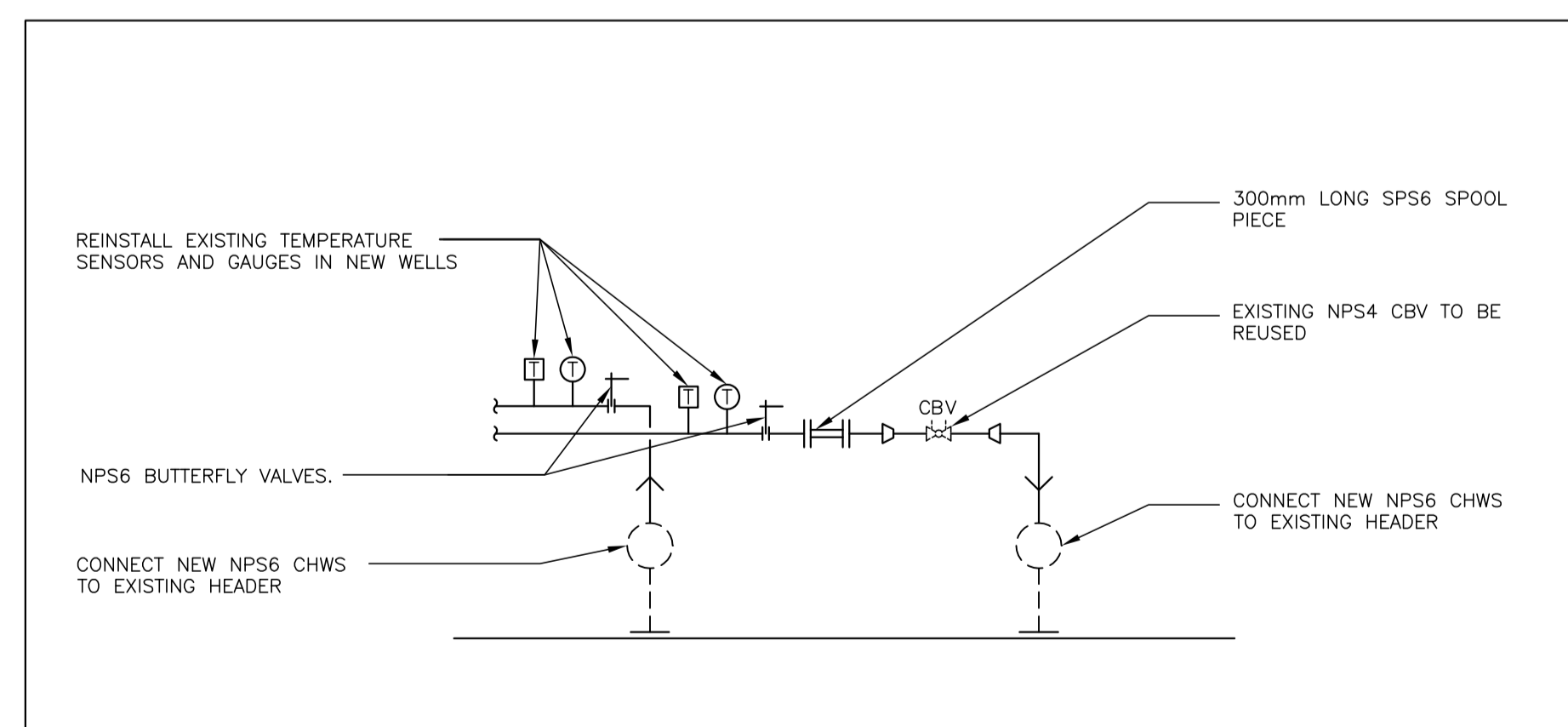
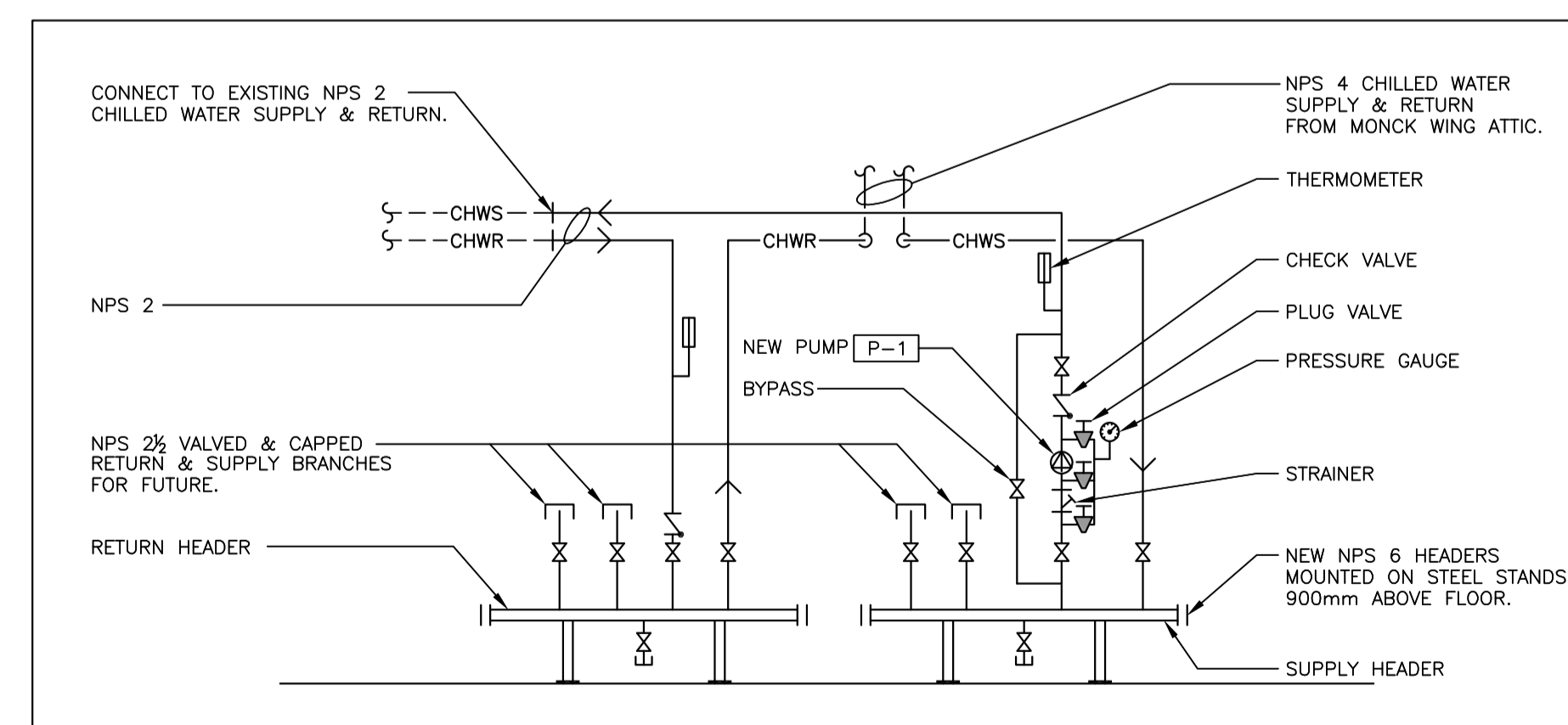


**NOTE:**  
—CHWS— CHILLED WATER SUPPLY  
—CHWR— CHILLED WATER RETURN

**1**  
**BASEMENT - NEW MECHANICAL PIPING LAYOUT**  
SCALE 1 : 150



**2**  
**NEW NPS6 CHW PIPE CONNECTIONS**  
SCALE N.T.S



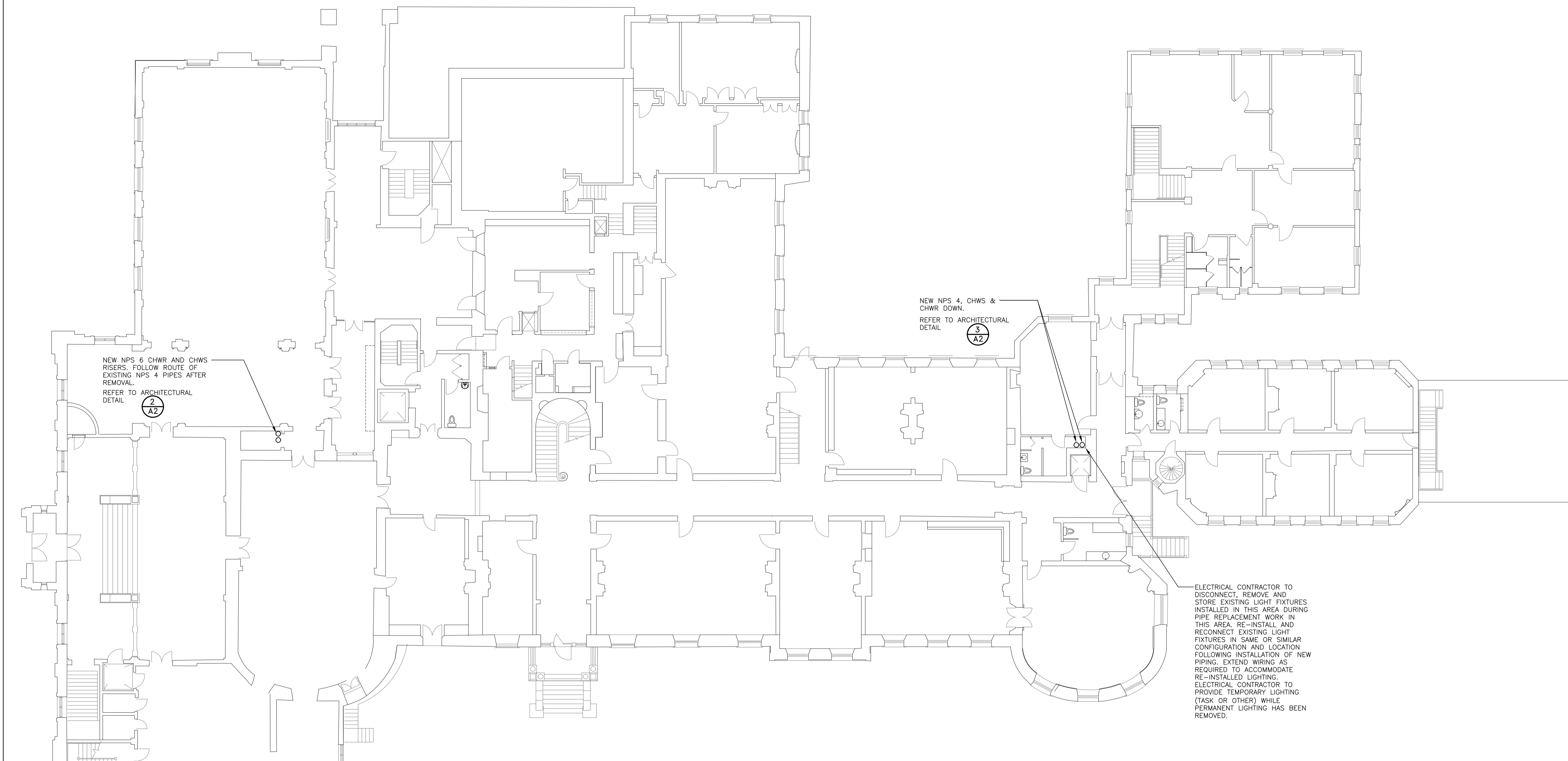
**3**  
**NEW CHILLED WATER HEADERS**  
SCALE N.T.S

no.	description	date
4	RE-ISSUED FOR TENDER	16 DEC 2014
3	ISSUED FOR TENDER	30 APR 2014
2	RE-ISSUED FOR REVIEW	12 MAR 2014
1	ISSUE FOR REVIEW	28 MAR 2013

project	
projet	
CHILLED WATER EXTENSION	

drawing	
dessin	
BASEMENT NEW MECHANICAL PIPING LAYOUT	

approved by / approuvé par	J. MILLS
designed by / conçu par	N. BROWN
drawn by / dessiné par	N. HENRI
date	30 APR 2014
scale / échelle	AS SHOWN
NCC project no. / no. du projet de la CCN	DC1110-18
sheet no. / no. de la feuille	ME01



1/M02 GROUND FLOOR - NEW MECHANICAL PIPING LAYOUT

SCALE 1 : 150

issued or revised  
émis ou révisé

no.	description	date
4	RE-ISSUED FOR TENDER	16 DEC 2014
3	ISSUED FOR TENDER	30 APR 2014
2	RE-ISSUED FOR REVIEW	12 MAR 2014
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project  
projet

CHILLED WATER  
EXTENSION

drawing  
dessin

GROUND FLOOR  
NEW MECHANICAL  
PIPING LAYOUT

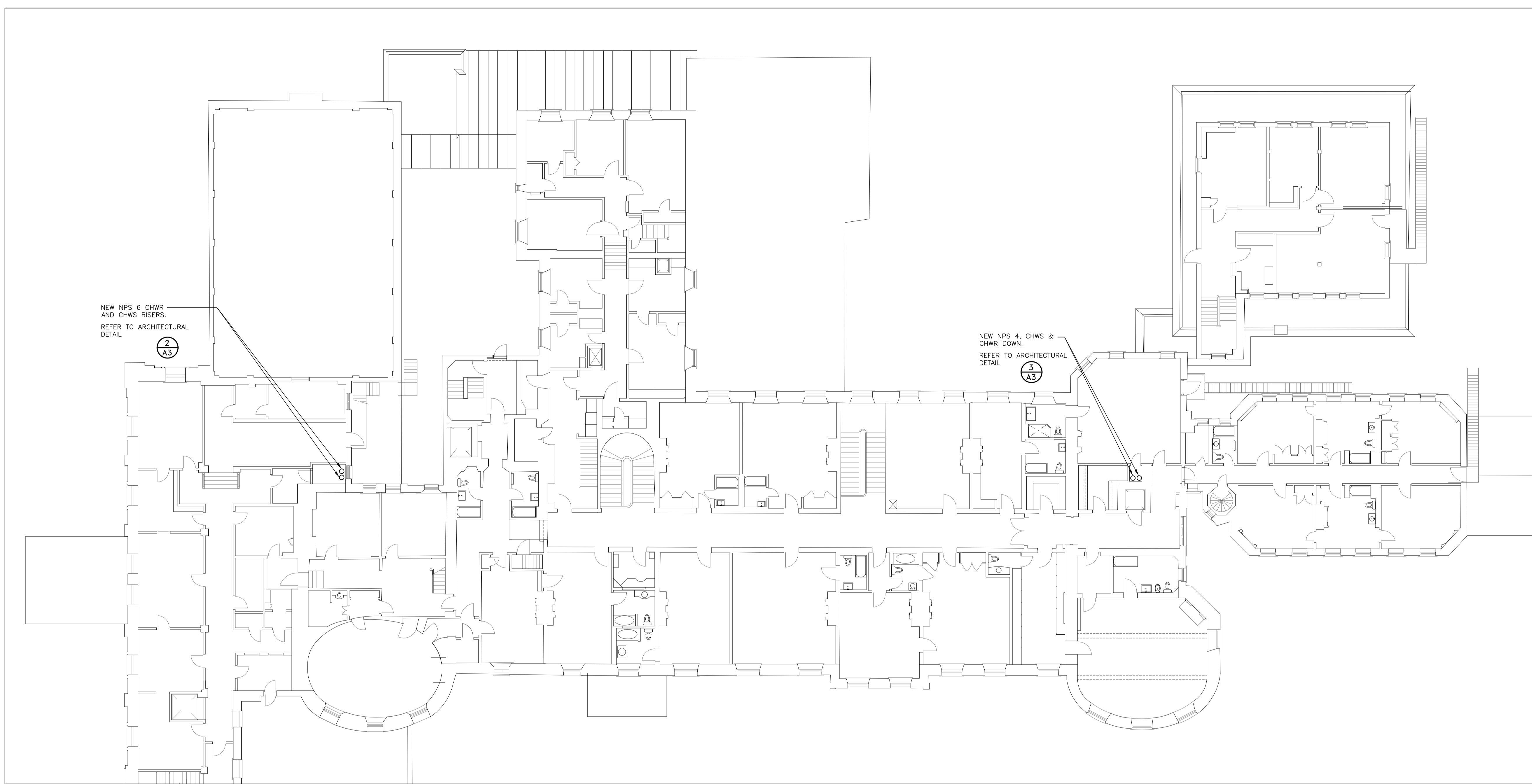
approved by  
approuvé par J. MILLS

designed by  
conçu par N. BROWN

drawn by  
dessiné par N. HENRI

date 30 APR 2014 scale AS SHOWN  
échelle

NCC project no. DC1110-18 sheet no. ME02  
no. du projet de la CCN no. de la feuille



1  
MO3 2nd FLOOR - NEW MECHANICAL PIPING LAYOUT  
SCALE 1 : 175

issued or revised  
émis ou révisé

no.	description	date
4	RE-ISSUED FOR TENDER	16 DEC 2014
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project  
projet

CHILLED WATER  
EXTENSION

drawing  
dessin

2nd FLOOR  
NEW MECHANICAL  
PIPING LAYOUT

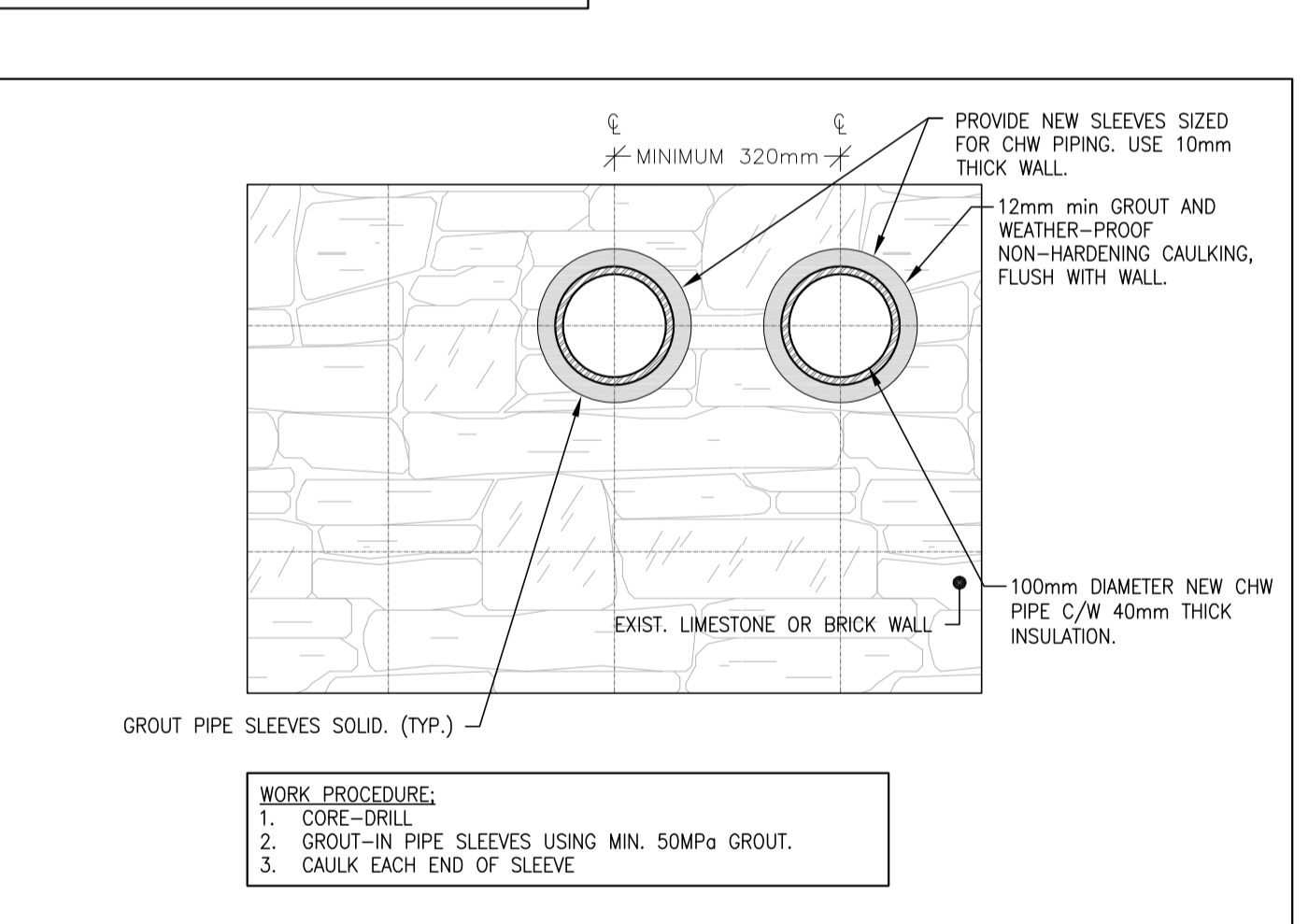
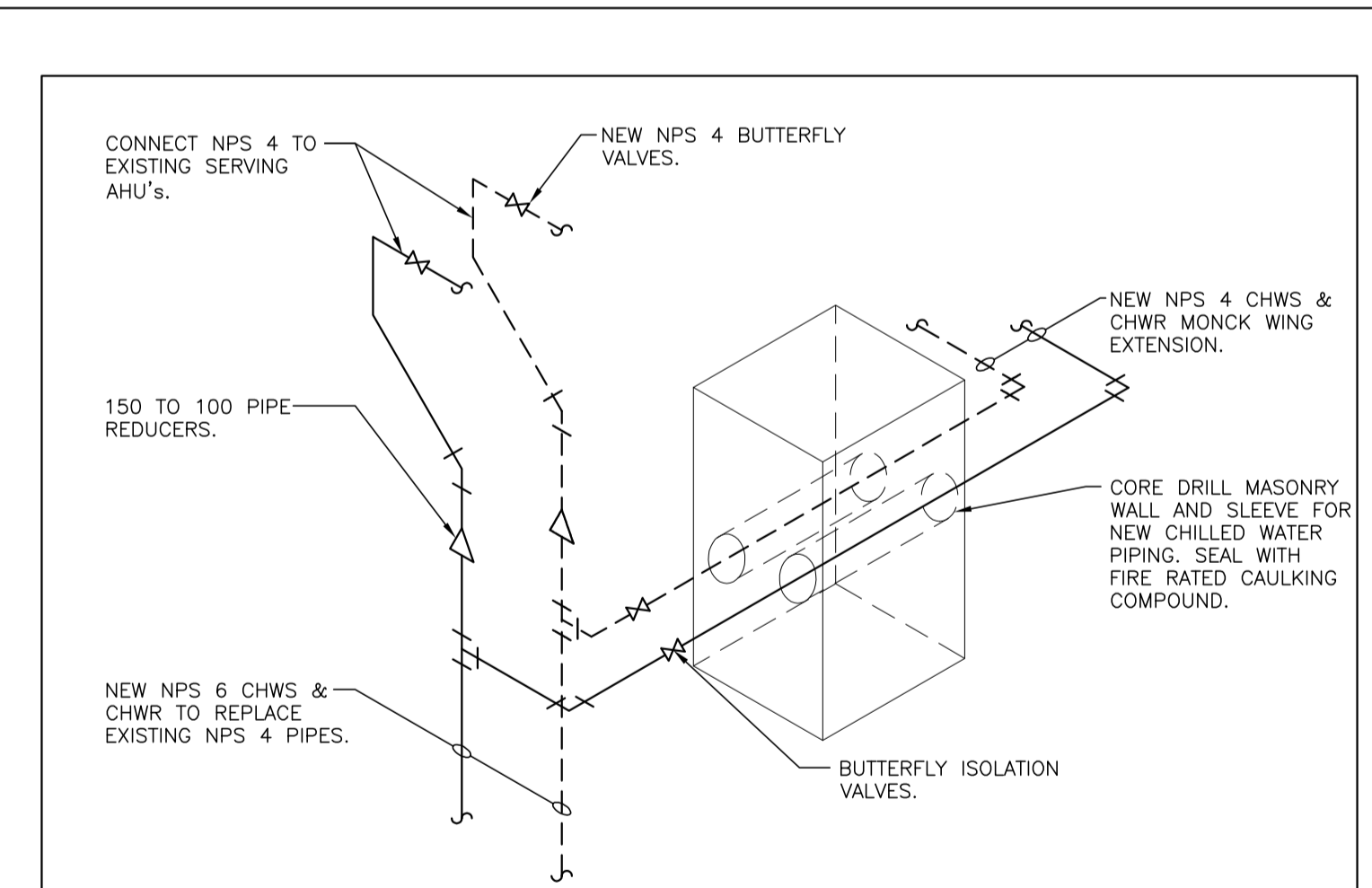
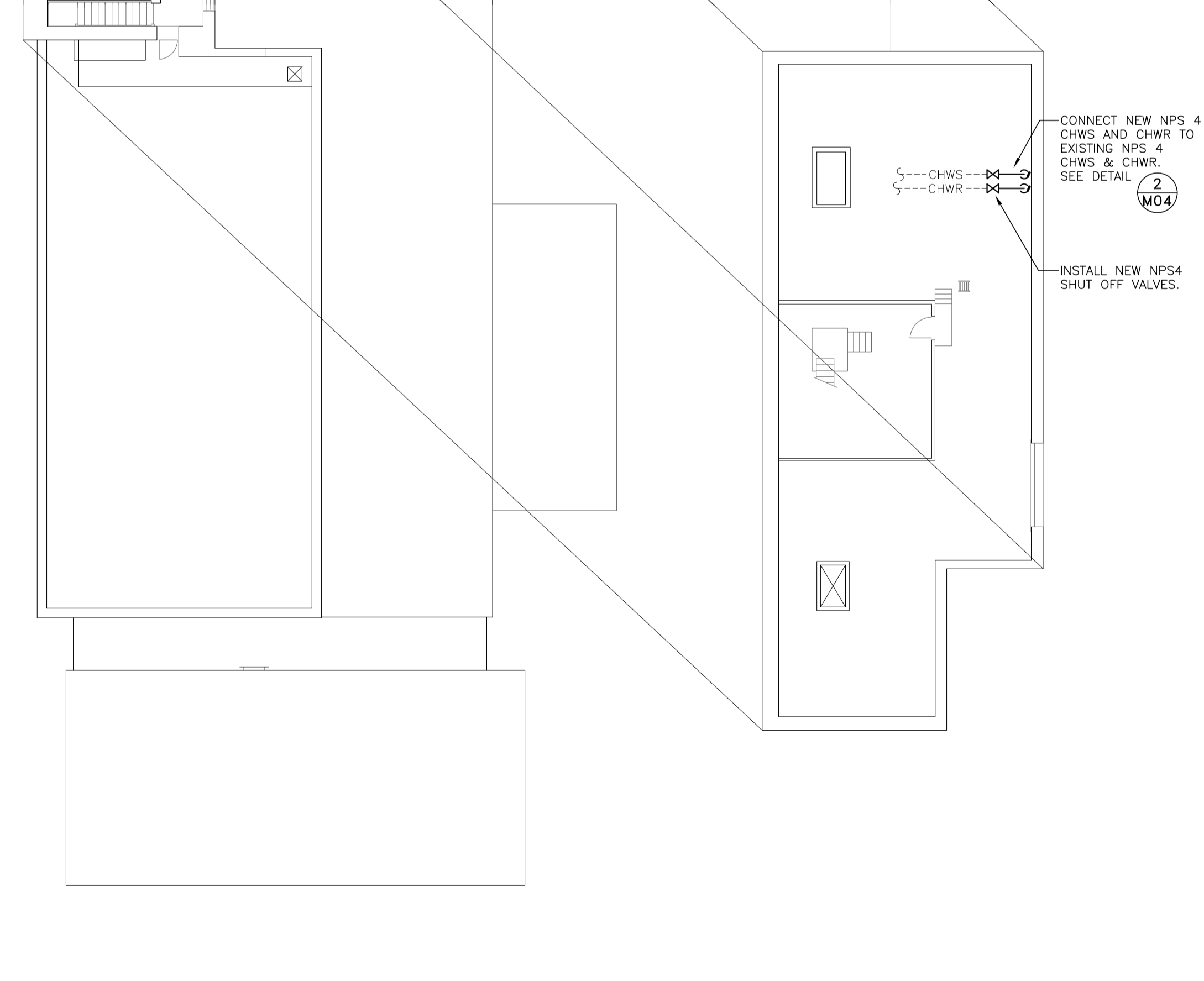
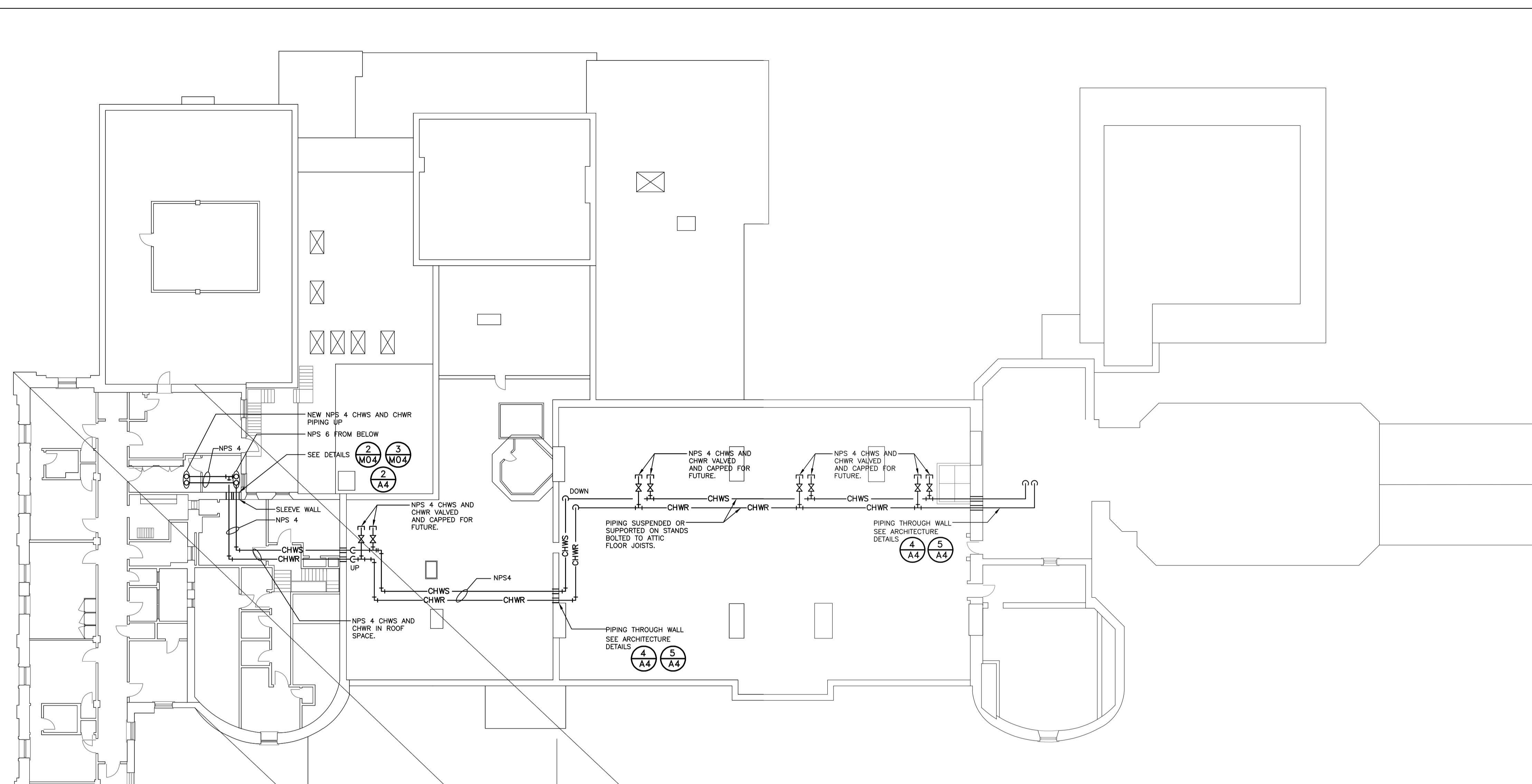
approved by  
approuvé par J. MILLS

designed by  
conçu par N. BROWN

drawn by  
dessiné par N. HENRI

date 30 APR 2014 scale AS SHOWN  
échelle

NCC project no. DC1110-18 sheet no. ME03  
no. du projet de la CCN no. de la feuille



**2** M04 **DETAIL SHOWING PIPE ARRANGEMENT**  
SCALE N.T.S.

**3** M04 **PIPES THROUGH MASONRY WALL**  
SCALE N.T.S.

issued or revised  
émis ou révisé

no.	description	date
4	RE-ISSUED FOR TENDER	16 DEC 2014
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2	RE-ISSUED FOR REVIEW	12 MAR 2014
1	ISSUE FOR REVIEW	28 MAR 2013

project  
projet

**CHILLED WATER  
EXTENSION**

approved by  
approuvé par J. MILLS

designed by  
conçu par N. BROWN

drawn by  
dessiné par N. HENRI

date 30 APR 2014 scale AS SHOWN  
échelle

NCC project no. DC1110-18 sheet no. ME04  
no. du projet de la CCN no. de la feuille



## MECHANICAL SPECIFICATIONS

### SCOPE OF WORK

- PROVIDE LABOUR, EQUIPMENT AND SERVICES NECESSARY TO PROPERLY COMPLETE THE MECHANICAL WORK INDICATED ON DRAWINGS.
- THE MECHANICAL CONTRACTOR IS THE PRIME CONTRACTOR FOR THIS PROJECT AND WILL BE RESPONSIBLE FOR THE WORK OF ALL SUB-CONTRACTORS NECESSARY TO COMPLETE THE WORK.

### GENERAL CONDITIONS

- THE GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS ARE AN INTEGRAL PART OF THE WORK.
- FOLLOW DIRECTIONS FROM THE OWNER CONCERNING VEHICLE PARKING, WASHROOM FACILITIES AND USE OF ELEVATORS.
- PERMITS AND FEES
  - OBTAIN AND PAY FOR PERMITS AND FEES NECESSARY FOR THE EXECUTION OF THE MECHANICAL WORK CONFORM TO ALL APPLICABLE CODES AND BY-LAWS, OBTAIN CERTIFICATES OF ACCEPTANCE FROM ALL THE INSPECTION AUTHORITIES
- ALL WORK TO BE IN ACCORDANCE WITH APPLICABLE PROVINCIAL BUILDING CODES, LEGISLATED STANDARDS, MOST RECENT VERSIONS OF REFERENCED DOCUMENTS IN CODES AND STANDARDS, AND TO GOOD TRADE PRACTICE.
  - ALL CODES AND LAWS APPLICABLE (OBC)
  - IN ACCORDANCE WITH FM & NFPA (FIRE PROTECTION)
  - IN ACCORDANCE WITH PLUMBING CODE
  - 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 MECHANICALLY 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.

- THESE MECHANICAL DRAWINGS MUST BE READ IN CONJUNCTION WITH THE DRAWINGS AND SPECIFICATIONS OF OTHER CONSULTANTS AND ENGINEERING DISCIPLINES.

- 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 COMPLY 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 AS INDICATED IN THE GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS PROVIDED BY THE OWNER.

- 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. SHUTDOWN, DRAINING AND FILLING OF EXISTING SYSTEMS SHALL BE COORDINATED BY THE MECHANICAL CONTRACTOR AND PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THE DIRECTION AND SUPERVISION OF THE OWNER.
- 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 HYDRO APPROVED FOR USE AT LOCATION OF INSTALLATION.

- COORDINATE MATERIAL STORAGE WITH THE PROJECT MANAGER, SITE SUPERINTENDANT 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.

- INSPECT ALL EQUIPMENT UPON DELIVERY AND NOTIFY PROJECT ENGINEER OF ANY DAMAGE OR DEFICIENCIES.

- SUBMIT ONE(1) COPY OF SHOP DRAWINGS AND PRODUCT DATA IN ELECTRONIC PDF FORMAT OF ALL SPECIFIED EQUIPMENT & SYSTEMS. HARD COPY SHOP DRAWINGS WILL NOT BE ACCEPTED. REVIEWED ELECTRONIC SHOP DRAWINGS WILL BE RE-DISTRIBUTED AS PER PROJECT MANAGER'S INSTRUCTIONS.

- 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.

- BEFORE 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 POLICIES. 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).

- 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.

- PRIOR TO CLOSING OF CEILINGS, THE 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. REFER TO OWNER SUPPLIED EQUIPMENT FOR ADDITIONAL REQUIREMENTS RELATED TO OWNER SUPPLIED EQUIPMENT.

- MECHANICAL CONTRACTOR SHALL BE GENERAL CONTRACTOR FOR THIS PROJECT AND AS SUCH BE RESPONSIBLE FOR HIRING ELECTRICAL CONTRACTOR & ALL OTHER REQUIRED SUB-CONTRACTORS.

- THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR NEW EQUIPMENT INCLUDING COORDINATING DELIVERIES, TEMPORARY STORAGE UNTIL INSTALLATION, INSTALLATION OF EQUIPMENT AND WARRANTY.

- CONTRACTOR SHALL BE FAMILIAR WITH ALL SYSTEMS TO BE INSTALLED IN CONTRACT AND SHALL HAVE INSTALLED SIMILAR OR SIMILAR COMPONENTS IN LAST 12 MONTHS. ENGINEER MAY REQUEST PROOF OF INSTALLATION EXPERIENCE BEFORE OR AFTER CONTRACT AWARD.

- CONTRACTOR SHALL READ AND UNDERSTAND ALL INSTALLATION INSTRUCTIONS FOR ALL EQUIPMENT AND CONTROLS NECESSARY TO COMPLETE THE SCOPE OF WORK. CONTRACTOR SHALL INCLUDE ALL NECESSARY WORK, MATERIALS, FITTINGS AND HARDWARE REQUIRED TO INSTALL EQUIPMENT AS PER MANUFACTURER INSTRUCTIONS, SPECIFICATIONS AND RECOMMENDATIONS WHETHER EXPLICITLY SHOWN ON DRAWINGS OR NOT.

- PROVIDE UNIONS AND FLANGES FOR EASE OF MAINTENANCE AND DISASSEMBLY.

- SPACE FOR SERVICING, DISASSEMBLY AND REMOVAL OF EQUIPMENT AND COMPONENTS: PROVIDE AS RECOMMENDED BY MANUFACTURER AND AS INDICATED.

- PIPE SLEEVES: AT POINTS WHERE PIPES PASS THROUGH MASONRY, OR FIRE RATED ASSEMBLY, SCHEDULE 40 STEEL PIPE, MINIMUM 1/4" INCH CLEARANCE ALL AROUND, FILL VOIDS WITH FIRESTOPPING AT ALL PENETRATIONS IN FIRE SEPARATIONS. FIRESTOPPING TO BE ULC LISTED AND TO MATCH WALL/FLOOR ASSEMBLY RATING.

- ESCUTCHEONS: ON PIPES PASSING THROUGH WALLS, PARTITIONS, FLOORS AND CEILING IN FINISHED SPACES, CHROME OR NICKEL PLATED BRASS, ONE PIECE WITH SET SCREWS.

- TESTS: PIPING: MAINTAIN TEST PRESSURE FOR 4 HRS WITHOUT LOSS OF PRESSURE. HYDRAULICALLY TEST STEAM AND HYDRONIC PIPING WITH 1.5 TIMES THE SYSTEM PRESSURE. DRAINAGE AND VENTING TO APPLICABLE BUILDING CODE AND AUTHORITIES HAVING JURISDICTION, FIRE SYSTEMS IN ACCORDANCE WITH AUTHORITIES HAVING JURISDICTION.

- PAINTING: RESTORE TO NEW CONDITION FINISHES WHICH HAVE BEEN DAMAGED. APPLY ONE COAT OF CORROSION RESISTANT PRIMER PAINT TO FERROUS SUPPORTS AND SITE FABRICATED WORK.

- PROVIDE ACCESS DOORS TO SEALED MECHANICAL EQUIPMENT.

- DRAIN VALVES: LOCATE AT LOW POINTS AND AT SECTION ISOLATING VALVES.

- CLEAN ALL EQUIPMENT, FLUSH ALL PIPING AND CLEAN ALL STRAINERS AFTER COMPLETION OF INSTALLATION AND TESTING.

- TAKE PRECAUTIONS TO PROTECT THE OCCUPANTS AND BUILDING FROM INJURY OR DAMAGE DUE TO CONSTRUCTION ACTIVITIES.

- CUTTING AND PATCHING SHALL BE COORDINATED BY GENERAL CONTRACTOR AND LOCATE REQUIRED OPENINGS CARRY AS PART OF TENDER APPROPRIATE TRADES NECESSARY FOR ALL CUTTING AND PATCHING.

- ALL MATERIALS AND EQUIPMENT TO BE NEW, UNLESS OTHERWISE INDICATED, AND FREE FROM DAMAGE, BLEISHING, OXIDATION, ETC. MATERIALS USED FOR SIMILAR PURPOSES AND FUNCTIONS SHALL BE THE PRODUCT OF ONE MANUFACTURER UNLESS SPECIFIED OTHERWISE.

- PROVIDE ACCESSORY ITEMS OR MATERIALS REQUIRED SUCH AS EQUIPMENT SUPPORTS, FABRICATED BASES, BRACKETS, CLEATS, CONNECTORS, SEALANTS, LUBRICANTS, CLEANERS, PROTECTION, ETC., TO ENSURE COMPLETE AND TOTALLY FUNCTIONAL SYSTEMS ARE PROVIDED TO THE OWNER.

- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ACCEPTING, OFFLOADING, STORAGE RIGGING, HOISTING AND PLACEMENT OF ALL OWNER SUPPLIED EQUIPMENT. COORDINATE ON SITE.

### SITE VISIT

- ACQUIRE FULL WORKING KNOWLEDGE OF BUILDING SITE AND ANY EXISTING CONDITIONS WHICH MAY AFFECT THE WORK. VISIT SITE PRIOR TO TENDER SUBMISSION.
- A MANDATORY SITE VISIT IS REQUIRED. DATE TO BE DECIDED BY NCC.

### PROTECTION

- THE BUILDING IS OCCUPIED AND ACCESS TO ALL AREAS WILL BE RESTRICTED AT CERTAIN TIMES.
- TAKE PRECAUTIONS TO PROTECT THE OCCUPANTS AND BUILDING FROM HAZARDS, INJURY OR DAMAGE DUE TO CONSTRUCTION ACTIVITIES. PROTECT AGAINST THE SPREAD OF DUST TO ADJACENT AREAS.
- TAKE SPECIAL CARE TO PROTECT FLOORS, CARPETS AND FINISHES FROM DAMAGE WHEN MOVING HEAVY EQUIPMENT.

### CONTRACT DRAWINGS

- CONTRACT DRAWINGS FOR THE WORK ARE IN PART DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND GENERAL ARRANGEMENT OF EQUIPMENT, COMPONENTS AND PIPING.
- BEFORE INSTALLATION, VERIFY THE PHYSICAL LOCATION OF ALL EQUIPMENT WITH OTHER TRADES. COORDINATE AND VERIFY ALL WORK AROUND OBSTRUCTIONS OR INTERFERENCES THAT DEVIATE FROM THE INDICATED LOCATION OF EQUIPMENT OR SERVICES. NO EXTRA PAYMENTS ARISING FROM FAILURE TO MAKE THIS VERIFICATION WILL BE CONSIDERED.
- THE WORD "PROVIDE" MEANS THE SUPPLY AND INSTALLATION OF ALL REQUIRED LABOUR, MATERIALS AND ACCESSORIES FOR COMPLETE SYSTEMS OR PARTS THEREOF.

### EXISTING SERVICES

- GIVE THE OWNER AMPLE NOTICE OF EACH NECESSARY INTERRUPTION TO EXISTING SERVICES AND MECHANICAL SYSTEMS DURING THE COURSE OF THE WORK. KEEP THE DURATION OF INTERRUPTIONS AS SHORT AS POSSIBLE. THE OWNER RESERVES THE RIGHT TO DENY APPROVAL FOR AN INTERRUPTION ON ANY SPECIFIC DATE OR TIME. IN THIS CASE, AN ALTERNATIVE TIME SHALL BE MUTUALLY SELECTED.
- PROVIDE A SCHEDULE AND OBTAIN APPROVAL FROM THE OWNER FOR ANY SHUTDOWN OF A SERVICE OR FACILITY.

### CUTTING, PATCHING AND MAKING GOOD

- CUT EXISTING SURFACES AS REQUIRED TO ACCOMMODATE THE NEW WORK. MAKE CUTS WITH CLEAN, TRUE SMOOTH EDGES. FIT WORK AIRTIGHT TO SLEEVES.
- PATCH AND MAKE GOOD ALL SURFACES CUT OR DAMAGED TO THE ENGINEERS APPROVAL. MATCH EXISTING MATERIAL, COLOUR, FINISH AND TEXTURE.
- OBTAIN STRUCTURAL ENGINEER'S APPROVAL BEFORE CUTTING LOAD BEARING MEMBERS.
- INSTALL FIRE STOPPING WITHIN SPACE BETWEEN PIPES & DUCTS ADJACENT TO FIRE SEPARATION.

### DEMOLITION

- REMOVE FROM THE CONSTRUCTION SITE ALL EXISTING MECHANICAL EQUIPMENT WHICH BECOMES OBSOLETE AS A RESULT OF THE WORK EXCEPT AS OTHERWISE STATED.
- DRAIN DOWN THE GLYCOL SOLUTION CONTAINED IN THE PIPING TO BE DEMOLISHED AND STORE IN DRUMS ON SITE UNTIL THE NEW PIPING IS COMPLETE.
- ARRANGE TO HAVE DEMOLITION MATERIAL TRANSPORTED FROM THE SITE THE SAME DAY AS IT IS REMOVED. CLEAN UP ALL AREAS WHERE DEMOLITION OCCURRED AND WHERE TRANSPORTED TO OUTSIDE THE DEMOLITION AREA.
- THIS MATERIAL BECOMES THE PROPERTY OF THE CONTRACTOR AND MUST BE DISPOSED OF IN AN ENVIRONMENTALLY RESPONSIBLE MANNER.

### CLEANING

- UPON COMPLETION OF THE WORK REMOVE TEMPORARY PROTECTION AND CLEAN THE SITE TO THE SAME CONDITION AS PRIOR TO CONSTRUCTION.

### LOCATION OF PIPING

- THE LOCATION OF PIPING INDICATED ON THE DRAWINGS IS TO BE CONSIDERED APPROXIMATE.
- SURVEY THE AREAS WHERE THE PIPES ARE TO BE LOCATED. ARRANGE TO HAVE EXISTING PIPING AND ELECTRICAL CONDUIT OBSTRUCTING THE NEW PIPING RELOCATED PRIOR TO DRILLING HOLES. ALL REMOVAL, RELOCATION AND RE-INSTALLATION OF EXISTING MECHANICAL AND/OR ELECTRICAL SERVICES REQUIRED TO PERMIT THE PROPER INSTALLATION OF ALL NEW PIPING IN ACCORDANCE WITH DESIGN INTENT SHALL BE INCLUDED AS PART PART OF THIS CONTRACT.
- DRILL PILOT HOLES THROUGH FLOORS AND WALLS TO DETERMINE THE LOCATIONS OF EXISTING STRUCTURAL ELEMENTS AND OBSTRUCTIONS TO BE AVOIDED FOR THE INSTALLATION OF PIPING.
- REFER TO FRAMING DETAILS ON THE DRAWINGS FOR PENETRATIONS THROUGH FLOORS AND WALLS.

### SHOP DRAWINGS

- SUBMIT TO THE ENGINEER FOR APPROVAL ONE (1) COPY OF SHOP DRAWINGS FOR ALL NEW EQUIPMENT, PRODUCTS AND SYSTEMS WITHIN ONE (1) WEEK FROM AWARD OF CONTRACT.

### WARRANTY

- WARRANTY ALL WORK FOR TWELVE (12) MONTHS FROM DATE OF ACCEPTANCE, EXCEPT WHERE NOTED OTHERWISE.

### MATERIALS

- ALL MATERIALS AND EQUIPMENT TO BE NEW, UNLESS OTHERWISE INDICATED, AND FREE FROM DAMAGE, BLEISHING OR OXIDATION, ETC. MATERIALS USED FOR SIMILAR PURPOSES AND FUNCTIONS SHALL BE THE PRODUCT OF ONE MANUFACTURER UNLESS SPECIFIED OTHERWISE.

### ACCESSORIES

- PROVIDE ACCESSORY ITEMS OR MATERIALS REQUIRED SUCH AS EQUIPMENT SUPPORTS, FABRICATED BASES, BRACKETS, CONNECTORS, SEALANTS, LUBRICANTS, CLEANERS, PROTECTION, ETC., TO ENSURE COMPLETE AND TOTALLY FUNCTIONAL SYSTEMS ARE PROVIDED TO THE OWNER.

### SEISMIC PROTECTION

- THE DESIGN AND CONSTRUCTION OF ALL MECHANICAL AND ELECTRICAL COMPONENTS AND THEIR CONNECTIONS, INCLUDING, BUT NOT LIMITED TO, MACHINERY, FIXTURES, AND PIPES WITH THEIR CONTENTS, TO BE IN ACCORDANCE WITH ONTARIO BUILDING CODE 2012.
- DESIGN OF STRUCTURAL SEISMIC ELEMENTS, INCLUDING CONNECTIONS, TO BE PERFORMED BY A REGISTERED STRUCTURAL ENGINEER ENGAGED BY THE CONTRACTOR AND LICENSED IN THE PROVINCE OF ONTARIO, WHO SHALL SEAL AND SIGN THE DESIGN DRAWINGS.
- THE SEALED DRAWINGS SHALL BE SUBMITTED ALONG WITH THE SHOP DRAWINGS FOR REVIEW. THE STRUCTURAL ENGINEER WHO SEALS THE DRAWINGS SHALL CARRY OUT SUFFICIENT ON-SITE REVIEW OF THE MECHANICAL/ELECTRICAL WORK TO ENSURE AND TO CERTIFY IN WRITING THAT THE WORK IS IN GENERAL COMPLIANCE WITH HIS DESIGN.

### RECORD 'AS-BUILT' DRAWINGS

- RECORD ALL DEVIATIONS AND CHANGES TO THE CONTRACT DOCUMENTS ON A SPARE SET OF DOCUMENTS KEPT ON SITE.
- HAND OVER TWO SETS OF WHITE PRINTS 'AS-BUILT' RECORD DRAWINGS TO THE OWNER AND ENGINEER AT THE COMPLETION OF THE PROJECT.

### THERMAL INSULATION FOR PIPING

#### THERMO-CANVAS JACKETS, C/W ULC S-102 LABEL

- HAZARD CLASSIFICATION NOT TO EXCEED FLAME-SPREAD RATING OF 25, SMOKE DEVELOPED 50.
- USE 2256 THERMO-CANVAS JACKET ON ALL INSULATED, EXPOSED VALVES, PIPING AND FITTINGS.

#### INSULATION:

- PRE-FORMED MINERAL FIBRE INSULATION WITH INTEGRAL JACKET SHALL BE COMPOSED OF INCOMBUSTIBLE, FINE DIAMETER, GLASS FIBRES OR MINERAL WOOL FIBRES, BONDED TOGETHER WITH INERT THERMOSETTING RESIN AND HAVE A FACTORY-APPLIED, ALL-SERVICE TYPE VAPOUR BARRIER JACKET. INSULATION TO BE PERFORMED INTO 914 MM (36-INCH) CYLINDRICAL SECTIONS OR SEGMENTS TO SUIT STANDARD PIPE SIZES. FOR INSULATION THICKNESS SEE SCHEDULE HEREIN.
- COVER ALL OUTDOOR EXPOSED INSULATION IN A SEALED WEATHER-TIGHT STAINLESS STEEL JACKET.
- INSTALL INSULATION AND JACKET IN ACCORDANCE WITH INSULATION MANUFACTURER'S INSTALLATION INSTRUCTIONS.

#### PIPE INSULATION SCHEDULE:

SERVICE	THICKNESS
CHILLED WATER	1.5" (32mm)

#### PIPING MATERIAL SCHEDULE:

SERVICE	PIPE	JOINT	FITTING	PRESSURE RATING
CHILLED WATER NPS 3 AND LARGER	SCHEDULE 40	GROOVED	CAST	1035 kPa
CHILLED WATER NPS ¾ TO NPS 2½	SCHEDULE 40	SCREWED	MALLEABLE STEEL, HOT DIP GALVANIZED	1035 kPa

#### PIPING INSTALLATION

- INSTALL PIPING STRAIGHT AND PARALLEL WITH BUILDING LINES USING CORRECT PITCH FOR DRAINAGE AND VENTING. USE STANDARD FITTINGS FOR CHANGES IN DIRECTION.
- USE DELECTRIC COUPLINGS FOR JOINING PIPES OF DISSIMILAR METALS.
- INSTALL UNIONS TO ALLOW THE REMOVAL OF EQUIPMENT.

#### PIPE HANGERS

- PROVIDE HANGERS, SUPPORTS AND SWAY BRACES IN ACCORDANCE WITH AZS/ASME B31 – LATEST EDITION.
- CONSTRUCT PIPE HANGER, SUPPORTS AND SWAY BRACES TO MANUFACTURER'S RECOMMENDATIONS UTILIZING MANUFACTURER'S REGULAR PRODUCTION COMPONENTS, PARTS AND ASSEMBLIES.
- BASE MAXIMUM LOAD RATINGS ON ALLOWABLE STRESSES PRESCRIBED BY ASME B31 – LATEST EDITION.
- DESIGN HANGERS AND SUPPORTS TO SUPPORT SYSTEMS UNDER ALL CONDITIONS OF OPERATION, ALLOW FREE EXPANSION AND CONTRACTION, PREVENT EXCESSIVE STRESSES FROM BEING INTRODUCED INTO PIPEWORK OR CONNECTED EQUIPMENT.
- PROVIDE FOR VERTICAL ADJUSTMENTS AFTER ERECTION AND DURING COMMISSIONING. AMOUNT OF ADJUSTMENT TO BE IN ACCORDANCE WITH MSS SP-58 – LATEST EDITION.
- DESIGN SUPPORTS, HANGERS TO WITHSTAND SEISMIC EVENTS AS APPLICABLE TO THE PROJECT AREA.
- PIPE HANGERS AND SUPPORTS TO BE GALVANIZED AFTER MANUFACTURE.
- SHOP AND FIELD-FABRICATED ASSEMBLIES.
  - TRAPEZE HANGER ASSEMBLIES.
  - STEEL BRACKETS.
  - SWAY BRACES FOR SEISMIC RESTRAINT SYSTEMS.
- HANGER RODS: THREADED ROD MATERIAL TO MSS SP-58 LATEST EDITION.
  - ENSURE THAT HANGER RODS ARE SUBJECT TO TENSILE LOADING ONLY.
  - PROVIDE LINKAGES WHERE LATERAL OR AXIAL MOVEMENT OF PIPEWORK IS ANTICIPATED.
- PIPE ATTACHMENTS: TO MSS SP\_58 LATEST EDITION.
  - ATTACHMENTS FOR STEEL PIPING: CARBON STEEL.
  - USE INSULATION SHIELDS FOR INSULATED PIPEWORK.
  - OVERSIZE PIPE HANGERS AND SUPPORTS FOR INSULATED PIPEWORK.
- ADJUSTABLE CLEVIS: MATERIAL TO MSS SP-58 – LATEST EDITION, CLEVIS BOLT WITH NIPPLE SPACER AND VERTICAL ADJUSTMENT NUTS ABOVE AND BELOW CLEVIS. ENSURE THAT CLAMP HAS HOLE IN BOTTOM FOR RIVETING TO INSULATION SHIELDS.
- UL BOLTS: CARBON STEEL TO MSS SP-58 – LATEST EDITION WITH TWO (2) NUTS AT EACH END TO ASTM A 563 – LATEST EDITION.
- RISER CLAMPS:
  - STEEL OR CAST IRON PIPE: GALVANIZED CARBON STEEL TO MSS-SP-58 – LATEST EDITION, TYPE 42, UL LISTED.
  - COPPER PIPE: CARBON STEEL COPPER PLATED TO MSS-SP58 – LATEST EDITION, TYPE 42.
- BOLTS: TO ASTM A 307 – LATEST EDITION.
- NUTS: TO ASTM A 563 – LATEST EDITION.
- INSULATION PROTECTION SHIELDS:
  - INSULATED COLD PIPING: 4 KG/M3 DENSITY INSULATION PLUS INSULATION PROTECTION SHIELD TO MSS SP-58 – LATEST EDITION, GALVANIZED SHEET CARBON STEEL, LENGTH DESIGNED FOR MAXIMUM 10 FT. (3.0 M) SPAN.
- HANGERS TO BE AS MANUFACTURED BY GRINNELL CO. OR E. MVATT AND CO.
- PIPE SUPPORTS: PPH MODEL PP10 C/W ROLLERS OR APPROVED EQUAL.

#### DRAIN VALVES

- PROVIDE NPS ¾ DRAIN VALVES WITH THREADED CAPS ON CHAINS AT ALL LOW POINTS OF THE PIPING SYSTEM.

#### STRAINERS

- PUMPS AND OTHER EQUIPMENT AS NOTED SHALL BE PROTECTED UPSTREAM BY A TEE-PATTERN STRAINER FOR EASY INSTALLATION, ACCESS AND CLEANING. ACCESS FOR CLEANING SHALL BE THROUGH A BLANK END CAP SECURED WITH A COUPLING. UNIT TO BE RATED FOR WORKING PRESSURES OF:
  - 5,175 KPA (750 PSI) NPS 2 TO NPS 5,
  - (4830 KPA (700 PSI) NPS 6
- ONE PIECE CASTING OF DUCTILE IRON TO ASTM A536 OR MALLEABLE IRON TO ASTM A47, WITH INTEGRAL CAST SHOULDERS/GROOVES FOR FIELD ASSEMBLY WITHOUT FIELD PREPARATION. COATING TO BE RUST INHIBITING ENAMEL.
- BASKET TO BE TYPE 304 STAINLESS STEEL, 1.04 MM WIRE IN A WOVEN NO. 6 MESH WIRE SCREEN WITH 3.2 MM OPENING, WELDED SECURELY TO A HEAVY FRAME OF LIKE MATERIAL, IN A CONVOLUTED CONFIGURATION.

#### PIPE EXECUTION

##### PIPE PREPARATION

- PIPES SHALL BE PREPARED IN ACCORDANCE WITH THE MANUFACTURER'S LATEST PUBLISHED SPECIFICATIONS. GROOVED END PIPE SHALL BE GROOVED IN ACCORDANCE WITH MANUFACTURER'S STANDARD SPECIFICATIONS WITHOUT METAL REMOVAL.
- HOLE CUT: PIPE SHALL HAVE A MACHINE CUT HOLE AT A PREDETERMINED POSITION ON THE CENTRELINE OF THE PIPE, OF A SIZE TO RECEIVE THE HOUSING LOCATING COLLAR, IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
- PLAIN END FOR FIT: PIPE ENDS SHALL BE THOROUGHLY CLEANED ON THE OD FOR 25 MM FROM THE PIPE END TO REMOVE PIPE COATINGS, MILL SCALE, RUST AND RAISED WELD BEADS. OD BURRS AND SHARP EDGES SHALL BE REMOVED. PIPE SHALL BE MARKED 40 MM FROM THE END AND PIPE END CONFIGURATION SHALL BE IN CONFORMANCE WITH MANUFACTURER'S SPECIFICATIONS.

#### MECHANICAL ROLL GROOVED PIPING

- STEEL PIPE TO ASTM A53 GRADE B--
  - TO NPS 6 – SCHEDULE 40.
- OPERATING CONDITIONS NOT TO EXCEED TEMPERATURE RANGE AND WORKING PRESSURES FOR GASKET SELECTED, AS INDICATED IN COUPLING MANUFACTURER'S CURRENT PRODUCT SPECIFICATIONS
- COUPLINGS TO BE DESIGNED FOR GROOVED END PIPE AND FOR FLAN OR BEVELED END PIPE. COUPLINGS TO CONSIST OF HOUSINGS, GASKETS, NUTS AND BOLTS.
- COUPLING HOUSINGS TO BE CAST OF DUCTILE IRON CONFORMING TO ASTM A536 (GRADE 65412) OR MALLEABLE IRON CONFORMING TO ASTM A47 (GRADE 32510) PAINTED WITH RUST INHIBITING PAINT.
- COUPLINGS TO BE SUITABLE FOR WORKING PRESSURES TO 5175 KPA (750 PSI) AND UNDERWRITERS' LABORATORIES LISTED/FACTORY MUTUAL APPROVED FOR WORKING PRESSURES UP TO 3450 KPA (500 PSI) (DEPENDING UPON SIZE, PIPE MATERIAL AND WALL THICKNESS).
- ACCEPTABLE MATERIAL: VICTAULIC 07 ZERO – FLEX; SHURJOINT STYLE Z-07 OR APPROVED EQUAL.
- GASKETS TO BE MOLDED OF SYNTHETIC RUBBER, PRESSURE-RESPONSIVE, CONFORMING TO THE PIPE OUTSIDE DIAMETER AND COUPLING HOUSING, AND HAVING PROPERTIES AS DESIGNATED IN ASTM D2000 (MILC10387H, GR.2), GRADE 'E' EPDM FOR WATER SERVICE, 0°C TO 110°C (30F TO 230F).
- NUTS AND BOLTS TO BE OF HEAT TREATED CARBON STEEL, TRACK HEAD, CONFORMING TO PHYSICAL PROPERTIES OF ASTM A183 MINIMUM TENSILE, 760,000 KPA (110,000 PSI), BLACK, AND ZINC ELECTROPLATED TO ASTM A164.
- FITTINGS TO FULL FLOW CAST FITTINGS, STEEL FITTINGS OR SEGMENTALLY WELDED FITTINGS WITH GROOVES OR SHOULDERS DESIGNED TO ACCEPT GROOVED END COUPLINGS. STANDARD FITTINGS TO BE CAST OF DUCTILE IRON CONFORMING TO ASTM A536 (GRADE 65412), OR MALLEABLE IRON CONFORMING TO ASTM A47, GRADE 32510, HOT DIP GALVANIZED TO ASTM A153 OR ZINC ELECTROPLATED TO ASTM A164 OR CADMIUM PLATED TO ASTM A165 AS REQUIRED. STANDARD STEEL FITTINGS, INCLUDING LARGE SIZE ELBOWS, SHALL BE FORGED STEEL CONFORMING TO ASTM A106, GRADE B, HOT DIP GALVANIZED TO ASTM A\_123, GRADE B.
- FLANGED CONNECTIONS SHALL ENGAGE DIRECTLY INTO GROOVED PIPE AND BOLT DIRECTLY TO ANSI CLASS 125 CAST IRON AND CLASS 150 STEEL FLANGED COMPONENTS.

#### BUTTERFLY VALVES

- BUTTERFLY VALVES SHALL BE OF TRIPLE SEAL LNER DESIGN FOR BUBBLE-TIGHT SHUT-OFF SERVICE UP TO 1380 KPA (200 PSI), AND 10" LATCH LOCK. TYPE OF HANDLES, LINER AND DISC MATERIAL SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS.
- VALVE HOUSING TO BE CAST OF DUCTILE IRON CONFORMING TO ASTM A536 OR MALLEABLE IRON CONFORMING TO ASTM A47, AND SHALL BE ZINC ELECTROPLATED IN ACCORDANCE WITH ASTM A164.
- VALVE BODIES TO BE SCHEDULE 40 CARBON STEEL PIPE, ZINC ELECTROPLATED IN ACCORDANCE WITH ASTM A164, OR DUCTILE IRON CONFORMING TO ASTM A536, FULLY RUBBER LINED WITH ELASTOMERIC MATERIALS PERMANENTLY BONDED TO THE METAL BODY.
- LINER TO BE MOLDED OF SYNTHETIC RUBBER, PERMANENTLY BONDED TO THE VALVE BODY OF ELASTOMERS HAVING PROPERTIES AS DESIGNATED IN ASTM D2000 (MILC10387 H, GR.2).
- VALVE STEMS TO BE 416 STAINLESS STEEL AND OF TWO PIECE DESIGN, UTILIZING SEPARATE UPPER AND LOWER STEMS IN SUCH MANNER AS TO PROVIDE A "FLOATING DISC" SEAL.
- VALVE DISCS TO BE OF ALUMINUM BRONZE DISC TO BE DESIGNED TO BE INCORPORATED INTO SPLIT STEM SYSTEM. MANUAL HANDLES TO BE OF ELECTROPLATED MALLEABLE IRON CONFORMING TO ASTM A47, LATCH LOCK AND INFINITELY VARIABLE HANDLES SHALL BE OF SAME MATERIAL.
- ACCEPTABLE MATERIAL: VICTAULIC, SHURJOINT, CENTRELINE, KITZ OR APOLLO WITH VICTAULIC ADAPTORS OR APPROVED EQUAL.

#### CHECK VALVES

- CHECK VALVES SHALL BE SPRING ACTUATED, DUAL DISC, NON SLAM DESIGN. DISC SHALL MATE BACK TO BACK IN THE FULL OPEN POSITION WITH A CENTRAL LUG TO REDUCE DISC FLUTTER. VALVES TO BE SUITABLE FOR HORIZONTAL OR VERTICAL INSTALLATION AND RATED FOR WORKING PRESSURES UP TO 3450 KPA (500 PSI)
- VALVE HOUSING TO BE CAST OF DUCTILE IRON CONFORMING TO ASTM A536 OR MALLEABLE IRON CONFORMING TO ASTM A47, PAINTED WITH ALKYL ENAMEL OR HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, OR ZINC ELECTROPLATED IN ACCORDANCE WITH ASTM A165.
- DISC SEAT TO BE MOLDED OF SYNTHETIC RUBBER, PERMANENTLY BONDED TO THE VALVE BODY, OF ELASTOMERS HAVING PROPERTIES AND DESIGNATED IN ASTM A2000 (MILC103877 H, GR.2). REFERENCE SHALL ALWAYS BE MADE TO LATEST PUBLISHED SEAL SELECTION RECOMMENDATIONS FOR RUBBER SEAT SELECTION.
- DISCS SHALL BE CAST OF ALUMINUM BRONZE CONFORMING TO ASTM B148, AND SHALL REST ON NYLON BUSHINGS.
- SPRING AND SHAFT SHALL BE TYPE 316 STAINLESS STEEL.
- ACCEPTABLE MATERIAL: VICTAULIC 711, 715, 716; SHURJOINT SJ-900 OR APPROVED EQUAL.

#### BALL VALVES

- BALL VALVES IN SIZES NPS 1½ THROUGH 6 TO BE DESIGNED FOR 4140 KPA (WOG) (600 PSI) BUBBLE TIGHT WORKING PRESSURES. VALVE SEALS SHALL BE DESIGNED FOR 232°C (450°F) MAXIMUM TEMPERATURE. FLANGED VALVES: KITZ 150 SCTB OR APPROVED EQUAL.
- BODY/END CAP TO BE CAST OF DUCTILE IRON CONFORMING TO ASTM A536, WITH COATING FOR ENHANCED CORROSION RESISTANCE IN AN END ENTRY CONFIGURATION WITH PERMANENTLY ASSEMBLED AND SEALED END CAP.
- BALL SHALL BE FORGED OF CARBON STEEL, MICRO FINISHED NICKEL PLATED AND POLISHED.
- STEM TO BE FORGED OF CARBON STEEL, NICKEL CHROME PLATED, WITH INTERNAL ASSEMBLY BLOWOUT-PROOF DESIGN (316 STAINLESS STEEL OPTIONAL), AND SPRING WASHERS INCORPORATED TO MAINTAIN STEM SEAL.
- SEALS TO BE OF TFE (TETRAFLUOROETHYLENE) RATED FOR SERVICE UP TO 232°C (450°F).
- HANDLES TO BE STAMPED CARBON STEEL FOR NPS 1½ – 2½, ELECTRO GALVANIZED WITH PLASTIC GRIP FOR NPS 3 TO 6. CAST OF DUCTILE IRON CONFORMING TO ASTM A395, ENDURON COATED. PROVIDE A STEEL PIPE EXTENSION FOR EASE OF OPERATION FOR NPS 4 AND 6.

#### DRAIN VALVES

- PROVIDE NPS ¾ DRAIN VALVES WITH THREADED CAPS ON CHAINS AT ALL LOW POINTS OF THE PIPING SYSTEM.

#### STRAINERS

- PUMPS AND OTHER EQUIPMENT AS NOTED SHALL BE PROTECTED UPSTREAM BY A TEE-PATTERN STRAINER FOR EASY INSTALLATION, ACCESS AND CLEANING. ACCESS FOR CLEANING SHALL BE THROUGH A BLANK END CAP SECURED WITH A COUPLING. UNIT TO BE RATED FOR WORKING PRESSURES OF:
  - 5,175 KPA (750 PSI) NPS 2 TO NPS 5,
  - (4830 KPA (700 PSI) NPS 6
- ONE PIECE CASTING OF DUCTILE IRON TO ASTM A536 OR MALLEABLE IRON TO ASTM A47, WITH INTEGRAL CAST SHOULDERS/GROOVES FOR FIELD ASSEMBLY WITHOUT FIELD PREPARATION. COATING TO BE RUST INHIBITING ENAMEL.
- BASKET TO BE TYPE 304 STAINLESS STEEL, 1.04 MM WIRE IN A WOVEN NO. 6 MESH WIRE SCREEN WITH 3.2 MM OPENING, WELDED SECURELY TO A HEAVY FRAME OF LIKE MATERIAL, IN A CONVOLUTED CONFIGURATION.

#### PIPE EXECUTION



# CHILLED WATER EXTENSION



Capital Planning and Real Asset Management Branch  
Direction de l'aménagement de la capitale et gestion de l'immobilier

Design and Construction Division  
Division design et construction

director - Claude Robert - directeur

## DRAWING LIST

### ARCHITECTURAL:

- A0 COVER PAGE
- A1 BASEMENT FLOOR PLANS AND DETAILS
- A2 GROUND FLOOR PLANS AND DETAILS
- A3 SECOND FLOOR PLANS AND DETAILS
- A4 THIRD FLOOR PLANS AND DETAILS
- A5 DETAILS
- A6 DETAILS
- A7 DETAILS
- A8 DETAILS
- A9 DETAILS
- A10 DETAILS

## SPECIFICATIONS

### PARTITION FOR MINOR WORKS

#### REFERENCES

- .1 ASTM C1396/C1396M-09a, Standard Specification for Gypsum Wallboard.
- .2 ASTM C475/C475M-02(2007), Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- .3 ASTM C645-09a, Standard Specification for Nonstructural Steel Framing Members.
- .4 ASTM C754-09a, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- .5 ASTM C840-08, Standard Specification for Application and Finishing of Gypsum Board.

#### SUBMITTALS

- .1 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for gypsum, framing, sealants and include product characteristics, performance criteria, physical size, finish and limitations.

#### MATERIALS

- .1 Non-structural Metal Framing:
  - .1 Non-load bearing channel stud framing: to ASTM C645, 90 mm stud size, roll formed from 0.53 mm thickness hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.
  - .2 Floor and ceiling tracks: to ASTM C645, in widths to suit stud sizes, 32 mm flange height.
- .2 Gypsum Board:
  - .1 Standard board: to ASTM C1396/C1396, regular, 13 mm thick and 16mm firecode, 1200 mm wide x maximum practical length, ends square cut, edges tapered.
  - .2 Metal furring runners, hangers, tie wires, inserts, anchors: to ASTM C1047.
  - .3 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
  - .4 Steel screws: to ASTM C954.
  - .5 Casing beads, corner beads, control joints and edge trim: metal, 0.5 mm base thickness, perforated flanges, one piece length per location.

#### ERECTION OF FRAMING

- .1 Install steel framing members to receive screw-attached gypsum board in accordance with ASTM C754 except where specified otherwise.
- .2 Align partition tracks at floor and ceiling and secure at 600 mm on centre maximum.
- .3 Place studs vertically at 400 mm on centre and maximum of 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.
- .4 Erect metal studding to tolerance of 1:1000.
- .5 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- .6 Include two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.
- .7 Install heavy gauge single jamb studs at openings.
- .8 Install steel studs or furring channel between studs for attaching electrical & other boxes.
- .9 Extend partitions to ceiling height.

#### ERECTION OF GYPSUM BOARD

- .1 Do application and finishing of gypsum board in accordance with ASTM C840.
- .2 Install gypsum boards in direction that will minimize number of end-butt joints. Stagger end joints 250 mm minimum.
- .3 Apply gypsum board after bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
- .4 Apply gypsum board to metal furring or framing using screw fasteners. Maximum spacing of screws 300 mm on centre.
- .5 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm on centre.

### ARCHITECTURAL WOODWORK

#### REFERENCES

- .1 American National Standards Institute (ANSI)
  - .1 ANSI A208.1-09, Particleboard.
  - .2 ANSI A208.2-09, Medium Density Fiberboard (MDF) for Interior Applications.
  - .3 ANSI/HPVA HP-1-10, Standard for Hardwood and Decorative Plywood.
- .2 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
  - .1 Architectural Woodwork Quality Standards Illustrated, 8th edition, Version 1.0 (2009).

#### SUBMITTALS

- .1 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for architectural woodwork and include product characteristics, performance criteria, physical size, finish and limitations.

#### MANUFACTURED UNITS

- .1 Casework:
  - .1 Fabricate caseworks to AWMAC premium quality grade.
- .2 Furring, blocking, nailing strips, grounds and rough bucks and sleepers.
  - .1 S2S is acceptable for concealed locations.
  - .2 Urea-formaldehyde free.

#### CABINET HARDWARE

- .1 Shelf rests: shelf rest installed in holes drilled.
  - .1 Richelieu 58372G, nickel. And/or approved equal.
  - .2 Support each shelf on four rests.

#### CASEWORK FABRICATION

- .1 Set nails and countersink screws apply plain wood filler to indentations, sand smooth and leave ready to receive finish.
- .2 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.
- .3 Shelving to cabinetwork to be adjustable.
- .4 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.
- .5 Obtain governing dimensions before fabricating items.
- .6 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .7 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions.
- .8 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.

#### INSTALLATION

- .1 Do architectural woodwork to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.
- .2 Install prefinished millwork at locations shown on drawings. Position accurately, level, plumb straight.
- .3 Fasten and anchor millwork securely. Provide heavy duty fixture attachments for wall mounted cabinets.
- .4 Scribe and cut as required to fit abutting walls and baseboard.
- .5 Fit hardware accurately and securely in accordance with manufacturer's written instructions.

### FIRE STOPPING

#### REFERENCES

- .1 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
  - .2 Underwriters' Laboratories of Canada (ULC)
  - .3 National Building Code of Canada 2010.

#### SUBMITTALS

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit fire resistance rating test listings for firestopping and smoke seal systems.
  - .3 Submit two copies of WHMIS MSDS - Material Safety Data Sheets.

#### SYSTEM DISCRPTION

- .1 Provide firestop and smoke seal systems consisting of a material, or combination of materials installed to retain the integrity of fire-rated construction by effectively impeding the spread of flame, smoke, and/or hot gases through penetrations, blank openings or gaps, membrane penetrations, construction joints, or at perimeter fire containment in or adjacent to fire-rated barriers.

#### ACCEPTABLE MANUFACTURERS

- .1 General: Manufacturers of firestopping and smoke seal system Products and installation specialists for the work of this section are limited to applicable assemblies as required for the Work and having ULC or cUL or Warnock Hersey labeled packaging.

#### MATERIALS

- .1 Fire stopping and smoke seal systems: in accordance with CAN-ULC-S115.
  - .1 Asbestos-free materials and systems capable of maintaining effective barrier against flame, smoke and gases in compliance with requirements of CAN-ULC-S115 and not to exceed opening sizes for which they are intended.
  - .2 Fire stop system rating: 2 hours at floor, 1 hours at vertical service shaft
  - .2 Service penetration assemblies: systems tested to CAN-ULC-S115.
  - .3 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.
  - .4 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.
  - .5 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
  - .6 Fire stopping and smoke seals at openings around fire-resistance rated assemblies for combustible pipes: firestop collar purpose designed to suit application.
  - .7 Primers: to manufacturer's recommendation for specific material, substrate, and end use.
  - .8 Damping and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.
  - .9 Sealants for vertical joints: non-sagging.

#### MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

#### PREPARATION

- .1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials.
  - .1 Ensure that substrates and surfaces are clean, dry and frost free.
- .2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.
- .3 Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.
- .4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

#### INSTALLATION

- .1 Install fire stopping and smoke seal material and components in accordance with manufacturer's certified tested system listing.
- .2 Coordinate with other sections to assure that pipes, conduit, cable and other items that penetrate fire rated construction, have been permanently installed prior to installation of firestop assemblies.
- .3 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.
- .4 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.
- .5 Tool or trowel exposed surfaces to neat finish.
- .6 Remove excess compound promptly as work progresses and upon completion.

### PAINTING

#### REFERENCES

- .1 MPI Architectural Painting Specifications Manual, 2004.
- .2 Systems and Specifications Manual, SSPC Painting Manual, Volume Two, Society for Protective Coatings (SSPC).
- .3 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 -1995 (for Surface Coatings) of the Environmental Protection Agency (EPA).
- .4 National Fire Code of Canada - 1995.

#### QUALITY ASSURANCE

- .1 Qualified journeymen who have a "Tradesman Qualification Certificate of Proficiency" shall be engaged in painting work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with trade regulations.

#### MATERIALS

- .1 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
- .2 Provide paint materials for paint systems from single manufacturer.
- .3 Only qualified products with "Environmentally Friendly" rating are acceptable for use on this project.

#### COLOURS AND SHEEN

- .1 Match existing paint colours and sheen to adjoining areas.

#### PREPERATION

- .1 Protect existing building surfaces and adjacent structures from paint splatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore such surfaces as directed by Consultant.
- .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
- .3 Protect factory finished products and equipment.
- .4 As painting operations progress, place "WET PAINT" signs in occupied areas to approval of DCR. Refer to Section 01 00 10, Paragraph 14.1, all signs shall be bilingual or pictograms.
- .5 Clean and prepare surfaces in accordance with MPI Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
  - .1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
  - .2 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

#### APPLICATION

- .1 Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and Roller Application:
  - .1 Apply paint in uniform layer using brush and/or roller type suitable for application.
  - .2 Work paint into cracks, crevices and corners.
  - .3 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.
  - .4 Remove runs, sags and brush marks from finished work and repaint.
- .3 Spray application:
  - .1 Provide and maintain equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
  - .2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
  - .3 Apply paint in uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.
  - .4 Brush out immediately all runs and sags.
  - .5 Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.
- .4 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .5 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .6 Sand and dust between coats to remove visible defects.
- .7 Provide one coat primer and two finish coats of paint to all new surfaces. match and blend new paint with existing adjacent surfaces.

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no.	description	date
7		
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3	ISSUED FOR TENDER	16 DEC 2014
2	RE-ISSUED FOR REVIEW	12 MAR 2014
1	ISSUE FOR REVIEW	28 MAR 2013
no.	description	date

project

projet

CHILLED WATER  
EXTENSION

COVER SHEET

approved by M. MARTIGNAGO

approuvé par

designed by M. MARTIGNAGO

conçu par

drawn by S. SIDONS [1321]

dessiné par

date SEE REV. COLUMN scale AS NOTED

NCC project no.

no. du projet de la CCN

RD - 110891

A0

**GENERAL NOTES**

- A. PRIOR TO COMMENCEMENT OF WORK, NOTIFY NCC'S ENGINEERS AND CONSULTANTS OF ANY DISCREPANCIES NOTED IN THE CONTRACT DOCUMENTS.
- B. ALL GRID TO GRID DIMENSIONS ARE PLUS/MINUS. PRIOR TO COMMENCEMENT OF WORK, REVIEW SITE CONDITIONS AND VERIFY ALL DIMENSIONS. NOTIFY CONSULTANT OF ANY DISCREPANCIES.
- C. DO NOT SCALE DRAWINGS.
- D. REFER TO CONSULTANTS DRAWINGS AS APPLICABLE, FOR ADDITIONAL INFORMATION AND SPECIFIC DISCIPLINE RELATED DESIGN MATTERS.
- E. ALL DIMENSIONS ARE INDICATED IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

**DRAWING NOTES - SHEET A1:**

THESE NOTES APPLY TO DRAWING SHEET A1 ONLY:

1. EXISTING PIPING TO BE REMOVED AND REPLACED WITH NEW PIPING. REFER TO MECHANICAL.
2. REMOVE PORTION OF EXISTING WALL AS REQUIRED FOR NEW MECHANICAL PIPING ROUTE. REFER TO DETAIL.
3. NEW PIPING. REFER TO MECHANICAL.
4. REMOVE EXISTING PLASTER CEILING ON METAL LATHE AS INDICATED, AND REPLACE WITH NEW GYPSUM BOARD CEILING. PAINT FINISH. REFER TO DETAILS.
5. EXISTING PIPING RISER TO BE REMOVED AND REPLACED WITH NEW PIPING. REFER TO MECHANICAL.
6. PATCH, REPAIR AND MAKE GOOD EXISTING EXTERIOR CLADDING FINISH AT 48" DIAMETER OPENING WHERE MECHANICAL CONDUIT AND PIPING IS REMOVED. FINISH TO MATCH EXISTING. REFER TO DETAIL.
7. PATCH, REPAIR AND MAKE GOOD EXISTING INTERIOR PLASTER WALL FINISH AT 48" DIAMETER OPENING WHERE MECHANICAL CONDUIT AND PIPING IS REMOVED. FINISH TO MATCH EXISTING. REFER TO DETAIL.
8. EXISTING TELEPHONE CABINET, TO REMAIN.
9. EXISTING CONCRETE BLOCK WALL.
10. EXISTING GYPSUM BOARD ONE SIDE OF CONCRETE BLOCK WALL.
11. EXISTING GYPSUM BOARD BOTH SIDES OF STEEL STUD FRAMING.
12. EXISTING STUCCO EXTERIOR CLADDING ON METAL LATH.
13. EXISTING PIPING TO BE REMOVED. REFER TO MECHANICAL.

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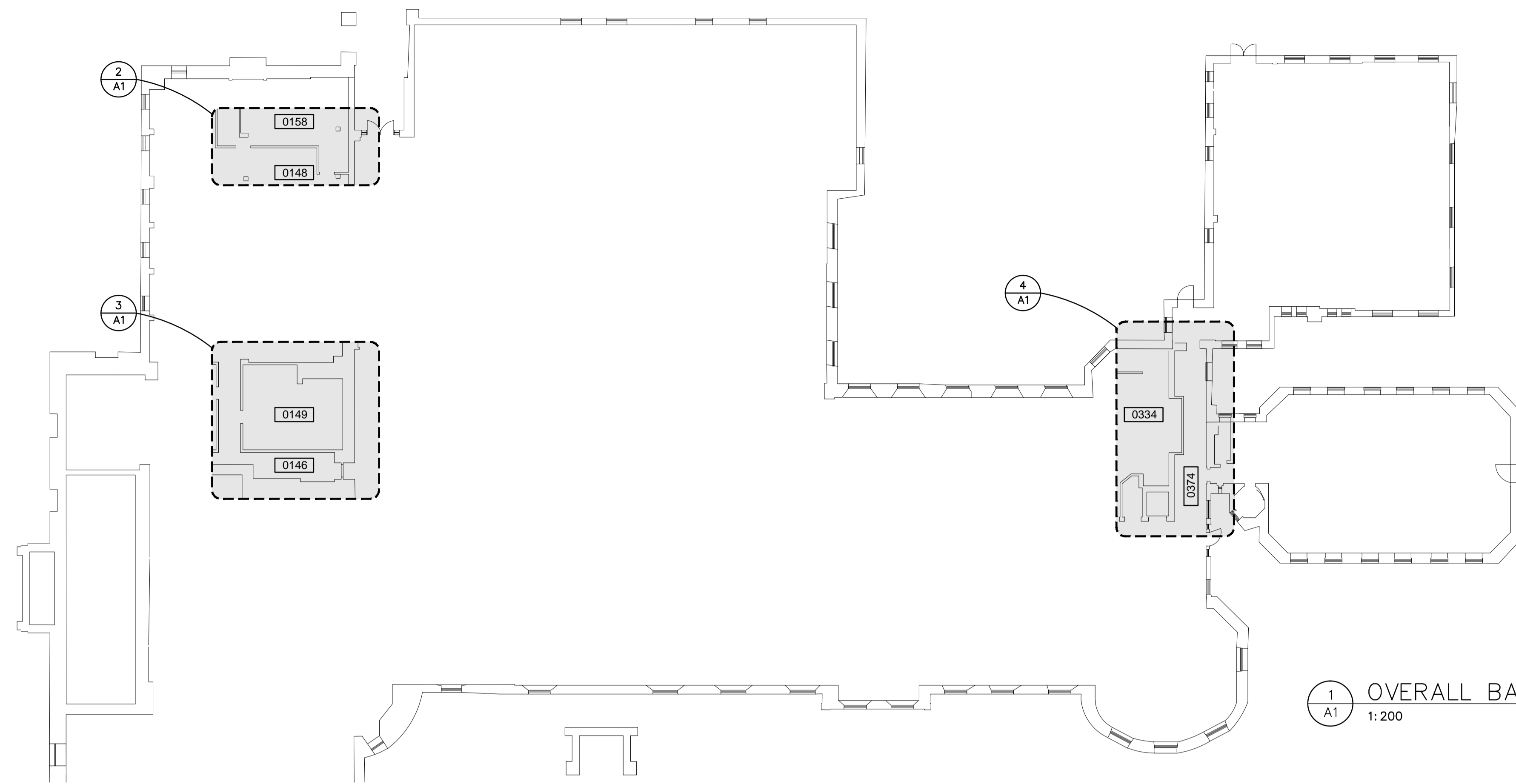
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2	RE-ISSUED FOR REVIEW	12 MAR 2014
1	ISSUE FOR REVIEW	28 MAR 2013

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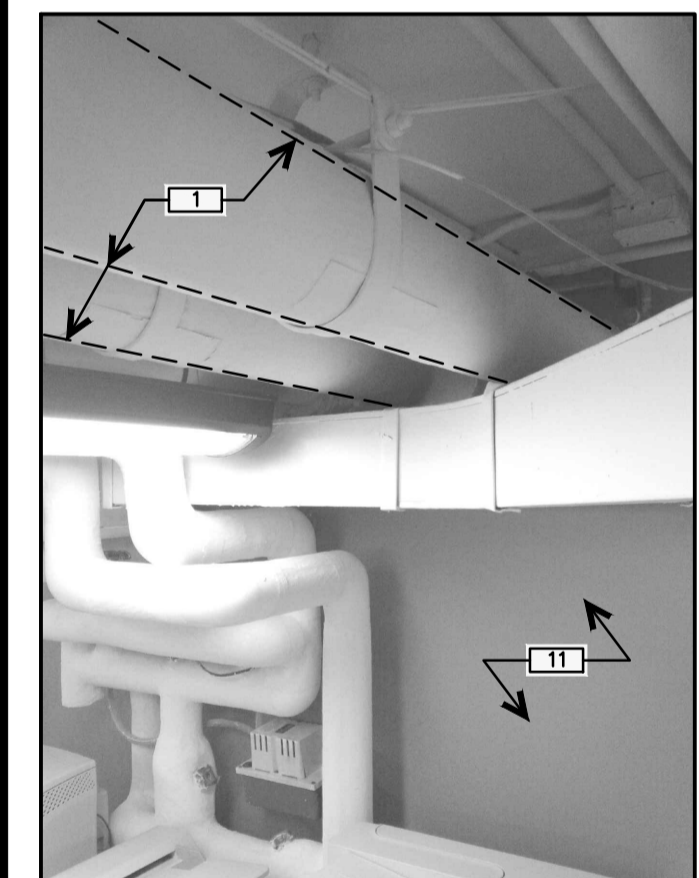
**CHILLED WATER  
EXTENSION**

**BASEMENT FLOOR PLANS  
AND DETAILS**

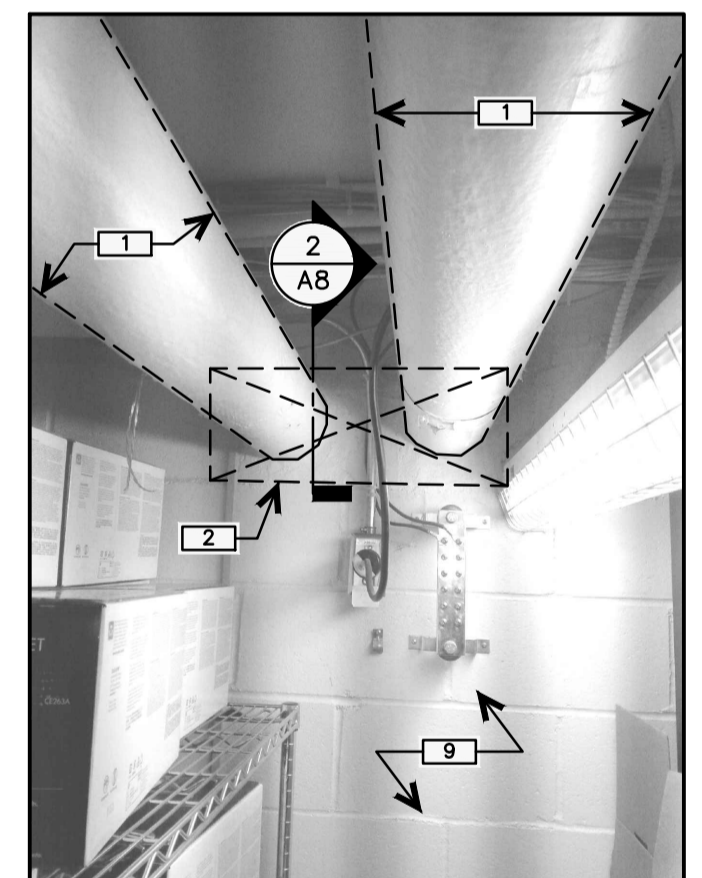
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designed by / conçu par M. MARTIGNAGO  
drawn by / dessiné par S. SIDONS (1321)  
date / SEE REV. COLUMN / scale / échelle AS NOTED  
NCC project no. / no. du projet de la CCN  
RD - 110891



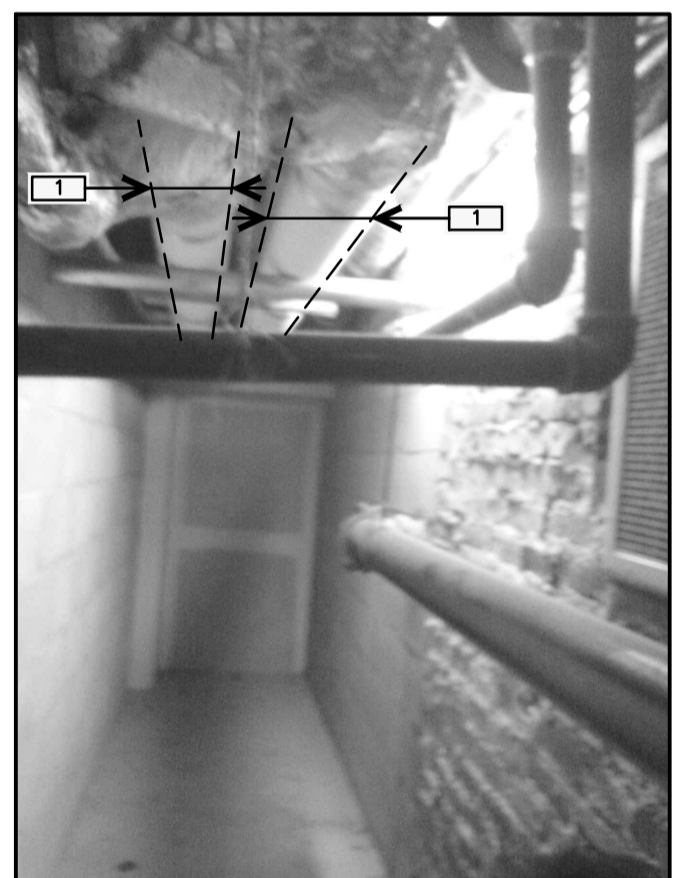
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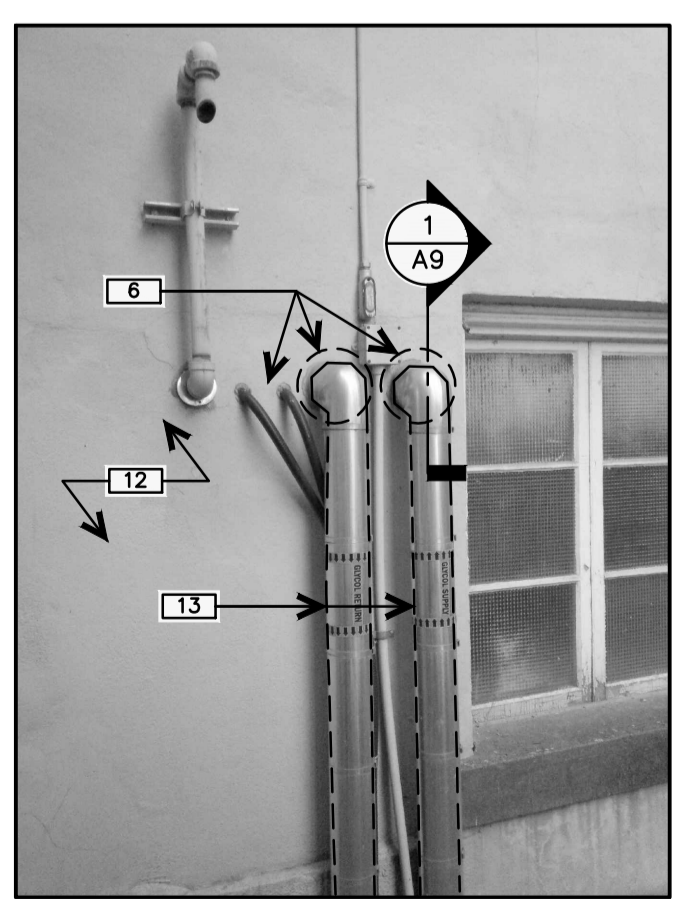
5 (E) PHOTO  
A1



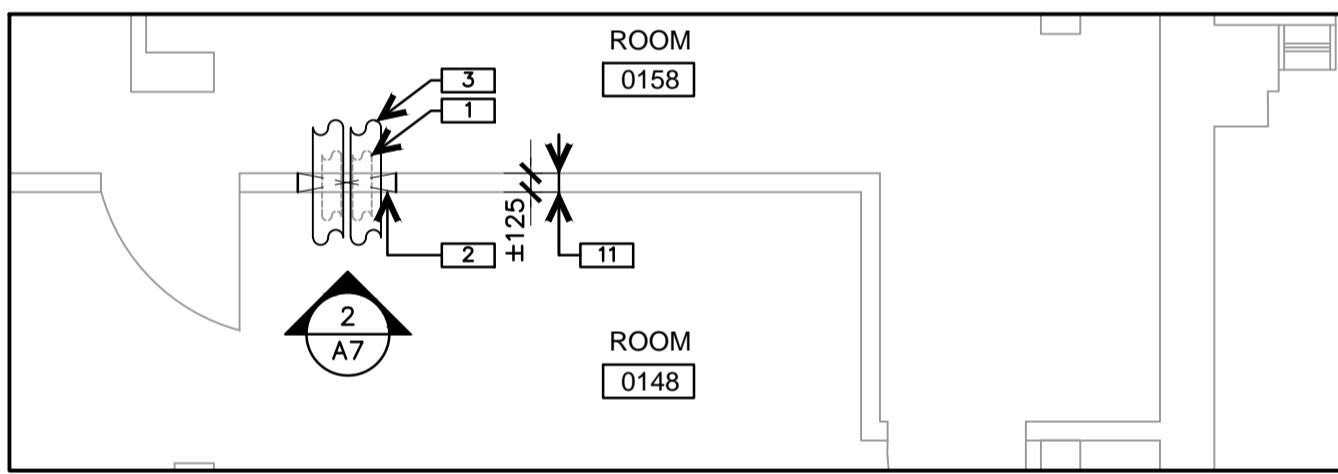
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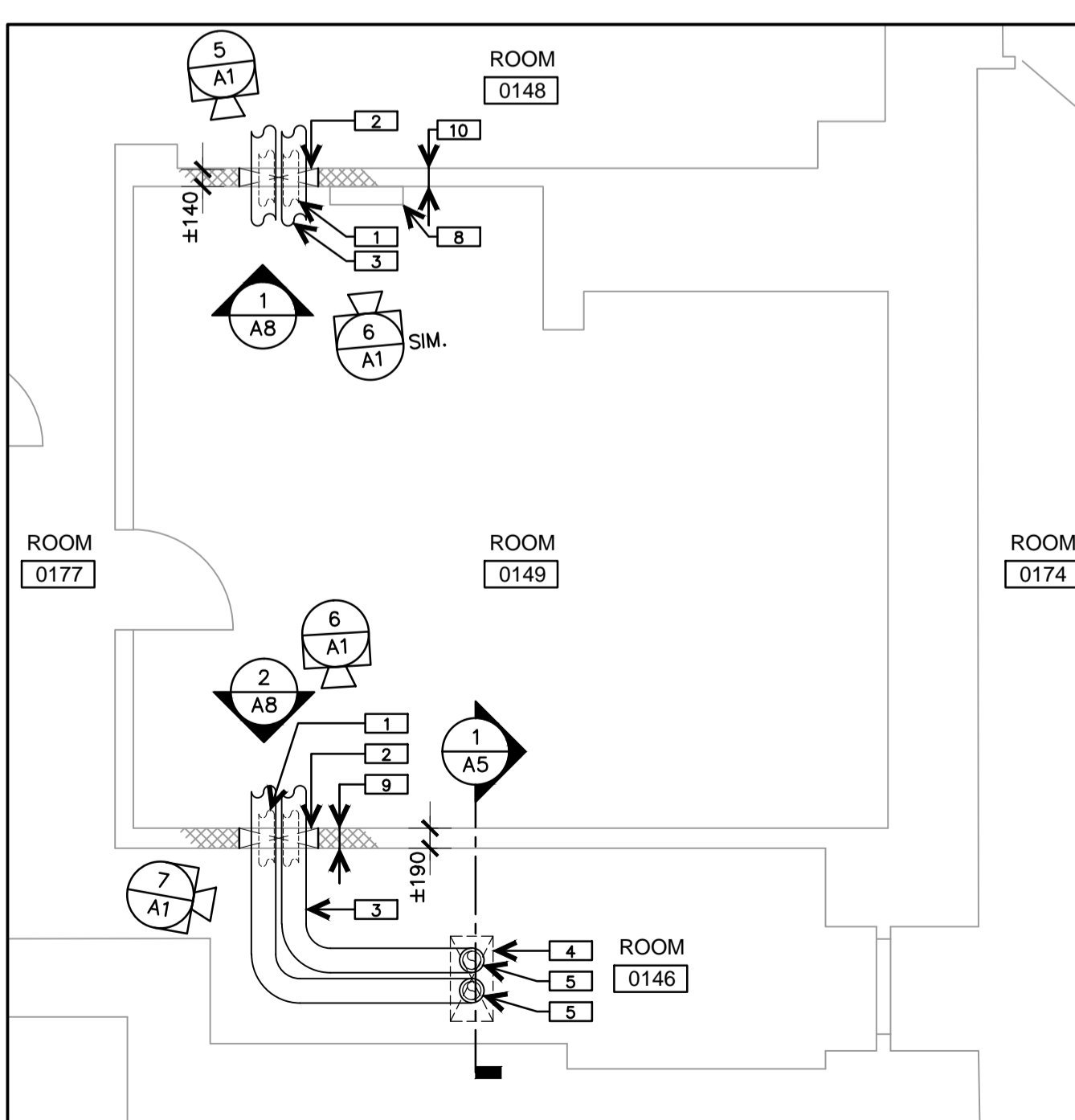
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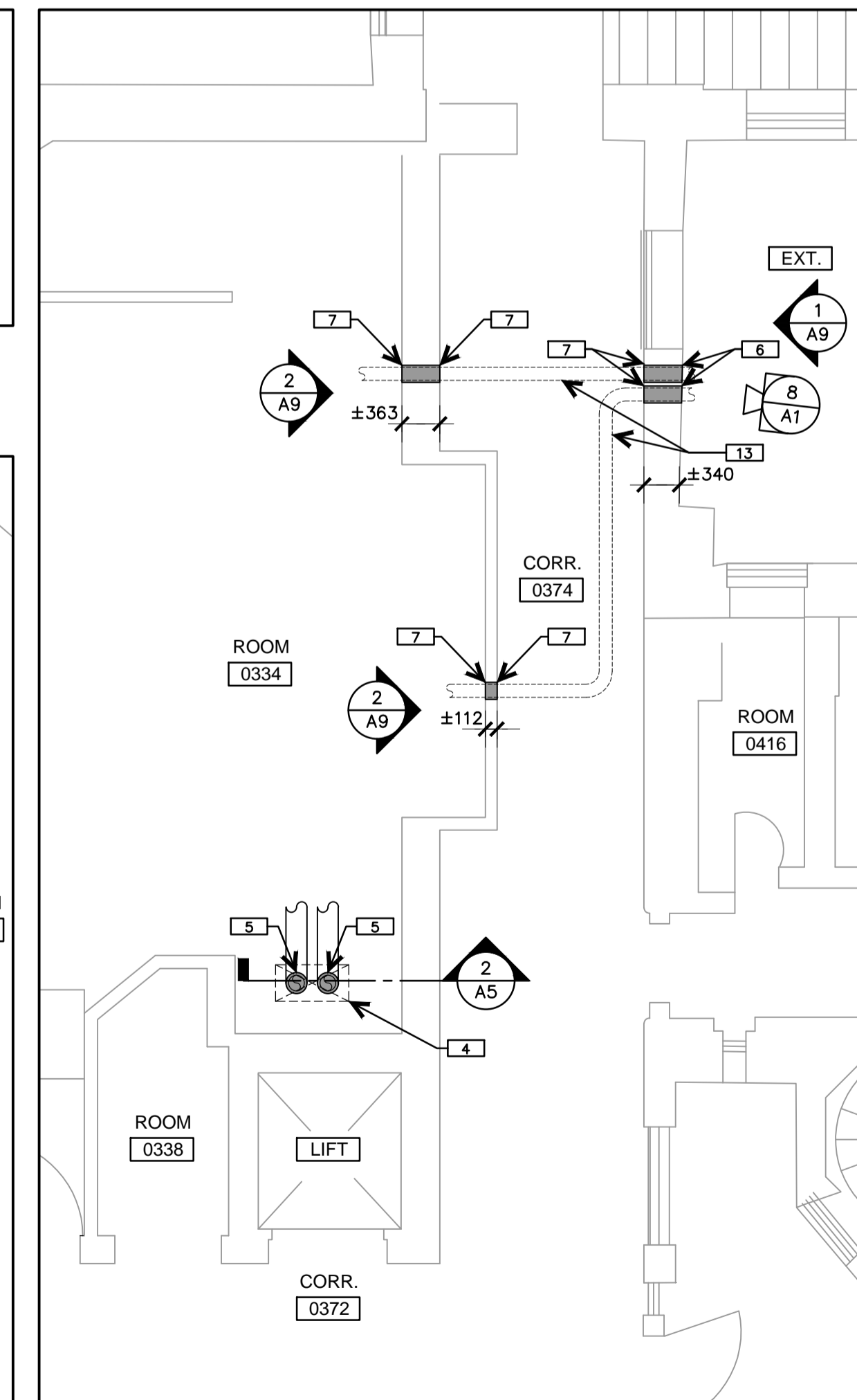
8 (E) PHOTO  
A1



2 PARTIAL BASEMENT FLOOR PLAN  
1:50



3 PARTIAL BASEMENT FLOOR PLAN  
1:50



4 PARTIAL BASEMENT FLOOR PLAN  
1:50

**LEGEND:**  
APPLICABLE TO ALL ARCHITECTURAL DRAWINGS:

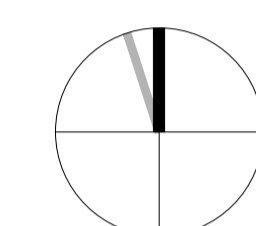
- XXX → DRAWING NOTE
- X XXXX BUILDING SECTION REFERENCE
- X' XXXX DRAWING NUMBER
- X XXXX SECTION REFERENCE
- X XXXX LAYOUT NUMBER
- X XXXX DETAIL REFERENCE
- 00.00 ELEVATION HEIGHT
- REMOVE EXISTING WALL
- REMOVE SURFACE
- AFF ABOVE FINISH FLOOR
- c/w COMPLETE WITH
- (E) EXISTING
- o.c. ON CENTER
- REV. REVERSE
- TOC TOP OF CONCRETE
- TOD TOP OF DECK
- TYP. TYPICAL
- INDICATES CEILING HEIGHT





383 Parkdale Avenue, Ottawa  
 Ontario Canada K1Y 4E4  
**KWC ARCHITECTS INC.**  
 PHONE (613) 238-2117  
 FAX (613) 238-0395  
 E-MAIL kwc@kwc-arch.com

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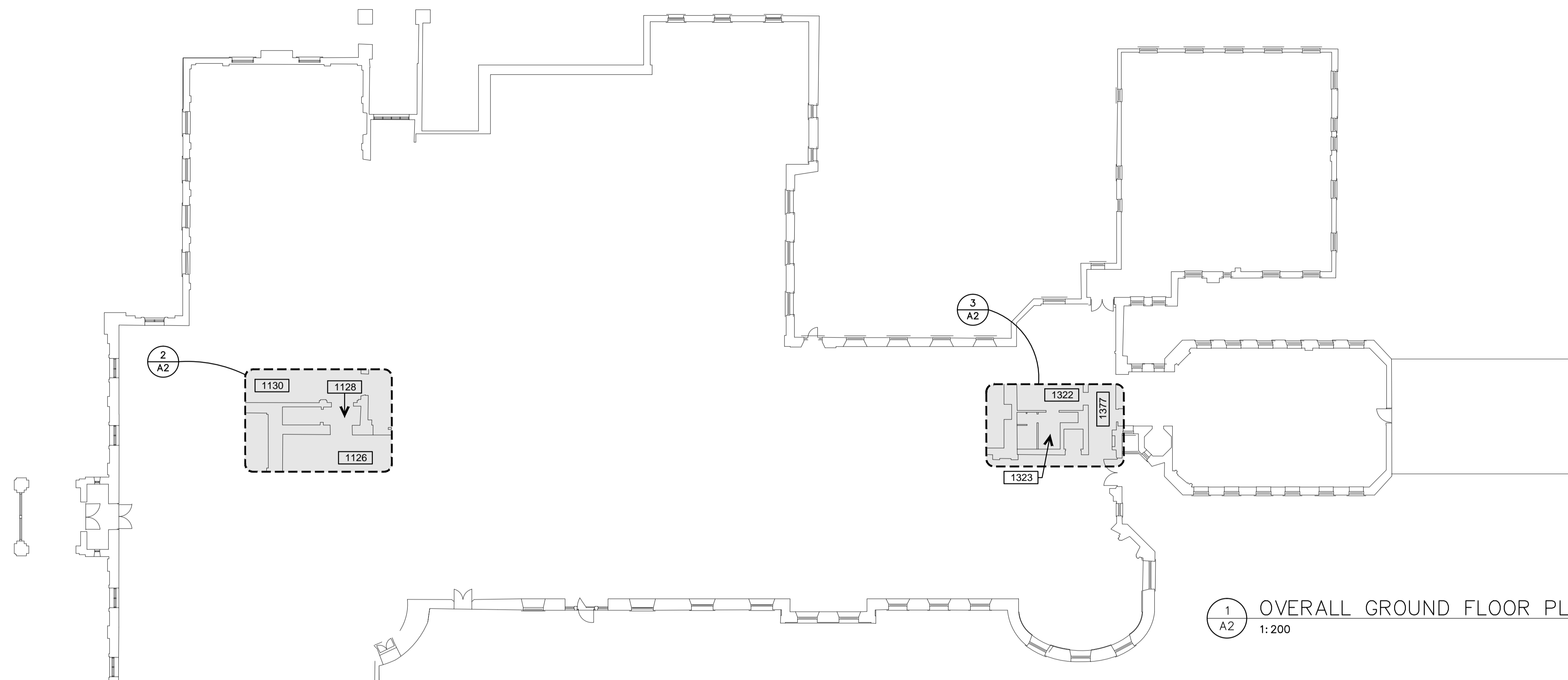
**GENERAL NOTES**

- A. PRIOR TO COMMENCEMENT OF WORK, NOTIFY NCC'S ENGINEERS AND CONSULTANTS OF ANY DISCREPANCIES NOTED IN THE CONTRACT DOCUMENTS.
- B. ALL GRID TO GRID DIMENSIONS ARE PLUS/MINUS. PRIOR TO COMMENCEMENT OF WORK, REVIEW SITE CONDITIONS AND VERIFY ALL DIMENSIONS. NOTIFY CONSULTANT OF ANY DISCREPANCIES.
- C. DO NOT SCALE DRAWINGS.
- D. REFER TO CONSULTANTS DRAWINGS AS APPLICABLE, FOR ADDITIONAL INFORMATION AND SPECIFIC DISCIPLINE RELATED DESIGN MATTERS.
- E. ALL DIMENSIONS ARE INDICATED IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

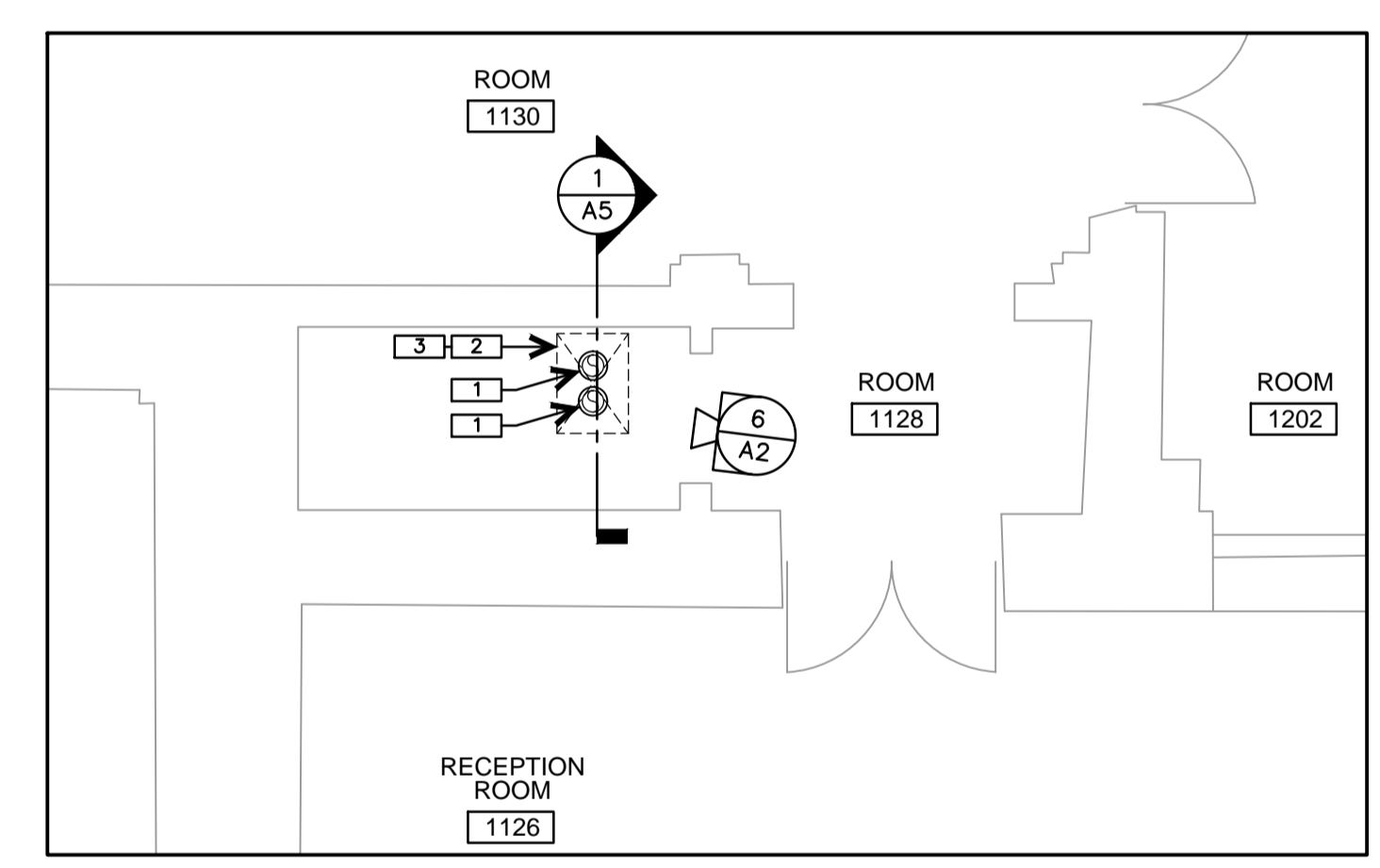
**DRAWING NOTES - SHEET A2:**

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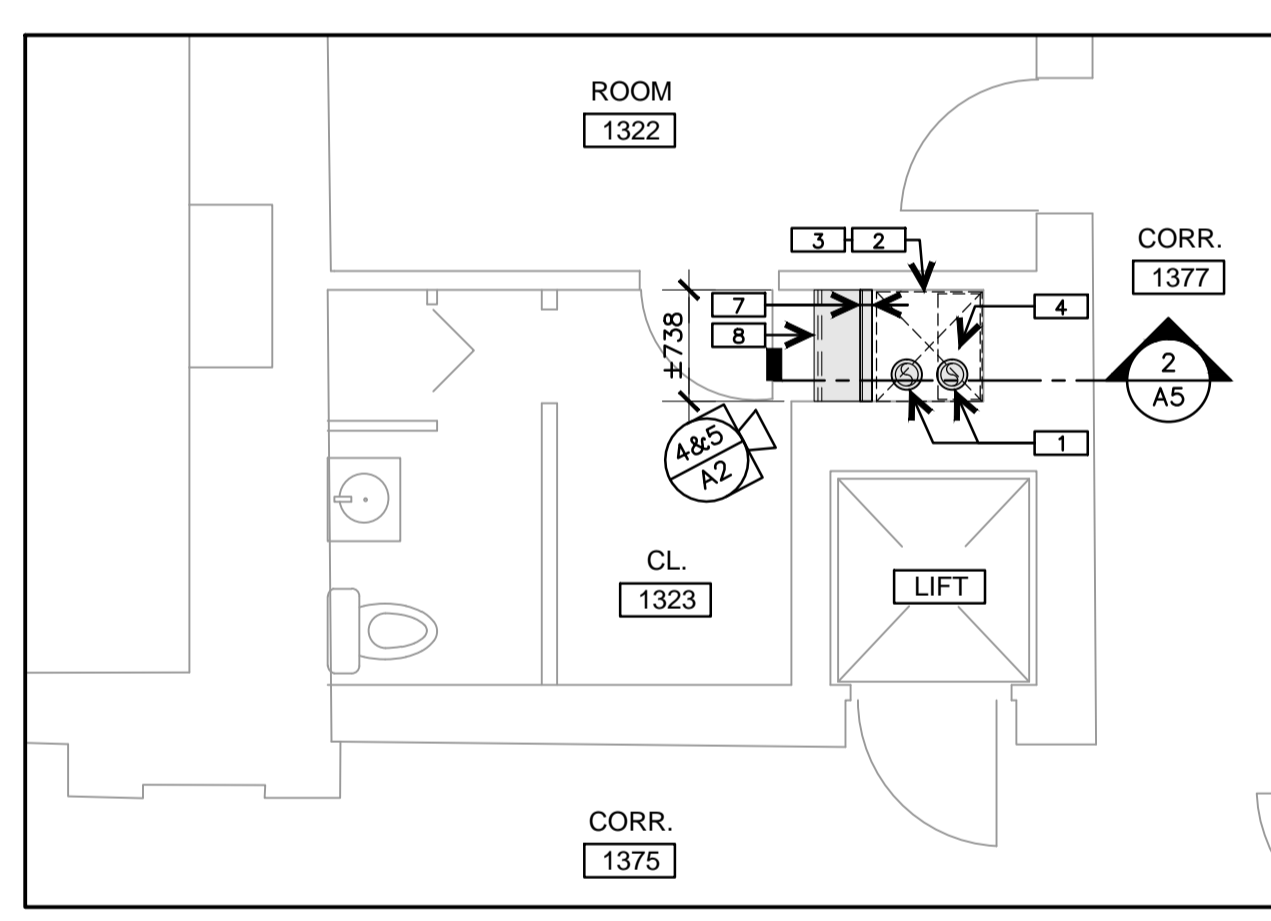
1. EXISTING PIPING RISER TO BE REMOVED AND REPLACED WITH NEW PIPING. REFER TO MECHANICAL.
2. REMOVE EXISTING PLASTER CEILING ON METAL LATHE AS INDICATED, AND REPLACE WITH NEW GYPSUM BOARD CEILING. REFER TO DETAILS.
3. REMOVE EXISTING FLOOR FINISH AND WOOD SUB-FLOORING AS INDICATED AND REPLACE WITH NEW PLYWOOD SUB-FLOOR INFILL c/w WOOD BLOCKING, PAINT FINISH.
4. REMOVE EXISTING CLOSET SHELVING AND COAT ROD.
5. CAREFULLY REMOVE EXISTING BASEBOARD AS INDICATED.
6. REMOVE EXISTING CEILING LIGHT FIXTURE. REFER TO ELECTRICAL.
7. NEW WALL: 13mm GYPSUM BOARD WALL FINISH ON 92mm STEEL STUD FRAMING AT 400mm O.C. - FULL HEIGHT (2413mm). BUILD WALL AS TIGHT AS POSSIBLE TO NEW MECHANICAL PIPING.
8. NEW 400mm DEEP CLOSET SHELF c/w COAT ROD TO MATCH EXISTING MATERIAL AND FINISH.



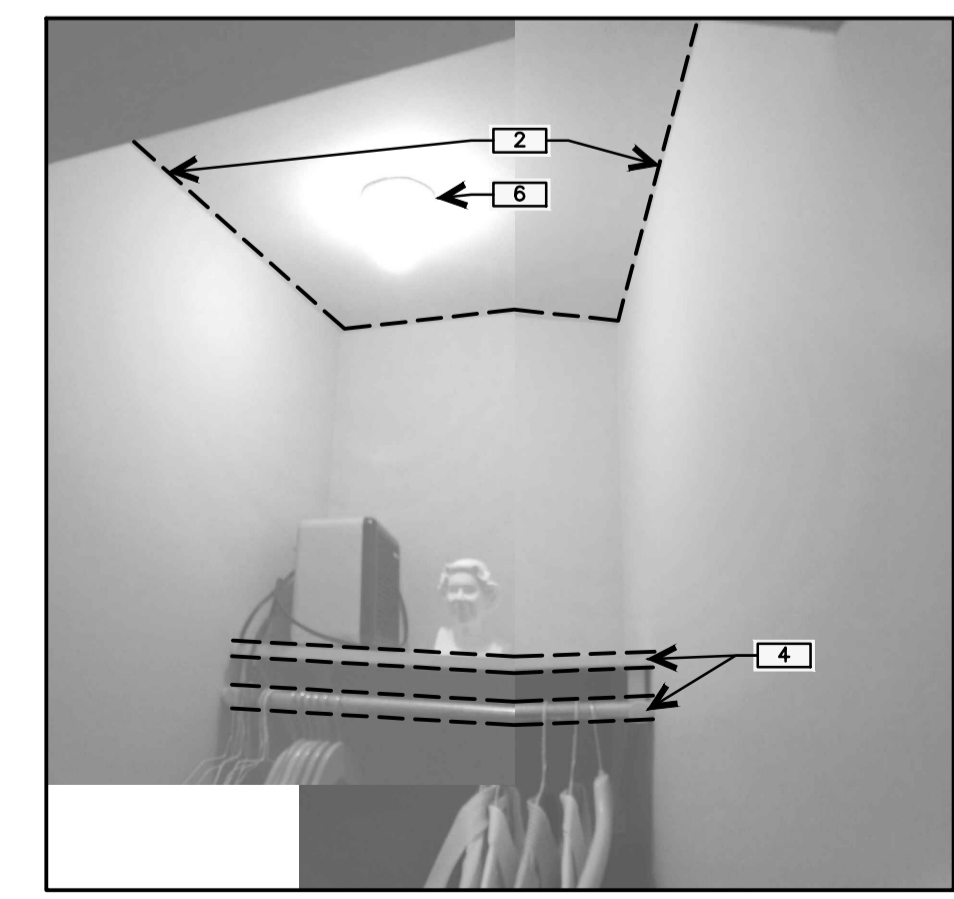
1 OVERALL GROUND FLOOR PLAN  
 1:200



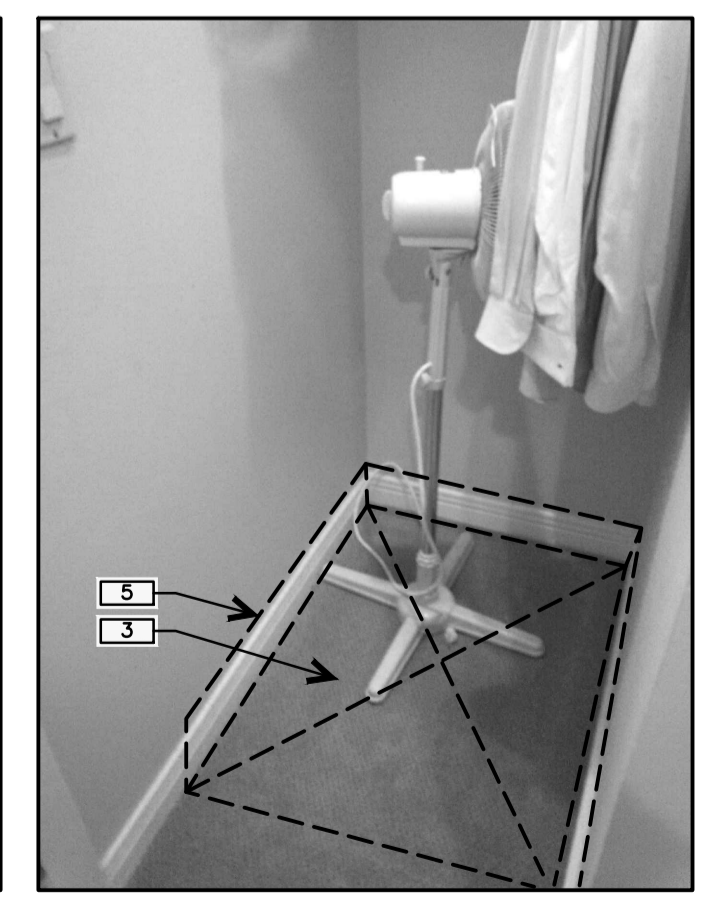
2 PARTIAL GROUND FLOOR PLAN  
 1:50



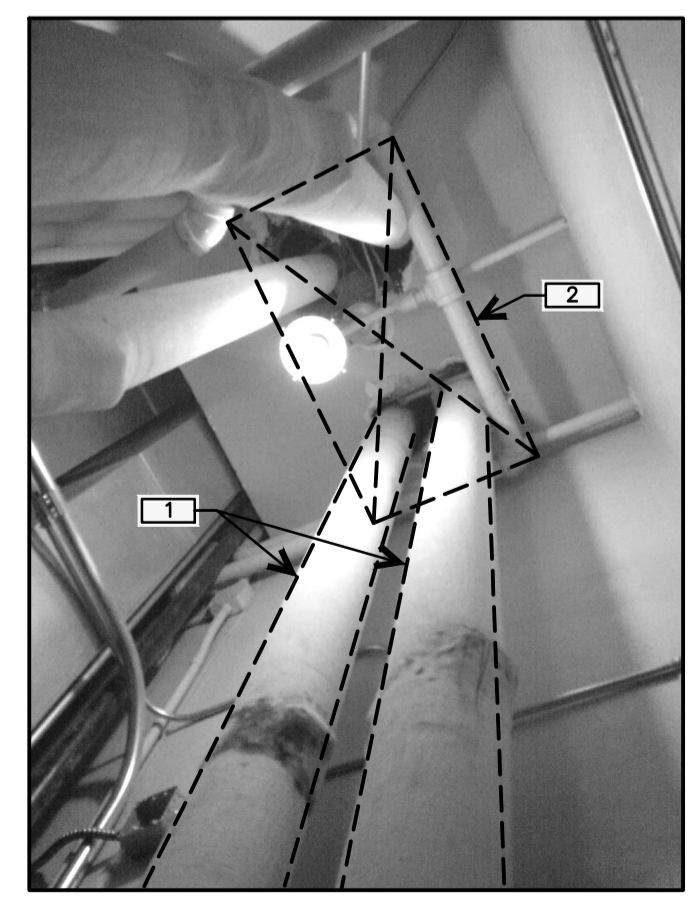
3 PARTIAL GROUND FLOOR PLAN  
 1:50



4 (E) PHOTO



5 (E) PHOTO



6 (E) PHOTO

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1	ISSUE FOR REVIEW 28 MAR 2013
no.	description / date

project / projet

**CHILLED WATER EXTENSION**

**GROUND FLOOR PLANS AND DETAILS**

approved by / approuvé par M. MARTIGNAGO  
 designed by / conçu par M. MARTIGNAGO  
 drawn by / dessiné par S. SIDONS (1321)  
 date / SEE REV. COLUMN / scale / échelle AS NOTED

NCC project no. / no. du projet de la CCN RD - 110891  
**A2**



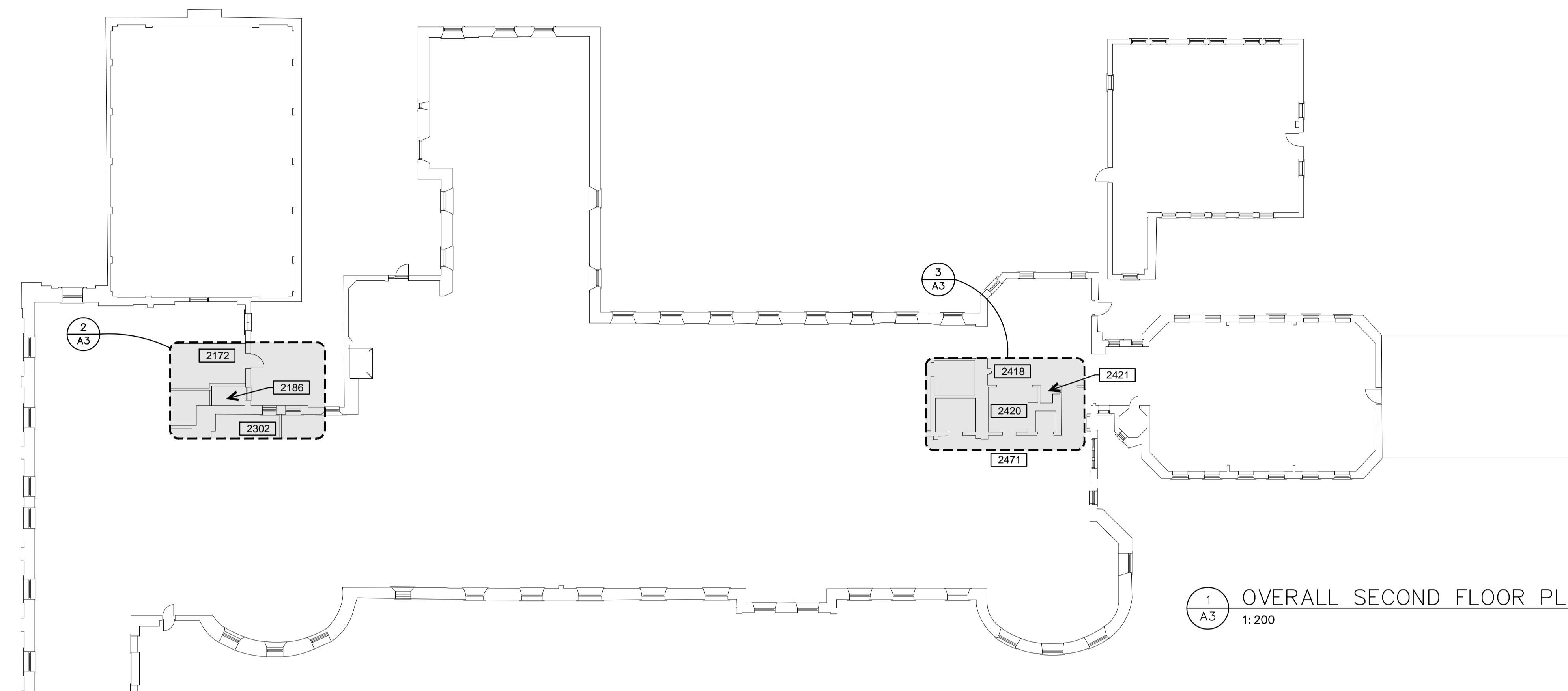
**GENERAL NOTES**

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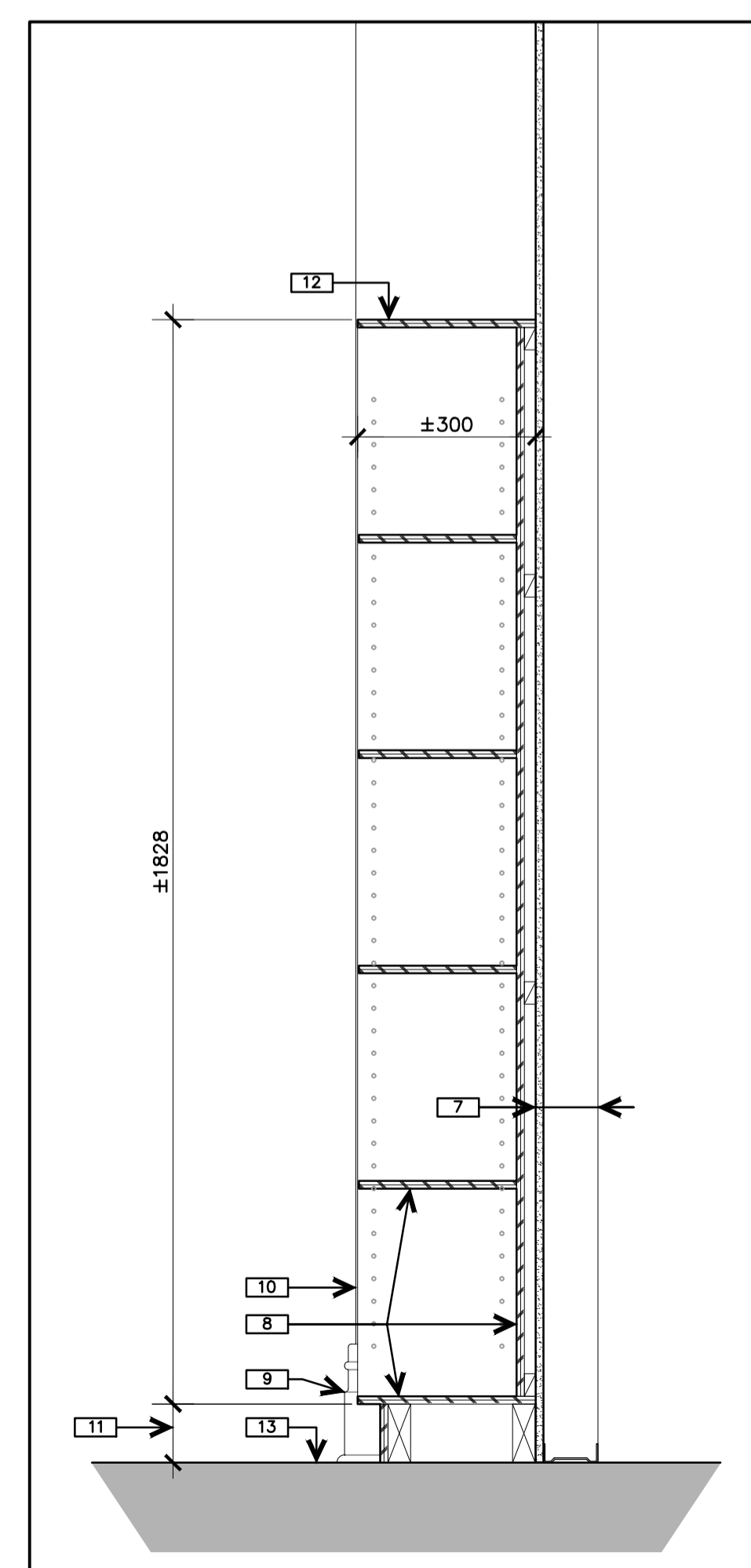
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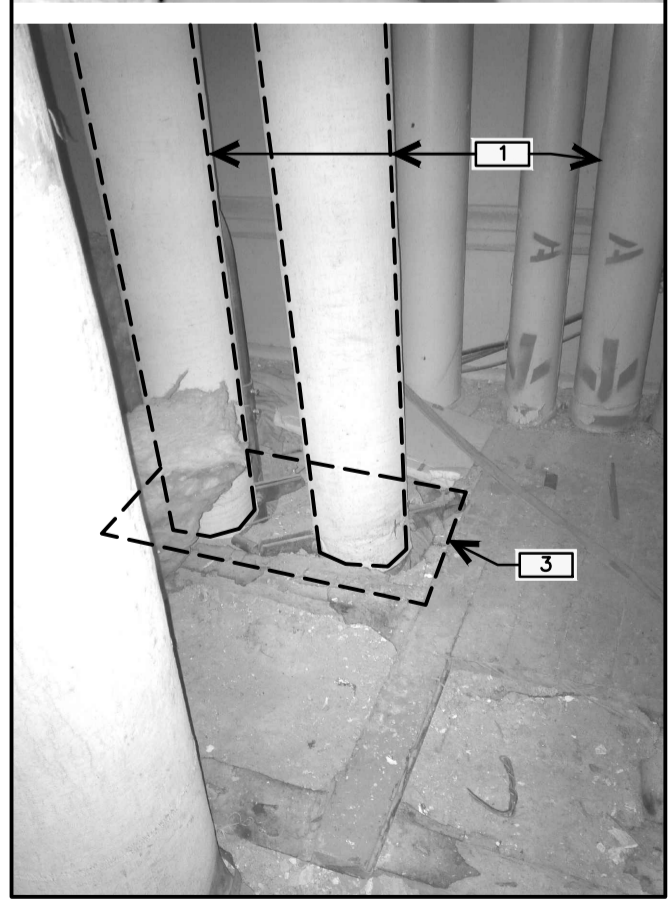
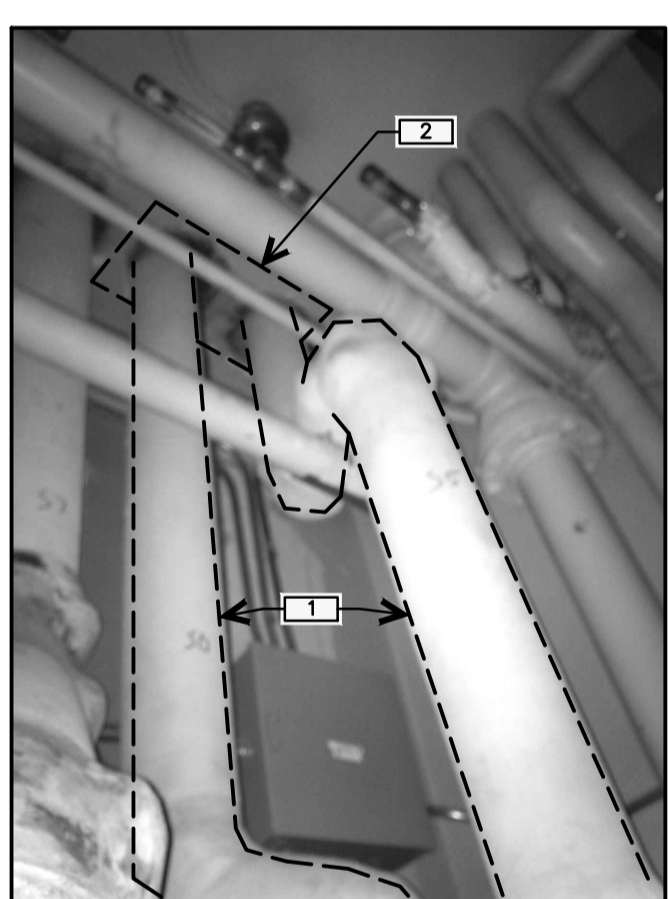
1. EXISTING PIPING RISER TO BE REMOVED AND REPLACED WITH NEW PIPING. REFER TO MECHANICAL.
2. REMOVE EXISTING PLASTER CEILING ON METAL LATHE AS INDICATED, AND REPLACE WITH NEW GYPSUM BOARD CEILING. REFER TO DETAILS.
3. REMOVE EXISTING FLOOR FINISH AND WOOD SUB-FLOORING AS INDICATED AND REPLACE WITH NEW PLYWOOD SUB-FLOOR INFILL c/w WOOD BLOCKING. PAINT FINISH.
4. REMOVE EXISTING BUILT-IN CLOSET SHELVING.
5. CAREFULLY REMOVE EXISTING BASEBOARD AS INDICATED. PROVIDE NEW TO MATCH EXISTING PROFILE TO SUIT NEW MILLWORK INSTALLATION. REFER TO DETAIL.
6. REMOVE EXISTING CEILING LIGHT FIXTURE. REFER TO ELECTRICAL.
7. NEW WALL: 13mm GYPSUM BOARD WALL FINISH ON 92mm STEEL STUD FRAMING AT 400mm O.C. - FULL HEIGHT (±3150mm). BUILD WALL AS TIGHT AS POSSIBLE TO NEW MECHANICAL PIPING IN ORDER TO ALLOW FOR NEW BUILT-IN MILLWORK TO BE AS DEEP AS POSSIBLE.
8. NEW BUILT-IN CLOSET WITH ADJUSTABLE SHELVING TO MATCH EXISTING MATERIAL, DIMENSIONS, AND MELAMINE FINISH. ALLOW FOR 300mm DEEP SHELVING.
9. EXISTING SOLID WOOD BASEBOARD, BEYOND.
10. EXISTING WALL EDGE, BEYOND.
11. DIMENSION TO MATCH EXISTING KICK-SPACE CLEARANCE.
12. ALIGN TOP OF NEW MILLWORK WITH EXISTING.
13. TOP OF EXISTING FLOOR.
14. ALIGN EDGE OF NEW MILLWORK WITH EXISTING WALL CORNER.



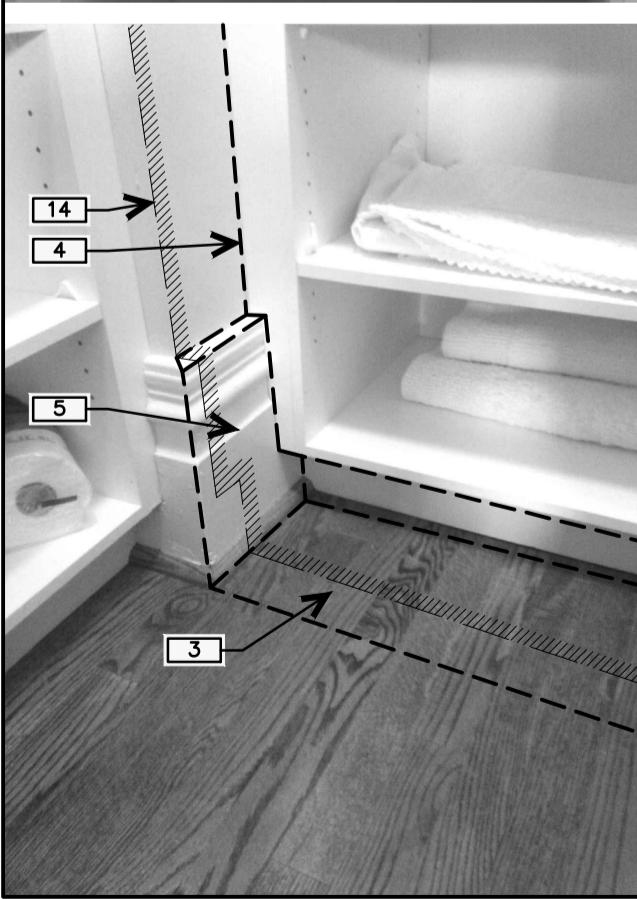
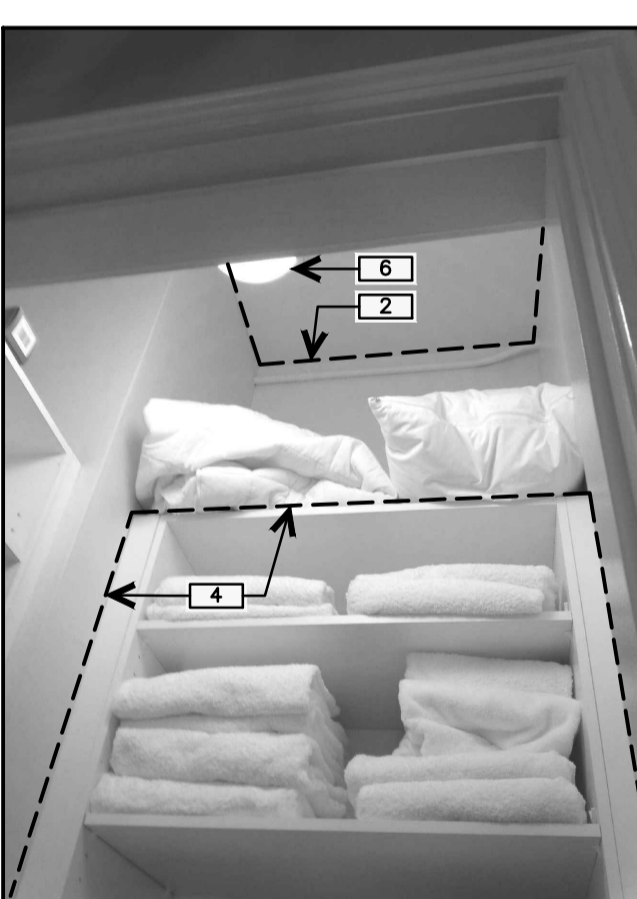
**1 OVERALL SECOND FLOOR PLAN**  
1:200



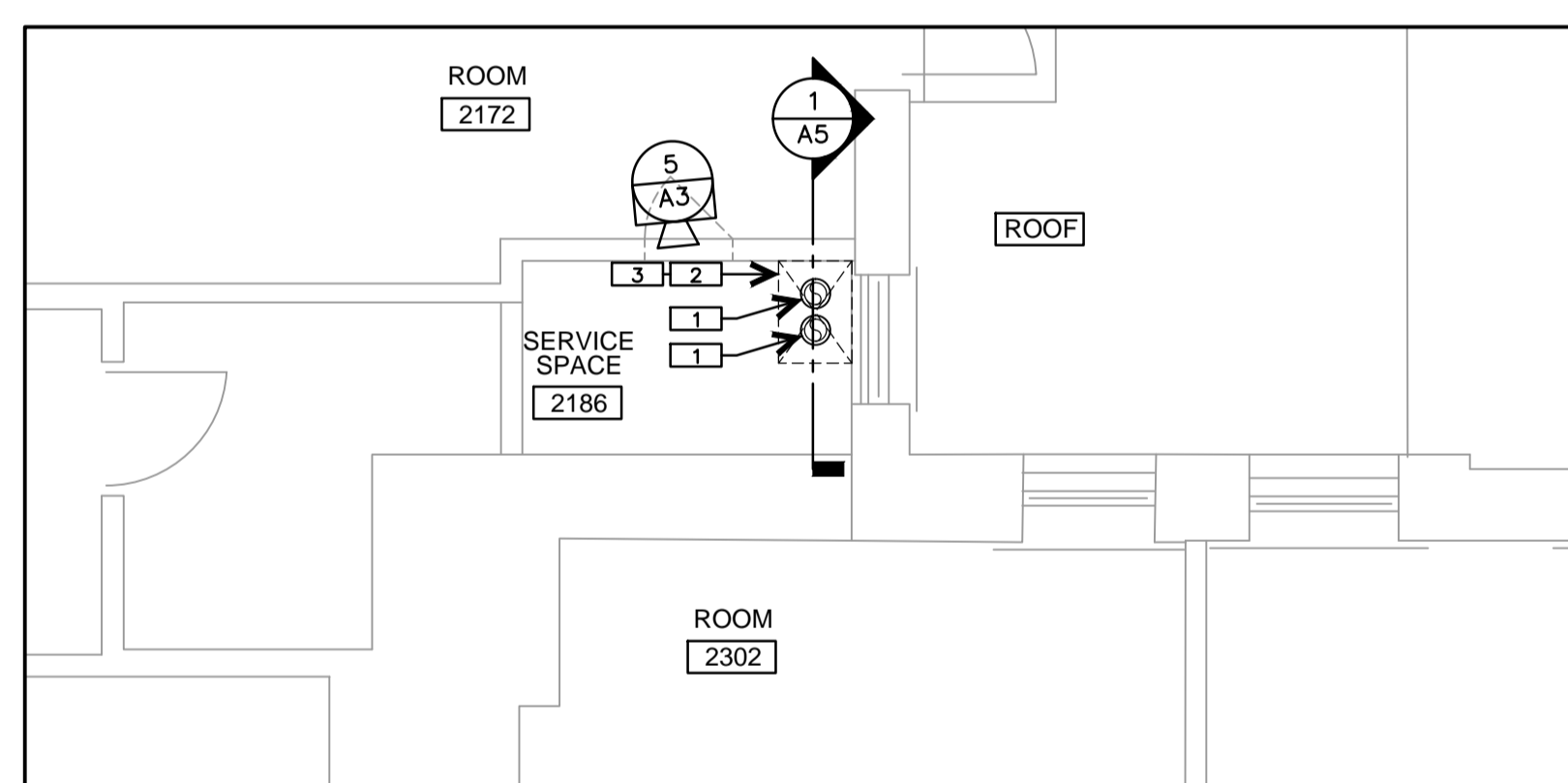
**6 SECTION DETAIL**  
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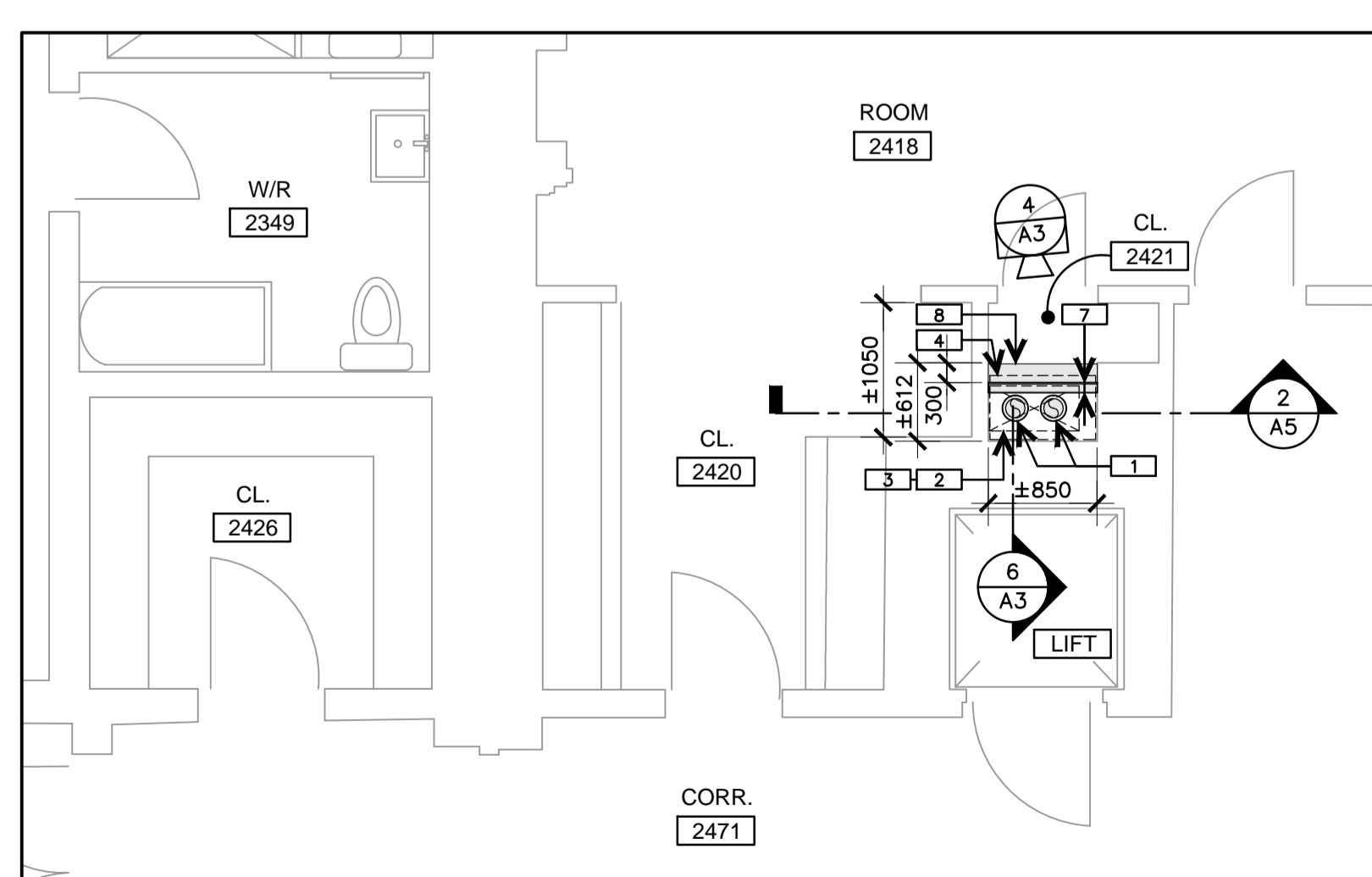
**5 (E) PHOTO**  
A3



**4 (E) PHOTO**  
A3



**2 PARTIAL SECOND FLOOR PLAN**  
1:50



**3 PARTIAL SECOND FLOOR PLAN**  
1:50

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3	ISSUED FOR TENDER 16 DEC 2014
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1	ISSUE FOR REVIEW 28 MAR 2013
no.	description / date

project / projet

**CHILLED WATER EXTENSION**

**SECOND FLOOR PLANS AND DETAILS**

approved by / approuvé par **M. MARTIGNAGO**  
 designed by / conçu par **M. MARTIGNAGO**  
 drawn by / dessiné par **S. SIDONS [1321]**  
 date / SEE REV. COLUMN / échelle / AS NOTED

NCC project no. / no. du projet de la CCN  
 RD - 110891

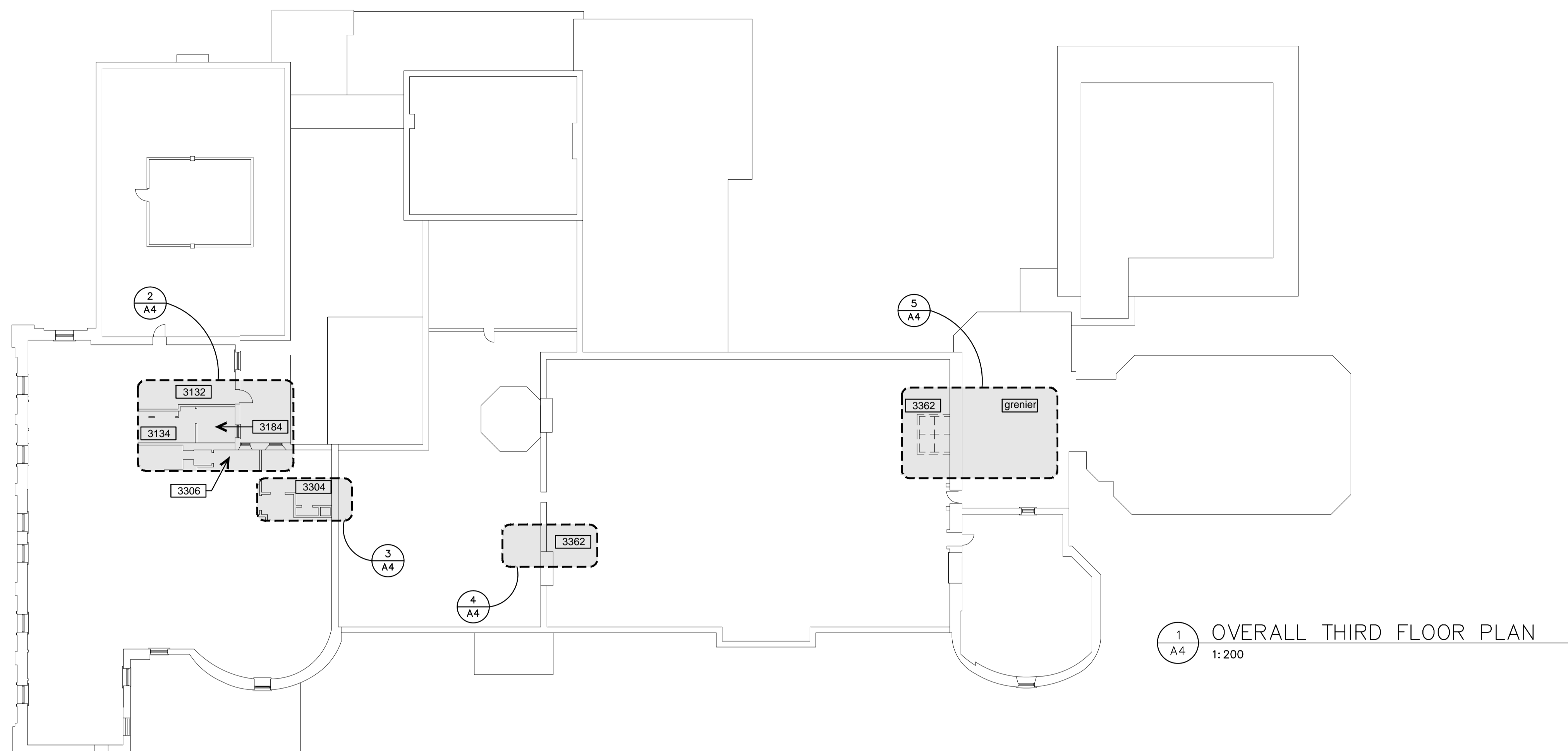
**GENERAL NOTES**

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- C. DO NOT SCALE DRAWINGS.
- D. REFER TO CONSULTANTS DRAWINGS AS APPLICABLE, FOR ADDITIONAL INFORMATION AND SPECIFIC DISCIPLINE RELATED DESIGN MATTERS.
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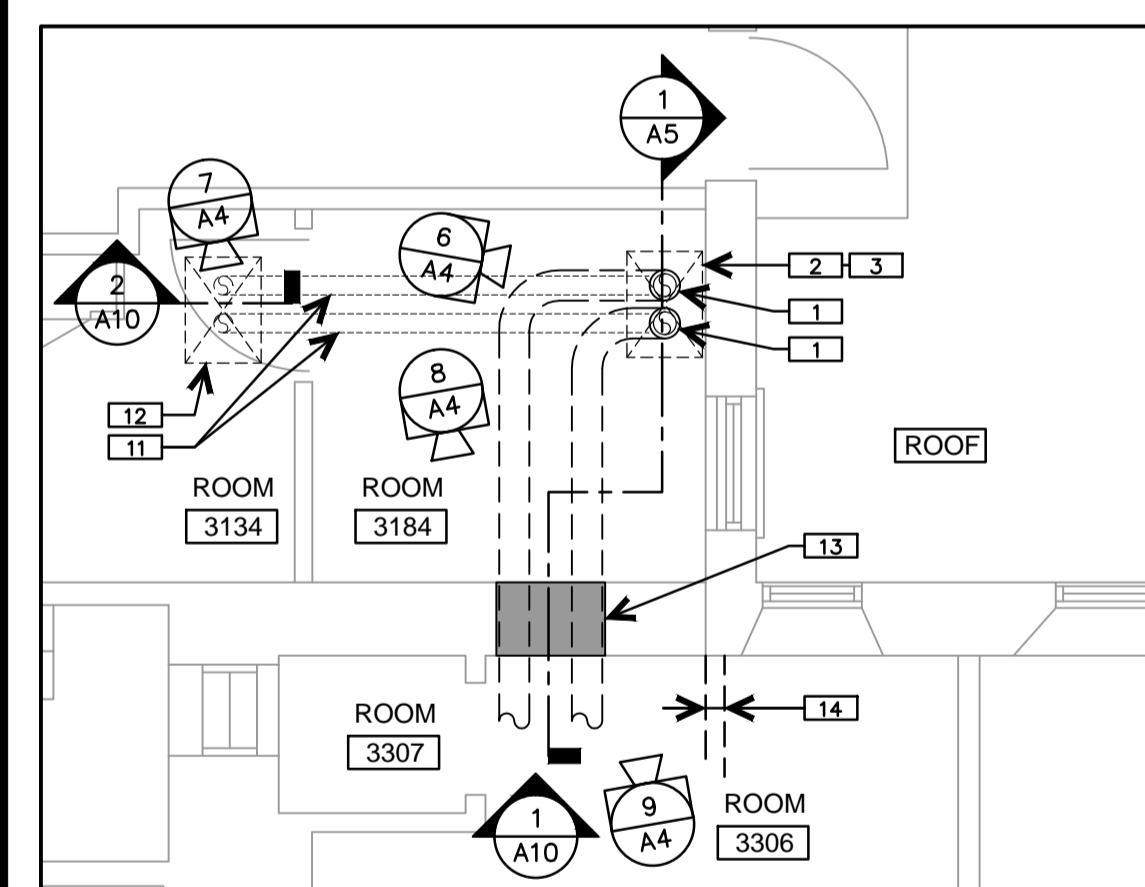
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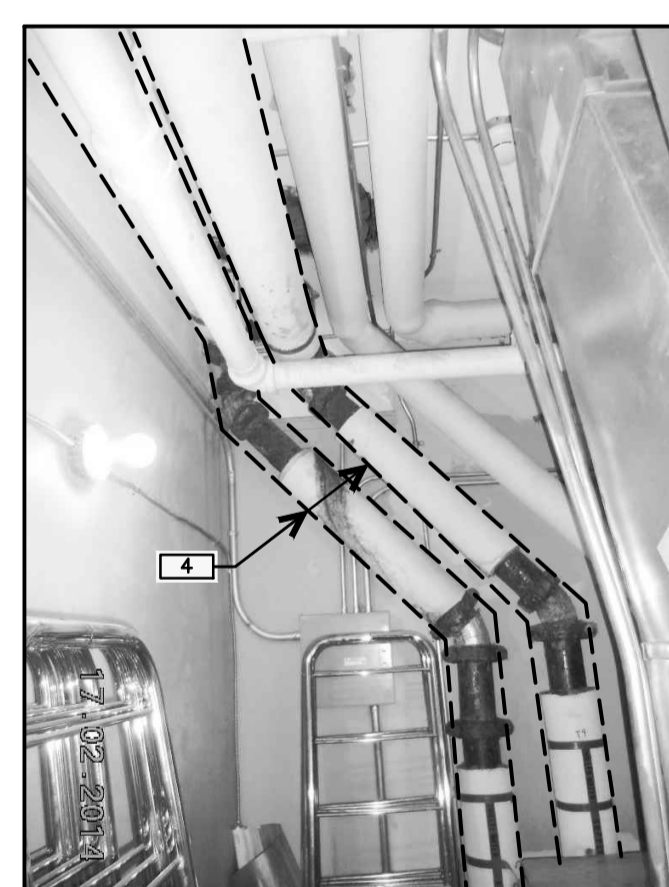
1. EXISTING PIPING RISER TO BE REMOVED AND REPLACED WITH NEW PIPING. REFER TO MECHANICAL.
2. REMOVE EXISTING PLASTER CEILING ON METAL LATHE AS INDICATED, AND REPLACE WITH NEW GYPSUM BOARD CEILING. REFER TO DETAILS.
3. REMOVE EXISTING FLOOR FINISH AND WOOD SUB-FLOORING AS INDICATED AND REPLACE WITH NEW PLYWOOD SUB-FLOOR INFILL 5/8" WOOD BLOCKING, PAINT FINISH.
4. REMOVE PORTION OF EXISTING WALL AS REQUIRED FOR NEW MECHANICAL PIPING ROUTE. REFER TO DETAIL.
5. NEW PIPING. REFER TO MECHANICAL.
6. EXISTING STONE WALL.
7. EXISTING CLAY BRICK MASONRY WALL.
8. REMOVE EXISTING FIBREGLASS BATT INSULATION. CLEAN AREA OF ALL DEBRIS AND PREPARE FOR NEW WALL INFILL.
9. EXISTING CONDUIT BUNDLE, TO REMAIN.
10. EXISTING WALL PLASTER FINISH ON CONCRETE MASONRY WALL.
11. REMOVE EXISTING PIPING AS INDICATED. REFER TO MECHANICAL.
12. PATCH AND REPAIR EXISTING CEILING FINISH WHERE PIPING IS TO BE REMOVED. REFER TO DETAIL.
13. PIPES TO PENETRATE THROUGH WALL INTO INTERSTITIAL SPACE, ABOVE.
14. LINE OF WALL AT INTERSTITIAL SPACE, ABOVE.



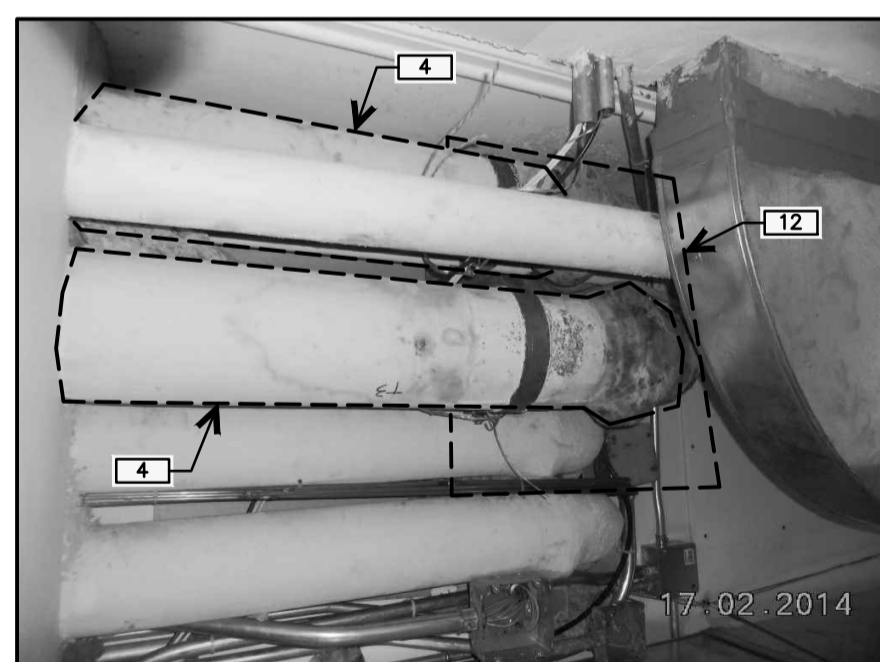
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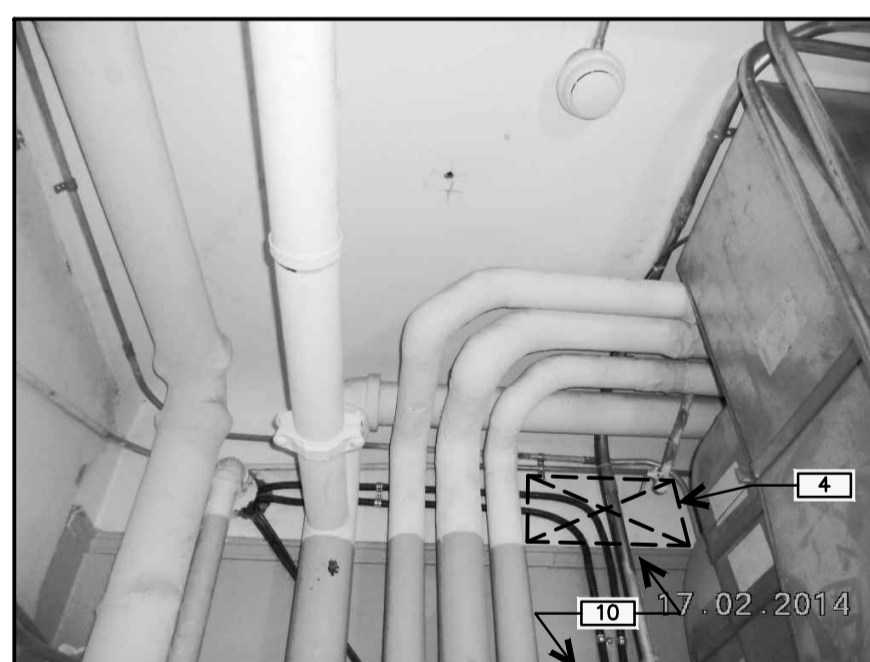
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1:50



6 (E) PHOTO



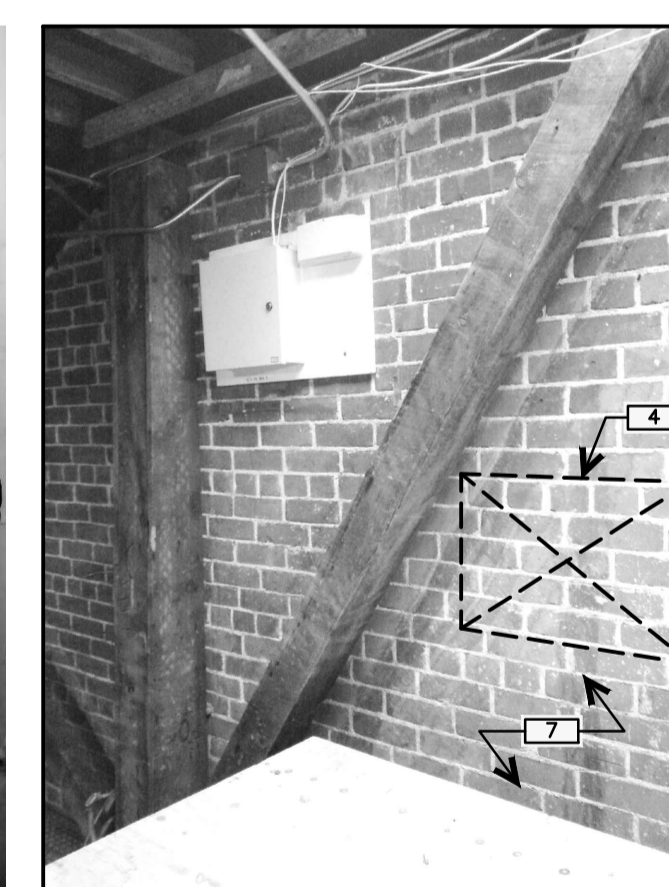
7 (E) PHOTO



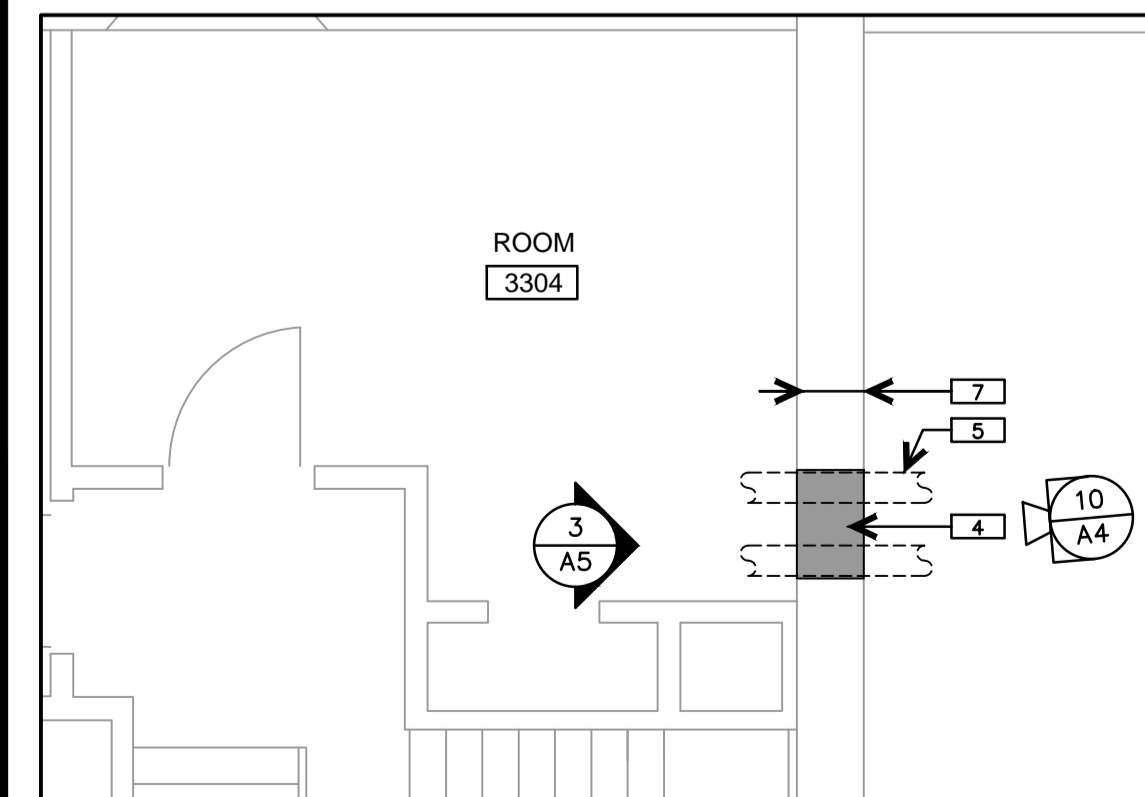
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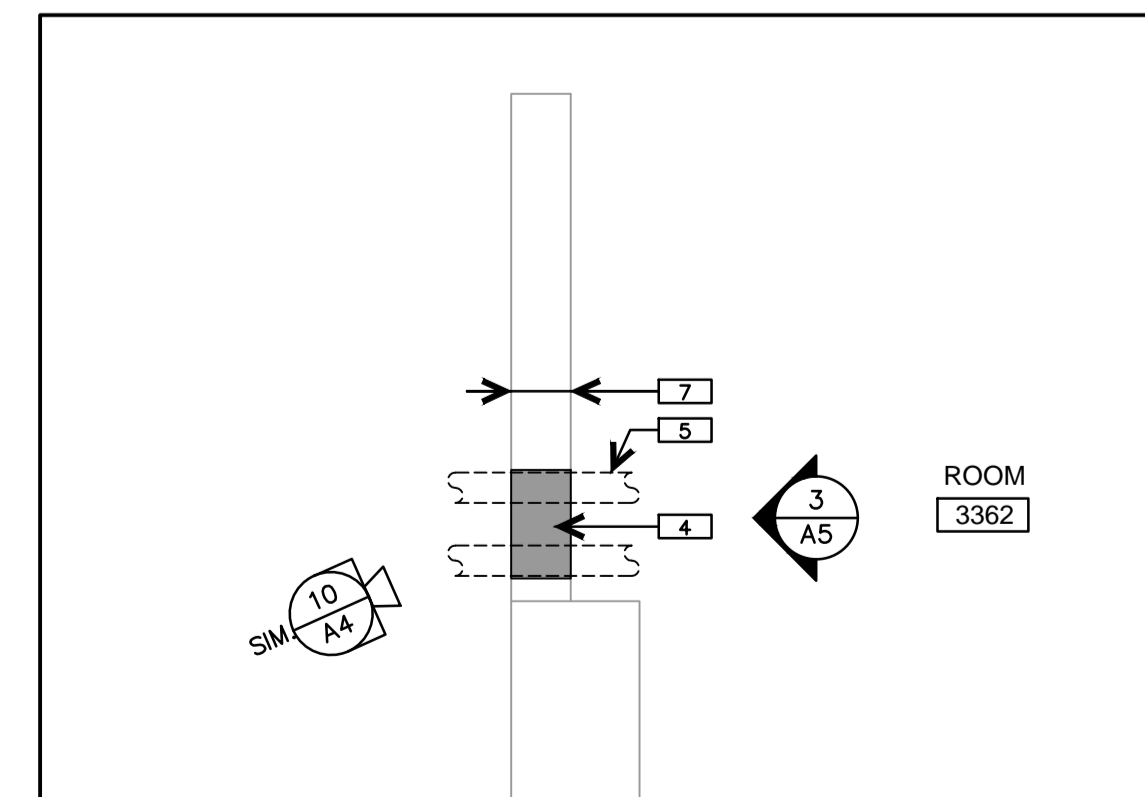
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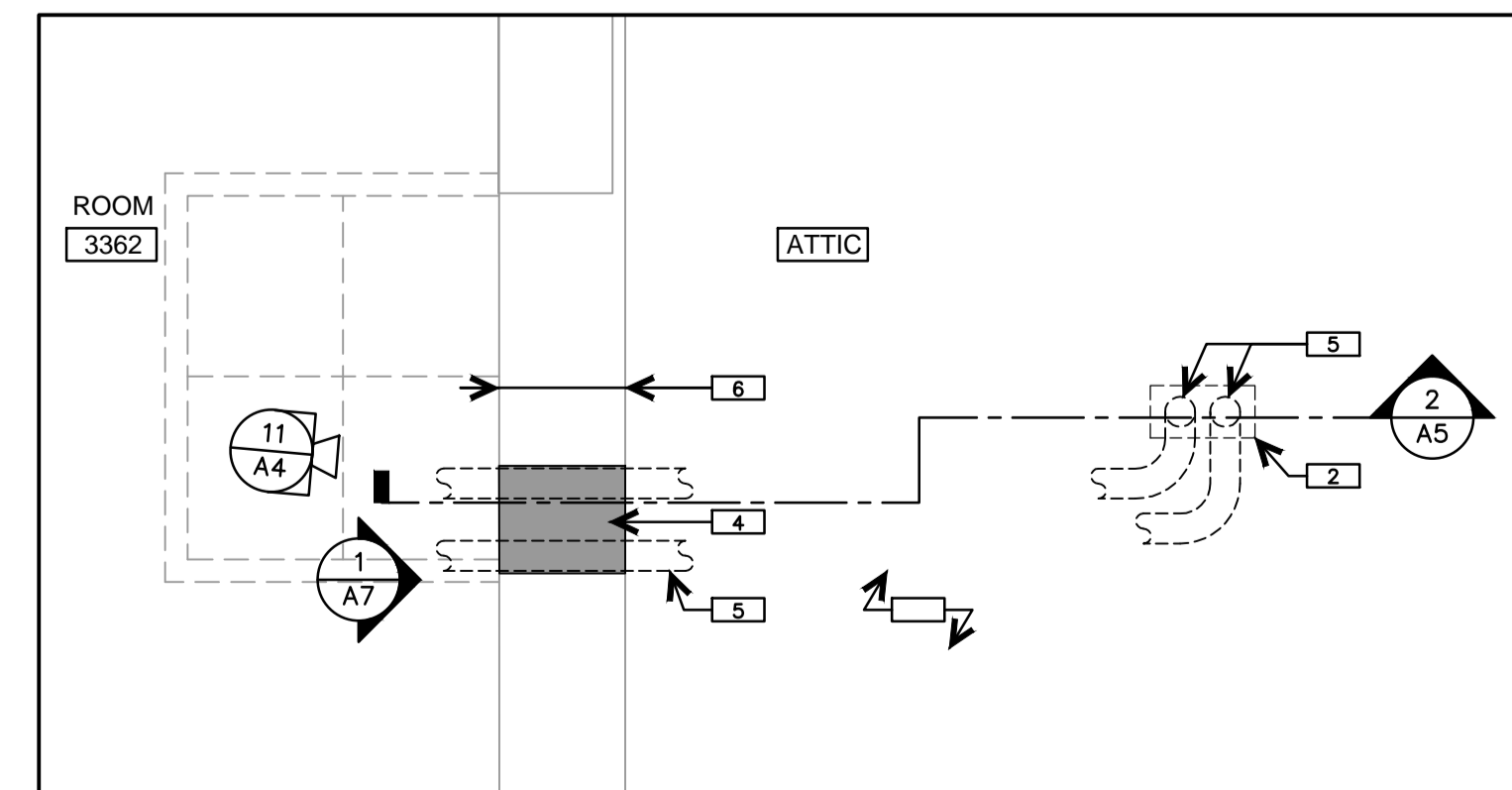
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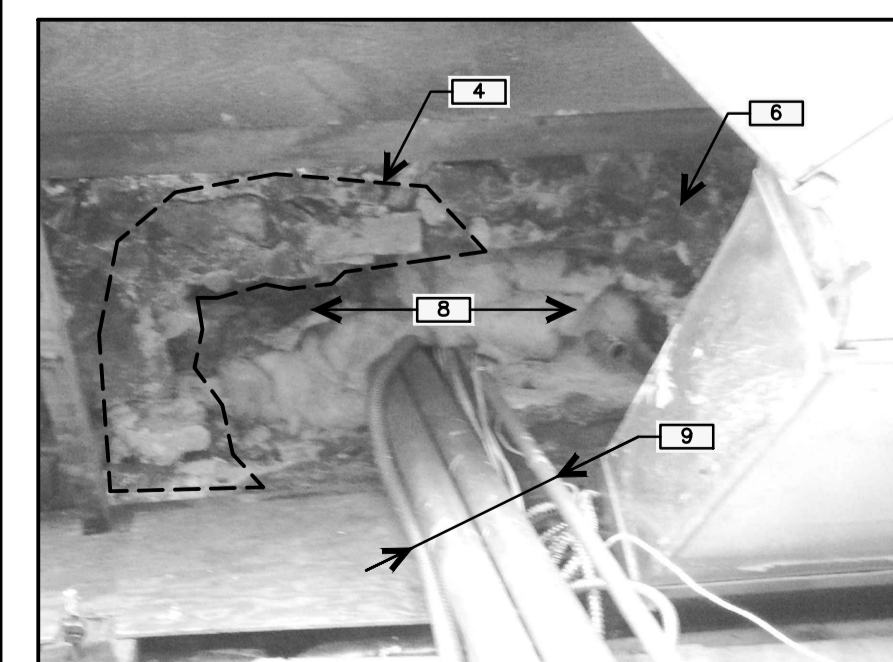
3 PARTIAL THIRD FLOOR PLAN  
1:50



4 PARTIAL THIRD FLOOR PLAN  
1:50



5 PARTIAL THIRD FLOOR PLAN  
1:50



11 (E) PHOTO

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project  
projet

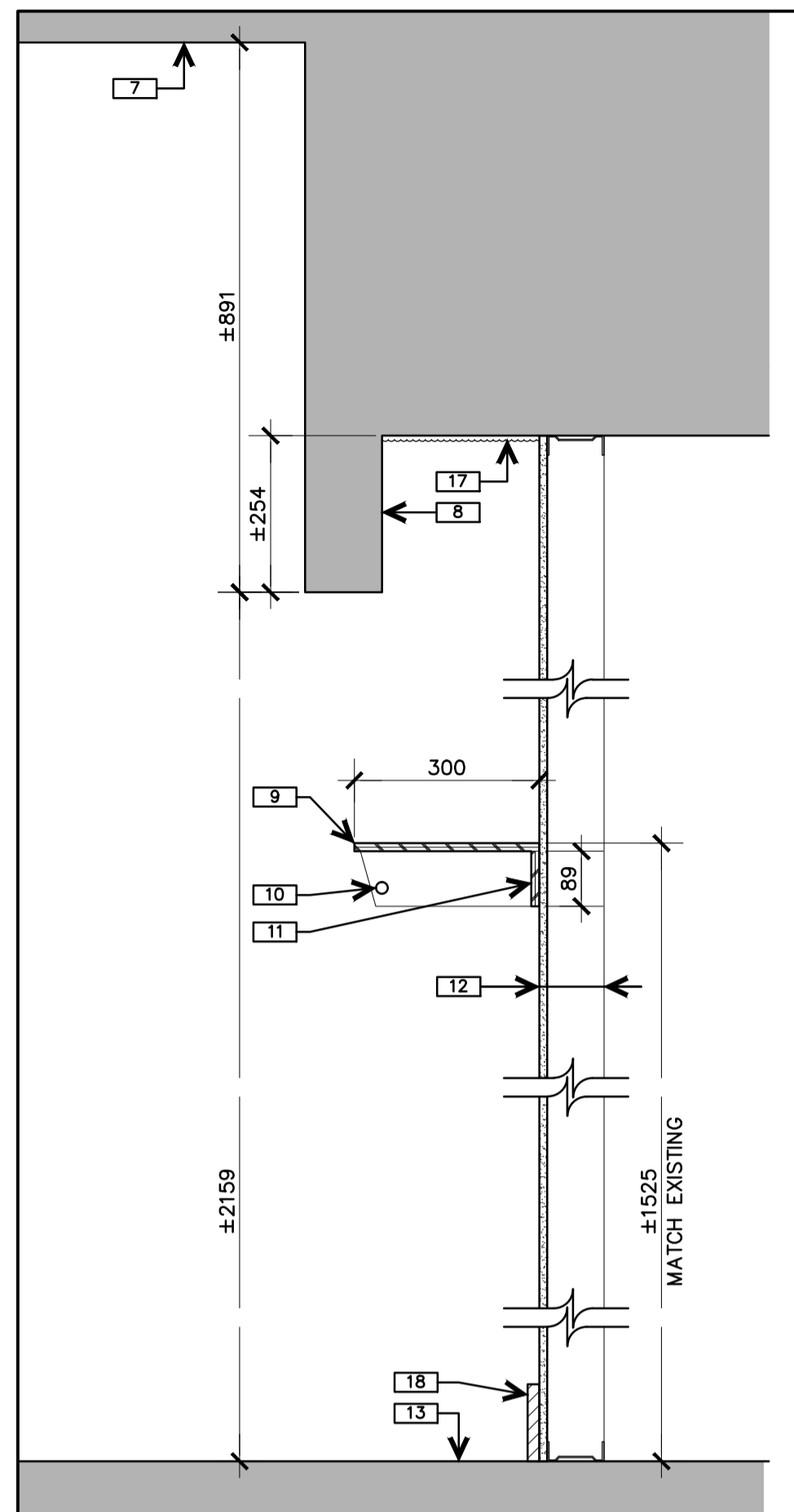
**CHILLED WATER  
EXTENSION**

**THIRD FLOOR PLANS  
AND DETAILS**

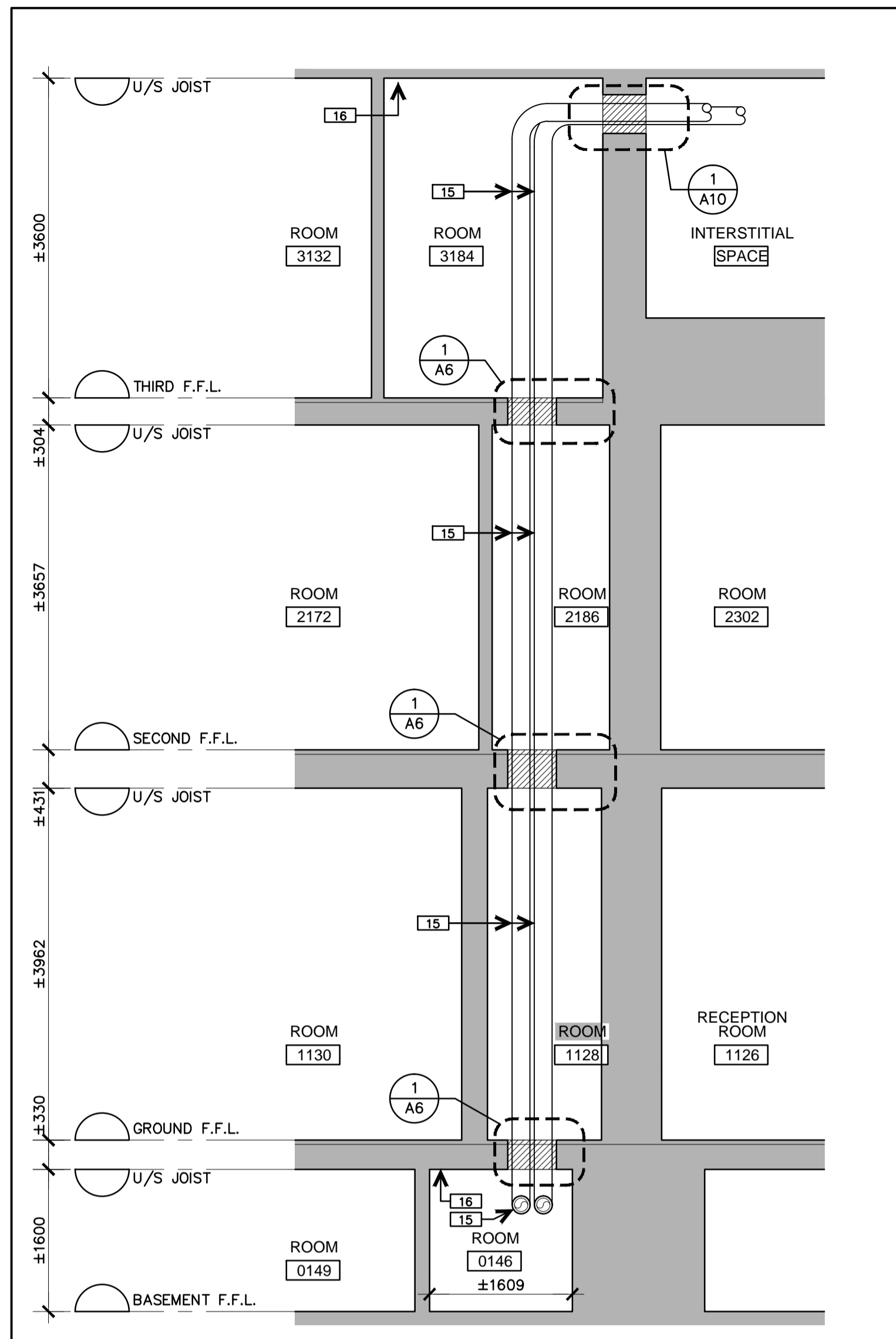
approved by / approuvé par M. MARTIGNAGO  
designed by / conçu par M. MARTIGNAGO  
drawn by / dessiné par S. SIDONS (1321)  
date / SEE REV. COLUMN / échelle / AS NOTED

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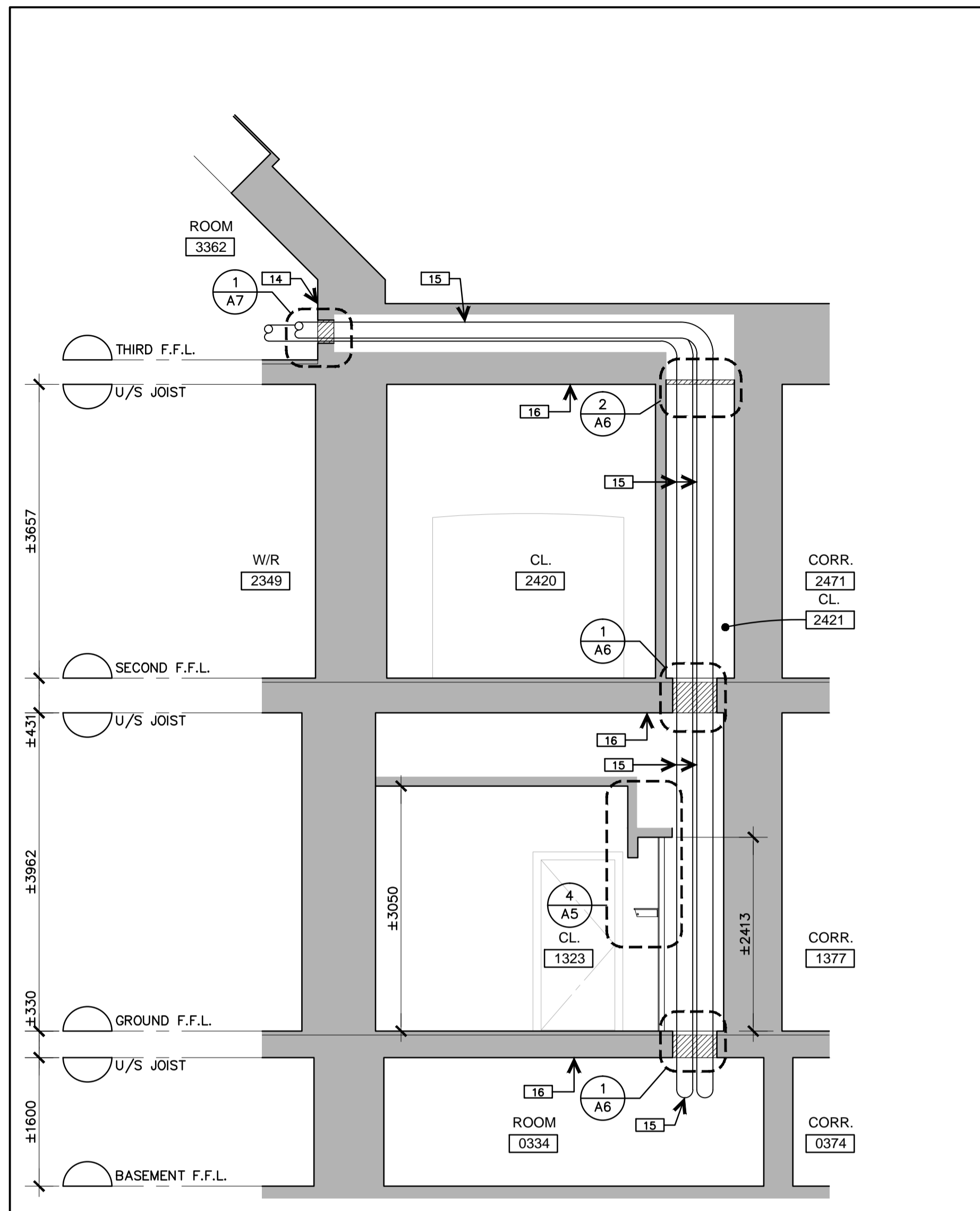




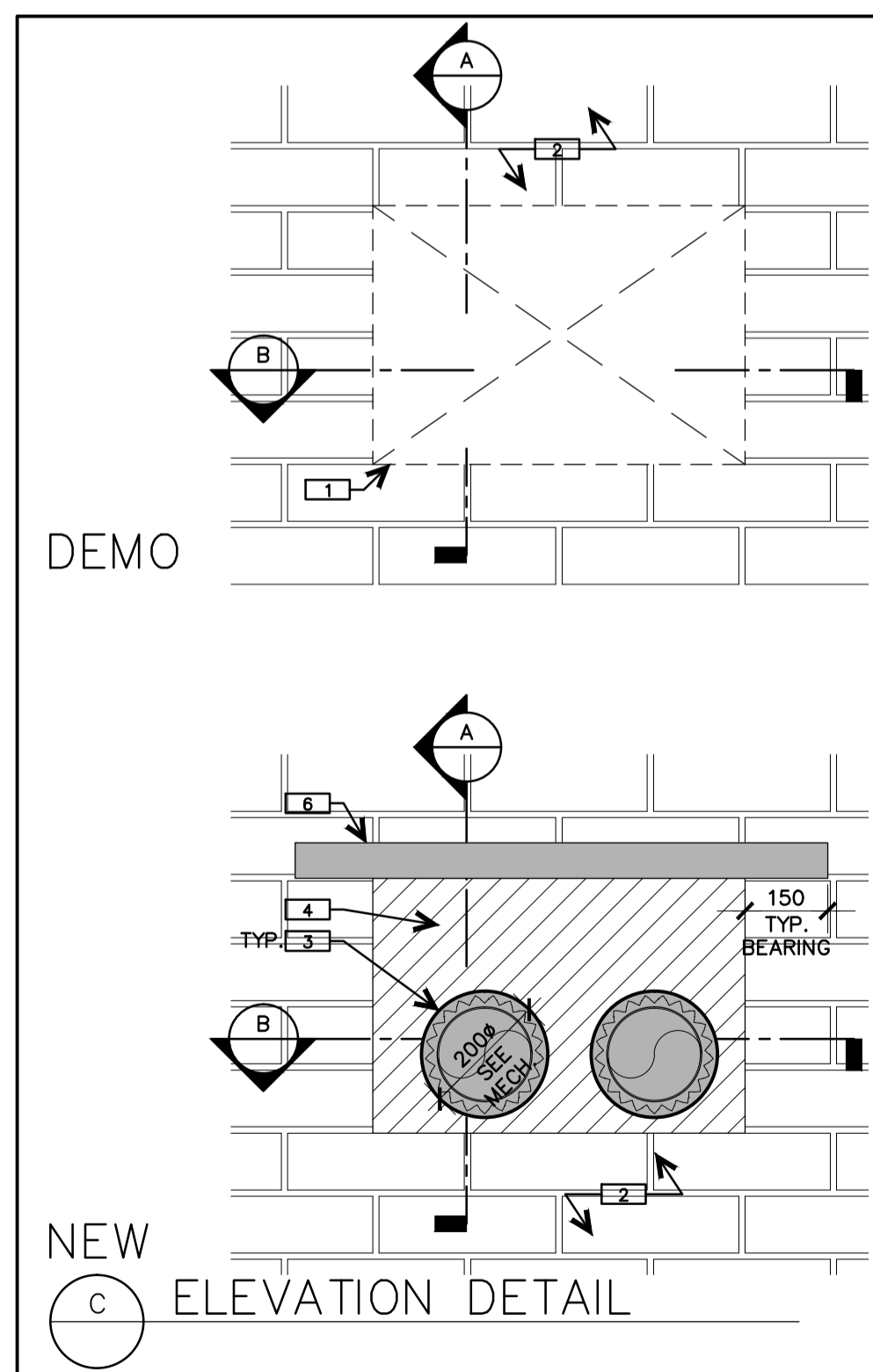
4 SECTION DETAIL  
A5 1:10



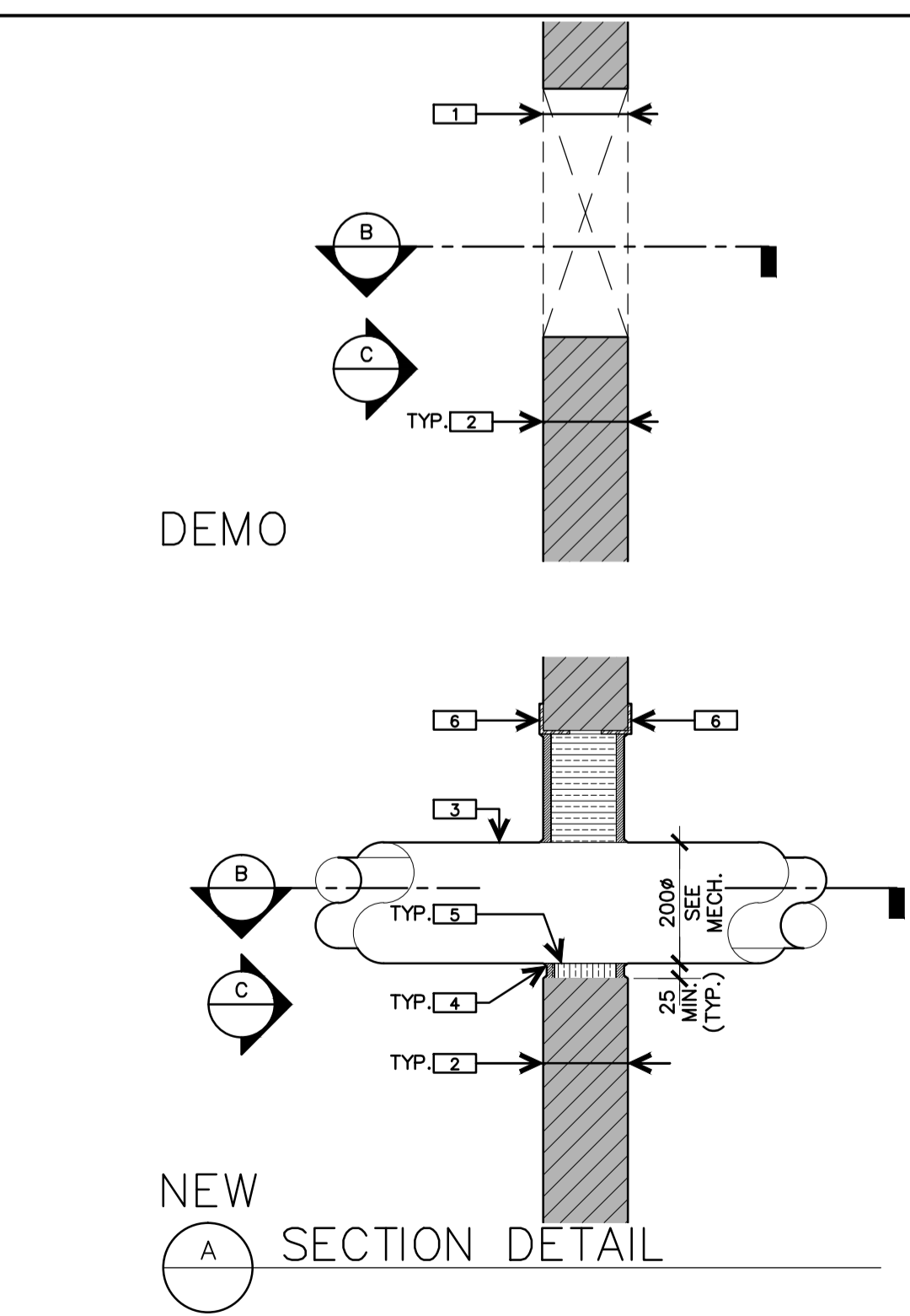
1 CROSS-SECTION DETAIL  
A5 1:50



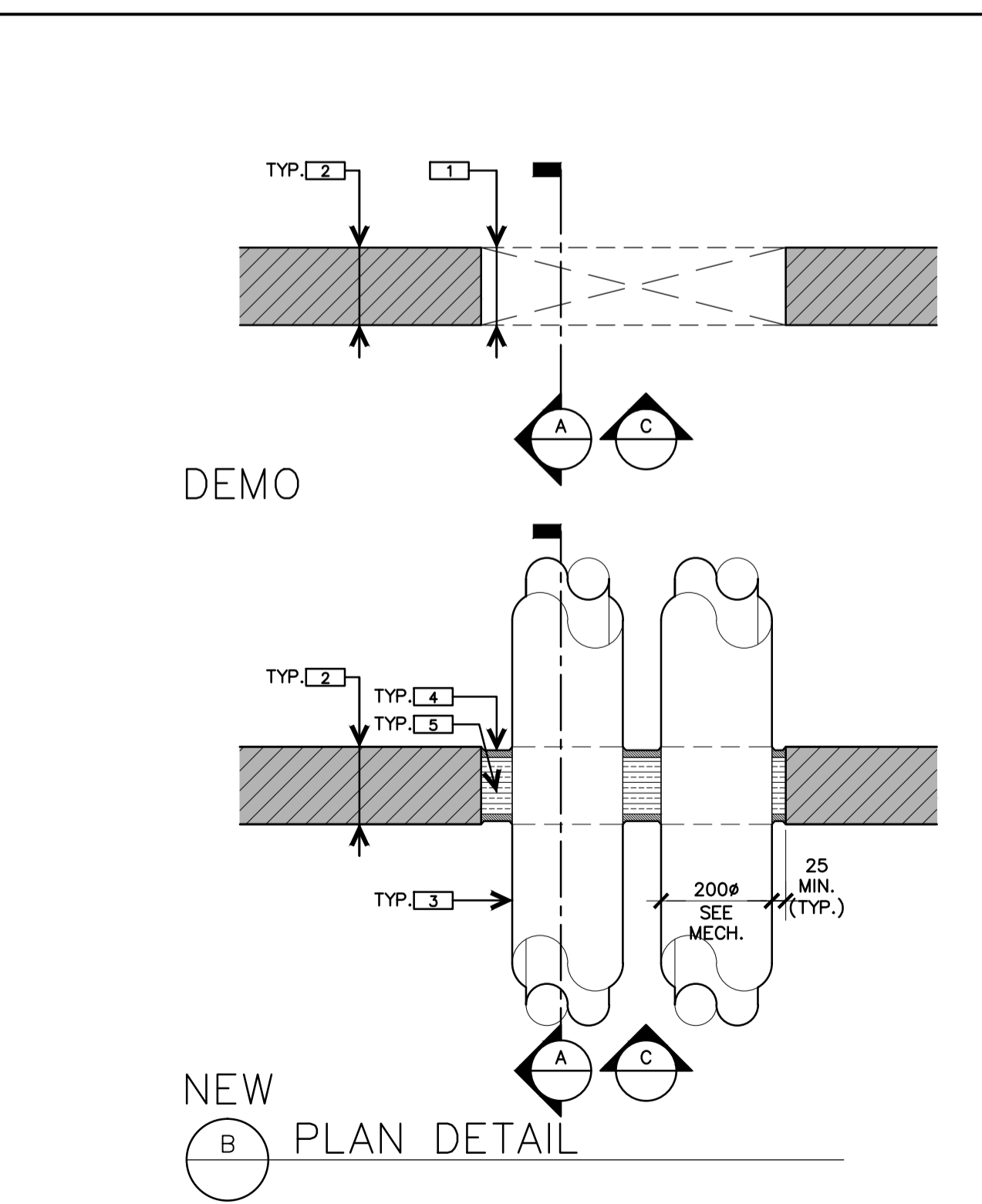
2 CROSS-SECTION DETAIL  
A5 1:50



3 WALL PENETRATION DETAILS  
A5 1:10



SECTION DETAIL  
A 1:50



PLAN DETAIL  
B 1:50

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  - ALL DIMENSIONS ARE INDICATED IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

- DRAWING NOTES - SHEET A5:**
- THESE NOTES APPLY TO DRAWING SHEET A5 ONLY:
- REMOVE EXISTING CLAY BRICK MASONRY WALL ASSEMBLY AS INDICATED.
  - EXISTING CLAY BRICK MASONRY WALL ASSEMBLY TO REMAIN.
  - NEW MECHANICAL PIPING. REFER TO MECHANICAL.
  - NEW FIRE-STOP SEALANT.
  - NEW SEMI-RIGID INSULATION.
  - NEW 76x76mm STEEL LINTEL ACROSS NEW WALL OPENING. PAINT FINISH.
  - UNDERSIDE OF EXISTING CEILING FINISH TO REMAIN.
  - EXISTING BULKHEAD TO REMAIN.
  - NEW CLOSET SHELF TO MATCH EXISTING.
  - NEW CLOSET COAT ROD TO MATCH EXISTING.
  - NEW CLOSET SHELF CLEAT - TYPICAL THREE SIDES. PAINT TO MATCH EXISTING.
  - NEW WALL: 13mm GYPSUM BOARD WALL FINISH ON 92mm STEEL STUD FRAMING AT 400mm O.C. - FULL HEIGHT. BUILD WALL AS TIGHT AS POSSIBLE TO NEW MECHANICAL PIPING IN ORDER TO ALLOW FOR NEW BUILT-IN MILLWORK TO BE AS DEEP AS POSSIBLE.
  - TOP OF EXISTING FLOOR.
  - REMOVE PORTION OF EXISTING WALL AS REQUIRED FOR NEW MECHANICAL PIPING ROUTE. REFER TO DETAIL.
  - NEW PIPING. REFER TO MECHANICAL.
  - UNDERSIDE OF EXISTING CEILING FINISH.
  - PATCH, SAND, AND PAINT CEILING FINISH.
  - PROVIDE NEW SOLID WOOD BASE BOARD. MATERIAL FINISH PAINT AND STYLE TO MATCH EXISTING.



Capital Planning and Real Asset Management Branch  
Direction de l'aménagement de la capitale et gestion de l'immobilier

Design and Construction Division  
Division design et construction

director - Claude Robert - directeur

consultant  
expert-conseil



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CHILLED WATER  
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DETAILS

approved by  
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dessiné par S. SIDONS (1321)

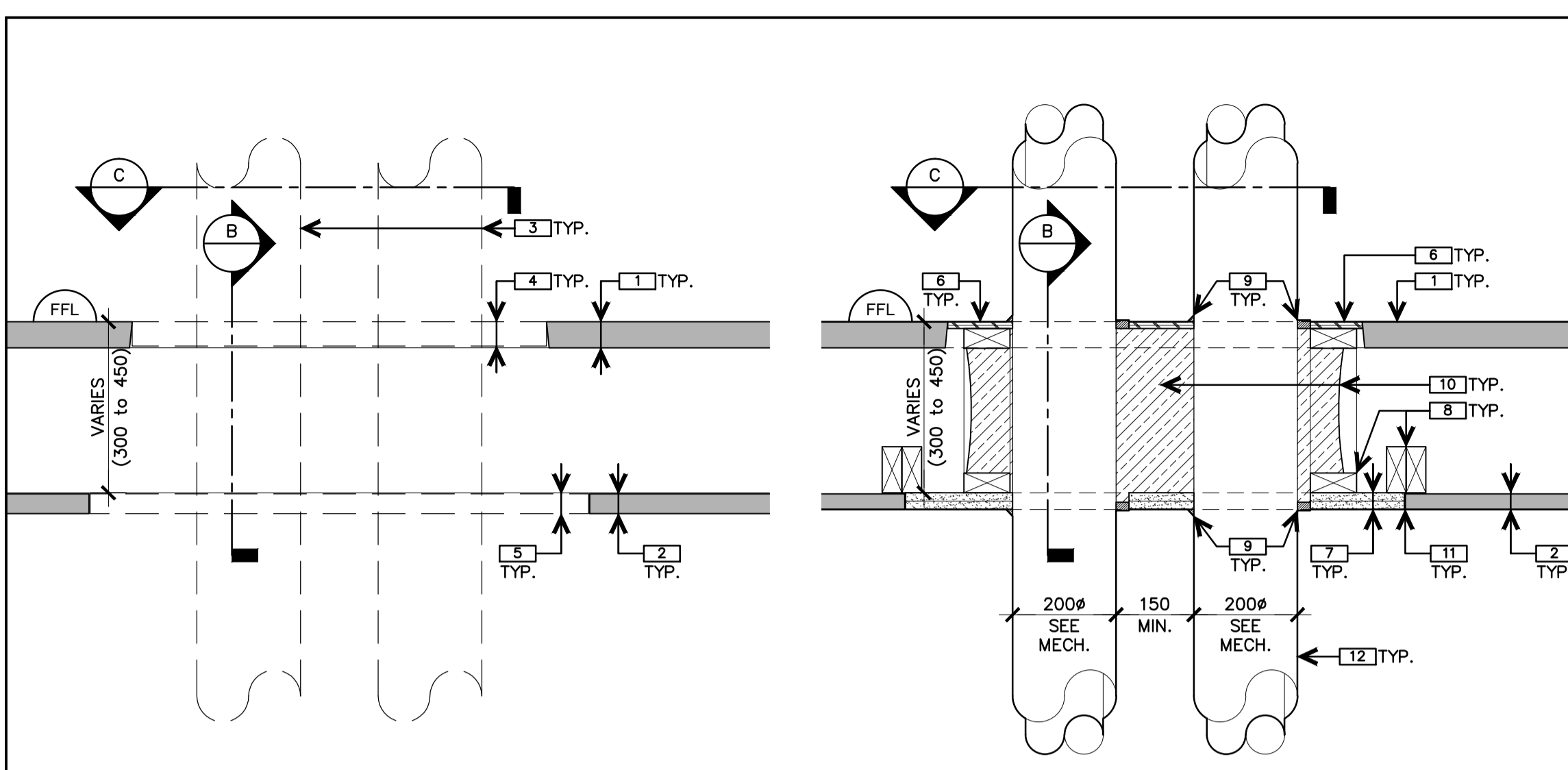
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SEE REV. COLUMN

scale  
échelle AS NOTED

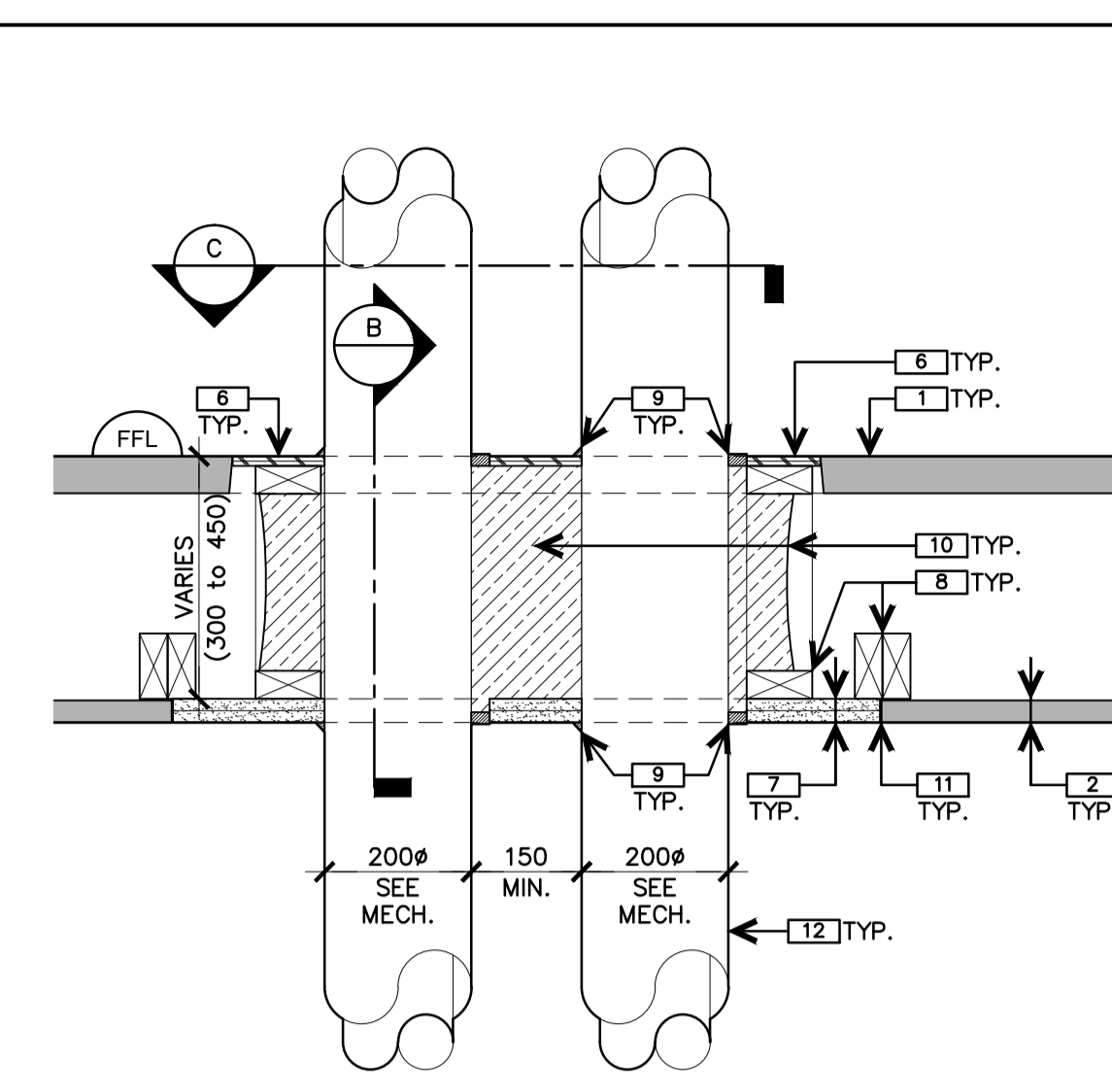
NCC project no.  
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A5

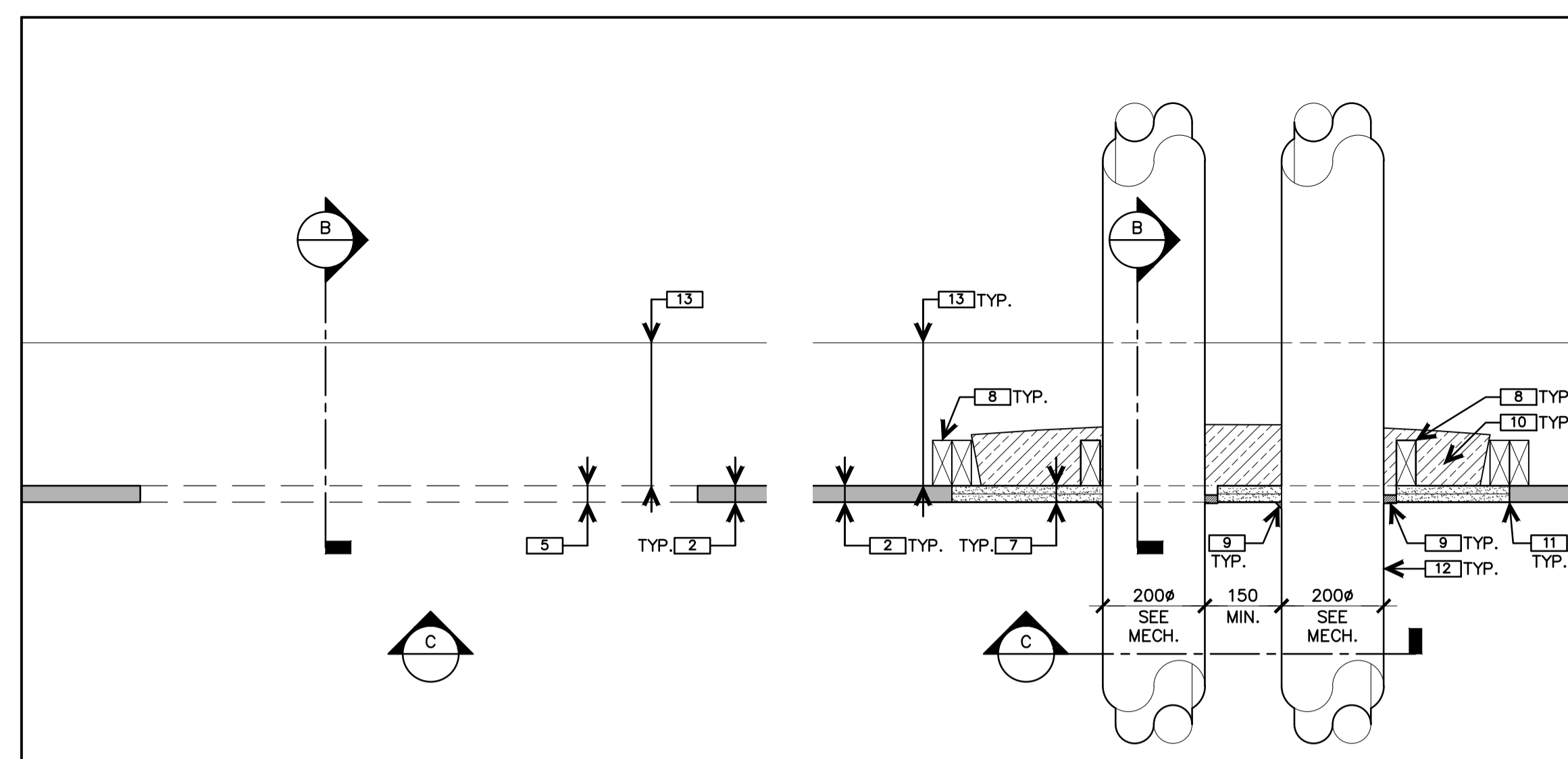




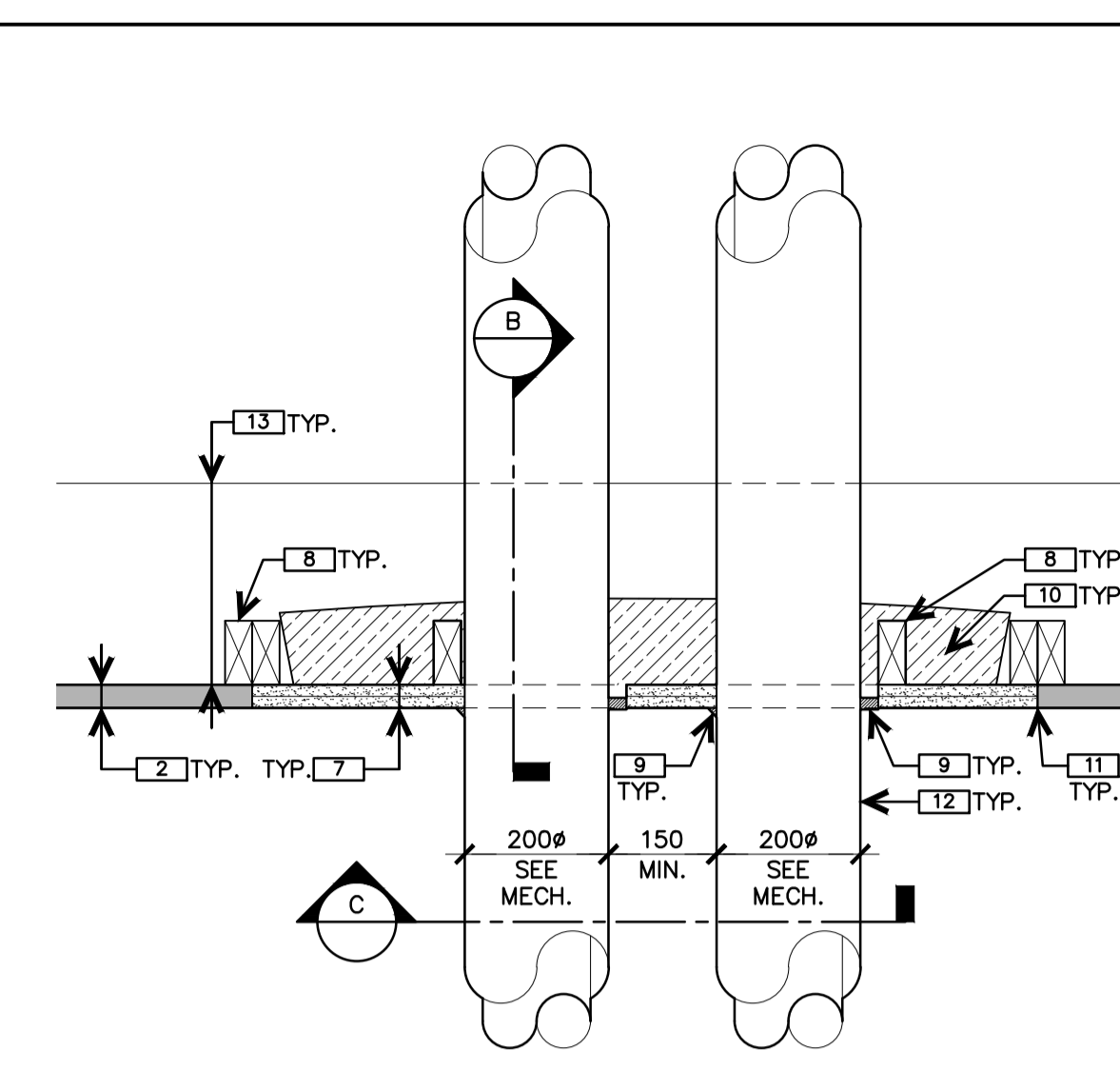
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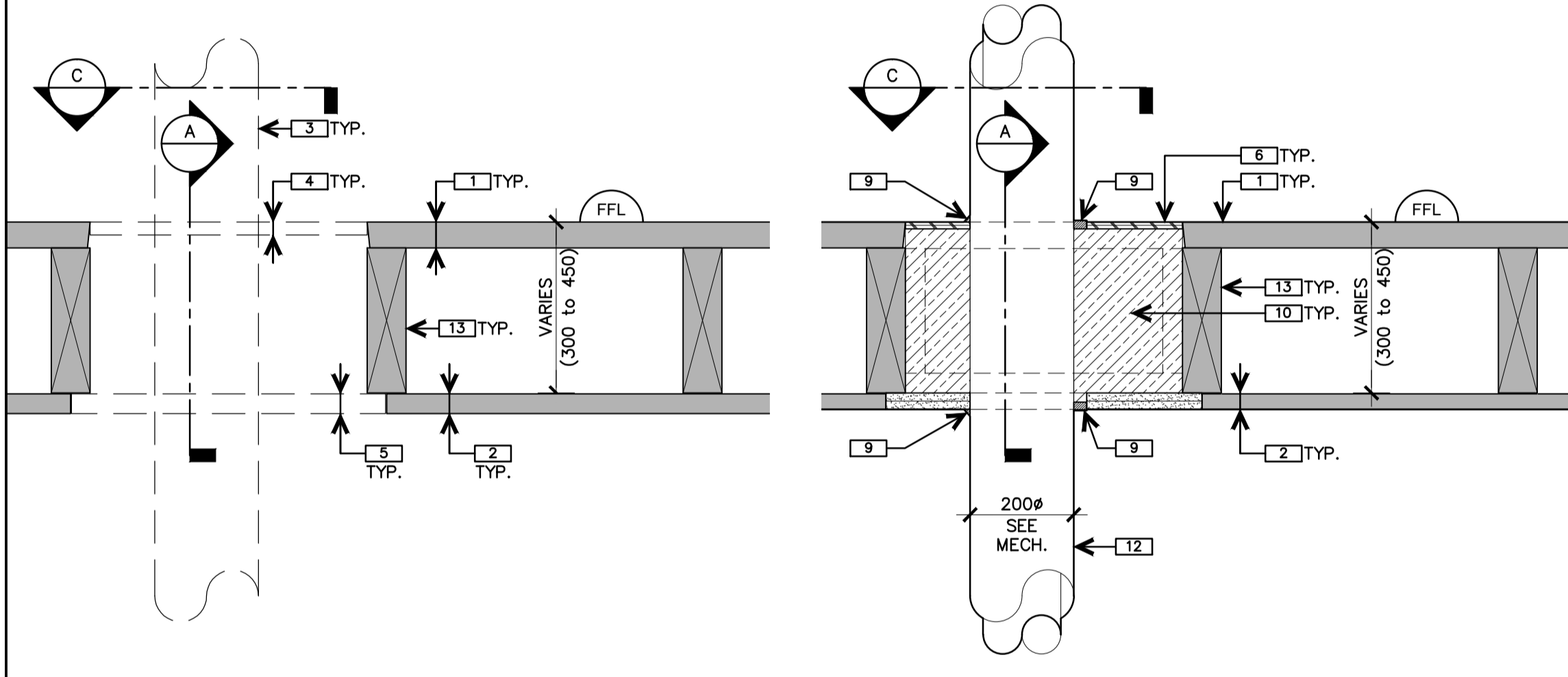
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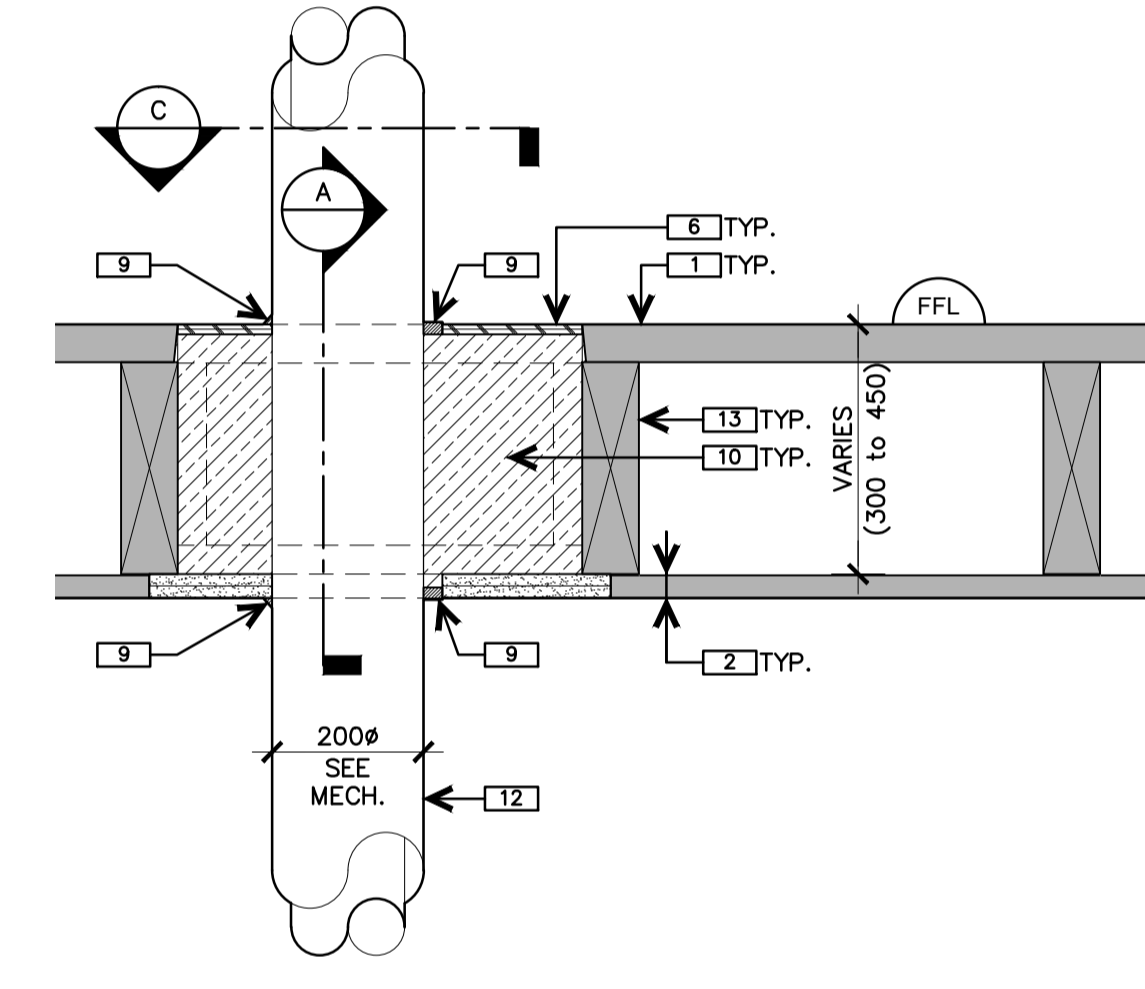
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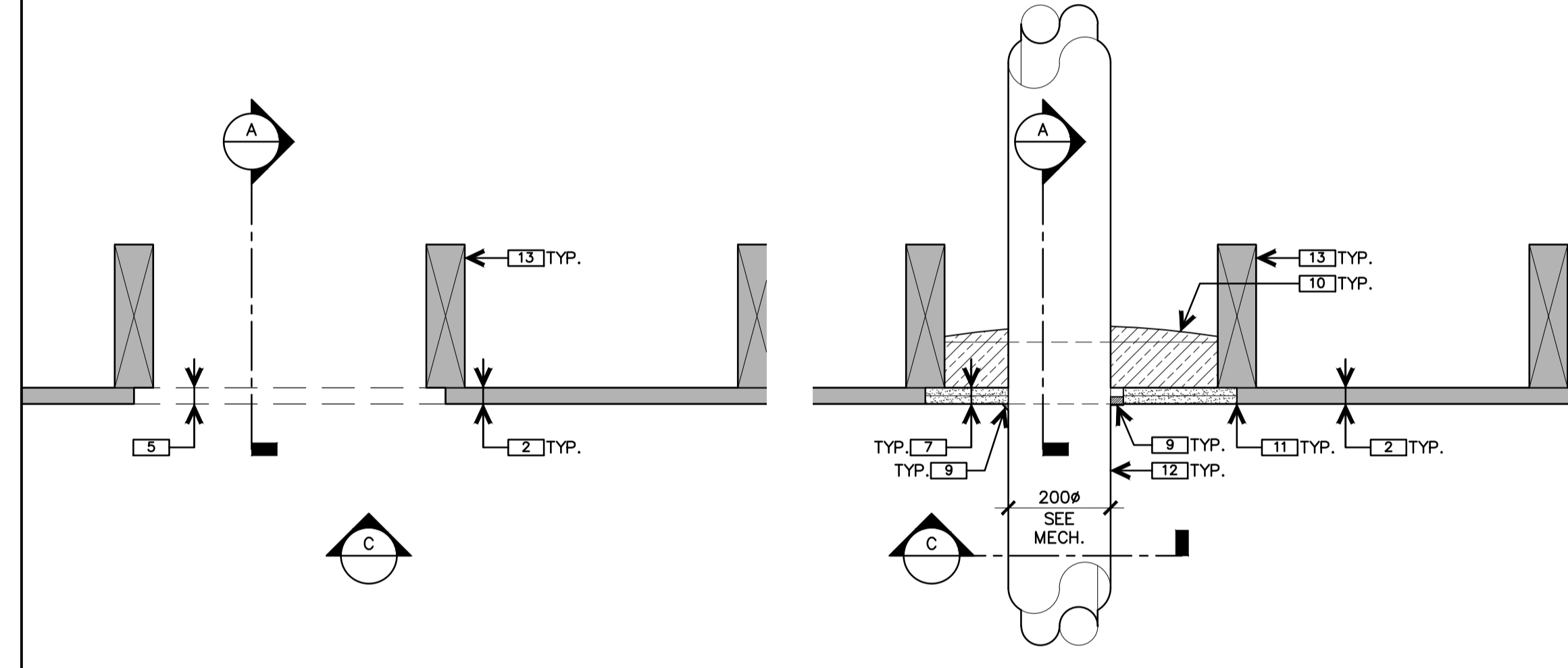
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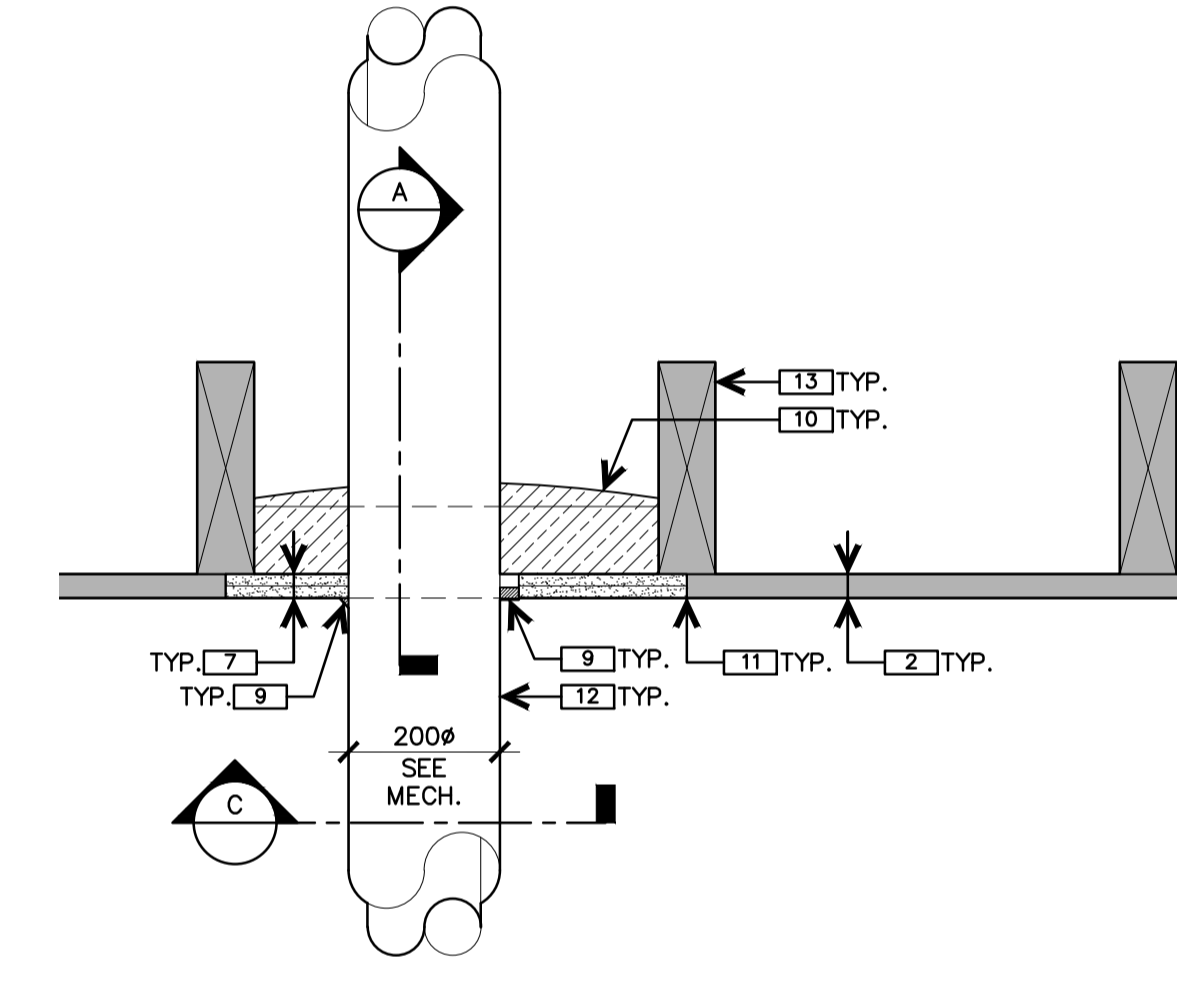
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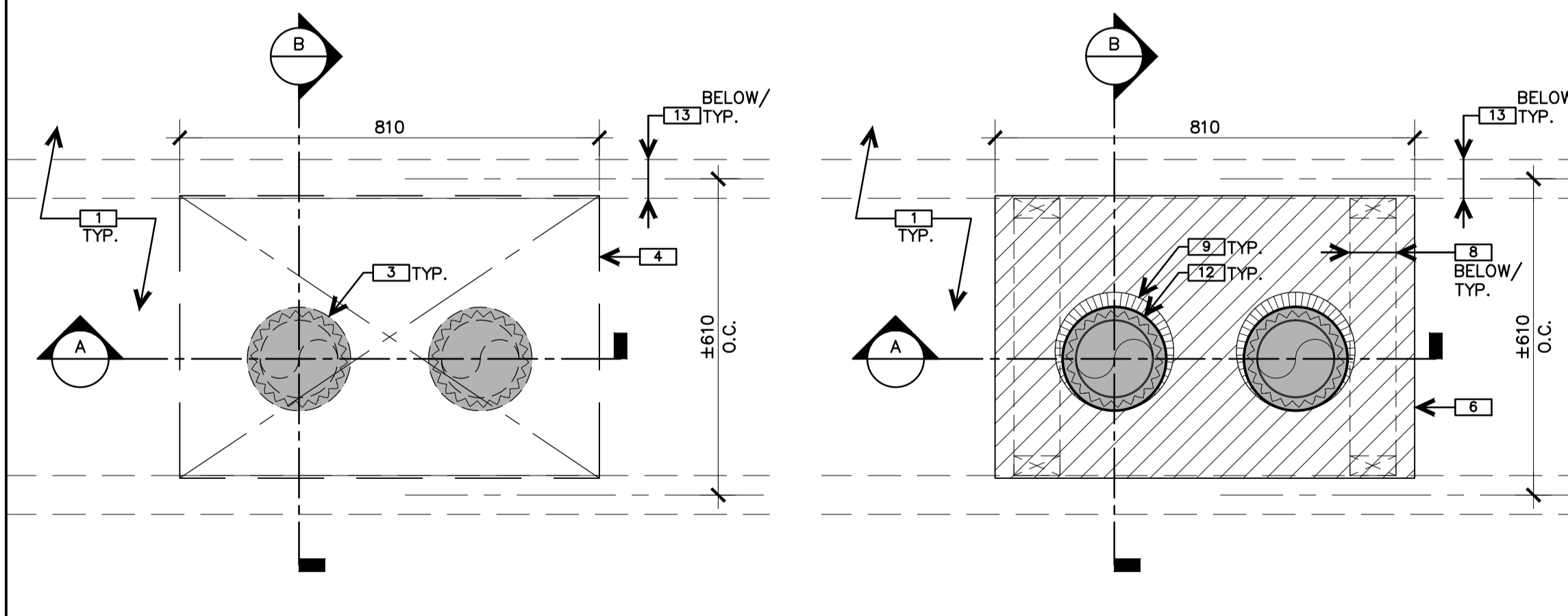
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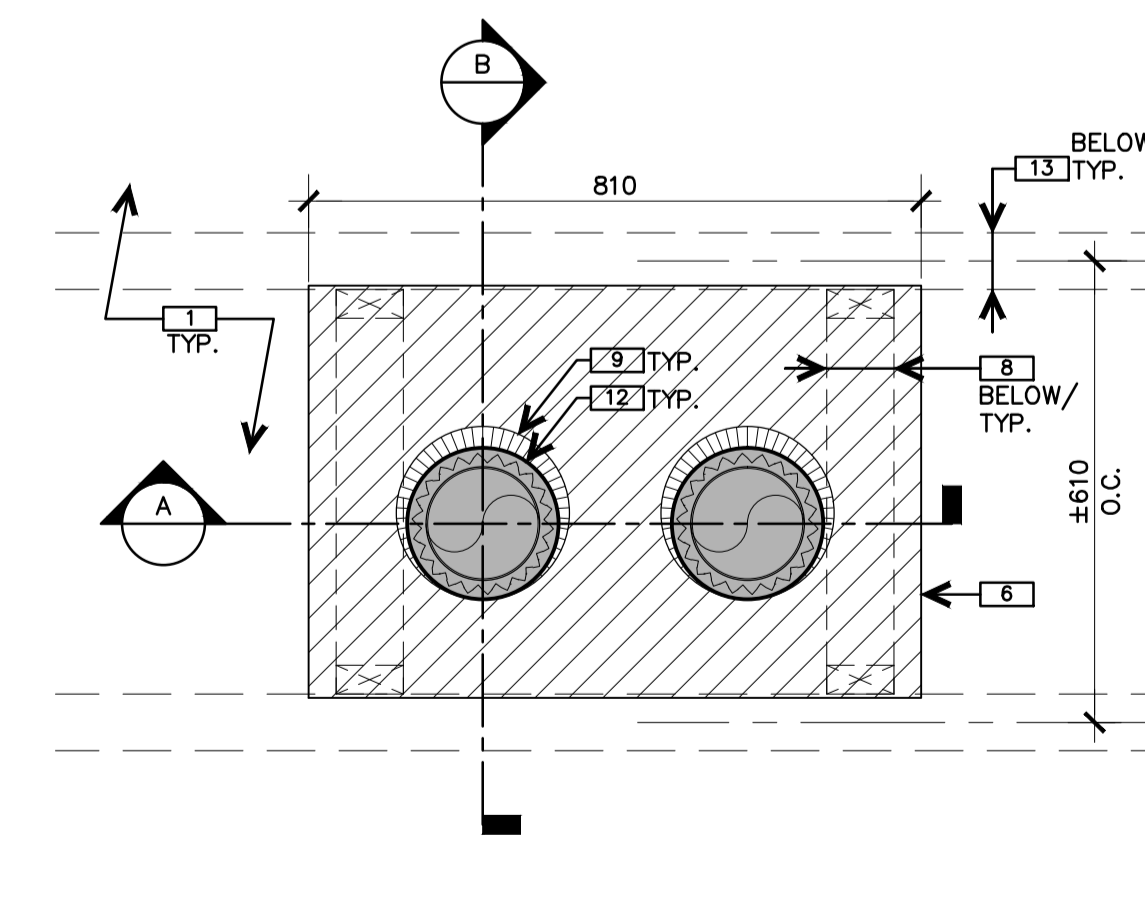
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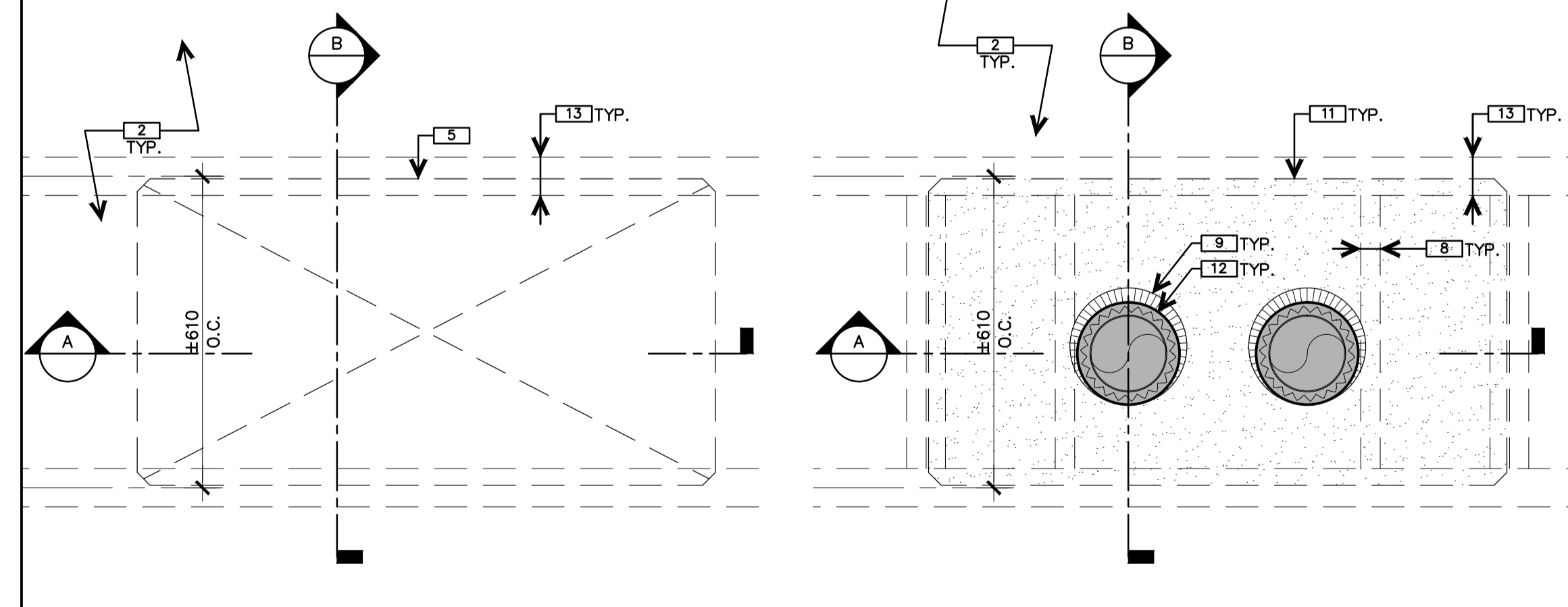
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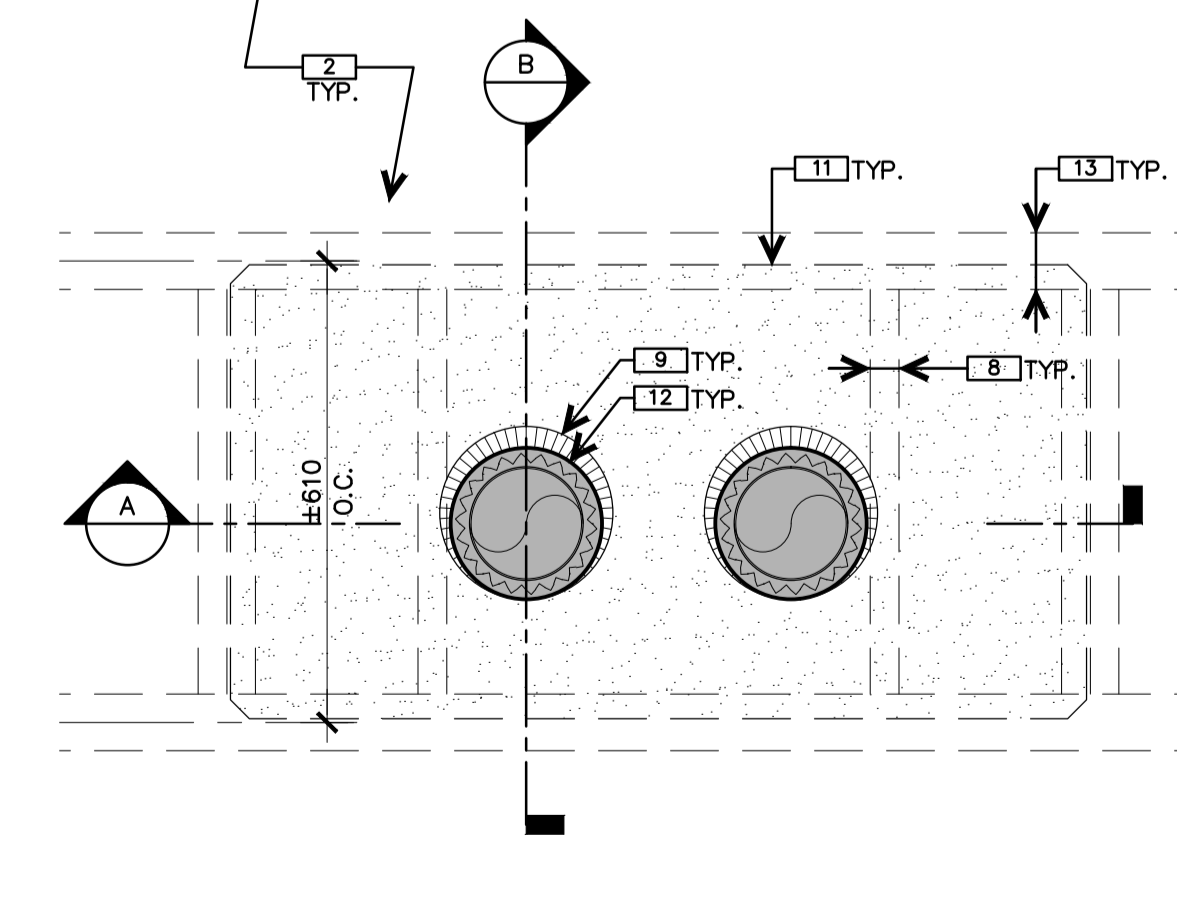
DEMO  
PLAN DETAIL  
C



NEW



DEMO  
REFLECTED CEILING PLAN DETAIL  
C



NEW

1 FLOOR PENETRATION DETAILS  
A6 1:10

2 ATTIC/CEILING PENETRATION DETAILS  
A6 1:10

- GENERAL NOTES**
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  - B. ALL GRID TO GRID DIMENSIONS ARE PLUS/MINUS. PRIOR TO COMMENCEMENT OF WORK, REVIEW SITE CONDITIONS AND VERIFY ALL DIMENSIONS. NOTIFY CONSULTANT OF ANY DISCREPANCIES.
  - C. DO NOT SCALE DRAWINGS.
  - D. REFER TO CONSULTANTS DRAWINGS AS APPLICABLE, FOR ADDITIONAL INFORMATION AND SPECIFIC DISCIPLINE RELATED DESIGN MATTERS.
  - E. ALL DIMENSIONS ARE INDICATED IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

- DRAWING NOTES - SHEET A6:**
- THESE NOTES APPLY TO DRAWING SHEET A6 ONLY:
1. EXISTING WOOD SUB-FLOOR TO REMAIN.
  2. EXISTING PLASTER CEILING TO REMAIN.
  3. REMOVE EXISTING MECHANICAL PIPING RISER. REFER TO MECHANICAL.
  4. REMOVE EXISTING FLOOR FINISH AND WOOD SUB-FLOORING AS INDICATED.
  5. REMOVE EXISTING PLASTER CEILING ON METAL LATHE AS INDICATED.
  6. NEW 13mm PLYWOOD SUB-FLOOR INFILL PAINT FINISH.
  7. NEW TWO LAYERS OF 16mm TYPE-X GYPSUM BOARD. TAPED EDGES. PAINT FINISH.
  8. NEW WOOD BLOCKING.
  9. NEW FIRE-STOP SEALANT.
  10. NEW SEMI-RIGID INSULATION.
  11. PATCH, SAND, AND MAKE GOOD FINISH BETWEEN EXISTING PLASTER CEILING FINISH AND NEW GYPSUM FINISH.
  12. NEW MECHANICAL PIPING. REFER TO MECHANICAL.
  13. EXISTING WOOD JOIST TO REMAIN.



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Division design et construction  
director - Claude Robert - directeur

consultant  
expert-conseil



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3	ISSUED FOR TENDER 16 DEC 2014
2	RE-ISSUED FOR REVIEW 12 MAR 2014
1	ISSUE FOR REVIEW 28 MAR 2013

project  
projet

CHILLED WATER  
EXTENSION

DETAILS

approved by / approuvé par M. MARTIGNAGO  
designed by / conçu par M. MARTIGNAGO  
drawn by / dessiné par S. SIDONS (1321)  
date / SEE REV. COLUMN / échelle / AS NOTED

NCC project no. / no. du projet de la CCN RD - 110891  
sheet size: ISO\_A1  
A6

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3	ISSUED FOR TENDER	16 DEC 2014
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1	ISSUE FOR REVIEW	28 MAR 2013

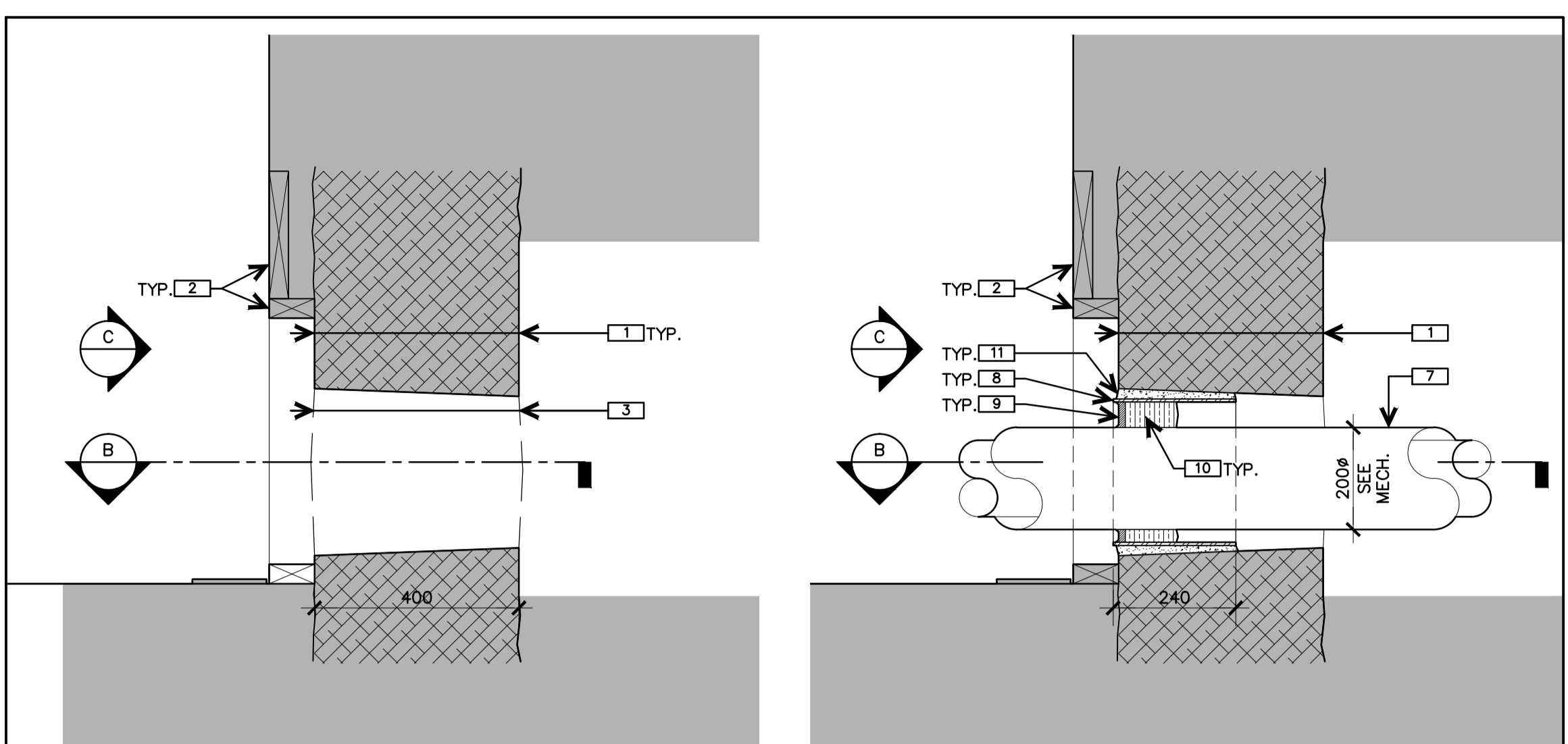
GENERAL NOTES

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- ALL DIMENSIONS ARE INDICATED IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

DRAWING NOTES - SHEET A7:

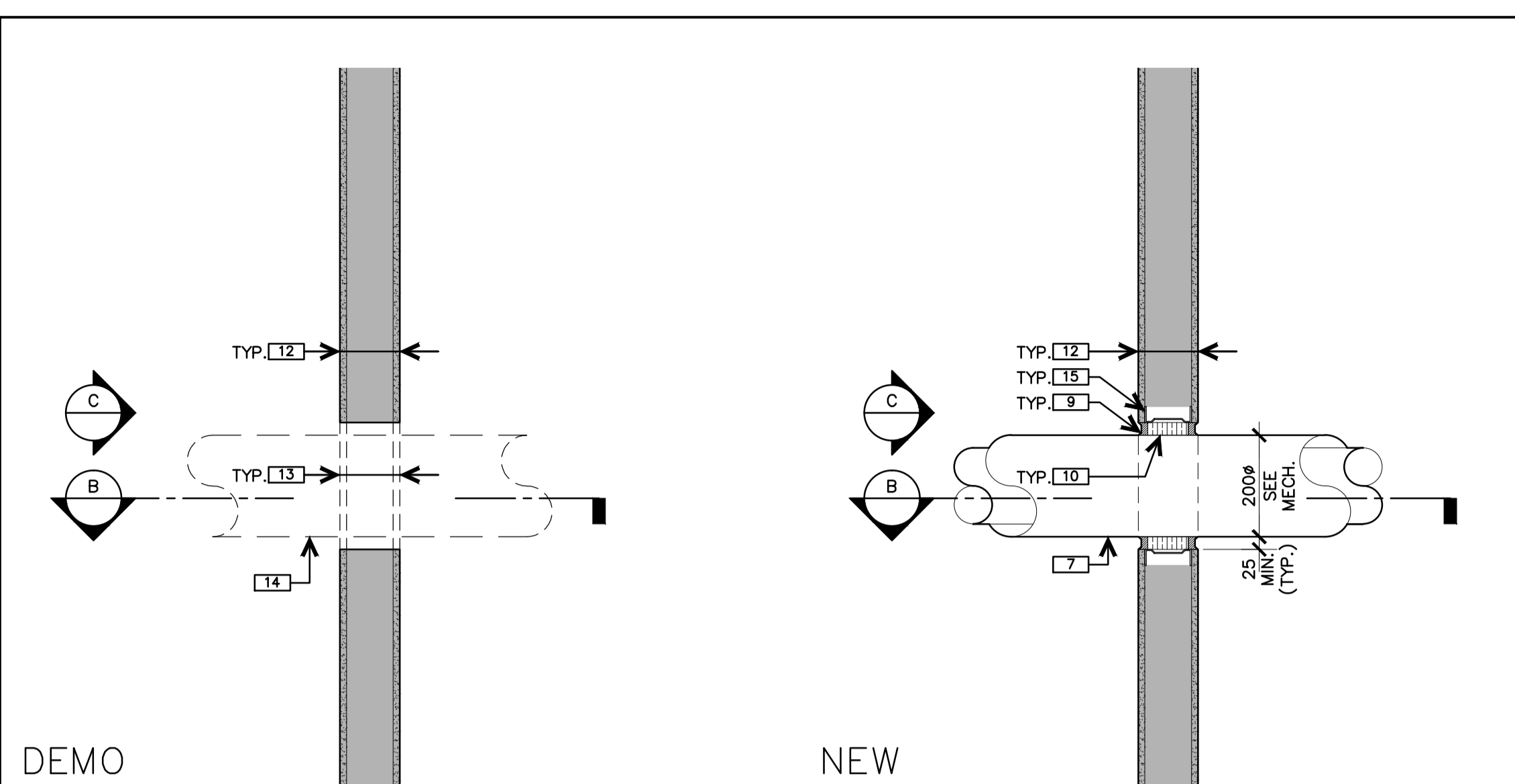
THESE NOTES APPLY TO DRAWING SHEET A7 ONLY:

- EXISTING STONE WALL TO REMAIN.
- EXISTING TIMBER FRAMING TO REMAIN.
- REMOVE AREA OF STONE WALL AS INDICATED. REMOVE STONE CAREFULLY TO PROVIDE A ROUND TOP-HEADER ALLOW THE EXISTING STONE LOADS TO TRANSFER AROUND THE OPENING NATURALLY.
- EXISTING CONDUIT BUNDLE TO REMAIN.
- EXISTING OPENING THROUGH STONE WALL.
- REMOVE EXISTING FIBERGLASS BATT INSULATION. CLEAN AREA OF ALL DEBRIS AND PREPARE FOR NEW WALL INFILL.
- NEW MECHANICAL PIPING. REFER TO MECHANICAL.
- NEW 10mm GALVANIZED PLATE STEEL BOX, AS INDICATED.
- NEW FIRE-STOP SEALANT.
- NEW SEMI-RIGID INSULATION.
- NEW SOLID CEMENTITIOUS GROUT INFILL.
- EXISTING GYPSUM BOARD BOTH SIDES OF METAL STUDS TO REMAIN.
- REMOVE PORTION OF EXISTING GYPSUM BOARD AS INDICATED.
- REMOVE PORTION OF EXISTING METAL STUD FRAMING.
- REMOVE EXISTING PIPING. REFER TO MECHANICAL.
- PROVIDE NEW METAL STUD FRAMING AROUND NEW OPENING. SIZE TO MATCH EXISTING FRAMING MEMBERS.



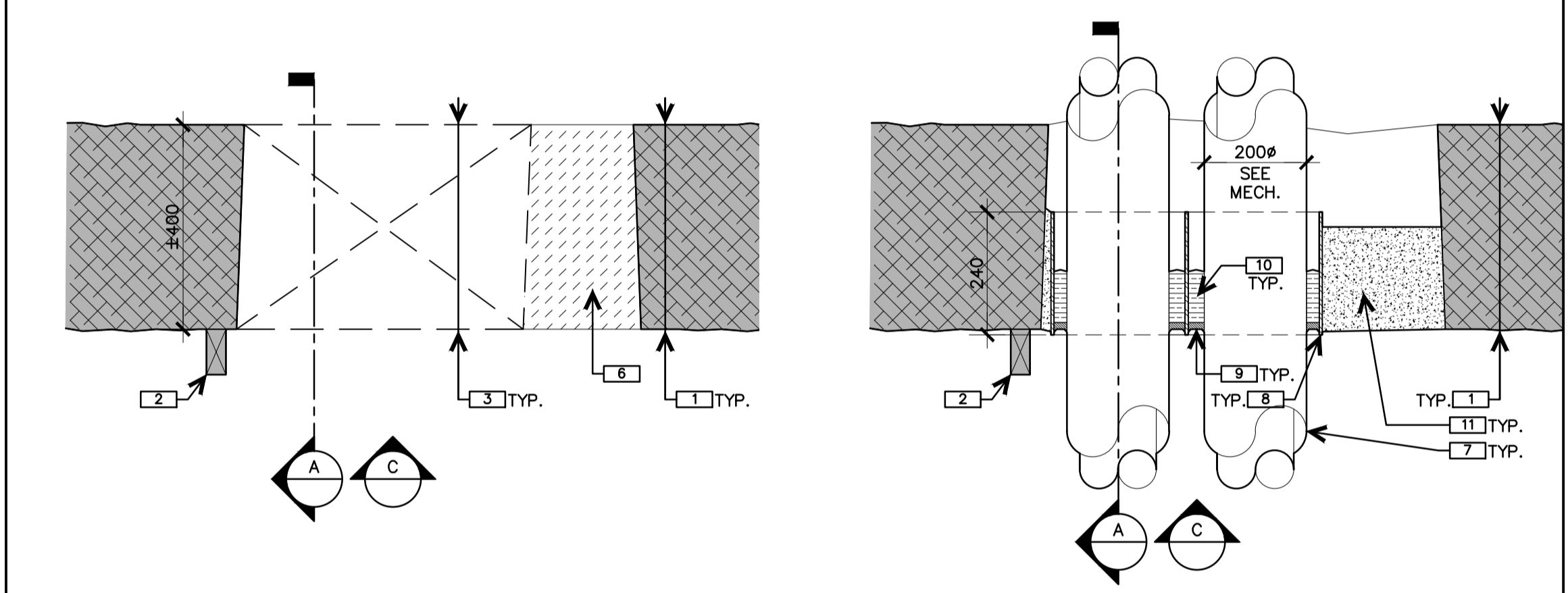
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SECTION DETAIL

NEW



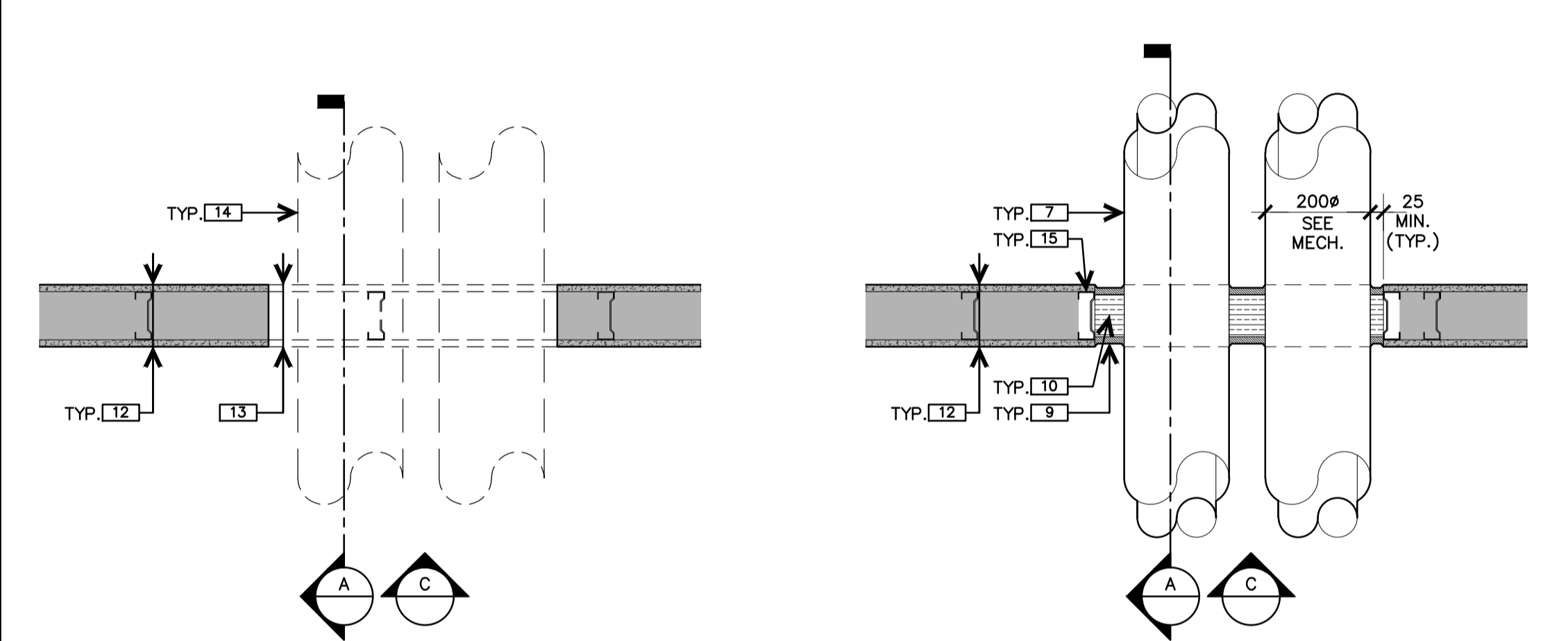
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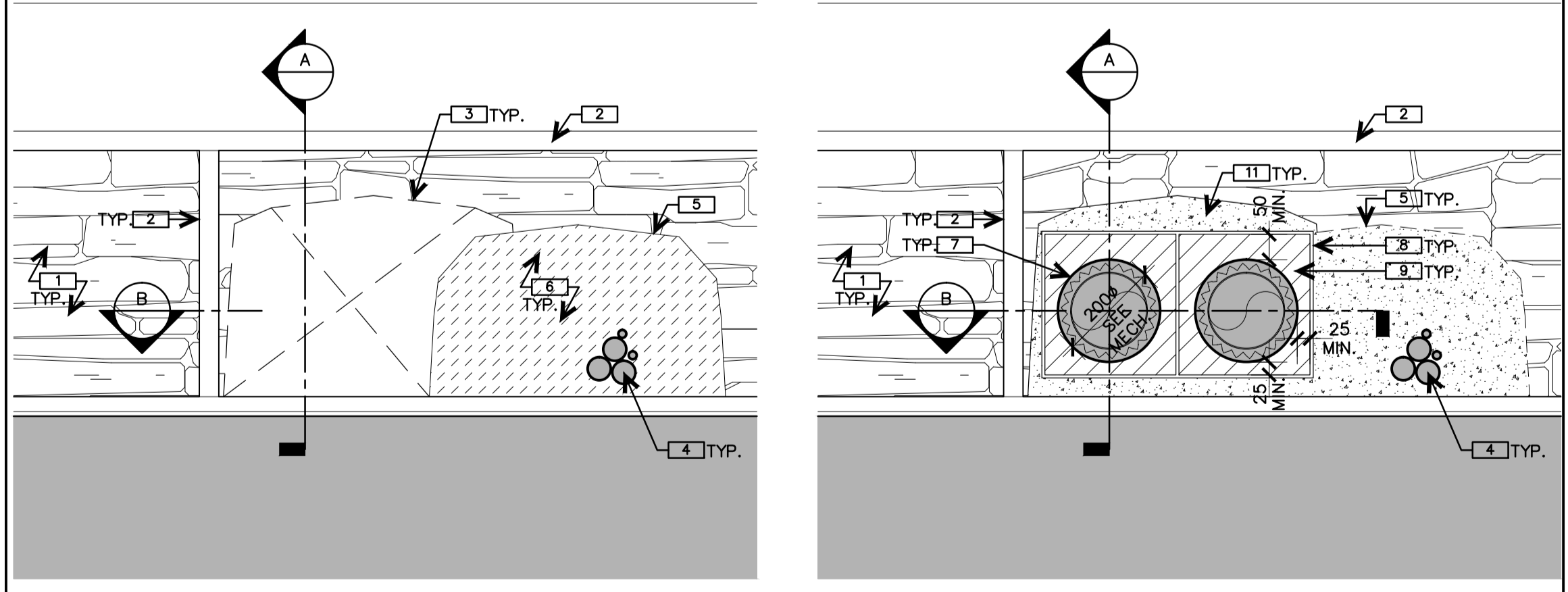
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PLAN DETAIL

NEW



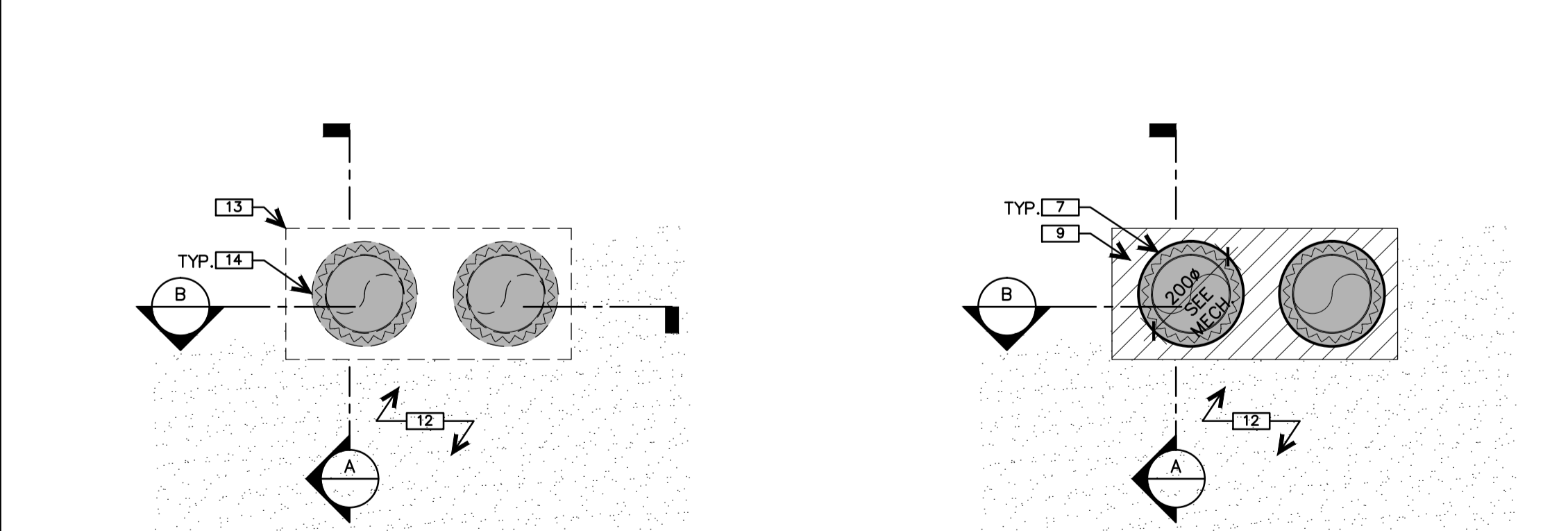
DEMO  
PLAN DETAIL

NEW



DEMO  
ELEVATION DETAIL

NEW



DEMO  
ELEVATION DETAIL

NEW

1  
A7  
WALL PENETRATION DETAILS  
1:10

2  
A7  
WALL PENETRATION DETAILS  
1:10

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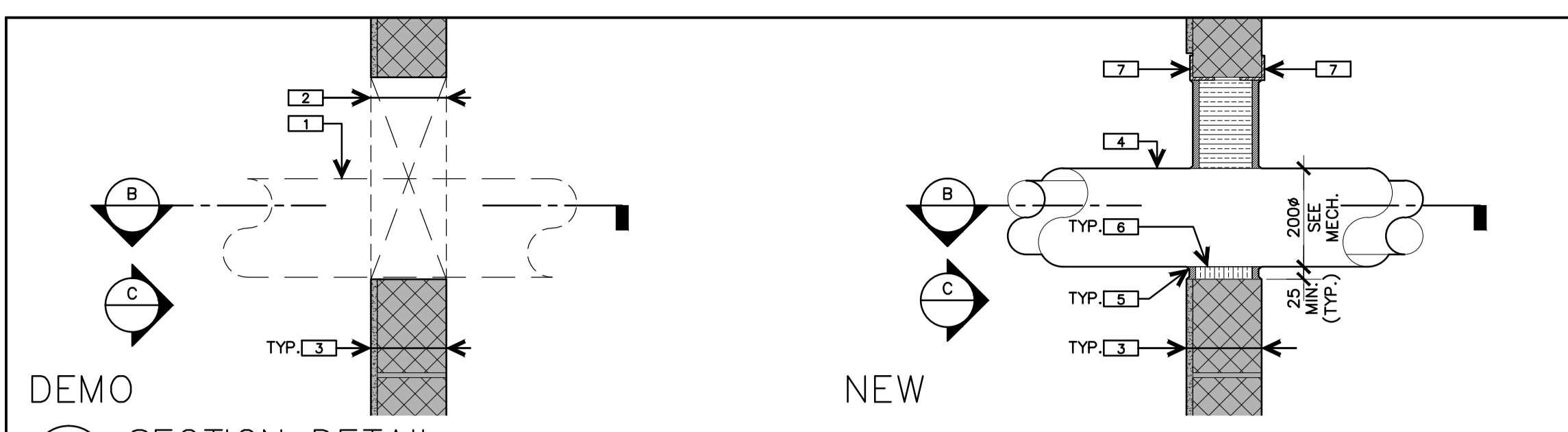
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DRAWING NOTES - SHEET A8:

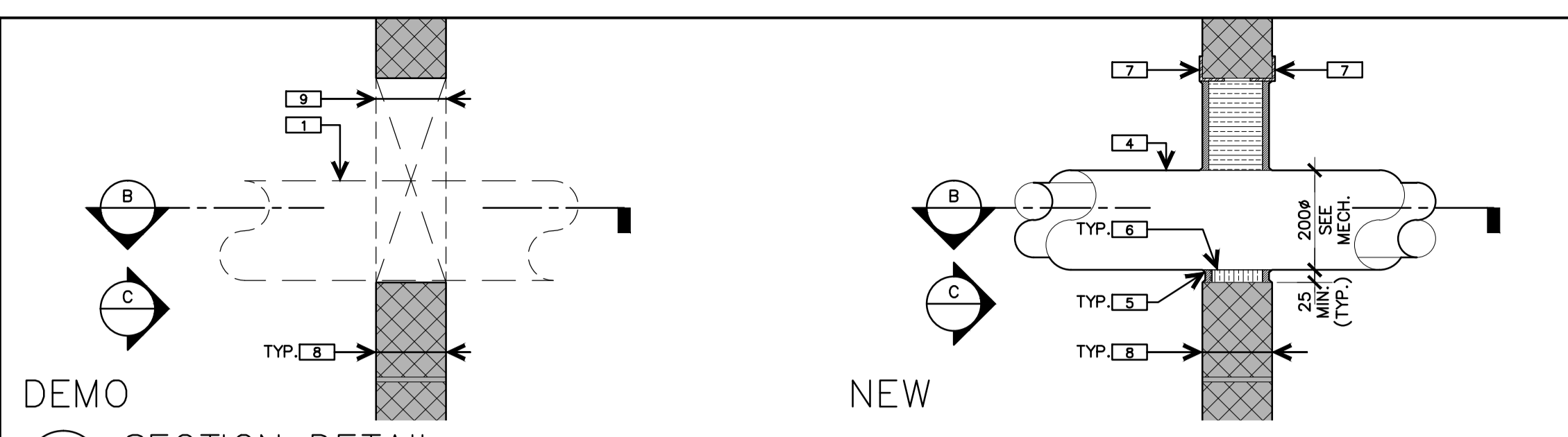
THESE NOTES APPLY TO DRAWING SHEET A8 ONLY:

1. REMOVE EXISTING PIPING. REFER TO MECHANICAL.
2. REMOVE EXISTING CONCRETE BLOCK AND GYPSUM BOARD c/w SOLID GROUT AROUND EXISTING PIPING.
3. EXISTING CONCRETE BLOCK AND GYPSUM BOARD TO REMAIN.
4. NEW MECHANICAL PIPING. REFER TO MECHANICAL.
5. NEW FIRE-STOP SEALANT.
6. NEW SEMI-RIGID INSULATION.
7. NEW 76x76x6mm STEEL LITEL ACROSS NEW WALL OPENING. PAINT FINISH.
8. EXISTING CONCRETE BLOCK TO REMAIN.
9. REMOVE EXISTING CONCRETE BLOCK c/w SOLID GROUT AROUND EXISTING PIPING.



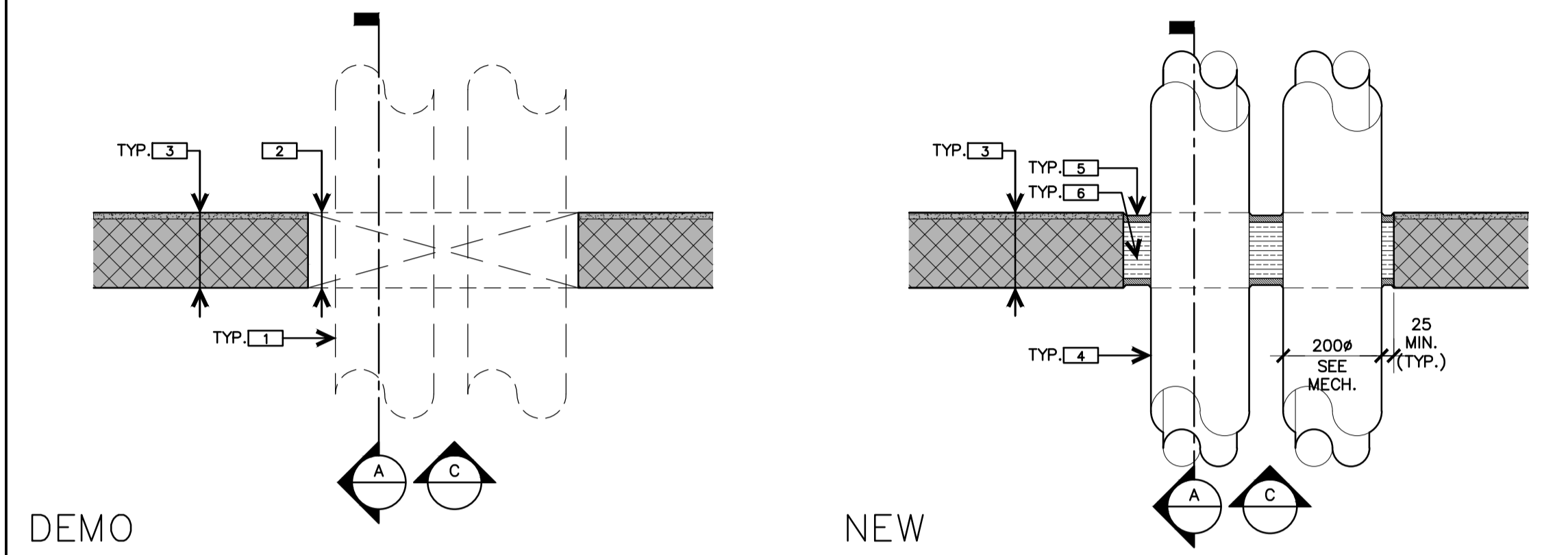
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SECTION DETAIL  
A

NEW



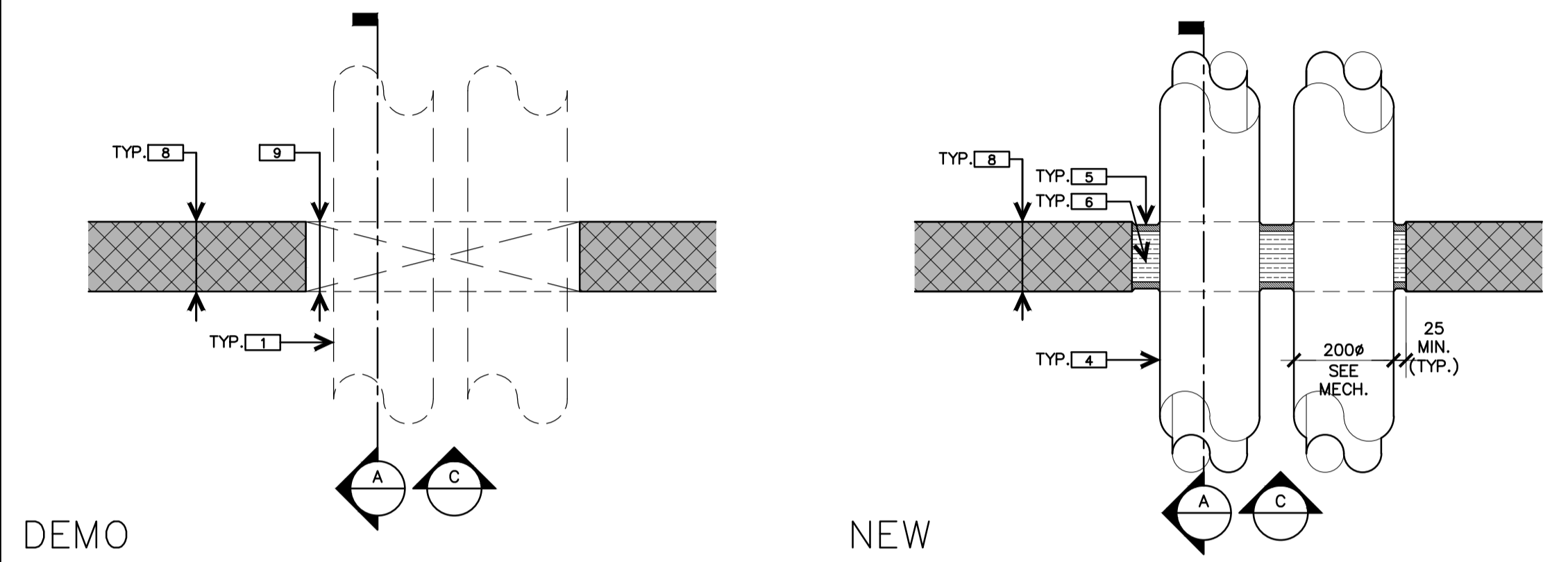
DEMO  
SECTION DETAIL  
A

NEW



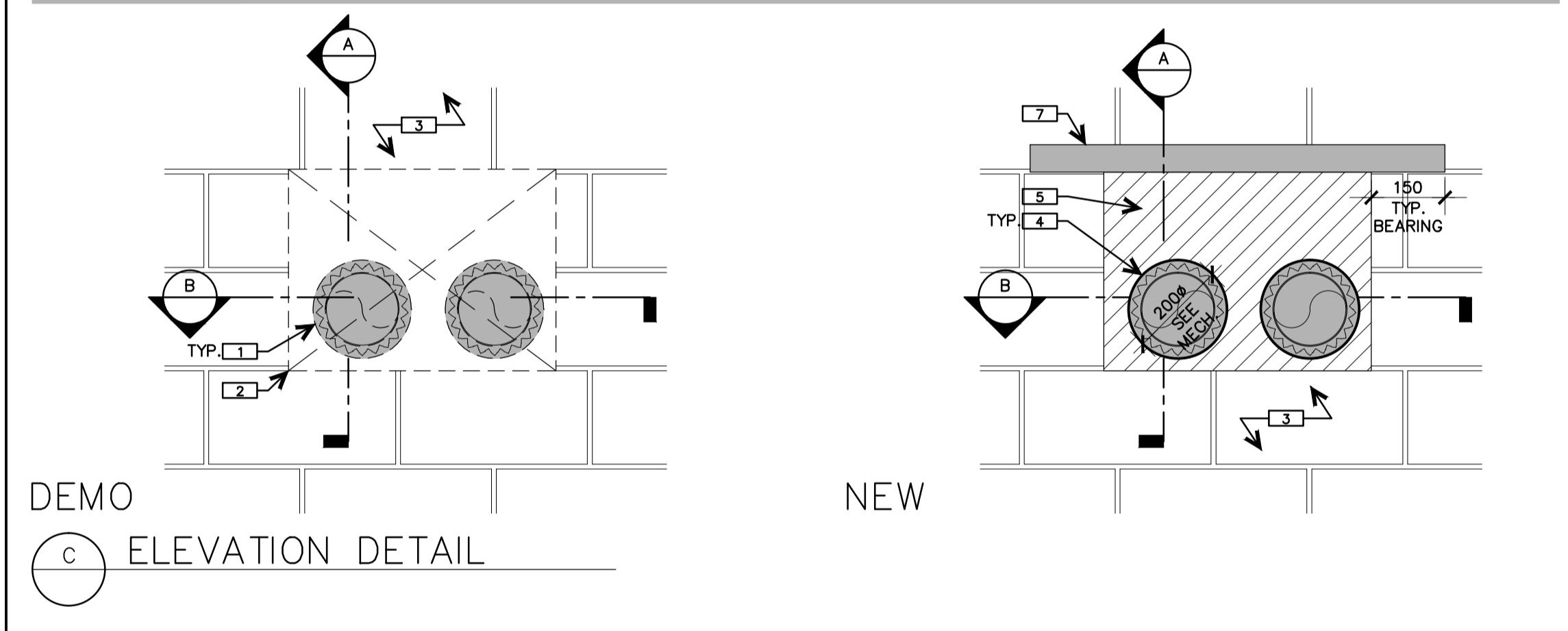
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PLAN DETAIL  
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NEW



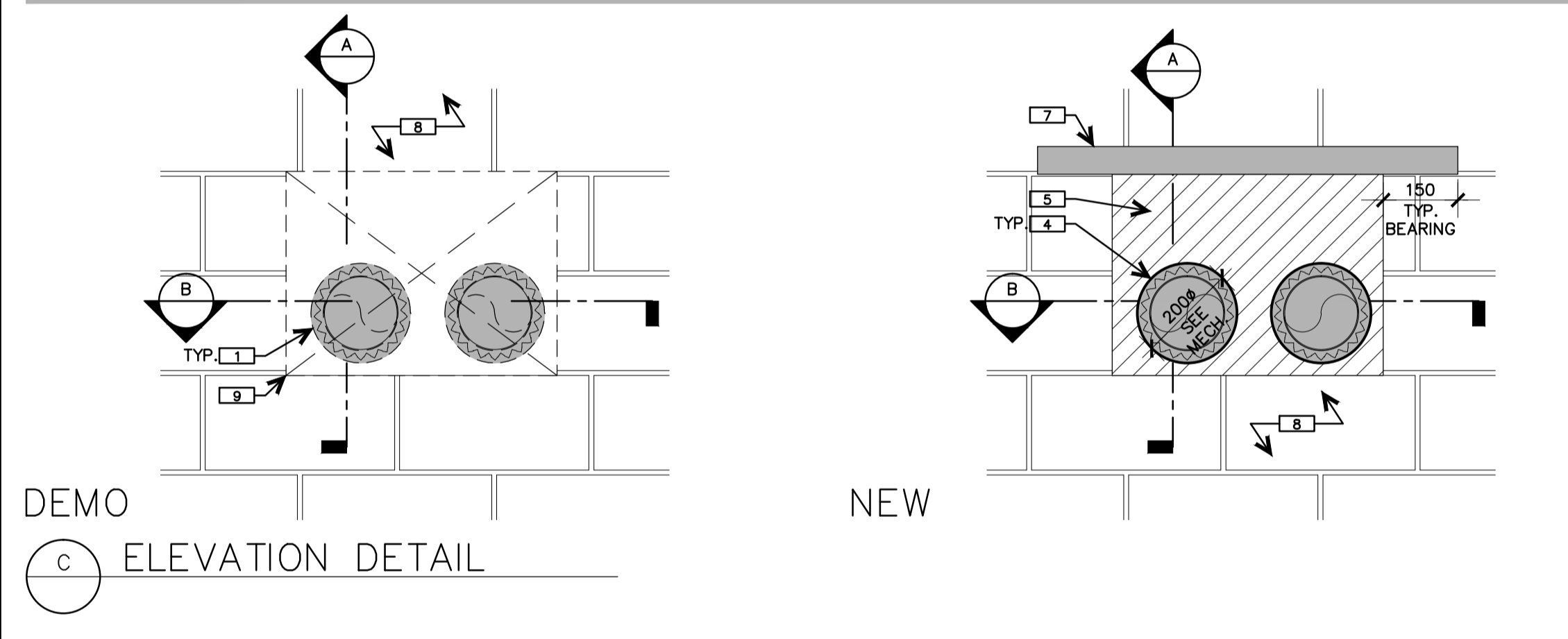
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PLAN DETAIL  
B

NEW



DEMO  
ELEVATION DETAIL  
C

NEW



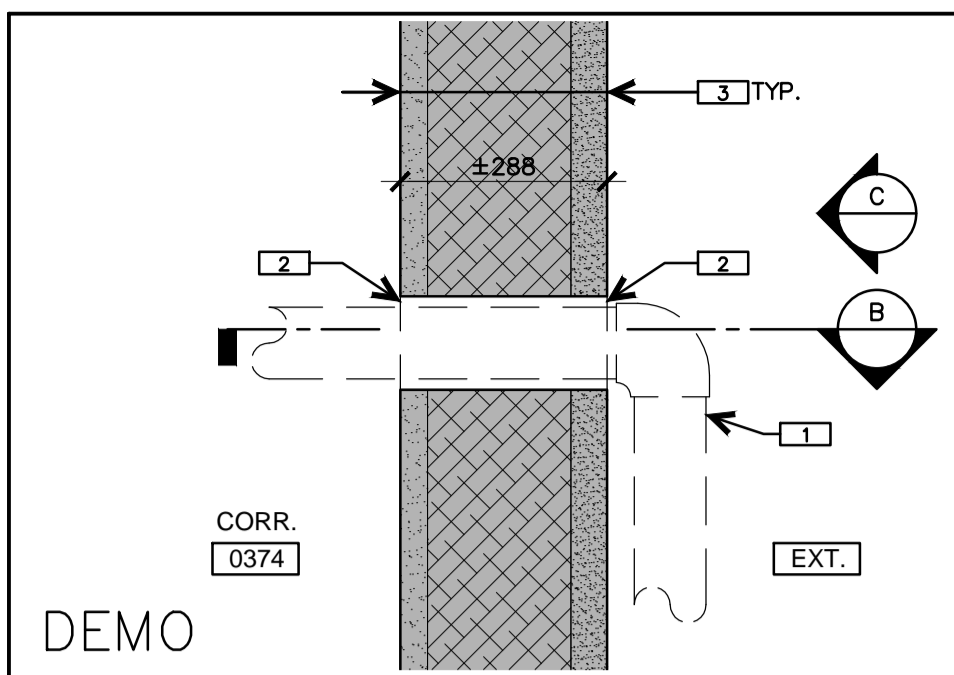
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ELEVATION DETAIL  
C

NEW

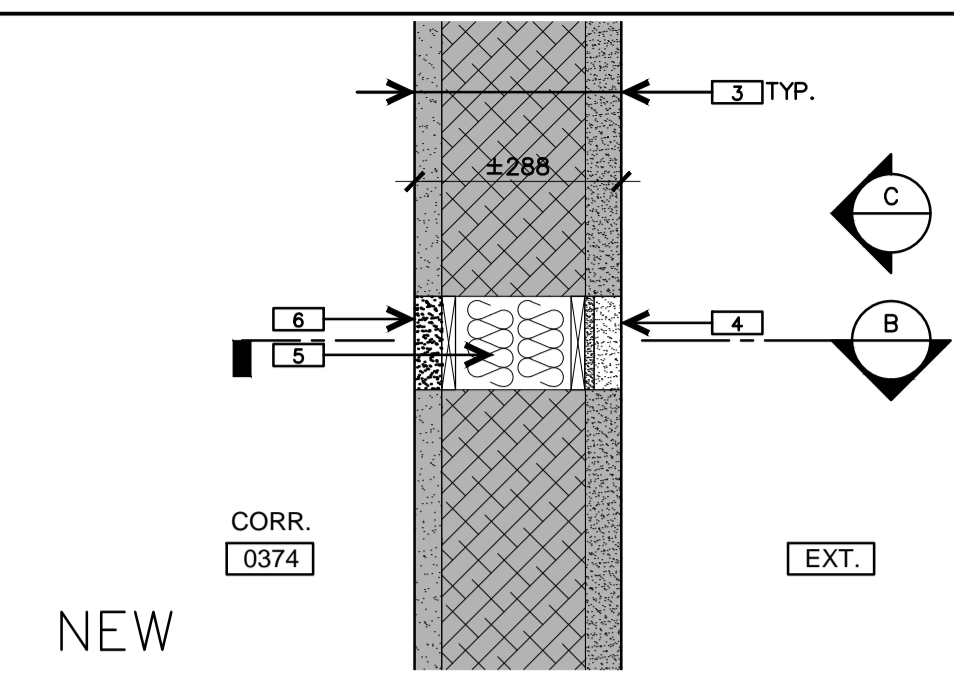
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A8  
WALL PENETRATION DETAILS  
1:10

2  
A8  
WALL PENETRATION DETAILS  
1:10

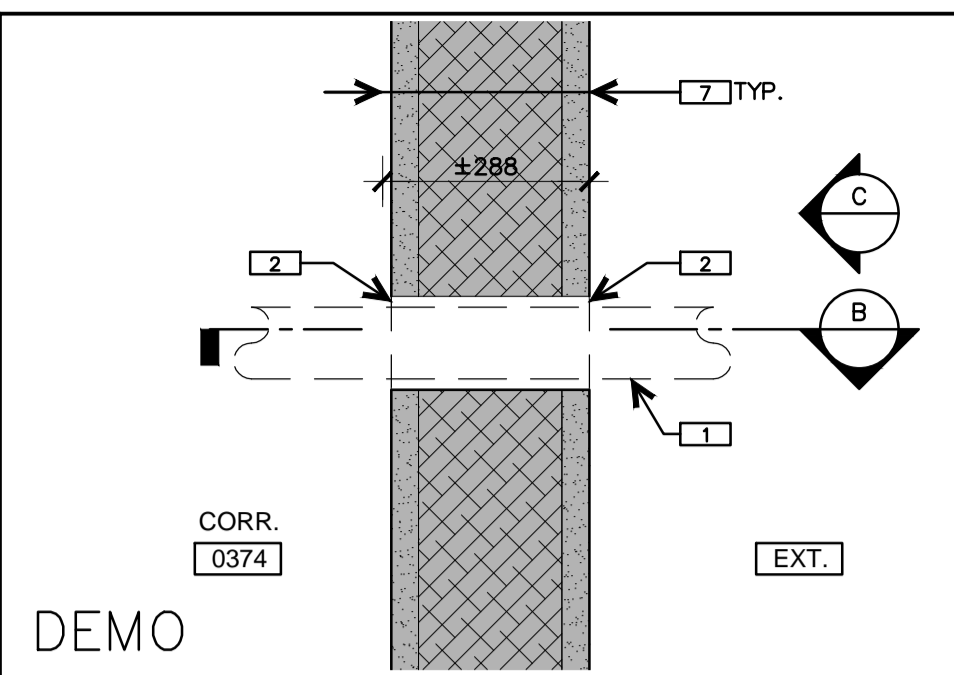




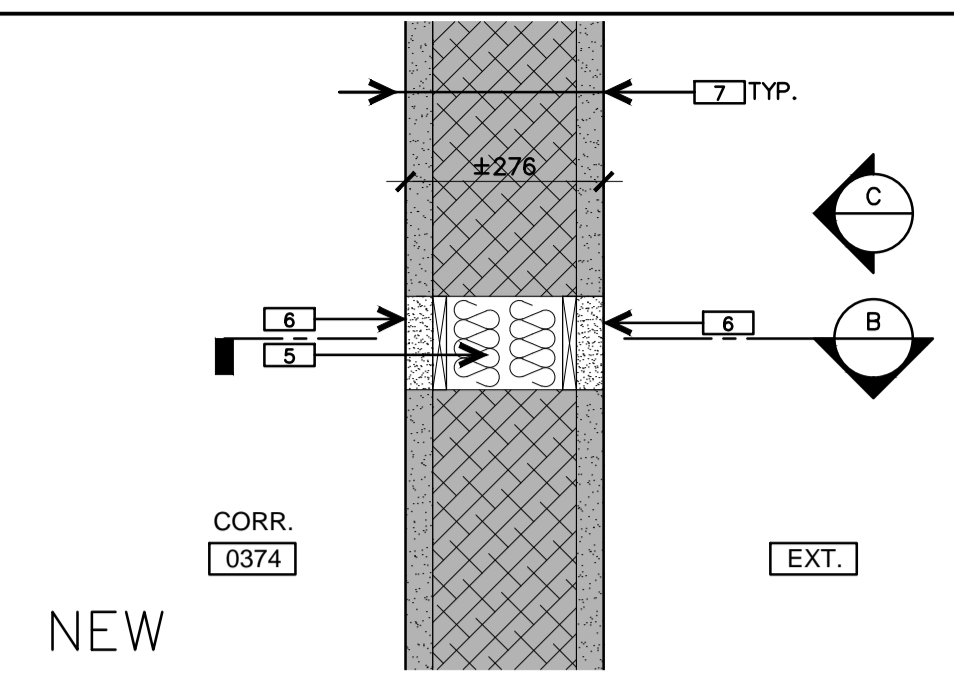
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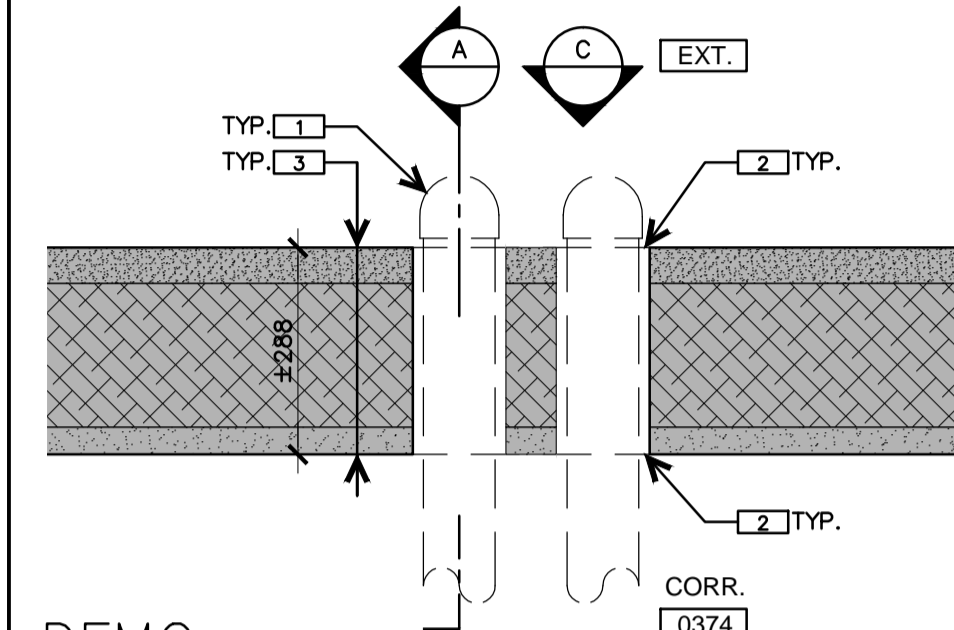
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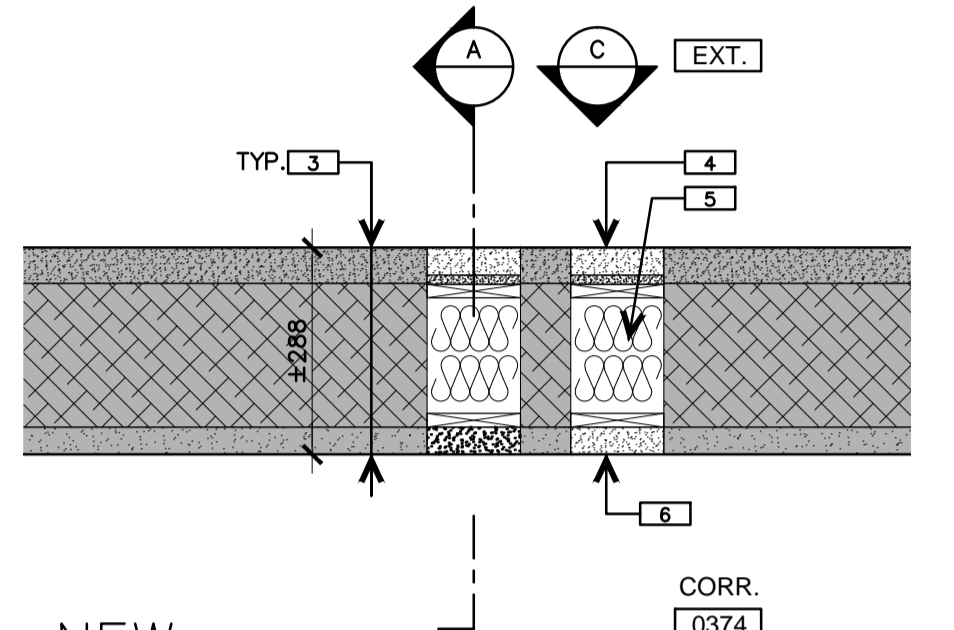
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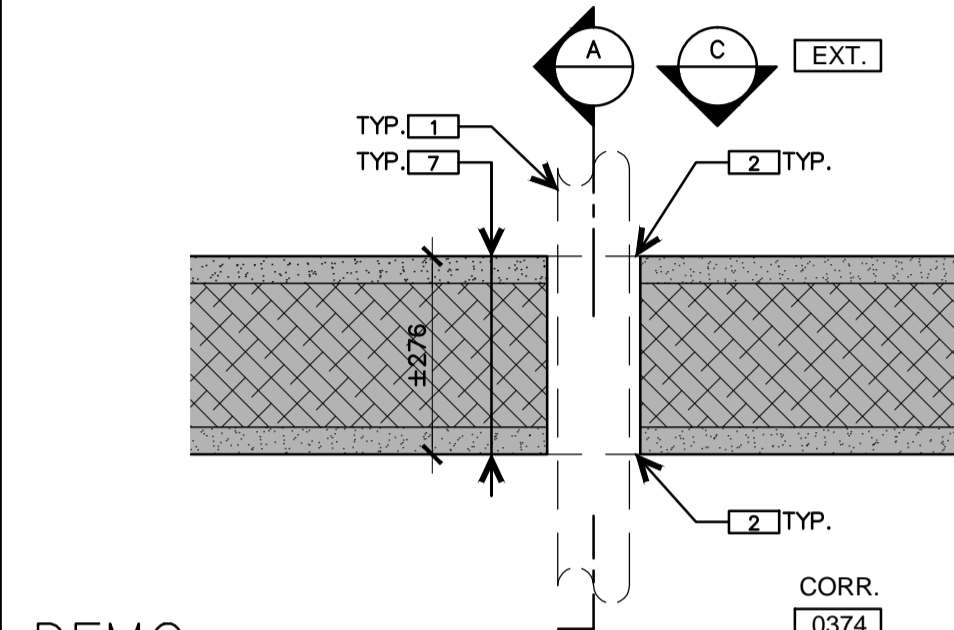
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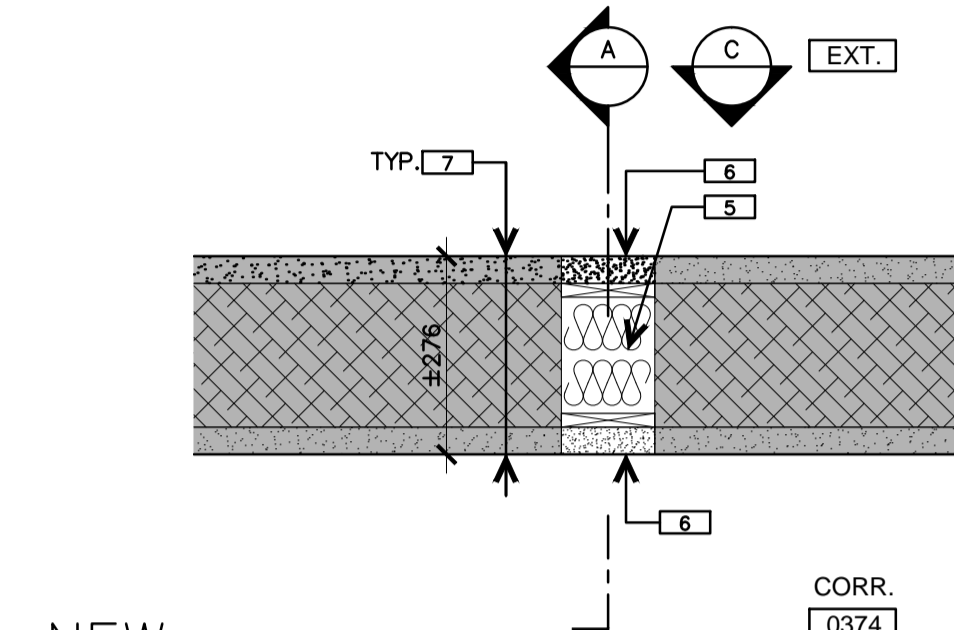
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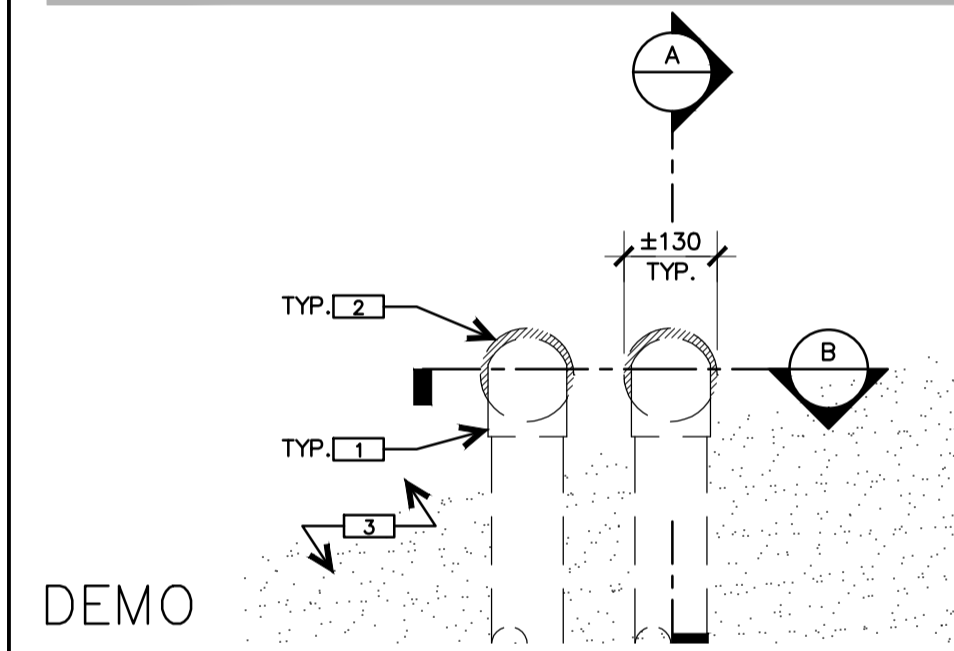
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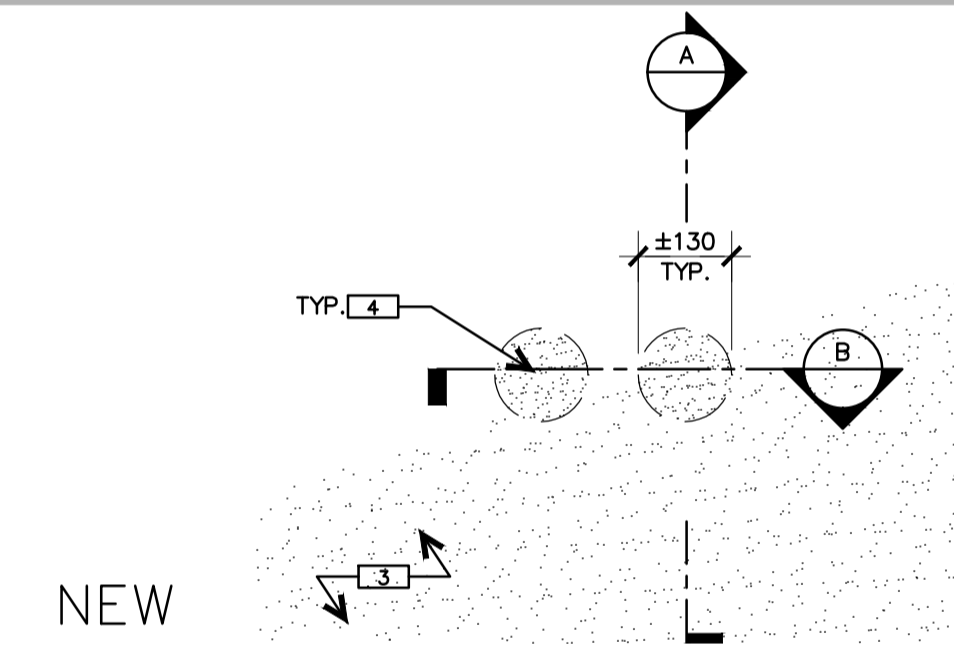
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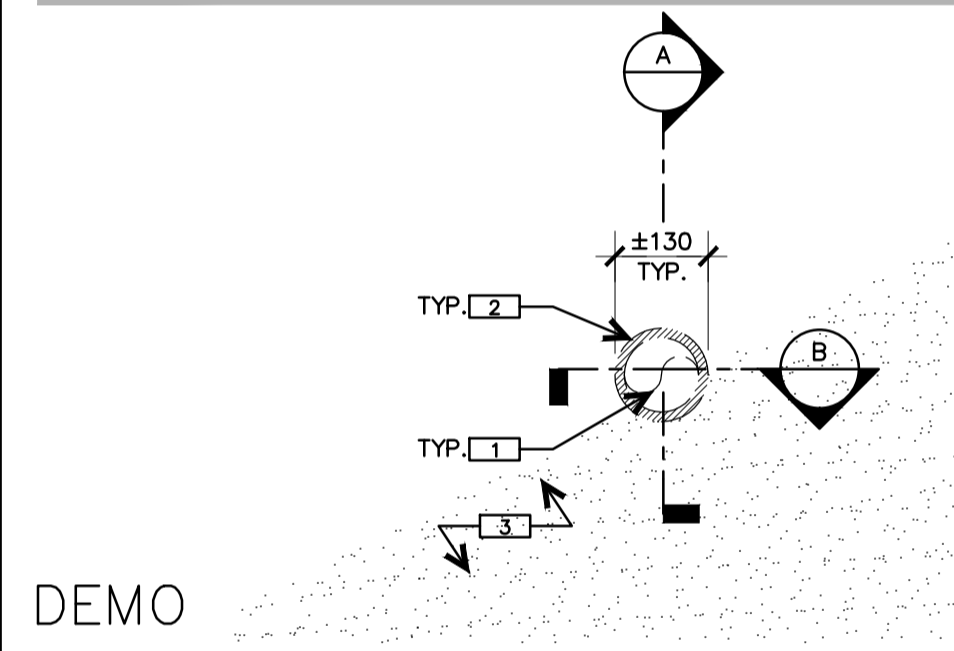
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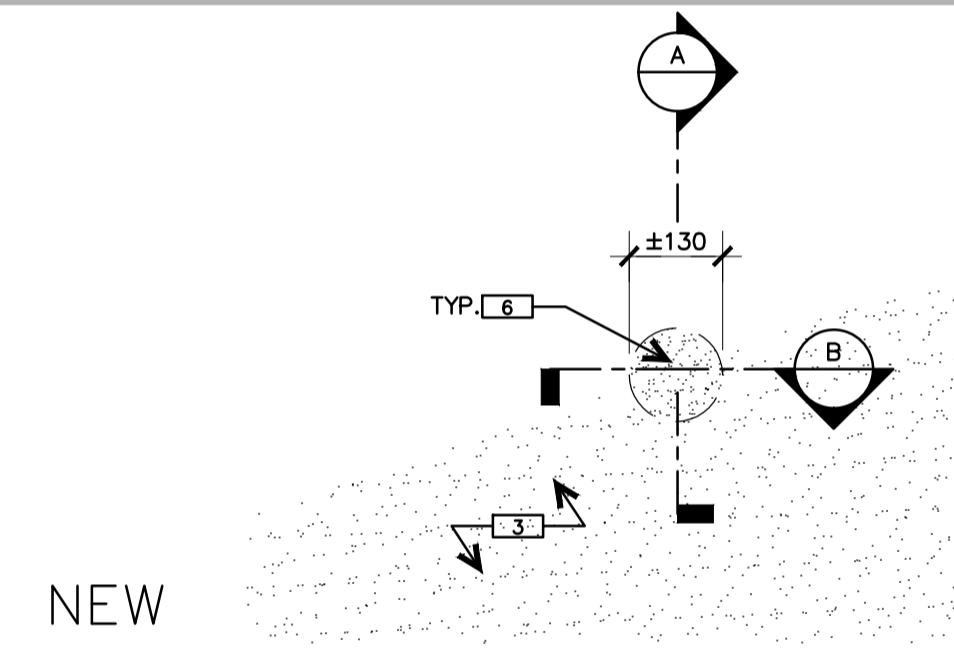
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ELEVATION DETAIL



NEW



DEMO  
ELEVATION DETAIL



NEW

1  
A9  
WALL PENETRATION DETAILS  
1:10

2  
A9  
WALL PENETRATION DETAILS  
1:10

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DRAWING NOTES - SHEET A9:

THESE NOTES APPLY TO DRAWING SHEET A9 ONLY:

- 1. REMOVE EXISTING PIPING. REFER TO MECHANICAL.
- 2. REMOVE EXISTING CAULKING/SEALANT AROUND EXISTING CONDUIT PIPE.
- 3. EXISTING EXTERIOR WALL ASSEMBLY: EXTERIOR STUCCO FINISH, STONE MASONRY WALL, INTERIOR PLASTER/LATHE FINISH.
- 4. NEW EXTERIOR STUCCO FINISH ON 13mm EXTERIOR GYPSUM BOARD SHEATHING ON 19mm WOOD PLUG TO SUIT OPENING PROFILE. SECURE WOOD PLUG TO EXISTING WALL STRUCTURE. MAKE GOOD NEW STUCCO FINISH, COLOUR, AND TEXTURE TO MATCH EXISTING ADJACENT FINISHES.
- 5. NEW SEMI-RIGID INSULATION.
- 6. NEW INTERIOR LATHE/PLASTER FINISH ON 19mm WOOD PLUG TO SUIT OPENING PROFILE. SECURE WOOD PLUG TO EXISTING WALL STRUCTURE. MAKE GOOD NEW PLASTER FINISH, COLOUR, AND TEXTURE TO MATCH EXISTING ADJACENT FINISHES.
- 7. EXISTING INTERIOR PARTITION WALL: LATHE/PLASTER WALL FINISH ON BOTH SIDES OF MASONRY WALL.



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Design and Construction Division  
Division design et construction

director - Claude Robert - directeur

consultant  
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Ontario Canada K1Y 4E4  
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FAX: (613) 238-0395  
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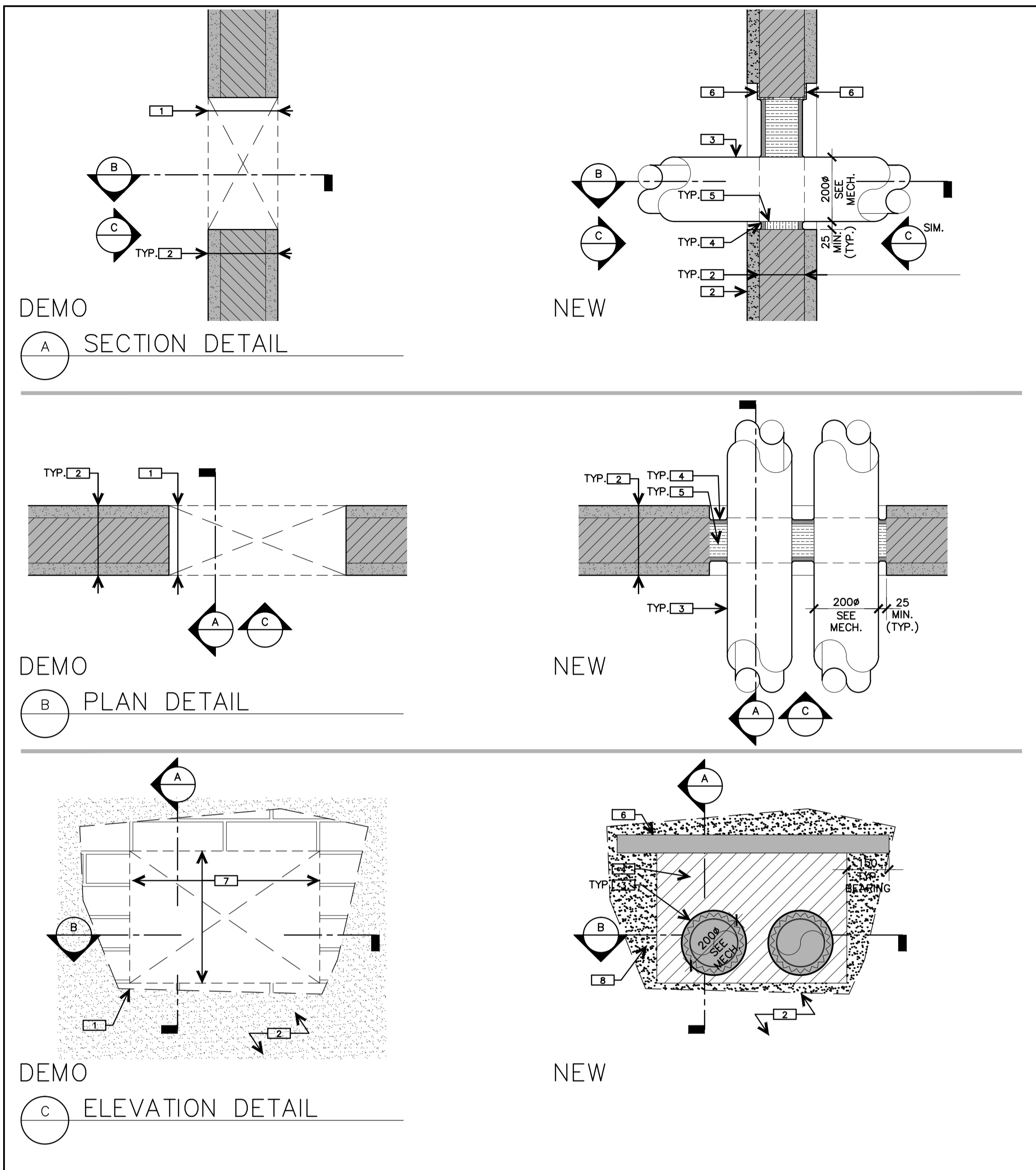
CHILLED WATER  
EXTENSION

DETAILS

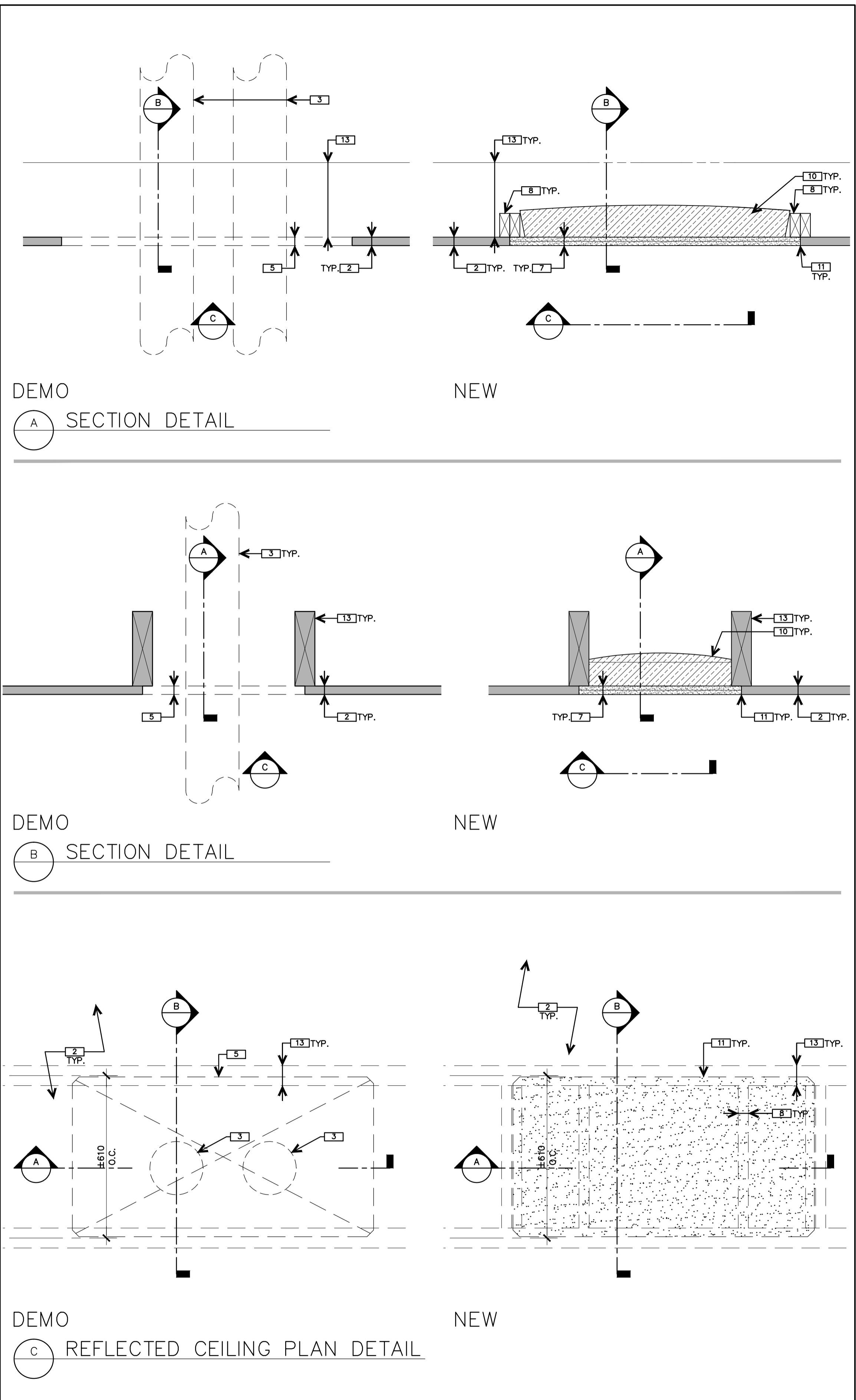
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conçu par M. MARTIGNAGO  
drawn by  
dessiné par S. SIDONS (1321)  
date SEE REV. COLUMN échelle AS NOTED

NCC project no.  
no. du projet de la CCN RD - 110891

A9



1 WALL PENETRATION DETAILS  
A10 1:10



2 ATTIC/CEILING PENETRATION DETAILS  
A10 1:10

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**DRAWING NOTES - SHEET A10:**  
THESE NOTES APPLY TO DRAWING SHEET A10 ONLY:

- REMOVE EXISTING WALL PLASTER ASSEMBLY AS INDICATED.
- EXISTING WALL PLASTER ON CONCRETE MASONRY WALL ASSEMBLY TO REMAIN.
- NEW MECHANICAL PIPING. REFER TO MECHANICAL.
- NEW FIRE-STOP SEALANT.
- NEW SEMI-RIGID INSULATION.
- NEW 76x76x6mm STEEL LINTEL ACROSS NEW WALL OPENING. PAINT FINISH.
- REMOVE EXISTING CONCRETE BLOCK WALL AS INDICATED.
- MAKE GOOD NEW PLASTER FINISH, COLOUR, AND TEXTURE TO MATCH EXISTING ADJACENT FINISHES.



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Design and Construction Division  
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consultant  
expert-conseil



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project / projet

CHILLED WATER  
EXTENSION

DETAILS

approved by / approuvé par M. MARTIGNAGO  
designed by / conçu par M. MARTIGNAGO  
drawn by / dessiné par S. SIDONS [1321]  
date / SEE REV. COLUMN / échelle / AS NOTED

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A10