

U66A - HVAC UPGRADE

1920 RESEARCH RD, OTTAWA, ON

MECHANICAL



GENERAL NOTES

- CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION AND REPORT ANY ERRORS OR OMISSIONS TO DEPARTMENTAL REPRESENTATIVE.
- CONTRACTORS MUST VISIT THE SITE & FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK.
- PREVENT THE SPREAD OF DUST & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION.
- MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.
- COORDINATE ALL SHUTDOWNS WITH THE DEPARTMENTAL REPRESENTATIVE.
- PROVIDE ALL LABOUR AND MATERIAL REQUIRED TO FORM A COMPLETE, FUNCTIONAL SYSTEM AS DESCRIBED ON DRAWINGS.

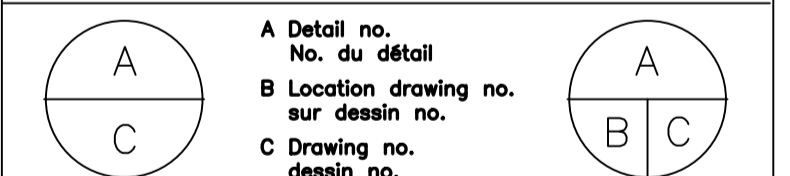


DATE	REVISION	REF
2018-11-27	ISSUED FOR PERMIT / TENDER	4
2018-10-10	ISSUED FOR REVIEW - MECHANICAL	3
2018-07-31	ISSUED FOR TENDER - ELECTRICAL	2
2018-07-27	ISSUED FOR 100% REVIEW - ELECTRICAL	1



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 613 727-5111 Fax 613 727-5115
 www.gwal.com Web
 GWAL Project #2018-454

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



project project

U66A - HVAC UPGRADE
1920 RESEARCH RD, OTTAWA

drawing
MECHANICAL
 GENERAL NOTES, LEGENDS,
 & SCHEDULES

designed	conçu	date	date
RL		OCT. 2018	
drawn	dessiné	scale	échelle
K.N.		AS NOTED	
checked	vérifié	sheet	feuille
RL		1 of/de 3	
approved	approuvé	W.O.no.	D.T.no.

dwg.no. **5471-M01** dessin no.

GENERAL NOTES:

- ALL WORK SHOWN OR IMPLIED ON THESE DRAWINGS SHALL BE CARRIED OUT IN ACCORDANCE WITH:
 - ALL CODES AND LAWS APPLICABLE (OBC)
 - INSTRUCTIONS TO BIDDERS
 - IN ACCORDANCE WITH SMACNA-LATEST EDITION (DUCTWORK)
 - IN ACCORDANCE WITH FM & NFPA (FIRE PROTECTION)
 - IN ACCORDANCE WITH ULC STANDARDS
- PRIOR TO SUBMITTING TENDERS, EACH TRADE SHALL EXAMINE THE SITE TO DETERMINE THE CONDITIONS WHICH MAY AFFECT THE PROPOSED WORK. NO CLAIM FOR EXTRA PAYMENT WILL BE CONSIDERED BECAUSE OF FAILURE TO FULFILL THIS CONDITION. START OF WORK WILL BE DEEMED EVIDENCE OF ACCEPTANCE OF, AND SATISFACTION WITH, EXISTING CONDITIONS.
- THE DRAWINGS SHALL BE CONSIDERED TO SHOW THE GENERAL CHARACTER AND SCOPE OF THE WORK AND NOT THE EXACT DETAILS OF THE INSTALLATION. THE INSTALLATION SHALL BE COMPLETE WITH ALL ACCESSORIES REQUIRED FOR A COMPLETE AND OPERATIVE INSTALLATION.
- MECHANICAL CONTRACTOR IS RESPONSIBLE TO FIELD MEASURE LOCATION OF NEW OR RELOCATED EQUIPMENT TO VERIFY CLEARANCES WITH THE MANUFACTURER PRIOR TO ORDERING.
- THESE MECHANICAL DRAWINGS MUST BE READ IN CONJUNCTION WITH THE ARCHITECTURAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS.
- THE WORD "PROVIDE" SHALL DENOTE "SUPPLY AND INSTALL". THE WORD "TAB" SHALL DENOTE "TESTING, ADJUSTING, AND BALANCING".
- CONTRACTOR SHALL FOLLOW THE BIDDING DOCUMENT PROJECT SCHEDULE. UPON AWARD, CONTRACTOR SHALL SUBMIT WORK SCHEDULE TO PROJECT MANAGER & ENGINEER FOR APPROVAL.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE THE WORK WITH ALL OTHER TRADES AND THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR COMMUNICATING SAFETY REQUIREMENTS TO ITS EMPLOYEES AND COMPLYING WITH OCCUPATIONAL HEALTH AND SAFETY ACT.
- CONTRACTOR TO PROVIDE, PRIOR TO COMMENCEMENT OF WORK, ONTARIO MINISTRY OF LABOUR CONTRACTOR REGISTRATION FORM AS WELL AS A CURRENT SIGNED AND DATED CORPORATE HEALTH AND SAFETY POLICY.
- CONTRACTOR TO PROVIDE FOR THE USE OF HIS WORK FORCE A FIRST AID KIT ACCEPTABLE TO WSIB AND MOL.
- PAY ALL REQUIRED FEES AND PERMITS.
- WORKMANSHIP AND MATERIALS SHALL MATCH OR EXCEED THAT OF THE EXISTING AS PRESENTED BY THE PROJECT MANAGER.
- ALL WORK TO BE CONDUCTED DURING HOURS SPECIFIED BY THE PROJECT MANAGER.
- ALL CHANGES AND CONNECTIONS TO EXISTING SERVICES, REQUIRING THE SHUTDOWN OF THAT SERVICE SHALL BE DONE AT THE TIME DESIGNATED BY THE PROJECT MANAGER, UNLESS OTHERWISE STATED.
- THE CONTRACTOR SHALL AT ALL TIMES KEEP PREMISES FREE FROM THE ACCUMULATION OF WASTE MATERIAL TO THE SATISFACTION OF THE PROJECT MANAGER. THE CLEANING OF THE AFFECTED AREA SHALL BE CONTINUOUS. PLACE DUST PROTECTION IN THE FORM OF COVER SHEETS OVER EQUIPMENT AND FURNITURE TO ENSURE NO DUST INFILTRATION.
- EQUIPMENT REQUIRING CONNECTION TO AN ELECTRICAL POWER SOURCE SHALL BE CSA OR ULC APPROVED FOR USE AT LOCATION OF INSTALLATION.
- COORDINATE MATERIAL STORAGE WITH THE SITE SUPERINTENDENT AND OTHER TRADES.
- MANUFACTURER'S INSTRUCTIONS REGARDING THE HANDLING, INSTALLATION AND TESTING OF EQUIPMENT SPECIFIED HEREIN SHALL BE CONSIDERED PART OF THIS SPECIFICATION.
- SUPPLY TOOLS, EQUIPMENT AND PERSONNEL TO DEMONSTRATE AND INSTRUCT OPERATING AND MAINTENANCE PERSONNEL IN OPERATING, CONTROLLING, ADJUSTING, TROUBLESHOOTING AND SERVICING OF ALL SYSTEMS AND EQUIPMENT DURING REGULAR WORK HOURS, PRIOR TO ACCEPTANCE.
- MECHANICAL CONTRACTOR SHALL OBTAIN AND PAY FOR HOISTING AND REMOVAL OF MECHANICAL EQUIPMENT. COORDINATE HOISTING SCHEDULE WITH PROJECT MANAGER. TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO PUBLIC AND PRIVATE PROPERTY. USE PROPER BARRIERS AND/OR PERSONNEL TO ENSURE HOISTING SAFETY FOR EMPLOYEES AND PUBLIC. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EQUIPMENT AND/OR PROPERTY DURING HOISTING. ARRANGE AND PAY FOR ANY REQUIRED PERMITS.
- INSPECT ALL NEW AND/OR RELOCATED EQUIPMENT UPON DELIVERY AND/OR RELOCATION AND NOTIFY PROJECT ENGINEER OF ANY DAMAGE OR DEFICIENCIES.
- ALL EQUIPMENT, PIPING, DUCTWORK AND WIRING SHALL BE SUSPENDED FROM THE BUILDING STRUCTURE.
- PROVIDE BLACK WITH WHITE WRITING LAMACOID PLATE ON ALL NEW EQUIPMENT. LABEL UNIT AS SHOWN ON DRAWINGS. LETTERING SIZE TO BE MINIMUM 25MM HIGH. MOUNT NEAR CONTROL SECTION OF THE UNIT.
- PROVIDE CUTTING, PATCHING AND CORING OF ALL WALLS, CEILING AND OTHER SURFACES AS REQUIRED FOR MECHANICAL WORK. CHECK WITH BUILDING MANAGEMENT PRIOR TO CORE DRILLING AND CUTTING OF FLOOR SLAB REGARDING BUILDING REQUIREMENTS AND POLICES. PRIOR TO SLAB CUTTING OR CORING, SCAN THE SLAB USING GPR TECHNOLOGY AND COORDINATE DRILLING TO MINIMIZE CUTTING OF THE REINFORCING STEEL AND CONDUIT. FIRE STOP ALL NEW FIRE RATED PENETRATIONS. THE CONTRACTOR IS TO INCLUDE IN TENDER PRICE ALL WORK ASSOCIATED WITH CORE DRILLING AFTER NORMAL WORKING HOURS. OBTAIN WRITTEN VERIFICATION OF LOCATIONS FROM THE STRUCTURAL ENGINEER OF RECORD PRIOR TO DRILLING. CUTTING TORCHES SHALL NOT BE USED FOR MAKING HOLES. PATCH ALL HOLES THROUGH SLAB WITH FIRE-STOP CAULKING (ULC LISTED). PATCHED SURFACES ARE TO BE PRIMED FINISHED, READY FOR FINAL COVERING BY OTHERS (COORDINATE WITH ROOFING CONTRACTOR).
- CONTRACTOR SHALL BE RESPONSIBLE FOR DEACTIVATION, DRAINING, REFILLING AND REACTIVATING OF WET PIPE SPRINKLER SYSTEM OR STANDPIPE ON A DAILY BASIS. COORDINATE WITH OWNER.
- PIPING LAYOUT ILLUSTRATED ON DRAWINGS INDICATES GENERAL ROUTING OF PIPE WORK AND DOES NOT SHOW ALL FITTINGS AND OFFSETS REQUIRED FOR COMPLETE INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PIPING FITTINGS & OFFSETS REQUIRED FOR COORDINATED INSTALLATION WITH OTHER SYSTEMS (DUCTWORK, PIPING, CONDUITS, LIGHTS, ETC.)
- CONTRACTOR SHALL BE RESPONSIBLE FOR DEACTIVATION, DRAINING AND REFILLING OF DOMESTIC WATER SYSTEMS TO ALLOW PLUMBING FIXTURE REPLACEMENTS.
- PROTECT EXISTING AIR HANDLING SYSTEM FROM CONSTRUCTION DUST. PROVIDE FILTER MEDIA ON RETURN OPENINGS, FASTEN SECURELY TO THE RETURN DUCT INLET; REPLACE DURING CONSTRUCTION AS REQUIRED. APPROVED MATERIAL: AIRGUARD TR200 OR APPROVED EQUAL.
- DUCT SIZES INDICATED ON DRAWINGS WHERE ACOUSTICALLY LINED ARE FREE AREA SIZES AND NOT SHEET METAL SIZES.
- COORDINATE DUCTWORK ROUTING PRIOR TO DUCT FABRICATION; IF MODIFICATIONS ARE REQUIRED, REVISE DUCT SIZE TO MAINTAIN CROSS SECTIONAL AREA.
- ALLOW FOR 1500 MM OF ADJUSTMENT FOR EXACT LOCATION OF AIR HANDLING UNITS, PUMPS, DUCTS, PIPING, ETC. AT NO EXTRA COST OR CREDIT.
- PRIOR TO CLOSING OF CEILING, MECHANICAL CONTRACTOR SHALL NOTIFY THE ENGINEER THAT AN INSPECTION IS REQUIRED BEFORE PROCEEDING.
- CONTRACTOR TO NOTIFY PROJECT MANAGER 3 DAYS BEFORE SCHEDULED SUBSTANTIAL COMPLETION TO ARRANGE INTERIM INSPECTION AND EQUIPMENT COMMISSIONING. NOTIFY PROJECT MANAGER IN WRITING OF ANY CHANGES IN SCHEDULE.
- WARRANTY PERIOD SHALL BE FOR TWELVE (12) MONTHS AFTER THE DATE OF SUBSTANTIAL COMPLETION AS DETERMINED BY ENGINEER.
- SUBMITTALS:
 - SUBMIT ONE(1) COPY OF SHOP DRAWINGS AND PRODUCT DATA IN ELECTRONIC PDF FORMAT FOR ENGINEER'S REVIEW PRIOR TO PURCHASING AND ORDERING. HARD COPY SHOP DRAWINGS WILL NOT BE ACCEPTED. REVIEWED ELECTRONIC SHOP DRAWINGS WILL BE RE-DISTRIBUTED AS PER PROJECT MANAGER'S INSTRUCTIONS. SHOP DRAWINGS SHALL INCLUDE ALL SPECIFIED EQUIPMENT & SYSTEMS.
 - PROVIDE SUBMITTALS IN ACCORDANCE WITH APPLICABLE CODES REQUIRED FOR OCCUPANCY INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - PLUMBING & UTILITIES:
 - SEISMIC CERTIFICATION LETTER SUBMITTED.
 - HVAC:
 - SEISMIC CERTIFICATION LETTER SUBMITTED.
 - MECHANICAL SCOPE OF WORK CONSIDERED COMPLETE WHEN THE FOLLOWING ITEMS HAVE BEEN RECEIVED AND REVIEWED BY ENGINEER:
 - ALL SHOP DRAWINGS LISTED IN THIS SPECIFICATION.
 - BALANCING REPORT IN ACCORDANCE WITH TAB SECTION IN SPECIFICATIONS.
 - AS-BUILT DRAWINGS SHOWING AS-BUILT CONDITIONS COMPLETE WITH RED LINED MARKUPS TO PROJECT MANAGER WITH CONTRACTOR'S SIGNATURE.
 - START-UP REPORT FROM MANUFACTURER OF EQUIPMENT.
 - THREE (3) COPIES OF OPERATIONS AND MAINTENANCE MANUALS CONTAINING ALL ITEMS PREVIOUSLY REVIEWED BY ENGINEER IN A THREE RING BINDER AND DIVIDERS ORGANIZING ALL SUBMISSIONS BY EACH MECHANICAL TRADE. OPERATIONS MANUAL TO ALSO INCLUDE THE FOLLOWING BUT SHALL NOT BE LIMITED TO:
 - LIST OF TRADES INVOLVED AND CONTACT INFORMATION.
 - CONTRACTOR'S LETTER OF WARRANTY.
 - ALL LETTERS REQUIRED FOR WORKPLACE CONFORMANCE.

DEHUMIDIFICATION UNIT SCHEDULE														
FAN COIL (INDOOR UNIT)						FLUID COOLER						REMARKS		
TAG	LOCATION	CAPACITY (kW)	INDOOR DESIGN CONDITIONS (TDB/°RH)	ELECTRICAL DATA		BASIS OF DESIGN MAKE/MODEL	TAG	LOCATION	CAPACITY (kW)	AMBIENT TEMP (°C)	ELECTRICAL DATA		BASIS OF DESIGN	
				MCA/MOP	V/PH/Hz						MCA/MOP			V/PH/Hz
66DHU01	AS INDICATED	1.8	22/50	14/20	575/3/60	DECTRON DS-035-NM-1-GONT4302N0G2AE0	66DRY01	AS INDICATED	0.56	35	6/15	575/3/60	DECTRON NG-V-02	* C/W INTEGRAL PUMP KIT AND CONTROL, 50% PROPYLENE GLYCOL

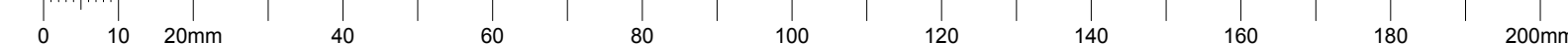
NOTES: 1. FOR DETAILS REFER TO SPECIFICATIONS.
 2. MANUFACTURER NAME & MODEL NUMBER REPRESENT ACCEPTABLE QUALITY STANDARD ONLY.
 3. ALTERNATIVE MATERIALS MAY BE APPROVED AFTER REVIEW OF TECHNICAL INFORMATION BY ENGINEER.

DRAWING LIST	
SYMBOL	DESCRIPTION
M1	MECHANICAL - GENERAL NOTES, LEGENDS & SCHEDULES
M2	MECHANICAL - SPECIFICATIONS
M3	MECHANICAL - HVAC NEW WORK

GENERAL LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING PIPING/DUCTWORK/EQUIPMENT
----	EXISTING PIPING/DUCTWORK/EQUIPMENT TO BE REMOVED/RELOCATED
---	NEW/RELOCATED PIPING/DUCTWORK/EQUIPMENT
----	EXISTING PIPING/DUCTWORK/EQUIPMENT BELOW SLAB
----	NEW PIPING/DUCTWORK/EQUIPMENT BELOW SLAB
(E)	DENOTES EXISTING EQUIPMENT
(R)	DENOTES RELOCATED EQUIPMENT
(N)	DENOTES NEW EQUIPMENT
(X)	DENOTES EQUIPMENT TO BE REMOVED

PLUMBING LEGEND	
SYMBOL	DESCRIPTION
—○—	PIPING OFFSET
—○—	BRANCH PIPING DOWN
—○—	PIPING DOWN
—○—	PIPING UP
—○—	REDUCER
⊥	PIPE BREAK
⊥	P-TRAP
⊥	ISOLATION VALVES
⊥	CHECK VALVE
⊥	STRAINER
⊥	FLEXIBLE PIPE
⊥	CIRCUIT BALANCING VALVE
⊥	SAFETY RELIEF VALVE (SRV)
⊥	UNION
⊥	PRESSURE GAUGE
⊥	THERMOMETER
⊥	PUMP
⊥	FLOOR DRAIN (TYPE)
⊥	HUMIDITY SENSOR

C



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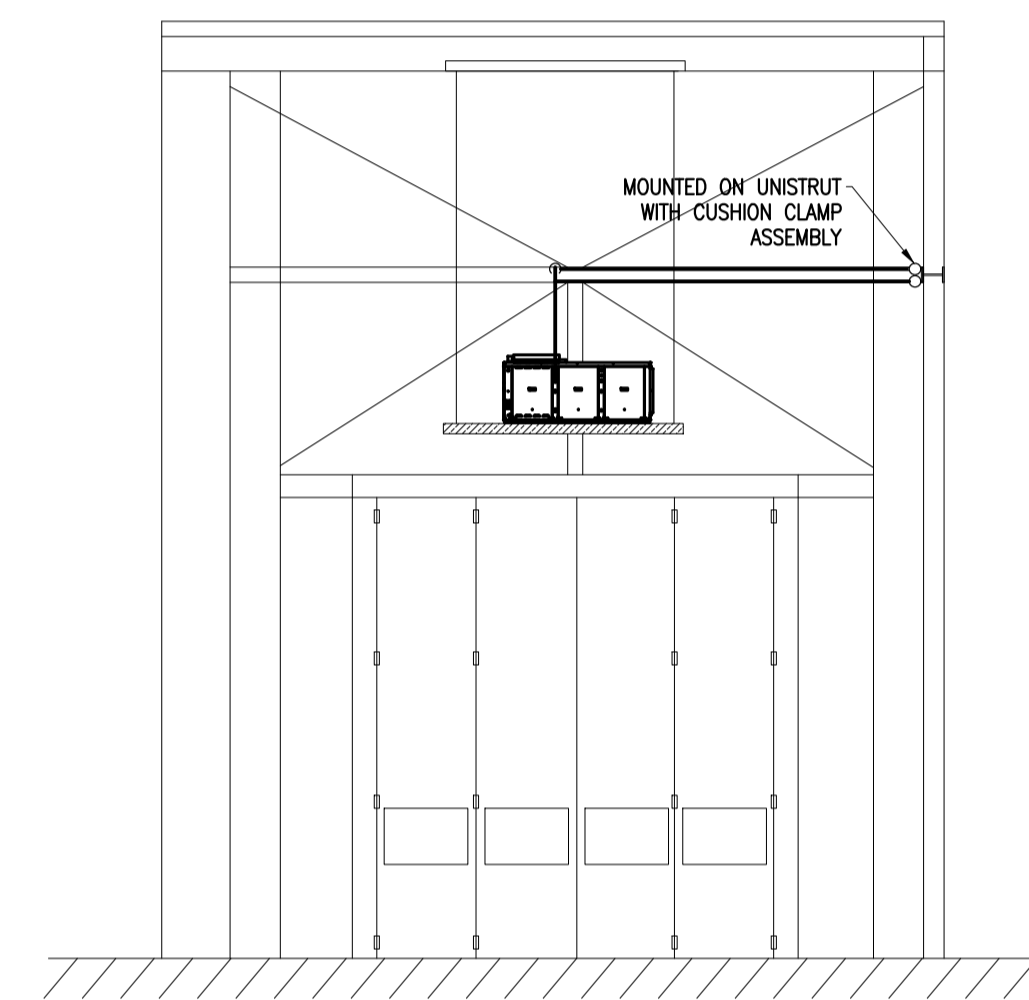
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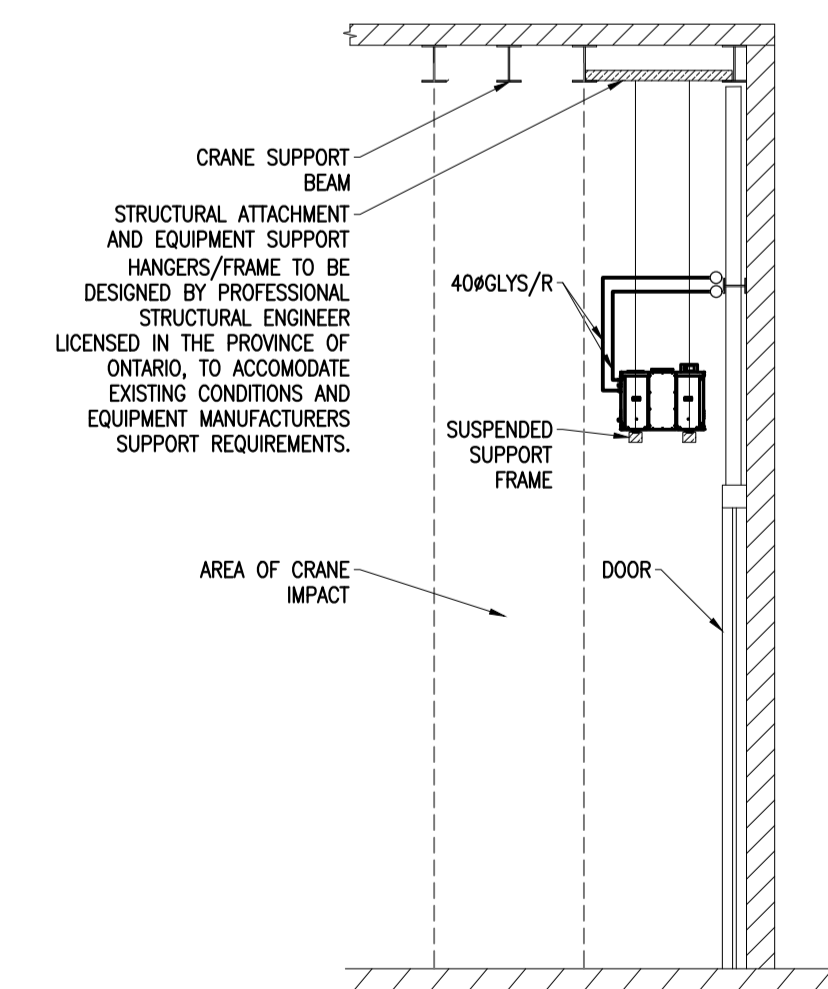
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HVAC - NEW WORK

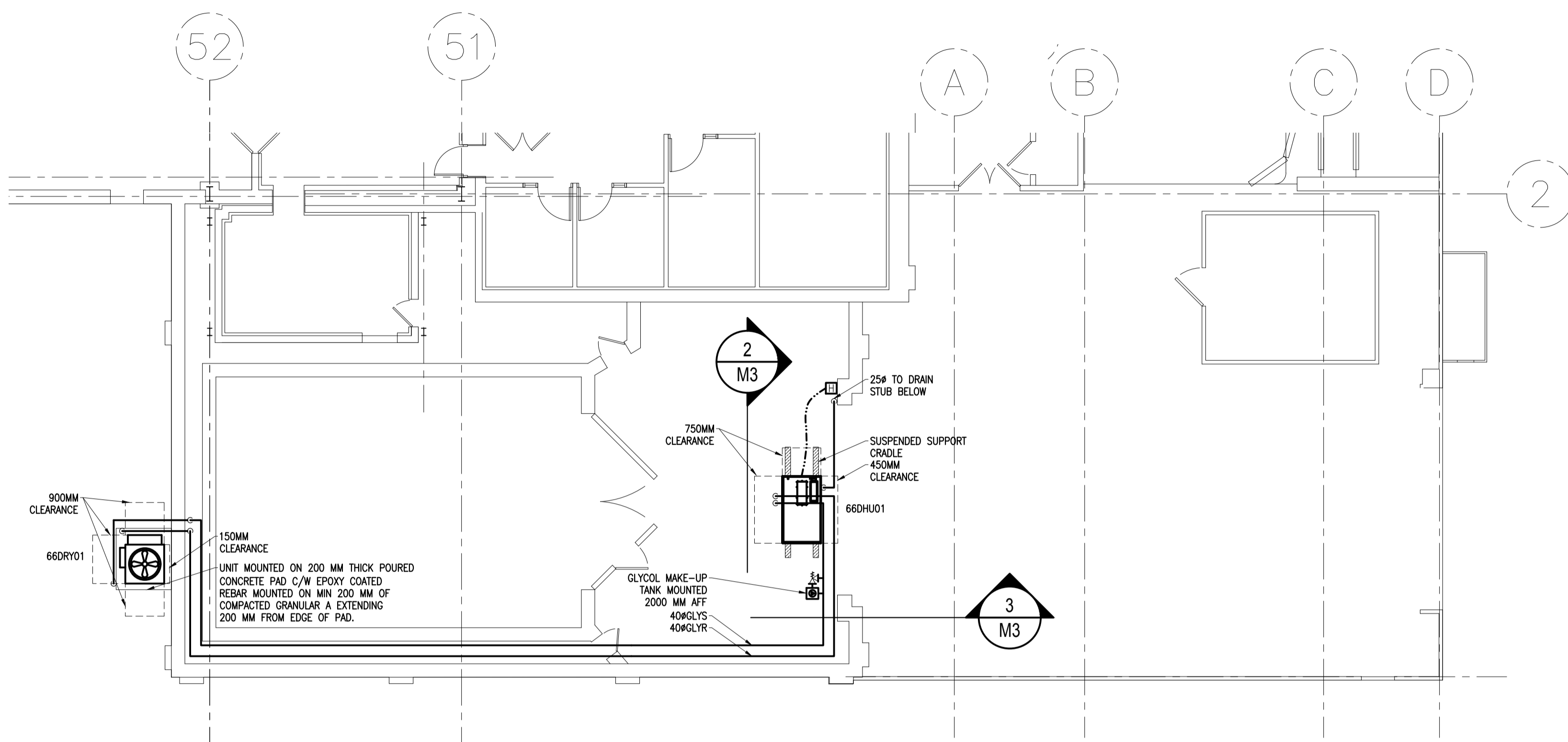
- PROVIDE NEW DEHUMIDIFIER (66DHU01) AND CONDENSING UNIT (66DRY01) AS INDICATED C/W ASSOCIATED PIPING, GLYCOL MAKE-UP TANK, AND ACCESSORIES. REFER TO SCHEDULE ON PAGE M01. GLYCOL SUPPLY AND RETURN PIPING TO BE ROUTED ALONG SUPPORT BEAM APPROX. 9000 MM AFF AS INDICATED AND SECURED TO UNISTRUTS MOUNTED ALONG BEAM USING CUSHION CLAMPS.
- PROVIDE NEW CONTROLLER, WIRING, PROGRAMMING AND NEW SPACE TEMPERATURE AND HUMIDITY SENSOR C/W USER ADJUSTABLE SET POINT CONTROL AND ON/OFF OVERRIDE CAPABILITY BY LOCAL USER. BAS TO MONITOR GENERAL ALARM FROM UNIT, SPACE TEMPERATURE AND HUMIDITY, FLUID COOLER STATUS, DEHUMIDIFIER STATUS. COORDINATE ALL NEW CONTROLS WITH EQUIPMENT MANUFACTURER AND PROVIDE NEW DEVICES AND WIRING TO SUIT REQUIRED CONTROL STRATEGY.



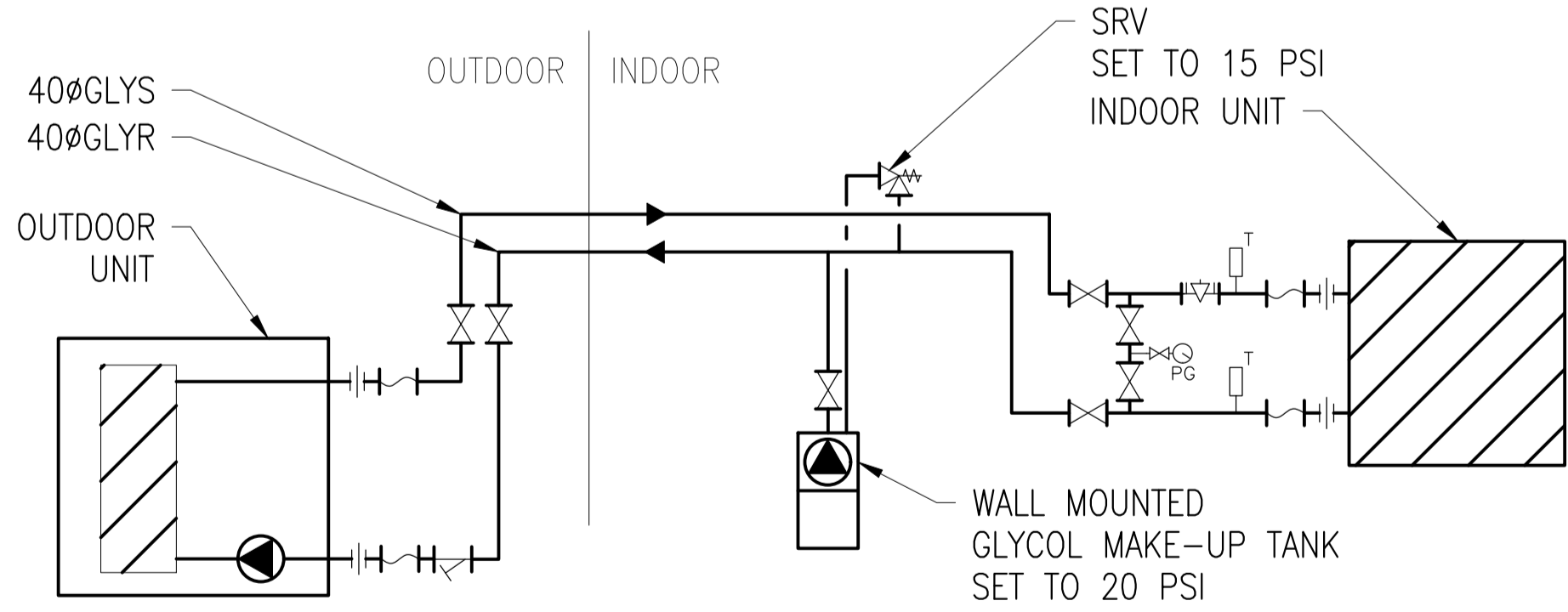
2
 MECHANICAL DEHUMIDIFIER MOUNTING DETAIL
 5471-M03 1:100



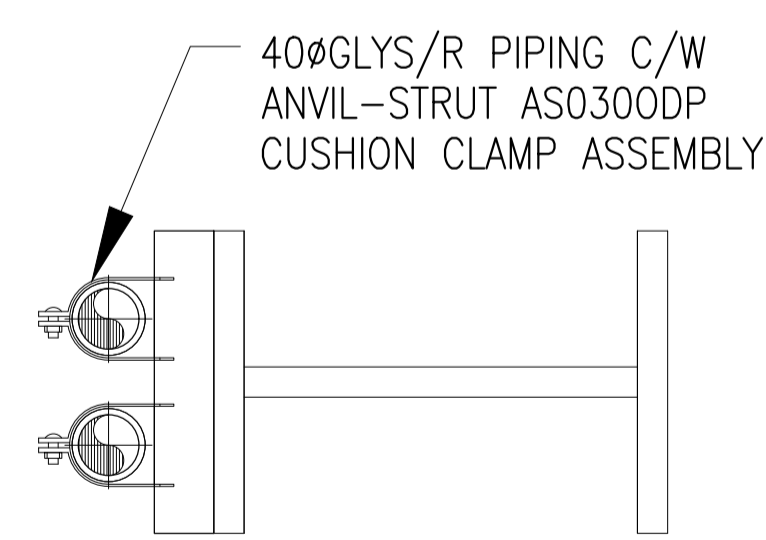
3
 MECHANICAL DEHUMIDIFIER MOUNTING DETAIL
 5471-M03 1:100



1
 MECHANICAL HVAC - NEW WORK
 5471-M03 1:100



4
 MECHANICAL CONNECTION DETAIL
 5471-M03 1:100



5
 MECHANICAL PIPE MOUNTING DETAIL
 5471-M03 NTS

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

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

project **U66A - HVAC UPGRADE** projet

1920 RESEARCH RD, OTTAWA

drawing **MECHANICAL HVAC NEW WORK** dessin

designed	conçu	date	date
RL		OCT. 2018	
drawn	dessiné	scale	échelle
K.N.		AS NOTED	
checked	vérifié	sheet	of/de
RL		3	3
approved	approuvé	W.O.no.	D.T.no.

dwg.no. **5471-M03** dessin no.

GENERAL NOTES / TYPICAL DETAILS

GENERAL

THE GENERAL NOTES AND TYPICAL DETAILS ARE APPLICABLE TO ALL STRUCTURAL CONDITIONS NOT SPECIFICALLY DETAILED OR REFERENCED ON STRUCTURAL DRAWINGS.

THESE DRAWINGS ARE FOR THE USE OF THE CONSULTANT'S CLIENT ONLY. ALL INFORMATION SHOWN APPLIES TO THIS PROJECT ONLY AND REFLECTS THE BEST JUDGEMENT OF THE CONSULTANT IN LIGHT OF THE AVAILABLE INFORMATION AT THE TIME OF PREPARATION. DECISIONS OR ACTIONS MADE BY THIRD PARTIES BASED ON THE DRAWINGS ARE THE SOLE RESPONSIBILITY OF SUCH PARTIES.

THESE DRAWINGS ARE THE PROPERTY OF ADJELEIAN ALLEN RUBELI LTD. AND MAY NOT BE REPRODUCED IN ANY FORM WITHOUT WRITTEN PERMISSION.

CODES AND STANDARDS

DESIGN AND CONSTRUCTION TO BE IN ACCORDANCE WITH THE NATIONAL BUILDING CODE OF CANADA 2015, AND THE TERM "BUILDING CODE" THROUGHOUT THESE DRAWINGS MEANS THAT CODE.

THE FOLLOWING STANDARDS MAY BE REFERRED TO BY SHORT FORM ON THESE DRAWINGS:

STANDARD	TITLE/DESCRIPTION	SHORT FORM
ASTM A1085-13	COLD-FORMED WELDED CARBON STEEL HOLLOW STRUCTURAL SECTIONS (HSS)	ASTM A1085
CSA S16-09	DESIGN OF STEEL STRUCTURES	CSA S16

REFERENCES ARE TO METRIC VERSIONS OF STANDARDS, UNLESS CONTEXT DICTATES OTHERWISE. SHORT FORM REFERENCES TO CSA STANDARDS MAY SOMETIMES OMIT "CSA".

REFERENCES INCLUDE ALL PUBLISHED ERRATA AND SUPPLEMENTS, UNLESS NOTED OTHERWISE.

ABBREVIATIONS AND SYMBOLS

IN ADDITION TO NORMAL ABBREVIATIONS AND SYMBOLS FOR UNITS OF MEASUREMENT (SI UNITS AND US CUSTOMARY UNITS) OR DEFINED IN THE BUILDING CODE AND VARIABLES DESCRIBED ON THE DRAWINGS, THE FOLLOWING ABBREVIATIONS MAY HAVE BEEN USED ON THESE DRAWINGS, WITH OR WITHOUT PERIODS AND SOMETIMES IN COMBINATION:

AFF	ABOVE FINISHED FLOOR	L.L.	LIVE LOAD OR LOWER LAYER
B	BOTTOM	LLH	LONG LEG HORIZONTAL
BOT.	BOTTOM	LLV	LONG LEG VERTICAL
BPL	BASE PLATE	M	MOMENT
BRG	BEARING	MIRR.	MIRRORED
C	CHANNEL OR COMPRESSION	N.F.	NEAR FACE
c/c	CENTRE TO CENTRE	N.I.C.	NOT IN CONTRACT
CJ	CONTROL JOINT	N.T.S.	NOT TO SCALE
CONC.	CONCRETE	O.F.	OUTSIDE FACE
CONT.	CONTINUOUS	OPP.	OPPOSITE
c/w	COMPLETE WITH (INCLUDING)	P.C.	PRECAST CONCRETE OR PILECAP
D.L.	DEAD LOAD	PCO	PILE CUT-OFF
DIM.	DIMENSION	PL	PLATE
EA.	EACH	REINF.	REINFORCING
E.E	EACH END	REQ'D	REQUIRED
E.F.	EACH FACE	R.O.	ROUGH OPENING
E.J.	EXPANSION JOINT	SEC	SECTION
E.S.	EACH SIDE	S.O.G.	SLAB ON GRADE
EXP. JT	EXPANSION JOINT	STD	STANDARD
EX.	EXISTING	T	TOP OR TENSION FORCE
EXIST.	EXISTING	T/	TOP OF
E.W.	EACH WAY	T.O.	TOP OF
EL.	ELEVATION	TJ	TIE JOIST
EXT.	EXTERIOR	T.O.S.	TOP OF STEEL OR TOP OF SLAB
F	FORCE, AXIAL FORCE	T.O.W.	TOP OF WALL
F.F	FAR FACE	TYP.	TYPICAL
F.D.	FLOOR DRAIN	U.L.	UPPER LAYER
FDN	FOUNDATION	U/N	UNLESS NOTED
FTG	FOOTING	U/S	UNDERSIDE
FL	FLOOR	V	VERTICAL OR SHEAR FORCE
GALV.	GALVANIZED	VERT.	VERTICAL
H	HORIZONTAL	V.O.S.	VERIFY ON SITE
HOR.	HORIZONTAL	W/M	WELDED WIRE MESH
I.F.	INSIDE FACE	⊕	AT (SPACING CENTRE TO CENTRE)
INT.	INTERIOR	∅	DIAMETER
INCL.	INCLUDING		
L	LENGTH OR STEEL ANGLE		
Ld	REINFORCEMENT DEVELOPMENT LENGTH (TENSION UNLESS NOTED OTHERWISE)		

OTHER ABBREVIATIONS MAY BE USED IN CONTEXT - REQUEST CLARIFICATION IF UNSURE

SHOP DRAWINGS, SUBMITTALS AND DESIGN DETAILING CRITERIA FOR SUPPLIERS:

GENERAL: REPRODUCTIONS OF THE STRUCTURAL DRAWINGS SHALL NOT BE ACCEPTED AS SHOP DRAWINGS.

"PROFESSIONAL ENGINEER" IN THE FOLLOWING PARAGRAPHS AND THROUGHOUT THESE DRAWINGS MEANS A PROFESSIONAL ENGINEER REGISTERED IN AND LICENSED TO PRACTICE IN THE PROVINCE OF ONTARIO AND THE ENGINEER'S SEAL SHALL INCLUDE THEIR STAMP, THEIR SIGNATURE AND THE DATE OF SEALING.

REVIEW OF DRAWINGS APPLIES TO GENERAL ARRANGEMENT ONLY FOR THE PURPOSE OF ASCERTAINING CONFORMANCE WITH THE GENERAL DESIGN CONCEPT. THIS REVIEW DOES NOT IMPLY APPROVAL OF DETAIL DESIGN OR QUANTITIES IN SUBMITTED DRAWINGS, NOR DOES IT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY FOR MAKING THE WORK COMPLETE, ACCURATE AND IN ACCORDANCE WITH THE STRUCTURAL DRAWINGS. ALLOW 15 WORKING DAYS FOR SHOP DRAWING REVIEW.

DO NOT FABRICATE MATERIALS BASED ON REJECTED OR DISAPPROVED SHOP DRAWINGS.

DOCUMENT SUBMISSIONS SHALL INCLUDE FOR EACH DOCUMENT ELECTRONIC FILES IN PDF FORMAT DELIVERED BY EMAIL TO SUBMITTALS@AAR.CA, UNLESS OTHER FORMATS AND/OR METHODS OF DELIVERY ARE AGREED IN WRITING IN ADVANCE OF SUBMISSION.

PAPER DOCUMENTS SUBMITTED IN LIEU OF ELECTRONIC DOCUMENTS SHALL INCLUDE 2 COPIES AND 1 REPRODUCIBLE FOR EACH DOCUMENT.

STRUCTURAL STEEL: SUBMIT WITH SHOP DRAWINGS: DECKING PLAN, PROFILE, DIMENSIONS, CORE THICKNESS, CONNECTIONS TO SUPPORTS, REQUIRED BEARINGS, CLOSURES AND ACCESSORIES.

SUBMIT FOR REVIEW ERECTION DRAWINGS WITH ALL FIELD WORK DETAILS FOR ALL STRUCTURAL STEEL ELEMENTS. ALL STEEL-TO-STEEL CONNECTIONS SHALL BE DESIGNED BY AND THE DRAWINGS SEALED BY A PROFESSIONAL ENGINEER.

SHOP DRAWING SUBMITTALS SHALL INCLUDE STEEL BEAM AND COLUMN CONNECTIONS AND STEEL JOIST DETAILS ALONG WITH DESIGN CALCULATIONS. JOIST CALCULATIONS SHALL BE SEALED BY A PROFESSIONAL ENGINEER.

JOIST FABRICATOR TO SUBMIT LAYOUT DRAWINGS FOR JOISTS TO ALLOW CO-ORDINATION OF RELATED INSERTS BY GENERAL CONTRACTOR.

STRUCTURAL STEEL CONNECTIONS SHALL BE DESIGNED TO RESIST THE INDICATED FACTORED MEMBER REACTIONS BY A PROFESSIONAL ENGINEER WHO WILL ALSO SEAL AND SIGN THE SHOP DRAWINGS.

WELDING SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH CSA S16 AND CSA W59. WORK SHALL BE PERFORMED BY CONTRACTORS CERTIFIED AS PER CSA W47.1 AND MEMBERS OF THE CANADIAN WELDING BUREAU.

WHERE DESIGN REACTIONS ARE NOT INDICATED USE THE MAXIMUM REACTION FOR SPAN FROM CISC BEAM LOAD TABLES. FOR COMPOSITE BEAMS INCREASE MAXIMUM REACTION BY 30% (1.3 TIMES).

STEEL STRUCTURES DESIGNED TO RESIST SEISMIC FORCES; STEEL CONNECTIONS SHALL BE DESIGNED TO CSA S16, CLAUSE 27.

SOURCE OF STRUCTURAL STEEL (INCLUDING FASTENERS AND CFS): ALL STEEL TO MEET SPECIFIED STANDARDS AND THE FOLLOWING: PROVIDE MILL CERTIFICATES FOR ALL STEEL. PROVIDE TRACING REPORT SHOWING CHAIN OF CUSTODY FROM POINT OF ORIGIN TO SITE. ALL STEEL SHALL HAVE A BORON CONTENT OF NOT MORE THAN 0.0008% BY MASS (8 PARTS IN ONE MILLION BY MASS). STEEL ORIGINATING FROM OUTSIDE OF CANADA, THE UNITED STATES AND THE EUROPEAN UNION SHALL ADDITIONALLY MEET THE FOLLOWING: PROVIDE MATERIAL TESTING TO CONFIRM THE CONFORMANCE TO THE RELEVANT STANDARDS AND THE MAXIMUM BORON CONTENT NOTED ABOVE. THIS TESTING SHALL BE PERFORMED IN CANADA BY AN ISO 17025 ACCREDITED TESTING LABORATORY.

DIMENSIONS

CHECK DIMENSIONS ON THESE DRAWINGS AGAINST DIMENSIONS ON SITE BEFORE USING THEM FOR FABRICATION OR CONSTRUCTION. REPORT DISCREPANCIES IMMEDIATELY UPON DISCOVERY.

DRAWINGS HAVE BEEN MADE REASONABLY TO SCALE BUT CONTRACTOR MUST NOT SCALE THE DRAWINGS.

RECORD DRAWINGS

CONTRACTOR SHALL MAINTAIN TWO SETS OF RECORD DRAWINGS, SHOWING AS-BUILT CONDITIONS OF ALL ASPECTS OF THE STRUCTURE, AVAILABLE FOR REVIEW DURING CONSTRUCTION, AND FOR SUBMISSION TO THE CONSULTANT AND THE OWNER UPON PROJECT COMPLETION.

INSPECTIONS AND TESTING

THE FOLLOWING ITEMS SHALL BE INSPECTED OR TESTED BY INDEPENDENT INSPECTION/ TESTING AGENCIES DESIGNATED BY THE CLIENT. MATERIALS AND WORKMANSHIP NOT CONFORMING TO THE SPECIFICATIONS SHALL BE REJECTED BY THE CONTRACTOR. REPORTS AND TEST RESULTS SHALL BE PROMPTLY SUBMITTED TO THE ENGINEER FOR REVIEW. TESTING SHALL INCLUDE BUT NOT BE LIMITED TO:

STRUCTURAL STEEL & CONNECTIONS: VERIFY THAT MATERIALS AND FABRICATION, INCLUDING ALIGNMENT, PLUMBNESS, BEARING, TOLERANCES, CONNECTIONS, BOLTS, TORQUE, WELDS, AND PAINTING CONFORM TO THE CONTRACT DOCUMENTS, TO CSA S16, TO CSA W59, AND TO OTHER APPLICABLE STANDARDS.

TIGHTNESS OF BOLTED CONNECTIONS AND CHECK ON BEARING, PLUMBNESS AND ALIGNMENT OF STEEL STRUCTURES.

WELDING INSPECTIONS TO BE VISUAL, EXCEPT WHERE NON-DESTRUCTIVE TESTING IS DEEMED NECESSARY BY THE TESTING AGENCY OR ENGINEER. NON-DESTRUCTIVE TESTING TO VERIFY THE QUALITY OF WELDING, WHERE DEEMED QUESTIONABLE BY VISIBLE DEFECTS OR WHERE REQUIRED BY THE ENGINEER.

SURFACE PREPARATION AND PAINT APPLICATION IN BOTH SHOP AND FIELD FOR EXPOSED PAINTED STRUCTURAL STEEL.

SUBMIT INSPECTION REPORTS, OUTLINING PROGRESS OF WORK, AND STATING WHETHER OR NOT IT CONFORMS TO THE CONTRACT DOCUMENTS.

STRUCTURAL STEEL

STRUCTURAL STEEL DESIGN AND CONSTRUCTION SHALL COMPLY WITH CSA S16, UNLESS OTHERWISE NOTED.

ITEM	APPLICABLE SPECIFICATION
W-SHAPES	CSA G40.20/G40.21 - 350W
C, MC AND L-SHAPES	CSA G40.20/G40.21 - 300W
HSS (TUBE)	CSA G40.20/G40.21 - 350W CLASS C OR ASTM A1085
PLATE AND BARS	CSA G40.20/G40.21 - 300W
BOLTS, NUTS AND WASHERS	ASTM A325M c/w A563M AND F436M

ALL STRUCTURAL STEEL TO BE PRIME PAINTED EXCEPT STEEL RECEIVING GALVANIZING, OR STEEL TO BE CAST IN CONCRETE.

ALL BEAM CONNECTIONS TO BE TWO-SIDED UNLESS NOTED.

PROVIDE A MINIMUM BEARING OF 200 MM FOR ALL STEEL BEARING ON CONCRETE AND 100 MM FOR STEEL BEARING ON STEEL UNLESS NOTED.

CENTRE ALL BEARING PLATES UNDER BEAMS UNLESS NOTED.

DO NOT CUT OR CORE ANY OPENINGS IN ANY STRUCTURAL STEEL MEMBERS WITHOUT PRIOR WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.

WHERE A STRUCTURAL STEEL SHAPE SHOWN ON THE DRAWINGS IS UNAVAILABLE, A SHAPE OF EQUAL OR GREATER SECTION PROPERTIES AND STRUCTURAL CAPACITY SHALL BE SUBSTITUTED, UPON APPROVAL BY OWNER AND CONSULTANT, AT NO EXTRA COST.

WHERE AN ALTERNATIVE MATERIAL IS REQUESTED, THE CONTRACTOR SHALL FORWARD ALL PRODUCT TECHNICAL INFORMATION FOR REVIEW BY THE ENGINEER.

BOLTS AND RODS SHALL BE SUPPLIED TO SITE AS AN ASSEMBLY WITH THEIR ASSOCIATED NUTS AND WASHERS.

THREADED COMPONENTS SHALL MEET ANSI/ASME B18.2.6M HEAVY HEX CLASS 2A.

THE APPLICABLE EDITIONS OF ALL ABOVE STANDARDS SHALL BE THOSE REFERENCED BY CSA S16 UNLESS NOTED OTHERWISE.

NOTES:

DIMENSIONS SHOWN ON THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNTIL THEY HAVE BEEN CHECKED AGAINST FINAL ARCHITECTURAL AND MECHANICAL DRAWINGS BY THE GENERAL CONTRACTOR.

0	2018-12-17	ISSUED FOR TENDER
A	2018-12-11	ISSUED FOR REVIEW

No.	Date	Revision

Adjeleian Allen Rubeli
Consulting Engineers



75 Albert Street, Ottawa, Ontario
4211 Yonge Street, Toronto, Ontario

AAR PROJECT 5564-19

Architect

Scale	By	Date	Checked
AS INDICATED	C.A	DEC, 2018	A.R

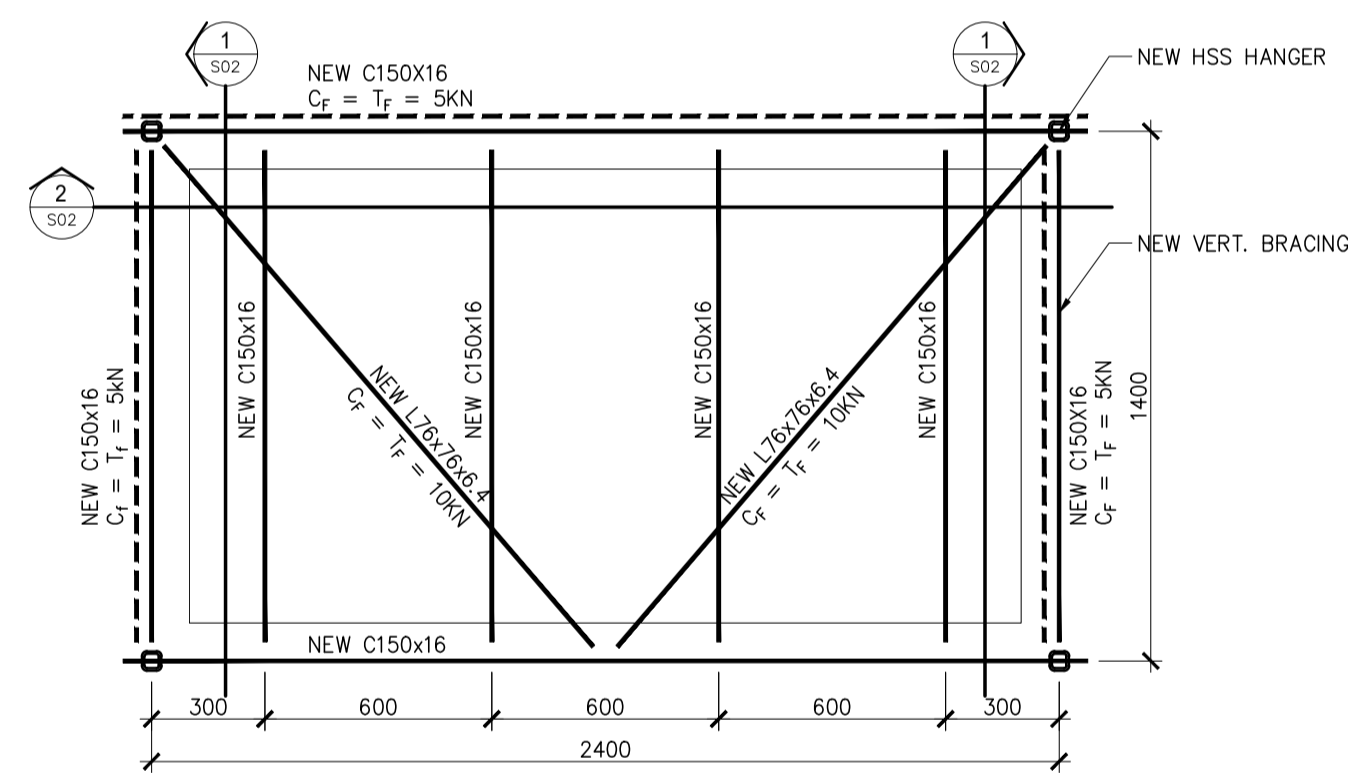
Project
**UPLANDS NRC
MECH UNIT PLATFORM**

Drawing
GENERAL NOTES AND TYPICAL
DETAILS

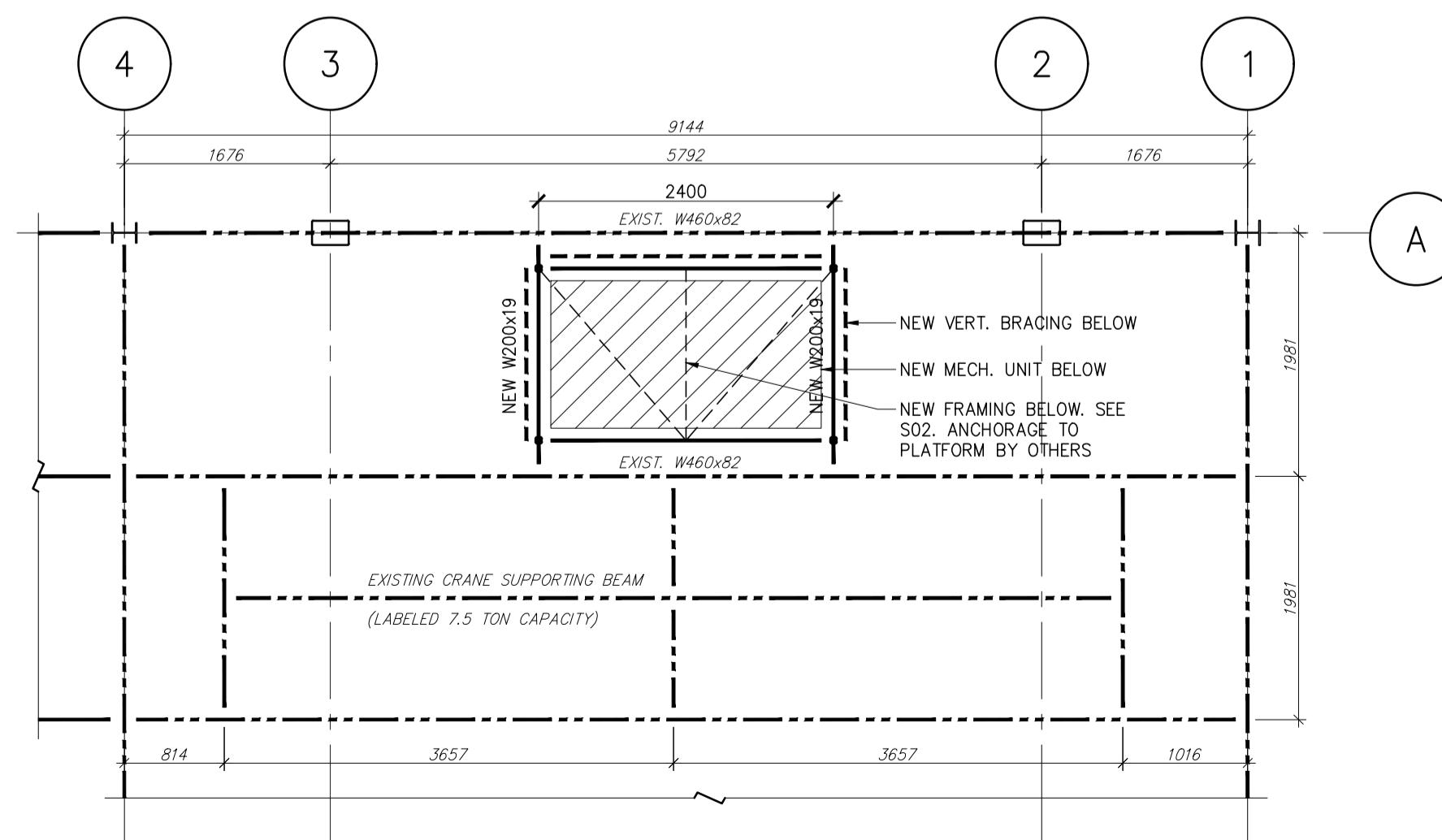
Stamp	Project No. 5564-19
	Drawing No. Revision 5471-S01

NOTES:

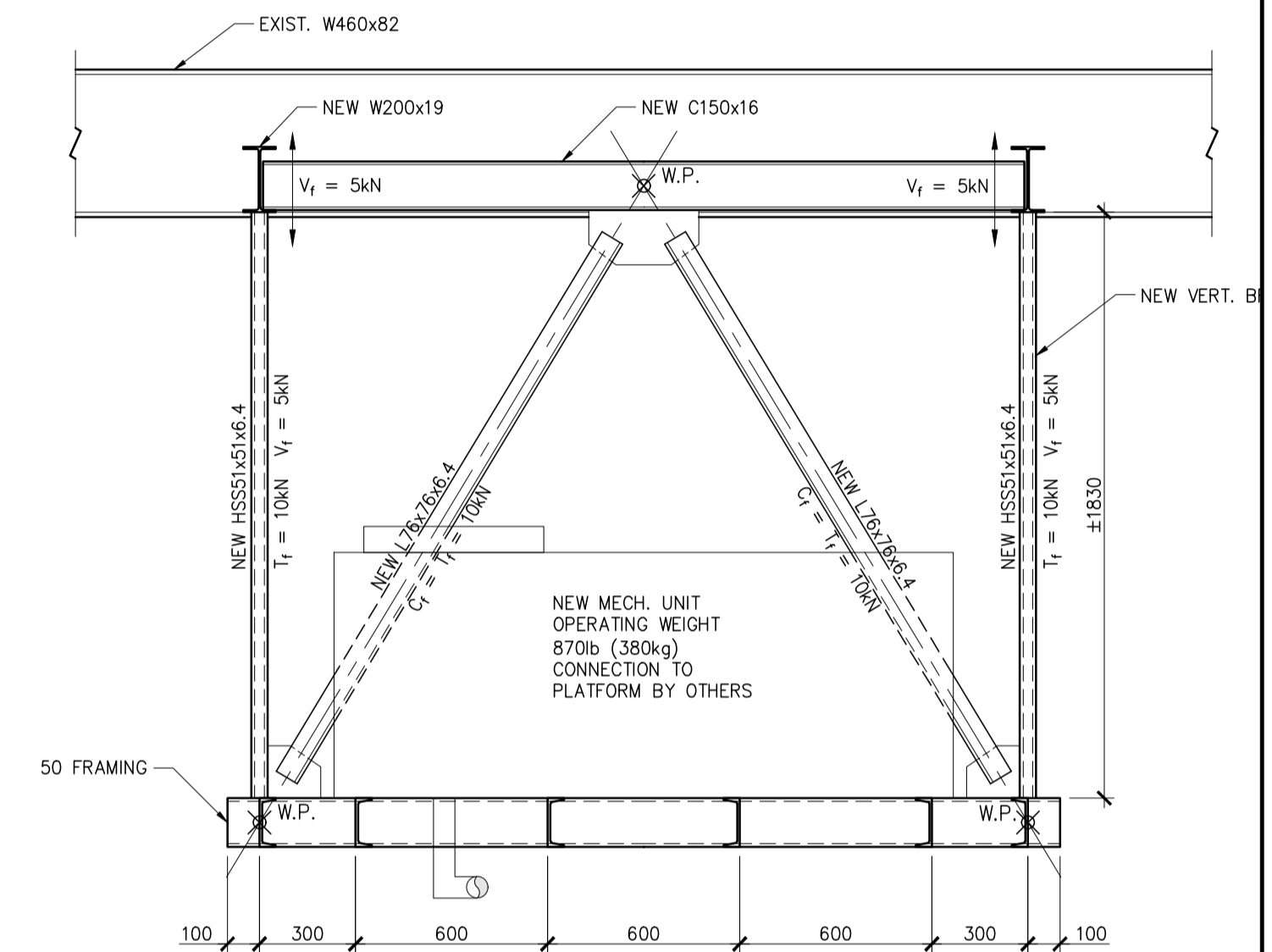
DIMENSIONS SHOWN ON THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNTIL THEY HAVE BEEN CHECKED AGAINST FINAL ARCHITECTURAL AND MECHANICAL DRAWINGS BY THE GENERAL CONTRACTOR.



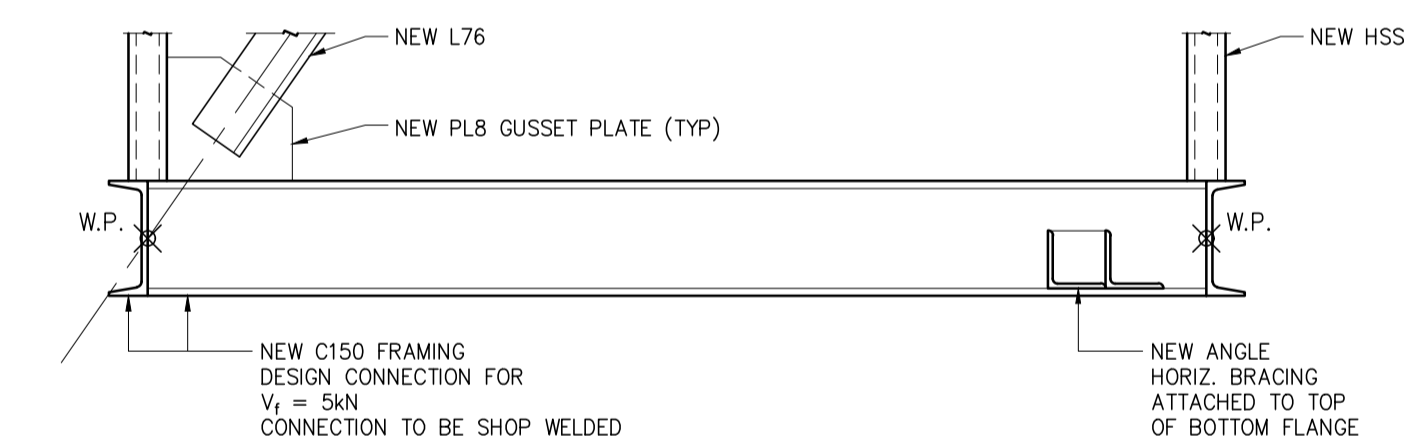
PLATFORM FRAMING PLAN
1 : 20



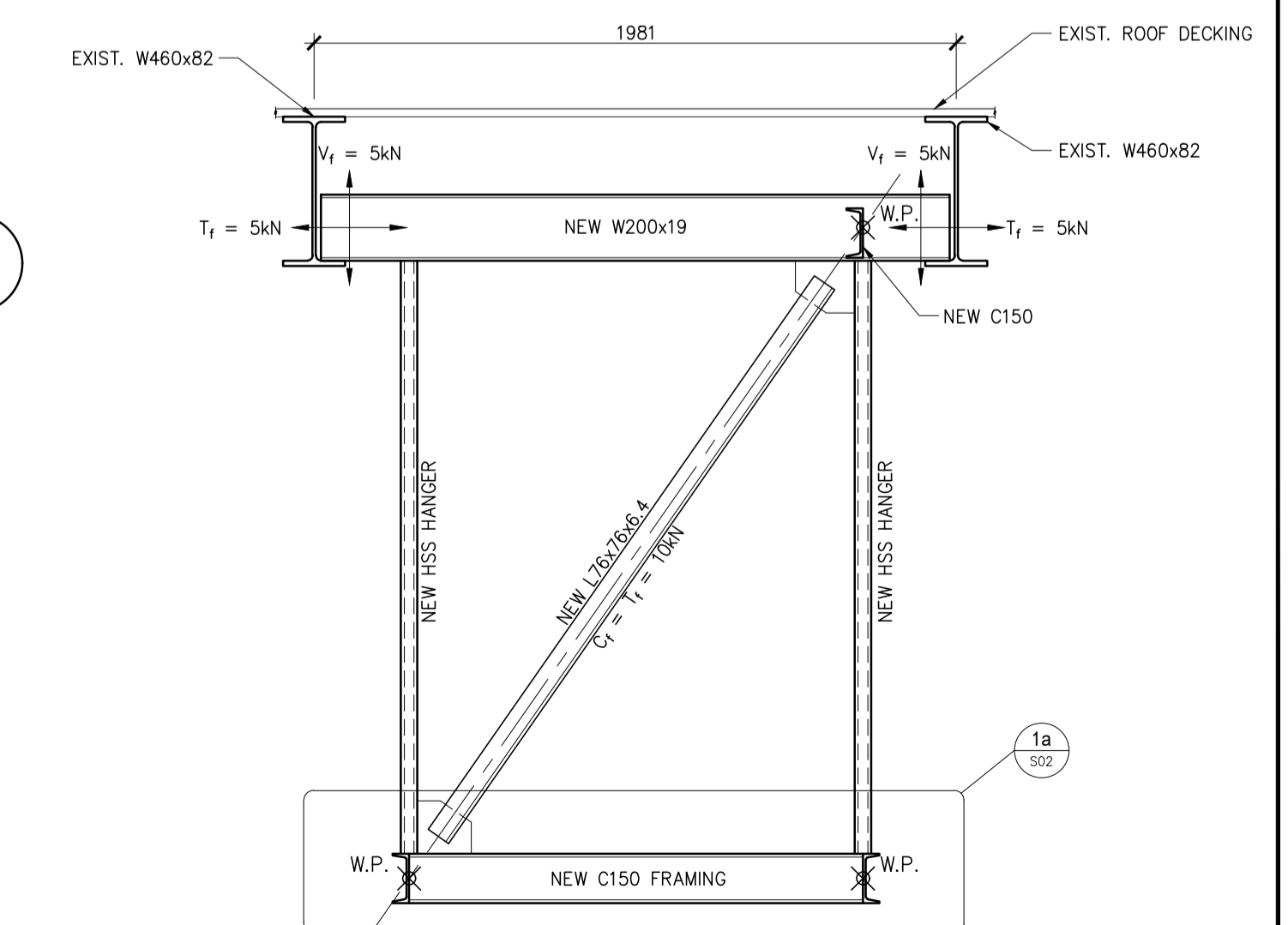
PARTIAL PLAN - ROOF LEVEL FRAMING
1 : 100



2 SECTION
1 : 20



1a DETAIL
1 : 10



1 SECTION
1 : 20

0	2018-12-17	ISSUED FOR TENDER
A	2018-12-11	ISSUED FOR REVIEW
No.	Date	Revision

Adjeleian Allen Rubeli
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AAR PROJECT 5564-19

Architect

Scale	By	Date	Checked
AS INDICATED	C.A	DEC, 2018	A.R

Project
**UPLANDS NRC
MECH UNIT PLATFORM**

Drawing
**ROOF AND PLATFORM FRAMING
SECTIONS AND DETAILS**

Stamp	Project No.
	5564-19
	Drawing No. Revision
	5471-S02

GENERAL NOTES

- CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION AND REPORT ANY ERRORS OR OMISSIONS TO DEPARTMENTAL REPRESENTATIVE.
- CONTRACTORS MUST VISIT THE SITE & FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK.
- PREVENT THE SPREAD OF DUST & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION.
- MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.
- COORDINATE ALL SHUTDOWNS WITH THE DEPARTMENTAL REPRESENTATIVE.
- PROVIDE ALL LABOUR AND MATERIAL REQUIRED TO FORM A COMPLETE, FUNCTIONAL SYSTEM AS DESCRIBED ON DRAWINGS.

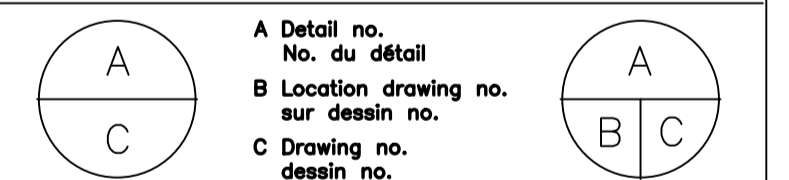


2018-11-27	ISSUED FOR PERMIT / TENDER	4
2018-10-10	ISSUED FOR REVIEW - MECHANICAL	3
2018-07-31	ISSUED FOR TENDER - ELECTRICAL	2
2018-07-27	ISSUED FOR 100% REVIEW - ELECTRICAL	1
DATE	REVISION	REF



GOODKEY WEEDMARK & ASSOCIATES LIMITED
 1688 Woodward Dr. Ottawa Ontario
 613 727-5111 Fax 613 727-5115
 Canada K2C 3R8 www.gwal.com Web
 GWAL Project #2018-454

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



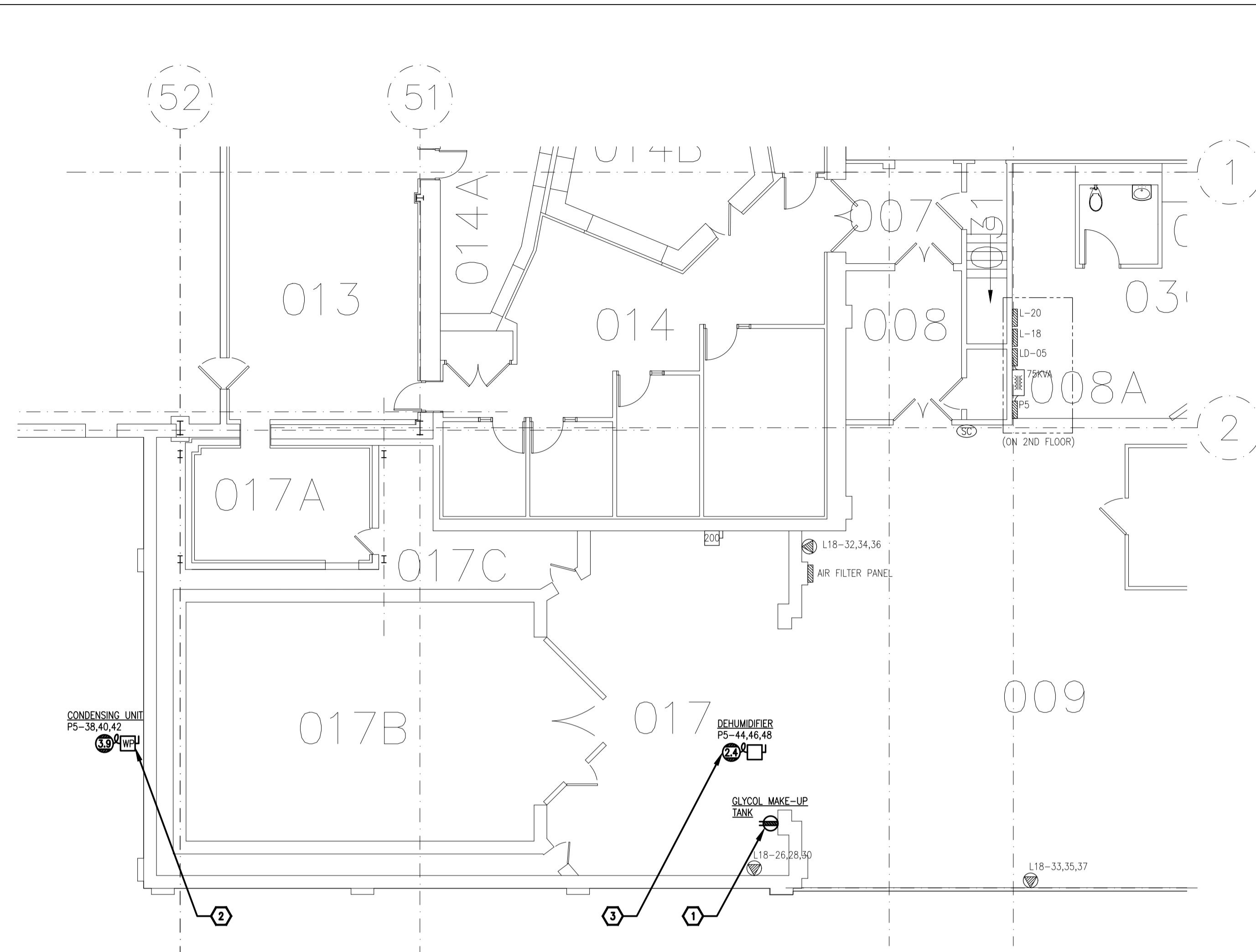
project projet

U66A - HVAC UPGRADE
1920 RESEARCH RD, OTTAWA

drawing dessin
PART 2
POWER & SYSTEMS - NEW WORK

designed ED.	conçu ED.	date OCT. 2018	date
drawn ED.	dessiné ED.	scale AS NOTED	échelle
checked R.B.	vérifié R.B.	sheet 3	of/de 4
approved	approuvé	W.O.no.	D.T.no.

dwg.no. **5471-E03** dessin no.

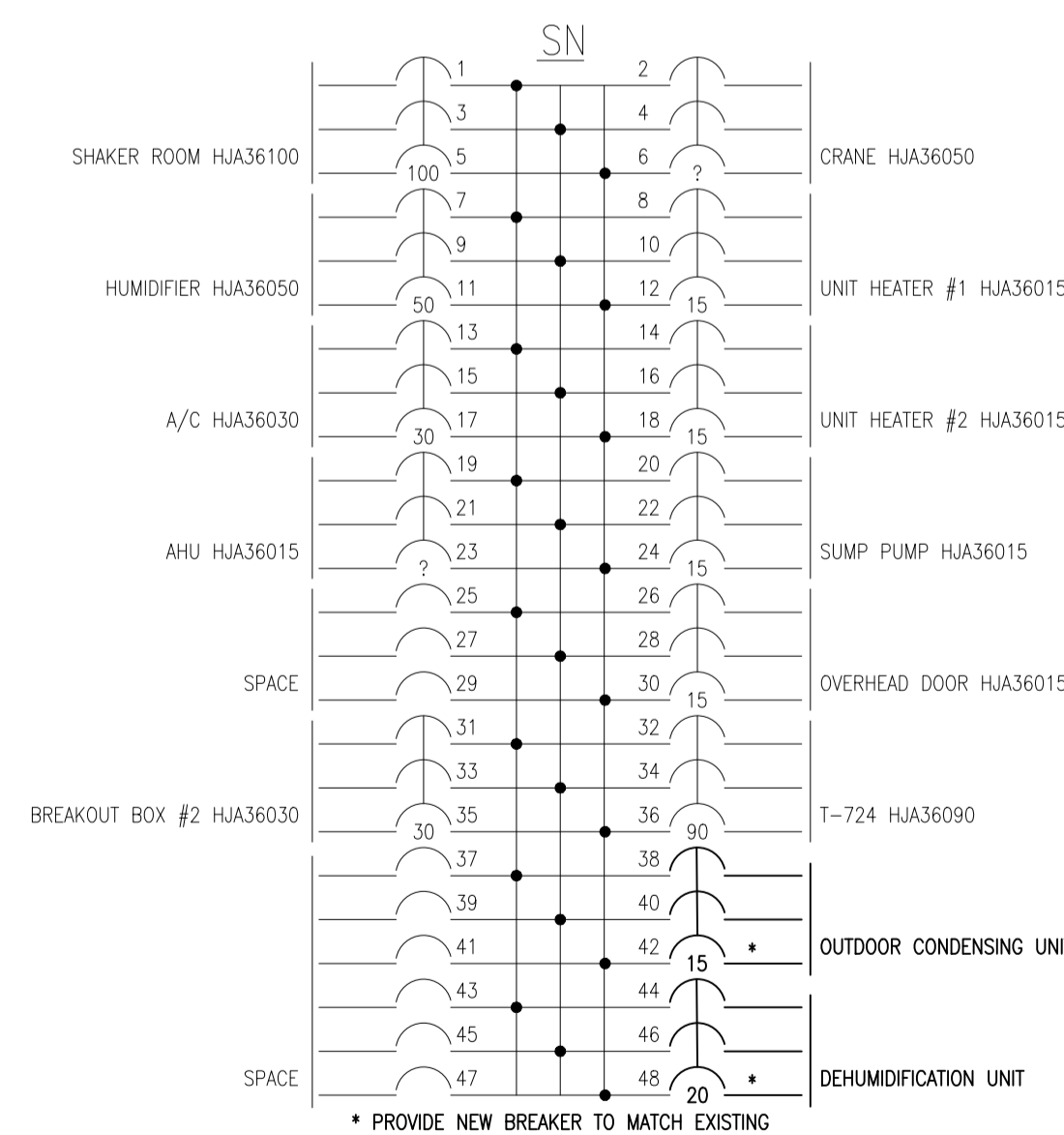


DRAWING NOTES

- PROVIDE NEW RECEPTACLE FOR GLYCOL MAKE-UP TANK. CONNECT TO NEW 120/208V PANEL INSTALLED FOR AIR FILTER RECEPTACLES IN PART 1 OF PROJECT.
- PROVIDE CONNECTION TO NEW 575V, 3ø, 3.4 FLA, 6 MCA, 15 MOP OUTDOOR CONDENSING UNIT C/W WEATHERPROOF DISCONNECT SWITCH SUPPLIED BY ELECTRICAL CONTRACTOR. WIRING TO FOLLOW MECHANICAL PIPING.
- PROVIDE CONNECTION TO NEW 575V, 3ø, 10.8 FLA, 14 MCA, 20 MOP DEHUMIDIFIER C/W DISCONNECT SWITCH SUPPLIED BY ELECTRICAL CONTRACTOR.

EXISTING PANEL P5

VOLTAGE	347/600V
PHASE	3ø
WIRE	4W
RATING AMPS	400A
TRIM	SURFACE



BASEMENT POWER & SYSTEMS - NEW WORK
 1
 5471-E03 1:100

