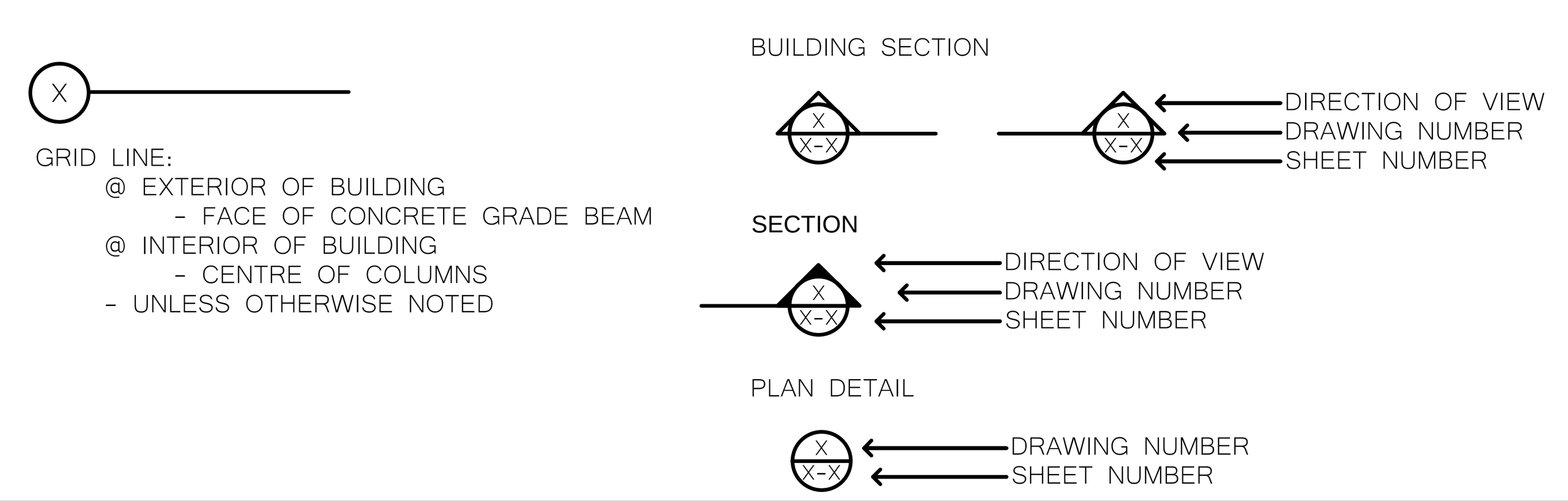
LIST OF ABBREVIATIONS

ACM	-	ASBESTOS CONTAINING MATERIALS
ACT	-	ACOUSTICAL CEILING TILE
ADJ	-	ADJUSTABLE
AFF	-	ABOVE FINISHED FLOOR
ALUM	-	ALUMINUM
BD	-	BOARD
B'HD	-	BULKHEAD
BLDG	-	BUILDING
BLK'G	-	BLOCKING
BS	-	BOTH SIDES
BOT	-	BOTTOM
BTWN	-	BETWEEN
BU	-	BUILT-UP
CB	-	CONCRETE BLOCK
C/BD	-	CHALK BOARD
C/C	-	CENTRE TO CENTRE
CJ	-	CONTROL JOINT
CLAD	-	CLADDING
CLG	-	CEILING
COL	-	COLUMN
CONC	-	CONCRETE
CONT	-	CONTINUOUS
CONST	-	CONSTRUCTION
CPT	-	CARPET
C/SPACE	-	CRAWLSPACE
CT	-	CERAMIC TILE
C/W	-	COMPLETE WITH
DEMO	-	DEMOLISH
DF	-	DRINKING FOUNTAIN
DIM	-	DIMENSION
DMP	-	DEMOUNTABLE PANELS
DN	-	DOWN
DR	-	DOOR
DTL	-	DETAIL
DW	-	DRYWALL
DWG	-	DRAWING
EA	-	EACH
ELEC	-	ELECTRICAL
EL	-	ELEVATION
ELEV	-	ELEVATOR
ENG	-	ENGINEERED
EX	-	EXISTING
EXT	-	EXTERIOR
EQ	-	EQUAL
F/A	-	FIRE ALARM
FD	-	FLOOR DRAIN
FDN	-	FOUNDATION
FHC	-	FIRE HOSE CABINET
FIN	-	FINISH
FLR	-	FLOOR
FL'G	-	FLASHING
FRP	-	FIBREGLASS REINFORCED PANEL
FRR	-	FIRE RESISTANCE RATING
FT	-	FEET
GA	-	GAUGE
GALV	-	GALVANIZED
GL	-	GLAZING
HDWD	-	HARDWOOD
HM	-	HOLLOW METAL
HMI	-	HOLLOW METAL INSULATED
HOR	-	HORIZONTAL
HSS	-	HOLLOW STRUCTURAL SECTION
HT	-	HEIGHT
INSUL	-	INSULATION
INT	-	INTERCOM
JST	-	JOIST
LAM	-	LAMINATE
LINO	-	LINOLEUM
M	-	METRE
MANUF	-	MANUFACTURED
MAT	-	MATERIAL
MAX	-	MAXIMUM
MDF	-	MEDIUM DENSITY FIBREBOARD
MECH	-	MECHANICAL
MIN	-	MINIMUM
MO	-	MASONRY OPENING
MTL	-	METAL
M/W	-	MILLWORK
N/A	-	NOT APPLICABLE
NIC	-	NOT IN CONTRACT
NTS	-	NOT TO SCALE
NO	-	NUMBER
OC	-	ON CENTRE
OHD	-	OVERHEAD
O/H	-	OVERHANG
O/S	-	OUTSIDE EDGE
OTO	-	OUT TO OUT
OWWJ	-	OPEN WEB WOOD JOIST
PF	-	PREFINISHED
PERF	-	PERFORATED
P.LAM	-	PLASTIC LAMINATE
PLY	-	PLYWOOD
PQ	-	PARQUET
PR	-	PAIR
PS	-	PRESSED STEEL
PT	-	PAINT
PTW	-	PRESSURE TREATED WOOD
QT	-	QUARRY TILE
RAD	-	RADIATION CABINET
R. TILE	-	RUBBER TILE FLOORING
R. BASE	-	RUBBER BASE
RCP	-	REFLECTED CEILING PLAN
R	-	RADIUS
REL	-	RELOCATED
REQ'D	-	REQUIRED
RESIN	-	POURED FLOOR FINISH
RM	-	ROOM
RO	-	ROUGH OPENING
RWL	-	RAIN WATER LEADER
SCW	-	SOLID CORE DOOR
SCHED	-	SCHEDULED
SDG	-	SEALED DOUBLE GLAZING
SF	-	SQUARE FEET
SHT'G	-	SHEATHING
SHT R	-	SHEET RUBBER
SHT V	-	SHEET VINYL
SIM	-	SIMILAR
SM	-	SQUARE METRE
S PAD	-	SPLASH PAD
SPEC'D	-	SPECIFIED
SQ	-	SQUARE
ST	-	STEEL
STRAP	-	STRAPPING
STR	-	STRUCTURAL
STUC	-	STUCCO
SUSP	-	SUSPENDED
T/BD	-	TACKBOARD
TERR	-	TERRAZZO
T & B	-	TOP AND BOTTOM
T & G	-	TONGUE AND GROOVE
TEX	-	TEXTURED
T/O	-	TOP OF
TYP	-	TYPICAL
UNO	-	UNLESS NOTED OTHERWISE
U/S	-	UNDERSIDE OF
VB	-	VAPOUR BARRIER
VCT	-	VINYL COMPOSITE TILE
VERT	-	VERTICAL
VIN	-	VINYL
WB	-	WALLBOARD
W/BD	-	LCS WHITEBOARD
WC	-	WALLCOVERING
WD	-	WOOD
W/	-	WITH
Ø	-	DIAMETER
℄	-	CENTRE LINE
@	-	AT

DRAWING SYMBOL LEGEND



LIST OF DRAWINGS

ARCHITECTURAL

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DRAWING SYMBOL LEGEND
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A-2: KEY PLANS
DEMOLITION PLAN
DEMOLITION PLAN KEYNOTES
SCHEDULES
WINDOW AND DOOR ELEVATIONS
AND DETAILS

A-3: PARTITION PLANS
PARTITION SCHEDULE AND LEGEND

A-4: INTERIOR ELEVATIONS

A-5: INTERIOR ELEVATIONS
REFLECTED CEILING PLAN
LEGEND

A-6: DETAILS

STRUCTURAL

S-1: MAIN FLOOR PLAN,
SECTIONS &
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MECHANICAL

M-1: LEGEND, SPECIFICATIONS, AND
PLUMBING DEMOLITION

M-2: HEATING DEMOLITION,
VENTILATION DEMOLITION,
AND EQUIPMENT SCHEDULE

M-3: MAIN FLOOR PLAN HEATING
AND VENTILATION REVISIONS AND
CONTROLS SPECIFICATIONS

M-4: MECHANICAL REVISIONS:
MAIN FLOOR PLUMBING
MAIN FLOOR STEAM HEATING, AND
PLUMBING FIXTURE SCHEDULE

M-5: BASEMENT DEMOLITION,
BASEMENT REVISIONS,
AND SCHEMATICS

ELECTRICAL

E-1: SPECIFICATIONS
LEGEND
MOUNTING DETAILS

E-2: DEMOLITION PLAN

E-3: MAIN FLOOR LIGHTING PLAN
EXIT LIGHTING AND MAGNETIC LOCK
CONTROL SCHEMATIC
LIGHT FIXTURE SCHEDULE

E-4: MAIN FLOOR AND BASEMENT
BUILDING SYSTEMS PLANS
MECHANICAL EQUIPMENT SCHEDULE
VOICE AND DATA COMMUNICATIONS
SCHEMATICS

SPECIFICATIONS

GENERAL INSTRUCTIONS

1. ANY DISCREPANCIES OR OMISSIONS, OR DOUBT AS TO THE INTENT OF THE DOCUMENTS SHOULD BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY. DO NOT PROCEED IN UNCERTAINTY AT ANY TIME.
2. RCMP CONTRACT DOCUMENTS FOR CONSTRUCTION CONTRACTS AND CONDITIONS SHALL GOVERN ALL BIDS.

SUPPLEMENTARY GENERAL CONDITIONS

1. THE PROJECT INVOLVES THE FULL ANTICIPATED SCOPE OF WORK NECESSARY TO FULLY COMPLETE INSTALLATIONS AND CONSTRUCTION AS DETAILED.
2. THE SCOPE OF WORK SHALL INCLUDE THE SUPPLY AND INSTALLATION OF ALL MATERIALS, FITTINGS, FIXTURES AND FINISH ITEMS NECESSARY OR REQUIRED IN ORDER TO COMPLETE THE INTENT OF THE PROJECT.
3. WORKMANSHIP AND QUALITY OF ALL ITEMS SHALL BE OF THE HIGHEST QUALITY AVAILABLE WITHIN INDUSTRY STANDARDS. THE ARCHITECT/ENGINEER SHALL RENDER DETERMINATION OF ACCEPTABLE QUALITY IN CASES OF DISPUTE.
4. PRICE SUBMISSIONS ARE TO BE BASED SOLELY ON MATERIALS AND EQUIPMENT WHICH IS SPECIFIED OR REASONABLY INCIDENTAL TO COMPLETE THE REQUIRED INSTALLATIONS. ALTERNATIVES OR SUBSTITUTIONS WHICH HAVE NOT RECEIVED WRITTEN PRIOR APPROVAL SHALL BE REPLACED WITH SPECIFIED MATERIALS AT NO COST TO THE CLIENT.
5. REQUESTS FOR USE OF ALTERNATIVE ITEMS OR MATERIALS ARE TO BE SUBMITTED IN WRITING TO THE CONSULTANT, AND USED ON SITE ONLY AFTER RECEIVING WRITTEN APPROVAL. IT REMAINS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALTERNATIVE MATERIALS DO NOT EXCEED SITE LIMITATIONS FOR INSTALLATION.
6. CONSTRUCTION SITE AREA SHALL BE LIMITED TO ONLY THAT WHICH IS REQUIRED OR REASONABLY INCIDENTAL TO THE PROVISION OF WORK AND STORAGE OF MATERIALS ON SITE. USE OF AUXILIARY AREAS IS NOT PERMITTED UNLESS AUTHORIZED.
7. IT REMAINS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO COMPLETE OR COORDINATE ALL CUTTING, PATCHING, REPAIRING OR ALTERING ANY PART OF THE WORK AFFECTED BY THIS CONTRACT.
8. ANY WORKS, FINISHES OR FITMENTS DAMAGED THROUGH THE COURSE OF EXECUTION SHALL BE REMOVED AND REPLACED WITH NEW MATERIALS, FINISHES OR FITMENTS AT NO COST TO THE CLIENT.
9. A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR NOTICE IS REQUIRED IN ORDER TO SCHEDULE NECESSARY INSPECTIONS OF THE WORK. NOTICE SHALL BE SUBMITTED TO THE CONSULTANT IN WRITING, IDENTIFYING THE STAGE PREPARED FOR INSPECTION.
10. PROJECT DATA, INFORMATION, DIMENSIONS AND FINISH INFORMATION HAS BEEN TAKEN FROM EXISTING CONSTRUCTION DOCUMENTS FOR RENOVATION AND CONSTRUCTION ON SITE. GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL CRITICAL INFORMATION REQUIRED ON SITE FOR SPECIFIC CONSTRUCTION ELEMENTS. REPORT ALL DISCREPANCIES OR CONFLICTS TO THE CONSULTANT IMMEDIATELY AND AWAIT DIRECTIONS PRIOR TO PROCEEDING WITH THE WORK.

DEMOLITION AND SALVAGE

1. COMPLETE ALL DEMOLITION AND REMOVAL AS REQUIRED TO FULLY COMPLETE CONTRACTUAL ARRANGEMENTS.
2. ALL DEBRIS AND WASTE MATERIALS TO BE REMOVED FROM SITE.
3. USE OF CLIENT WASTE UNITS AND DISPOSAL SYSTEMS IS NOT PERMITTED.
4. ALL DEMOLITION AND SALVAGE PRACTICES TO CONFORM TO GOVERNING REGULATIONS OF LABOUR SAFETY STANDARDS.
5. SALVAGE MATERIALS AS IDENTIFIED ON DRAWINGS AND STOCKPILE FOR OWNER TO REMOVE FROM SITE.
6. PROVIDE DUST TIGHT SEPARATION AT JUNCTION TO OCCUPIED AREAS.

MISCELLANEOUS METALS

1. REFER TO DRAWINGS FOR DETAILS AND LOCATIONS; CONFIRM ALL EXISTING CONDITIONS ON SITE PRIOR TO MOUNTING.
2. SCOPE OF WORK INCLUDES TWO (2) LADDERS, STAIR HANDRAILS AND LANDING AREA GUARDRAILS.
3. LADDER MATERIALS:
   1. STRINGERS: 50x50x6 STEEL ANGLES
   2. RUNGS: 19 DIAMETER STEEL BARS, INSTALL AT 300 O.C. VERT; END WELD TO ANGLE STRINGERS
   3. BASE PLATES: 6 STEEL PLATE, SIZES AS DETAILED
   4. ANCHOR EXTENSIONS AND BASE STAND: REFER TO DETAILS, FABRICATE FROM STEEL ANGLES TO MATCH STRINGERS.
   5. PRE-DRILL FLANGES TO ACCEPT FASTENERS.
   6. SECURE TO WALL AND FLOOR SYSTEMS WITH FASTENING SYSTEMS AS INDICATED ON DETAILS. ALL FASTENERS COMPLETE WITH LOCK WASHERS.
4. STAIR HANDRAIL MATERIALS:
   WALL HANDRAIL:
   1. HANDRAILS: 38Ø STEEL PIPE; ALL CAPS, EDGES AND CORNERS MITRED AND GROUND SMOOTH
   2. RAIL SUPPORTS: 6x32 STEEL PLATE, BENT FORM TO PROFILE AS DETAILED; SPACE AT 900 O.C. ALONG LENGTH OF RAIL
   3. WALL PLATES: 6x76Ø FLAT PLATE; PREDRILL FASTENER LOCATIONS; THREE (3) MOUNT HOLES PER PLATE

   STAIR HANDRAIL AND LANDING AREA GUARDRAILS:
   1. HANDRAILS/GUARDRAIL: 38Ø STEEL PIPE; ALL CAPES, EDGES AND CORNERS MITRED AND GROUND SMOOTH
   2. BALUSTERS: 12Ø STEEL ROD INSTALLED VERTICALLY AT 100 O.C.; SECURE TO UPPER RAIL AND BASE PLATE.
   3. BASE PLATE: CONTINUOUS 6x50 STEEL PLATE SECURED TO BALUSTERS; SECURE TO WOOD FRAMING WITH 6Ø LAB BOLT ANCHORS AT 800 O.C.
5. COORDINATE BLOCKING IN STUD FRAMING WITH ROUGH CARPENTRY TO ENSURE ADEQUATE SUPPORT IS MAINTAINED AT THE FASTENING LOCATIONS.
6. FULL ASSEMBLY TO BE GROUND AND CLEANED, FREE OF ALL BLEMISHES AND SLAG, PRIOR TO PAINTING.
7. SHOP PRIME. FINAL PAINTING TO BE COMPLETED AFTER INSTALLATION ON SITE.

ROUGH CARPENTRY

MATERIALS:
1. COORDINATE ALL WORK AS REQUIRED FOR FULL EXECUTION OF THIS CONTRACT.
2. SUPPLY AND INSTALL ALL NAILERS, BLOCKING, SHIMS, LEVELLING STRIPS, STRAPPING AND FURRING STRIPS AS REQUIRED FOR MATERIALS INSTALLATION
3. SUPPLY AND INSTALL ALL HIDDEN MATERIALS REQUIRED FOR ERECTION AND INSTALLATION OF RECESSED OR SURFACE MOUNTED FITMENTS LOCATED ON PARTITION AND / OR CEILING SYSTEMS.
4. ALL INSTALLED MATERIALS, SHIMS AND FURRING SHALL BE ERECTED PLUMB, TRUE-TO-LINE AND LEVEL READY TO ACCEPT NEW MATERIALS AND FINISHES INSTALLATIONS
5. HOLLOW METAL DOORS, PRESSED STEEL FRAMES, FINISH HARDWARE: COORDINATE SUPPLY OF AND INSTALL ALL DOORS, FRAMES, FINISH HARDWARE AS SPECIFIED HEREIN OR INDICATED ON DRAWINGS.
6. MILLWORK TRIMS AND LIKE ITEMS: COORDINATE THE SUPPLY AND INSTALLATION OF ALL WOOD TRIMS AND LIKE ITEMS.
7. EXISTING BUILDING: COORDINATE AND COMPLETE ALL NECESSARY PATCHING, REPAIR OR REFINISHING OF EXISTING SURFACES AND FITMENTS DAMAGED THROUGH THE COURSE OF THE FULL SCOPE OF WORK. REFER TO ENGINEERING DRAWINGS FOR SPECIFIC LOCATIONS AND RUNS OF SYSTEMS INSTALLATIONS. COORDINATE ALL INSTALLATIONS ON SITE.

DIMENSION LUMBER:
1. FRAMING, BLOCKING, STRAPPING AND MISCELLANEOUS MEMBERS: CONSTRUCTION GRADE SPRUCE; SIZES AS SCHEDULED ON DRAWINGS
2. ALL LUMBER TO CONFORM TO CSA-041 / NLGA STANDARD GRADING RULES.

PLYWOOD:
1. REFER TO PARTITION SCHEDULE FOR INSTALLATION LOCATIONS; PLYWOOD IS USED AS BACKER FOR WALLS AS INDICATED ON PLAN.
2. WALL SHEATHING: 19mm G1S FIR PLY; CONFORM TO CSA-0121M (CURRENT)
3. FLOOR SHEATHING: 19 T&G FIR PLY SUBFLOOR
4. FLOOR UNDERLAY: 10 PLY SUBSTRATE FOR USE BENEATH FINISHED FLOORING SYSTEMS.
3. SCREW FASTEN TO WALL FRAMING MEMBERS @ 600 O.C HORIZ. & VERT.
4. BUTT JOINTS IN MODERATE CONTACT.
5. TOP JOINTS AND END JOINTS TO BE SECURED TO SOLID BLOCKING.

INSTALLATION

FRAMING
- .1 REGULATIONS: CURRENT EDITION OF CSA-086 AND ALL APPLICABLE REQUIREMENTS OF NATIONAL BUILDING CODE, SECTION 9.0.
- .2 SPACE MEMBERS IN ACCORDANCE WITH DIRECTION PROVIDED BY DRAWINGS. DO NOT INCREASE SPACING IN ANY SITUATION. ADD ADDITIONAL MEMBERS AS REQUIRED TO SUIT LENGTHS AND SPACING LAYOUT.
- .3 LEVEL ALL MEMBERS FOR ALIGNMENT AND PLUMBED INSTALLATIONS.
- .4 CONFIRM AND ADHERE TO REQUIRED ELEVATION LEVELS FOR FRAMING MEMBERS.
- .5 ALL LOAD BEARING FRAMING MEMBERS TO BE FULLY SECURED FOR FULL BEARING AS INDICATED ON DRAWINGS.
- .6 ALL NON-LOAD BEARING FRAMING MEMBERS TO BE FULLY SECURED WITHIN FRAMING ASSEMBLY..

WOOD STUD INSTALLATION
- .1 REFER TO DRAWINGS FOR STUD SIZES, SPACING AND SPECIAL DETAILS.
- .2 ALL HORIZONTAL PLATE MEMBERS TO BE LAPPED AT INTERSECTIONS AND CORNER CONNECTIONS.
- .3 FRAME CORNER CONNECTIONS IN ACCORDANCE WITH DETAILS; MINIMUM DOUBLE STUD CONNECTIONS WITH TRIPLE STUDS AT ALL EXTERIOR CORNERS.
- .4 FRAME ALL OPENINGS WITH DOUBLE STUD ASSEMBLY; INTERIOR STUD CRIPPLE TO LINTEL SUPPORT, SECONDARY STUD FULL HEIGHT.
- .5 INSTALL HORIZONTAL BLOCKING IN FULL HEIGHT STUD ASSEMBLY AT MIDPOINT OF FULL HEIGHT MEMBERS. STAGGER BLOCKING IN ADJACENT SPACINGS FOR INSTALLATION. MAXIMUM VERTICAL SPACING NOT TO EXCEED 4'-0" (1220MM).
- .6 INSTALL ALL NAILERS AND BLOCKING REQUIRED FOR INSTALLATION OF EQUIPMENT AND FITMENTS. CONFIRM LOCATIONS AND SPACING WITH MATERIALS SUPPLIERS PRIOR TO INSTALLATION OF BLOCKING. SECURE ALL NAILERS AND BLOCKING TO FRAMING MEMBERS.

PLYWOOD SHEATHING
- .1 REFER TO DRAWINGS FOR SHEATHING THICKNESS AND LOCATIONS.
- .2 SHEATHING INSTALLATION TO BE FULLY INSPECTED PRIOR TO APPLICATION OF DRYWALL FINISHES/FLOOR FINISHES. CONFIRM INSPECTION REQUIREMENTS WITH CONSULTANT PRIOR TO PROCEEDING WITH SUBSEQUENT WORKS.
- .3 SHEATHING TO BE APPLIED PERPENDICULAR TO FRAMING STUD MEMBERS UNLESS NOTED OTHERWISE.
- .4 FULL PANELS TO BE USED ON ALL SITUATIONS; MULTIPLE PIECES WILL NOT BE ACCEPTED FOR WALL AREAS.
- .5 SHEATHING TO BE STAGGERED MINIMUM ONE-THIRD LENGTH DIMENSION IN ADJACENT LAYERS.
- .6 SECURE END JOINTS ON SOLID BEARING TO FRAMING MEMBERS.
- .7 SECURE SHEATHING WITH SPECIFIED FASTENERS SPACED AT MAXIMUM DIMENSIONS OF 6" (150MM) FOR PANEL PERIMETER LINES AND 8" (200MM) WITHIN PANEL FIELD AREA.
- .8 BUTT PANELS SNUGLY ON ALL SIDES, ENSURING NO GAPS PRESENT ALONG THE JOINTS.
- .9 SEAL ALL CHECKS AND SPLITS IN PLYWOOD FACING PRIOR TO APPLICATION OF SHEATHING PAPER.
- .10 DAMAGED OR DEFICIENT PIECES ARE TO BE REPLACED WITH FULL SIZED PANELS PRIOR TO THE APPLICATION OF SHEATHING PAPER.
- .11 INSTALL PLYWOOD UNDERLAY MATERIALS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

FASTENERS
- .1 REGULATIONS: CSA B111.
- .2 SPIRAL BARREL NAILS: STANDARD USE THROUGHOUT PROJECT EXCEPT IN FINISHING APPLICATIONS. SIZING TO BE MINIMUM 2" (50MM) UNLESS NOTED OTHERWISE.
- .4 GALVANIZED FINISH: APPLIES TO ALL THREADED FASTENERS AND ACCESSORIES.

MILLWORK

1. REFER TO DRAWINGS FOR DETAILS AND SPECIFIC LOCATIONS
2. ALL PRODUCTS TO BE FINGER JOINT PINE; SIZED AS INDICATED ON DRAWINGS.
3. ALL PRODUCTS TO BE INSTALLED USING MAXIMUM AVAILABLE LENGTHS AND FULL PIECES. PATCHWORK OR MULTIPLE PIECES INSTALLED WITHIN A SINGLE RUN WILL BE REJECTED AND REPLACED WITH FULL PIECES.
4. INSTALL TRIMS AND RAILS USING FINISH NAILING APPLICATION.
5. ALL NAIL HEADS TO BE RECESSED. FILL NAIL HEADS WITH WOOD PUTTY TO MATCH SURFACE COLOUR AND TEXTURE.
6. ALL EDGES TO BE EASED 6mm.

HARDWARE

PROVIDE AND INSTALL MILLWORK HARDWARE ITEMS FOR ACCESS HATCHES AT BRIDGE LOCATION. REFER TO DRAWINGS FOR LOCATIONS AND DETAILS.
PROVIDE THE HANDRAIL FOR EACH ACCESS HATCH ACCORDING TO THE FOLLOWING SCHEDULE :
HINGE - IVES FULL SURFACE HINGE # 602 x 32 D x 900 L
PULL - IVES O 26 x 26 D (TWO PER HATCH)
WALL STOP - IVES WS 407 CVX x 26 D.
PROVIDE AND INSTALL MILLWORK HARDWARE ITEMS FOR UNDER STAIR STORAGE. REFER TO DRAWINGS FOR LOCATIONS AND DETAILS.
PROVIDE THE FOLLOWING HARDWARE FOR EACH DOOR. (TOTAL OF FOUR (4) DOORS)
HINGE - IVES FULL SURFACE HINGE # 602 x 32 D (LENGTH TO SUIT)
PULL - IVES O 26 x 26 D (ONE PULL PER DOOR)
WALL STOP - IVES WS 407 CVX x 26 D.

HOLLOW METAL DOORS AND FRAMES

- .1 STEEL PRODUCTS TO BE MANUFACTURED BY CSDMA MEMBERS.
- .2 STEEL: COMMERCIAL GRADE STEEL TO ASTM A653, CS, TYPE B, COATING ZF75 (A25)) STEEL THICKNESS SHALL BE 16 GAUGE.
- .3 FRAME MATERIAL: COMMERCIAL GRADE TO ASTM A653, TYPE B; 16 GAUGE HOT ROLLED SHEET STEEL.
- .3 DOOR CORE MATERIALS -POLYISOCYANURATE RIGID INSULATION, CLOSED CELL BOARD. DENSITY; 32 KG/M3 (2.0 PCF) MINIMUM, THERMAL VALUES; RSI 1.9 (R 11.0) MINIMUM, IN ACCORDANCE WITH ASTM C591 (UN-FACED) OR C 1289 (FACED).
- .4 ANCHORS AND SPREADERS: 16 GAUGE STEEL
- .5 FINISH: WIPE COATED ZINC FINISH APPLIED TO ALL COMPONENTS. ALL MATERIALS TO BE SITE DELIVERED WITH FACTORY PRIME FINISH OF CORROSION RESISTANT STEEL PRIMER.
- .6 ALL FRAME CORNERS TO BE MITRED, FILLED AND GROUND SMOOTH. FILL GAPS, RECESSES AND IMPERFECTIONS WITH RECOMMENDED PASTE FILLER SANDED TO FLUSH FINISH.
- .7 FACTORY PREP ALL FRAMES TO RECEIVE FINISH HARDWARE INSTALLATION; HARDWARE TEMPLATES TO BE SUPPLIED BY FINISH HARDWARE SECTION.
- .8 ALL DOOR FRAMES TO BE PREPPED FOR THREE (3) DOOR SILENCERS EACH FRAME; MOUNT ON THE STRIKE SIDE OF THE FRAME.
- .6 GUARD BOXES: 22 GAUGE ZINC WIPE COATED STEEL BOX FRAMES.
- .2 PROVIDE ALL CLIP, ANGLE OR BRACKET MEMBERS AS REQUIRED IN ACCORDANCE WITH CSDMA RECOMMENDATIONS FOR THE SPECIFIC INSTALLATIONS.

FRAME FABRICATION
- .1 FRAME PRODUCTS SHALL BE 16 GAUGE COMMERCIAL GRADE HOT ROLLED STEEL EXTRUSIONS; WELDED CONSTRUCTION; FINISHED IN WIPE-COATED ZINC FINISH.
- .2 FRAME PRODUCTS SHALL BE FACTORY MORTISED, BLANKED, REINFORCED, DRILLED AND TAPPED FOR TEMPLATED HARDWARE, IN ACCORDANCE WITH THE APPROVED HARDWARE SCHEDULE AND TEMPLATES PROVIDED BY THE HARDWARE SUPPLIER. MORTISED CUTOUTS SHALL BE PROTECTED WITH 22 GAUGE STEEL GUARD BOXES.
- .3 FRAME PRODUCTS SHALL BE REINFORCED FOR SURFACE MOUNTED HARDWARE, ANCHOR HINGES, THRUST PIVOTS, PIVOT REINFORCED HINGES, OR NON-TEMPLATED HARDWARE. DRILLING AND TAPPING IS BY OTHERS, ON SITE, AT TIME OF INSTALLATION.
- .4 PROVIDE ANCHORAGES OF 16 GAUGE STEEL APPROPRIATE TO FLOOR, WALL AND FRAME CONSTRUCTION. EACH WALL ANCHOR SHALL BE LOCATED IMMEDIATELY ABOVE OR BELOW EACH HINGE REINFORCEMENT ON THE HINGE JAMB AND DIRECTLY OPPOSITE ON THE STRIKE JAMB. PROVIDE THREE (3) ANCHORS PER FRAME SIDE.
- .5 EACH DOOR OPENING SHALL BE PREPARED FOR SINGLE STUD RUBBER DOOR SILENCERS, THREE (3) FOR SINGLE DOOR OPENING.
- .6 PROVIDE FACTORY-APPLIED TOUCH UP PRIMER AT AREAS WHERE ZINC COATING HAS BEEN REMOVED DURING FABRICATION.
- .7 WELDING PARAMETERS:
  - .1 FRAME PRODUCTS SHALL BE ACCURATELY MITERED
  - .2 FRAME PRODUCT PERIMETER CORNER JOINTS SHALL BE CONTINUOUSLY WELDED ON THE PROFILE FACES, RABBETS, RETURNS AND SOFFIT INTERSECTIONS. ALL PROFILE WELDED FRAME PRODUCT EXPOSED FACES SHALL BE FILLED AND GROUND TO A SMOOTH, UNIFORM, SEAMLESS SURFACE.
  - .4 WELDING SHALL CONFORM TO CSA W59.
  - .5 WELD IN TWO (2) TEMPORARY JAMB SPREADERS PER DOOR OPENING TO MAINTAIN PROPER ALIGNMENT DURING SHIPMENT AND HANDLING, WHICH SHALL NOT BE USED FOR INSTALLATION.

DOOR FABRICATION
- .1 GENERAL: ALL NEW DOORS SHALL BE LAMINATED CORE CONSTRUCTION; DOOR MATERIALS TO BE 16GAUGE
- .2 ALL DOOR FABRICATION TO PROVIDE FLUSH FACES;CONTINUOUSLY WELDED, FILLED AND SANDED WITH NO VISIBLE EDGE SEAMS.
- .3 DOORS SHALL BE MORTISED, BLANKED, REINFORCED, DRILLED AND TAPPED AT THE FACTORY FOR TEMPLATE HARDWARE ONLY.
- .4 HOLES 12.7 MM (0.5") DIAMETER AND LARGER FACTORY PREPARED; MOUNTING AND THROUGH-BOLT HOLES BY OTHERS.
- .5 DOORS REINFORCED FOR SURFACE MOUNTED HARDWARE, ANCHOR HINGES, THRUST PIVOTS, PIVOT REINFORCED HINGES, OR NON-TEMPLATED HARDWARE. DRILLING AND TAPPING IS BY OTHERS, ON SITE.
- .6 PROVIDE FACTORY-APPLIED TOUCH-UP PRIMER AT AREAS WHERE ZINC COATING HAS BEEN REMOVED DURING FABRICATION.
- .7 PRIOR TO SHIPMENT, MARK EACH DOOR WITH AN IDENTIFICATION NUMBER AS SHOWN ON THE APPROVED SUBMITTAL DRAWINGS.

FINISH HARDWARE

1. NEW FINISH HARDWARE REQUIRED FOR DOORS AS SCHEDULED.
2. SUPPLY AND INSTALL ALL SPECIFIED ITEMS INCLUDING ALL ACCESSORIES AND FITMENTS NECESSARY TO FACILITATE A FULLY OPERATIONAL SYSTEM.
3. REPORT ANY CONFLICTS OF FINISH HARDWARE ITEMS TO ARCHITECT PRIOR TO COMPLETING INSTALLATION. AWAIT FURTHER DIRECTION BEFORE PROCEEDING.
4. KEYING TO MATCH EXISTING BUILDING SYSTEM. CONFIRM EXACT SYSTEM ON SITE PRIOR TO ORDERING FINISH HARDWARE LOCKSETS. PROVIDE THREE (3) KEYS TIED TO NEW HARDWARE AND STAMPED ACCORDINGLY.
5. NEW HARDWARE ITEMS ARE TO MATCH EXISTING FINISH HARDWARE SYSTEMS ON SITE. CONFIRM STYLE AND FINISH ON SITE PRIOR TO ORDERING.
6. FINISH HARDWARE SCHEDULE:

6.1. HARDWARE TYPE :

TYPE 1: 915 X 2135 X 45 HM DOOR, PRESSED STEEL FRAME
1-1/2 PAIR BUTTS: STANLEY FBB179 X 114 X 102 X 26D
1 ONLY PASSAGE SET: SCHLAGE D10S X ATH X 626
1 ONLY KICKPLATE: 200 X 870 X 0.050 X 32D
1 ONLY WALL STOP: HAGER 236W X 26D

TYPE 2 : 915 X 2135 X 45 HM DOOR, PRESSED STEEL FRAME
1-1/2 PAIR BUTTS: STANLEY FBB179 X 114 X 102 X 26D
1 ONLY LOCKSET: SCHLAGE D70PD X ATH X 626
1 ONLY CLOSER: SARGENT EN350-P3 X TB
1 ONLY KICKPLATE: 200 X 870 X 0.050 X 32D
1 ONLY WALL STOP: HAGER 236W X 26D

TYPE 3 : 915 X 2135 X 45 HM DOOR, PRESSED STEEL FRAME
HINGE: FULL HEIGHT PIANO HINGE; 1830 X 50 STAINLESS STEEL
12 KNUCKLE SPACING; 50 FASTENER SPACING; SECURED
TO HM DOOR WITH THRU-BOLTS C/W WASHERS BACK SIDE
2 ONLY DUMMY TRIM: SCHLAGE D170; MOUNT EACH SIDE
1 ONLY S.S. PLATE: 1220 X 870 X 0.050 X 32D
1 ONLY WALL STOP: HAGER 236W X 26D

TYPE 4 :
EXISTING STEEL DOOR AND FRAME
EXISTING BUTTS TO REMAIN
EXISTING LOCKSET AND HARDWARE TO REMAIN
REVISE STRIKE TO BE :
VON DUPRIN V6111 x 24 dc
CONFIRM INSTALLATION WELL CONFORM WITH RCMP SYSTEMS ON SITE.

SEALANTS

1. APPROVED PRODUCT: TREMCO DYMONIC; ALL SEALANTS TO CONFORM TO CGSB 19-GP-5.
2. SEALANT APPLICATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
3. ENSURE ALL SURFACES OR ADJACENCIES ARE PROPERLY CLEANED AND DRY PRIOR TO INSTALLATION OF SEALANT BEDS.
4. SEALANTS TO BE INSTALLED WHERE INDICATED ON DRAWINGS AND AT ALL CONDITIONS WHERE DISSIMILAR MATERIALS ABUT.
5. SEALANTS TO BE NEATLY INSTALLED WITH TOOLED, CONCAVE SURFACE.
6. FINAL INSTALLATION IS TO PROVIDE A CLEAN, SEAMLESS INSTALLATION.

ACOUSTIC CEILINGS

1. REFER TO DRAWINGS AND SCHEDULES FOR ACOUSTIC TILE LOCATIONS, ELEVATIONS AND GRID ORIENTATION.
2. SUSPENSION SYSTEMS
   - .1 COMPONENTS: COMMERCIAL QUALITY HOT-DIPPED GALVANIZED (GALVANIZED STEEL OR ALUMINUM) AS PER ASTM A 653. MAIN BEAMS AND CROSS TEES ARE DOUBLE-WEB STEEL CONSTRUCTION WITH TYPE EXPOSED FLANGE DESIGN. PRE-FINISHED BAKED POLYESTER PAINT.
     - .1 STRUCTURAL CLASSIFICATION: ASTM C 635 INTERMEDIATE DUTY.
     - .2 COLOR: WHITE
     - .3 ACCEPTABLE PRODUCT: PRELUDE ML 15/16" EXPOSED TEE; ARMSTRONG OR CERTAINTEED CLASSIC STAB SYSTEM
   - .2 ATTACHMENT DEVICES: SIZE FOR FIVE TIMES DESIGN LOAD INDICATED IN ASTM C 635, TABLE 1, DIRECT HUNG UNLESS OTHERWISE INDICATED.
   - .3 WIRE FOR HANGERS AND TIES: ASTM A 641, CLASS 1 ZINC COATING, SOFT TEMPER, PRE-STRETCHED NOT LESS THAN 12 GAUGE.
   - .4 EDGE MOLDINGS AND TRIM: METAL OR EXTRUDED ALUMINUM OF TYPES AND PROFILES INDICATED OR, IF NOT INDICATED, MANUFACTURER'S STANDARD MOLDINGS FOR EDGES AND PENETRATIONS, INCLUDING LIGHT FIXTURES, THAT FIT TYPE OF EDGE DETAIL AND SUSPENSION SYSTEM INDICATED. PROVIDE MOLDINGS WITH EXPOSED FLANGE OF THE SAME WIDTH AS EXPOSED RUNNER.
   - .6 SUSPENSION SIZES: IMPERIAL DIMENSIONS OF 24"X48" AS ILLUSTRATED ON DRAWINGS.
3. ACOUSTIC PANELS
   - .1 ACOUSTICAL PANELS TYPE: RANDOM FISSURED; FIBERGLASS, SQUARE LAY-IN
   - .2 COLOR: WHITE
   - .3 SIZE: 609x1220x19.
   - .4 FLAME SPREAD: ASTM E 1264; CLASS A (UL)
   - .5 LIGHT REFLECTANCE (LR): ASTM E 1477; WHITE PANEL: LIGHT REFLECTANCE: 0.90.
   - .6 ACCEPTABLE PRODUCT: ARMSTRONG OPTIMA OPEN PLAN 3151
4. INSTALLATION
   - .1 INSTALL SUSPENSION SYSTEM AND PANELS AS PER MANUFACTURER'S INSTRUCTIONS, IN COMPLIANCE WITH ASTM C 636 .2
   - .2 SUSPEND MAIN BEAM FROM OVERHEAD CONSTRUCTION WITH HANGER WIRES SPACED 1220 O.C. ALONG THE LENGTH OF THE MAIN RUNNER. INSTALL HANGER WIRES PLUMB AND STRAIGHT.
   - .3 INSTALL WALL MOLDINGS AT INTERSECTION OF SUSPENDED CEILING AND VERTICAL SURFACES. MITER CORNERS WHERE WALL MOLDINGS INTERSECT OR INSTALL CORNER CAPS.
   - .4 INSTALL ACOUSTICAL PANELS IN COORDINATION WITH SUSPENDED SYSTEM, WITH EDGES RESTING ON FLANGES OF MAIN RUNNER AND CROSS TEES. CUT AND FIT PANELS NEATLY AGAINST ABUTTING SURFACES. SUPPORT EDGES BY WALL MOLDINGS
   - .5 COORDINATE INSTALLATION OF CEILING FITMENTS; PROVIDE ADDITIONAL SUPPORTS AT ALL LOCATIONS FOR FITMENTS; SUPPLY AND INSTALL ADDITIONAL CROSS TEES AT ALL FITMENT LOCATIONS.

DRYWALL & STEEL STUDS

BOARD MATERIALS AND INSTALLATION:
1. BOARD MATERIALS SHALL CONFORM TO CSA A82.27, 12mm THICKNESS UNLESS NOTED OTHERWISE OR AS INDICATED ON DRAWINGS/DETAILS.
2. ALL OTHER ACCESSORIES REQUIRED FOR INSTALLATION AND FINISHING TO BE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS FOR SPECIFIC INSTALLATION TYPES.
3. INSTALLATION TO CONFORM TO CSA A82.31, "GYPSUM WALLBOARD APPLICATION". GENERAL WALL JOINTS: BUTT JOINT. CONFIRM SITE CONDITIONS PRIOR TO PRODUCT ORDER PLACEMENT.

STEEL STUD MATERIALS AND INSTALLATION:
1. MATERIALS: 25 GAUGE GALVANIZED STEEL STUDS COMPLETE WITH TRACK SIZING AS REQUIRED TO COMPLETE INSTALLATION. REFER TO DRAWINGS FOR PARTITION SCHEDULE.
2. STUDS TO BE SPACED AT MAXIMUM 400mm (16") O.C.; MAXIMUM 200mm (8") FROM ADJACENT SURFACES OR ABUTTING WALLS; CROSS BRACE AS REQUIRED BY MANUFACTURER FOR SPECIFIC INSTALLATION.
3. SECURE STUDS TO FRAMING TRACKS USING CRIMPING METHOD OR SCREWS BOTH SIDES
4. INSTALL ADDITIONAL FRAMING MEMBERS AS REQUIRED TO SUIT INSTALLATION OF DOORS, WINDOWS, MILLWORK INSTALLATIONS AND ELECTRICAL/MECHANICAL FITMENTS.
5. FIELD ASSEMBLE AND INSTALL STEEL STUD BOX BEAM OVER EVERY OPENING GREATER THAT 11OOMM WIDE. BOX BEAM TO BE FULLY INSULATED DURING FABRICATION TO MEET STANDARDS SPECIFIED FOR GENERAL WALL ASSEMBLY.
6. STUD SYSTEMS TO BE FILLED WITH BATT SOUND INSULATION; MATERIALS - FIBERGLAS PINK BATTS, R-12; PACK ALL VOIDS AND SPACES BETWEEN FRAMING MEMBERS TO ACHIEVE SOUND SEPARATION

FLOORING

1. REFER TO DRAWINGS AND SCHEDULES FOR LOCATIONS AND EXTENT OF FLOORING SYSTEMS.
2. SUPPLY AND INSTALL ALL NECESSARY MATERIALS REQUIRED FOR A FULL INSTALLATION PROVIDING COVERAGE TO ALL FLOOR LEVEL SURFACES.
3. SUPPLY AND INSTALL ALL BASEBOARD MATERIALS FOR INSTALLATION AS SCHEDULED AND RELATED TO INTERIOR ELEVATIONS. SUPPLY AND INSTALL ALL BASEBOARD MATERIALS REQUIRED FOR MILLWORK INSTALLATIONS AS DETAILED.
4. FLOOR MATERIALS HAVE BEEN CONFIRMED AS THE CLIENT'S SELECTIONS. NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT WRITTEN APPROVAL OF THE CLIENT.
5. FLOORING MATERIALS SCHEDULE:
   - .1 MARMOLEUM COMPOSITE TILE FLOORING:
     - .1 MANUFACTURER: FORBO REAL
     - .2 SIZE: 2.0mm THICK; 333 x 333 DIMENSIONS
     - .3 COLOUR: TO BE SELECTED.
   - .2 RUBBER BASE:
     - .1 100mm HIGH, TOP SET COVE BASE
     - .2 MANUFACTURER: JOHNSONITE
     - .3 COLOUR: TO BE SELECTED
   - .3 TRANSITION STRIP:
     - .1 38mm, TOP SET RUBBER
     - .2 MANUFACTURER: JOHNSONITE CD-XX, COLOUR TO BE SELECTED
   - .4 STAIR TREADS:
     - .1 ROPPE #92 LOW PROFILE RAISED DESIGN; CIRCULAR TEXTURE PATTERN
     - .2 COLOURS TO BE SELECTED FROM MANUFACTURER'S FULL RANGE; COLOUR WILL BE LIMITED TO ONE (1).
   - .5 STAIR RISERS:
     - .1 ROPPE RUBBER RISERS, SMOOTH FINISH, TAPERED RISERS
     - .2 COLOURS TO BE SELECTED FROM MANUFACTURER'S FULL RANGE, COLOUR WILL BE LIMITED TO ONE (1).
   - .6 STAIR LANDING MATERIALS:
     - .1 ROPPE SAFETCORK SLIP RESISTANT RUBBER TILE; # 992 LOW PROFILE RAISED DESIGN, CIRCULAR TEXTURE PATTERN
     - .2 SINGLE COLOUR TO BE SELECTED FROM MANUFACTURER FULL RANGE
6. PRIMER & ADHESIVES:
   - .1 ALL MATERIALS FOR INSTALLATION TO BE IN CONFORMANCE WITH MANUFACTURER'S REQUIREMENTS TO MEET MATERIAL TYPE AND SUBSTRATE APPLICATION.
   - .2 ALL ADHESIVES, MASTICS AND FILL MATERIALS TO BE WATERPROOF, LOW VOC MATERIALS
   - .3 PROVIDE MSDS INFORMATION TO RCMP FOR REVIEW PRIOR TO INSTALLATION ON SITE.
7. INSTALLATION:
   - .1 PREPARE ALL EXISTING FLOOR AREAS AS REQUIRED BY MANUFACTURER PRIOR TO INSTALLATIONS.
   - .2 REMOVE ALL EXISTING DEFORMATIONS OF EXISTING SUBSTRATE; FILL AND TAPER TOPPING OVER ALL LOW SPOTS TO PROVIDE LEVEL FLOOR AREA READY FOR NEW FINISHES.
   - .3 EXISTING SUBSTRATE TO BE THOROUGHLY CLEANED; APPLY TOPPING FILLER OVER FLOOR AREA TO PROVIDE A MONOLITHIC FLAT SURFACE.
   - .4 INSTALL FLOOR FINISHES SPECIFIED IN STRICT CONFORMANCE WITH MANUFACTURER'S REQUIREMENTS.
   - .5 MAINTAIN CONTROL OVER INSTALLATION AREA TO PREVENT TRAFFIC OR LOOSE MATERIALS FROM AFFECTING THE INSTALLATION.
   - .6 ALL FLOORING MATERIALS TO BE LAID INTO A FULL, TROWELLED BED OF ADHESIVE/MASTIC.
   - .7 ALL JOINTS TO BE ALIGNED WHERE VISIBLE. HIDDEN JOINTS TO BE STAGGERED THROUGHOUT FLOOR AREA/
   - .8 MAINTAIN CLEAN INSTALLATION BY REMOVING ALL RESIDUE AND INSTALLATION MARKINGS AS WORK PROGRESSES.
   - .9 RESTRICT PEDESTRIAN OR CART TRAFFIC FROM THE INSTALLATION AREA FOR A MINIMUM OF TWENTY-FOUR (24) HOURS AFTER THE INSTALLATION IS COMPLETE.
8. FLOOR FINISHING TO BE COMPLETED IN CONTRACT BY INSTALLING SUBTRADE. FLOOR FINISHES SHALL INCLUDE AT A MINIMUM:
   - .1 TOP SURFACE CLEANING AND PREPARATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS FOR FLOOR SURFACES.
   - .2 INSTALL RECOMMENDED SEALER
   - .3 INSTALL TWO (2) TOP COATS OF WAX IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. SPECIFIC WAX MATERIALS TO BE CONFIRMED WITH GOVERNMENT SERVICES PRIOR TO INITIATING INSTALLATION.
9. RUBBER BASEBOARD INSTALLATION:
   - .1 REFER TO DRAWINGS FOR LOCATIONS ON WALLS AND MILLWORK
   - .2 INSTALLATION SHALL BE COMPLETED USING FULL, CONTINUOUS ROLL OF PREMANUFACTURED RUBBER BASE.
   - .3 PREP SUBSTRATES AS REQUIRED TO SUIT INTENDED GLUE APPLIED INSTALLATION.
   - .4 INSTALL RUBBER BASE IN FULL LENGTHS; MID-SEAMS OR PRE-MANUFACTURED CORNER PIECES NOT ALLOWED.
   - .5 INTERIOR CORNERS TO BE FULLY ADHERED WITH JOINTS BETWEEN INSTALLATIONS COPED AND BUTTED.
   - .6 EXTERIOR CORNERS TO BE INSTALLED USING CONTINUOUS BASE MATERIALS. RUBBER BASE INSTALLATION TO BE COMPLETED BY BACK-CUTTING THE BASE, HEATING THE SURFACE MATERIALS AND BEND NEATLY AROUND THE CORNER; BOTTOM COVE EDGE TO BE NEATLY RADIUSED.

PAINTING

SCOPE OF WORK:
1. ALL AREAS INDICATED OR IN ANY WAY ADVERSELY AFFECTED BY EXECUTION OF THIS CONTRACT SHALL RECEIVE NEW PAINT FINISHES.
2. AREAS OF SPOT REPAIR OR LOCAL PATCHING SHALL BE REPAINTED IN THEIR ENTIRETY TO ACCEPTABLE CUT-OFF LOCATIONS. CONFIRM EXTENT OF CUT-OFF LOCATIONS ON SITE PRIOR TO INITIATING REPAINTING.
3. USE DROP CLOTHS, TARPS AND COVERS TO PROTECT ADJACENT AREAS NOT IN CONTRACT FROM ANY PAINT OVERSPRAY.
4. PAINT SYSTEMS AS SPECIFIED ARE INTENDED TO PROVIDE FULL COVERAGE OF ALL SPECIFIED SURFACES.
5. ANY AND ALL DEFICIENT ITEMS NOTED IN FINISH PAINTING SYSTEMS SHALL BE IMMEDIATELY CORRECTED AT NO COST TO THE OWNER.
6. SCOPE OF WORK SHALL INCLUDE ALL NECESSARY PREPARATION ON NEW AND EXISTING SURFACES READY TO ACCEPT PAINT FINISHES.
7. ALL PAINTING SHALL BE COMPLETED IN ACCORDANCE TO MPI STANDARDS (CURRENT EDITION).

PRODUCTS:
1. PRODUCTS FOR USE ON THIS PROJECT INCLUDE GENERAL PAINT, BENJAMIN MOORE, ICI, SHERWIN-WILLIAMS, CIL OR OLYMPIC.
2. STAIN PRODUCTS FOR USE ON THIS PROJECT FOR ALL WOODWORK AS IDENTIFIED IN SCHEDULE SHALL BE WATER BASED WOOD STAIN AS MANUFACTURED BY MIN-WAX, BENJAMIN MOORE OR GENERAL PAINT.
3. SUBMIT TEST SAMPLES USING ACTUAL SUBSTRATES (WOOD, DRYWALL) FOR ALL PAINT AND STAIN FINISHES SPECIFIED IN THIS SECTION.
4. PAINTING APPLICATION SHALL STRICTLY COMPLY WITH MANUFACTURER'S REQUIREMENTS INCLUDING SUBSTRATE CONDITION, APPLICATION CONDITIONS AND COVERAGE RATES.
5. DO NOT THIN PAINT PRODUCTS UNLESS SPECIFICALLY REQUIRED TO BY MANUFACTURER.
6. COLOUR SELECTION SHALL BE AS IDENTIFIED WITHIN PAINTING SCHEDULE BELOW. EXACT LOCATIONS AND EXTENTS TO BE CONFIRMED ON SITE PRIOR TO PRIME COATING.
7. ALL PAINTING SYSTEMS SHALL ADHERE TO SPECIFIED MPI STANDARDS.
8. PAINTING SYSTEMS SHALL INCLUDE A MINIMUM OF THREE (3) COAT SYSTEMS FOR ALL FINISHES UNLESS SPECIFICALLY NOTED OTHERWISE IN PAINTING SCHEDULE.
9. PAINT SCHEDULE AS FOLLOWS:
   - .1 PRIMARY WALL COLOUR: BENJAMIN MOORE;
   - .2 ACCENT COLOUR ONE: BENJAMIN MOORE;
   - .3 ACCENT COLOUR TWO: BENJAMIN MOORE;
10. FINISH SCHEDULE TO BE AS FOLLOWS:
    - .1 DRYWALL :
      - .1 ONE COAT #023 LATEX SEALER/UNDERCOAT MPI #50
      - .2 TWO COATS #524 LATEX FINISH (EGGSHELL FINISH) MPI #52
    - .2 EXISTING WALLS :
      - .1 REPAIR, SAND AND SPOT PRIME AS REQUIRED
      - .2 ONE COAT UNDERCOAT (TINTED FOR COLOUR) MPI #50
      - .3 ONE COAT FINISH (AS SPECIFIED FOR NEW MATERIALS) MPI #52
    - .3 EXISTING DOORS, WOOD AND FINISH SURFACES:
      - .1 REPAIR, SAND AND SPOT PRIME AS REQUIRED
      - .2 ONE COAT UNDERCOAT (TINTED FOR COLOUR) MPI #50
      - .3 ONE COAT FINISH (AS SPECIFIED FOR NEW MATERIALS) MPI #54
    - .4 PAINTED INTERIOR METAL SURFACES
      - .1 SPOT PRIME AS REQUIRED TO REPAIR FACTORY PRIMER APPLICATIONS.
      - .2 ONE COAT #200 ALKYD PRIMER/SEALER (TINTED TO COLOUR) MPI #76
      - .3 TWO COATS #528 ALKYD SEMI-GLOSS MPI # 47

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NOTES
1. DO NOT SCALE THIS DRAWING.
2. VERIFY ALL DIMENSIONS, DATUMS, AND LEVELS PRIOR TO COMMENCEMENT OF WORK AND REPORT ANY DISCREPANCIES TO THE CONSULTANT IMMEDIATELY.
3. VARIATIONS AND MODIFICATIONS TO WORK SHOWN IN THESE DRAWINGS SHALL NOT BE CARRIED OUT WITHOUT THE WRITTEN PERMISSION OF THE CONSULTANT.
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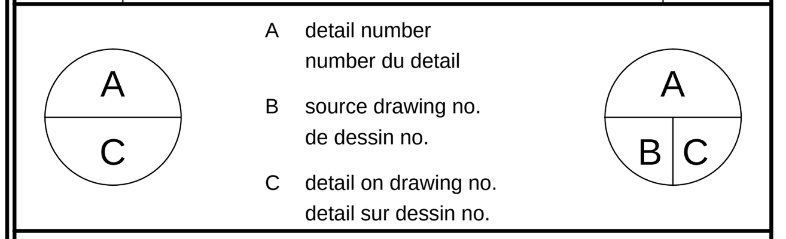
REVISIONS	DESCRIPTION	DATE
1	ISSUED FOR TENDER	May 2013



project title / titre du projet

TACTICAL TRAINING BUILDING RENOVATION

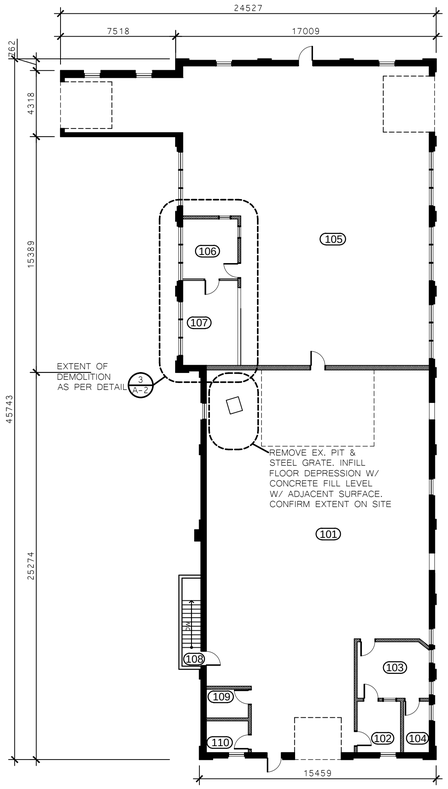
REGINA, SK

drawing title / titre du dessin

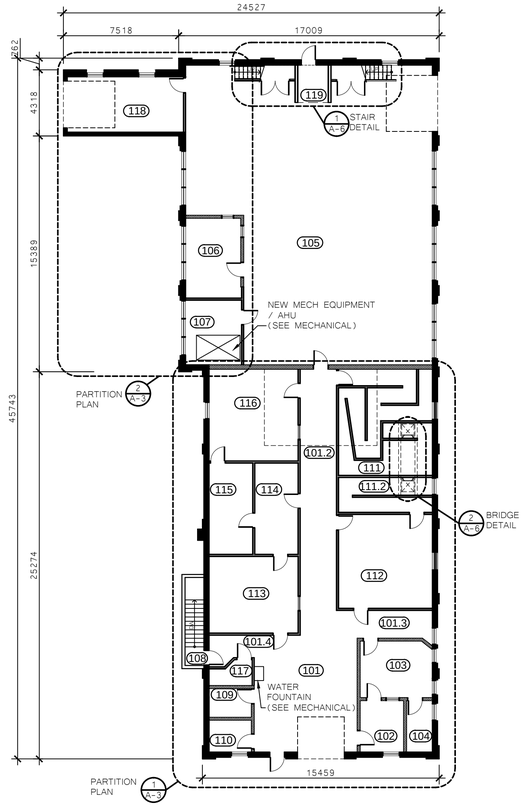
SPECIFICATION
LIST OF ABBREVIATION
DRAWING SYMBOL LEGEND
LIST OF DRAWINGS

designed by / concu par	MS
drawn by / dessine par	MS
approved by / approuve par	KD
PWGSC Project Manager / Administrateur de Projets TPSGC	
scale / echelle	AS SHOWN
project no. / projet no.	827364
date / date	JUN 2013
sheet / feuille	A-1 OF 6

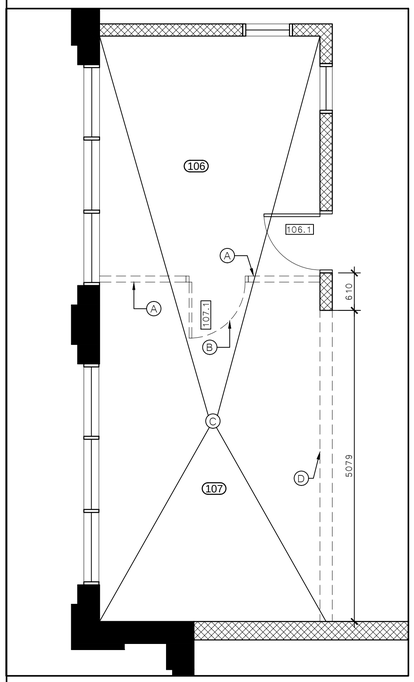
A1 841 x 594



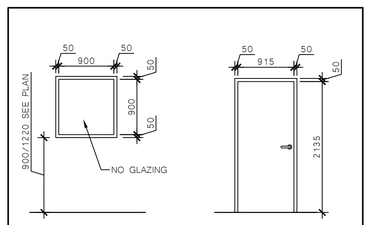
1 EXISTING KEY PLAN - 1:200



2 PROPOSED RENOVATION KEY PLAN - 1:200



3 DEMOLITION PLAN - 1:50



A WINDOW B DOOR

4 WINDOW AND DOOR ELEVATIONS - 1:50

PARTITION LEGEND

EXISTING WALL TO BE REMOVED FULL HEIGHT

EXISTING WALL WALL TO REMAIN

NEW PARTITION (REFER TO PARTITION SCHEDULE FOR HEIGHTS)

DEMOLITION PLAN KEYNOTES

(A) REMOVE EXISTING WALLS AS SHOWN DASHED. PATCH AND REPAIR ADJACENT REMAINING SURFACES TO ACCEPT NEW FINISH. BLEND NEW MATERIALS INTO EXISTING FOR SEAMLESS FINISH.

(B) REMOVE EXISTING DOOR/SIDELITE/GLAZING AS INDICATED. DOORS, FRAMES & HARDWARE TO BE STOCKPILED FOR RCMP SALVAGE.

(C) REMOVE ALL FLOOR FINISH MATERIALS, BASEBOARDS, BINDER BARS, THRESHOLDS AND ASSOCIATED FITMENTS. PATCH AND REPAIR FLOORING SUBSTRATE READY TO ACCEPT NEW FINISHES.

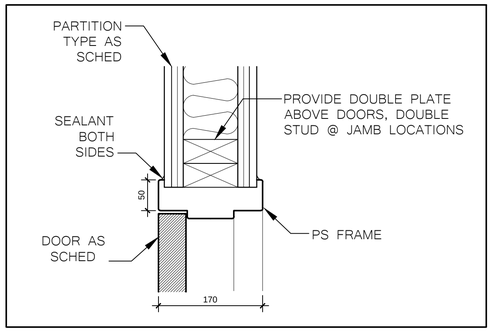
(D) REMOVE EXISTING CB WALL AND STUD INFILL DOWN TO EX. CONC. SLAB. PATCH AND LEVEL SLAB AREA WITH FLOOR LEVELING COMPOUND, READY TO ACCEPT NEW CONSTRUCTION.

DOOR & FRAME SCHEDULE

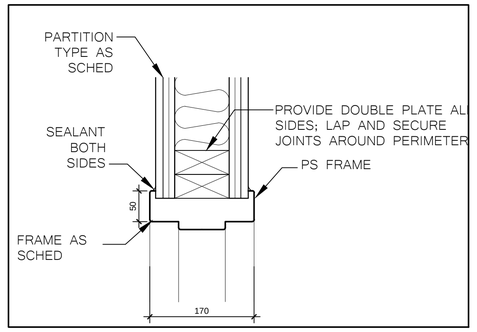
NO.	ELEV.	ROOM TO ROOM	SIZE	DOOR MAT.	FRAME TYPE	DTLS	HARDWARE TYPE	REMARKS
101.1	-	OPEN AREA-1 TO EXTERIOR	EXISTING	EX.				
101.2	-	OPEN AREA-1 TO EXTERIOR	EXISTING	EX.				*OVERHEAD DOOR
101.3	-	CORRIDOR TO OPEN AREA-2	EXISTING	EX.				
102.1	-	OPEN AREA-1 TO EX. OP. RM 1	EXISTING	EX.				
102.2	-	EX. OP. RM 1 TO EX. OP. RM 3	EXISTING	EX.				
103.1	-	CORRIDOR TO EX. OP. RM 3	EXISTING	EX.				
104.1	-	EX. OP. RM 3 TO EX. OP. RM 2	EXISTING	EX.				
105.1	-	OPEN AREA-2 TO EXTERIOR	EXISTING	EX.				*OVERHEAD DOOR
106.1	-	OPEN AREA-2 TO NEW CLASSROOM	EXISTING	EX.				
107.1	B	NEW MECHANICAL TO OPEN AREA-2	915x2135x45	HMI	PS 170 mm		1	
108.1	-	EX. SH-1 TO CORRIDOR	EXISTING	EX.				
109.1	-	OPEN AREA-1 TO EX. MEN'S WASHROOM	EXISTING	EX.				
110.1	-	OPEN AREA-1 TO EX. WOMEN'S WASHROOM	EXISTING	EX.				
111.1	B	CORRIDOR TO MAZE	915x2135x45	HMI	PS 170 mm		2	
111.2	B	MAZE TO NEW OP. RM 4	915x2135x45	HMI	PS 170 mm		2	
112.1	B	CORRIDOR TO NEW OP. RM 4	915x2135x45	HMI	PS 170 mm		3	
112.2	B	NEW OP. RM 4 TO CORRIDOR	915x2135x45	HMI	PS 170 mm		1	
113.1	B	NEW OP. RM 5 TO CORRIDOR	915x2135x45	HMI	PS 170 mm		1	
W113.1	A	NEW OP. RM 5 TO CORRIDOR	900X900	*	PS 170 mm			*NO GLAZING
114.1	B	NEW OP. RM 6 TO CORRIDOR	915x2135x45	HMI	PS 170 mm		1	
114.2	B	NEW OP. RM 6 TO NEW OP. RM 5	915x2135x45	HMI	PS 170 mm		1	
114.3	B	NEW OP. RM 6 TO NEW OP. RM 7	915x2135x45	HMI	PS 170 mm		1	
115.1	B	NEW OP. RM 7 TO NEW OP. RM 8	915x2135x45	HMI	PS 170 mm		1	
116.1	B	NEW OP. RM 8 TO CORRIDOR	915x2135x45	HMI	PS 170 mm		1	
W116.1	A	NEW OP. RM 8 TO CORRIDOR	900X900	*	PS 170 mm			*NO GLAZING
117.1	B	OP. RM 9 TO CORRIDOR	915x2135x45	HMI	PS 170 mm		1	
118.1	B	OPEN AREA-2 TO NEW OP. RM 10	915x2135x45	HMI	PS 170 mm		1	
118.2	-	NEW OP. RM 10 TO EXTERIOR	EXISTING	EX.				*OVERHEAD DOOR
119.1	-	NORTH EXIT TO EXTERIOR	EXISTING	EX.			4	

ROOM FINISH SCHEDULE

NO.	ROOM NAME	FLOOR	BASE	WALLS				CEILING	HEIGHT (mm)	REMARKS
				NORTH	EAST	SOUTH	WEST			
101	OPEN AREA-1	SHT V	100 R	EX. DW	EX. PL	EX. CB	EX. PL/DW	EX. PLASTER	---	
101.2	CORRIDOR	SHT V	100 R	EX. PL	DW	---	DW	EX. PLASTER	---	
101.3	CORRIDOR	SHT V	100 R	DW	EX. PL	EX. CB	---	EX. PLASTER	---	
101.4	CORRIDOR	SHT V	100 R	DW	---	DW	EX. PL	EX. PLASTER	---	
102	EX. OP. ROOM1	EX. CONC	---	EX. CB	EX. CB	EX. CB	EX. CB	EX. PLASTER	3200 EX.	
103	EX. OP. ROOM3	EX. CONC	---	EX. CB	EX. CB	EX. CB	EX. CB	EX. PLASTER	3200 EX.	
104	EX. OP. ROOM2	EX. CONC	---	EX. CB	EX. CB	EX. CB	EX. CB	EX. PLASTER	3200 EX.	
105	OPEN AREA-2	EX. CONC	---	EX. CB	EX. CB	EX. CB	EX. CB/ DW	OPEN	---	
106	NEW CLASSROOM	SHT V	100 R	EX. CB	EX. CB	DW	EX. CB	ACT	2700	
107	NEW MECHANICAL	EX. CONC	100 R	DW	DW	EX. CB	EX. CB	OPEN	---	
108	EX. SH-1 STAIRHALL	EX. CONC	---	EX. CB	EX. CB	EX. CB	EX. CB	---	---	
109	EX. MEN'S WASHROOM	EX. CONC	---	EX.	EX. CB	EX. CB	EX. CB	---	---	
110	EX. WOMEN'S WASHROOM	EX. CONC	---	EX.	EX. CB	EX. CB	EX. CB	---	---	
111	MAZE	SHT V	100 R	*DW	*DW	*DW	*DW	EX. PLASTER	VARIES	*EX. CB/DW
111.2	MAZE	SHT-V	100 R	*DW	*DW	*DW	*DW	EX. PLASTER	VARIES	*EX. CB/DW
112	NEW OP. ROOM 4	SHT V	100 R	DW	EX. PL	DW	DW	OPEN	---	
113	NEW OP. ROOM 5	SHT V	100 R	DW	DW	DW	EX. PL	OPEN	---	
114	NEW OP. ROOM 6	SHT V	100 R	DW	DW	DW	DW	OPEN	---	
115	NEW OP. ROOM 7	SHT V	100 R	DW	DW	DW	EX. PL	OPEN	---	
116	NEW OP. ROOM 8	SHT V	100 R	EX. PL	DW	DW	EX. PL	OPEN	---	
117	NEW OP. ROOM 9	SHT V	100 R	DW	DW	EX. CB	EX. CB	OPEN	---	
118	NEW OP. ROOM 10	EX. CONC	100 R	EX. CB	DW	EX. CB	EX. CB	EX. PL	---	
119	NORTH EXIT	EX. CONC	100 R	EX. CB	DW	---	DW	DW *	2438	* SEE DETAILS
120	SH-2 STAIRWAY	RUBBER	RUBBER	EX. CB	*	*	*	*VARIES	*REFER TO DWG A-6	



5 DOOR HEAD/ JAMB - 1:5



6 WINDOW HEAD/ JAMB/ SILL - 1:5

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TACTICAL TRAINING BUILDING RENOVATION

REGINA, SK

drawing title / titre du dessin

KEY PLANS
DEMOLITION PLAN
DEMOLITION PLAN KEYNOTES
SCHEDULES
DOOR AND WINDOW ELEVATIONS AND DETAILS

designed by / concu par: MS
drawn by / dessine par: MS
approved by / approuve par: KD
PWGSC Project Manager / Administrateur de Projets TPSGC

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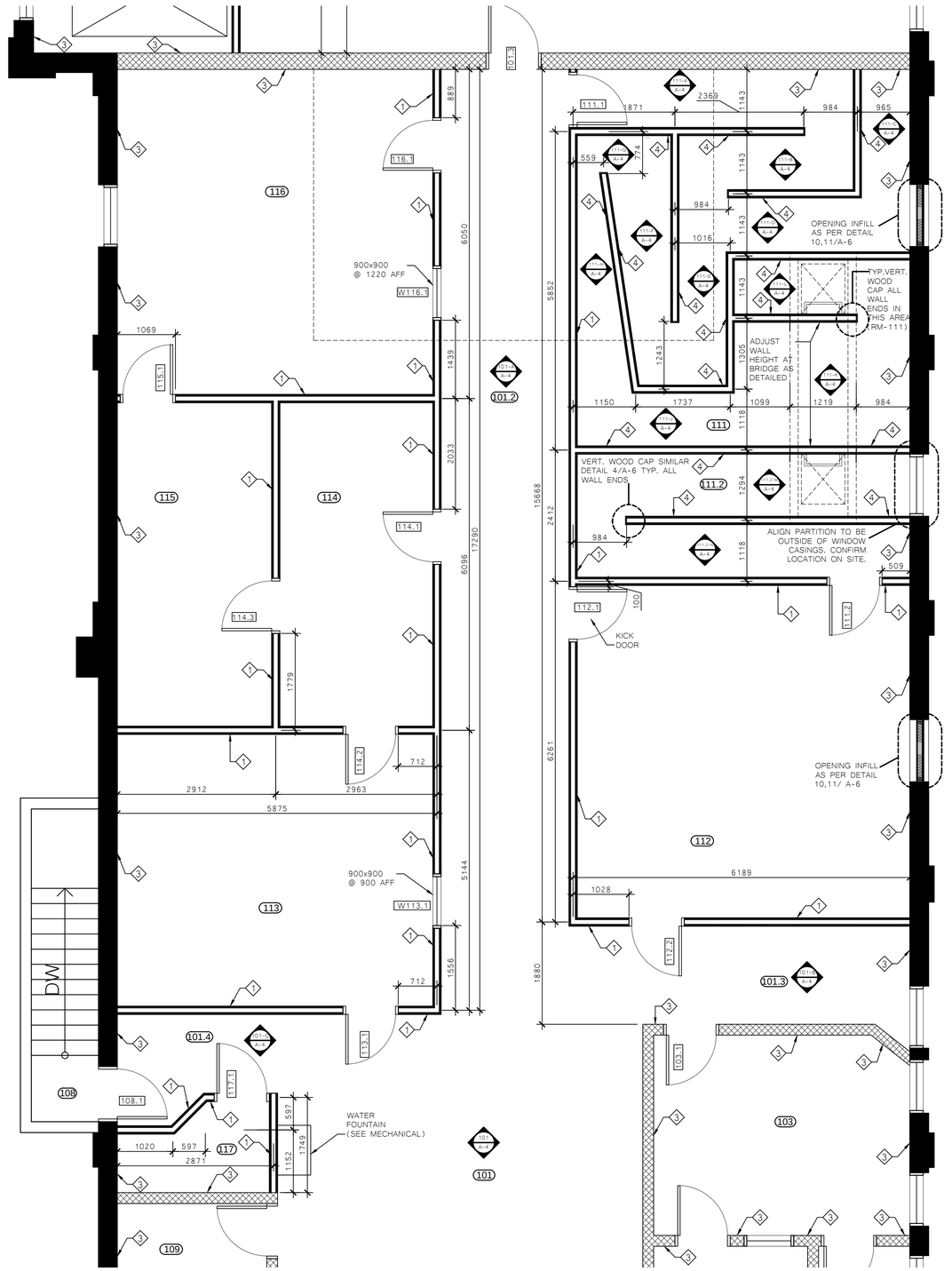
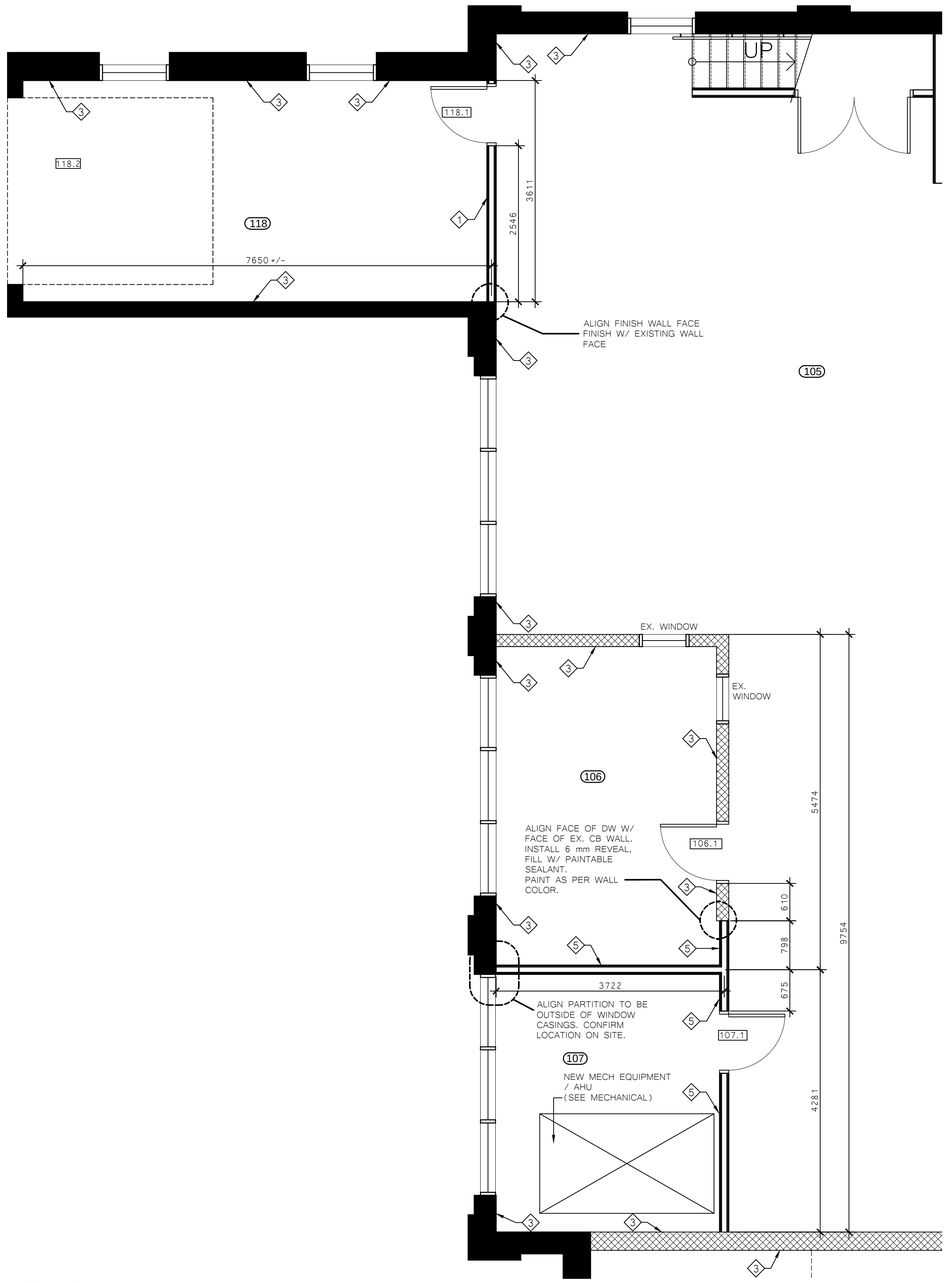
date: JUN 2013
sheet / feuille: A-2
OF 6

A1 841 x 594



1 PARTITION PLAN - SCALE 1:50



2 PARTITION PLAN - SCALE 1:50

PARTITION LEGEND

- EXISTING WALL TO BE REMOVED FULL HEIGHT
- EXISTING WALL WALL TO REMAIN
- NEW PARTITION (REFER TO PARTITION SCHEDULE FOR HEIGHTS)

PARTITION SCHEDULE

1. NEW STUD WALL
   12 mm DW ON BOTH SIDES
   19 mm PLY BACKER FULL HEIGHT
   38 X 89 WD STUD @ 400 O.C.
   CARRY FROM EX. FLOOR LEVEL TO 2550 mm
2. EXISTING STUD WALL
3. EXISTING CB WALL
4. NEW STUD WALL
   12 mm DW ON BOTH SIDES
   19 mm PLY BACKER FULL HEIGHT
   38 X 89 WD STUD @ 400 O.C.
   CARRY FROM EX. FLOOR LEVEL TO 2440 mm
5. NEW STUD WALL
   12 mm DW ON BOTH SIDES
   19 mm PLY BACKER FULL HEIGHT
   38 X 89 WD STUD @ 400 O.C.
   CARRY FROM EX. FLOOR LEVEL TO 3050 mm

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PARTITION PLANS
PARTITION SCHEDULE AND LEGEND

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1 INTERIOR ELEVATIONS - SCALE 1:100

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drawing title / titre du dessin

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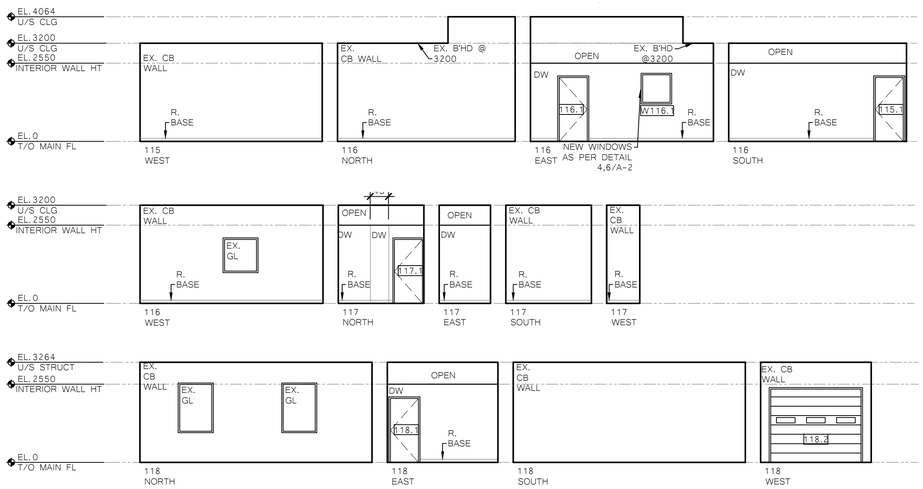
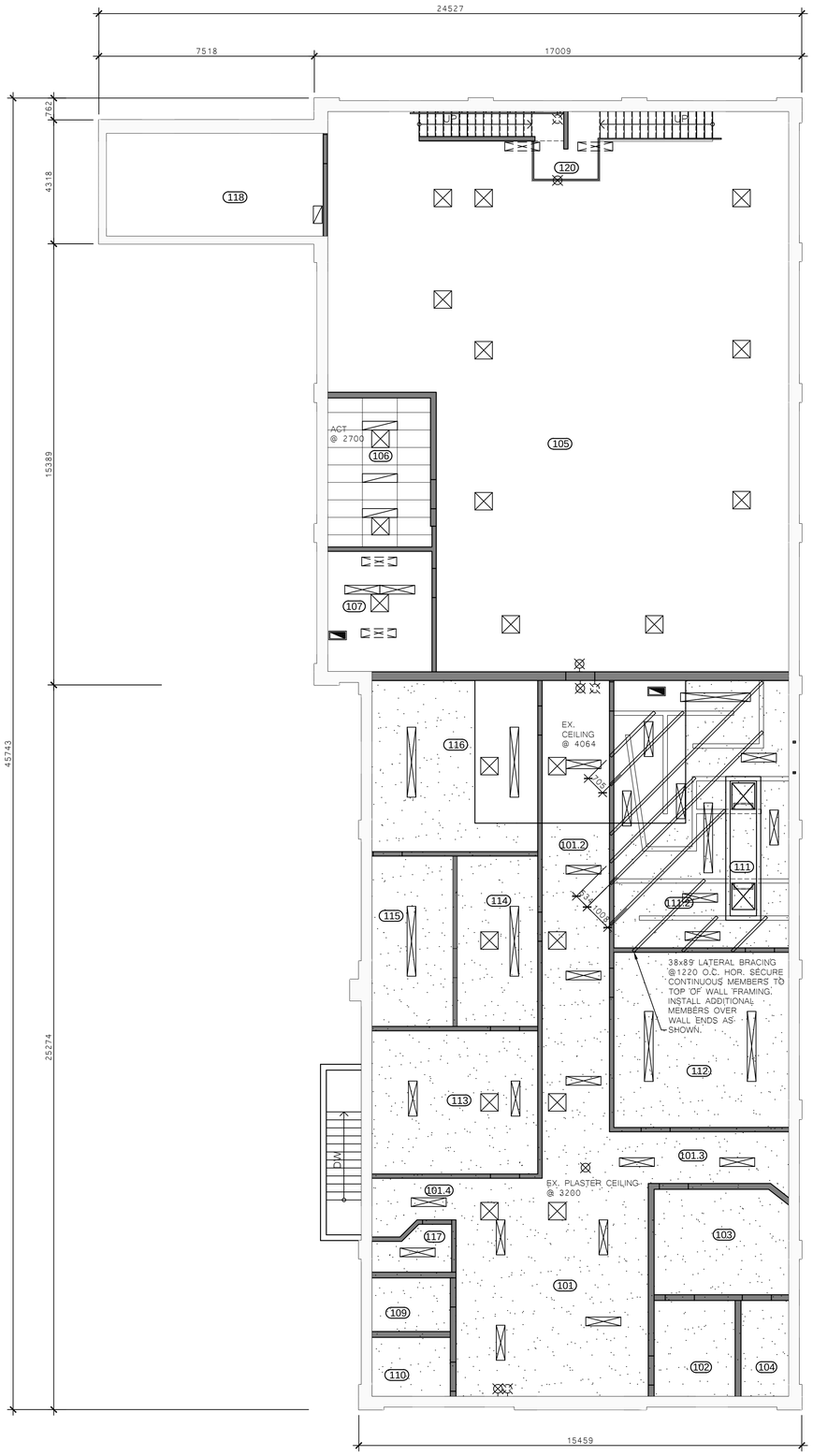


1 INTERIOR ELEVATIONS - SCALE 1:100

CEILING LEGEND

- EX. FLUORESCENT LIGHT FIXTURE TO BE RELOCATED
- SURFACE MOUNT FLUORESCENT LIGHT FIXTURE
- RECESS MOUNT FLUORESCENT LIGHT FIXTURE
- EX. EXIT LIGHT FIXTURE TO BE RELOCATED
- EXIT LIGHT FIXTURE- WALL/CEILING MOUNT
- RETURN AIR GRILL
- SUPPLY AIR DIFFUSER
- EXHAUST AIR GRILL
- EX. PLASTER CEILING
- 609x1220 CEILING GRID WITH ACOUSTIC TILE



2 REFLECTED CEILING PLAN - SCALE 1:100

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drawing title / titre du dessin

INTERIOR ELEVATIONS REFLECTED CEILING PLAN LEGEND

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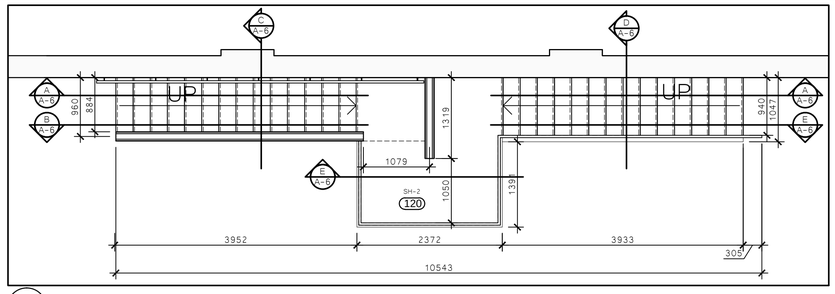
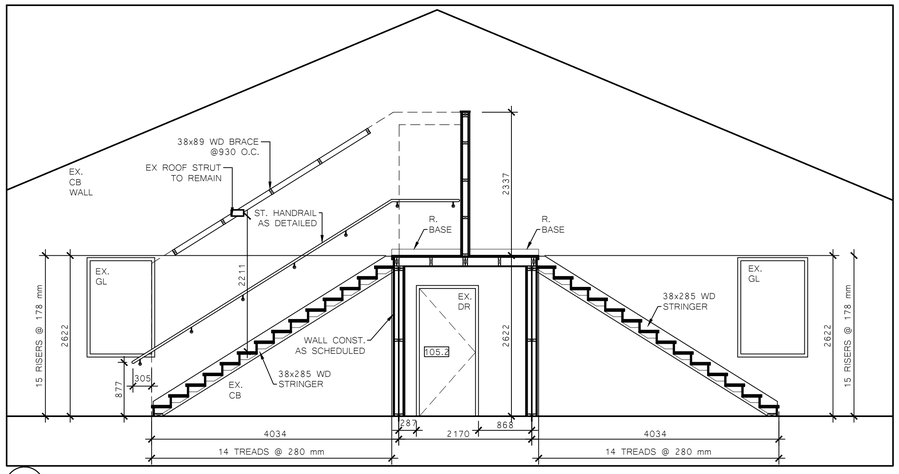
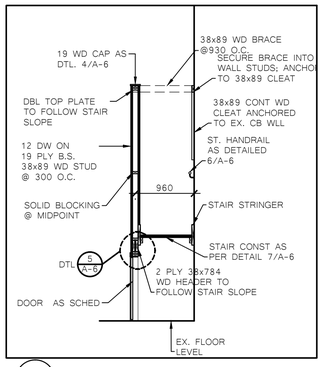


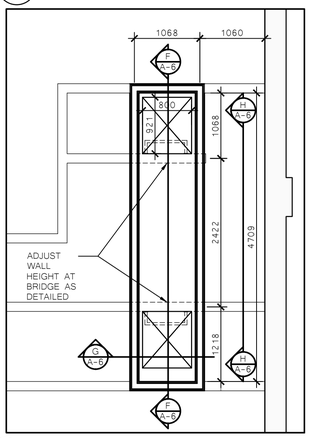
1 STAIR DETAIL- 1:50



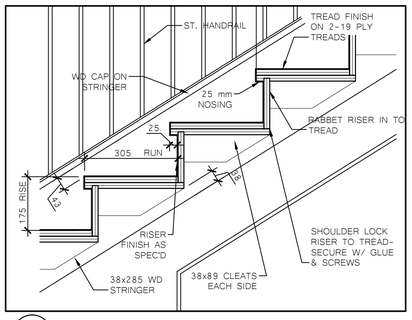
A SECTION - 1:50



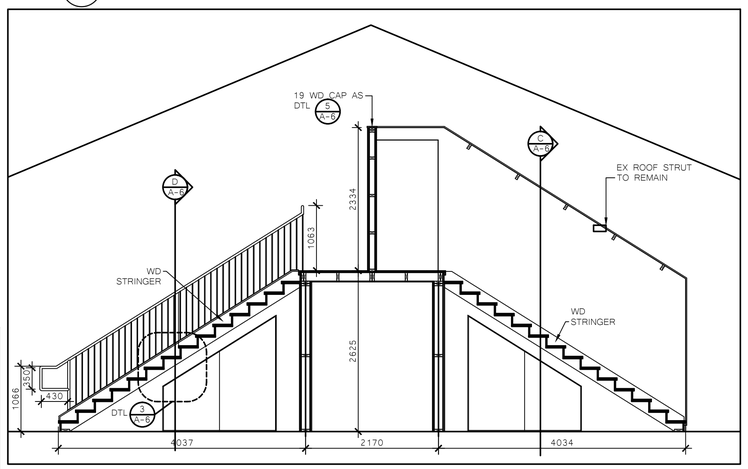
C SECTION - 1:50



2 BRIDGE DETAIL- 1:50



3 DETAIL- 1:10



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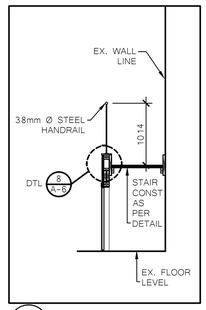
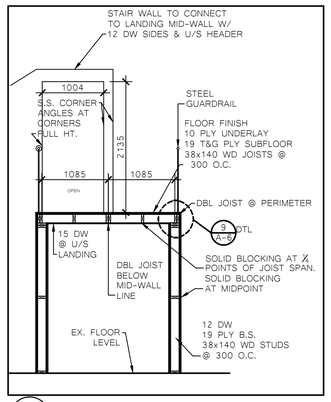


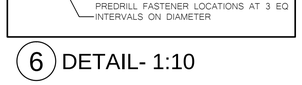
D SECTION - 1:50



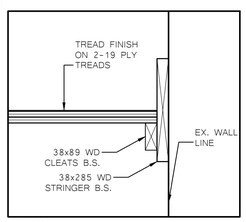
E SECTION - 1:50

4 DETAIL- 1:10

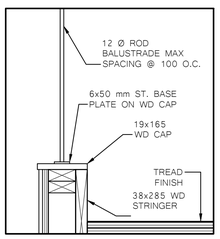
5 DETAIL- 1:10



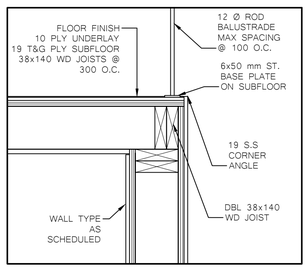
6 DETAIL- 1:10



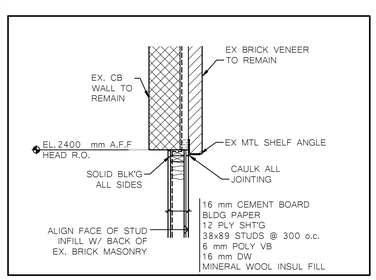
7 DETAIL- 1:10



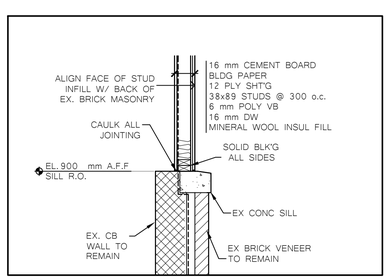
8 DETAIL- 1:10



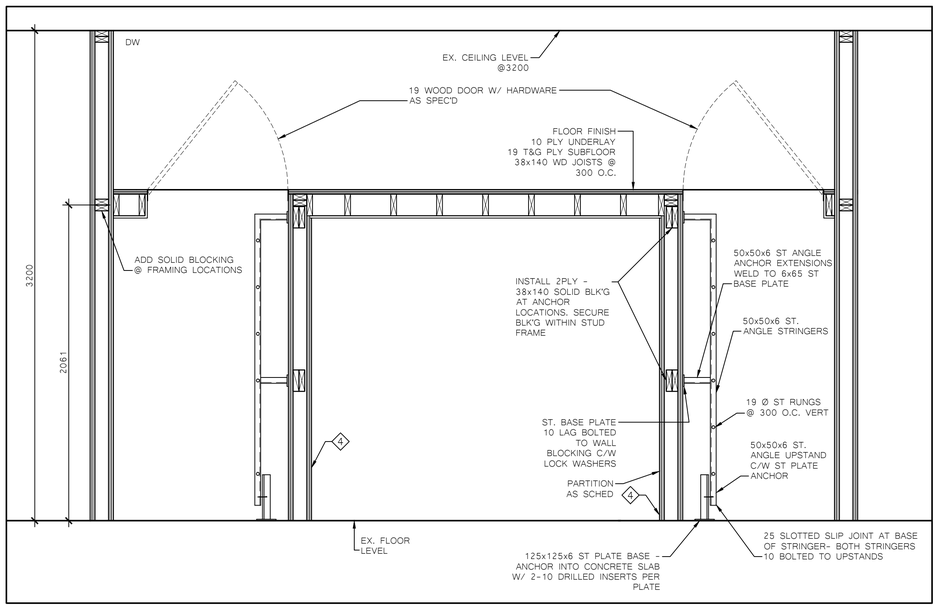
9 DETAIL- 1:10



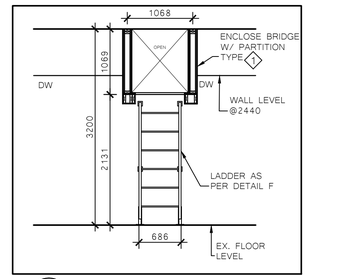
10 OPENING INFILL HEAD - 1:20



11 OPENING INFILL SILL - 1:20



F SECTION - 1:20



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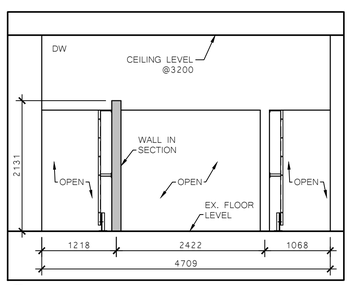

H ELEVATION - 1:50

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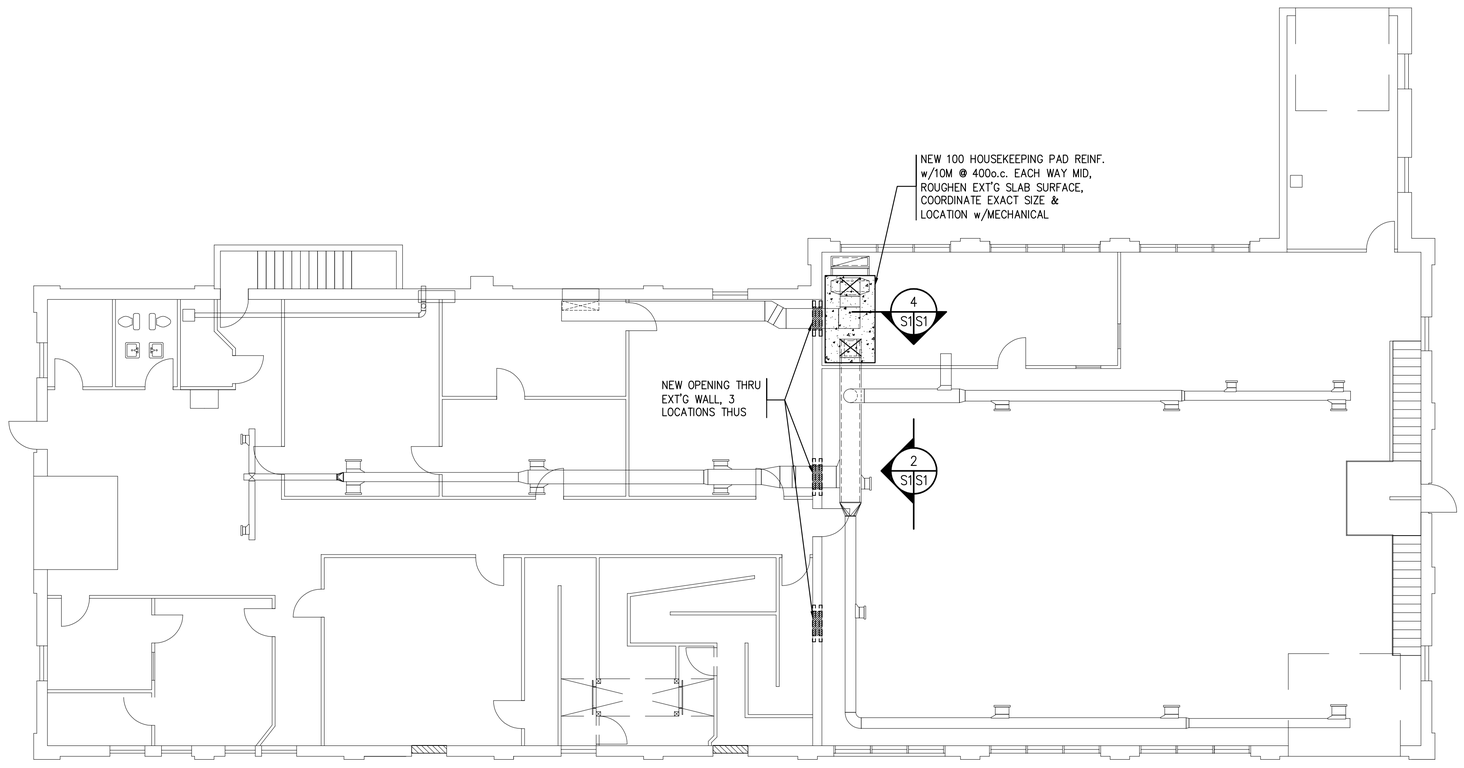
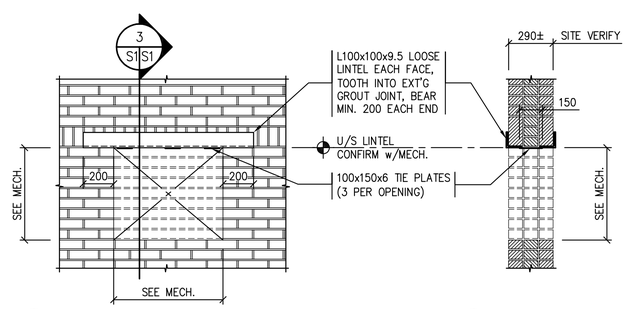


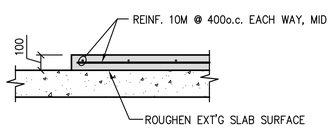
NORTH

1 S1 S1 MAIN FLOOR PLAN
1:100



2 S1 S1 NEW OPENING ELEVATION
1:20

3 S1 S1 SECTION
1:20



4 S1 S1 HOUSEKEEPING PAD DETAIL
NTS

DRAWING SPECIFICATIONS

DIVISION 1 – GENERAL REQUIREMENTS

1.1 General Notes
.1 General Specifications – National Building Code of Canada 2005. Contractor shall read Structural drawings in conjunction with Mechanical and Electrical drawings. Unless noted otherwise, typical details apply throughout. All dimensions in millimetres.

1.2 Discrepancies
.1 Report any discrepancies to the Consultant before proceeding with the work.

1.3 Mechanical Openings
.1 Refer to mechanical drawings to confirm size and locations of all openings. Notify Consultant prior to proceeding if conditions differ significantly between drawings.

1.4 Existing Construction
.1 All information concerning existing construction has been taken from original drawings and site measurements. Contractor to confirm on site all existing dimensions, elevations and details prior to commencing work. Should information differ significantly from those shown, consult the Consultant prior to proceeding. All existing construction altered or damaged during course of work to be made good to match.

DIVISION 3 – CONCRETE

3.1 Concrete Reinforcement
.1 All reinforcing steel, unless noted otherwise, shall be deformed bars of high strength new billet steel conforming to CSA G30.18–09, Grade 400.
.2 Minimum lap splice for 10M bars to be 450 mm. Minimum lap splice for 15 M bars and larger to be 36 bar diameters or 675 mm, whichever is greater.
.3 All reinforcing bars to be continuous, unless noted otherwise.
.4 Lap reinforcing where noted on drawings. Otherwise, lap top bars at midspan; bottom bars at supports as required for length.
.5 Perform concrete reinforcing in accordance with CSA–A23.1–09

3.2 Cast–in–Place Concrete
.1 Perform cast–in–place concrete work in accordance with CSA A23.1–09, "Concrete Materials and Methods of Concrete Construction".
.2 Cement to CSA A3000–08, "Portland Cements", and aggregates to CSA–A23.1–04, "Concrete Materials and Methods of Concrete Construction".
.3 Submit concrete mix designs to Consultant for review.
.4 Proportion normal density concrete in accordance with CSA A23.1–09 Alternative 1, to give the properties in accordance with the following table:

Type	Location	Exposure Class	Strength f'c(MPa)	Aggreg. max(mm)	Slump mm	Total Air %
.1	Interior Grade Supported Slabs	N	25 @28d	20	80±30	nil

3.3 Concrete Accessories
.1 Concrete Anchors : Sizes as detailed on drawings, Standard embedment and installation as per Manufacturers Specifications.
.1 Expansion Wedge Anchors to be Hilti Kwik Bolt 3 or approved alternate.
.2 Drop In Anchors to be Hilti HDI Anchors or approved alternate.
.3 Heavy Duty Sleeve Anchors to be Hilti HSL 3 or approved alternate.
.4 Undercut Anchors to be Hilti HDA or approved alternate
.5 Hollow Masonry Adhesive Anchors to be Hilti HIT HY 20 or approved alternate.
.6 Adhesive Anchors to be Hilti HIT HY 150 Max (fast set, hammer drilled holes), Hilti HIT RE 500 (slow set, cored holes), Hilti HIT ICE (cold weather below –10C) or approved alternate complete with specified rod (HAS–E, HAS Super, SS304/316), washer and nut.

.2 Concrete Patching Material
Pre–packaged, polymer modified, cementitious product containing graded natural aggregate. EMACO R300 – Rapid Setting Mortar as manufactured by Master Builders or approved equal.

.3 Cement Grout Capsules
Reinforcing steel detailed to be installed in pre–placed concrete to be anchored using Lafarge Fondu Cement Grout Capsules M3RR or approved equal.

DIVISION 5 – METALS

5.1 Structural Steel
.1 Structural size shapes, bar size shapes and welded shapes to CAN/CSA G40.21–04 (R2009)M, 350 MPa Weldable Grade.
.2 Hollow structural sections to CAN/CSA G40.21–04 (R2009), 350 MPa Weldable Grade.
.3 Plates and bars to CAN/CSA G40.21–04 (R2009), 260 MPa Weldable Grade.
.4 Welding material to CSA W59–03 (R2008). Welding to CSA W59–03 (R2008) and CSA W55.3–08. Fabricators and erectors responsible for welding of structures shall be certified by the Canadian Welding Bureau (CWB) to the requirements of CSA Standard W47.1 (Division 1 or Division 2), of CSA Standard W55.3–08, or both, as applicable. Contractor to submit proof of certification with CWB with shop drawings.
.5 Bolts, nuts and washers to ASTM A325.
.6 Anchor bolts to ASTM A307.
.7 Threaded Rod to ASTM A193 B7.
.8 Paint for primer as per CGSB L–GP–40d, or CISC/CPMA Standard 1073a. All primer to be grey unless approved otherwise.
.9 Fabrication and erection to CAN/CSA S16–01 and CISC Code of Standard Practice.
.10 All bolted connections to be "Bearing" type except where subject to stress reversal, which are to be "Slip–Resistant" type connections.
.11 All beams to be connected for the greater of the following conditions:
.1 Loads shown on drawings.
.2 50% of total uniformly distributed load resistance of the member.
.3 1/2 depth of the connected member using M20 bolts (minimum 2 bolts) in double shear.
.12 After erection, prime all welds not shop primed except surfaces to be in contact with concrete.

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CERTIFICATE OF AUTHORIZATION
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NUMBER 525
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DISCIPLINE	SASK. REG No.	SIGNATURE
STRUCTURAL	11388	KDK

PROFESSIONAL ENGINEER SASKATCHEWAN
K.D.A. KINESCHUK MEMBER 11388
13 03 27
YR. MN. DAY.

REVISIONS	DESCRIPTION	DATE
1	ISSUED FOR TENDER	June 2013

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project title / titre du projet
TACTICAL TRAINING BUILDING RENOVATION
REGINA, SK

drawing title / titre du dessin
MAIN FLOOR PLAN, SECTIONS & SPECIFICATIONS

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MECHANICAL SPECIFICATIONS

SCOPE OF WORK: The Mechanical Contractor shall include, but not be limited to, the following items as part of this project: supply and installation of complete heating plant and alteration of existing heating and ventilation systems as shown on plans, specification and equipment schedule.

INTENT: Provide a complete and fully operational mechanical system with facilities and services to meet requirements described herein and in complete accord with applicable codes and ordinances. Contract documents of this Division are diagrammatic and approximately to scale unless detailed otherwise. They establish scope, material and installation quality and are not detailed installation instructions. Should any discrepancies occur on drawings or in specifications which leaves doubt as to the intent and meaning of the drawings and specifications, obtain a ruling from the designer before submitting tender. If this is not done, it will be assumed that the most expensive alternate has been allowed for. Follow manufacturers recommended installation details and procedures for equipment supplemented by details given herein and on plans subject to approval of the Consultant. Install equipment generally in locations and routes shown, close to building structure with minimum interference with other services or free space. Remove and replace improperly installed equipment to satisfaction of the Consultant at no extra cost. All installed equipment must be serviceable in place, provide access doors as required. Provide labour and materials required to install, test and place into operations a complete mechanical system. Provide additional material for modifications required to correct minor job conflictions. Connect to equipment furnished in other Sections and by Owner, including uncrating equipment, moving in place and installing complete, start-up and test.

MATERIALS: Replace materials or workmanship below specified quality and relocate work wrongly placed to satisfaction of the Consultant. Materials and equipment installed shall be new, full weight and of the best quality specified. Use same brand or manufacturer for each specific application. Statically and dynamically balance rotating equipment for minimum vibration and low operating noise level. Each major component of equipment shall have manufacturer's name, address, catalog and serial number in a conspicuous place. Install materials and equipment in a neat and workmanlike manner by competent specialists.

CODES, FEES: All necessary fees, permits, et cetera, shall be provided under this section as necessary for the work hereinafter specified to conform to the laws and regulations of the Province of Saskatchewan and the Federal Government. All work shall be in accordance with the requirements of the Canadian Standards Association, Canadian Fire Underwriter's Association, NFPA, the Department of Labour and all applicable federal regulations. Changes or alterations required by any authorized inspector shall be done without charge or expense to the Owners.

SUPPORTS, BASES: Provide and install all special structural supports, inserts, anchor bolts, required for all equipment and apparatus under this section. Concrete bases shall be provided by Mechanical Contractor.

PIPING, HANGERS & SUPPORTS: All piping to be routed so as not to interfere with conduit, piping, and apparatus of other trades. Piping arrangement as indicated on the drawings. All lines shall be straight, plumb, forming right angles and parallel to the building structure. Keep as high as possible. Piping shall run parallel in groups. Spacing to allow for insulation and access to service valves. Piping shall be free of scale and dirt, open ends protected. Anchor piping as required, piping system shall be arranged so that entire system may be drained. Provide necessary hangers, rods, supports, inserts to support piping and equipment. No perforated strap allowed. Provide vertical adjustment for pitch of piping.

SLEEVES: Provide and set sleeves for pipes and ducts through foundation, walls, floors, and partitions. Sleeves shall be iron pipe where they are located in foundation walls, beams, footings, or waterproof floors. Other locations 20 gauge galvanized sheet metal. Plastic piping penetrating fire rated partitions or floors to be complete with U.L. labelled fire stops.

ADJUSTMENTS: Balancing of water systems shall be carried out by an independent Balance Contractor who specializes in this kind of work. All equipment, apparatus, et cetera, shall be adjusted to specifications. Check for overheating motors, belt adjustments, alignment, et cetera. Provide four (4) copies of Balance Report to Engineer for approval. Balancing shall be done when system is fully installed and operational.

CUTTING & PATCHING: Locate and provide holes and sleeves, cutting and fitting required for mechanical work. Relocate improperly located holes and sleeves at no extra cost. Drill for expansion bolts, hanger rods, brackets, and supports. All patching of finished construction of building shall be performed under the sections of specifications covering these materials.

TEMPORARY POWER & LIGHT: Provide all temporary power required during construction period for temporary lighting and operating of power tools and all equipment. The owner shall allow the Contractor to make connection to existing services. The Contractor shall pay for all connection costs. The Owner shall pay consumption costs.

TEMPORARY HEATING: Provide all temporary heating required during construction period, including attendance, maintenance and fuel. Maintain temperatures of minimum 10 deg C in all areas in which construction is in progress, unless indicated otherwise in specifications. Use approved heating devices only. Ventilate heated areas and keep building free of exhaust or combustion gases. Be responsible for any damages to the Work due to failure in providing adequate heat and protection during construction. Temporary heating would not be required if new heating plant is operational by October 15, 2010.

TEMPORARY VENTILATION: Provide all temporary ventilation required during construction period to remove all fumes and odours produced by construction materials and activities. Maintain temporary ventilation until all materials cease producing fumes and odours.

WELDING: Welding materials and labour must conform to ASME Code and the Provincial Board of Labour Regulations. Use welders fully qualified and licensed by Provincial Authorities. Contractor to have quality control manual registered with TSASK.

PLUMBING: All sanitary piping buried below slabs and for a distance of 2.4 meters outside foundation walls shall be cast iron Class 4000, Bell and Spigot or mechanical joint or plastic PVC (to approval of local authority). All sanitary and storm piping above grade to be cast iron or fire rated PVC. Vent piping shall be cast iron, D.W.V. copper or fire-rated PVC. Water piping above grade Type "L" hard copper with wrought copper fittings, 95/5 soldered joints

SHEET METAL: Sheet metal shall be first quality cold rolled of best grade galvanized iron and stamped with U.S. standard gauges. Fire dampers shall be ULC labelled of approved manufacturer with full duct size opening. Fire damper installation to be complete with access in ductwork. Breakaway connections shall be ULC approved. All fans shall be complete with flexible connections. Construction of ductwork and supports as per ASHRAE and SMACNA Standards. Seal all metal duct joints with water resistant, fire resistive, high velocity duct sealant compatible with mating materials as per SMACNA manuals.

CONTROL WIRING: All control wiring and control devices, regardless of voltage, shall be supplied and installed by Mechanical Contractor.

HEATING WATER PIPING: Black ASTMA 53, Grade B, Schedule 40, fittings 64 mm and over butt welded long radius or victaulic; fittings 50 mm and under standard weight malleable iron screwed. Control valves to be flanged.

STEAM PIPING: Black ASTMA 53, Grade B, Schedule 80 seamless, fittings 64 mm and over welded long radius or flanged; fittings 50 mm and under Class 3000 socket weld or screwed. Control valves and isolation valves to be flanged. All other valves to be flanged or screwed as indicated by pipe size. Flanges to be Class 300 complete with Gar Lock Gaskets.

CONDENSATE PIPING: Black ASTMA 53, Grade B, Schedule 80 seamless, fittings 64 mm and over welded long radius or flanged; fittings 50 mm and under Class 3000 socket weld or screwed. Isolation valves to be flanged.

PIPE CLEANING AND CHEMICAL TREATMENT: Provide chemical treatment, chemicals, and equipment by an Agency that specializes in this type of work. Agency shall take full responsibility for providing suitable working systems. For boilers with aluminium heat exchangers, glycol with cast aluminum safe additives. Manufacturer shall prove safety of additives with cast aluminum boilers before boiler will be accepted. Clean entire hot water heating system, including all existing piping utilizing existing site standards. Provide sample of water from system after flush out for testing and provide copies of test results to owner.

IDENTIFICATION: Identify piping and equipment throughout with labels and direction of flow arrows. Apply labels at 15 meter (50 foot) intervals, before and after pipes pass through walls, at access door openings or at intervals closer than 15 meters (50 foot) in equipment rooms as required. Labels shall be black, 19 mm (3/4") minimum letters on yellow backgrounds. Provide for valves not in plain sight of apparatus controlled, 19 mm (3/4") diameter brass number tags with number stamped in black, secured to valve wheel with key chain. Provide neat, typewritten directories giving valve number, valve service and the location of valves for all operation and maintenance manuals. Provide two laminated copies for owner on site. Tag automatic controls, instruments and relays and key to control schematic on which instruments are numbered in sequence. Identify electric starting switches and remote push-button stations with 6 mm (1/4") laminated plastic plates. Gas piping and tubing shall be identified with yellow paint for the entire length and all fittings. The contractor shall tag each piece of equipment with owner supplied preventative maintenance laminated tag.

SITE PREPARATION: Contractor to visit site prior to commencing work to confirm the exact site conditions.

USE OF EQUIPMENT FOR TEMPORARY HEAT AND/OR VENTILATION: Do not use the permanent system for temporary heating or ventilation purposes, without written permission from the Consultant. Thoroughly clean and overhaul permanent equipment used during the construction period, replacing worn or damaged parts. Exchange equipment or components operating improperly at final inspection with new equipment or components. Use of permanent systems for temporary heat shall not modify the terms of warranty. Where air systems are used during temporary heating, provide filter media or return and exhaust air outlets. Clean duct systems which have become dirty. When permanent systems are used for temporary heat, provide alarm indicating system failure. Connect alarm to independent alarm company system. Replace mechanical seals in pumps used for temporary heating purposes with new mechanical seals, regardless of condition. Provide one year warranty from date of Substantial Completion.

ACCESS DOORS: Supply access doors for furred ceilings, ducts or spaces for servicing equipment and accessories or for inspection of safety, operating and fire devices for installation under section erecting the walls or ceilings. Access doors shall be flush mounted, 600 mm x 600 mm (24" x 24") for body entry and 300 mm x 300 mm (12" x 12") for hand entry unless otherwise noted. Doors shall open 180 degrees, have rounded safety corners, concealed hinges, screwdriver latches and anchor straps. Steel shall be prime coated. Doors shall be of approved manufacturer with published literature.

SITE CLEAN-UP: Upon completion of installation, Contractor shall clean up all dirt, debris, and dust to the satisfaction of the Engineer and Owner. At completion of the project, the site shall be put back into the condition at the start of the project.

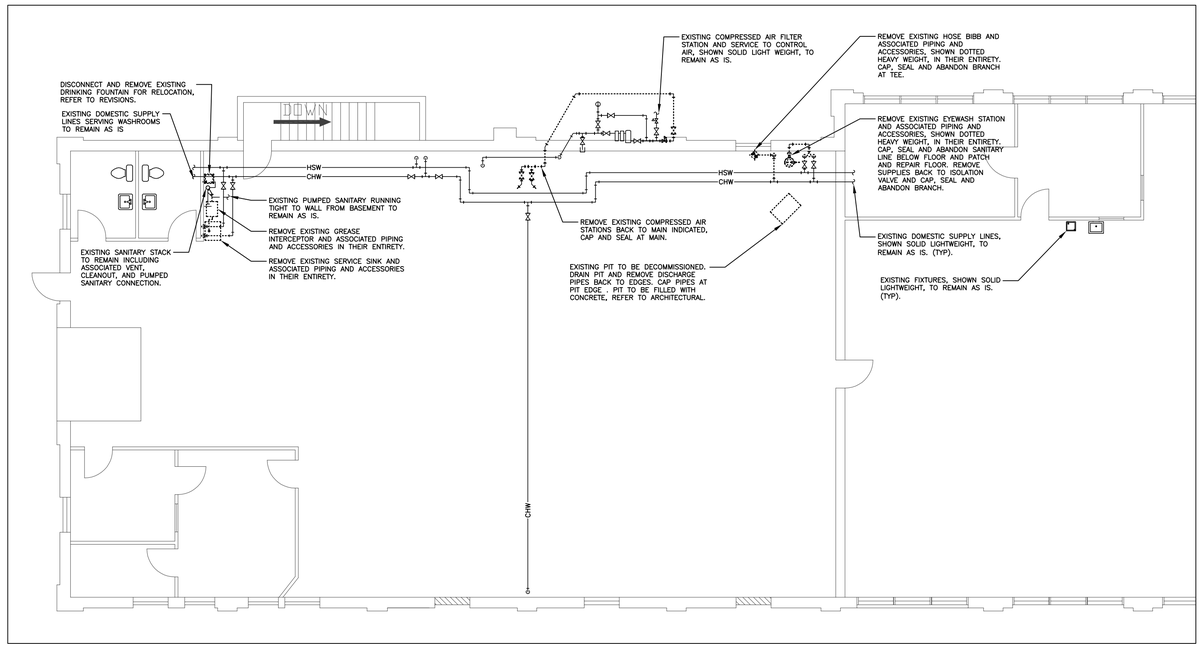
GUARANTEE: During the one year guarantee period all defective material, improper material or workmanship shall be made good without expense to the Owners.

MAINTENANCE MANUALS: Provide two (2) hard copies of operation and maintenance manuals in hard bound binders and one (1) copy in digital format on Compact Disk. The manuals shall include warranty letters, manufacturers installation and operating instructions, all test documentation from construction, and manufacturers start-up completed documentation for all equipment as well as all dip-switch or other settings for the equipment at the time of the hand over of the equipment.

SHOP DRAWINGS: Contractor shall provide eight (8) copies of shop drawings for approval by Engineer prior to ordering of equipment. Shop drawings shall be provided for all equipment, including controls.

AS-BUILT DRAWINGS: Contractor shall provide one set of marked-up prints to the Engineer indicating all revisions made during the course of construction and recording the as-built conditions. A set of as-built wiring diagrams / drawings for the controls shall also be included for insertion into the maintenance manuals.

DEMOLITION: Mechanical Contractor shall include in his Base Price the cost to provide the removal of all existing mechanical equipment and material that is not to be reused under this contract. Equipment shall be Owner's salvage unless noted otherwise.



NORTH

1 PARTIAL MAIN FLOOR PLAN – PLUMBING DEMOLITION
1:100

INSULATION: Insulation shall be installed to TIAC standards. All exposed heating piping shall be complete with fibreglass insulation complete with cover, insulation thickness to be 38 mm for pipes 50mm and smaller and 50mm for all pipes over 50mm. (Manson Alley-K complete with all service covering or approved equal.) All domestic cold water piping to be complete with 12 mm fibreglass insulation complete with cover. All domestic hot water piping to be complete with 25 mm fibreglass insulation complete with cover. Piping insulation to have "K" value at 75 deg.F (24 deg.C.) maximum 0.24 BTU/in./sq.ft./deg.F/hr (0.59 W./m./deg.C). Breechings shall be complete with 50mm fibreglass insulation complete with dimpled aluminum jacket. Cover for pipe insulation in exposed areas shall be dimpled aluminum with stainless steel bands for securement. No cover required for pipe insulation in concealed areas. Pipe running within t-bar ceilings shall be considered concealed.

All exposed heating piping, domestic cold, and domestic hot water piping insulation jacket to be Aluminum, to ASTM B209, 0.50 mm thick, stucco embossed finish, longitudinal and circumferential slip joints with 50 mm laps. Fittings: 0.5 mm thick die-shaped fitting covers with factory-attached protective liner. Metal jacket banding and mechanical seals: stainless steel, 19 mm wide, 0.5 mm thick at 300 mm spacing.

REMOVABLE INSULATION BAGS: Standard of acceptance for re-usable insulation blankets shall be Reflex Re-usable flexible insulation covers. All materials shall be of flame resistant materials. Outer jacket material shall be 0.26 kg/m2 Teflon coated fibreglass cloth, secure seams and attachments with polyester wrapped 10 strand stainless steel thread. Liner material shall be 560 grams/m2 Teflon coated fibreglass cloth for operating temperatures up to 232 deg.C. Minimum insulation thickness shall be 25 mm insulation for operating temperatures up to 232 deg.C. Insulation materials shall be Type E needled fibreglass mat containing no organic binders and no less than 11 pound density for operating temperatures up to 538 deg.C. Fasteners shall be velcro closures incorporated with seam flaps in conjunction with sewn on straps and stainless steel D rings. Flaps shall be used to cover all closing seams and cover slots. The flaps shall be 50 mm wide plain flaps for operating temperatures up to 232 deg.C. 6 mm matrix braided Nomex draw-cord closures shall be used on cover openings over 50 mm in diameter. Close the ends of covers over adjacent insulation or piping. Quilting fasteners shall be 14 gauge stainless steel quilt pins and locking washers. A stainless steel drain grommet, 11 mm in diameter, shall be installed at the low point on the cover. A permanent stainless steel or aluminum identification tag shall be attached to each blanket. Tags shall be secured to the re-usable blanket with aluminum rivets and shall be installed in the most visible location on the blanket. Removable insulation bags shall be provided for control valves, Steam Pressure Reducing Station (includes PRV, isolation valves, strainers), strainers, heat exchangers, and pumps.

Blankets on flanged valves and equipment shall be designed to cover adjacent mating flanges and overlap line insulation by a minimum of 50 mm. Allowance of stud length plus 25 mm from the back of the mating flange shall be used to calculate the cut back distance of line insulation. Draw-cold flaps shall not be considered as part of the overlap. Blankets on valves shall be designed to cover the valve body and the bonnet flange of the valve. All equipment shall be field measured by blanket supplier. Measurements shall be performed after equipment is installed. All necessary allowances for the blankets shall be coordinated between the blanket supplier and the mechanical, electrical and insulation Contractors. Blankets up to 25 mm thick shall be inside seam construction with double stitching, with the liner and jacket material sewn together to form the insulation pocket. Perimeter flaps shall be formed as an extension of the liner and jacket, and shall not be attached to blanket as separate pieces. All blankets up to 25 mm thick must be double stitched. First stitch will be performed with cloth layers sewn together inside out. Blanket will then be turned right side out and top stitched around all penetrations and around the perimeter of the insulation pocket to create a separation between the insulation pocket and the perimeter flaps. All draw-cord and closure flaps, required inside the perimeter of the blanket shall be attached inside the seam, between the liner and jacket layers of the blanket.

INSTRUCTION OF OPERATING STAFF: Provide trained personnel to instruct operating staff on maintenance, adjustment and operation of mechanical equipment. Instruction shall be provided during regular work hours after substantial completion and prior to acceptance and turnover to operating staff for regular operation. Use operation and maintenance data manual for instruction purposes. At minimum, the following instruction shall be provided: Pumps – 1 hr, Heat Exchangers – 1hr, Chemical Treatment – 1.0 hr. EMCS training shall be as follows:

1. Total training to be 4 hours of instruction.
2. One (1) sessions lasting two (2) hours before substantial completion. Each session to cover same material to different sets of trainees.
3. One (1) sessions lasting (2) hours at project completion. This session to cover any remaining material, review as-built conditions, any modifications made since initial training and to field questions from first session.

COORDINATION: The contractor must notify the owner 1 week in advance for all coordination issues, including but not limited to; tie-ins, shut-downs, any work affecting on going operations, any work affected occupied spaces etc. The contractor shall protect all existing finished spaces when working in area, which includes but is not limited to covering all equipment with appropriate protective covers, safe removal of ceiling tiles, storage and replacement following completion of work, leaving all occupied spaces in a clean functional manner after each work day. The contractor shall provide their own washroom facilities in a location acceptable to owner.

LEGEND

CWH	DOMESTIC COLD HARD WATER
HSW	DOMESTIC HOT SOFT WATER
STEAM	LOW PRESSURE STEAM
COND	LOW PRESSURE STEAM CONDENSATE
HPS	HIGH PRESSURE STEAM (120 PSI)
HP COND	HIGH PRESSURE STEAM CONDENSATE
PUMPED COND	PUMPED STEAM CONDENSATE
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
D	EQUIPMENT DRAIN LINE
P	PUMPED DRAIN LINE
AIR	COMPRESSED AIR
SAN	SANITARY WASTE – ABOVE GRADE
SAN-BELOW	SANITARY WASTE – BELOW GRADE
VENT	SANITARY VENT
	ISOLATION VALVE
	BALL VALVE
	GLOBE VALVE
	CHECK VALVE (WITH FLOW DIRECTION)
	TWO-WAY AUTOMATIC CONTROL VALVE
	THREE-WAY AUTOMATIC CONTROL VALVE
	HOSE BIBB C/W ISOLATION, CAP & CHAIN
	WYE STRAINER
	CIRCUIT BALANCE VALVE
	AUTOMATIC FLOW RESTRICTOR
	UNION
	FLEX CONNECTER
	CLEANOUT
	FLOOR DRAIN
	ROOF DRAIN
	PIPE DOWN
	PIPE UP
	PRESSURE GAUGE/SENSOR
	TEMPERATURE GAUGE/SENSOR
	EXISTING SUPPLY LINES TO REMAIN, SHOWN SOLID LIGHT WEIGHT.
	EXISTING RETURN LINES TO REMAIN, SHOWN DASHED LIGHT WEIGHT.
	EXISTING ABOVE GRADE SAN AND STORM LINES TO REMAIN, SHOWN DASHED LIGHT WEIGHT.
	EXISTING BELOW GRADE SAN AND STORM LINES TO REMAIN, SHOWN DASHED LIGHT WEIGHT.
	EXISTING LINES TO BE REMOVED OR RELOCATED AS NOTED, SHOWN DOTTED HEAVY WEIGHT.
300ø	PIPE AND ROUND DUCT SIZE
600X300	RECTANGULAR DUCT SIZE
600/300	OVAL DUCT SIZE
WC-1	PLUMBING FIXTURE AND TYPE: WC=WATER CLOSET, L=LAVATORY, FD=FLOOR DRAIN, DF=DRINKING FOUNTAIN, MS=MOP SINK
S/A	SUPPLY AIR
R/A	RETURN AIR

M	MOTORIZED DAMPER
FD	FIRE DAMPER
	90° ELBOW, PROVIDE TURNING VANES AS SPECIFIED, VANES ARE NOT SHOWN ON DRAWINGS
	MANUAL BALANCING DAMPER
	INTERNALLY INSULATED DUCT
	EXTERNALLY INSULATED DUCT, UNLESS SPECIFICALLY NOTED OTHERWISE
	EXISTING DUCT TO REMAIN, SHOWN SOLID LIGHT WEIGHT
	EXISTING DUCT TO BE RELOCATED OR REMOVED, SHOWN DOTTED HEAVY WEIGHT
	SUPPLY DUCT UP OR SECTION
	SUPPLY DUCT DOWN
	RETURN DUCT UP OR SECTION
	RETURN DUCT DOWN
	RETURN DUCT UP OR SECTION
	RETURN DUCT DOWN
	FIRE EXTINGUISHER IN CABINET
	FIRE EXTINGUISHER C/W WALL BRACKET
T	TEMPERATURE SENSOR/THERMOSTAT
H	HUMIDITY SENSOR/HUMIDISTAT
E/A	EXHAUST AIR
O/A	OUTDOOR AIR

A1 841 x 594

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Western Region

NOTES
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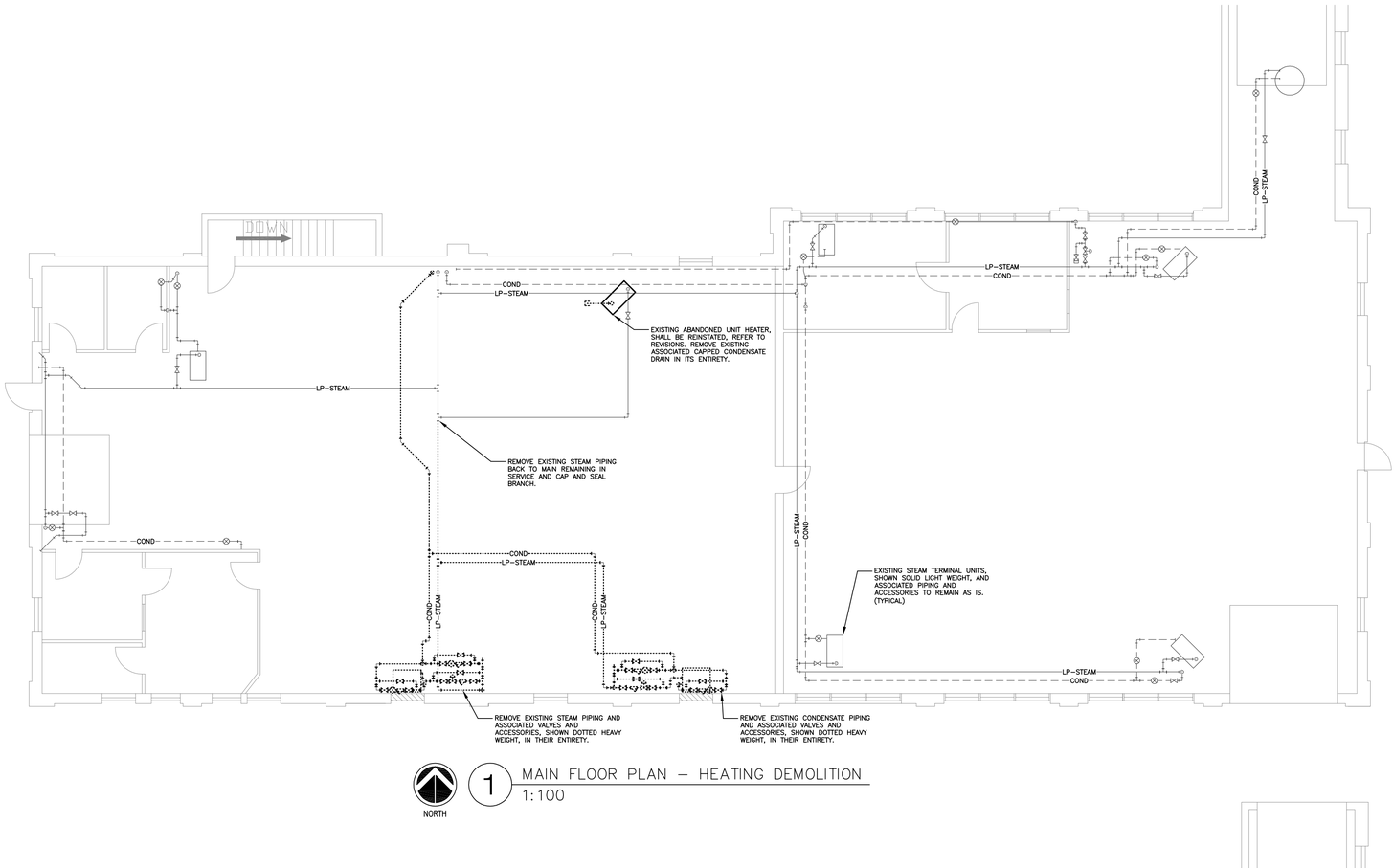
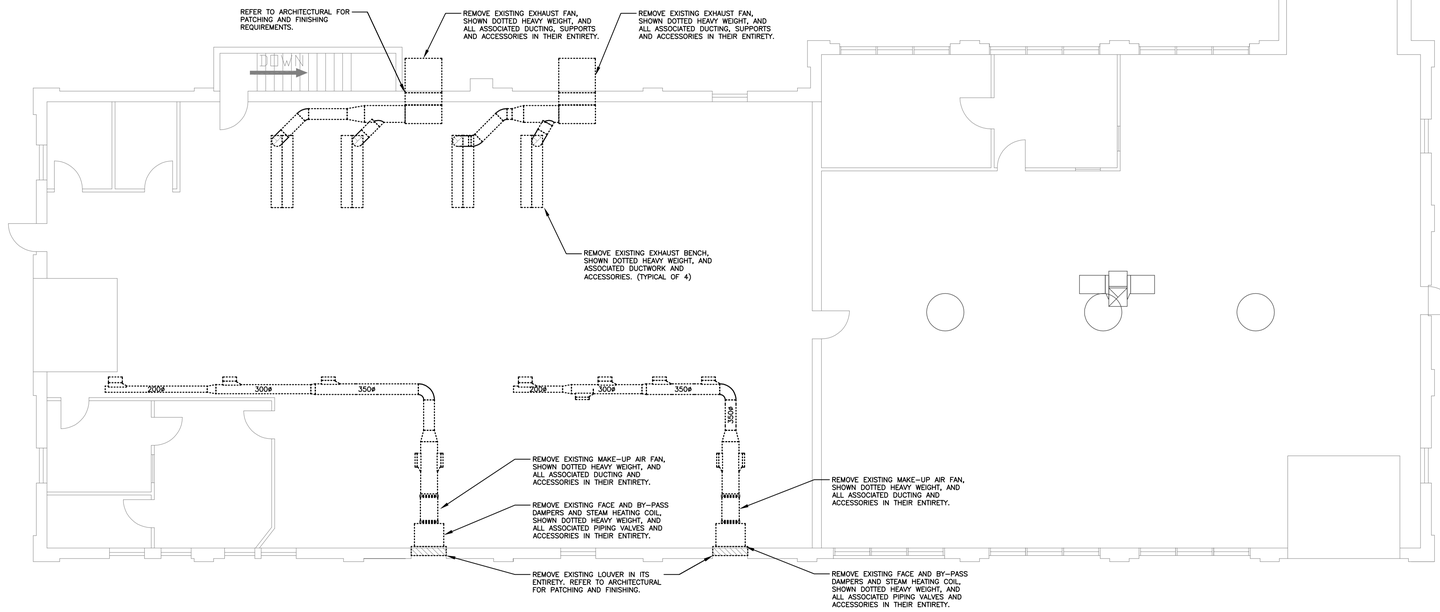


1 MAIN FLOOR PLAN – HEATING DEMOLITION
1:100



2 MAIN FLOOR PLAN – VENTILATION DEMOLITION
1:150

EQUIPMENT SCHEDULE

AIR HANDLING UNITs AHU-1: McQuay Vision Air Handling Unit draw through configuration. Unit to be complete with supply fan, hot water heating coil, economizer and filter bank. Fans and drives to be internally spring isolated. Access doors to be complete with quick connect fasteners. Heating coil outputs based on 87.8 deg.C (190 Deg.F.) EWT. & 71.1 deg. C. (160 Deg.F.) LWT. Refer to drawings and specifications for more information.

AHU-1:
Supply Fan, SF-1: centrifugal DWDI forward curve supply fan to provide 2,030 L/s (4,300 CFM) at 187 Pa (0.75" w.c.) E.S.P., 583 Pa (2.34" w.c.) T.S.P. Motor: EMCS controlled, 3.73 kW (5 HP), 3.2 BHP, 208 Volt / 3 phase.

Heating Coil, HC-1: Airside: 2,028 L/s (4,300 CFM), 8.9 deg.C (48 Deg.F.) EAT, 21.3 deg.C (70.3 Deg.F.) LAT, 28.7 kW (97.8 MBH) heat output, at 24.9 Pa (.1" w.c.) APD, 2.4 m/s (477 AFPM) coil velocity. Water Side: 0.43 l/s (6.8 GPM) water flow at 1.2 kPa (0.4 ft.) WPD, 87.8 Deg.C. (190 Deg.F.) EWT, 70.9 Deg.C. (159.6 Deg.F.) LWT. Based on 30% Propylene / 70% water solution.

ZONE HEATING COIL HC-2: McQuay, or equivalent, hot water heating coils, drainable, Airside: 707 L/s (1,500 CFM), 21.1 deg.C (70 Deg.F.) EAT, 51.7 deg.C (125 Deg.F.) LAT, 24.7 kW (84.3 MBH) heat output, at 50 Pa (.2" w.c.) APD, 2.6 m/s (514 AFPM) coil velocity. Water Side: 0.37 l/s (5.9 GPM) water flow at 9.3 kPa (3.1 ft.) WPD, 87.8 Deg.C. (190 Deg.F.) EWT, 71.1 Deg.C. (159.9 Deg.F.) LWT. Based on 30% Propylene / 70% water solution.

HEAT EXCHANGERS (HX-1): Taco model PF low pressure steam to water plate heat exchanger comprised of the following material: Plates – 316 Stainless Steel, Frame – Epoxy Painted Carbon Steel, Gaskets – EPDM HT, Connections – 316L Stainless Steel. Product to be rated for a design pressure of 1033 kPa (150 psig) and a maximum temperature of 149 Deg.C. (300 Deg.F) and exchange a total of 56 kW (190 MBH). Steam Side: 91.2 kg/h (200.6 lbs/h) steam flow rate, 112.3 Deg.C. (234.18 Deg.F.) steam temperature, and 18.3 kPa (2.65 PSI) pressure drop. Water Side: 0.84 L/s (13.3 US GPM) flow rate, 71.1 Deg.C. (160 Deg.F.) temperature in, 87.8 Deg.C. (190 Deg.F.) temperature out, and 27.1 kPa (3.94 PSI) pressure drop. Connection Sizes: 25mm (1") type 316L Stainless Steel for all four connections. Heat exchangers to be mounted on elevated stand with sufficient height to permit gravity drainage of condensate.

HEATING PUMPS (in-line): Pumps Taco, or equivalent, in-line wet rotor cartridge circulator compatible with glycol and rated to 250 Deg.F.. Cast iron construction for space heating. In-line pumps shall be supported from the floor with pipe stands or supported from structure with hangers. Media shall be 30% Propylene Glycol / 70% water solution.

P-1 (Main Heating Pump): Model IL0013, 0.82 l/s (13 GPM) flow at 71.7 kPa (24') head. Motor: EMCS controlled, 1/6 HP, 120V/60/1 phase.

IN-LINE CABINET FANS: Greenheck, or equivalent, Model CSP or SP cabinet fans. Housings to be lined with 12 mm thick acoustic insulation. Motor to be mounted on resilient elastic grommets. Fan shall have forward curved centrifugal wheel AMCA rated for air and sound performance. Units shall be complete with canvas duct connections. Fans to be complete with backdraft dampers and discharge caps as noted with birdscreen. Suspend fans from structure with spring isolation hangers. Provide Solid State speed control on fan for air balancing (this is not a service disconnect). SP fan to be complete with integral intake grille.

Exhaust Fan, EX-1 (Janitor Exhaust): Model SP-B110, 950 RPM, 48 L/s (102 cfm) airflow at 93 Pa (0.25") static pressure. Motor: 80 Watts, 115V/60/1 phase. Balance airflow to 42 L/s (90 CFM). Unit to be controlled through EMCS. Provide WC-6 hooded wall cap with round connection.

Exhaust Fan, EX-2 (Vehicle Exhaust): Model CSP-A290, 1050 RPM, 108 L/s (229 cfm) airflow at 124 Pa (0.5") static pressure. Motor: 80 Watts, 115V/60/1 phase. Balance airflow to 106 L/s (226 CFM). Unit to be controlled through EMCS. Unit to be complete with masonry exterior vent discharge, coordinate with concrete block wall.

EXPANSION TANK (Heating Water System): Amtrol, or equivalent, Model 200-L 200 liter total volume, 200 liter acceptance volume, 610 mm diameter x 935 mm long. Unit to be floor mounted on housekeeping pad. Installation to be complete with isolation valve and drain valve with hose bibb and cap and chain.

AIR SEPARATOR: Bell & Gossett tangential type air separator complete with strainer, Model 2-AS-125. Unit to have 50mm connectors and be installed complete with blow down connection and drain valve, and Amtrol Model 720 automatic air eliminator.

SIDE STREAM FILTERS: Filterite model LM010 replaceable media side stream filter. Provide one case of thirty 20 micron cartridges and one case of thirty 5 micron cartridges.

POT FEEDER: Two quart capacity cast iron or welded steel feeder with quick opening cap.

HEATING SYSTEM ANTIFREEZE: Supply and install 30% inhibited propylene glycol and 70% water solution. Glycol shall be UCAR Therm.

TRIPLE DUTY VALVE: Bell & Gossett or equivalent, line size.

CIRCUIT BALANCE VALVES: Armstrong or equivalent sized for flow required, installed in accordance with manufacturer's recommendations.

FLOW RESTRICTORS: Griswold, or equivalent, Flocon automatic flow control valve complete with isolation valve, strainer and gauge ports. Units to be sized based on flow requirements and installed as per manufacturer's recommendations.

GLYCOL FILL: Hydronic system feeder shall be AXIOM INDUSTRIES LTD. Model SF-100. System shall include 208 litre (55 US gallon) storage/mixing tank with cover; pump suction hose with inlet strainer; pressure pump with thermal cut-out; integral pressure switch; integral check valve; cord and plug; pre-charged accumulator tank with EPDM diaphragm; manual diverter valve for purging air and agitating contents of storage tank; pressure regulating valve adjustable (35 – 380 KPa; 5 – 55 psig) complete with pressure gauge; integral replaceable strainer; built-in check valve; union connection; 12 mm (½") x 900 mm (36") long flexible connection hose with check valve; low level pump cut-out. Pressure pump shall be capable of running dry without damage. Power supply 115/60/1 0.7 A. Unit shall be completely pre-assembled and certified by a recognized testing agency to CSA standard C22.2 No 68. Unit to be complete with Low Level Alarm Panel c/w Remote Monitoring Dry Contacts and Selectable Audible Alarm.

Grilles and Diffusers
S-1: E.H. Price, or equivalent, Model 520 steel double deflection grille with 19mm blade spacing. Front blades to parallel to long dimension. Grille to be complete with steel balancing damper. Duct mounted grille with countersunk screw holes and oval heads. Size as noted on drawings. Finish: Custom baked enamel paint colour as selected by owner.

R-1 and E-1: E.H. Price Model 80, duct mount installation with 13 x 13 x 13 (1/2" x 1/2" x 1/2") aluminum grid core, 25mm (1") narrow border, and countersunk screwholes complete with oval head screws. Size as noted on drawings. Finish: Custom baked enamel paint colour as selected by owner. Exhaust grille to be complete with opposed blade balancing damper.

Steam Traps: To be Spirax Sarco only.

Steam Pressure Reducing Valve: To be Spirax Sarco or Spence only, flanged.

High Pressure Steam Isolation Valve: To be Velan only, flanged gate valve.

High Pressure Steam Isolation By-pass Valve: To be Velan only, flanged globe valve.

Low Pressure Steam and Condensate Isolation Valves: To be Crane only, flanged gate valve.

Double Block and Bleed Valve: To be Spirax Sarco, or equivalent, Safebloc flanged valve.

CONDENSATE FLASH TANK: Colton Industries, or equivalent, Model FT6-150 flash tank. Unit to be in accordance with standards ANSI B16.5 and ASME Section VIII, Div. 1. The unit shall come complete with steam trap and strainer on outlet at bottom, pressure gauge, and safety valve at associated outlets. The unit shall be constructed of carbon steel as per ASME Sect. II (A). The unit shall be rated to a maximum steam pressure of 285 psi and a design steam pressure of 150 psig. HP Condensate Connection: 64mm, LPS Discharge connection: 64mm, LP Condensate: 25mm

WALL LOUVRES: Price, or equivalent, Model DE635, extruded aluminum construction, 150 mm thick, 35 deg., 12 gauge blades, 8 gauge jambs. Jamb mounting complete with aluminum birdscreen. Confirm size on site. Finish to be baked enamel custom colour as selected by Owner. Louvres to have maximum velocity of 3.556 m/s (700 FPM) for intake and 5.08 m/s (1000 FPM) for exhaust.

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REVISIONS	DESCRIPTION	DATE
1	ISSUED FOR TENDER	June 2013

A detail number / number du detail
B source drawing no. / de dessin no.
C detail on drawing no. / detail sur dessin no.

project title / titre du projet

TACTICAL TRAINING BUILDING RENOVATION

REGINA, SK

drawing title / titre du dessin

HEATING DEMOLITION, VENTILATION DEMOLITION, AND EQUIPMENT SCHEDULE

designed by / concu par	TKC
drawn by / dessine par	TKC
approved by / approuve par	TKC
PWGSC Project Manager	Administrateur de Projets TPSGC
scale / echelle	AS SHOWN
project no. / projet no.	827364
date	June 2013
sheet / feuille	M2
	OF 5

A1 841 x 594

CONTROLS SPECIFICATION

GENERAL

.1 Controls shall be an extension of one of the existing Energy Management Control Systems with servers in the Central Heating Plant. As such, controls shall either be Andover or Honeywell, only.

.2 The control system shall consist of all room thermostats, control panels, and relay switches required to meet the sequences of operation.

.3 Provide all control panels, selectors, indicators and control components, installation of wiring for miscellaneous mechanical equipment will be as per manufacturer's recommendations.

.4 All control wiring regardless of voltage for equipment specified under Mechanical, shall be the responsibility under this section of work unless noted under Electrical. Provide wiring in complete accordance with the Electrical specification and local codes.

.6 As-built electric diagrams showing interlock between equipment furnished under this and other sections and controls furnished herein.

.7 At completion of work submit report of check out and successful commissioning.

QUALITY ASSURANCE

.1 The systems shall be installed by competent technicians, regularly employed by the manufacturer of the temperature control equipment.

GUARANTEE

.1 The automatic controls installation shall be guaranteed for a period of one (1) year from date of acceptance. Repair or replace defective materials at no charge to the Owner, including labour during the guarantee period.

.2 The Contractor shall have had an in-place service facility within Saskatchewan for at least three (3) years. Factory trained technicians fully capable of providing training and routine and emergency maintenance on the system shall be located in Saskatchewan. A complete spare parts inventory and test and diagnostic equipment shall be available locally.

SUBMITTALS

.1 Submit detailed shop drawings within 60 working days after award of contract and before start of installation and include following:
- .1 Corrected and updated versions (hard copy only) of submissions made during preliminary review.
- .2 Wiring diagrams.
- .3 Piping diagrams and hook-ups.
- .4 Interface wiring diagrams showing termination connections and signal levels for equipment to be supplied by others.
- .5 Shop drawings for each input/output point, sensors, transmitters, showing information associated with each particular point including:
  - .1 Sensing element type and location.
  - .2 Transmitter type and range.
  - .3 Associated field wiring schematics, schedules and terminations.
  - .4 Complete Point Name Lists.
  - .5 Setpoints, curves or graphs and alarm limits (high and low, 3 types critical, cautionary and maintenance), signal range.
  - .6 Software and programming details associated with each point.
  - .7 Manufacturer's recommended installation instructions and procedures.
  - .8 Input and output signal levels or pressures where new system ties into existing control equipment.

.6 Control schematics, narrative description, CDL's fully showing and describing automatic and manual procedure required to achieve proper operation of project, including under complete failure of EMCS.
- .7 Graphic system schematic displays of air and water systems with point identifiers and textual description of system, and typical floor plans as specified.
- .8 Complete system CDL's including companion English language explanations on same sheet but with different font and italics. CDL's to contain specified energy optimization programs.
- .9 Listing and example of specified reports.
- .10 Listing of time of day schedules.
- .11 Type and size of memory with statement of spare memory capacity.
- .12 Full description of software programs provided.
- .13 Sample of "Operating Instructions Manual" to be used for training purposes.
- .14 Outline of proposed start-up and verification procedures.

COMPLETION

.1 Upon completion of the work, all thermostats, and other control devices shall be calibrated and adjusted as required to place the system in complete and satisfactory operating condition.

.2 Co-operate with the balance technicians during the balancing of the system.

.3 Trip test high and low temperature protection and all alarms to ensure satisfactory operation.

.4 Submit a written report indicating commissioning and verification of setpoints, trip test and calibration constants.

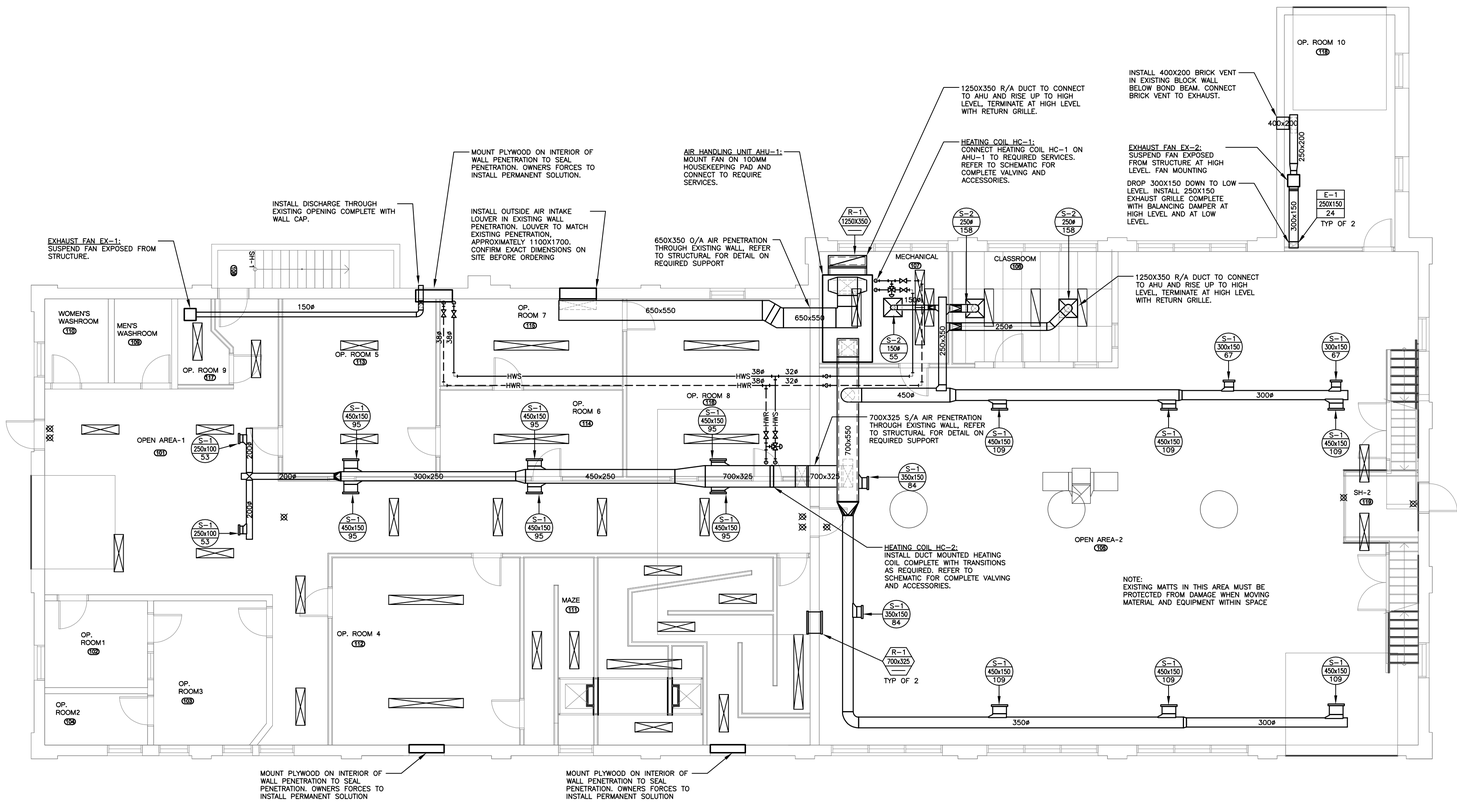
MAINTENANCE DATA & SERVICE

.1 Provide maintenance data in English for controls and instrumentation for incorporation into maintenance manual.

.2 After acceptance, seasonally check and readjust control systems for changeover. Make two (2) site trips. Notify Consultant of scheduled dates. Carry out any preventative maintenance required including parts and labour. Report to Consultant, in writing, results or resettings made.

CONTROL IDENTIFICATION

.1 Identification of controls shall conform to site standard.



1 MAIN FLOOR PLAN – HEATING AND VENTILATION REVISIONS
1:100

CONTROL WIRING

.1 The Division 15 Control Contractor shall provide wiring in complete accordance with the Canadian Electrical Code and Local Codes and Division 16. The codes shall be the minimum, where the specifications exceed the codes the specifications shall take priority.

.2 Control wiring for equipment specified under Division 15, regardless of voltage, shall be installed in accordance with trade definitions.

.3 The Division 15 Control Contractor shall provide all control panels, including all pilot lights, selectors, indicators and control components; installation as per manufacturer's recommendations.

EXISTING CONDITIONS – CONTROL COMPONENTS

.1 Utilize existing control wiring and piping where possible.

.2 Inspect and test existing devices intended for re-use within 30 days of award of contract, and prior to installation of new devices.
- .1 Furnish test report within 40 days of award of contract listing each component to be re-used and indicating whether it is in good order or requires repair.
- .2 Failure to produce test report will constitute acceptance of existing devices by Contractor.

.3 Non-functioning items:
- .1 Provide with report specification sheets or written functional requirements to support findings.
- .2 Departmental Representative will repair or replace existing items judged defective yet deemed necessary for EMCS.
- .3 Submit written request for permission to disconnect controls and to obtain equipment downtime before proceeding with Work.
- .4 Assume responsibility for controls to be incorporated into EMCS after written receipt of approval from Departmental Representative.
  - .1 Be responsible for items repaired or replaced by Departmental Representative.
  - .2 Be responsible for repair costs due to negligence or abuse of equipment.
  - .3 Responsibility for existing devices terminates upon final acceptance of EMCS.
- .5 Remove existing controls not re-used or not required. Place in approved storage for disposition as directed.

TRAINING

.1 Total training to be 40 hours of instruction with each and every training session recorded on film. Training to be broken out as follows:
- .1 Four (4) sessions lasting four (4) hours each (16 hours in total) before substantial completion. Each session to cover same material to different sets of trainees.
- .2 Four (4) sessions lasting four (4) hours each (16 hours in total) at project completion. Each session to cover same material to different sets of trainees. These sessions to cover any remaining material, review as-built conditions, any modifications made since initial training and to field questions from first session.
- .3 One eight (8) hour follow up session to all trainees after two months of operation. Follow up session to cover all questions/concerns raised by operating staff.

OPERATOR WORKSTATION

.1 Utilize existing operator workstation on site. Graphics and alarm notification shall conform to existing site standard.

DEVICES

.1 Controllers, devices etc. shall conform to existing site standard.

THERMOSTATS

.1 Provide thermostats for control of unit heaters and force flow units. Thermostats shall be electronic 24 volt with linear temperature indication scale in degrees Celsius. Space adjustment shall be limited to 4 degrees Celsius plus or minus median temperature set at operator workstation. Thermostats shall be capable of operating valve actuators supplied for terminal units.

.2 All thermostats shall be complete with protection guards. Guards shall be cast aluminum and permit access to space temperature slider.

SEQUENCE OF OPERATION

.1 Energy Management Routines: Energy Management Routines shall be incorporated under each and every Sequence of Operation to which they apply. Controls Contractor shall write energy management routines into Sequence of Operation submitted for review. This includes, but is not limited to, the following:
- .1 Optimal Start/Stop: To be incorporated for each and every system being scheduled through the EMCS.
- .2 Night Setback Control: To be incorporated for each and every comfort heating and cooling systems that are operational through unoccupied periods.
- .3 Hot Water Reset: Hot water loop to be reset based on ambient conditions and space demand (indoor/outdoor reset and demand reset).
- .4 Night Purge: Air handling unit to incorporate differential enthalpy controlled night purge sequence to precool building when conditions permit.

.2 Main Air Handling Unit AHU_1:
- .1 Schedule of Operation:
  - .1 System shall operate on an occupied/unoccupied EMCS schedule.
- .2 Fan Control:
  - .1 Fan shall start with return air damper open and outside air damper closed.
  - .2 Once flow is established, outside air damper shall open to minimum ventilation position, to provide 850 CFM of outside air. Determine position with Air Balancer.
  - .3 On shut-down, outside air damper shall close and return air damper shall open to 100% then fan shall turn off.
- .3 Temperature Control:
  - .1 The EMCS shall modulate the heating valve, outside air damper and return air damper to maintain the discharge air temperature.
  - .2 On a call for heat, the AHU shall modulate the heating coil valve to maintain the discharge air at room temperature.
  - .3 On a call for cooling, discharge air shall reset down to maintain space temperature.
  - .4 When ambient conditions permit, outside air shall increase to provide free cooling.
  - .5 When ambient temperature is equal to or above room temperature, the outside air and return damper shall modulate to minimum ventilation.
- .4 Protection: Two manually reset low temperature freeze stats located downstream of the heating coil will shut down the supply fan, close the outside air dampers and modulate heating coil valve to maintain the heating coil discharge air temperature.
- .5 Operator Work Station: The operator will be able to view and/or modify the following:
  - .1 Supply Fan SF-1: Start, Stop, Status, Alarm.
  - .2 Outside air damper position
  - .3 Return air damper position.
  - .4 Freezestat alarm setpoint
  - .5 Freezestat temperature
  - .6 Discharge air temperature
  - .7 Discharge air temperature setpoint
  - .8 Filter Bank differential pressure
  - .9 Filter Bank differential pressure service setpoint
  - .10 Heating Coil valve position
  - .11 Heating Coil HWS Temperature
  - .12 Heating Coil HWR Temperature
- .6 Alarm Conditions:
  - .1 The following system alarms will shut the system down:
    1. Freeze stat trip (Mechanical)_ manual reset, initial setpoint 2 Deg.C., 5 minute delay
    2. Supply fan failure, 1 minute delay
  - .2 The following alarms will not shut the system down:
    1. Filter 1 differential pressure >100pascals: 5 minute delay
    2. Low space temperature, initially set to 10 Deg.C.: 5 minute delay

.3 Heating Coil HC-2
- .1 Schedule of Operation:
  - .1 System shall operate on the same occupied/unoccupied EMCS schedule as the air handling unit.
- .2 Temperature Control:
  - .1 The EMCS shall modulate the heating valve to maintain the space temperature during occupied periods.
  - .2 On a call for cooling, heating coil valve shall be closed.
- .3 Operator Work Station: The operator will be able to view and/or modify the following:
  - .1 Discharge air temperature
  - .2 Space temperature setpoint
  - .3 Space temperature
  - .4 Heating Coil valve position
  - .5 Heating Coil HWS Temperature
  - .6 Heating Coil HWR Temperature
- .4 Alarm Conditions:
  - .1 The following alarms will not shut the system down:
    1. Low space temperature, initially set to 10 Deg.C.: 5 minute delay

.4 Heat Exchanger HX-1:
- .1 Heating Pump:
  - .1 Heating pump P-1 shall energize on a call for heating or if ambient conditions are below an adjustable setpoint (initially – 5 deg.C).
- .2 Loop Temperature:
  - .1 The 1/3 – 2/3 steam control valves on the active heat exchanger shall modulate to maintain the reset heating water supply setpoint.
  - .2 EMCS shall modulate steam to maintain the heating water supply temperature based on demand reset and indoor/outdoor reset.
  - .3 The steam valves shall only open if Pump P-1 is energized.
- .3 The Facility Management System shall monitor and address all points required to meet sequence of operation, including but not limited to the following:
  - .1 HX-1 heating enable
  - .2 HX-1 1/3 control valve position
  - .3 HX-1 2/3 control valve position
  - .4 HX-1 Heating Water return temperature
  - .5 HX-1 Heating water supply temperature
  - .6 Heating water supply temperature setpoint
  - .7 heating water supply temperature space reset
  - .8 heating water supply temperature indoor/outdoor reset
  - .9 HX-1 high temperature alarm (initially set to 93.3 deg.C)
  - .10 Heating pump status on/off/alarm (P-1)
  - .11 Unoccupied pump start temperature setpoint

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1	ISSUED FOR TENDER	June 2013

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B source drawing no. / de dessin no.
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project title / titre du projet

TACTICAL TRAINING BUILDING RENOVATION

REGINA, SK

drawing title / titre du dessin

MAIN FLOOR PLAN HEATING AND VENTILATION REVISIONS AND CONTROLS SPECIFICATIONS

designed by / concu par	TKC
drawn by / dessine par	TKC
approved by / approuve par	TKC
PWGSC Project Manager	Administrateur de Projets TPSGC
scale / echelle	AS SHOWN
project no. / projet no.	827364
date / date	June 2013
sheet / feuille	M3
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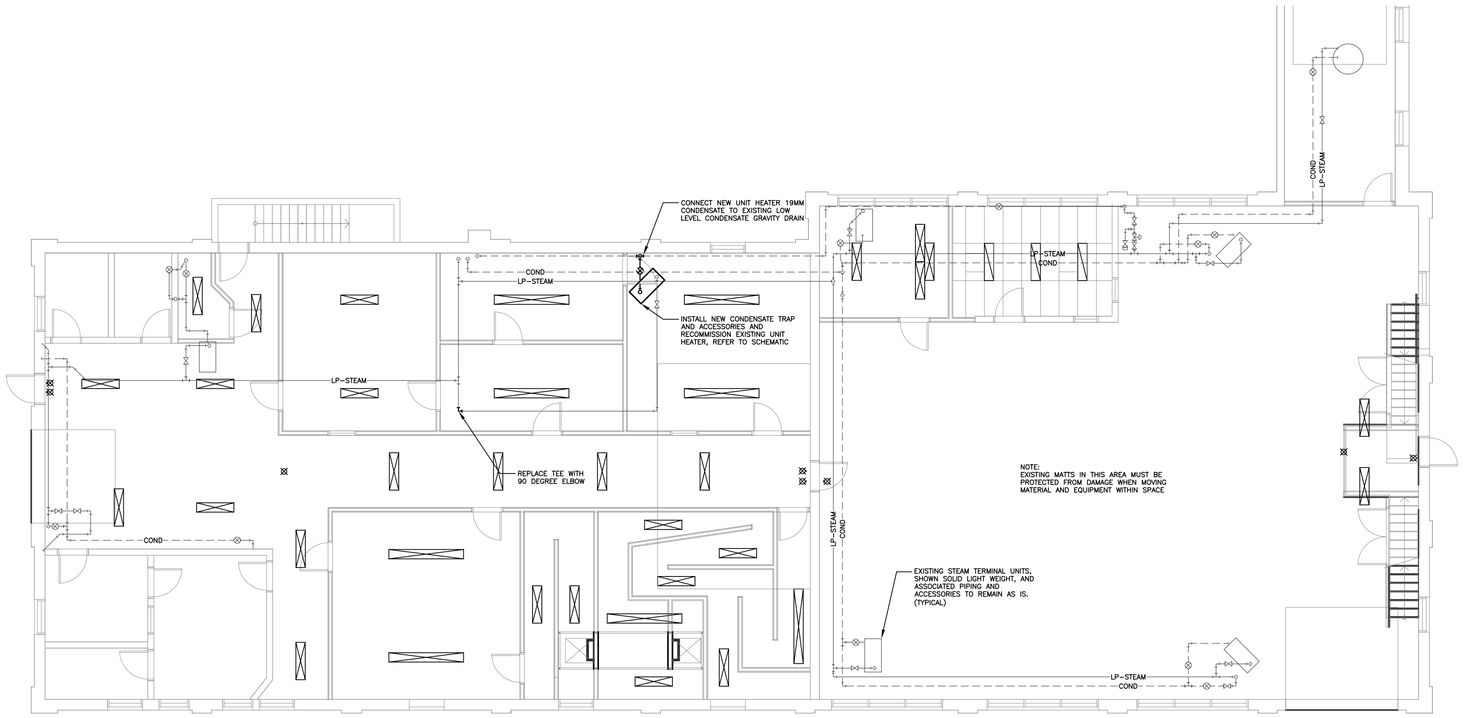
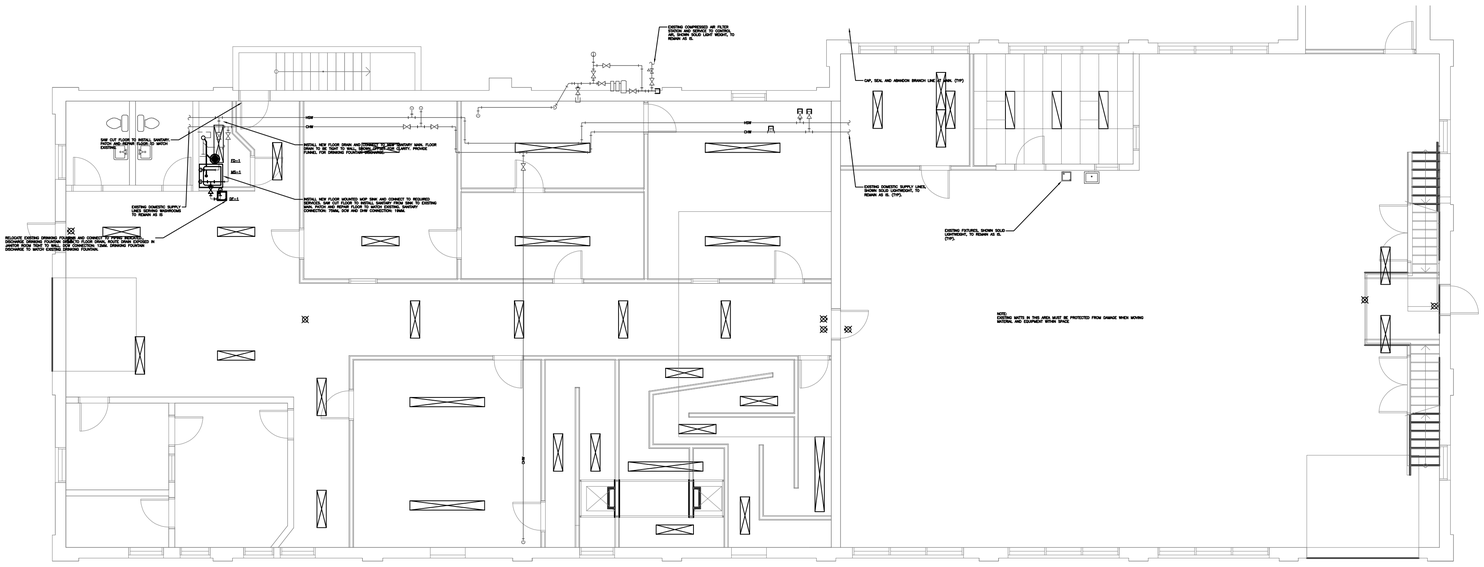


NORTH

1 MAIN FLOOR PLAN – STEAM REVISIONS
1:100



NORTH

2 PARTIAL MAIN FLOOR PLAN – PLUMBING REVISIONS
1:100

PLUMBING FIXTURE SCHEDULE

FLOOR DRAINS
.1 Floor Drains: to CSA B79.
.2 Finished Floor: Watts Model 100–A–7–1, complete with trap primer tapping and vacuum breaker on the supply line and nickel bronze finish.
.3 Concrete Floor: Watts Model FD–310–7 TPT, complete with trap primer tapping and vacuum breaker on the supply line.

TRAP SEAL PRIMERS
.1 Trap Seal Primer: Pressure drop activated brass trap seal primer, with inlet opening of 12 mm male NPT and outlet opening of female 12 mm NPT. Complete with four view holes and removable filter screen. Size to serve number of floor drains connected to primer. Primer shall require no adjustments and no air pre–charge. Specification based on Mifab Model M.500.
.2 Air Gap Fitting: Copper air gap fitting complete with a 12 mm male NPT fitting at the inlet supply incorporating a stream directing nozzle, a 12 mm NPT female outlet, and a ANSI/ASME A112.1.2 air gap in plumbing systems standard. Specification based on Mifab Model MI–GAP.

MOP SINK (MS–1)
.1 Bowl: 610 mm x 610 mm x 254 mm deep white moulded stone, floor mounted sink with 24 mm wide shoulders, SS strainer, Fiat MSB2424 complete with 76 mm brass drain assembly.
.2 Trim: Exposed wall type supply with cross handles, spout wall brace, vacuum breaker, plate 830AA,hose and bracket, 832AA, strainers, eccentric adjustable inlets, integral screwdriver stops with covering caps and adjustable threaded wall flanges, 760 mm of 12 mm diameter plain end reinforced hose, hose clamp and mop hanger, 889–CC.
.3 Provide check valves on hot and cold supply risers.

DRINKING FOUNTAIN DF–1
.1 Relocate existing drinking fountain and reconnect to required services. Discharge drinking fountain drain indirectly to floor drain.

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TACTICAL TRAINING BUILDING RENOVATION

REGINA, SK

drawing title / titre du dessin

MECHANICAL REVISIONS: MAIN FLOOR PLUMBING MAIN FLOOR STEAM HEATING, AND PLUMBING FIXTURE SCHEDULE

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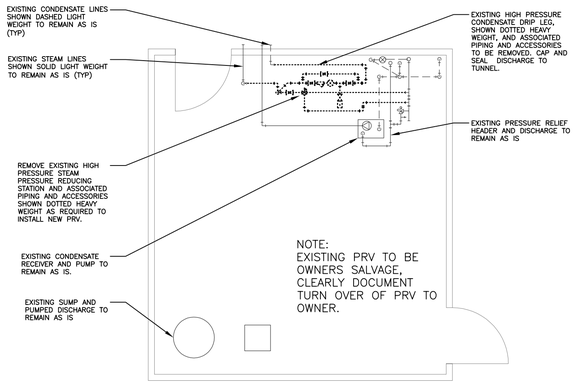

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1 BASEMENT – DEMOLITION
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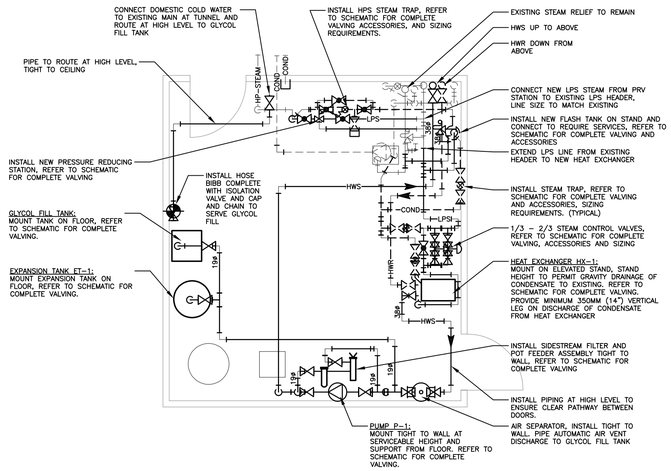

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2 BASEMENT – REVISIONS
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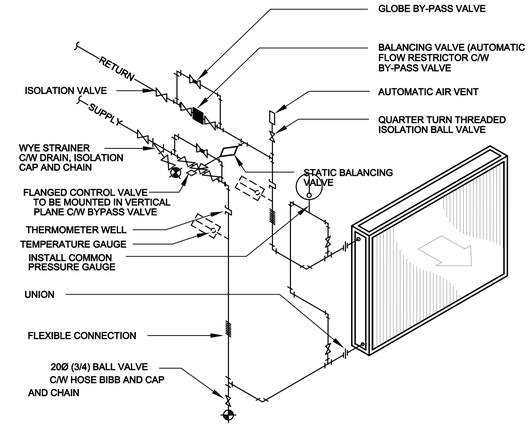
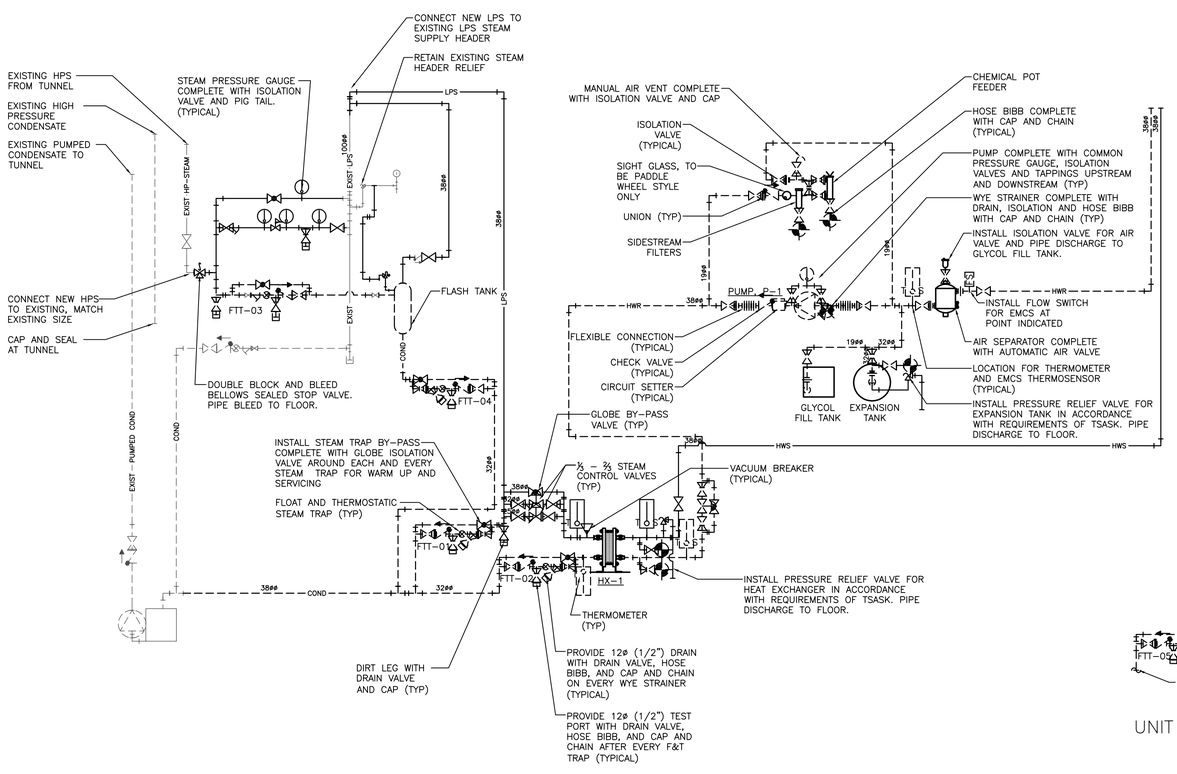


HEATING COIL SCHEMATIC n.t.s.
THREE–WAY DIVERTING VALVE



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3 MECHANICAL SCHEMATIC
N.T.S.

STEAM TRAP SCHEDULE

TRAP#	TYPE	MAX CONDENSATE KG/HR (LBS/HR)	STEAM PRESSURE kPa (psi)	TRAP SIZE mm (in.)	DISCHARGE PIPE mm (in.)
FTT–01	F&T	DRIP LEG	55 (8)	19 (¾")	19 (¾")
FTT–02	F&T	272 (600)	55 (8)	19 (¾")	32 (1–1/4")
FTT–03	IB	HP DRIP LEG	827 (120)	19 (¾")	19 (¾")
FTT–04	F&T	FLASH TANK	55 (8)	25 (1")	32 (1–1/4")
FTT–05	F&T	68 (150)	55 (8)	19 (¾")	19 (¾")

F&T = FLOAT AND THERMOSTATIC
IB = INVERTED BUCKET

STEAM CONTROL VALVE SCHEDULE

EQUIPMENT SERVED	TYPE	STEAM FLOW KG/HR (LBS/HR)	STEAM kPa (psi)	LINE SIZE mm (in.)
HX–1	1/3	31 (69)	55 (8)	64 (2–1/2")
HX–1	2/3	60 (132)	55 (8)	100 (4")

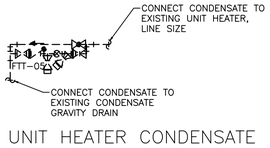
NOTE: ALL STEAM CONTROL VALVES SHALL BE FLANGED OR FIELD FITTED FLANGED TO MATCH SITE STANDARD TO FACILITATE MAINTENANCE. STEAM PRESSURE IS 8 psi NOT THE PRESSURE DROP ACROSS THE VALVE.

DESIGN CONDITIONS:
HP–STEAM: 827 kPa(120 PSI)

LPS: MAXIMUM 103 kPa (15 PSI)
DESIGNED FOR 55 kPa (8 PSI)

HWS: 87.8 DEG.C (190 DEG.F.),
30% PROP GLYCOL / 70% H20

HWR 71.1 DEG.C. (160 DEG.F.)
30% PROP GLYCOL / 70% H20



UNIT HEATER CONDENSATE

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C detail on drawing no. / detail sur dessin no.

project title / titre du projet

TACTICAL TRAINING BUILDING RENOVATION

REGINA, SK

drawing title / titre du dessin

BASEMENT DEMOLITION, BASEMENT REVISIONS, AND SCHEMATICS

designed by / concu par	TKC
drawn by / dessine par	TKC
approved by / approuve par	TKC
PWGSC Project Manager	Administrateur de Projets TPSGC
scale / echelle	AS SHOWN
project no. / projet no.	827364
date	June 2013
sheet / feuille	M5
	OF 5

A1 841 x 594

ELECTRICAL SPECIFICATIONS

PART 1 – GENERAL

1.01 Scope:

This section includes the furnishing of all labor, material, equipment and services necessary for the provision of a complete installation as described herein, tested, inspected and ready for use.

1.02 Site Inspection:

Prior to submitting a tender, the electrical contractor shall inspect the site to review conditions, existing equipment, etc., to ensure that there are no conflicts and that all work can be carried out as directed herein. No allowance shall be made at after tender award for work which would have been evident if a thorough investigation was carried out.

1.03 Work by Other Divisions:

Review work by other divisions to ensure a completely coordinated installation is provided. Work shown on other drawings and specifications which include work carried out by Division 16 shall be included in the tender price unless indicated otherwise in the General Conditions.

Refer to all drawings and specifications regarding demolition and make proper allowance for work required to execute same.

Refer to mechanical drawings for exact location of and specifications for all mechanical equipment.

1.04 Shop Drawings:

Submit eight (8) copies of shop drawings to the engineer for all major electrical equipment including but not limited to panel boards, light fixtures, motor control, service equipment, fire alarm, lighting control and wiring devices.

All light fixture shop drawings shall be submitted at once. Each of the eight sets shall be arranged with fixtures in numerical order.

All shop drawings shall be originals. Faxes and photocopies will be rejected. Each set of shop drawings shall contain information pertinent to this project. All accessories, options, mounting hardware, etc. shall be highlighted or clearly identified on each shop drawing. Non–compliant shop drawings will be rejected.

1.05 Maintenance Manuals and As–built Drawings:

Compile and submit to the owner three (3) sets of maintenance manuals. Each manual shall contain shop drawings for all electrical equipment, a list of suppliers providing components, original factory manuals, name and address of contractors, test results and certificates. Manuals shall be bound in blue 3 ring binders with project name, address, and date of completion embossed in white on the binding and the cover.

Provide the owner with as built drawings detailing electrical systems as installed, including all addenda, change orders and field orders.

1.06 Labeling:

Properly label all electrical equipment (starters, disconnects, electrical service equipment, panels, etc.) and correctly fill out all new or existing panel schedules to reflect circuiting using type written format.

1.07 Owners Equipment:

Prior to ordering any equipment, the contractor shall confirm the details and specifications of all owner supplied equipment requiring electrical connections. The owner shall supply technical information including electrical ratings and installation details. The coordination of this equipment is the responsibility of the contractor and no equipment shall be ordered without written confirmation from the owner. No allowance shall be made to the contractor for failure to complete this coordination work, thereby resulting in an incorrect installation.

1.08 Equipment Supplied by Other Divisions:

The electrical contractor shall be fully responsible for obtaining electrical ratings, specifications, and approved shop drawings of all equipment requiring electrical connections that is supplied by other divisions. No electrical equipment shall be ordered prior to obtaining this information. No electrical equipment shall be ordered prior to a formal review and acceptance of this information by the Electrical Engineer. The electrical contractor shall be responsible for submitting this information directly to the Electrical Engineer. The Electrical Engineer shall issue written acceptance of the information and shall also provide, if required, documented changes to the electrical design resulting from the review of this information. No allowance shall be made to the electrical contractor for failure to complete this coordination work, thereby resulting in an incorrect installation.

PART 2 – MATERIALS

2.01 Warranty:

All materials and workmanship shall be warranted for a minimum period of one (1) year from the date of final acceptance. During this time the contractor shall replace or repair any defective materials or workmanship at no cost to the owner. The only exception to this requirement shall be incandescent lamps which carry a warranty of 90 days.

2.02 Standard of Materials:

Provide only new materials which are the best of their respective kinds, of uniform pattern throughout the work and CSA approved.

Provide only specified material, or material approved as equal according to section 2.03. Remove any material deemed as not approved by the engineer and install approved material in their place without cost to the owner.

2.03 Requests for Approval as Equal:

Submit requests for approval of material as equal to that specified by the engineer in writing no later than seven (7) days prior to tender closing. Include a complete description, technical data and manufacturer's name.

2.04 Conduit and Wire:

Wire shall be copper with cross link polyethylene insulation (RW90) unless noted otherwise, Minimum size shall be #12 AWG.

Conduit shall be standard weight, galvanized EMT, unless noted otherwise. AC90 may be used for wiring in metal stud partitions and drops to light fixtures in suspended ceilings.

Surface raceways shall be steel, paintable, low profile, 2 piece construction installed where noted on the drawings. Provide surface mounted devices, accessories, adapters, fittings, etc. to give a complete, functioning system. Wiremold V500 or V700 series.

2.05 Devices:

Receptacles shall be 15A straight blade, ivory, triple wipe contacts, back and side wiring, one piece steel ground strap; Leviton 5262.

Switches shall be 15 or 20A, ivory, back and side wired, silver alloy contacts; Leviton 1200 or 18000 series.

Approved manufacturers: Hubbell, P&S.

2.06 Device Coverplates:

Coverplates in finished areas shall be stainless steel and match device style.

2.07 Special Wiring Devices:

Single–pole/neon pilot AC combination switch shall be 15A, 120V rated, with integral red neon pilot light illuminated when load is on. [White toggle style, Leviton #5226–W] [White decorator rocker style, Leviton #5626–W]. Approved manufacturers: Hubbell, P&S.

Commercial grade GFCI receptacle shall be 15A rated complete with silver alloy double wipe contacts, test and reset buttons, green LED indicator light, back and side wiring, white decorator style. Leviton #7599 Series. Approved manufacturers: Hubbell, P&S.

Push button timer switch shall be white, single–pole, decorator style rated for 1000W, 20A, 1HP, 120V. Incandescent or inductive loads, four presets, 0.25–0.5–1–2 hours and off. Leviton #LTB02–1L Series. Approved manufacturers: Hubbell, P&S.

2.08 Luminaires:

Fluorescent luminaires shall meet the following minimum criteria:

– constructed of not less than 24 gauge cold rolled steel
– steel hinged frame
– K–12 acrylic lenses >3.125mm thickness
– interior finish shall be 2 coats baked white enamel to a reflectivity of >80%
– luminaire efficiency shall be >50% unless noted otherwise in light fixture schedule.

Refer to luminaire schedule for acceptable manufacturers.

2.09 Emergency Lighting:

Emergency lighting batteries shall be low maintenance long life sealed lead type with a minimum life expectancy of ten years. Unit shall be complete with self diagnostics and automatic unit cycler which shall place the unit into a simulated power failure condition for 30 minutes at 30 day intervals. Lamp type, wattage and remote heads shall be as shown on fixture schedule and plans.

2.10 Lamps:

Fluorescent lamps shall be T–8, 32W (1220L), 20,000 hr, CRI >.8, 4100°k, medium bi–pin, 2950 initial lumens.

Acceptable manufacturers: Osram–Sylvania, Phillips.

2.11 Ballasts:

Fluorescent ballasts shall be T–8 electronic, instant start, <20% THD, CCF <1.7, ballast factor .90, class 'A' sound rating.

Input voltage range: plus or minus 10% of nominal.

Acceptable manufacturers: Osram–Sylvania, GE, Phillips

2.12 Motor Starters:

Starters to CSA C22.2 NO. 14–M91, EEMAC E14–1. Half size starters not acceptable. Control transformers – to CSA C22.2 NO. 66–1988. Resistors – to EEMAC 13E–1–1965. Auto transformers – to CSA C22.2 NO. 47–M90.

Manual motor starters of size, type, rating, and enclosure type as required, with components as follows: switching mechanism, quick–make and break. One overload heater, manual reset, trip indicating handle. Unit c/w heavy duty toggle switch labeled as indicated, heavy duty red, green and amber indicating lights, locking tab to permit padlocking in "on" or "off" position.

Full voltage magnetic and combination starters of size, type, rating and enclosure type as indicated with components as follows:

–contactor solenoid operated, rapid action type.
–motor overload protective device in phase, manually reset from outside enclosure.
–power and control terminals.
–wiring and schematic diagram inside starter enclosure in visible location.
–identify each wire and terminal for external connections, within starter, with permanent number marking identical to diagram.
–combination type starters to be circuit breaker with operating level on outside of enclosure to control circuit breaker, and provision for:
–locking in 'on' and 'off' position with up to 3 padlocks.
–independent locking of enclosure door.
–provision for preventing switching to "on" position while enclosure door open.

Accessories:

–selector switches: heavy duty H.O.A. unless otherwise indicated.
–indicating lights: heavy duty type and red color.
–1–N/O and 1–N/C spare auxiliary contacts unless otherwise indicated.

Acceptable manufacturers: FPE, Square 'D', Siemens, Cutler Hammer, GE.

2.13 Fire Alarm System:

New fire alarm devices shall match existing and shall be tied into existing building fire alarm system.

Once the fire alarm system devices are completely installed new and relocated fire alarm devices shall be verified, in writing, by the fire alarm system manufacturer's authorized representative. Once complete a certificate of verification is to be provided to the owner and engineer.

2.14 Communication Connectors:

Coverplates shall be:

–4 port coverplate.
–Construction and color as per Section 2.07 – Coverplates.

Data outlets shall be:

–flush type, snap–in inserts with encapsulated lead frame design and inline IDC terminating interface.
–category 6, RJ–45.
–suitable for 568A termination.
–blue in color.

Voice outlets shall be:

–flush type, snap–in inserts with encapsulated lead frame design and inline IDC terminating interface.
–category 6, RJ–45.
–suitable for 568A termination.
–white in color.

Wall mount connectors for voice shall be:

–fire retardant plastic construction with front and back IDC terminating strips
–fire retardant plastic construction with back IDC terminating strips and front access RJ–45, category 6 modular per–wired jacks
–suitable for terminating 22, 24 or 26 gauge plastic insulated solid copper conductors without stripping.
–connection clips recessed to prevent accidental short circuit contact.
–contact resistance < 1 Mohm / contact.
–insulation resistance > 100 Mohm between clips.
–provide quantity of connectors to accommodate all terminations plus 25% future.
–mount in wall mount connector mount of stamped steel, one piece construction and fire retardant plastic fanning strips. Provide quantity to accommodate all connectors plus 25% future.
–designation strips shall have fire retardant plastic construction and shall snap onto mounts between connectors. Provide ID labels with designation strips.

Install building communications terminating and cross–connecting systems in rack or on wall in telecommunication closets and equipment room in accordance with manufacturer's instructions and as indicated on the drawings.

Colour match conductors on terminal strip in accordance with C22.2 No.214 and CAN/CSA–T529. For IDC–type connections, use tool with seating and cutting heads for connecting conductors to terminals.

Harness slack wire in cabinets, terminals and cross–connecting terminating systems.

Racks shall be grounded using #6 AWG insulated copper conductor. Provide all required bonding material and hardware and bond to building grounding electrode subsystem at building electrical service entrance. ANSI/TIA/EIA 607 Grounding and Bonding requirements must be met.

Provide a separate label for each terminated outlet or connector location.

For outlets at patch panels or workstations, provide self–adhesive labels using black characters on a white background.

Prior to labeling, coordinate with the Owners IT staff to determine the exact labeling requirements. Allow 10 characters per label.

2.15 Communications Cabling:

Horizontal data cabling supplied to all data outlets shall be Category 6, UTP– 4 Pair, 24 AWG, CMR rated cable, FT4 rated.

Category 6 cabling specifications:

–DC Resistance @ 20C, maximum: 9.4 Ohm/100meters
–DC Resistance Unbalance, maximum: 5%
–mutual capacitance, maximum: 5.6 nF/100meters
–capacitance unbalance pair to ground, maximum: 330pF/100meters
–input Impedance: 100+/– 15 Ohms from 1 Hz to 100MHz, 100+/– 22 Ohms from 100MHz to 200MHz
–nominal velocity of propagation: NVP plenum 72% @ 10MHz
–propagation delay (Skew), maximum: 20 ns/100meter
–blue in color.

Maximum attenuation values, worst pair and cross talk (NEXT Min).

Frequency (MHz)	Attenuation (dB/100m)	Next (dB Min.)
1	2.0	74.3
4	3.8	65.3
8	5.4	60.8
10	6.0	59.3
16	7.6	56.3
20	8.5	54.8
25	9.6	53.3
31.25	10.7	51.9
62.5	15.5	47.4
100	19.9	44.3
200	29.2	39.8
250	33	38.3
300	36.6	37.2
350	40.0	36.2
400	43.2	35.3

Horizontal voice cabling supplied to all voice outlets shall be Category 6, UTP–4 Pair, 24 AWG, CMR rated cable, FT4 rated.

Category 6 Electrical Specifications:

–DC resistance @ 20C, maximum: 9.4 Ohm/100 meters.
–DC resistance unbalance, maximum: 5%.
–mutual capacitance, maximum: 5.6 nF/100 meters.
–capacitance unbalance pair to ground, maximum: 330pF/100 meters.
–input impedance: 100+/– Ohms from 1 Hz to 100MHz, 100+/–22 Ohms from 100MHz to 200MHz.
–nominal velocity of propagation: NVP plenum 72% @ 10MHz/
–propagation Delay (Skew), maximum: 20 ns/100meter.
–white in color.

Maximum Attenuation Values, Worst Pair and Cross Talk (NEXT Min).

Frequency (MHz)	Attenuation (dB/100m)	Next (dB Min.)
1	2.0	74.3
4	3.8	65.3
8	5.4	60.8
10	6.0	59.3
16	7.6	56.3
20	8.5	54.8
25	9.6	53.3
31.25	10.7	51.9
62.5	15.5	47.4
100	19.9	44.3
200	29.2	39.8
250	33	38.3
300	36.6	37.2
350	40.0	36.2
400	43.2	35.3

UTP cable installations tests:

–contractor to show evidence of channel bandwidth performance by submitting to the Engineer "Testing Certificate" of manufacturer's product evaluated by independent testing authority or agency to TIA/EIA–568–A–5.
–the installed channel must pass all Category 6 tests using a high performance level tester equipped with a compatible link interface adapter. Testing capability shall be up to 350 MHz including verification for Cable length, Wire Mapping , Cross–Talk (NEXT), Equal Level Far–End Cross–Talk (ELFEXT), Power Sum Cross–Talk (PSNEXT), Power Sum Equal Level Far–End Cross–Talk (PSELFEXT), Attenuation, Attenuation to Cross– Talk Ratio (ACR),Propagation Delay, Return Loss and Delay Skew.
–for each network drop installed the following documentation must be provided in a three ring binder:
1. Room # of installation
2. Cable ID
3. Length of cable in metres
4. Wall plate ID
5. An indication of what test type was used and whether the test was a PASS or FAIL.
6. Output from cable tester showing attenuation on each pair, and NEXT for all pair combinations. Complete output of the test result is desirable.

The test results from the cable tester should also be included in electronic form on a compact disk in PDF format.

Labelling:

–label each cable within 50mm of terminations.
–use permanent, wrap around, self–adhesive labels employing individual characters. Characters shall be minimum 14 point, bold, Arial font, black on white background.
–prior to labeling, coordinate with the Owners IT personnel to determine the exact labeling standard. Allow for 10 characters per label.

PART 3 – EXECUTION

3.01 Codes and Ordinances:

Perform all work in full accordance with the rules and regulations of the latest edition and revision of the Canadian Electrical Code, Part 1, the requirements of the Canadian Underwriters Association, the inspection department having jurisdiction and the national building code.

3.02 Permits and Fees:

Give all notices, obtain all permits and pay all fees as stated in the latest edition of the electrical permit, inspection and licensing fees regulation, in order that work specified herein may be carried out.

3.03 Testing:

Conduct voltage tests and current measurements on completion of the installation. Provide corrective measure to ensure proper operation of electrical equipment.

3.04 Grounding:

Ground all equipment according to the latest requirements of the Canadian Electrical Code.

3.05 Control Wiring:

Control wiring shall be the responsibility of the Division 15, mechanical contractor.

Motors and automatic control devices (i.e. thermostats, solenoid valves, control panels, etc.) are supplied by the mechanical trade unless otherwise noted.

3.06 Conduit Installation:

Install conduits to conserve head room and space through which they pass. Install parallel with, or at right angles to, building lines and to present a neat appearance. Run in straight lines using a minimum of bends. Use only right angle bends or factory fittings for directional changes. Fasten with pipe straps using threaded fasteners. Do not use nails, wire or perforated iron strap. All conduit runs shall be concealed. Exposed conduit runs will only be allowed in mechanical and storage rooms. Where conduit cannot be concealed in finished spaces, use surface 'wiremold' raceway. All surface raceway shall be installed as directed by the engineer and designer on site during construction.

All wiring shall be run in conduit unless noted otherwise. Vertical drops to lighting fixtures and to wiring devices may be AC90 however all horizontal AC90 runs, including those in walls, shall not exceed 1800mm.

3.07 Alterations:

The location of outlets and other equipment is subject to relocation of up to 1500mm from location shown without cost, provided such change takes place prior to installation.

3.08 Coordination:

Coordinate, review and schedule the installation of all electrical equipment with the utilites, other trades on site and equipment suppliers. Coordination activities shall be carried out prior to commencing work and through out the duration of the work. The coordination performed shall ensure:

– adequate space is provided by all trades for the installation, connection, maintenance and operation of all electrical equipment.
– adequate time is allowed for the delivery, installation, testing and commisioning of all electrical equipment.
– the schedule for electrical equipment delivery and installation takes into account the schedule for related work performed by other trades and the utilities.

3.09 Demolition:

Provide all electrical demolition required to complete the work. All electrical equipment not reused is to remain on site. All salvage shall remain the property of the owner.

Prior to commencing the work, remove all abandoned and unused conduit and wire (including telephone and data cabling) from above the ceiling. Contractor shall be responsible for determining the extent of this work prior to submitting a tender.

3.10 Finish:

Upon completion of the work, check, clean, repaint where necessary and leave all electrical equipment items in first class condition.

3.11 Voltage Drop:

Perform voltage drop calculations on feeders and branch circuit wiring. Adjust conduit and wire sizes as required to conform to a maximum of 5% voltage drop from the supply side of the customers service to the point of utilization and 3% voltage drop in feeder or branch circuits. Refer to the CEC section 8.

SYMBOL LEGEND

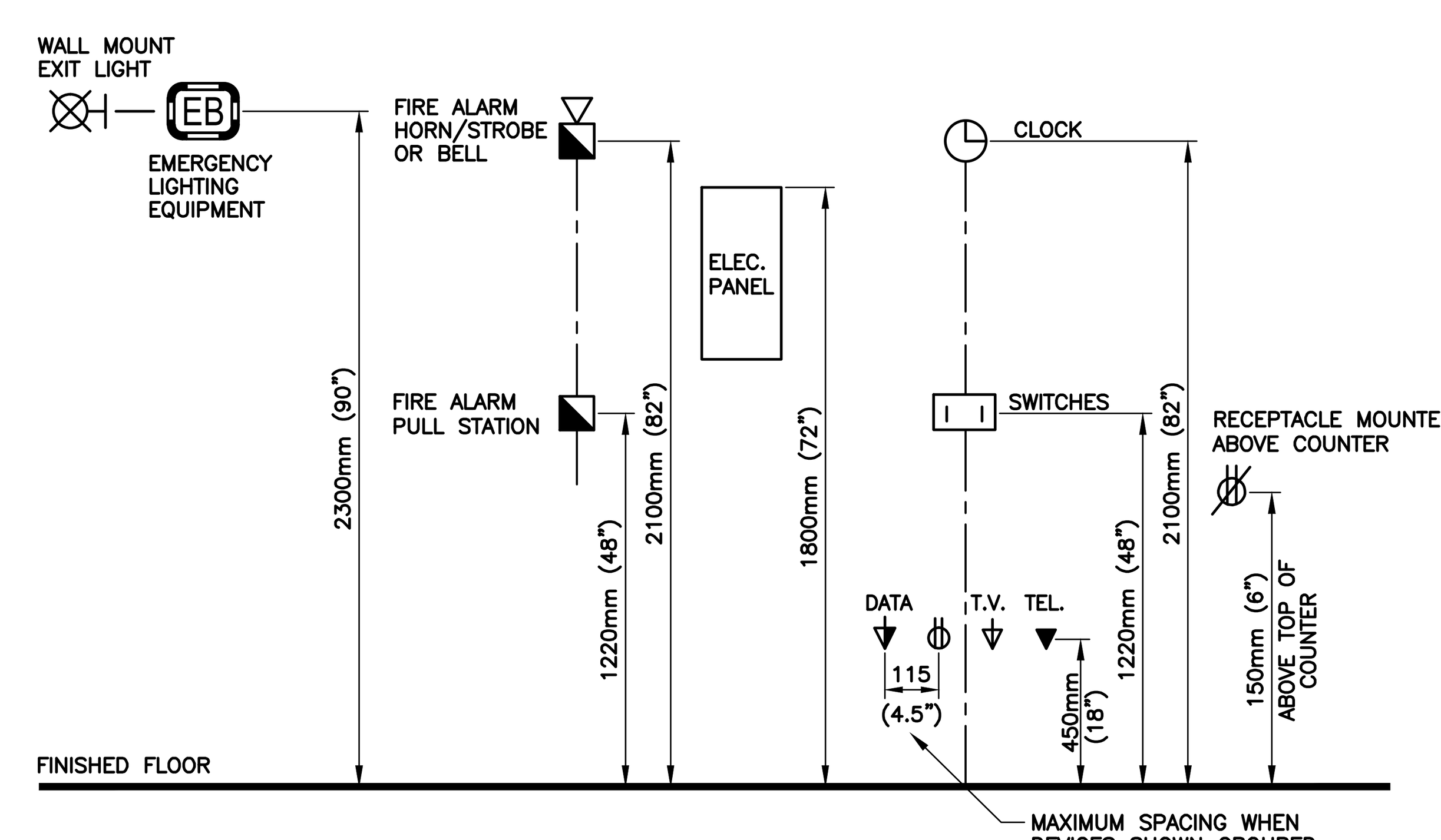
SYMBOL	DESCRIPTION
	FLUORESCENT LIGHT FIXTURE – SURFACE MOUNT
	FLUORESCENT LIGHT FIXTURE – RECESS MOUNT
	INCANDESCENT, H.I.D. LIGHT FIXTURE OR COMPACT FLUORESCENT – SURFACE MOUNT
	INCANDESCENT, H.I.D. LIGHT FIXTURE OR COMPACT FLUORESCENT – RECESS MOUNT
	INCANDESCENT, H.I.D. LIGHT FIXTURE OR COMPACT FLUORESCENT – WALL MOUNT
	EXIT LIGHT FIXTURE – WALL / CEILING MOUNT
E 2E	BATTERY OPERATED REMOTE EMERGENCY LIGHT – SINGLE / DOUBLE UNIT
EB	BATTERY OPERATED EMERGENCY LIGHTING UNIT
1	NUMBER INDICATES LIGHT FIXTURE TYPE
NL	UNSWITCHED NIGHT LIGHT
$	SINGLE POLE SWITCH
$3 $4 $D	3–WAY SWITCH, 4–WAY SWITCH, DIMMER SWITCH
$K $PL $LV	KEYED SWITCH, PILOT LIGHT SWITCH, LOW VOLTAGE SWITCH
	MULTI GANG SWITCHES
	PANELBOARD – RECESSED/ SURFACE
	DUPLEX RECEPTACLE
	SPLIT BUS RECEPTACLE
	DUPLEX RECEPTACLE MOUNTED IN CEILING SPACE
	SPECIAL PURPOSE OUTLET – SIZE AS NOTED ON DRAWINGS
▶	TELEPHONE OUTLET – WALL MOUNT / FLOOR MOUNT
	DATA OUTLET – WALL MOUNT / FLOOR MOUNT
	TELEVISION OUTLET – WALL MOUNT / FLOOR MOUNT / CEILING MOUNT
	DEVICE MOUNTED ABOVE COUNTER
J	JUNCTION BOX
	ELECTRIC MOTOR
	DISCONNECT SWITCH
	MAGNETIC MOTOR STARTER
	MANUAL MOTOR STARTER
	COMBINATION STARTER
D	PASSIVE INFRARED MOTION DETECTOR
K	DOOR ENTRY KEYPAD
	FIRE ALARM HEAT DETECTOR
	FIRE ALARM PULL STATION
SC	SEPARATE CIRCUIT
E	EXISTING ELECTRICAL EQUIPMENT TO REMAIN
A2	NUMBER INDICATES CIRCUIT NUMBER (i.e. #2 AT PANEL 'A')
WP	WEATHERPROOF
GFI	GROUND FAULT INTERRUPTER
A	NOTE LEGEND SYMBOL

MOUNTING ELEVATION DETAIL NOTES:

DEVICES SHOWN ON THE DRAWINGS AS GROUPED AT A COMMON LOCATION SHALL BE INSTALLED SYMMETRICALLY ABOUT A VERTICAL CENTERLINE. ANY DEVIATION FROM THE MOUNTING ELEVATIONS SHOWN SHALL BE CONFIRMED WITH THE ARCHITECT & ENGINEER PRIOR TO ROUGH IN.

COORDINATE DEVICE INSTALLATION WITH ALL TRADES PRIOR TO ROUGH IN.

REVIEW ARCHITECTURAL ROOM ELEVATION DETAILS PRIOR TO COMMENCING ROUGH IN. AVOID INSTALLING DEVICES IN TACK BOARDS, WHITE BOARDS OR CHALKBOARDS.



1 E–1 TYPICAL MOUNTING ELEVATION DETAIL
NTS

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Western Region

NOTES
1. DO NOT SCALE THIS DRAWING.
2. VERIFY ALL DIMENSIONS, DATUMS, AND LEVELS PRIOR TO COMMENCEMENT OF WORK AND REPORT ANY DISCREPANCIES TO THE CONSULTANT IMMEDIATELY.
3. VARIATIONS AND MODIFICATIONS TO WORK SHOWN IN THESE DRAWINGS SHALL NOT BE CARRIED OUT WITHOUT THE WRITTEN PERMISSION OF THE CONSULTANT.
4. ALL DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE THE PROPERTY OF THE CONSULTANT AND MUST BE RETURNED UPON REQUEST.
5. COPYRIGHT FOR THIS DESIGN REMAINS WITH THE CONSULTANT.

ASSOCIATION OF PROFESSIONAL ENGINEERS OF SASKATCHEWAN
CERTIFICATE OF AUTHORIZATION
ALFA ENGINEERING LTD.
NUMBER 14
PERMISSION TO CONSULT HELD BY:
DISCIPLINE: ELECTRICAL SASK. REG. No.: 6438 SIGNATURE: [illegible]

PROFESSIONAL ENGINEER
[illegible]
B.C. NOVAK
MEMBER 6438
13 06 24
YR. MN. DAY
13029
SASKATCHEWAN

REVISIONS	DESCRIPTION	DATE
1	ISSUED FOR TENDER	June 2013

A detail number / number du detail
B source drawing no. / de dessin no.
C detail on drawing no. / detail sur dessin no.

project title / titre du projet
TACTICAL TRAINING BUILDING RENOVATION
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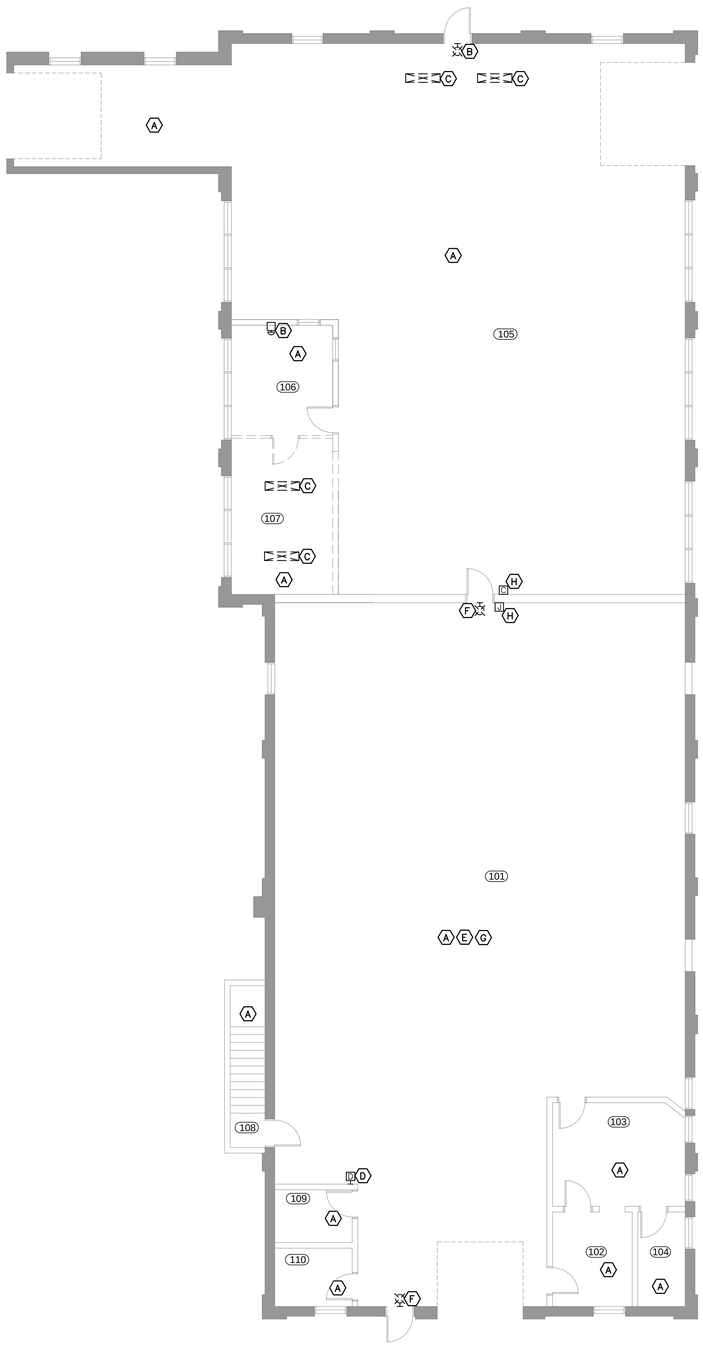
drawing title / titre du dessin
SPECIFICATIONS
LEGEND
MOUNTING DETAILS

designed by / concu par: LBP
drawn by / dessine par: LBP
approved by / approuve par: BCN

scale / echelle: AS SHOWN
project no. / projet no.: 827364
date / date: June 2013
sheet / feuille: E-1 OF

A1 841 x 594



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1 / E-2 MAIN FLOOR DEMOLITION PLAN
1:100

MAIN FLOOR DEMOLITION PLAN NOTE LEGEND:

A. ALL EXISTING ELECTRICAL EQUIPMENT, ASSOCIATED CONDUIT AND WIRING IN THIS AREA SHALL REMAIN UNLESS NOTED OTHERWISE.

B. REMOVE EXISTING DEVICE AND ASSOCIATED CONDUIT AND WIRE BACK TO NEXT REQUIRED LIVE JUNCTION BOX OR BREAKER.

C. REMOVE EXISTING LIGHT FIXTURE. REVISE CIRCUITING TO ADJACENT LIGHT FIXTURES TO ENSURE THEY REMAIN OPERATIONAL. REUSE REMOVED LIGHT FIXTURE IN NEW LOCATION AS SHOWN ON LIGHTING PLAN, 1/E-3.

D. REMOVE WALL MOUNT DETECTOR AND ASSOCIATED WIRING.

E. ALL EXISTING GENERAL AREA LIGHTING AND ASSOCIATED SWITCHING IN THIS AREA SHALL BE DEMOLISHED. REUSE DEMOLISHED FIXTURES FOR NEW LIGHTING LAYOUT AS SHOWN ON LIGHTING PLAN, 1/E-3. REUSE EXISTING SWITCH LOCATIONS FOR NEW SWITCHES AS SHOWN ON LIGHTING PLAN, 1/E-3.

F. REMOVE EXISTING EXIT SIGNAGE. REUSE EXISTING CIRCUITRY FOR NEW FIXTURE AS SHOWN ON LIGHTING PLAN, 1/E-3.

G. REMOVE ALL CONDUIT, WIRE AND DEVICES FOR BENCH MOUNTED RECEPTACLES BACK TO PANEL.

H. EXISTING CARD READER AND CARD READER CONTROLLER SHALL BE REMOVED BY OWNER.

DEMOLITION GENERAL NOTES:

REFER TO MECHANICAL DRAWINGS FOR MECHANICAL EQUIPMENT THAT IS BEING REMOVED. REMOVE ALL ELECTRICAL FEEDS FROM REMOVED MECHANICAL EQUIPMENT BACK TO NEXT REQUIRED LIVE JUNCTION BOX OR BREAKER.

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TACTICAL TRAINING BUILDING RENOVATION

REGINA, SK

drawing title / titre du dessin

DEMOLITION PLAN

designed by / conçu par	LBP
drawn by / dessiné par	LBP
approved by / approuvé par	BCN
scale / échelle	AS SHOWN
project no. / projet no.	827364
date / date	June 2013
sheet / feuille	E-2
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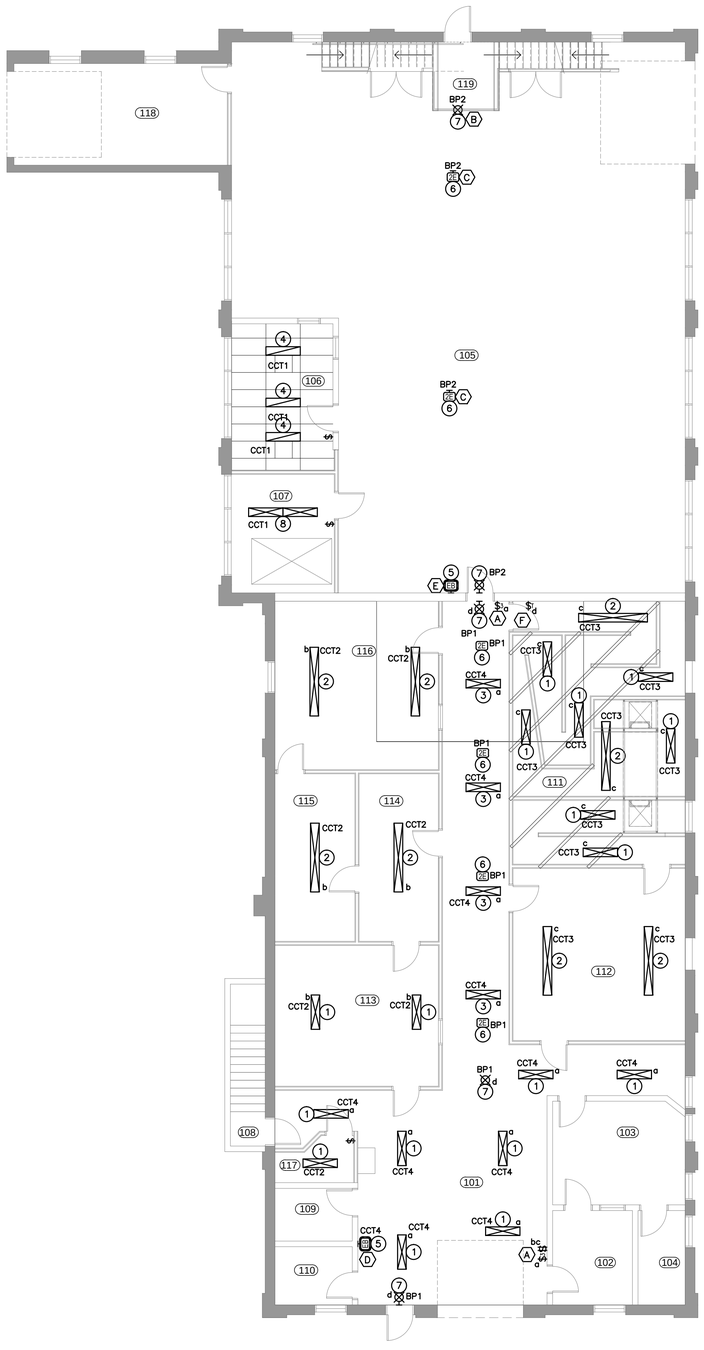


1 MAIN FLOOR LIGHTING PLAN
E-3 1:100

LIGHT FIXTURE SCHEDULE

NO.	PICTORIAL	DESCRIPTION	DIMENSIONS	LAMPS	OPTICS	FINISH	VOLTAGE	APPROVED MANUFACTURERS	NOTES
1		SURFACE FLUORESCENT INDUSTRIAL	EXISTING	2 x 32W T-8	EXISTING	EXISTING	120	EXISTING FIXTURE	4
2		SURFACE FLUORESCENT TANDEM INDUSTRIAL	EXISTING	4 x 32W T-8	EXISTING	WHITE	120	EXISTING FIXTURE	4
3		SURFACE FLUORESCENT INDUSTRIAL	305 x 1220mm (1' x 4')	2 x 32W T-8	SLOTTED REFLECTOR	WHITE	120	CFI FF SERIES C & M INDA SERIES LITHONIA RIU SERIES METALUX IA SERIES	4
4		T-BAR RECESSED FLUORESCENT TROFFER	305 x 1220mm (1' x 4')	2 x 32W T-8	K12 ACRYLIC LENS	WHITE	120	CFI AA SERIES C & M 1GRS SERIES LITHONIA GT SERIES METALUX GR8 SERIES	
5		EMERGENCY BATTERY PACK RATED LOAD FOR 30 MIN. C/W SELF DIAGNOSTICS	330W x 267H x 93mm D (13"W x 10.5"H x 3.6"D)	2 x 12W QUARTZ HALOGEN	–	WHITE	120 A.C. 24V D.C.	STANPRO SLMC24 SERIES, BEGHELLI NV24 SERIES, EMERGI-LITE 24ESL SERIES, LUMACELL RG24S SERIES	2
6		DECORATIVE DOUBLE REMOTE EMERGENCY HEAD	HEADS 56mmø 142mm H. x 211mm W.	2 x 50W MR16	DIE CAST ALUMINUM	WHITE	24V D.C.	STANPRO M2-V-WQ SERIES, BEGHELLI BMTR2 SERIES, EMERGI-LITE ED150D SERIES, LUMACELL DR2130 SERIES	3
7		UNIVERSAL SINGLE OR DOUBLE FACE PICTOGRAM EXIT	305x229x350mm (12"x9"x1.25"D)	LED	ONE PIECE ALUMINUM EXTRUDED HOUSING	WHITE	120V A.C. 24V D.C.	EMERGI-LITE EA SERIES, STANPRO RMX SERIES, LUMACELL LS SERIES, BEGHELLI MICRA RM SERIES	1
8		CHAIN SUSPENDED FLUORESCENT INDUSTRIAL	305 x 1220mm (1' x 4')	2 x 32W T-8	SLOTTED REFLECTOR	WHITE	120	CFI FF SERIES C & M INDA SERIES LITHONIA RIU SERIES METALUX IA SERIES	4 5

LIGHT FIXTURE SCHEDULE NOTES:

1. CIRCUIT TO BUILDING EXIT LIGHT CIRCUIT AND TO NEAREST D.C. BATTERY PACK.
2. CIRCUIT WITH GENERAL AREA LIGHTING IN IMMEDIATE VICINITY OF BATTERY PACK.
3. CONNECT TO D.C. BATTERY PACK CIRCUITED TO GENERAL AREA LIGHTING IN VICINITY OF REMOTE LIGHTING HEAD.
4. COORDINATE FINAL LOCATIONS OF FIXTURES WITH MECHANICAL DUCTWORK AND PIPING AND STRUCTURAL ELEMENTS.
5. SUSPEND LIGHT FIXTURE FROM STRUCTURE AT 2440mm A.F.F.

BUILDING SYSTEMS PLAN NOTE LEGEND:

- (A) PROVIDE AND INSTALL NEW LIGHT SWITCH IN EXISTING SWITCH LOCATION.
- (B) MOUNT NEW EXIT LIGHT ON UNDERSIDE OF STAIR/PLATFORM.
- (C) MOUNT NEW REMOTE HEAD ON UNDERSIDE OF ROOF TRUSS.
- (D) BATTERY PACK 'BP1'. BATTERY SHALL BE A MINIMUM OF 550W.
- (E) BATTERY PACK 'BP2'. BATTERY SHALL BE A MINIMUM OF 288W. CIRCUIT TO EXISTING AREA LIGHTING CIRCUIT.
- (F) TIMER SWITCH FOR CONTROLLING EXIT LIGHTING AND MAGNETIC LOCK FOR TRAINING SCENARIOS. REFER TO EXIT LIGHTING AND MAGNETIC LOCK CONTROL SCHEMATIC, 2/E-3. TIMER SWITCH SHALL BE AS SPECIFIED.

GENERAL NOTES:

CIRCUIT NUMBERS ARE SHOWN ON THE FLOOR PLAN FOR LOADING PURPOSES ONLY. IN ORDER TO SATISFY THE CIRCUITING REQUIREMENTS, THE CONTRACTOR SHALL:

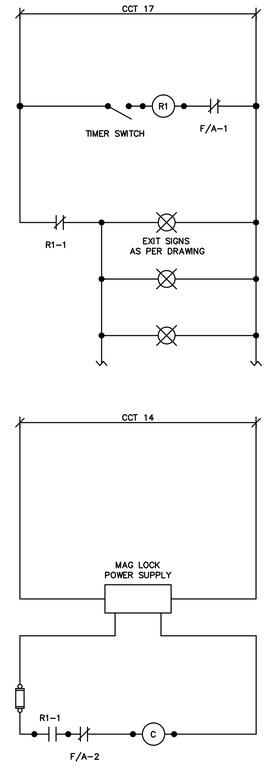
PROVIDE NEW BREAKERS IN EXISTING PANEL.
RE-USE EXISTING BREAKERS IN EXISTING PANEL.
RE-USE EXISTING CIRCUITRY AVAILABLE IN THE CEILING SPACE.
RE-USE EXISTING CIRCUITRY MADE AVAILABLE THROUGH THE RENOVATION.

UNLESS NOTED OTHERWISE, ALL NEW BREAKERS SHALL BE 15A.

CONTRACTOR SHALL COMPLETELY UPDATE ALL PANEL DIRECTORIES OF ANY PANELBOARD UTILIZED OR ALTERED IN THIS RENOVATION.

UNLESS NOTED OTHERWISE, DEVICES LOCATED IN WALLS WHICH ARE NOT DEMOLISHED SHALL REMAIN.

WHERE DEVICES ARE DESIGNATED TO BE REMOVED, REMOVE DEVICE, OUTLET BOX, CONDUIT AND WIRE BACK TO NEAREST JUNCTION BOX OR PANELBOARD. PATCH, REPAIR AND REFINISH OPENING.



EXIT LIGHTING AND MAGNETIC LOCK CONTROL SCHEMATIC SEQUENCE OF OPERATIONS:

UPON ACTIVATION OF THE TIMER SWITCH, RELAY "R1" WILL ACTIVATE AND NORMALLY CLOSED CONTACTS WILL OPEN, TURNING OFF THE NOTED EXIT LIGHTS AND ENERGIZING THE MAGNETIC LOCK. UPON COMPLETION OF THE TIMER THE SWITCH WILL RETURN TO ITS NORMALLY OPEN POSITION, THE RELAY "R1" WILL TURN OFF, THE EXIT LIGHTS WILL TURN BACK ON AND THE MAGNETIC LOCK WILL DE-ENERGIZE.

IN THE EVENT OF A POWER FAILURE THE SWITCH WILL REVERT BACK TO ITS "OFF" STATE. EXIT LIGHT FIXTURE WILL BE POWERED THROUGH THE DC CIRCUIT AND THE MAGNETIC LOCK WILL DE-ENERGIZE.

UPON ACTIVATION OF THE FIRE ALARM, THE FIRE ALARM PANEL WILL ACTIVATE THE FIRE ALARM MODULE AND THE NORMALLY CLOSED CONTACTS WILL OPEN REMOVING POWER TO RELAY "R1".

2 EXIT LIGHTING AND MAGNETIC LOCK CONTROL SCHEMATIC
E-3 1:100

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ASSOCIATION OF PROFESSIONAL ENGINEERS OF SASKATCHEWAN
CERTIFICATE OF AUTHORIZATION
ALFA ENGINEERING LTD.
NUMBER 14
PERMISSION TO CONSULT HELD BY:
DISCIPLINE ELECTRICAL 6938 REG. NO. SIGNATURE

PROFESSIONAL ENGINEER
B.C. NOVAK
MEMBER 6938
YR. MN. DAY 13 09 27
SASKATCHEWAN

1	ISSUED FOR TENDER	June 2013
REVISIONS	DESCRIPTION	DATE

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TACTICAL TRAINING BUILDING RENOVATION

REGINA, SK

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MAIN FLOOR LIGHTING PLAN
EXIT LIGHTING AND MAGNETIC LOCK CONTROL SCHEMATIC
LIGHT FIXTURE SCHEDULE

designed by / concu par	LBP
drawn by / dessine par	LBP
approved by / approuve par	BCN
scale / echelle	AS SHOWN
project no. / projet no.	827364
date / date	June 2013
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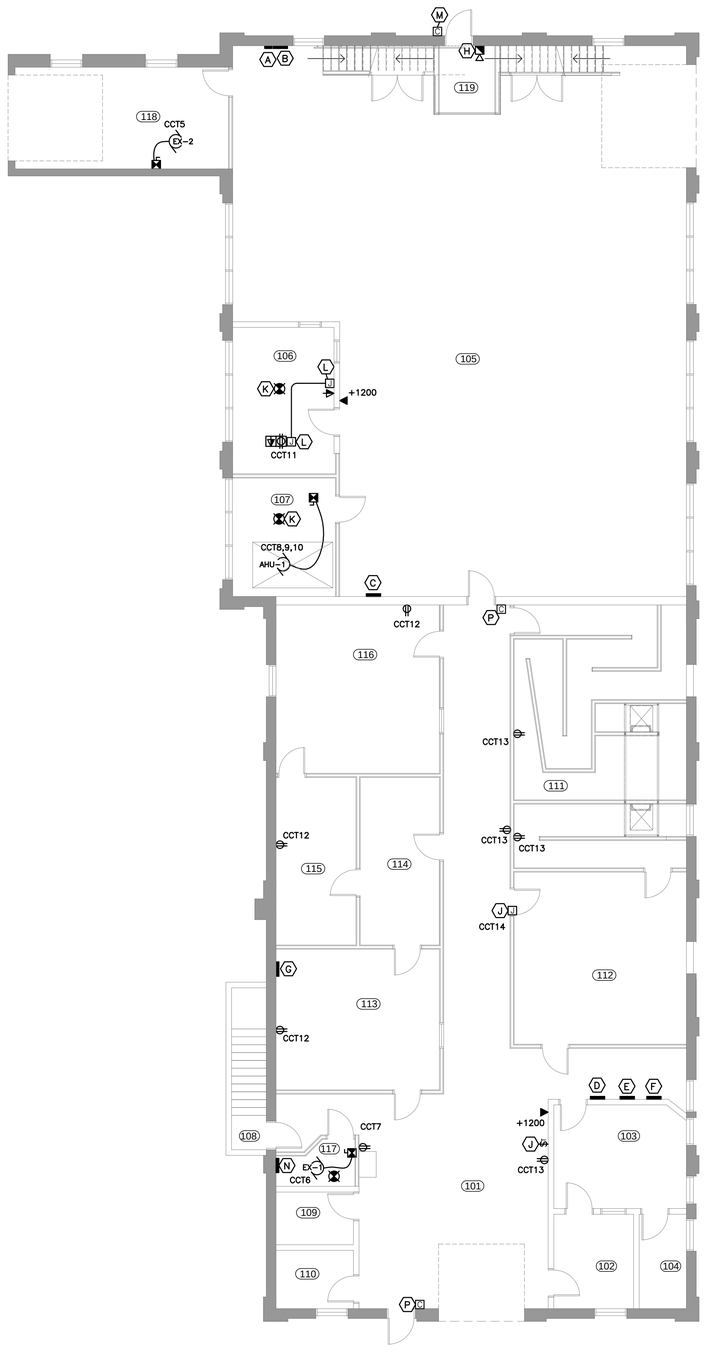
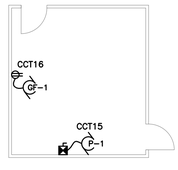


1 E-4 MAIN FLOOR BUILDING SYSTEMS PLAN
1:100



2 E-4 BASEMENT BUILDING SYSTEMS PLAN
1:100

MECHANICAL EQUIPMENT SCHEDULE													
NO.	DESCRIPTION	LOCATION	KW	ø	V	A	FEED	CON	BREAKER	DISC	STARTER	REMARKS
AHU-1	AIR HANDLING UNIT	REFER TO PLANS	3.73	3	208	16.7	3#10	21mm	40A-3P	BY ELEC.	F.V.N.R. SIZE 1	
EF-1	EXHAUST FAN #1	REFER TO PLANS	80W	1	120	--	2#12	21mm	15A-1P	BY ELEC.	F.V.N.R. SIZE 1	
EF-2	EXHAUST FAN #2	REFER TO PLANS	80W	1	120	--	2#12	21mm	15A-1P	BY ELEC.	F.V.N.R. SIZE 1	
P-1	HEATING PUMP #1	BASEMENT	0.12	1	120	4.4	2#12	21mm	15A-1P	BY ELEC.	F.V.N.R. SIZE 1	
GF-1	GLYCOL FILL	BASEMENT	--	1	120	0.7	2#12	21mm	15A-1P	BY ELEC.	--	PROVIDE 5-15R RECEPTACLE WITHIN 1800mm OF GLYCOL FILL.

BUILDING SYSTEMS PLAN NOTE LEGEND:

(A) EXISITNG MAIN SERVICE BREAKER SHALL REMAIN.

(B) EXISTING PANEL 'B' SHALL REMAIN - 200A, 120/208V, 3ø/4W, WESTINGHOUSE.

(C) EXISTING PANEL 'A' SHALL REMAIN - 100A, 120/208V, 3ø/4W, WESTINGHOUSE.

(D) EXISTING PANEL 'C' SHALL REMAIN - 200A, 120/240V, 1ø/3W, GENERAL ELECTRIC.

(E) EXISTING NOTIFIER #CSGL-404 FIRE ALARM SYSTEM CONTROL PANEL SHALL REMAIN.

(F) EXISTING DATA PATCH PANEL. LOCATION TERMINATE ALL NEW DATA CABLING TO THIS LOCATION.

(G) EXISTING TELEPHONE BIX BLOCK LOCATION. TERMINATE ALL NEW VOICE CABLING TO THIS LOCATION.

(H) RELOCATE FIRE ALARM HORN/STROBE TO BE UNDERSIDE OF NEW STAIR/PLATFORM CONSTRUCTION. VERIFY FIRE ALARM ONCE ALL FIRE ALARM DEVICES HAVE BEEN RELOCATED.

(J) PROVIDE AND INSTALL A MAGNETIC LOCK AND POWER SUPPLY ON DOOR. CONTROL MAGNETIC LOCK FROM TIMER SWITCH AND RELAY CONTROLLING EXIT LIGHTING. PROVIDE FIRE ALARM CONNECTION TO MAGNETIC LOCK SUCH THAT IN THE EVENT OF A FIRE ALARM, THE MAGNETIC LOCK SHALL RELEASE. REFER TO EXIT LIGHTING AND MAGNETIC LOCK CONTROL SCHEMATIC, 2/E-3. MAGNETIC LOCK SHALL BE SCHLAGE M420 OR APPROVED EQUAL.

(K) RELOCATE FIRE ALARM HEAT DETECTOR TO NEW T-BAR CEILING. EXTEND CONDUIT AND WIRE AS REQUIRED. VERIFY FIRE ALARM ONCE ALL FIRE ALARM DEVICES HAVE BEEN RELOCATED.

(L) PROVIDE POWER AND DATA CONNECTION AT CEILING FOR OWNER SUPPLIED PROJECTOR. PROVIDE JUNCTION BOX AT CEILING C/W 41mm CONDUIT TO ADJACENT WALL MOUNTED JUNCTION BOX. PROVIDE BLANK COVERPLATES ON ALL JUNCTION BOXES. MOUNT JUNCTION BOX ON WALL AT 450mm AFF.

(M) NEW CARD READER LOCATION. CARD READER SHALL BE INSTALLED BY OWNER. REFER TO DOOR SECURITY ROUGH-IN DETAIL 5/E-4.

(N) APPROXIMATE LOCATION OF ACCESS CONTROL BACKBOARD FOR CARD ACCESS SYSTEM. CONFIRM EXACT LOCATION ON SITE PRIOR TO ROUGH-IN. REFER TO DOOR SECURITY ROUGH-IN DETAIL, 5/E-4.

(P) EXISTING CARD READER AND ASSOCIATED DEVICES SHALL REMAIN.

GENERAL NOTES:

CIRCUIT NUMBERS ARE SHOWN ON THE FLOOR PLAN FOR LOADING PURPOSES ONLY. IN ORDER TO SATISFY THE CIRCUITING REQUIREMENTS, THE CONTRACTOR SHALL:

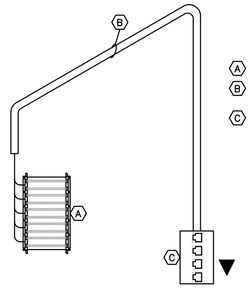
PROVIDE NEW BREAKERS IN EXISTING PANEL.
RE-USE EXISTING BREAKERS IN EXISTING PANEL.
RE-USE EXISTING CIRCUITRY AVAILABLE IN THE CEILING SPACE.
RE-USE EXISTING CIRCUITRY MADE AVAILABLE THROUGH THE RENOVATION.

UNLESS NOTED OTHERWISE, ALL NEW BREAKERS SHALL BE 15A.

CONTRACTOR SHALL COMPLETELY UPDATE ALL PANEL DIRECTORIES OF ANY PANELBOARD UTILIZED OR ALTERED IN THIS RENOVATION.

UNLESS NOTED OTHERWISE, DEVICES LOCATED IN WALLS WHICH ARE NOT DEMOLISHED SHALL REMAIN.

WHERE DEVICES ARE DESIGNATED TO BE REMOVED, REMOVE DEVICE, OUTLET BOX, CONDUIT AND WIRE BACK TO NEAREST JUNCTION BOX OR PANELBOARD. PATCH, REPAIR AND REFINISH OPENING.



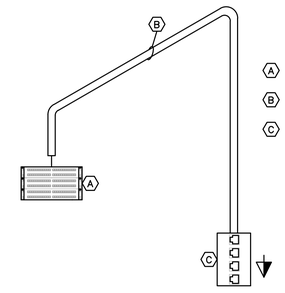
3 E-4 VOICE COMMUNICATIONS SYSTEMS SCHEMATIC
NTS

VOICE COMMUNICATIONS SYSTEM SCHEMATIC NOTE LEGEND:

(A) EXISTING WALL MOUNT BIX BLOCK. TERMINATE ALL NEW VOICE CABLING AT THIS LOCATION.

(B) VOICE COMMUNICATIONS CABLE AS SPECIFIED RUN SURFACE MOUNTED IN COMPLETE CONDUIT SYSTEM FROM PATCH PANEL TO OUTLET.

(C) VOICE OUTLET C/W COVERPLATE AS SPECIFIED. PROVIDE ONE JACK IN EACH OUTLET AS INDICATED ON FLOOR PLANS.



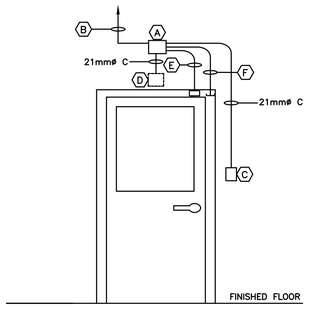
4 E-4 DATA COMMUNICATIONS SYSTEMS SCHEMATIC
NTS

DATA COMMUNICATIONS SYSTEM SCHEMATIC NOTE LEGEND:

(A) EXISTING WALL MOUNT RACK AND PATCH PANEL. TERMINATE NEW DATA CABLING AT THIS LOCATION.

(B) DATA COMMUNICATIONS CABLE AS SPECIFIED RUN SURFACE MOUNTED IN COMPLETE CONDUIT SYSTEM FROM PATCH PANEL TO OUTLET.

(C) DATA OUTLET C/W COVERPLATE AS SPECIFIED. PROVIDE ONE JACK IN EACH OUTLET AS INDICATED ON FLOOR PLANS.



5 E-4 TYPICAL DOOR SECURITY ROUGH-IN DETAIL
NTS

DOOR SECURITY ROUGH-IN NOTES:

(A) 300 x 300 x 100mm TYPE 1 TELEPHONE CABINET WITH WOOD BACKING (TCFK012124WB OR EQUIVALENT) ON PROTECTED SIDE OF WALL IN ACCESSIBLE LOCATION.

(B) 21mm CONDUIT AND PROVO 6708 CABLE (OR EQUIVALENT) AND ONE (1), FOUR (4) CONDUCTOR 18AWG SOLID COPPER LVT CABLE FROM CABINET BACK TO ACCESS CONTROL BACKBOARD RUN AT HIGH LEVEL ON WALL. COIL 3m OF EXTRA CABLE AT ACCESS CONTROL BACKBOARD FOR FUTURE TERMINATION BY OTHERS. REFER TO MAIN FLOOR BUILDING SYSTEMS PLAN, 1/E-4 FOR LOCATION OF ACCESS CONTROL BACKBOARD.

(C) SINGLE GANG OUTLET BOX C/W BLANK COVERPLATE MOUNTED UP 1245mm AFF ON NON-SECURE SIDE OF DOOR FOR CARD READER.

(D) 100 x 50 x 63mm OUTLET BOX C/W BLANK COVERPLATE MOUNTED HORIZONTALLY 150mm ABOVE DOOR FRAME ON PROTECTED SIDE OF DOOR.

(E) 21mm CONDUIT FROM JUNCTION BOX STUBBED INTO LATCH SIDE OF DOOR FRAME FOR PROXIMITY SWITCH. (MAY BE RUN SURFACE ON SECURE SIDE OF DOOR IF FRAME IS FILLED).

(F) 21mm CONDUIT FROM TELEPHONE CABINET STUBBED INTO DOOR FRAME (MAY BE RUN SURFACE ON SECURE SIDE OF DOOR IF FRAME IS FILLED) FOR CONNECTION TO ELECTRIC STRIKE.

GENERAL NOTES

CONFIRM ALL REQUIREMENTS WITH THE OWNER PRIOR TO ROUGH-IN.

CO-ORDINATE ALL ROUGH-IN WITH THE OWNERS DOOR SECURITY CONTRACTOR.

PROVIDE PULL CORDS IN ALL EMPTY CONDUITS.

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PROFESSIONAL ENGINEER
B.C. NOVAK
MEMBER 6938
YR. MN. DAY 13 06 29
SASKATCHEWAN

REVISIONS	DESCRIPTION	DATE
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TACTICAL TRAINING BUILDING RENOVATION

REGINA, SK

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MAIN FLOOR AND BASEMENT BUILDING SYSTEMS PLANS MECHANICAL EQUIPMENT SCHEDULE VOICE AND DATA COMMUNICATIONS SCHEMATICS

designed by / concu par: LBP
drawn by / dessine par: LBP
approved by / approuve par: BCN

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