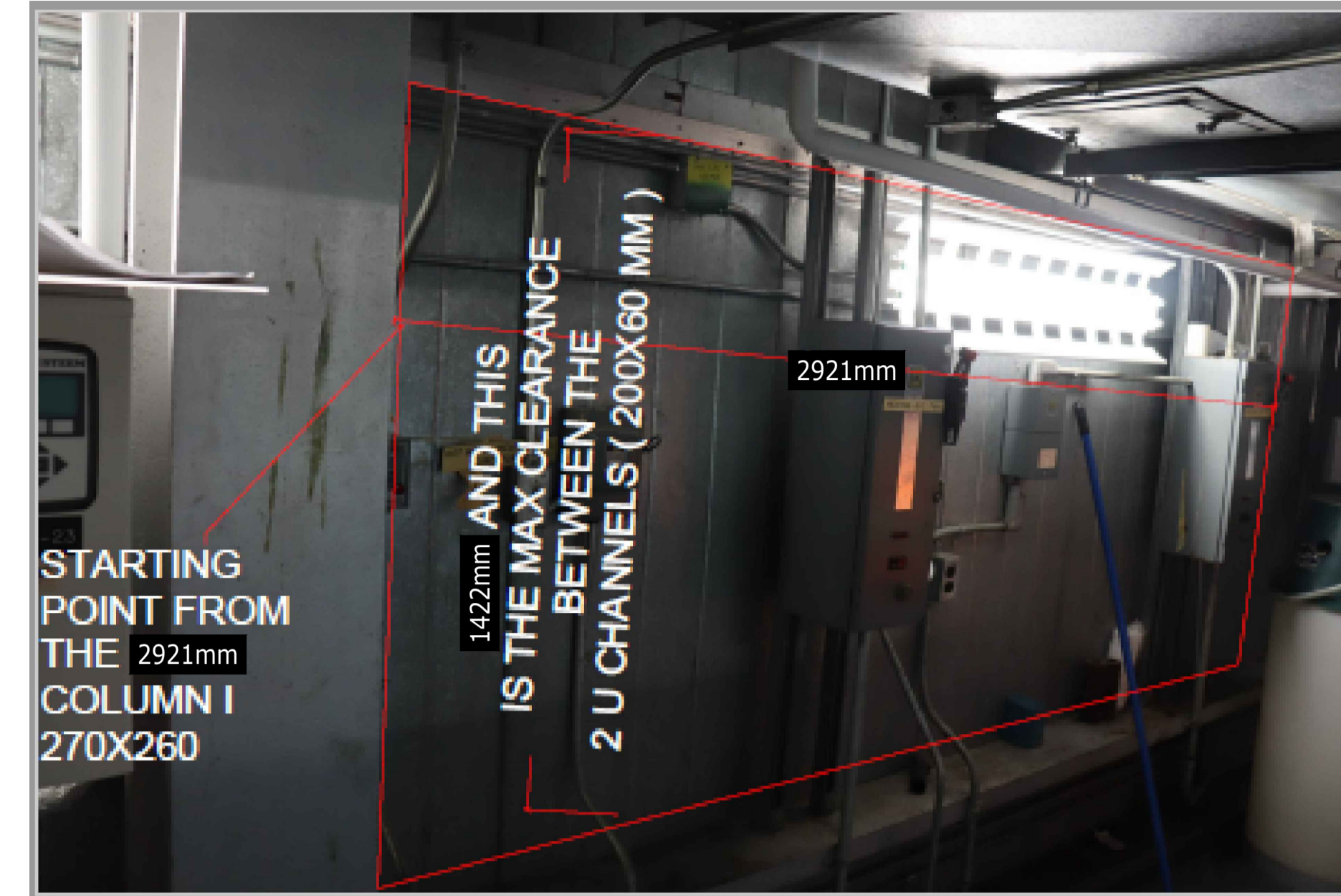
2 DEMOLITION ROOF PLAN - CU  
E508 SCALE: 1:150



4 NEW FLOOR PLAN - ROOM 2219  
E508 SCALE: 1:150



5 NEW ROOF PLAN - CU  
E508 SCALE: 1:150



3 WALL CUTTING TO REMOVE OLD AHU FROM ROOM  
E508 SCALE: N.T.S.

DEMOLITION - KEY NOTES

01	DISCONNECT HEATING AC FAN POWER AND REUSE FOR NEW AHU INSTALLATION.
02	DISCONNECT RETURN AIR FAN POWER AND REUSE FOR NEW AHU INSTALLATION.
03	DISCONNECT HOT WATER COIL CIRCULATION PUMP AND REUSE FOR NEW AHU INSTALLATION.
04	DISCONNECT POWER AT BOTH CONDENSERS LOCATED AT ROOFTOP.
05	THE EXISTING CONDENSER DISCONNECT SWITCHES PANEL IS NOT PROTECTED FROM RAIN (NO GASKET). CONTRACTOR IS TO REPLACE DISCONNECT WITH SUITABLE NEMA 3R RATED ONE.

NEW INSTALLATION - KEY NOTES

01	REUSE HEATING AC FAN POWER CIRCUIT TO POWER-UP THE NEW AHU UNIT.
02	REUSE RETURN AIR FAN POWER CIRCUIT TO POWER-UP THE NEW AHU UNIT.
03	REUSE HOT WATER COIL CIRCULATION PUMP CIRCUIT TO POWER-UP THE NEW AHU UNIT.
04	PROVIDE 15A, 125V DUPLEX RECEPTACLE (CSA TYPE 5-15R) FOR DDC CONTROL PANEL. REUSE EXISTING CCT FROM NEARBY RECEPTACLE. SEE LEGEND FOR DETAILS.
05	REUSE THE CIRCUITS OF THE OLD CONDENSER TO POWER-UP NEW CONDENSERS. EXISTING FEEDER TO BE REUSED IF UNDAMAGED. EXTEND AND MAKE GOOD EXISTING CABLING TO SUIT.
06	THE EXISTING CONDENSER DISCONNECT SWITCHES PANEL IS NOT PROTECTED FROM RAIN (NO GASKET). CONTRACTOR IS TO REPLACE DISCONNECT WITH SUITABLE NEMA 3R RATED ONE.
07	SEE MANUFACTURER DRAWINGS FOR VFD INFORMATION.



NOTES:  
1. REFER TO DRAWING E500 FOR ELECTRICAL LEGEND AND GENERAL NOTES.

0	2022/12/06	ISSUED FOR TENDER	D.R.
NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE  
AS NOTED

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
ELECTRICAL  
DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
ROOM 2219 AIR HANDLING UNIT  
REPLACEMENT ELECTRICAL LAYOUT

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
C.L.		PROJ MGR   GEST PROJ
DRAWN   DESSINÉ		DES MGR   GEST CONC
G.S.		
CHECKED   VÉRIFIÉ		
C.L.		
COORDINATION		FIRE   INCENDIE
D.R.		

WBS NO. | NO. OTP  
PF NO. | NO. DP

DWG. NO. | NO. DESSIN  
E508

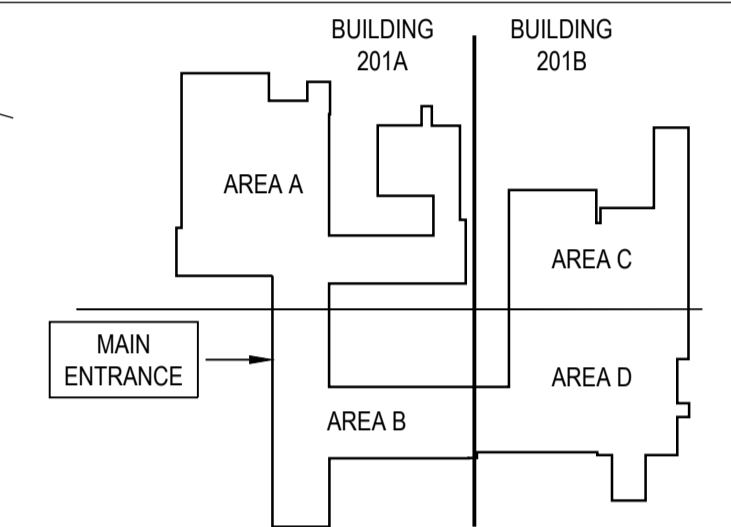
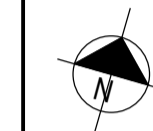
LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ  
UNCLASS | NON CLASSIFIÉ

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SCALE | ÉCHELLE

LOCATION | EMPLACEMENT  
1133 SHEPPARD AVE. W.  
TORONTO  
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PROJECT | PROJET  
DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
ELECTRICAL  
DATE  
2021/07/08

SUBJECT | SUJET  
PACKAGE 1 -  
POWER PANEL SCHEDULE

DESIGNED   ÉTUDIÉ	REVIEWED   REVU	DES O   AGENT CONC
C.L.		PROJ MGR   GEST PROJ
DRAWN   DESSINÉ		DES MGR   GEST CONC
G.S.		
CHECKED   VÉRIFIÉ		FIRE   INCENDIE
C.L.		
COORDINATION		
D.R.		

WBS NO. | NO. OTP  
PF NO. | NO. DP

DWG. NO. | NO. DESSIN  
E509

LOCATION	BUILDING #201A, AREA D, ROOM 1542B	INTERRUPTING RATING	-	AMPS
PANEL No.	PBA	PANEL TYPE	-	
VOLTAGE	600/347	BREAKER TYPE	-	
PHASE/WIRES	3P, 4W	MOUNTING	-	

DESIGNATION	LOAD (VA)	AWG	CCT #	BKR	A	B	C	BKR	CCT #	AWG	LOAD (VA)	DESIGNATION
SPARE			1	15A				15A	2			SPARE
SPARE			3	15A				20A	3P			SPARE
SPARE			5	15A				20A	3P			SPARE
SPARE			7	40A				20A	3P			SPARE
SPARE			9	40A				20A	3P			SPARE
SPARE			11	40A				20A	3P			SPARE
A/C UNIT	5000		12	15				60A	3P	6		FUTURE TRANSFORMER
RTU 7	8000	8000	10	21				35A	3P			
		8000	23	25								
			25	25								
			27	25								
			29	25								

NOTES:

FED FROM: 100A 3P "MDP"  
WIRE: 4#3 + #6 GND  
CONDUIT: 35mmC

LOCATION	#201A, IN CORRIDOR NEAR ROOM 2503	INTERRUPTING RATING	10,000	AMPS
PANEL No.	NH	PANEL TYPE	-	
VOLTAGE	208/120	BREAKER TYPE	-	
PHASE/WIRES	3P, 4W	MOUNTING	RECESSED	

DESIGNATION	LOAD (VA)	AWG	CCT #	BKR	A	B	C	BKR	CCT #	AWG	LOAD (VA)	DESIGNATION
RECEPTACLE ROOM 2505, 2024	600		12	1	15A			15A	2	12	600	RECEPTACLE ROOM 2505, 2512
RECEPTACLE ROOM 2505		400	12	3	15A			15A	4	12	600	RECEPTACLE ROOM 2512, 2020B
RECEPTACLE ROOM 2505		600	12	5	15A			15A	6	12	600	RECEPTACLE ROOM 2020B
RECEPTACLE ROOM 2505	600		12	7	15A			15A	8	12	400	RECEPTACLE ROOM 2020B
RECEPTACLE ROOM 2505		600	12	9	15A			15A	10	12	600	RECEPTACLE ROOM 2505B
RECEPTACLE ROOM 2501		600	12	11	15A			15A	12	12	600	RECEPTACLE ROOM 2503, 2505
RECEPTACLE ROOM 2501	600		12	13	15A			15A	14	12	600	RECEPTACLE ROOM 2503
RECEPTACLE ROOM 2501		600	12	15	15A			15A	16	12	800	RECEPTACLE ROOM 2502
RECEPTACLE ROOM 2501		400	12	17	15A			15A	18	12	600	RECEPTACLE ROOM 2504, 2506
RECEPTACLE ROOM 2507	600		12	19	15A			15A	20	12	600	RECEPTACLE ROOM 2504
RECEPTACLE ROOM 2508		600	12	21	15A			15A	22	12	600	RECEPTACLE ROOM 2504
RECEPTACLE ROOM 2509		600	12	23	15A			15A	24		125	EXHAUST FAN 54
RECEPTACLE ROOM 2510	600		12	25	15A			15A	26			RECEPTACLE ROOM 2020C (SIG)
RECEPTACLES CORRIDOR			12	27	15A			15A	28			RECEPTACLE ROOM 2020C (SIG)
SPARE			12	29	15A			15A	30			RECEPTACLE ROOM 2020C
FAN COILS	1000		12	31	15A			15A	32			CH-1
FAN COILS		1100	12	33	15A			15A	34			SPARE
FAN COILS		1100	12	35	15A			15A	36			SPARE
NEW CU-1 SPLIT UNIT - ROOM 1516 & 2020C			10	39	25A			20A	38	12		ROOFTOP MAINTENANCE RECEPTACLE
			41	25A					42			

NOTES:

FED FROM: 100A, 3P, BREAKER ON PANEL "NQ".  
WIRE: 3 #6 & 1 #3 RW90 & 1 #8 GREEN GROUND.  
CONDUIT: 35mm.

LOCATION	BUILDING #201A CORRIDOR NEAR ROOM 2117B	INTERRUPTING RATING	10,000KAIC	AMPS
PANEL No.	SR	PANEL TYPE	-	
VOLTAGE	208/120	BREAKER TYPE	-	
PHASE/WIRES	3P, 4W	MOUNTING	RECESSED	

DESIGNATION	LOAD (VA)	AWG	CCT #	BKR	A	B	C	BKR	CCT #	AWG	LOAD (VA)	DESIGNATION
RECEPTACLE ROOM 2108, 2110	600		12	1	15A			15A	2	12	600	RECEPTACLE ROOM 2115
RECEPTACLE ROOM 2108, 2110		800	12	3	15A			15A	4	12	400	RECEPTACLE ROOM 2115
RECEPTACLE ROOM 2112, 2112A		400	12	5	15A			15A	6	12	400	RECEPTACLE ROOM 2117A, 2117C
RECEPTACLE ROOM 2112, 2112A	800		12	7	15A			15A	8	12	400	RECEPTACLE ROOM 2117B, 2117C
RECEPTACLE ROOM 2114		400	12	9	15A			15A	10	12	400	RECEPTACLE ROOM 2117B, 2117A
RECEPTACLE ROOM 2116B		400	12	11	15A			15A	12	12	400	RECEPTACLE ROOM 2117A
RECEPTACLE ROOM 2116A, 2116B	400		12	13	15A			15A	14	12	400	RECEPTACLE ROOM 2117A
RECEPTACLE ROOM 2116		400	12	15	15A			15A	16	12	400	RECEPTACLE ROOM 2117A
RECEPTACLE ROOM 2116A		400	12	17	15A			15A	18	12	400	RECEPTACLE ROOM 2117A
RECEPTACLE ROOM 2116	200		12	19	15A			15A	20	12	600	RECEPTACLE ROOM 2117B, 2117C
PROJECTOR ROOM 2117B			12	21	15A			15A	22	12	400	RECEPTACLE ROOM 2117B, 2117C
PROJECTOR ROOM 2117A			12	23	15A			15A	24	12	400	RECEPTACLE ROOM 2117B, 2117C
PROJECTION SCREEN ROOM 2117B			12	25	15A			20A	26	12	400	CORRIDOR RECEPTACLE
EXISTING LIGHTS ROOM 2117A	500		12	27	15A			20A	28			CH-1, UH-1
EXISTING LIGHTS ROOM 2117B		500	12	29	15A			20A	30	12		ROOFTOP MAINTENANCE RECEPTACLE
EXISTING LIGHTS ROOM 2117C	700		12	31	15A			20A	32			SPARE
NEW CU-2 SPLIT UNIT - ROOM 1100 & 2102			10	33	25A				34			
			35	25A					36			
			37	25A					38			
			39	25A					40			
			41	25A					42			

NOTES:

FED FROM: 70A, 3P BREAKER ON PANEL "SS".  
WIRE: 4/C #6 TECK 90 (RUN CONCEALED).  
CONDUIT: N/A

NOTES

- FOR NEW RTU-7, REPLACE 3P-30A BREAKER WITH 3P-40A BREAKER AT PANEL PBA.
- FOR NEW RTU-7 POWER, USE 3C-#8AWG RW90 CU CABLE IN 27mm CONDUIT. IN INTERIOR CONDUIT TO BE EMT AND OUTSIDE TO BE PVC.
- USE MINIMUM 40A DISCONNECT POWER SWITCH AT NEW ROOF TOP UNIT RTU-7.
- FOR AC UNITS ROOMS USE 2P-25A BREAKER SIZE AT POWER PANEL.
- FOR AC ROOMS USE 2C-#10AWG RW90 CU CABLE IN 21mm CONDUIT. INTERIOR CONDUIT TO BE EMT AND OUTDOOR CONDUIT PVC.
- THE POWER CABLE FROM POWER PANEL SHALL BE PULLED AT ROOF TO CONNECT POWER TO AC CONDENSER.
- FOR CONNECTING CONDENSER TO INDOOR AC UNIT FOLLOW MANUFACTURER INSTRUCTIONS AND DRAWING E510.
- CLOUDED AREA AT POWER PANEL SCHEDULE INDICATE THE PLACE FOR NEW BREAKERS REQUIRED TO INSTALL NEW EQUIPMENT.
- ALL AC UNITS TO BE RECONNECTED TO THE EXISTING AUTOMATION SYSTEM FOR SHUTDOWN UPON FIRE ALARM.

LOCATION	BUILDING #201B, LEVEL 1, ROOM 2259	INTERRUPTING RATING	-	AMPS
PANEL No.	CT	PANEL TYPE	-	
VOLTAGE	208/120	BREAKER TYPE	-	
PHASE/WIRES	3P, 4W	MOUNTING	SURFACE	

DESIGNATION	LOAD (VA)	AWG	CCT #	BKR	A	B	C	BKR	CCT #	AWG	LOAD (VA)	DESIGNATION
RECEPTACLE ROOM 2529	200		12	1	15A			15A	2		400	RECEPTACLE ROOM 2259
RECEPTACLE ROOM 2529 (SIG)		200	12	3	15A			15A	4		400	RECEPTACLE ROOM 2259 (SIG)
RECEPTACLE ROOM 2529		200	12	5	15A			15A	6		400	RECEPTACLE ROOM 2259
RECEPTACLE ROOM 2529	600		12	7	15A			15A	8		400	LIGHTS & RECEPT. RM 2213F & E.F. #55
RECEPTACLE ROOM 2529		1000	12	9	15A			15A	10		400	RECEPTACLE ROOM TR-5
RECEPTACLE ROOM 2529		600	12	11	15A			15A	12		200	RECEPTACLE ROOM TR-5
RECEPTACLE ROOM 2529 (SIG)	200		12	13	15A			15A	14		400	RECEPTACLE ROOM 2529
RECEPTACLE ROOM 2529		400	12	15	15A			15A	16		400	EXHAUST FAN #16 TR-5(NEW)
RECEPTACLE ROOM 2529		400	12	17	15A			15A	18		125	RECEPTACLE ROOM 2529
RECEPTACLE ROOM 2532	200		12	19	15A			15A	20			SPARE
RECEPTACLE ROOM 2529		200	12	21	15A			15A	22			SPARE
NEW CU-5 SPLIT UNIT - ROOM 2213I			10	23	25A			15A	24			SPARE
ROOFTOP MAINTENANCE RECEPTACLE			12	27	20A			15A	26			SPARE
ROOFTOP MAINTENANCE RECEPTACLE			12	29	20A			20A	30	12		ROOFTOP MAINTENANCE RECEPTACLE
ROOFTOP MAINTENANCE RECEPTACLE			12	31	20A				32			
			33	25A					34			
			35	25A					36			
			37	25A					38			
			39	25A					40			
			41	25A					42			

NOTES:

FED FROM: 45kVA K13 TRANSFORMER DT-3  
WIRE: 3 #5/0 RW90 & 1 #300 MCM (NEUTRAL)  
7 2 #1/0 rw90 grounds  
CONDUIT: 63mm

LOCATION	BUILDING #201A, AREA A, LEVEL 1, NEAR ROOM 1708	INTERRUPTING RATING	10,000	AMPS
PANEL No.	NC	PANEL TYPE	-	
VOLTAGE	208/120	BREAKER TYPE	-	
PHASE/WIRES	3P, 4W	MOUNTING	RECESSED	

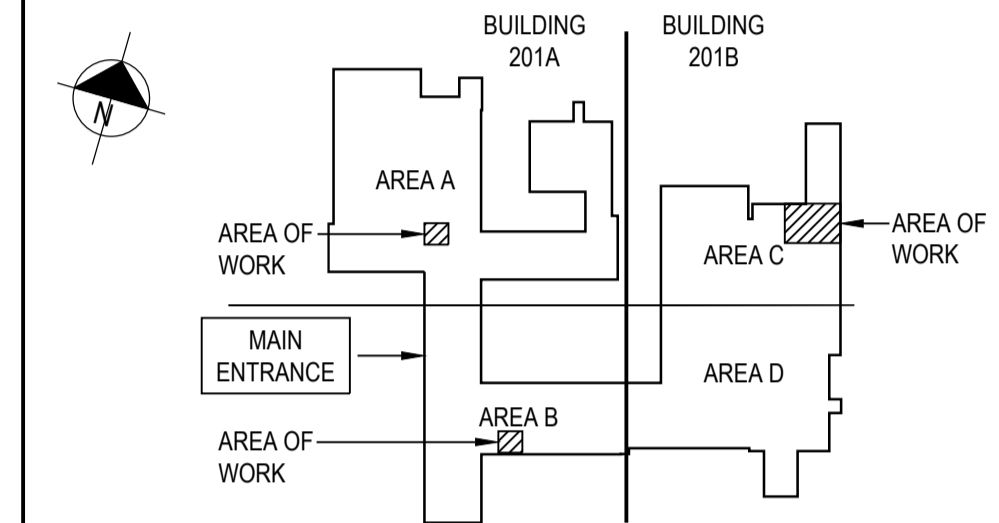
DESIGNATION	LOAD (VA)	AWG	CCT #	BKR	A	B	C	BKR	CCT #	AWG	LOAD (VA)	DESIGNATION
EXISTING CIRCUIT			1	15A				20A	2			EXISTING CIRCUIT
EXISTING CIRCUIT			3	15A				20A	4			EXISTING CIRCUIT
EXISTING CIRCUIT			5	15A				20A	6			EXISTING CIRCUIT
EXISTING CIRCUIT			7	15A				20A	8			EXISTING CIRCUIT
EXISTING												

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300-50 Troop Avenue  
Dartmouth, NS  
Canada



NOTES:

- REFER TO DRAWING E500 FOR ELECTRICAL LEGEND AND GENERAL NOTES.



0	2022/12/06	ISSUED FOR TENDER	D.R.
NO.	DATE	REVISION	APPR.

SCALE | ÉCHELLE

AS NOTED

LOCATION | EMPLACEMENT

1133 SHEPPARD AVE. W.  
TORONTO  
ONTARIO

PROJECT | PROJET

DRDC HVAC COMPLIANCE UPGRADE  
BUILDING 201A & 201B

TRADE | MÉTIER  
ELECTRICAL

DATE  
2021/07/08

SUBJECT | SUJET

PACKAGE 1 -  
NEW DUCTLESS AC UNITS  
ROOF ELECTRICAL LAYOUT

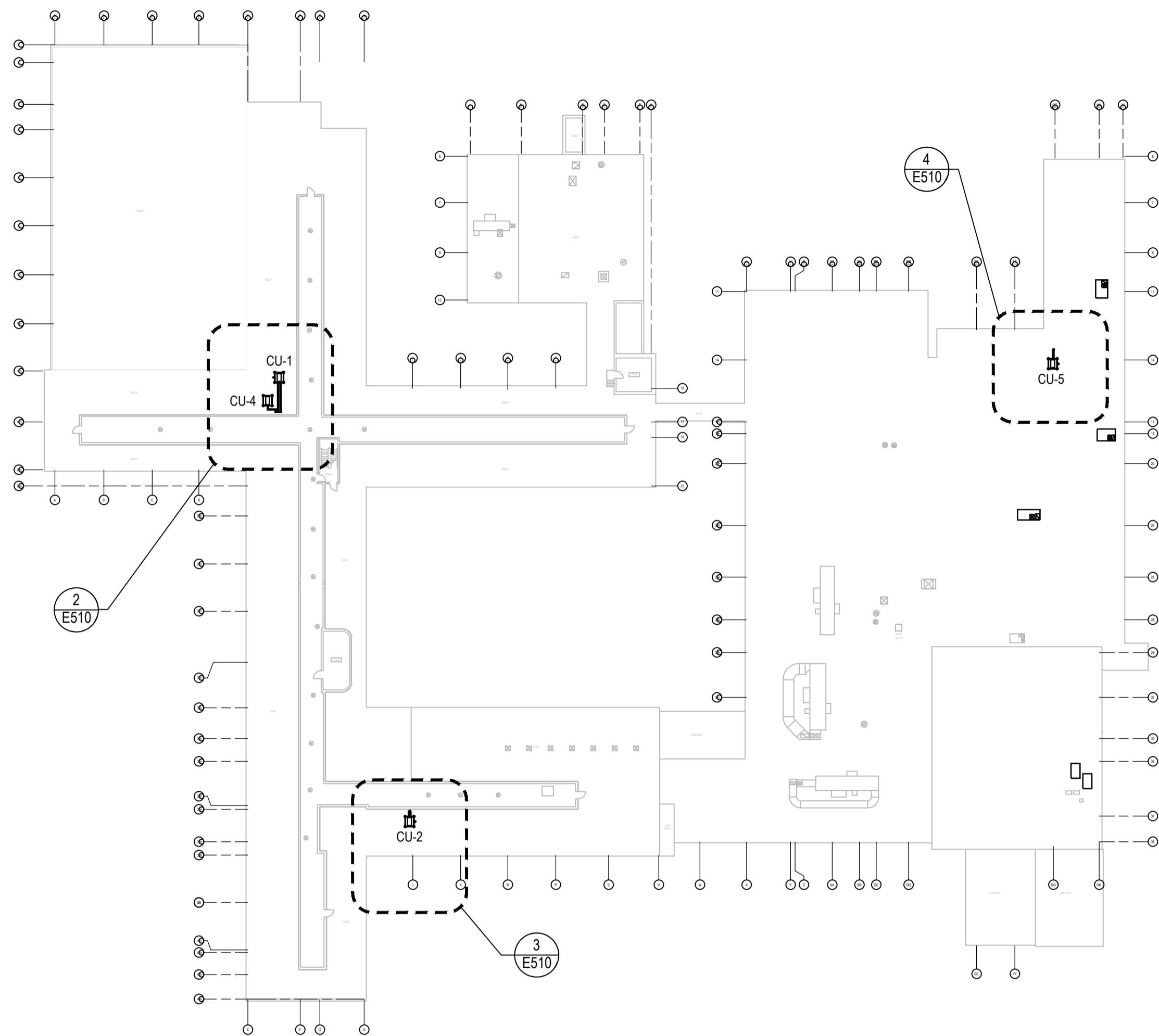
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C.L.		PROJ MGR   GEST PROJ
DRAWN   DESSINÉ		DES MGR   GEST CONC
G.S.		D.R.
CHECKED   VÉRIFIÉ		FIRE   INCENDIE
C.L.		
COORDINATION		
D.R.		

WBS NO. | NO. OTP

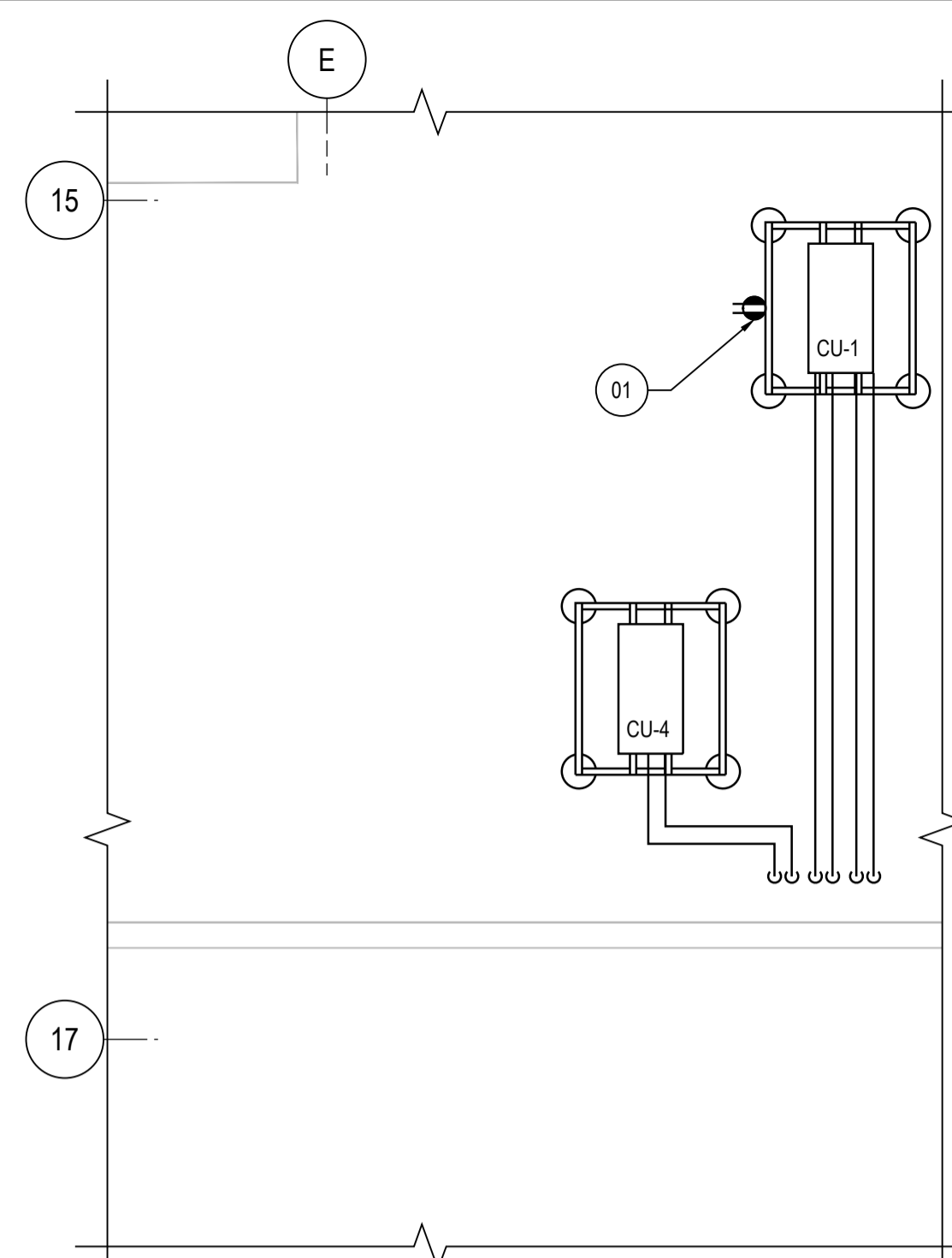
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DWG. NO. | NO. DESSIN

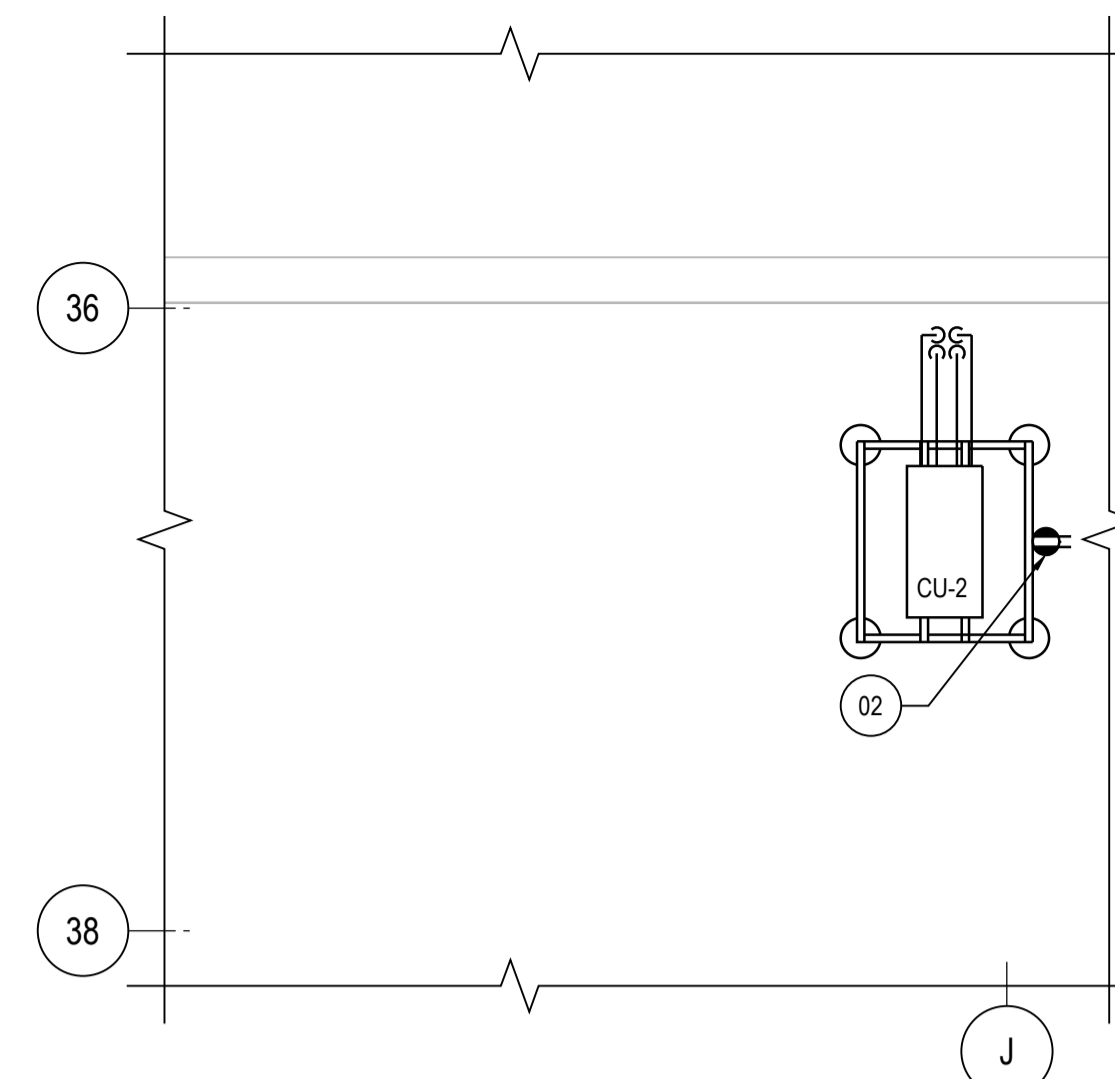
E510



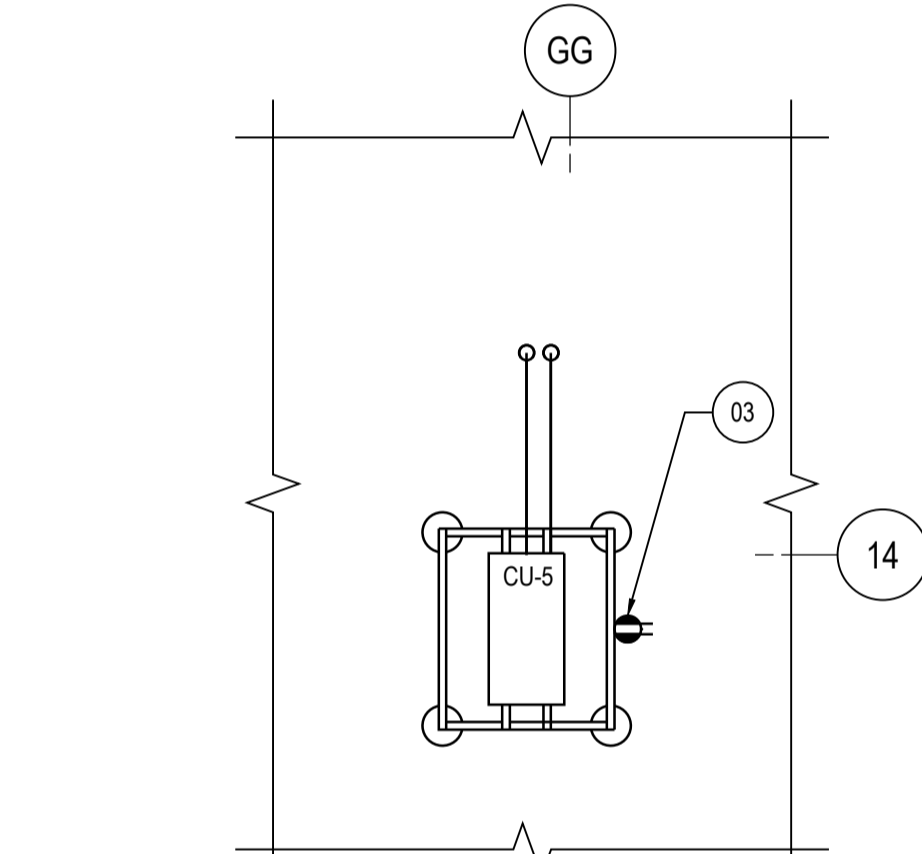
1 ROOF PLAN - ELECTRICAL LAYOUT  
E510 SCALE: N.T.S.



2 PARTIAL ROOF PLAN (CU-1 & CU-4)  
E510 SCALE: 1:50



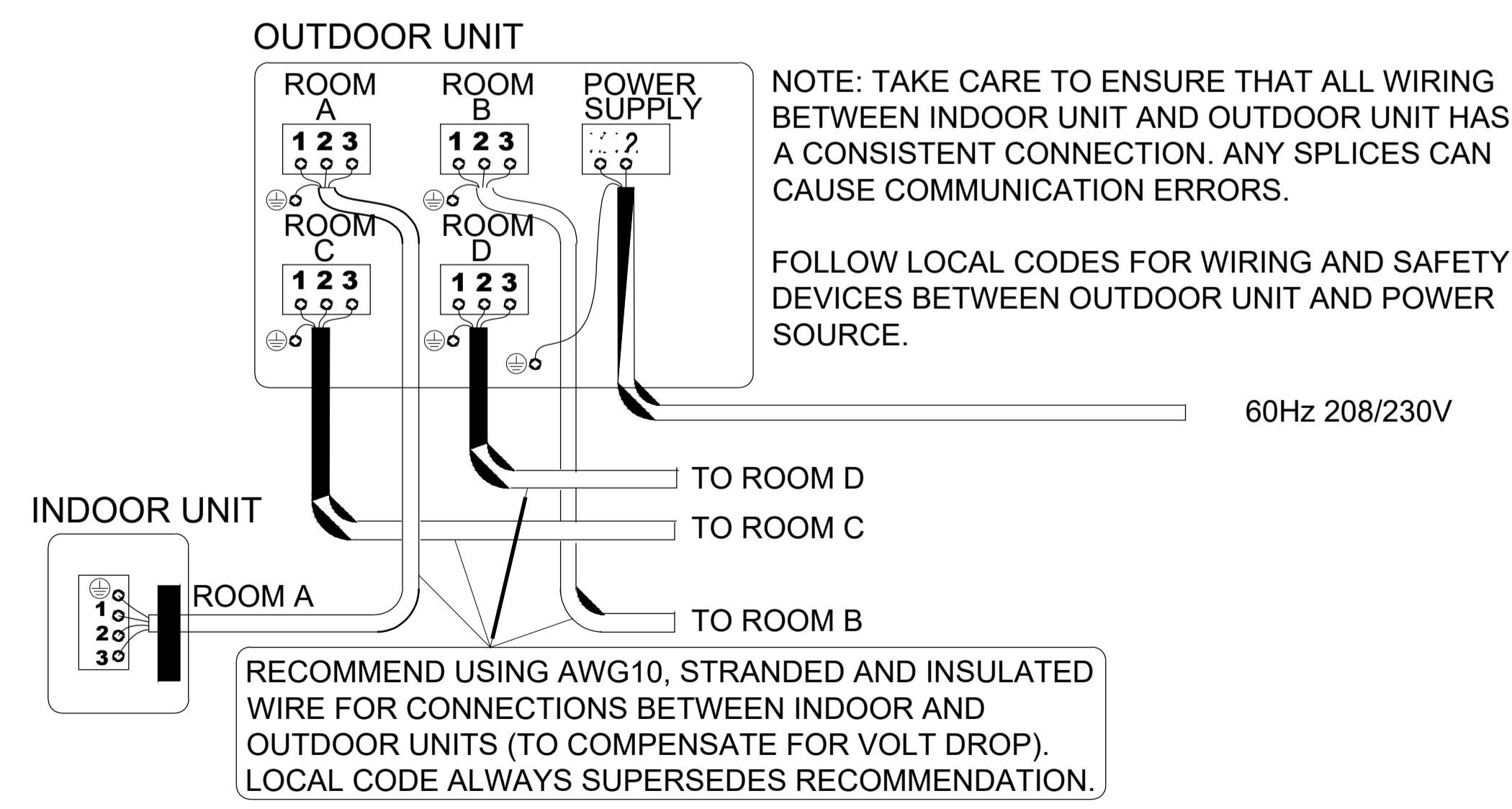
3 PARTIAL ROOF PLAN (CU-2)  
E510 SCALE: 1:50



4 PARTIAL ROOF PLAN (CU-5)  
E510 SCALE: 1:50

NEW INSTALLATION - KEY NOTES	
01	PROVIDE NEW ROOFTOP MAINTENANCE RECEPTACLE. PROVIDE NEW FEEDER (120V, 1PH, 20A) AS 2#12 CU, C/W #12 GROUND IN 21MM CONDUIT FROM PANEL P.P.-NH, CCT 38. PROVIDE NEW 20A BREAKER. SEE DRAWING E500 & E509 FOR DETAILS.
02	PROVIDE NEW ROOFTOP MAINTENANCE RECEPTACLE. PROVIDE NEW FEEDER (120V, 1PH, 20A) AS 2#12 CU, C/W #12 GROUND IN 21MM CONDUIT FROM PANEL P.P.-SR, CCT 30. USE EXISTING 20A BREAKER. SEE DRAWING E500 & E509 FOR DETAILS.
03	PROVIDE NEW ROOFTOP MAINTENANCE RECEPTACLE. PROVIDE NEW FEEDER (120V, 1PH, 20A) AS 2#12 CU, C/W #12 GROUND IN 21MM CONDUIT FROM PANEL P.P.-CT, CCT 30. PROVIDE NEW 20A BREAKER. SEE DRAWING E500 & E509 FOR DETAILS.

CONDENSER NOTES	
1.	THE MAIN POWER AT THE SPLIT UNITS ARE CONNECTED TO THE CONDENSER.
2.	FROM CONDENSER, ANOTHER CABLE IS USED TO POWER UP INSIDE UNITS (DETAIL 5 ON DRAWING E510).
3.	THE CONDENSER HAS THE POSSIBILITY TO POWER UP TO 4 INSIDE UNITS.
4.	THE CONDENSER CU-1 & CU-2 ARE POWERING EACH TWO UNITS, IU-1 & IU-6 AND IU-2 & IU-7 RESPECTIVELY.
5.	FOR CABLE SIZING NECESSARY TO CONNECT CONDENSER, SEE DRAWING E-509.
6.	TO CONNECT CONDENSER TO INTERNAL UNIT, FOLLOW MANUFACTURER INSTRUCTIONS.
7.	FOR AC UNIT CONDENSERS, USE 2P-25A BREAKER SIZE AT POWER PANEL.
8.	FOR AC UNIT CONDENSERS, USE 2C-#10AWG RW90 CU CABLE IN 21mm CONDUIT. INTERIOR CONDUIT TO BE EMT AND OUTDOOR CONDUIT PVC.
9.	THE POWER CABLE FROM POWER PANEL SHALL BE PULLED AT ROOF TO CONNECT POWER TO AC CONDENSER. BRING THE POWER CABLE USING SIMILAR PATH AS FOR REFRIGERANT PIPES.
10.	FOR CONNECTING CONDENSER TO IU UNIT, FOLLOW MANUFACTURER INSTRUCTIONS.
11.	CLOUDED AREA AT POWER PANEL SCHEDULE INDICATE THE PLACE FOR NEW BREAKERS REQUIRED TO INSTALL NEW EQUIPMENT.
12.	ALL AC UNITS TO BE RECONNECTED TO EXISTING AUTOMATION SYSTEM FOR SHUTDOWN UPON FIRE ALARM.



5 SPLIT UNIT WIRING  
E510 SCALE: N.T.S.