BULKLEY VALLEY DISTRICT HOSPITAL

SMITHERS BC

northern health
the northern way of caring

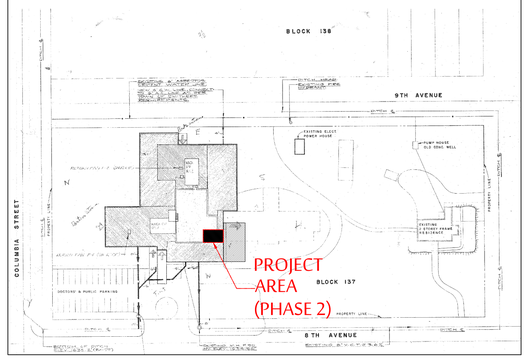
DIAGNOSTIC IMAGING DEPT. RENOVATIONS

PHASE 2 - CT INSTALLATION

ISSUED FOR CONSTRUCTION - FEBRUARY 14, 2019

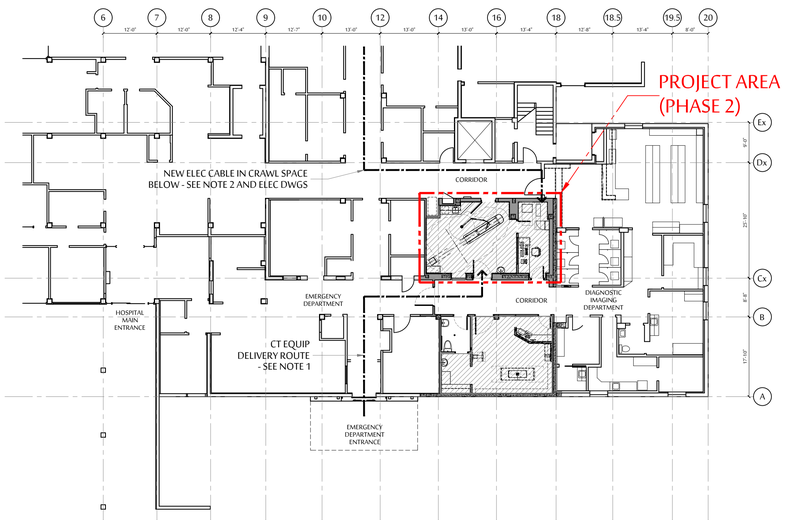
SITE PLAN

N.T.S.



LOCATION PLAN - GROUND FLOOR

SCALE : 1/16" = 1'-0"



NOTE 1 - FOR DELIVERY OF CT EQUIPMENT :

A. CONTRACTOR TO COORDINATE WITH HOSPITAL 72 HOURS IN ADVANCE FOR DELIVERY OF CT EQUIPMENT

B. CONTRACTOR TO MAKE GOOD EXTERIOR AND INTERIOR WALLS, FLOORS AND CEILING, IF DAMAGED DURING EQUIPMENT DELIVERY.

C. CONTRACTOR TO PROVIDE PROTECTIVE COVERING FOR WALL, FLOOR AND CEILING AS REQUIRED BY HOSPITAL ALONG THE DELIVERY ROUTE.

NOTE 2 -

A. CORE CONC FLOOR AND WALL AS REQUIRED FOR ELECTRICAL CONDUIT RUN AND INSTALLATION

B. PERFORM WORK PER INFECTION CONTROL REQUIREMENTS

C. PERFORM WORK (DEMOLITION, CONCRETE CORING AND ANY CONSTRUCTION WORK THAT WILL GENERATE EXCESSIVE NOISE AND/OR DISTURBANCE TO THE PATIENTS) AFTER REGULAR HOURS IF REQUIRED BY THE HOSPITAL. AFTER HOUR WORK IS CONSIDERED AS PART OF THIS CONTRACT.

6

PROJECT INFO & CODE ANALYSIS

ADDRESS :	3950 8TH AVENUE, BOX 370, SMITHERS BC V0J 2N0		
LEGAL DESCRIPTION :	PCL : A (PLAN 9565) BL: 138 DL: 865 RGE: 05 COAST DISTRICT PLAN 1054		
PROJECT AREA :	435 SF (PHASE 2)		
CODE ANALYSIS :			
CODE REFERENCE :	BRITISH COLUMBIA BUILDING CODE 2012 (INCLUDING LATEST AMENDMENTS)		
CODE APPLICATIONS :	DIVISION A, PARTS 1, 2 AND 3 DIVISION B, PARTS 1, 7, 8 AND 10 DIVISION B, PARTS 3, 4, 5 AND 6 DIVISION C, PARTS 1 & 2		1.3.2.1 1.3.3.1 1.3.3.2 1.3.4.1
MAJOR OCCUPANCIES :	EXISTING - GROUP B, DIVISION 2 (TREATMENT - HOSPITAL) PROPOSED - NO CHANGE		3.1.2.1
SEPARATION OF MAJOR OCCUPANCIES :	NOT APPLICABLE		3.1.3.1
OCCUPANT LOAD :	TREATMENT AREA = 10 SQ. M. (107.6 SF) PER PERSON PROJECT AREA = 435 SF / 107.6 SF TOTAL OCCUPANCY LOAD = 4.04		3.1.17.1
BUILDING SIZE :	UP TO 3 STOREYS - SPRINKLERED LESS THAN 8000SM FOR 3-STOREY EXISTING BUILDING HEIGHT : 3-STOREY PROPOSED - NO CHANGE EXISTING BUILDING AREA : UNDER 8000 SM PROPOSED - NO CHANGE		3.2.2.39
FIRE SUPPRESSION :	SPRINKLER SYSTEM REQUIRED EXISTING - NO SPRINKLER SYSTEM (NON-CONFORMING) PROPOSED - NO CHANGE		3.2.2.39
CONSTRUCTION TYPE :	NON COMBUSTIBLE CONSTRUCTION REQUIRED EXISTING - NON COMBUSTIBLE CONSTRUCTION PROPOSED - NON COMBUSTIBLE CONSTRUCTION PROVIDED		3.2.2.39
FIRE RESISTANCE RATING :	FLOOR - 1 HOUR RATING REQUIRED EXISTING - 8" THK CONCRETE SLAB WITH MIN 1 HR FRR PROPOSED - NO CHANGE ROOF - NO RATING REQUIRED EXISTING - NO CHANGE COLUMN & LOAD BEARING WALL - SAME AS SUPPORTED ASSEMBLY REQUIRED EXISTING - 1 HOUR PROPOSED - NO CHANGE		3.2.2.39
SEPARATION OF SUITES	EXISTING - NOT APPLICABLE PROPOSED - NOT APPLICABLE		3.3.1.1
PUBLIC CORRIDOR SEPARATION	EXISTING - NOT APPLICABLE PROPOSED - NOT APPLICABLE		3.3.1.4
	REQUIRED	PROVIDED	
EGRESS DOORWAYS FROM ROOM OR SUITES :	MIN 2 REQUIRED EXCEPT : SPRINKLER SYSTEM PROVIDED FLOOR AREA < 300 SQ. M. (3,228SF) TRAVEL DISTANCE < 25 M (82FT)	N/A	3.3.1.5
DISTANCE BETWEEN EGRESS DOORWAYS:	> 1/2 OF MAX DIAGONAL OF ROOM (RM DIAGONAL104.61' X 1/3 = MIN 34.87' REQ'D)	N/A	3.3.1.5(2)
EGRESS DOORWAY WIDTH:	MIN 800mm (31.5") CLEAR	N/A	3.3.1.13
DOORWAY WIDTH TO EXIT:	MIN 850MM (33.5") MIN 1050MM (42.5") FOR STRETCHER	42" 48"	3.3.3.4
NO OF EXITS FROM FLOOR AREAS	MIN 2 EXCEPT: SPRINKLER SYSTEM PROVIDED FLOOR AREA < 300 SQ. M. (3,228 SF) TRAVEL DISTANCE < 25 M. (82 SF)	N/A	3.4.2.1
DISTANCE BETWEEN EXITS :	1/3 DIAGONAL OF FLOOR AREA BUT NOT LESS THAN 9 M (29.5FT)	N/A	3.4.2.3
TRAVEL DISTANCE TO EXITS :	MAX 30 M (98.43 FT)	N/A	3.4.2.5
EXIT WIDTH FOR DOORWAYS:	MIN 6.1mm X 43 (OCCUP. LOAD) = 262mm (10.32")	N/A	3.4.3.2
CORRIDOR (AGGREGATE) DOORWAY (AGGREGATE)	MIN 1100mm (43.3") WIDE MIN 800mm (31.50") WIDE	N/A N/A	3.4.3.2.A
FIRE SEPARATION FROM EXIT ROUTES :	MIN 1 HR (AS REQ'D UNDER 3.2.2) EXISTING - 1 HOUR MINIMUM	N/A	3.4.4.1
WASHROOM PROVISION :	BASE ON NEEDS OF OCCUPANCY	N/A	3.7.2.2(9)
HANDICAPPED PROVISION : ACCESSIBLE WASHRM	MIN 1	N/A	3.8.2.3(2) & 3.8.2.26
PARKING PROVISION :	N/A	N/A	

INFECTION CONTROL REQUIREMENTS

1. For all construction work within the hospital, contractors must follow infection control procedures as required by :
   a. CSA Standards Z317.13.12 "Fundamentals For Infection Control During Construction, Renovation and Maintenance of Health Care Facilities" and this project is classified as :
   b. Northern Health Clinical Practice Standard "Infection Control During Construction, Renovations, and Maintenance of Health Care Facilities"
   c. This project is classified as :
   Population Risk Group = **3 (Diagnostic Imaging)**
   Construction Activity Types = **D (Major Renovation)**
   Guidelines for Infection Control Measures = **Class IV**
2. Preconstruction Meeting :
   a. Before commencement of construction, contractor must set up a preconstruction meeting with the hospital to review and obtain approval for the proposed infection control measures.
   b. Contractor to coordinate with Northern Health Authority and the hospital and submit a "Risk Reduction Measures Construction Report" to Northern Health for approval
3. Contractors to observe the following Infection Control precautions for working at the discharge openings of rooftop exhaust ducts.
   a. Infection Control requires that workers must be made aware of the fact that hospital exhaust ducts may carry dust and spore particles, however, not active TB. Dust and spores, residing in these ducts, may be discharged to the exterior with the air mass created within these ducts.
   b. Although the level of risk for potential contamination is low, it is advisable that construction worker's, especially those who are sensitive to respiratory illnesses, wear appropriate dust masks capable of filtering fine particulates.

GENERAL NOTES

1 GENERAL

1.1 DO NOT SCALE THESE DRAWINGS. SEEK ARCHITECT FOR CLARIFICATION ON ANY MISSING DIMENSIONS

1.2 VERIFY ALL DIMENSIONS AND SITE CONDITIONS ON SITE. ANY DISCREPANCIES FOUND ARE TO BE REPORTED IMMEDIATELY TO THE ARCHITECT PRIOR TO COMMENCEMENT OF WORK.

1.3 ALL DIMENSIONS ARE GIVEN IN IMPERIAL MEASURE. FRAME CONSTRUCTION DIMENSIONS ARE FROM THE OUTSIDE FACE OF FINISH OF EXTERIOR WALLS, AND FROM THE FINISHED FACE OF INTERIOR PARTITIONS, UNLESS NOTED OTHERWISE.

1.4 ALL DRAWINGS AND NOTES SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATIONS AND DRAWINGS OF OTHER CONSULTANTS. ANY DISCREPANCIES, ERRORS OR OMISSIONS IN THE DOCUMENTS SHALL BE REPORTED TO THE ARCHITECT BEFORE WORK IN THAT AREA CAN COMMENCE.

1.5 PROJECT AREA IN DASHED LINES DENOTES APPROXIMATE LIMITS FOR THE WORK IN PLAN. WORK IS NOT NECESSARILY LIMITED TO THE AREA ENCLOSED - ALSO REFER TO M&E DWGS FOR WORK OUTSIDE PROJECT AREA.

1.6 ALL WORK SHOWN WITHIN PROJECT AREA IS CONSIDERED AS NEW AND BE INCLUDED IN CONTRACT EXCEPT NOTED AS EXISTING ON CONSTRUCTION DOCUMENTS.

1.7 ALL CONSTRUCTION AND INSTALLATION IS TO BE QUOTED AND PERFORMED IN ACCORDANCE WITH THE CURRENT ISSUE OF THE BRITISH COLUMBIA BUILDING CODE 2012 AND ITS AMENDMENTS, AS WELL AS ALL OTHER CODES BY-LAWS, AND REGULATIONS HAVING JURISDICTION.

1.8 ALL WORK PERFORMED BY TRADES AND SUB-TRADES SHALL MEET THE MINIMUM REQUIREMENTS OF WORKMANSHIP AS ACCEPTED IN THEIR OWN TRADE OR TRADE ASSOCIATION.

1.9 ALL MATERIALS, FIXTURES AND EQUIPMENT MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.

1.10 CONTRACTOR TO SUPPLY ALL NEW MATERIALS AND PERFORM ALL WORK TO FULFILL THE INTENT OF THE CONTRACT DOCUMENTS.

1.11 CONTRACTOR TO PROVIDE ALL NECESSARY COORDINATION AND SUPERVISION OF ALL SUB-TRADES.

1.12 NO STRUCTURAL ITEMS TO BE REMOVED, CUT OR ALTERED OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS.

1.13 CONTRACTOR TO ENSURE ALL CONSTRUCTION AND STORAGE OF MATERIALS AND EQUIPMENT TO BE CONFINED WITHIN THE PROJECT AREA THROUGHOUT CONSTRUCTION PERIOD. IN NO CIRCUMSTANCES SHALL ANY EXISTING EXIT ROUTE BE OBSTRUCTED.

1.14 CONTRACTOR TO POST ALL NECESSARY SAFETY AND EXIT SIGNS AT AND AMEND AS REQUIRED TO MAINTAIN A SAFE ENVIRONMENT WITHIN AND IN THE VICINITY OF THE SITE THROUGHOUT THE CONSTRUCTION PERIOD.

1.15 CONTRACTOR TO MAINTAIN (2) MEANS OF EGRESS FROM PROJECT AREA AT ALL TIMES THROUGHOUT THE CONSTRUCTION PERIOD

1.16 CONTRACTOR TO NOTIFY, COORDINATE AND SEEK APPROVAL FROM HOSPITAL & SECURITY DEPT. 72 HOURS IN ADVANCE PRIOR TO ANY WORK OUTSIDE PROJECT AREA AS WELL AS ANY MECH, ELEC, PLUMB, FIRE SERVICES AND MEDICAL GASES SHUT OFF. IF SUCH WORK NEEDS TO BE PERFORMED AFTER REGULAR HOURS AND SO THAT ANY INTERRUPTION OF THE NORMAL OPERATION OF THE SPACES OUTSIDE THE PROJECT AREA, SUCH AFTER HOUR WORK WILL BE PART OF THIS CONTRACT.

1.17 DELIVERY OF MATERIALS AND DISPOSAL OF GARBAGE MUST BE CARRIED OUT IN SEALED BINS AFTER REGULAR HOURS THROUGH SERVICE CORRIDORS AS PERMITTED BY THE HOSPITAL.

1.18 SUPPLY, DELIVERY AND ASSEMBLY OF FURNITURE AND FIXTURES INDICATED AS BY OWNER IS NOT PART OF THIS CONTRACT. CONTRACTOR IS RESPONSIBLE ONLY FOR COORDINATION OF THE ABOVE, PLUS INSTALLATION IF REQUIRED.

1.19 SUPPLY AND DELIVERY OF ELECTRICAL APPLIANCES ARE BY OWNER. CONTRACTOR IS RESPONSIBLE FOR HOOK UP OF ELECTRICAL APPLIANCES.

SEPARATE PRICE

BIDDER TO SUBMIT THE FOLLOWING SCOPE OF WORK AS AN SEPARATE PRICE :

1. SUPPLY AND INSTALL A FAN COIL UNIT IN THE LAUNDRY ROOM AND AN EXTERIOR CONDENSER UNIT OUTSIDE THE LAUNDRY ROOM FOR THE PURPOSE OF PROVIDING COOLING AND VENTILATION TO AN EXISTING ELECTRICAL ROOM. SEE MECH AND ELEC DRAWINGS FOR SCOPE OF WORK DETAILS. PRICE TO INCLUDE ALL ASSOCIATED ARCHITECTURAL DEMO AND CONSTRUCTION WORKS.

ABBREVIATIONS

@	AT / EACH AT	GA	GAUGE	R/A	RETURN AIR
A/C	AIR CONDITIONER	GB	GRAB BAR	REF	REFERENCE
ACOUST	ACOUSTICAL	GWB	GYPSUM WALL BOARD	REFL	REFLECTED
ATC	ACOUSTIC TILE CEILING	H	HIGH	REQ'D	REQUIRED
ADJ	ADJUSTABLE	HC	HANDICAPPED	RM	ROOM
AFF	ABOVE FINISHED FLOOR	HD	HAND DRYER	RO	ROUGH OPENING
ALUM	ALUMINUM	HGT	HEIGHT	S/A	SUPPLY AIR
BLDG	BUILDING	HM	HOLLOW METAL	SCH	SCHEDULE
BLK	BLOCK	HMI	HANDICAPPED MIRROR	SD	SOAP DISPENSER
B/S	BOTH SIDES	HORIZ	HORIZONTAL	SIM	SIMILAR
BTWN	BETWEEN	HW	HARD WOOD	SND	SANITARY NAPKIN DISPOSAL
CG	CORNER GUARD	INCL	INCLUDING	SPEC	SPECIFICATION
CH	CLOTHES HOOK	INSUL	INSULATION	SS	STAINLESS STEEL
CL	CENTER LINE	INT	INTERIOR	STL	STEEL
CLNG	CEILING	JB	JUNCTION BOX	STRUCT	STRUCTURAL
CMU	CONCRETE MASONRY UNIT	L	LENGTH	SUSP	SUSPENDED
CONC	CONCRETE	LAD	LINEAR AIR DIFFUSER	T&B	TOP & BOTTOM
CONSTR	CONSTRUCTION	LAM	LAMINATE	T&G	TONGUE & GROOVE
CONT	CONTINUOUS	LRA	LINEAR R/A DIFFUSER	THK	THICK
COORD	COORDINATE	LSA	LINEAR S/A DIFFUSER	TOC	TOP OF CONCRETE
CT	CERAMIC TILE	M&E	MECH & ELEC (INCL PLUMB & FS)	TPD	TOILET PAPER DISPENSER
DEMO	DEMOLITION / DEMOLISH	MANUF	MANUFACTURER	TYP	TYPICAL
DIA	DIAMETER	MAX	MAXIMUM	U/C	UNDER COUNTER
DR	DOOR	MECH	MECHANICAL	U/S	UNDERSIDE
DN	DOWN	MI	MIRROR	UNO	UNLESS NOTED OTHERWISE
DWG(S)	DRAWING(S)	MTD	MOUNTED	VCT	VINYL COMPOSITION TILE
E/A	EXHAUST AIR	MTL	METAL	VERT	VERTICAL
EA	EACH	N	NEW	VEST	VESTIBULE
EL / ELEV	ELEVATION	NIC	NOT IN CONTRACT	VIF	VERIFIED IN FIELD
ELEC	ELECTRICAL	NTS	NOT TO SCALE	W	WIDE
EQ	EQUAL	NUM / #	NUMBER	W/	WITH
EX	EXIST	OD	OUTSIDE DIAMETER	WC	WATER CLOSET
EXP	EXPOSED	PL	PROPERTY LINE	WD	WOOD
EXT	EXTERIOR	PLAS	PLASTIC	WP	WALL PROTECTION
FD	FLOOR DRAIN	PLUMB	PLUMBING	WR	WASTE RECEPTACLE
FDN	FOUNDATION	PLYWD	PLYWOOD	WT	WEIGHT
FE	FIRE EXTINGUISHER	PREFIN	PRE-FINISHED		
FIN	FINISH	PTD	PAINTED		
FIXT	FIXTURE	PTH	PAPER TOWEL HOLDER		
FLR	FLOOR	PTN	PARTITION		
FP	FILLER PANEL				
FR	FIRE RATED				
FS	FIRE SERVICES				

PROJECT TEAM

CLIENT :

NORTHERN HEALTH AUTHORITY
#300 - 299 VICTORIA STREET
PRINCE GEORGE BC V2L 5B8
T : 250 645 6320
E : Leah.Joseph@northernhealth.ca

ARCHITECTURAL CONSULTANT :

DCYT ARCHITECTURE
3022 CAMBIE STREET
VANCOUVER BC V5Z 2V9
T - 778 233 9001
E - dc@dcytarchitecture.ca

STRUCTURAL CONSULTANT :

C. Y. LOH ASSOCIATES
1863 POWELL ST
VANCOUVER BC V5L 1H8
T - 604 254 0868
E - cyla@cyla.ca

MECHANICAL CONSULTANT :

ROCKY POINT ENGINEERING
#302 – 2425 QUEBEC STREET
VANCOUVER BC V5T 4L6
T - 604 559 8809
E - mark.yeung@rpeng.ca

ELECTRICAL CONSULTANT :

NRS ENGINEERING LTD
#212 - 556 NORTH NECHAKO ROAD
PRINCE GEORGE BC V2K 1A1
T - 250 562 0551
E - steve@nrsengineering.ca

CT EQUIPMENT :

GE HEALTHCARE
T - 519 503 8911
E - m.sloan@med.ge.com

PATIENT LIFT :

GULDMANN INC
T - 1 800 664 8834
E - cmm@guldmann.net

DRAWING LIST

ARCHITECTURAL

PHASE 2 - A1.01	LOCATION PLAN & GENERAL NOTES
PHASE 2 - A2.01	GROUND FLOOR DEMOLITION & CONSTRUCTION PLAN
PHASE 2 - A2.02	2ND FLOOR CONSTRUCTION PLAN & SECTION A-A
PHASE 2 - A3.01	GROUND FLOOR DEMO & REFLECTED CEILING PLAN
PHASE 2 - A4.01	WALL AND WINDOW SCHEDULES
PHASE 2 - A4.02	DOOR AND HARDWARE SCHEDULES
PHASE 2 - A4.03	ROOM FINISH SCHEDULE, FINISH SPEC AND MILLWORK DETAILS
PHASE 2 - A4.04	DETAILS
PHASE 2 - A5.01	SPECIFICATIONS - GENERAL CONDITIONS
PHASE 2 - A5.02	SPECIFICATIONS - MATERIALS & FINISHES

STRUCTURAL

PHASE 2 - S3	GENERAL NOTES & PLANS

MECHANICAL

PHASE 2 - M0.00	COVER PAGE
PHASE 2 - M1.00	PLUMBING DEMO PLAN
PHASE 2 - M2.00	HVAC DEMO PLAN
PHASE 2 - M3.00	PLUMBING PLAN
PHASE 2 - M4.00	HVAC PLAN
PHASE 2 - M4.01	ELECTRICAL ROOM HVAC PLAN
PHASE 2 - M5.00	ROOF PLAN
PHASE 2 - M6.00	DETAILS
PHASE 2 - M7.00	SPECIFICATIONS
PHASE 2 - M7.01	SPECIFICATIONS
PHASE 2 - M7.02	SPECIFICATIONS

ELECTRICAL

PHASE 2 - E1	EXISTING & PROPOSED FLOOR PLAN
PHASE 2 - E2	POWER & LIGHTING LAYOUT
PHASE 2 - E3	SINGLE LINE DRAWING
PHASE 2 - E4	ELECTRICAL SPECIFICATIONS

REFERENCE DRAWINGS

GE CT EQUIPMENT
01 TO 12 12 PAGES

GULDMANN PATIENT LIFT
101 TO 105 5 PAGES

ARCHITECT :

DCYT ARCHITECTURE
HEALTHCARE . COMMERCIAL . RESIDENTIAL . INTERIOR DESIGN

WWW.DCYTARCHITECTURE.CA

WORK OUTSIDE PROJECT AREA GENERAL NOTES

1. OBTAIN AUTHORIZATION FROM TO PERFORM WORK OUTSIDE PROJECT AREA PRIOR TO COMMENCEMENT OF WORK
2. ALL WORK TO BE PERFORMED AFTER REGULAR HOURS, UNLESS AUTHORIZED BY OTHERWISE
3. PROVIDE INFECTION CONTROL MEASURES DURING CONSTRUCTION
4. SEE M&E DWGS FOR M&E SCOPE OF WORK
5. REMOVE AND REINSTALL CLNG TILES AND GRID AS REQ'D TO PERFORM M&E WORK.
6. REPLACE CLNG TILES WITH NEW TO MATCH EX IF DAMAGED
7. PERFORM SCANNING OF CONC SLAB TO VERIFY EXISTING M&E SERVICES & REBAR INSIDE SLAB BEFORE CORING OF SLAB
8. PROVIDE FIRE STOPPING TO MAINTAIN FIRE SEPARATION REQ'D FOR ALL NEW FLOOR AND WALL PENETRATIONS
9. REMOVE, REPAIR & REFINISH WALL AND FLOOR IF REQ'D FOR M&E WORK
10. REMOVE AND REPAIR EX UNDERSLAB THERMAL INSULATION IF REQ'D FOR INSTALLATION OF NEW M&E SERVICES - SEE M&E DWGS FOR EXTENT OF WORK

No.	REVISION	DATE	BY
6	ISSUED FOR CONSTRUCTION	FEB 14, 2019	DC
5	ISSUED FOR TENDER	DEC 19, 2018	DC
4	ISSUED FOR 80% CD	NOV 8, 2018	DC
3	ISSUED FOR BUILDING PERMIT	OCT 12, 2018	DC
2	ISSUED FOR 80% DESIGN DEVELOPMENT	OCT 4, 2018	DC
1	NOT ISSUED	-	-

northern health
the northern way of caring

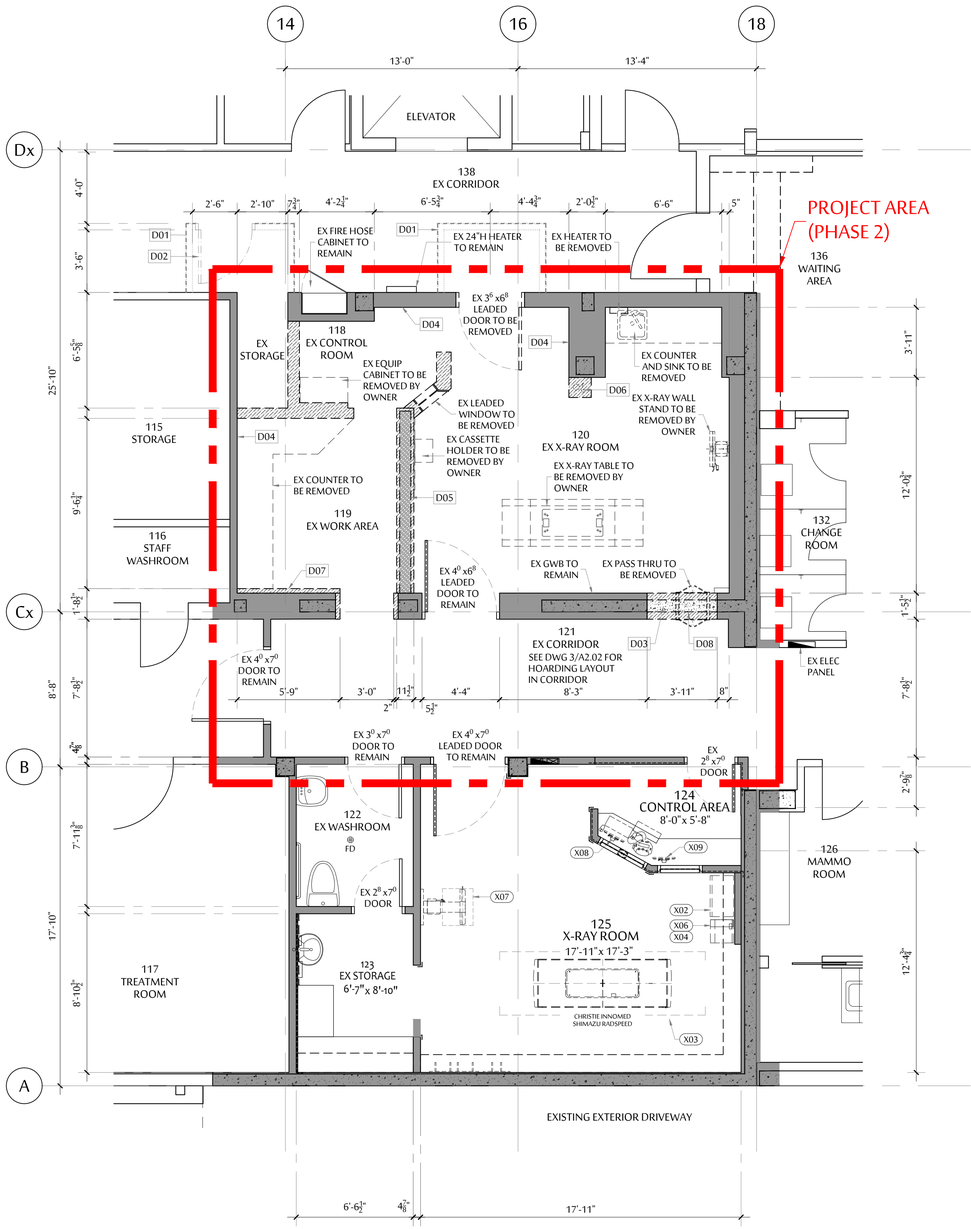
BULKLEY VALLEY DISTRICT HOSPITAL
SMITHERS BC

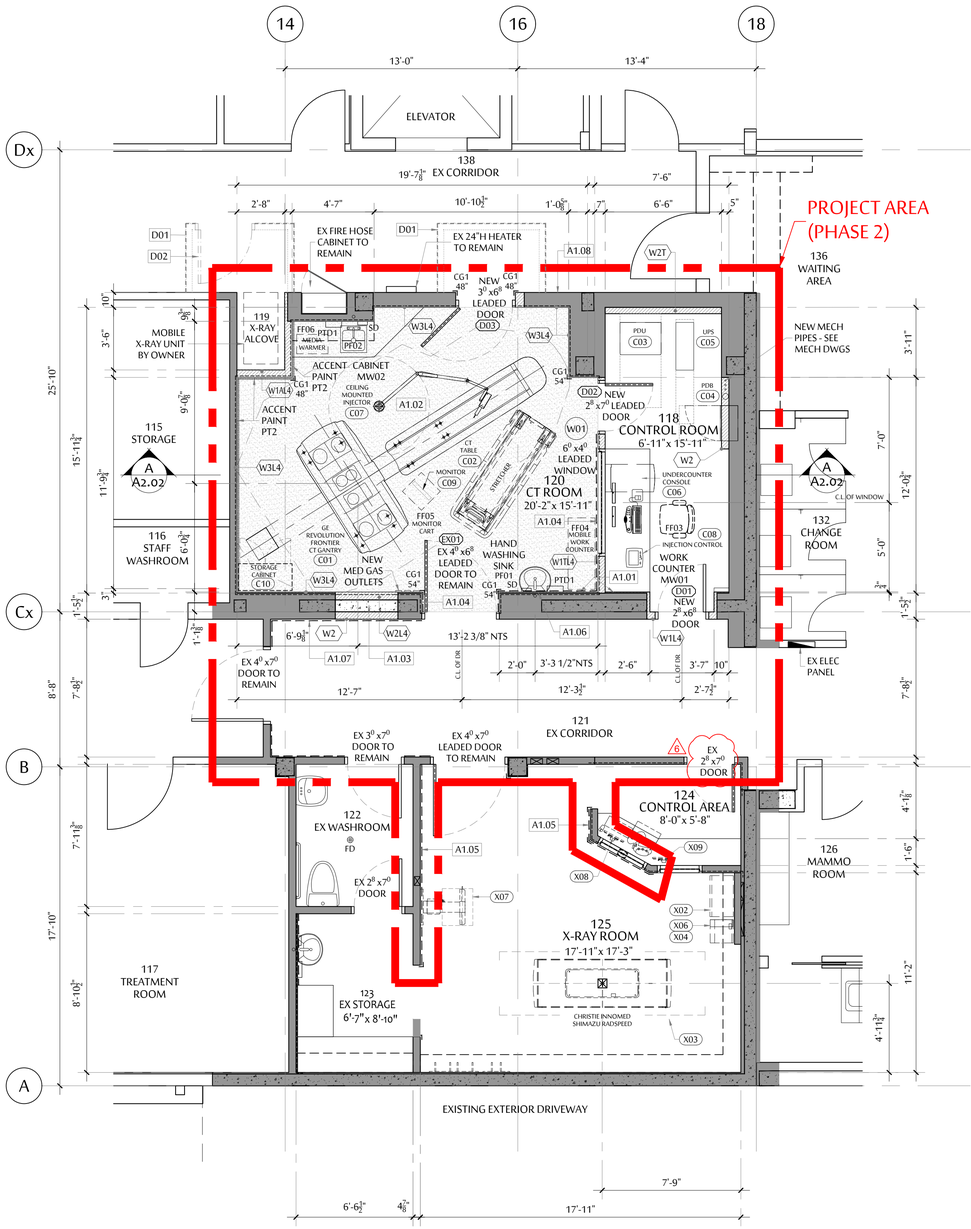
DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS
PHASE 2 - CT INSTALLATION

LOCATION PLAN AND GENERAL NOTES

SCALE: VARIES
DATE: FEB 2018
DRAWN: DC
CHECKED: DC
JOB No.: DCYT1802

PHASE 2
A1.01





1 PHASE 2 - GROUND FLOOR DEMOLITION PLAN

SCALE : 1/4" = 1'-0"

PHASE 2 PROJECT
FLOOR AREA = 435 SF

2 PHASE 2 - GROUND FLOOR CONSTRUCTION PLAN

SCALE : 1/4" = 1'-0"

DEMOLITION KEY NOTES

D01 FULL HT TEMP HOARDING TO UNDERSIDE OF FIN CLNG DURING CONSTRUCTION WITH:
- 92 MM STL STUD FRAMING @ 400 MM O/C
- 16 MM THK TAPED DRYWALL INSTALLED ON OUTSIDE OF PROJECT AREA
- 6 MIL POLY ON INSIDE OF PROJECT AREA

D02 TEMP 3' X 7' DOOR WITH 12" X 12" VISION PANEL DURING CONSTRUCTION

D03 REMOVE EXISTING CONCRETE WALL FOR INSTALLATION OF NEW DOOR - SEE STRUCTURAL DWGS

D04 REMOVE EXISTING DRYWALL AS REQUIRED FOR INSTALLATION OF NEW INSULATION AND LEAD SHIELDING

D05 REMOVE EX MASONRY WALL

D06 REMOVE EX IN-WALL PLUMB PIPES - SEE PLUMB DWGS

D07 REMOVE EXISTING FUR-OUT WALL

D08 CUT CONCRETE WALL ABOVE CEILING FOR MECH DUCTS INSTALLATION - SEE STRUCT AND MECH DWGS FOR DETAILS

FUNITURE & FIXTURE LEGEND

FURNITURE & FIXTURE TO BE SUPPLIED, DELIVERED & ASSEMBLED BY OWNER. CONTRACTOR TO COORDINATE ABOVE WORK AND PROVIDE INSTALLATION IF REQUIRED

FF01 NOT USED
FF02 NOT USED
FF03 TASK CHAIR
FF04 MOBILE WORK COUNTER
FF05 MONITOR CART
FF06 MEDIA WARMER

MILLWORK LEGEND

SEE MILLWORK DRAWINGS FOR DETAILS

MW01 30"D X 30"H CONTROL AREA COUNTER WITH PLAS LAM FINISH
MW02 24"D X 36"H BASE CABINET AND 13"D UPPER CABINET WITH PLAS LAM FINISH

PLUMBING FIXTURE LEGEND

REFER TO PLUMB DWGS FOR DETAILS OF PLUMB FIXTURES

PF01 NEW WALL MOUNTED HAND WASHING SINK WITH HANDS FREE FAUCET
PF02 NEW COUNTER MOUNTED SINK

EQUIPMENT LEGEND

GE REVOLUTION FRONTIER CT
(TO BE SUPPLIED BY EQUIPMENT VENDOR - UNLESS NOTED BY OTHERS)

C01 GANTRY
C02 PATIENT TABLE (2000X)
C03 POWER DISTRIBUTION UNIT (PDU)
C04 POWER DISTRIBUTION BOX (PDB)
C05 PARTIAL UPS
C06 OPERATOR CONSOLE
C07 INJECTOR ON CEILING
C08 INJECTOR CONTROL
C09 MONITOR ON CART (CART BY OWNER)
C10 STORAGE CABINET

DEMOLITION GENERAL NOTES

1. CONTRACTOR TO PROVIDE ALL DEMOLITION AS REQUIRED FOR NEW WORK.

2.OBTAIN APPROVAL FROM HOSPITAL FOR LAYOUT OF TEMP HOARDING AND CONSTRUCT HOARDING PER 'S REQUIREMENTS.

3. CONTRACTOR TO PROVIDE ADEQUATE PROTECTION TO ALL EXISTING PROPERTIES DURING DEMOLITION AND CONSTRUCTION

4. ANY CONCRETE SLAB CUTTING OR DEMOLITION WORK WITH EXCESSIVE NOISE MUST BE PERFORMED AFTER REGULAR HOURS AS PERMITTED BY HOSPITAL. ANY EXTRA COST ASSOCIATED WITH AFTER-HOUR WORK WILL BE PART OF THIS CONTRACT.

3. DISPOSAL OF DEMOLISHED MATERIALS MUST BE CARRIED OUT AFTER REGULAR HOURS THROUGH SERVICE CORRIDORS AS PERMITTED BY THE

4. REMOVAL OF ANY FLOOR FINISHES MUST INCL COMPLETE REMOVAL OF ANY UNDERLAYMENT AND GLUE ADHERED TO THE CONC SLAB.

5. ANY ASSOCIATED M&E SERVICES MUST BE DISCONNECTED BEFORE REMOVAL OF ANY WALL, FLOOR AND CEILING.

6. THE OWNER RESERVES THE RIGHT TO CLAIM ALL DEMOLITION ITEMS WHERE IT MAY BE POSSIBLE TO REUSE IN THE FUTURE. CONFIRM WITH THE OWNER PRIOR TO DISPOSING OF ITEMS.

7. BEFORE ANY CONCRETE SLAB CUTTING AND/OR CORING, CONTRACTOR MUST PERFORM SCANNING OF EX CONC SLAB & DIG OUT TRIAL PITS TO LOCATE AND RECORD ANY EXISTING IN-SLAB OR UNDER-SLAB M&E PIPES, DUCTS, CONDUITS AND UTILITY SERVICES. DRILL AND DIG TRIAL PITS AS REQ'D TO VERIFY EXACT LOCATION OF EX UNDERGROUND SERVICES. CONTRACTOR IS REQUIRED TO SEEK APPROVAL FROM ARCHITECT BEFORE COMMENCEMENT OF THE SLAB CUTTING AND/OR CORING WORK.

8. WHERE PENETRATIONS THROUGH CONCRETE SLAB ARE INACCESSIBLE BY SCAN EQUIPMENT, HAND CHIP CONC SLAB TO INVESTIGATE ANY IN SLAB SERVICES.

9. ALL ASBESTOS CONTAINING MATERIALS DISCOVERED DURING CONSTRUCTION SHALL BE HANDLED ACCORDING TO SPEC SECTION 011000 - "OWNERS GENERAL REQUIREMENTS" AND BE REMOVED ACCORDING TO WORKSAFE BC REQUIREMENTS.

10. FIREPROOF AND PATCH EXISTING FIRE RATED WALL, FLOOR AND CEILING OPENING WITHIN PROJECT AREA TO MATCH EXISTING FIRE RATING.

CONSTRUCTION GENERAL NOTES

1. ALL EXISTING AND NEW PENETRATIONS THROUGH FIRE RATED WALLS & FLOORS SHALL BE FIRESTOPPED & SMOKE SEALED AS REQ'D TO MAINTAIN NECESSARY FIRE RATING. FIRESTOPPING MUST BE PERFORMED WITHOUT DELAY AS SOON AS THEY ARE OPENED, TO PREVENT SPREAD OF FIRE AND SMOKE DURING CONSTRUCTION.

2. REPAIR, PATCH AND SKIM COAT AND LEVELED EXISTING CONC SLAB THROUGHOUT PROJECT AREA PER EQUIPMENT MANUF. SPECIFICATION BEFORE INSTALLATION OF NEW FLOOR FINISHES.

3. EXISTING GWB WALLS SHOWN TO REMAIN SHALL BE SKIM COATED AND SANDED SMOOTH BEFORE RECEIVING PAINT.

4. REMOVE, REPAIR & REFINISH EX DRYWALL AS REQ'D FOR INSTALLATION OF NEW MECH & ELEC PIPES, CONDUITS & EQUIPMENT.

5. STRUCTURAL DESIGN FOR NEW STL LINTEL & CONC SLAB TRENCHING & REPLACEMENT, IF ANY, SHALL BE PERFORMED BY A LICENSED STRUCT ENG & PAID FOR BY CONTRACTOR.

6. PATCH AND REFINISH DRYWALL WHERE EX M&E WALL OUTLETS, PENETRATIONS & EQUIPMENT ARE REMOVED AND DISCARDED.

7. PROVIDE BACKING ON WALLS FOR MILLWORK, HANDRAILS, CHAIR RAILS, BATHROOM ACCESSORIES, M&E FIXTURES AND ANY EQUIP AS REQUIRED. SEE M&E AND EQUIP DWGS FOR BACKING LOCATIONS AND REQUIREMENTS

8. FOR NEW LEAD LINED WALL, LEAD LINE ALL NEW AND EX TO REMAIN WALLS, OUTLETS, PENETRATIONS, PIPES, AND DUCT WORK TO MAINTAIN CONTINUITY OF SHIELDING - SEE SPEC SECTION 130900 RADIATION PROTECTION.

9. SKIM COAT ALL EXISTING CONC FLOOR TO RECEIVE NEW FLOORING THROUGHOUT PROJECT AREA

10. REPAIR EX SPRAY THERMAL INSULATION BELOW CONC SLAB FOR ALL NEW PIPE AND CONDUIT PENETRATIONS TO BELOW, IF APPLICABLE.

CONSTRUCTION KEY NOTES

- ALL WORKS BELOW ARE NEW INCLUDING SUPPLY & INSTALLATION OF MATERIALS U.N.O.

A1.01 INSTALL 7'H 4LB LEAD SHIELDING AND 5/8" GWB ON TOP OF EXISTING DRYWALL. FINAL GWB TO FLUSH WITH EX 3/4" THK BULKHEAD ABOVE.

A1.02 INSTALL FLOOR UNDERLAYMENT IN CT ROOM TO CREATE FLOOR LEVELNESS TO MEET 6MM OVER 3000MM FLATNESS PER CT EQUIP INSTALLATION DWGS

A1.03 FILL EXISTING WALL OPENING WITH NEW CONCRETE WALL - SEE STRUCT DWGS

A1.04 4'-6" H WALL PROTECTION COVERING (WP2) ABOVE 6" WALL BASE

A1.05 SUPPLY AND INSTALL 4'-0" H WALL PROTECTION COVERING (WP2) ABOVE 6" WALL BASE IN X-RAY ROOM 125 DURING AFTER HOURS

A1.06 PROVIDE BACKING FOR PLUMB FIXT - SEE MECH DWGS

A1.07 WALL PROTECTION COVERING (WP1) - STYLE, COLOR & HT TO MATCH EX

A1.08 REPAINT WALL AND REPLACE EX RUBBER BASE WITH NEW FOR THE WHOLE LENGTH OF WALL TO MATCH EX

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DRAWING LEGEND

- EXISTING WALL TO BE REMOVED (INCL ELEC, MECH, PLUMB & SPRINKLER WORK WITHIN WALL)
- EXISTING WALL TO REMAIN
- NEW WALL
- NEW WALL WITH ACOUST INSULATION
- EX 3'X7' DOOR — EXISTING DOOR TO REMAIN
- EX 3'X7' DOOR — EXISTING DOOR TO BE REMOVED OR RELOCATED
- D1 — NEW DOOR (SEE DOOR SCHEDULE)
- 1 / A1.01 — INTERIOR ELEVATION # / DWG #
- 1 / A1.01 — CROSS SECTION # / DWG #
- W1L4 — WALL TYPE - SEE WALL SCHEDULE FOR DETAILS
- W1 — WINDOW TYPE - SEE WINDOW SCHEDULE FOR DETAILS
- NEW FURNITURE (SHOWN DASHED) TO BE SUPPLIED BY OWNER (NIC)
- CG1 — 90° CORNER GUARD (SEE DET 5/A4.04)
- CG2 — 135° (OR CUSTOM ANGLE) CORNER GUARD (SEE DET 6/A4.04)
- CG3 — WRAP AROUND CORNER GUARD
- FD — FLOOR DRAIN
- GB — GRAB BAR
- HMI — HANDICAPPED MIRROR
- MI — MIRROR

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3	ISSUED FOR BUILDING PERMIT	OCT 12, 2018	DC
2	ISSUED FOR 80% DESIGN DEVELOPMENT	OCT 4, 2018	DC
1	ISSUED FOR SCHEMATIC DESIGN	SEPT 14, 2018	DC

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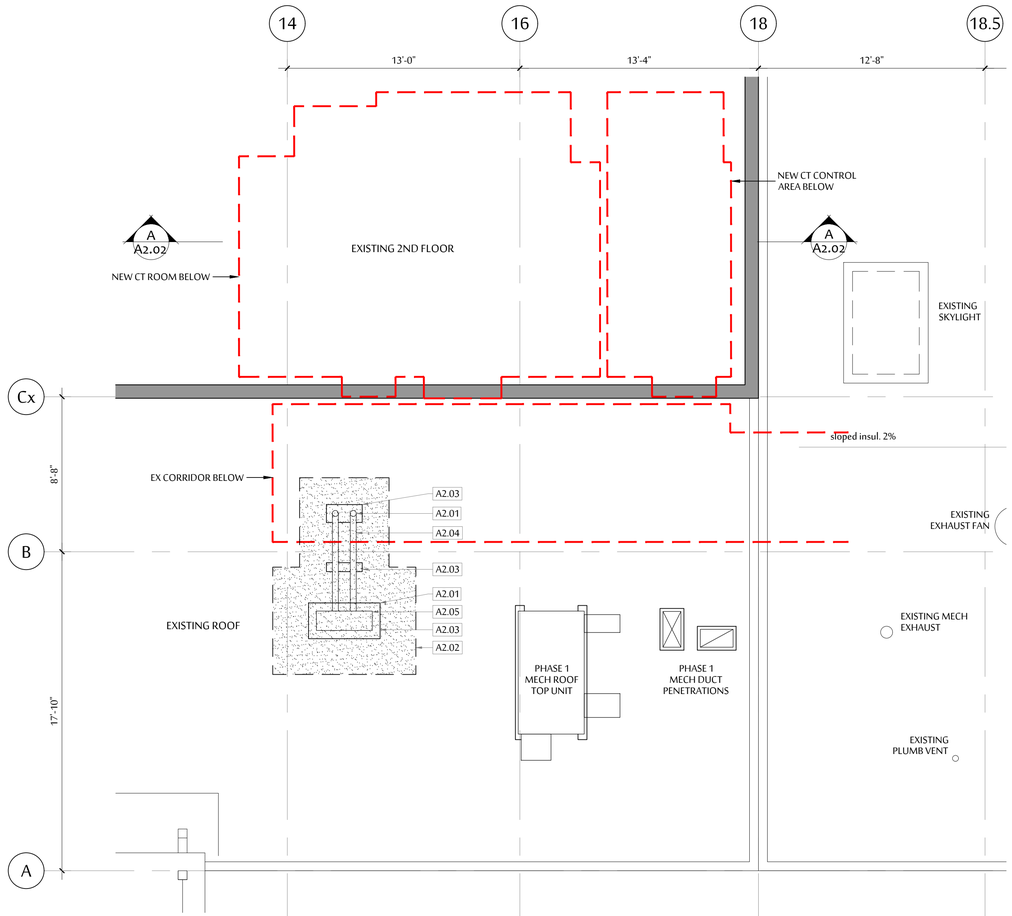
PHASE 2 - CT INSTALLATION

GROUND FLOOR DEMOLITION AND CONSTRUCTION PLAN

SCALE: 1/4" = 1'-0"
DATE: DEMOLITION AND
DRAWN: DC
CHECKED: DC
JOB No.: DCYT1802

PHASE 2
A2.01

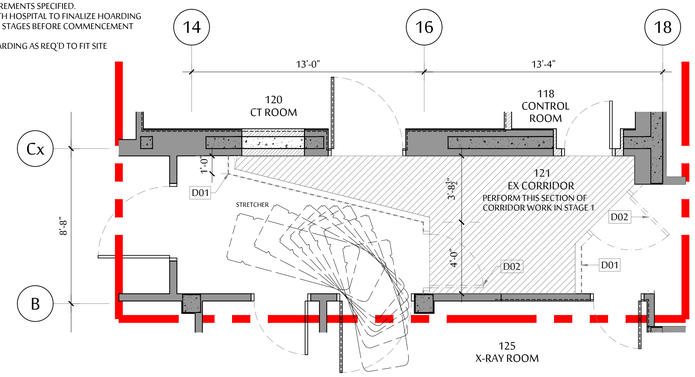


1 PHASE 2 - 2ND FLOOR DEMOLITION & CONSTRUCTION PLAN

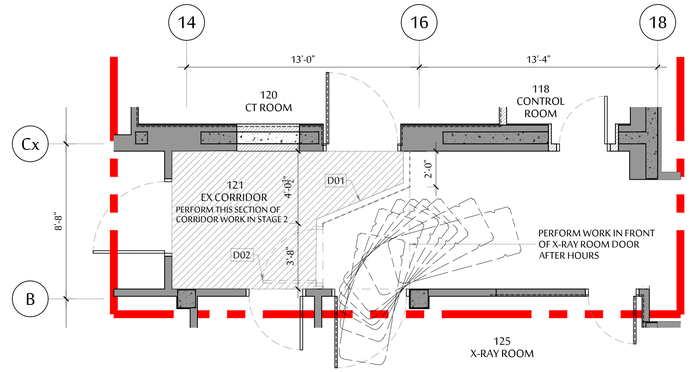
SCALE : 1/4" = 1'-0"

PERFORM WORK IN EX CORRIDOR 121 IN 2 STAGES (OR MORE IF REQUIRED) TO ALLOW STRETCHER ACCESS TO NEW X-RAY ROOM 125 AT ALL TIMES

1. PERFORM WORK WITHIN HOARDING PER INFECTION CONTROL REQUIREMENTS SPECIFIED.
2. DISCUSSED WITH HOSPITAL TO FINALIZE HOARDING LAYOUT AT BOTH STAGES BEFORE COMMENCEMENT OF WORK
3. MODIFIED HOARDING AS REQ'D TO FIT SITE CONDITIONS



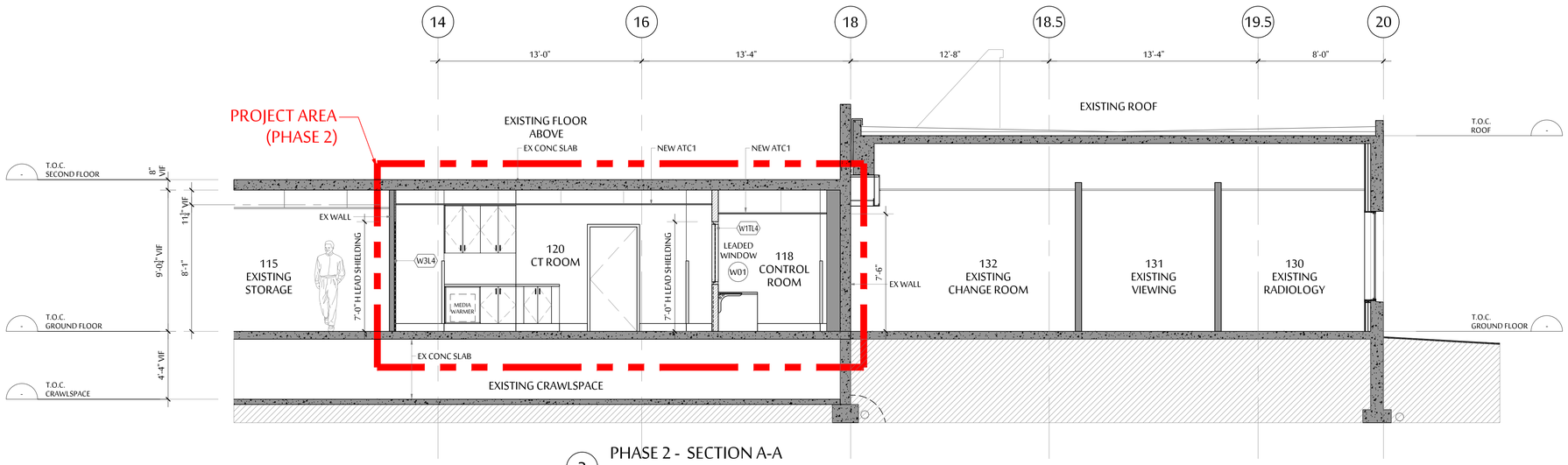
STAGE 1 - HOARDING LAYOUT FOR WORK IN SOUTH SECTION OF EX CORRIDOR 121



STAGE 2 - HOARDING LAYOUT FOR WORK IN NORTH SECTION OF EX CORRIDOR 121

3 PHASE 2 - 2-STAGE TEMPORARY HOARDING LAYOUT

SCALE : 1/4" = 1'-0"



2 PHASE 2 - SECTION A-A

SCALE : 1/4" = 1'-0"

WORK OUTSIDE PROJECT AREA GENERAL NOTES

1. OBTAIN AUTHORIZATION FROM TO PERFORM WORK OUTSIDE PROJECT AREA PRIOR TO COMMENCEMENT OF WORK
2. ALL WORK TO BE PERFORMED AFTER REGULAR HOURS, UNLESS AUTHORIZED BY OTHERWISE
3. PROVIDE INFECTION CONTROL MEASURES DURING CONSTRUCTION
4. SEE M&E DWGS FOR M&E SCOPE OF WORK
5. REMOVE AND REINSTALL CLNG TILES AND GRID AS REQ'D TO PERFORM M&E WORK.
6. REPLACE CLNG TILES WITH NEW TO MATCH EX IF DAMAGED
7. PERFORM SCANNING OF CONC SLAB TO VERIFY EXISTING M&E SERVICES & REBAR INSIDE SLAB BEFORE CORING OF SLAB
8. PROVIDE FIRE STOPPING TO MAINTAIN FIRE SEPARATION REQ'D FOR ALL NEW FLOOR AND WALL PENETRATIONS
9. REMOVE, REPAIR & REFINISH WALL AND FLOOR IF REQ'D FOR M&E WORK
10. REMOVE AND REPAIR EX UNDERSLAB THERMAL INSULATION IF REQ'D FOR INSTALLATION OF NEW M&E SERVICES - SEE M&E DWGS FOR EXTENT OF WORK

ROOF GENERAL NOTES

1. LOCATION OF EXISTING MECHANICAL & PLUMBING EQUIPMENT ON ROOF ARE APPROXIMATE ONLY, EXACT LOCATION TO BE DETERMINED ON SITE.
2. NOT ALL MECHANICAL & PLUMBING EQUIPMENT ARE SHOWN ON ROOF.
3. CONTRACTOR TO VERIFY OTHER M&E EQUIPMENT ON ROOF IF REQUIRED.
4. ROOF PLAN AND ELEVATION SHOWN ON THIS DRAWING ARE EXISTING EXCEPT FOR WORK NOTED AS NEW (ALSO SEE STRUCT, MECH AND ELEC DWGS FOR SCOPE OF WORK)
5. CONTRACTOR TO TAKE PRECAUTION & ALL MEASURES TO AVOID ANY DAMAGE TO EX. BLDG. FINISHES AND BLDG ENVELOPE COMPONENTS.
6. CONTRACTOR TO PROVIDE ALL NECESSARY TEMPORARY ANCHORS AND SUPPORTS FOR THE DELIVERY OF MECH EQUIP.
7. OBTAIN APPROVAL FROM HOSPITAL FOR ANY ATTACHMENTS TO THE EX. BLDG. SYSTEM OF STRUCTURE. SEE STRUC. DWGS. FOR ANY ADDITIONAL REQUIRMENTS.
8. SUPPLY AND INSTALL ROOF CURBS FOR MECH EQUIP TO BE BY MECH CONTRACTOR - SEE MECH DWGS
9. REPAIR AND INSTALL NEW ROOF SYSTEM AROUND ALL SIDES OF ROOF CURBS, INCLUDING CAP FLASHINGS TO BE PROVIDED BY ROOFING CONTRACTOR.
10. ROOFING CONTRACTOR TO PROVIDE LABOR & MATERIAL WARRANTY TO MATCH EXISTING ROOF SYSTEM.
11. ROOFING CONTRACTOR TO BE A CERTIFIED RCABC MEMBER IN GOOD STANDING.

ROOF CONSTRUCTION KEY NOTES

REFER TO MECH AND ELEC DWGS FOR M&E SCOPE OF WORK

A2.01 REMOVE EX ROOF INSUL & WATERPROOFING AS REQ'D. CUT AND/OR CORE EX CONC SLAB FOR INSTALLATION OF NEW M&E EQUIP

A2.02 REPAIR EX ROOF INSUL TO MATCH EX. REPAIR AND INSTALL WATERPROOFING UP PIPES, CONDUITS, DUCTS AND EQUIP CURBS

A2.03 SLEEPERS FOR MECH EQUIP - SEE DETAIL 8/A4.04

A2.04 NEW MECH PIPINGS - SEE MECH DWGS

A2.05 NEW MECH ROOF TOP CONDENSER SECURED ON ROOF SLEEPERS - SEE MECH DWGS

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DRAWING LEGEND

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- EXISTING WALL TO REMAIN
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- EX 3'X7' DOOR — EXISTING DOOR TO REMAIN
- EX 3'X7' DOOR — EXISTING DOOR TO BE REMOVED OR RELOCATED
- D1 — NEW DOOR (SEE DOOR SCHEDULE)
- 1 / A1.01 — INTERIOR ELEVATION # / DWG #
- 1 / A1.01 — CROSS SECTION # / DWG #
- W1L4 — WALL TYPE - SEE WALL SCHEDULE FOR DETAILS
- W1 — WINDOW TYPE - SEE WINDOW SCHEDULE FOR DETAILS
- NEW FURNITURE (SHOWN DASHED) TO BE SUPPLIED BY OWNER (NIC)
- CG1 — 90° CORNER GUARD (SEE DET 5/A4.04)
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- FD — FLOOR DRAIN
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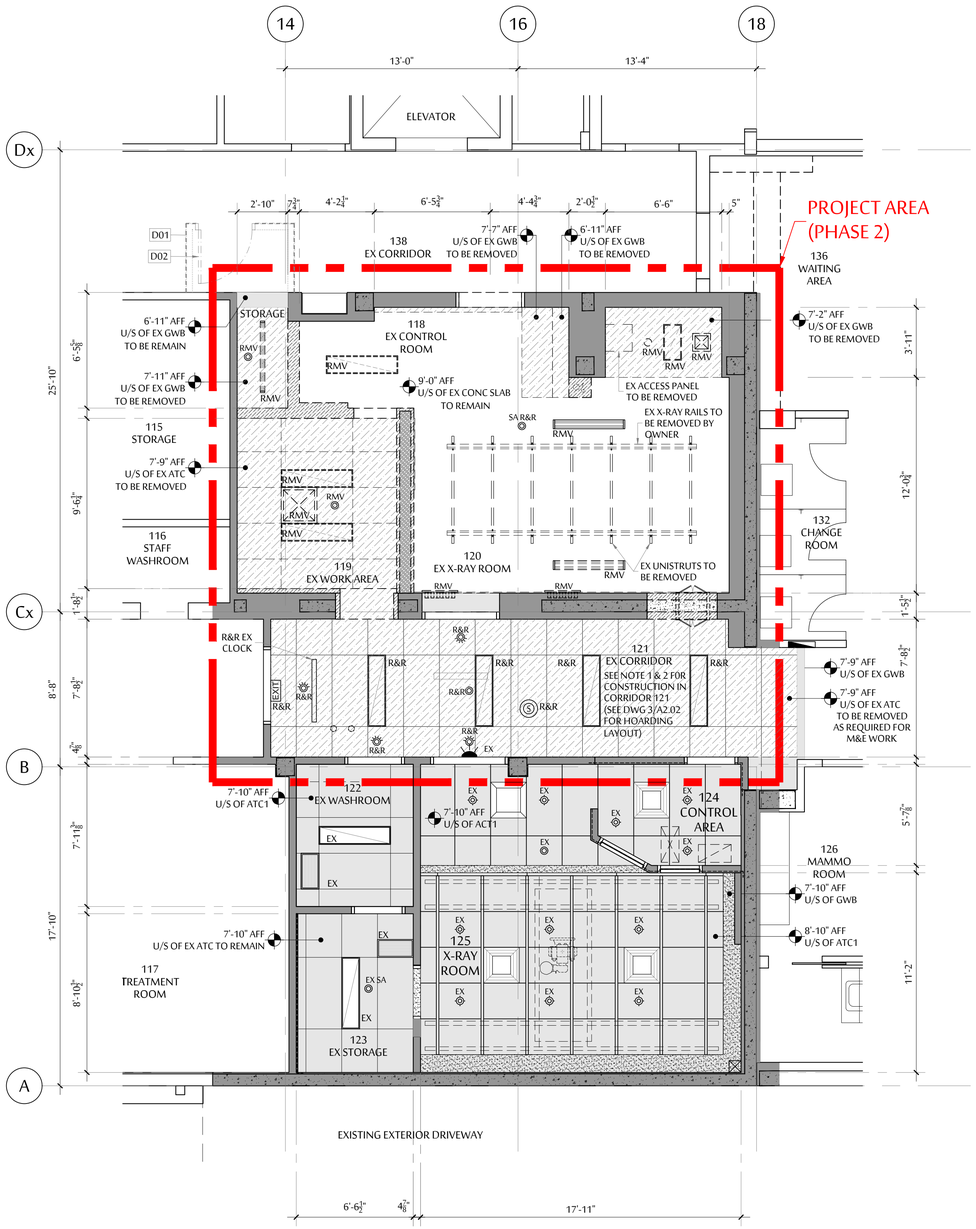
PHASE 2 - CT INSTALLATION

2ND FLOOR CONSTRUCTION PLAN AND SECTION

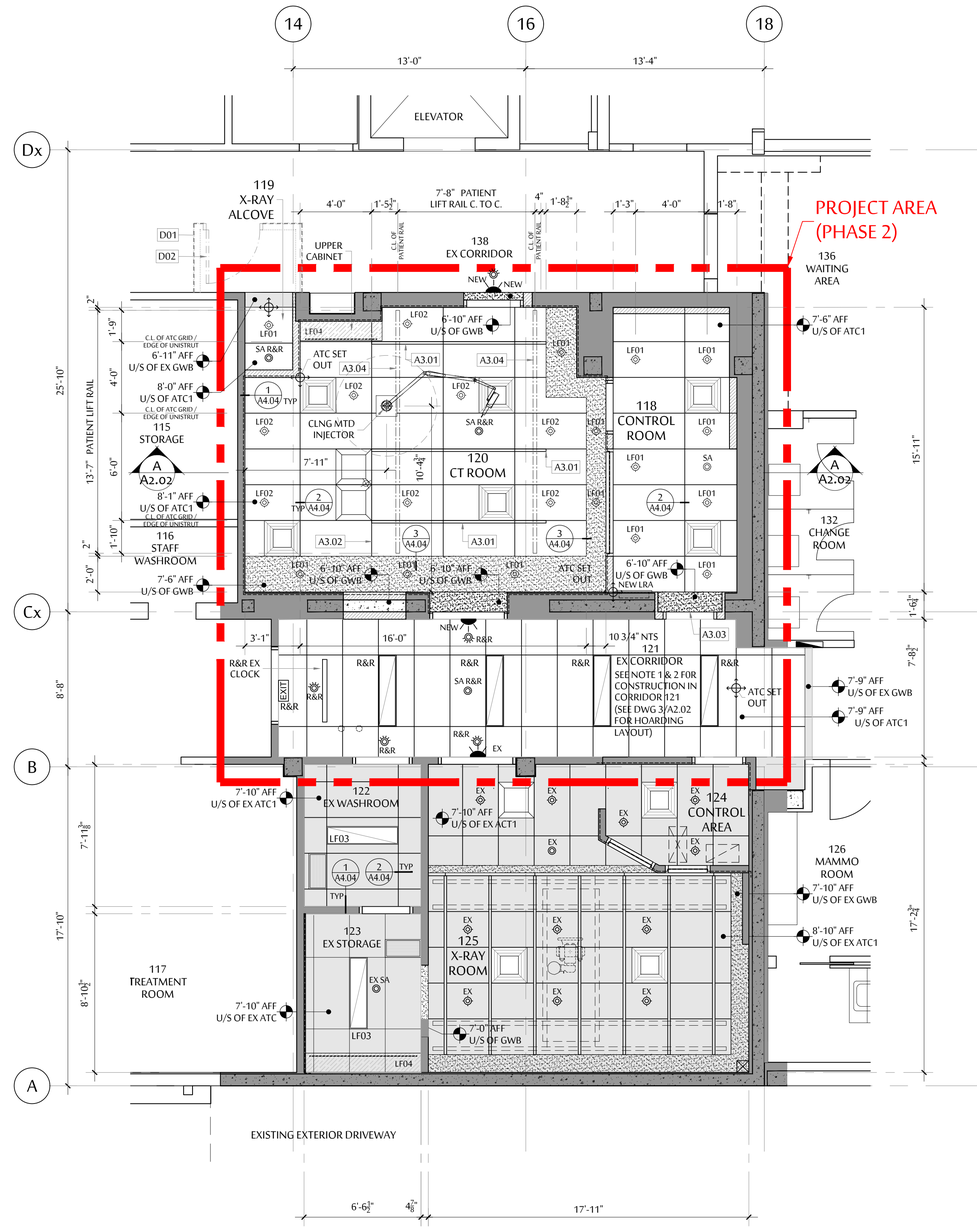
SCALE: 1/4" = 1'-0"
DATE: FEB 2018
DRAWN: DC
CHECKED: DC
JOB No.: DCYT1802

PHASE 2
A2.02



1 PHASE 2 - GROUND FLOOR DEMOLITION REFLECTED CEILING PLAN

SCALE : 1/4" = 1'-0"



2 PHASE 2 - GROUND FLOOR CONSTRUCTION REFLECTED CEILING PLAN

SCALE : 1/4" = 1'-0"

EXISTING 121 CORRIDOR CEILING CONSTRUCTION - ALSO SEE M&E DWGS

NOTE 1 :
A. REMOVE AND STORE EX ELEC FIXTURES IN CEILING
B. REMOVE AND DISCARD EXISTING ATC
C. INSTALL MECH AND ELEC DUCTWORK, PIPES AND CABLES PER M&E DWGS
D. INSTALL NEW ATC - LAYOUT TO MATCH EX
E. REINSTALL EX ELEC FIXTURES - LAYOUT TO MATCH EX

NOTE 2 :
A. PERFORM WORK IN DIFFERENT STAGES AS REQUIRED SO AS TO PROVIDE 24 HOUR ACCESS TO THE NEW X-RAY ROOM
B. SET UP TEMPORARY HOARDING AS REQUIRED FOR DIFFERENT STAGES TO MEET INFECTION CONTROL REQUIREMENTS
C. PERFORM WORK AFTER HOURS AS REQUIRED TO MINIMIZE DISRUPTION TO NEW X-RAY ROOM DAILY OPERATIONS

CEILING LEGEND

SEE M&E DWGS FOR M&E CLNG FIXTURE DETAILS.
ALL EQUIPMENT SHOWN AS NEW UNLESS OTHERWISE NOTED

- RMV — EXISTING EQUIP TO BE REMOVED
- RLC — EXISTING EQUIP TO BE RELOCATED
- R&R — EXISTING EQUIP TO BE REMOVED & REINSTALLED
- EXISTING CLNG (SHADED)
- SUSP CLNG GRID
- GYPSUM WALL BOARD CEILING
- 24" X 24" SUPPLY AIR DIFFUSER
- 24" X 24" RETURN AIR DIFFUSER
- 24" X 24" RETURN AIR DIFFUSER
- 12" X 24" RETURN AIR DIFFUSER
- LINEAR SUPPLY AIR DIFFUSER (LSA)
- LINEAR RETURN AIR DIFFUSER (LRA)
- EX — EXHAUST DIFFUSER
- CLNG MTD LIGHT FIXTURE
- CLNG MTD RECESSED POT LIGHT
- 24" X 24" RECESSED LED LIGHT BOX
- 24" X 48" RECESSED LED LIGHT BOX
- 12" X 48" FLUORESCENT LIGHT BOX
- TRACK LIGHT
- S — RECESSED CEILING SPEAKER
- SA — SMOKE ALARM
- EXIT — EXIT SIGN
- EMERGENCY LIGHT
- RECESSED TYPE SPRINKLER HEAD
- ATC SET OUT POINT
- C.O.RM — SET ATC TO CENTRE OF ROOM
- SECURITY CAMERA
- WALL MTD NURSE NOTIFICATION LIGHT
- WALL MOUNTED IN-USE LIGHT
- CEILING MTD NURSE NOTIFICATION LIGHT
- UNDERCABINET LED STRIP LIGHT

LIGHT FIXTURE SCHEDULE

LF01	3" DIA RECESSED LED POTLIGHT
LF02	4" DIA RECESSED LED POTLIGHT
LF03	12" X 48" RECESSED LED LIGHT (NOT USED)
LF04	UNDER CABINET LED STRIP LIGHT

CEILING GENERAL NOTES

1. SURFACE MTD. LIGHT FIXT. IN SUSP CLNG TO BE HUNG FROM STRUCTURAL COMPONENTS ABOVE. DO NOT HANG FROM SUSP CLNG.

2. ALL ACOUST TILE CLNG GRIDS SHALL BE CENTERED IN ROOMS OR BULKHEAD UNLESS NOTED OTHERWISE.

3. CENTER ALL M&E DEVICES IN CEILING PANEL UNO. SEE MECH, ELEC, PLUMB AND FIRE SERVICES DWGS FOR LOCATIONS.

4. NO TILE DIMENSION SHALL BE LESS THAN 6" UNO. REVIEW WITH ARCHITECT PRIOR TO PROCEEDING.

5. NOT ALL MEP DEVICES ARE SHOWN ON ARCH REFLECTED CLNG PLAN. SEE M&E DWGS FOR COMPLETE QUANTITY.

6. DISCREPANCIES AMONG ARCHITECT'S AND ENGINEER'S DWGS IN REFLECTED CLNG PLAN LAYOUT AND M&E DEVICES LOCATIONS SHALL BE REPORTED TO ARCHITECT FOR CLARIFICATIONS BEFORE COMMENCEMENT OF WORK.

7. ALLOW IN CONTRACT FOR ADJUSTMENT OF CLNG HEIGHTS TO FIT SITE CONDITIONS.

8. CONTRACTOR TO ENSURE ALL SUSP CLNG CONSTRUCTION TO BE STRUCTURALLY ENGINEERED TO CONFORM TO ALL BUILDING CODES.

9. REMOVE ANY DAMAGED EX CEILING TILES & REPLACE WITH NEW THROUGHOUT SCOPE OF WORK.

CEILING CONSTRUCTION NOTES

- ALL WORKS BELOW ARE NEW INCLUDING SUPPLY & INSTALLATION OF MATERIALS U.N.O.

A3.01 UNISTRUT FRAMING MOUNTED FLUSH TO CLNG TILES - SEE STRUCT DWGS FOR DETAILS
A3.02 ATC AND UNISTRUT INSTALLATION MUST BE LEVELED WITHIN 1/8" OVER ENTIRE EXAM ROOM
A3.03 NEW MECH DUCT PENETRATION THROUGH CONC WALL ABOVE CEILING - SEE MECH DWGS
A3.04 PATIENT LIFT & RAILS TO BE SUPPLIED AND INSTALLED BY OTHERS (N.I.C.). CONTRACTOR TO COORDINATE AS REQ'D - SEE PATIENT LIFT INSTALLATION DWGS FOR REFERENCE

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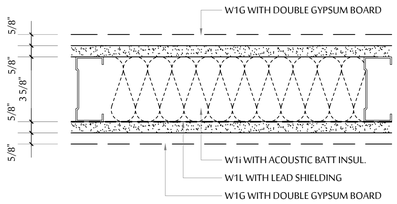
PHASE 2 - CT INSTALLATION

GROUND FLOOR DEMO & REFLECTED CEILING PLANS

SCALE: 1/4" = 1'-0"
DATE: FEB 2018
DRAWN: DC
CHECKED: DC
JOB No.: DCYT1802

PHASE 2
A3.01

WALL SCHEDULE

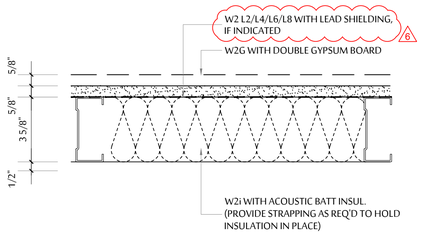


W1 — NON-RATED WALL ASSEMBLY

WALL ASSEMBLY TO EXTEND 152MM (6") ABOVE FINISHED CEILING & TIED TO STRUCT SLAB ABOVE WITH STEEL STUD BRACING

- 16 MM (5/8") GYPSUM BOARD
- 92 MM (3-5/8") 25 GA STEEL STUD AT 400MM (16") O.C.
- 16 MM (5/8") GYPSUM BOARD

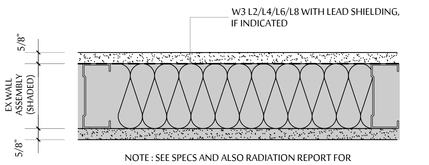
suffix A	SAME AS W1 EXCEPT WALL ASSEMBLY TO BE FULL HT FROM FLR TO STRUCT SLAB ABOVE & 20 GA STL STUD INSTEAD OF 25 GA.
suffix G	SAME AS W1 EXCEPT WITH DOUBLE GYPSUM BOARD ON BOTH SIDES
suffix i	SAME AS W1 EXCEPT WITH ACOUSTIC BATT INSULATION TO FILL WALL CAVITY AND CONT ACOUSTIC SEALANTS BETWEEN GYPSUM BOARD AND FLOOR (STC = 47)
suffix T	SAME AS W1 EXCEPT WITH 152MM (6") 20 GA STEEL STUD AT 400MM (16") O.C. INSTEAD OF 92MM (3 5/8") STEEL STUD
suffix L2/L4/L6/L8	SAME AS W1 EXCEPT USE 1/2" GYPSUM BOARD ON ONE SIDE OF WALL (APPLY TO WALL WHERE CONTAINS LEADED DOOR AND/OR WINDOW ONLY) USE 20 GA STEEL STUD INSTEAD OF 25 GA AND WITH 7' HIGH CONTINUOUS LEAD SHIELDING AS FOLLOWS : L2 = 0.8MM (1/32") THK LEAD LINING (2 LB) L4 = 1.6MM (1/16") THK LEAD LINING (4 LB) L6 = 2.4MM (3/32") THK LEAD LINING (6 LB) L8 = 3.2MM (1/8") THK LEAD LINING (8 LB)



W2 — FUR-OUT WALL ASSEMBLY

-16 MM (5/8") GYPSUM BOARD
- 92 MM (3-5/8") 25 GA STEEL STUD AT 400MM (16") O.C.

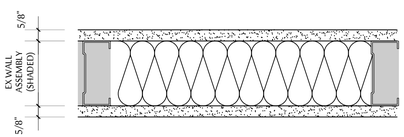
suffix A	SAME AS W1 EXCEPT WALL ASSEMBLY TO BE FULL HT FROM FLR TO STRUCT SLAB ABOVE & 20 GA STL STUD INSTEAD OF 25 GA
suffix G	SAME AS W2 EXCEPT WITH DOUBLE GYPSUM BOARD ON ROOM SIDE
suffix i	SAME AS W2 EXCEPT WITH ACOUSTIC BATT INSULATION TO FILL WALL CAVITY AND CONT ACOUSTIC SEALANTS BETWEEN GYPSUM BOARD AND FLOOR
suffix S	SAME AS W2 EXCEPT WITH 41MM (1 5/8") 25 GA STEEL STUD AT 400MM (16") O.C. INSTEAD OF 92MM (3 5/8") STEEL STUD
suffix T	SAME AS W2 EXCEPT WITH 152MM (6") 20 GA STEEL STUD AT 400MM (16") O.C. INSTEAD OF 92MM (3 5/8") STEEL STUD
suffix L2/L4/L6/L8	SAME AS W2 EXCEPT WITH 7' HIGH CONTINUOUS LEAD SHIELDING AS FOLLOWS : L2 = 0.8MM (1/32") THK LEAD LINING (2 LB) L4 = 1.6MM (1/16") THK LEAD LINING (4 LB) L6 = 2.4MM (3/32") THK LEAD LINING (6 LB) L8 = 3.2MM (1/8") THK LEAD LINING (8 LB) 6



W3 — NEW LEAD SHIELDING INSTALLATION ON EXISTING WALL

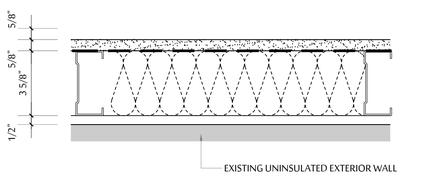
- 16MM (5/8") GYPSUM BOARD
- EXISTING FULL HEIGHT DEMISING WALL

suffix L2/L4/L6/L8	SAME AS W3 EXCEPT WITH 7' HIGH CONTINUOUS LEAD SHIELDING AS FOLLOWS : L2 = 0.8MM (1/32") THK LEAD LINING (2 LB) L4 = 1.6MM (1/16") THK LEAD LINING (4 LB) L6 = 2.4MM (3/32") THK LEAD LINING (6 LB) L8 = 3.2MM (1/8") THK LEAD LINING (8 LB)



W4 — EXISTING WALL FRAMING ASSEMBLY (NON-RATED)

- 16MM (5/8") GYPSUM BOARD
- EXISTING STEEL STUD FRAMING
- ACOUSTIC BATT INSULATION TO FILL WALL CAVITY AND CONT ACOUSTIC SEALANTS BETWEEN GYPSUM BOARD AND FLOOR
- 16MM (5/8") GYPSUM BOARD

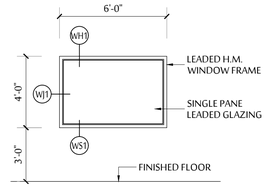


W5 — FUR-OUT WALL ASSEMBLY ON UNINSULATED EXTERIOR WALL

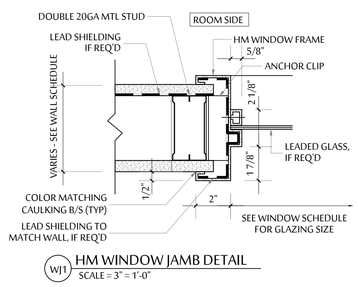
-16 MM (5/8") GYPSUM BOARD
- 6 MIL POLY VAPOUR AND AIR BARRIER
- 92 MM (3-5/8") 25 GA STEEL STUD AT 400MM (16") O.C.
- WITH ACOUSTIC BATT INSULATION
- 12MM (1/2" AIR GAP)
- EXISTING UNINSULATED EXTERIOR WALL

GENEARL NOTES :

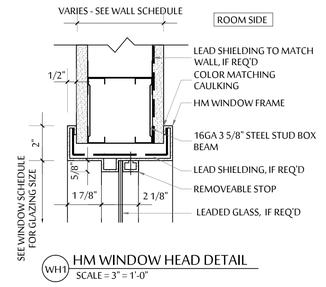
WINDOW SCHEDULE



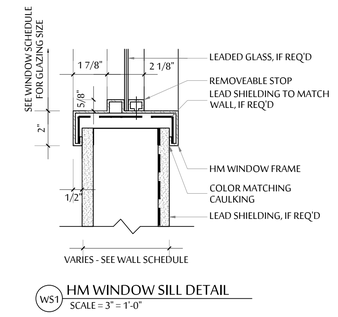
W01 - WITH 4LB LEAD EQUIVALENT



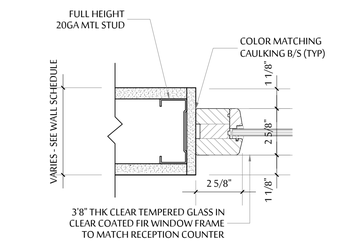
WJ1 HM WINDOW JAMB DETAIL
SCALE = 3" = 1'-0"



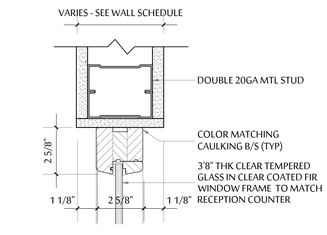
WH1 HM WINDOW HEAD DETAIL
SCALE = 3" = 1'-0"



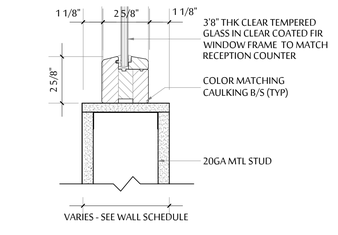
WS1 HM WINDOW SILL DETAIL
SCALE = 3" = 1'-0"



WJ2 WOOD WINDOW JAMB DETAIL (NOT USED)
SCALE = 3" = 1'-0"



WH2 WOOD WINDOW HEAD DETAIL (NOT USED)
SCALE = 3" = 1'-0"



WS2 WOOD WINDOW SILL DETAIL (NOT USED)
SCALE = 3" = 1'-0"

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No.	REVISION	DATE	BY
6	ISSUED FOR CONSTRUCTION	FEB 14, 2019	DC
5	ISSUED FOR TENDER	DEC 19, 2018	DC
4	ISSUED FOR 80% CD	NOV 8, 2018	DC
3	ISSUED FOR BUILDING PERMIT	OCT 12, 2018	DC
2	NOT ISSUED	-	-
1	NOT ISSUED	-	-

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BULKLEY VALLEY DISTRICT HOSPITAL
SMITHERS BC

DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS
PHASE 2 - CT INSTALLATION

WALL AND WINDOW SCHEDULES

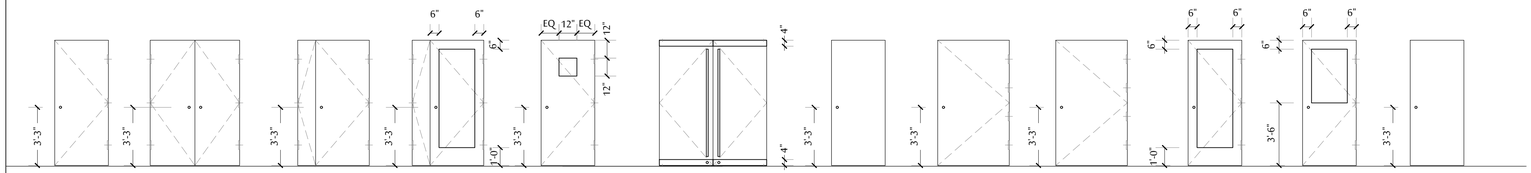
SCALE: VARIES
DATE: FEB 2018
DRAWN: DC
CHECKED: DC
JOB No.: DCYT1802

PHASE 2
A4.01

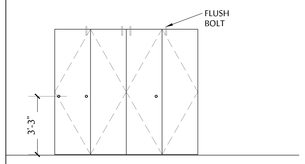
DOOR & FRAME SCHEDULE

DOOR NUMBER	LOCATION		DOOR									FRAME						THRESHOLD	GLASS				FIRE RATING	NOTES
	FROM	TO	DOOR TYPE	WIDTH	HEIGHT	THICKNESS	MATERIAL	CORE	FINISH	HARDWARE SET	LEAD LINING	MAT'L	FRAME TYPE	JAMB TYPE	HEAD TYPE	FINISH	LEAD LINING		LAM TEMPERED	TEMPERED	GEORGIAN WIRED	LOW-E		
EX01	121 EX CORRIDOR	120 CT ROOM	I	4'-0"	6'-8"	1 3/4"	EX WOOD	EX	PAINT PT4	HW1	EX 4 LB (VIF)	EX HM	-	-	-	PAINT PT3	EX 4 LB (VIF)	-	-	-	-	-	-	EX DOOR & FRAME TO REMAIN. REPAINT DOOR AND FRAME.
D01	121 EX CORRIDOR	118 CONTROL ROOM	A	2'-8"	6'-8"	1 3/4"	WOOD	SOLID	PAINT PT4	HW4	-	HM	A	J1	H1	PAINT PT3	-	T1	-	-	-	-	-	-
D02	120 CT ROOM	118 CONTROL ROOM	I	2'-8"	7'-0"	1 3/4"	WOOD	SOLID	PAINT PT4	HW2	1.6mm (4lb)	HM	D	J1	H1	PAINT PT3	1.6mm (4lb)	T1	-	-	-	-	-	LEADED DOOR SUPPLIED BY OWNER, FRAME SUPPLIED BY CONTRACTOR. PREP DOOR FRAME TO MATCH DOOR SUPPLIED BY OWNER. DOOR HARDWARE ~~SUPPLIED BY CONTRACTOR~~ ALL INSTALLATION BY CONTRACTOR
D03	138 EX CORRIDOR	120 CT ROOM	I	3'-0"	6'-8"	1 3/4"	WOOD	SOLID	PAINT PT4	HW3	1.6mm (4lb)	HM	D	J1	H1	PAINT PT3	1.6mm (4lb)	T1	-	-	-	-	-	-

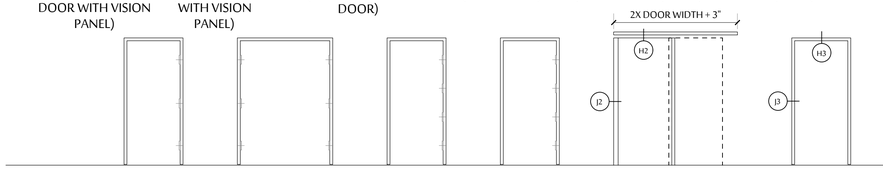
NOTE :
1. SEE FINISH SCHEDULE ON DWG A4.03 FOR PAINT COLORS



DOOR TYPE A (SINGLE DOOR) | DOOR TYPE B (DOUBLE DOOR) | DOOR TYPE C (UNEVEN DOUBLE DOOR) | DOOR TYPE D (UNEVEN DOUBLE DOOR WITH VISION PANEL) | DOOR TYPE E (SINGLE DOOR WITH VISION PANEL) | DOOR TYPE F (ENTRANCE GLASS DOOR) | DOOR TYPE G (BARN DOOR) | DOOR TYPE H (MRI RM DOOR) | DOOR TYPE I (CT RM DOOR) | DOOR TYPE J (SINGLE FRENCH) | DOOR TYPE K (WITH VISION PANEL) | DOOR TYPE L (POCKET DOOR)



DOOR TYPE M

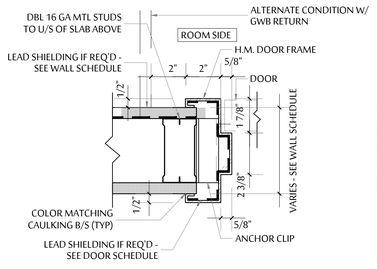


FRAME TYPE A (SINGLE DOOR) | FRAME TYPE B (DOUBLE DOOR) | FRAME TYPE C (MRI) | FRAME TYPE D (LEADED) | FRAME TYPE E (BARN DOOR) | FRAME TYPE F (POCKET DOOR)

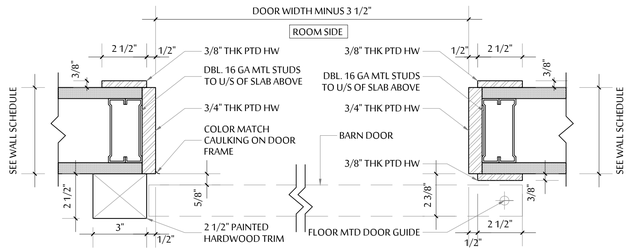
DOOR HARDWARE SCHEDULE

HARDWARE #	QTY	DESCRIPTION	MANUFACTURER	SPECIFICATION	FINISH
HW1 (EX LEADED DOOR TO CT ROOM)	-	HINGE	-	EX TO REMAIN	26D
	1	LOCKSET	SCHLAGE	LEVER PRIVACY SET L9040 17B - 1/16" (4LB) LEAD LINED ON SITE	626
	1	CLOSER	LCN	4040XP - PULL SIDE & METAL COVER (SIZE 6 FOR 48" WIDE DOOR)	689
	2	ARMOR PLATE	WILSONART	INSTALL 36"H PLASTIC LAMINATE ARMOR PLATE D439-60 WITH SCREWS TO MATCH EX	MATTE
	1	WALL STOP	GSH	250 (PROVIDE BACKING BEHIND DRYWALL)	26D
HW2 (NEW LEADED DOOR TO CONTROL ROOM)	4	HINGE	MCKINNEY	4 1/2" X 4 1/2" HEAVY WT MPB68 - 1/16" (4LB) LEAD LINED	26D
	1	LOCKSET	SCHLAGE	LEVER PASSAGE SET L9010 17B - 1/16" (4LB) LEAD LINED ON SITE	626
	1	CLOSER	LCN	4040XP - PULL SIDE & METAL COVER	689
	1	ARMOR PLATE	WILSONART	CT ROOM SIDE - INSTALL 36"H PLASTIC LAMINATE ARMOR PLATE D439-60 WITH SCREWS TO MATCH EX	MATTE
	1	KICK PLATE	GSH	CONTROL ROOM SIDE - 12" X 30 1/2" TAPE ONLY	32D
	1	FLOOR STOP	GSH	200	26D
HW3 (NEW LEADED DOOR TO CT ROOM)	4	HINGE	MCKINNEY	4 1/2" X 4 1/2" HEAVY WT MPB68 - 1/16" (4LB) LEAD LINED	26D
	1	LOCKSET	SCHLAGE	LEVER PRIVACY SET L9040 17B - 1/16" (4LB) LEAD LINED ON SITE	626
	1	CLOSER	LCN	4040XP - PULL SIDE & METAL COVER WITH 120 DEGREE SWING AND DELAYED ACTION	689
	2	ARMOR PLATE	WILSONART	INSTALL 36"H PLASTIC LAMINATE ARMOR PLATE D439-60 WITH SCREWS TO MATCH EX	MATTE
	1	FLOOR STOP	GSH	200	26D
HW4 (CONTROL ROOM)	3	HINGE	MCKINNEY	4 1/2" X 4" MACPRO MPB79 FULL MORTISE STANDARD WEIGHT BEARING	26D
	1	LOCKSET	SCHLAGE	LEVER PRIVACY SET L9040 17B	626
	1	CLOSER	LCN	4040XP - PULL SIDE & METAL COVER	689
	1	ARMOR PLATE	WILSONART	CORRIDOR SIDE - INSTALL 36"H PLASTIC LAMINATE ARMOR PLATE D439-60 WITH SCREWS TO MATCH EX	32D
	1	KICK PLATE	GSH	CONTROL ROOM SIDE - 12" X 30 1/2" TAPE ONLY	26D
	1	WALL STOP	GSH	250 (PROVIDE BACKING BEHIND DRYWALL)	26D

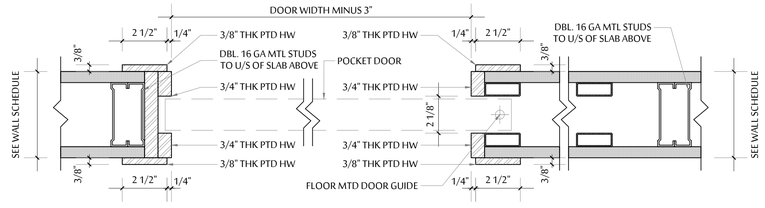
NOTE :
1. SINGLE DOOR FRAME TO COME WITH 3 RUBBER BUMPERS ON SIDE OF FRAME AND DOUBLE DOOR FRAME WITH 2 ON TOP OF FRAME



J1 HM DOOR JAMB DETAIL
SCALE = 3" = 1'-0"



J2 BARN DOOR JAMB DETAIL (NOT USED)
SCALE = 3" = 1'-0"



J3 POCKET DOOR JAMB DETAIL (NOT USED)
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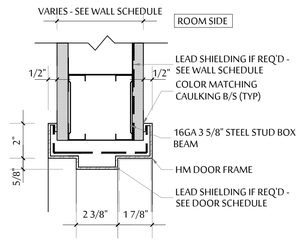
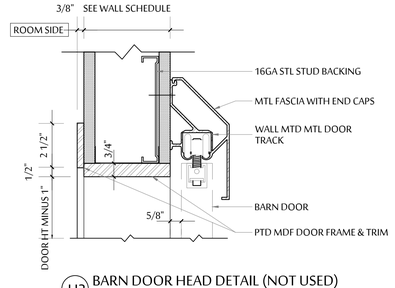
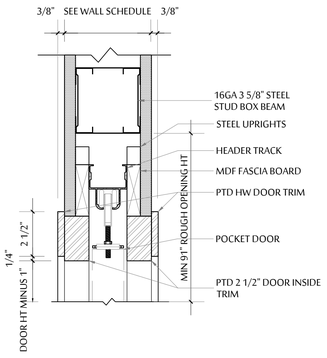


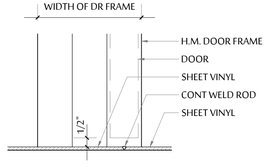
H1 HM DOOR HEAD DETAIL
SCALE = 3" = 1'-0"



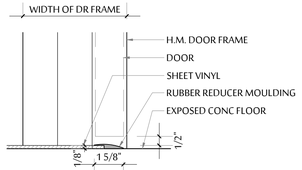
H2 BARN DOOR HEAD DETAIL (NOT USED)
SCALE = 3" = 1'-0"



H3 POCKET DOOR HEAD DETAIL (NOT USED)
SCALE = 3" = 1'-0"



T1 TYPICAL THRESHOLD DETAIL
SCALE = 3" = 1'-0"



T2 EXP CONC THRESHOLD DETAIL (NOT USED)
SCALE = 3" = 1'-0"

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SMITHERS BC

DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS
PHASE 2 - CT INSTALLATION

DOOR AND HARDWARE SCHEDULES

SCALE: VARIES
DATE: FEB 2018
DRAWN: DC
CHECKED: DC
JOB No.: DCYT1802

PHASE 2
A4.02

ROOM FINISH SCHEDULE

LOCATION		WALL				FLOOR (SEE NOTE 2)	BASE	CEILING	NOTES
RM #	ROOM NAME	NORTH	EAST	SOUTH	WEST				
118	CONTROL ROOM	PAINT PT1	PAINT PT1	PAINT PT1	PAINT PT1	SHEET VINYL SV1	6" H INTEGRAL BASE SV1	SUSP CEILING ATC1	
119	X-RAY ALCOVE	PAINT TO MATCH EXISTING WALL COLOR IN CORRIDOR				EX VINYL FLOOR REPAIR AS REQ'D	NEW WALL BASE TO MATCH EX	SUSP CEILING ATC1	SHEET VINYL FLOORING FOR PATCHING TO BE PROVIDED BY HOSPITAL (6)
120	CT ROOM	PAINT PT2	PAINT PT1	PAINT PT1	PAINT PT1	SHEET VINYL SV1	6" H INTEGRAL BASE SV1	SUSP CEILING ATC1	
121	EXISTING CORRIDOR	-	PAINT PT1	-	-	EX VINYL FLOOR REPAIR AS REQ'D	EXISTING RUB BASE REPAIR AS REQ'D	SUSP CEILING ATC1	SHEET VINYL FLOORING FOR PATCHING TO BE PROVIDED BY HOSPITAL (6)

GENEARL NOTES :
1. SEE DWG 7/A4.04 FOR INTEGRAL SHEET VINYL WALL BASE DETAIL
2. PATCH & SKIM COAT TO LEVEL EX FLOOR BEFORE INSTALLING SHEET VINYL FLOOR

FINISH & FIXTURE SPECIFICATION

	DESCRIPTION	TYPE	SIZE	BRAND	MODEL	COLOR/FINISH	NOTES
PAINT	WALL - FIELD COLOR	PT1	-	GENERAL PAINT	HP2000	TO MATCH MAMMO ROOM	SHEEN : EGGSHELL FOR ALL EXCEPT USE SATIN FOR WASHROOM
	WALL - ACCENT COLOR	PT2	-	GENERAL PAINT	HP2000	FRESH WATER	SHEEN : EGGSHELL FOR ALL EXCEPT USE SATIN FOR WASHROOM
	METAL DOOR FRAME	PT3	-	GENERAL PAINT	HP2000	MUTINY	SHEEN : SEMI-GLOSS
	WOOD DOOR	PT4	-	GENERAL PAINT	HP2000	FRESH WATER	SHEEN : SEMI-GLOSS
	CEILING / SOFFIT	PT5	-	GENERAL PAINT	HP2000	SAME AS WALL FIELD COLOR	SHEEN : FLAT
FLOORING	SHEET VINYL - GENERAL	SV1	2mm THICK	JOHNSONITE TARKETT	IQ GRANIT	777 BLUE VERANDA	-
MILLWORK	PLAS LAM-CLINICAL DOORS	PL1	-	WILSONART	HUNGTINGTON MAPLE	7929-38 (FINE VELVET TEXTURE)	-
	PLAS LAM-CLINICAL COUNTER	PL2	-	WILSONART	OXIDE	1787-60 (MATTE)	-
	DOOR HANDLE	DH1	-	RICHELIEU	1076	CHROME	-
WALL PROTECTION	CORNER GUARD 90 DEG	CG1	3" LEG	C/S ACROVYN 4000	SM-20N	#305 MUSHROOM	SEE FLOOR PLAN FOR HEIGHT
	CORNER GUARD 135 DEG	CG2	3" LEG	C/S ACROVYN 4000	SM-20MN	#305 MUSHROOM	SEE FLOOR PLAN FOR HEIGHT / SUPPLY CUSTOM ANGLE CORNER IF REQ'D
	WALL PROTECTION	WP1	0.06" THK	C/S ACROVYN 4000	-	COLOR TO MATCH EXISTING	COMPLETE WITH COLOR MATCHING CAULKING AT BUTT JOINT & TOP CAP
	WALL PROTECTION	WP2	0.06" THK	C/S ACROVYN 4000	-	#305 MUSHROOM	COMPLETE WITH COLOR MATCHING CAULKING AT BUTT JOINT & TOP CAP
CEILING	SUSPENDED T-BAR	ATC1	15/16"	ARMSTRONG	PRELUDE XL 15/16" EXPOSED TEE	WHITE	-
	ACOUSTIC CEILING PANEL		24" X 24"/48"	ARMSTRONG	CORTEGA SQUARE LAY-IN #824/#823	WHITE	NRC : 0.55 / CAC : 35
MISCELLAENOUS	PAPER TOWEL DISPENSER	PTD					TO BE SUPPLIED (INCLUDING BACKER BOARD) BY OWNER AND INSTALLED BY CONTRACTOR
	SOAP DISPENSER	SP					TO BE SUPPLIED (INCLUDING BACKER BOARD) BY OWNER AND INSTALLED BY CONTRACTOR
	FLOOR LEVEL UNDERLAYMENT	-	-	ARDEX	K 15	-	-

GENEARL NOTES :

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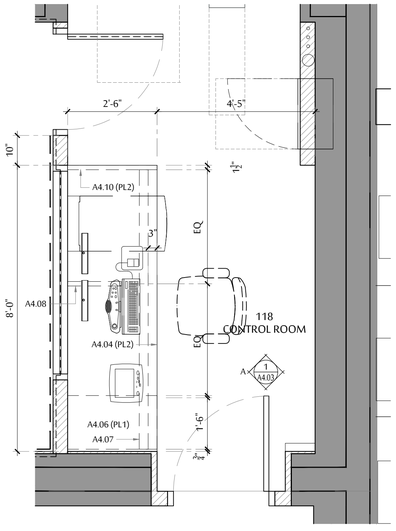
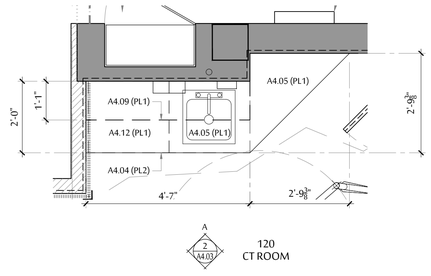
MILLWORK DETAIL KEY NOTES

- ALL WORKS BELOW ARE NEW INCLUDING SUPPLY & INSTALLATION OF MATERIALS U.N.O.
- SEE DWG A4.03 FOR FINISHES AND WASHROOM ACCESSORIES SPECIFICATIONS
- ALL SOLID FIR AND FIR VENEER TO BE VERTICAL GRAIN WITH CLEAR LACQUERED FINISH
- ALL DOOR HINGES AND DRAWER SLIDES TO BE SOFT CLOSING

M01	PAINTED DRYWALL
M02	COUNTERTOP WITH DOUBLE 3/4" THK PLYWOOD WITH PLAS LAM FINISH
M03	FLOOR BASE - SEE MILLWORK ELEVATIONS
M04	3/4" THK END PANEL WITH PLAS LAM FINISH
M05	CABINET OR DRAWER DOOR PULL
M06	CONT COLOR MATCHING CAULKING WHERE MILLWORK MEETS WALL AND FLOOR AND SUSPENDED ACOUSTIC CEILING
M07	3/4" THK MDF CABINET DOOR OR DRAWER FRONT WITH PLAS LAM FINISH
M08	ADJUSTABLE RECESSED METAL SHELF STANDARDS (TYP)
M09	3/4" PLYWOOD BUILT CABINETRY OR DRAWER WITH PLAS LAM FINISH - ALL EXPOSED FASTENERS TO BE COUNTERSUNK WITH MATCHING SCREW COVERS
M10	ADJUSTABLE 3/4" THK PLYWOOD SHELF WITH PLAS LAM FINISH AND 3MM THK RIGID PVC ACCENT EDGE
M11	RECESSED LED STRIP LIGHTING WHERE INDICATED - SEE ELEC DWGS
M12	1 1/2" W MATCHING PLAS LAM SELF EDGING
M13	BLACK SPEEDBRACE METAL BRACKET
M14	WOOD BLOCK FRAMING
M15	3/4" THK END OR SIDE PANEL WITH PLAS LAM FINISH
M16	FIXED 3/4" THK PLYWOOD SHELF WITH PLAS LAM FINISH AND 3MM THK RIGID PVC ACCENT EDGE
M17	1 PIECE CONT 3/4" X 3" SUPPORTING STEEL SECTION UNDER COUNTERTOP



1 MILLWORK MW01
PLAN AT 118 CONTROL ROOM
SCALE = 1/2" =1'-0"

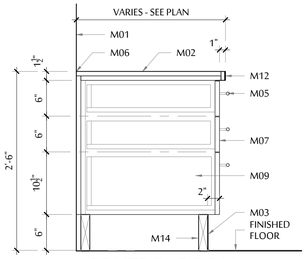


2 MILLWORK MW02 - PLAN AT 120 CT ROOM
SCALE = 1/2" =1'-0"

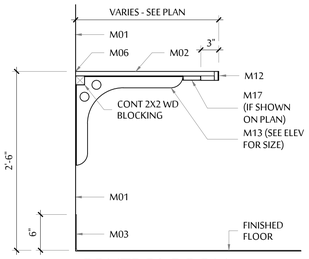
INTERIOR KEY NOTES

- ALL WORKS BELOW ARE NEW INCLUDING SUPPLY & INSTALLATION OF MATERIALS U.N.O.
- SEE DWG FOR FINISHES AND WASHROOM ACCESSORIES SPECIFICATIONS
- ALL SOLID FIR AND FIR VENEER TO BE VERTICAL GRAIN WITH CLEAR LACQUERED FINISH (NOT APPLICABLE)

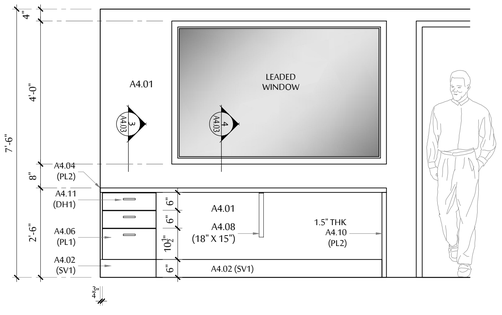
A4.01	PAINTED DRYWALL
A4.02	INTEGRAL SHEET VINYL BASE WITH TOP CAP
A4.03	CORNER GUARD
A4.04	1 1/2" THK COUNTERTOP WITH PLASTIC LAMINATE FINISH & MATCHING SELF EDGING
A4.05	BASE CABINET WITH DOORS
A4.06	BASE CABINET WITH DRAWERS
A4.07	1 PIECE CONT 3/4" X 3" SUPPORTING STEEL SECTION UNDER COUNTERTOP
A4.08	BLACK SPEEDBRACE METAL BRACKET
A4.09	UPPER CABINET WITH DOORS
A4.10	END, SIDE OR TOP PANEL WITH PLASTIC LAMINATE FINISH
A4.11	DOOR OR DRAWER HANDLE
A4.12	BASE CABINET WITH SHELVING



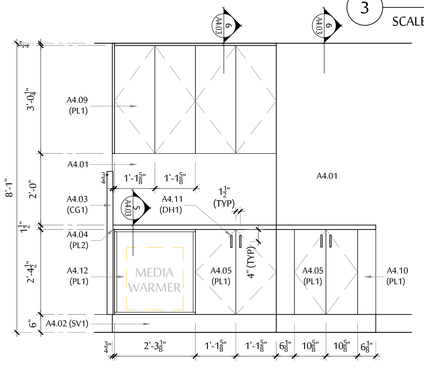
3 CONTROL ROOM
DESKTOP SECTION
SCALE = 1" =1'-0"



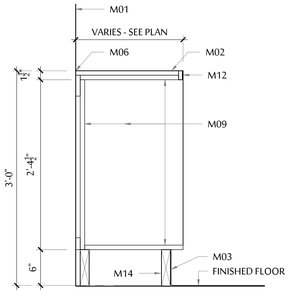
4 CONTROL ROOM
DESKTOP SECTION
SCALE = 1" =1'-0"



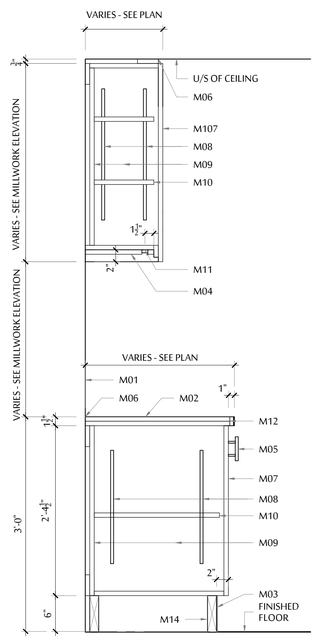
1A MILLWORK MW01 - FRONT ELEVATION
SCALE = 1/2" =1'-0"



2A MILLWORK MW02 - FRONT ELEVATION
SCALE = 1/2" =1'-0"



5 LOWER SHELVING SECTION
SCALE = 1" =1'-0"



6 LOWER & UPPER CABINET SECTION
SCALE = 1" =1'-0"

No.	REVISION	DATE	BY
6	ISSUED FOR CONSTRUCTION	FEB 14, 2019	DC
5	ISSUED FOR TENDER	DEC 19, 2018	DC
4	ISSUED FOR 80% CD	NOV 8, 2018	DC
3	NOT ISSUED	-	-
2	NOT ISSUED	-	-
1	NOT ISSUED	-	-

northern health
the northern way of caring

BULKLEY VALLEY DISTRICT HOSPITAL

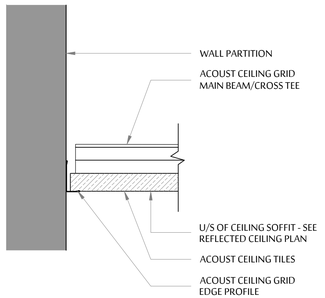
SMITHERS BC

DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS
PHASE 2 - CT INSTALLATION

ROOM FINISH SCHEDULE, FINISH SPECIFICATION & MILLWORK DETAILS

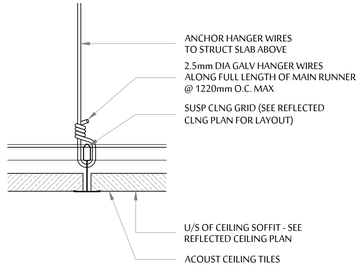
SCALE: VARIES
DATE: FEB 2018
DRAWN: DC
CHECKED: DC
JOB No.: DCYT1802

PHASE 2
A4.03



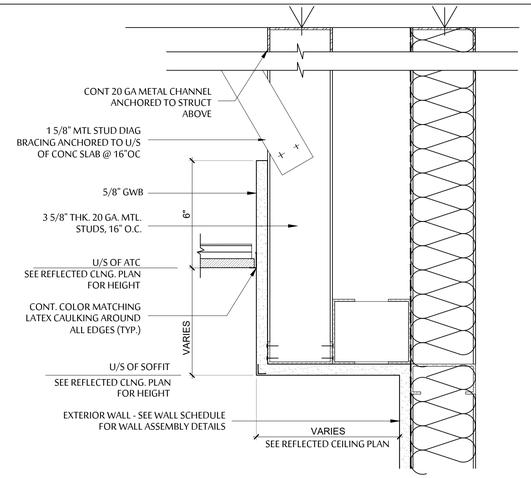
1 ACOUSTIC TILE CEILING EDGE DETAIL (TYPICAL)

SCALE : HALF FULL SIZE



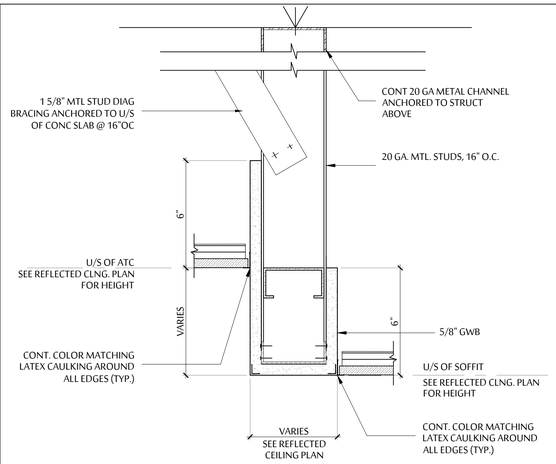
2 ACOUSTIC TILE CEILING GRID DETAIL (TYPICAL)

SCALE : HALF FULL SIZE



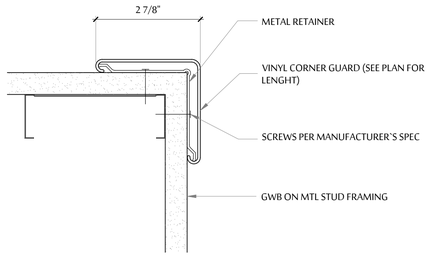
3 ACOUSTIC TILE CEILING & DRYWALL SOFFIT DETAIL

SCALE : 3" = 1'-0"



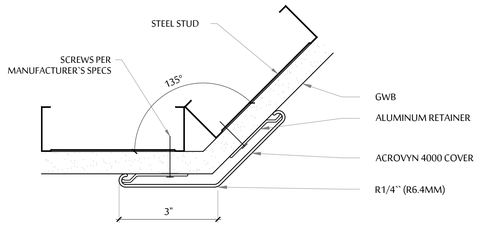
4 ACOUSTIC TILE CEILING & DRYWALL SOFFIT DETAIL

SCALE : 3" = 1'-0"



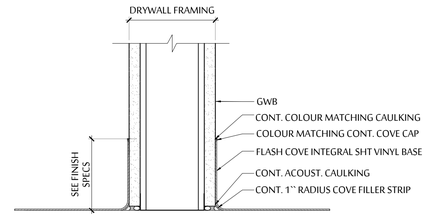
5 L- SHAPE CORNER GUARD DETAIL

SCALE : HALF FULL SIZE



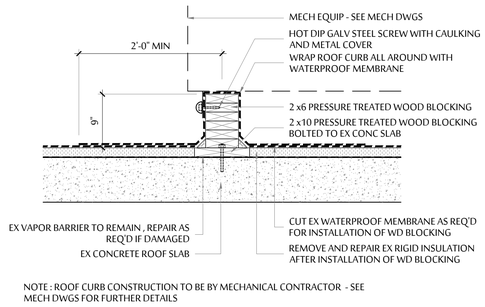
6 90° TO 160° WALL CORNER GUARD DETAIL (NOT USED)

SCALE : HALF FULL SIZE



7 SHEET VINYL COVE WALL BASE DETAIL

SCALE : 3" = 1'-0"



NOTE : ROOF CURB CONSTRUCTION TO BE BY MECHANICAL CONTRACTOR - SEE MECH DWGS FOR FURTHER DETAILS

8 ROOF CURB (FOR MECH EQUIP) DETAIL

SCALE : 1" = 1'-0"

ARCHITECT :

DCYT ARCHITECTURE
HEALTHCARE . COMMERCIAL . RESIDENTIAL . INTERIOR DESIGN

WWW.DCYTARCHITECTURE.CA

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BULKLEY VALLEY DISTRICT HOSPITAL

SMITHERS BC

DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS

PHASE 2 - CT INSTALLATION

DETAILS

SCALE: VARIES
DATE: FEB 2018
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PHASE 2
A4.04

01 10 00 GENERAL REQUIREMENTS

1.Construction Documents, Pricing and Contract :
1.1. All enquiries related to these documents, including any requests for information and clarification and to note any discrepancies, omissions or incompleteness, are to be directed by email to the Architect.
1.2. Proposed alternatives to the specified materials, along with a full description and justification for the alternative, may be submitted in writing to the Architect for approval.
1.3. At time of pricing, Contractor is responsible to visit and carefully examine the site, the access thereto, all existing conditions, utilities and services which may have to be protected, removed, or relocated, and all limitations and difficulties which may be encountered. No after claim will be allowed or entertained for any work or material that may be required for the proper execution and completion of the work that should be uncovered during the site examination.
1.4. Form of Contract : Canadian Construction Documents Committee CCDC2/2008 Stipulated Price Contract and Supplementary Conditions as listed on this documents

2.Owner's Rules and Regulations:
2.1. Contractor and sub-contractors are required to adhere to Health Organization policies. The policies can be found at this link: www.northernhealth.ca. Contractor shall conform to CSA Z317.13-12 "Infection control during construction, renovation, and maintenance of health care facilities".
2.2.

3.Site Conditions :
3.1. Site will be occupied and remain in use throughout the duration of Work.
3.2. All work required to be out of normal hours shall be coordinated with and shall have prior approval of the owner.
3.3. The Contractor shall not disrupt existing building(s) or site service(s) or cause inconvenience to the Owner or to patients, residents or staff without the Owner's prior written approval.

4.Work Safety :
4.1. The Contractor and Subcontractors in performing the work shall comply with the Workplace Health & Safety Programs in place at **Northern Health** Sites
4.2. The Contractor is responsible for ensuring that work is performed in a safe manner per Worksafe BC Occupational Health & Safety Regulations (WSBC OHSR).

5.Labor Rules : It is the responsibility of the Contractor and his Subcontractors to ascertain the labour conditions existing on the site(s), with particular reference to union or non-union labour, and to comply with these conditions. The cost of doing so shall be included in the bid price.

6.Codes, Permits & Inspections :
6.1. A building permit will be obtained by Owner or Architect.
6.2. The Contractor shall obtain all other permits and pay all fees relating to the Work to all authorities having jurisdiction.
6.3. Specific Hospital's rules & regulations as required by the hospital shall be adhered to by the Contractor.

7.Parking : Unless noted otherwise, no on-site parking will be allowed. Contractor and sub-contractors are to arrange parking arrangement at no cost to the Owner.

8.Material and Equipment Transportation :
8.1. Elevators may not be available to Contractor for movement of construction materials or demolition debris. Contractor shall coordinate and obtain approval from Owner if elevators are required.
8.2. Where material or equipment is being transported within the existing building(s) on carts or pallets, such carts or pallets shall have non-marking tires.

9.Garbage Removal : The Contractor shall be responsible for the removal of all rubbish and waste on a daily basis at a time approved by the Owner and shall permit no accumulation of rubbish and/or waste at any time.

10. Salvage Materials :
10.1. Salvaged material and equipment, specified to accrue to the Owner, shall be protected from dust, moisture and other damage, and delivered to the Owner at a time and place agreed to by the Owner.
10.2. Salvaged material and equipment specified for reinstallation shall be protected and refurbished to the Owner's satisfaction.
10.3. All other salvageable materials and equipment shall become the property of the Contractor and shall be removed from the site immediately.

11. Existing Services Connections and Disruptions :
11.1. The Contractor is responsible for verifying the location of all existing services before performing work in any area.
11.2. Contractor to coordinate shutdown of existing services with the owner and obtain approval from Owner 7 days prior to shut down.

occupancy & construction schedule under Section 01 00 00 and 01 32 16 and the following.
2.2. Adjacent Owner Occupied Areas:
2.2.1. All Hospital building areas will remain occupied & functional during the Work.
2.3. Maintain special procedures in effect to protect occupied areas:
2.3.1. During construction and clean-up operations
2.3.2. Until substantial completion of the Work.

3. Co-ordination and Co-operation with the Owner's Infection Control.
3.1. Co-operate with the Owner's Infection Control Practitioner and Team to co-ordinate the special procedures work with the Hospital's Infection Control.
3.2. Immediately modify special Procedures Operations as necessary to ensure compliance with the requirements of this section.
3.3. Owners designated infection control specialist has the authority to close down the site due to non-compliance with the requirements of this section.

4. Infection Control Plan
4.1. Within 7 days of award and prior to commencement of the Work, submit to the Prime/Managing Consultant(s) for review and acceptance by the Hospital, the Contractor's Site specific Infection Control Plan, outlining in detail, the methods, operations and controls which shall be used during the construction to meet the requirements specified under this Section.
4.2. Acceptance by the Hospital, of the contractor's infection control plan, indicates only that the Contractor has indicated an understanding and knows the requirements of these special procedures specified for infection control during the Work.
4.3. Testing: the Owner reserves the right to test efficiency of the infection control measures.
4.4. A copy of the site specific infection control plan shall be kept on the site at all times and made available to Hospital staff upon request. The Contractor shall provide a location for daily infection control review log to be maintained at the entrance to the construction zone.
4.5. No work will be permitted to progress on the site until such time as the infection control plan has been reviewed and accepted by the Hospital.

5. Project Conditions
5.1. Class **IV** preventive measure (includes classes I, II, and III) are required in accordance with CAN/CSA Z317.13-12 and as indicated:
5.1.1. Where conflict between this Section and the referenced CSA standard occurs, this Section will prevail.
5.2. Provide air movement from adjacent areas into the Work area that exceeds 10m³/min.
5.3. Provide negative pressure differential between Work area and adjacent areas of no less than 7.5 Pa.
5.4. Provide continuous digital pressure gauge monitor with printout capabilities.
5.5. Total particulate and fungal spore concentration measure in the Work area after construction and in occupied areas during or after construction are not to exceed preconstruction concentrations or an adjacent control sample as deemed appropriate by the Hospital.

6. Existing Conditions
6.1. Should material resembling mould, or other type of fungi, be encountered in the course of Work, notify the Prime/Managing Consultant immediately. The Contractor shall not disturb any existing mould or fungi until approval has been received from the Prime/Managing Consultant.

7. Environmental - Biological Air Sampling
7.1. Air sampling to be performed and paid for in accordance with Section 01 00 00 - General Requirements.
7.2. Coordinate collection of initial and clearance air sampling with the Prime/Managing Consultant.
7.3. Initial air sampling to establish baseline of existing airborne contaminants for comparison during construction sampling and clearance sampling. Initial air sampling shall include outdoor samples for comparative analysis.

8. Worker and Visitor Protection
8.1. Provide disposable type protective clothing to workers and authorized visitors in use of protective clothing.
8.2. Instruct workers and authorized visitors in use of protective clothing.
8.3. Instruct workers and authorized visitors in proper procedures to be followed in entering into and exiting from the Work area.
8.4. Provide posted notice at all entrances to the construction area, indicating proper procedure and requirements for specialized protective equipment.

9.Control Procedures for Ventilation
9.1. It is expected that the Work of this Contract will generate more than normal dust particles into the atmosphere around the Hospital.
9.2. The Hospital will monitor the building ventilation system and replace filters in the main building ventilation intakes to suit.
9.3. The Hospital will, in addition, adjust the building systems to provide positive air pressure in rooms deemed sensitive for infection control.

10. Work Required in Existing Hospital Building
10.1. Ensure that construction workers wear protective clothing that is removed each time they leave the construction site before going into the Hospital.
10.2. Construct Ante-Room at the entrance(s) to Hospital buildings designated for use by the Contractor in accordance with CAN/CSA Z317.13-12.
10.3. No access will be permitted directly between the Work area and the Hospital building except by permission of the Hospital, and after decontamination as recommended by the referenced standard.
10.4. Provide booties, germicidal spray and Walk-off Mats.
10.5. Use designated entrance(s) (only) as indicated on drawings for access to existing building.
10.6. Contractor's staff shall minimize access to common areas of the Hospital. Where access is required, the Contractor shall ensure that appropriate cleaning procedures are followed. Unrestricted access is acceptable for emergency health care purposes only.

11. Materials
11.1. Provide construction materials and assemblies to meet requirements of this Section.

12. Equipment
12.1. Air scrubber: provide portable air filtration and isolation control equipment with minimum peak airflow of 1800 cfm and multi-stage filtration as follows:
12.2. First stage - coarse particulate pre-filter
12.3. Second stage - pleated pre-filter
12.4. Third stage - carbon filter for odors
12.5. Final stage - 99.97% at 0.3um level HEPA filter
12.6. Acceptable Equipment: Hepa-Aire PA2000 HC as manufactured by "Abatement Technologies Inc.", (800-827-6443) or approved equivalent.
12.7. Provide fans, filters and ductwork to provide air movement and maintain negative pressure as indicated.
12.8. Equipment to be certified within past 12 months. Submit documentation to Hospital prior to construction.

13. Preparation
13.1. Verify established travel patterns for construction workers with the Prime/Managing Consultant.

14. Dust and Particulate Control
14.1. Execute the Work by methods to minimize raising dust from construction operations.
14.2. Use drop sheets to control dust.
14.3. Control dust by water-misting surface while cutting.
14.4. Ensure that windows, doors, plumbing penetrations, electrical outlets and intake and exhaust vents are properly sealed with plastic and duct taped within the Work area.
14.5. For exterior work adjacent to windows in an existing facility, test window openings for air tightness and seal windows that leak.
14.6. Verify that all window-mounted air conditioning units facing construction operations are shut down.
14.7. Place walk-off mats outside entrance(s) to the Work area. Vacuum daily or when visibly soiled using a HEPA filter-equipped vacuum cleaner.
14.8. Erect an impermeable dust barrier from true ceiling (includes area above false ceilings) to floor consisting of a minimum of 2 layers of 0.15mm polyethylene.
14.9. Dust barriers to be maintained and remain in place until the Work is completed and removal has been approved by the Prime/Managing Consultant and the Hospital's Infection Control Practitioner.
14.10. Verify that workers wear protective clothing. Workers are to remove protective clothing each time they leave the Work area before going into the Hospital.
14.11. Construct an Anteroom at access points to the Work area if access is from within the health care facility.
14.12. Place a walk-off mat outside the Anteroom in the Hospital and inside the Anteroom to trap dust from worker's shoes and from equipment and debris that leaves the Work area.
14.13. During periods of heavy demolition, the construction workers shall utilize two pairs of footwear. One pair of footwear shall be used for access outside of the Work area and in the anteroom. The second pair of footwear shall be for areas inside the Work area and in the anteroom. Construction workers shall change footwear when traveling from inside the Work area to outside the Work area.
14.14. Verify that workers leave the Work area through the anteroom so they can remove protective clothing and be vacuumed with a HEPA filter-equipped vacuum cleaner before leaving.
14.15. Repair any holes in walls within 8 hours.

15. Ventilation
15.1. Coordinate shutdown of ventilation systems in the Work area with the Prime/Managing Consultant and the Hospital Maintenance personnel.
15.2. Seal duct openings in the Work area until completed.
15.3. Maintain negative pressure between the Work area and adjacent existing Hospital by using air scrubbers.
15.4. Ventilation equipment to be equipped with pressure gauges and alarm. Alternatively, provide monitoring equipment for duration of project.
15.5. Verify that air is exhausted directly outside and away from intake vents, or filtered through a HEPA filter before being recirculated.
15.6. Maintain equipment filters to manufacturer's specifications.
15.7. The main building's air handling system shall be disconnected from use in areas of renovation work. This will require cutting and capping of existing duct work on both the supply and return air systems.
15.8. Upon disconnection of the main building air handling system, the Contractor shall verify critical pressure relationships of remaining rooms serviced by the impact of this disconnection.

16. Plumbing
16.1. Do not use collection tanks or long pipes that allow water to stagnate.
16.2. Maintain a dry work environment. Report water leaks to the Prime/Managing Consultant immediately.
16.3. Where plumbing work exceeds planned shutdown time, notify the Prime/Managing Consultant immediately. Do not re-pressurize water systems until instruction is received from the Prime/Managing Consultant.
16.4. Hyper chlorinate or superheat stagnant domestic water. Water lines in the Work area and adjacent patient care areas to be flushed before reuse anytime bacterial growth is deemed possible or if the water system is out of service in excess of one hour.
16.5. Any shutdown of the plumbing system is to be coordinated with the Hospital plant operations staff. Minimize shutdowns of the water systems in the existing Hospital.

17. Progress Cleaning
17.1. Exposure of occupants to debris is to be minimized.
17.2. Remove debris at the end of each shift.
17.3. Place supplies and equipment in covered containers when transporting through the healthcare facility. Transport debris through facility only when alternate routes are not available and with prior written approval from the Hospital.
17.4. Clean the Work area with HEPA filter-equipped vacuums and wet mop, or both, at the end of each work shift and as necessary.

18. Reinstatement
18.1. Barriers to be vacuumed with HEPA-filter equipped vacuum cleaners and wiped down with disinfectant before removal. Remove dust barriers carefully to minimize spreading dust and other debris particles associated with the Work.
18.2. Clean the Work area with HEPA-filter equipped vacuums and wet mop.
18.3. Before the Work area is occupied coordinate clearance sampling with the Managing
18.4. Where clearance sampling fails to meet baseline sampling, maintain ventilation and air cleaning equipment until acceptable levels are achieved.
18.5. Ensure ventilation system is functioning properly and is cleaned if contaminated by soil or dust after the Work is complete.

01 32 16 CONSTRUCTION SCHEDULE

1.The Contractor shall:
1.1. Prepare and submit to the Consultant within ten (10) Working Days of the contract award a horizontal bar chart construction schedule indicating the timing of all major activities of the Work, to demonstrate the Work will be performed in conformance with the Contract Time;
1.2. Monitor the progress of the Work relative to the construction schedule and update the schedule on a monthly basis for Consultant review at time of submission for application for payment
1.3. Promptly advise the Consultant of any revisions required to the schedule as a result of extensions of the Contract Time
1.4. provide a report to define problem areas, anticipated delays, the impact on the schedule, corrective action recommended and its effect

01 33 00 SUBMITTAL PROCEDURES

1.Administrative
1.1. Submit to Consultant submittals listed for review. Submit with reasonable promptness and in an orderly sequence so as to not cause a delay in Work. Work affected by submittals will not proceed until review is complete.
1.2. Review submittals prior to submission to Consultant. Review represents that necessary requirement have been determined and verified, or will be, and that each submittal has been checked and coordinated with the requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and will be considered rejected.
1.3. Verify field measurements and affected adjacent Work are coordinated.
1.4. Contractor's responsibility for errors and omissions in submission is not relieved by Consultants review of submittals.
1.5. Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultants review.
1.6. Keep one reviewed copy of each submission on site.

2.Submittals Checklist
2.1. Submit within five (5) Working Days of execution of Agreement:
2.1.1. Evidence of required insurance coverages.
2.2. Submit within ten (10) Working Days of Contract award:
2.2.1. Performance Bond and Labour-and Material Payment Bond.
2.2.2. Evidence of compliance with WorkSafe BC.
2.2.3. Construction Schedule.
2.2.4. Name of site superintendent and list of site and management personnel to be employed on Project.
2.2.5. Executed Articles of Agreement.
2.3. Submit prior to making 1st application for payment:
2.3.1. Requirements in accordance with GC 5.1, APPLICATION FOR PAYMENT.
2.3.2. Schedule of values
2.4. Submit with each and every application for payment subsequent to the first:
2.4.1. Statutory Declaration CCDC 9A from the Contractor, Statutory Declaration CCDC 9B from each of the Subcontractors
2.5. Submit during progress of Contract:
2.5.1. Samples and shop drawings.
2.5.2. Copies of test reports, other than those prepared or obtained by Owner appointed testing agencies.
2.5.3. Copies of inspection reports issued by authorities.
2.5.4. Copies of permits, licenses, certificates and receipts for fees paid.
2.5.5. Revised construction schedule.
2.6. Submit at Substantial Performance of Work as condition thereof: The Contractor may make application for a Certificate of Substantial Performance when the Work is ready for use by the Owner for the purpose intended and when the following items have been provided (where applicable) to the Consultant:
2.6.1. All required manufacturers' inspections, certifications, guarantees, warranties as specified in the Contract Documents;
2.6.2. All maintenance manuals, operating instructions, maintenance and operating tools, replacement parts or materials, reserve maintenance replacement material as specified in the contract Documents;
2.6.3. All required "as-built" or "as-installed" drawings in the form specified in the Contract Documents;
2.6.4. Certification by all testing, cleaning, or Inspection Authorities or Associations as specified in the Contract Documents;
2.6.5. Certification by all permit issuing authorities indicating approval of all permitted installations;
2.6.6. Certification by WorkSafe BC that the contractor and all subcontractors are in good standing;
2.6.7. Statement indicating reconciliation of all Change Orders, cash Allowances and/or other claims to the Contract;
2.6.8. Occupancy Permit from the Local Authority;
2.6.9. A list of major items to be completed or corrected, including the time required to perform the work and a value thereof as well as the proposed completion date.
2.7. Submit direct to the Owner, 55 Days from the date of Substantial Performance of Work:
2.7.1. Application for release of lien holdback monies.
2.7.2. State of Title Certificate dated the day after expiry of the lien period stating that no liens have been filed against the project.
2.7.3. WorkSafe BC Clearance Letter.
2.7.4. Statutory Declaration CCDC 9A - 2001 from the Contractor; Statutory Declaration, CCDC 9B - 2001 from the each of the Subcontractors; in accordance with GC 5.5.
2.8. Submit with all billings forwarded to the Payment Certifier:
2.8.1. Application for payment.
2.8.2. Associated documentation as described and required.

3.Daily Work Records
3.1. Maintain complete and accurate daily records of progress of Work.
3.2. Include in reports weather conditions, commencement, progress and completion of various portions of Work, dates of meetings, inspection visits, records of workforce, material receipts and material supply problems, information and clarification requests, information, clarification and direction received and actions and events causing delays.
3.3. Make daily work records available to Owner and Consultant upon request.

4.Shop Drawings & Product Data
4.1. Refer to GC 3.11, SHOP DRAWINGS, for governing requirements.

4.2. Shop drawings showing details of secondary structural systems and/or provision for seismic restraint of architectural systems and finishes, and mechanical, plumbing and electrical equipment and associated installations, shall include the approximate weight of the item to be restrained. The shop drawings shall be sealed by a qualified Professional Engineer registered to practice in the Province of British Columbia. The Professional Engineer shall be responsible for reviewing the method of seismic restraint and attachment to the structure with the Consultant prior to installation.
4.3. The Engineer responsible for sealing engineered shop drawings shall submit to the Consultant, British Columbia Schedule B-1 Assurance of Professional Design and Commitment for Field Review and B-2 Summary of Design and Field Review Requirements with the shop drawings.
4.4. The Engineer shall provide field review of the installation and submit to the Consultant, British Columbia Building Code Schedule C-B Assurance of Professional Field Review and Compliance upon completion of the Work.
4.5. The contractor shall submit seismic restraint calculations upon request for review by the Consultant.
4.6. Where design drawings are required to be sealed by a Professional Engineer, a certification of field review letter shall be submitted, sealed, signed and dated by the Professional Engineer, and submitted to the Consultant, prior to Substantial Performance.
4.7. All shop drawings to be submitted in electronic PDF (portable document format). If requested by architect, additional two (2) paper copies of architectural, and three (3) paper copies of M&E shop drawings, product data sheets or brochures need to be submitted.
4.8. Submit shop drawings, product data sheets and brochures in **imperial** units. Convert into **imperial** units where information is not produced in **imperial**.
4.9. Refer to Divisions 22, 23 and 26 for additional requirements particular to mechanical and electrical trades.

5.Samples and Color Charts
5.1. Submit samples and color charts in duplicate
5.2. Samples to be actual production items identical to those intended of use in Work. Color charts to be complete and representative of product manufacturer's complete range of standard colors.
5.3. Deliver prepaid to Consultant's business address.
5.4. Notify Consultant in writing, at time of submission of deviations in samples and color charts from requirements of Contract Documents.
5.5. Adjustments made on samples and color charts by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
5.6. Make changes in samples and color charts which Consultant may require, consistent with Contract Documents.

6.Operating and Maintenance Manuals
6.1. Refer to Section 01 10 00 General Requirements and 01 77 00 Closeout Procedures for Operating & Maintenance Manuals.

01 35 16 ALTERATION PROCEDURES

1.Protection
1.1. Take precautions to prevent damage to existing items being reused.
1.2. Seal heating and ventilating grilles in rooms where dust will develop during alteration. Take precautions to prevent dust from entering building duct systems.

2.Entrances and exits
2.1. Access to existing building is limited to areas immediately adjacent to new work.
2.2. Keep other existing entrances/exits free from obstruction throughout alteration work, in particular provide owner continuous access to emergency exits as required by authorities having jurisdiction.
2.3. Provide alternative and additional exits where required by authorities having jurisdiction.
2.4. Post temporary "exit" directional signs as required where alternative exits have been provided or where existing signs have been removed.
2.5. Verify and implement requirements of local fire and building inspection authorities with regards to "fire safety plan".
2.6. Maintain access to the existing building as required by emergency and firefighting authorities.

3.Fire and intruder alarms
3.1. Protect and maintain existing fire detection devices and intruder detection devices at all times.
3.2. Provide and maintain additional temporary fire detection devices and intruder detection devices throughout new construction areas. Connect into existing building fire and intruder detection system network.

4.Noise control
4.1. Refer to owner's general requirements.
4.2. Perform cutting, drilling and hammering operations with least amount of noise and disturbance to owner and operation of premises.
4.3. Locate high level noise machinery away from portions of building occupied and used by owner.
4.4. Keep extremely noisy construction operations to a minimum or arrange at time with owner

5.Disruption of services
5.1. Refer to owner's general requirements.
5.2. Do not disrupt or limit existing services without prior agreement where existing portions of project remain occupied and in use by owner during work.
5.3. Where work requires breaking into or connection with such active services perform work at time arranged and agreed with owner in writing **7** working days before commencement of such portion of work.
5.4. Where work cannot be arranged during normal trade hours perform work outside of normal trade hours at no additional cost to owner.

6.Matching to existing work
6.1. Make new work in new areas, new work in existing areas, and all alteration work match in every respect similar items in existing building.
6.2. Use new materials, fixtures and equipment to match existing items. Where perfect matches cannot be made as to quality, texture, color, or pattern, remove existing materials and replace with new materials of comparable quality selected by consultant.
6.3. Execute work carefully wherever existing work is being reused. Make repairs to such reused items after reinstallation to properly restore them. Where proper restoration is impractical, such items will be rejected and replaced.
6.4. After removal of reusable items, carefully patch and repair original location.
6.5. Wherever existing work is being altered to make way for new work, perform such cutting and patching neatly and make finished installations equal to quality and appearance.
6.6. Where new work is a continuation or an extension of existing work, take care to meld the two with complete regard to appearance. Where possible make joints in concealed or 'less obvious' places.
6.7. Wherever part of a wall is altered or affected by the work, paint entire wall at completion of work. Wherever two or more walls are affected, paint entire room.

7.Making good
7.1. Include cost of making good all work disturbed by removal of existing work, fixtures, fittings, or by installation of new or removal of old mechanical and electrical services.
7.2. Make good surfaces to match adjacent existing surfaces, unless otherwise indicated.

01 40 00 QUALITY CONTROL

1.Inspection and testing
1.1. Inspection and testing is required and described under various sections. Refer to G.C.2.3 review and inspection of the work, for governing requirements and any additional testing requirements.
1.2. Owner will pay costs for all inspection and testing, unless noted otherwise.
1.3. Provide minimum 48 hours notice.

2.Access
2.1. Cooperate to provide reasonable facilities for access required under G.C. 2.3.1

3.Procedures
3.1. Provide samples and materials required by inspection/testing agency for testing purposes. Submit with reasonable promptness and in orderly sequence so as not to delay work.
3.2. Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

4.Defective work
4.1. Refer to G.C. 2.4 defective work for procedures.

5.Reports
5.1. Refer to G.C. 2.3.3 for procedures.

6.Equipment/system reports
6.1. Submit adjustment and balancing reports for mechanical and electrical systems. Refer to mechanical and electrical divisions for specific requirements.

01 50 00 TEMPORARY FACILITIES AND CONTROLS

1.Installation /removal
1.1. Provide construction facilities and temporary controls in order to execute Work expeditiously.
1.2. Remove from site all such work after use.

2.Hoarding
2.1. Provide hoarding in accordance with Appendix B - Infection Control and Dust Containment Guidelines:
2.2. Exhaust air in the construction zone directly outside.
2.3. Maintain and relocate protection until such work is complete.
2.4. Temporary metal stud wall (per Appendix B - Infection Control and Dust Containment Requirements).:
2.4.1. Provide temporary metal stud wall around construction area per drawings
2.4.2. Provide 0.88mm (20 ga) C-shape metal stud wall 92mm wide with 32mm flange at 400mm min o.c. complete with corresponding top and bottom track of the same size and gauge.
2.4.3. Provide 5/8" drywall on outside of metal stud. Drywall to be installed on the outside of construction area. Tape all joints between drywalls.
2.4.4. Provide 6mil poly on inside of the metal stud. Tape all edges (top, bottom, sides and overlaps) of poly to form one continuous surface.
2.4.5. Temporary metal stud wall to conform to Section 0922 16 Non Structural Metal Framing.
2.4.6. Provide temporary wood door per drawings with metal frame and door hardware as required.
2.5. Temporary Poly Enclosure :
2.5.1. Provide temporary poly enclosure around construction area per drawings.
2.5.2. Set-up poly and tape all joints between drywalls .
2.5.3. Provide minimum 7' high zipper opening per drawings

3.Guard rails and barricades
3.1. Provide secure, rigid guard railings and barricades as required by governing authorities for protection of workers.

4.Site storage/loading
4.1. Refer to GO 3.12, USE OF THE WORK, for conditions.
4.2. Confine storage to area enclosed by hoarding.

5.Sanitary facilities
5.1. Provide sufficient sanitary facilities for workers in accordance with local health authorities. Do not use building facilities.
5.2. Maintain in clean condition. Place within area enclosed by hoarding, in location acceptable to Owner.

6.Fire protection
6.1. Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.
6.2. Provide 1 fire spotter for each person performing welding or torch cutting operations. Have fire spotters dedicated full time during welding/torch cutting operations to monitor/observe immediate area of such operations for sparks, embers, smoldering material and damaged electrical wiring.
6.3. Open fires and burning of rubbish not permitted on site.

7.Protection of building finishes
7.1. Provide necessary screens, covers, hoardings as required.to protect finished and partially finished building finishes and equipment during performance of Work.

8.Security
8.1. The Contractor and Subcontractors shall be responsible for security of the Work at all times.
8.2. Neither the Consultant nor the Owner will be responsible for any loss or damage to the building, to materials, equipment or other property of the Contractor or Subcontractors.
8.3. Provide, maintain and relocate as required temporary hoarding, gates, barricades, perimeter guard rails, warning signs and lights as necessary for the protection of all people and property on and adjacent to work areas, as required by WorksafeBC.
8.4. Contractor and subcontractors are not allowed in any part of the hospital except within the project area as shown on drawings, unless prior approval has been received from the hospital.

9.Offices
9.1. Provide and maintain in clean condition during progress of Work, adequately lighted, heated and ventilated temporary office and Contractor's office with space for filing and layout of Contract Documents and Contractor's administration and site office.
9.2. Locate within area enclosed by hoarding or in location acceptable to Owner.
9.3. Provide adequate first aid facilities.

10. Equipment/tool/materials storage
10.1. Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
10.2. Store non-enclosed materials on site in manner to cause least interference with Work activities. Locate within hoarding.

11. Project cleanliness
11.1. Maintain Work in tidy condition, free from accumulation of waste products and debris.
11.2. Remove waste material and debris from site and deposit in waste container at end of each working day. All waste materials shall be contained within the site hoarding.
11.3. Selling of surplus materials and erection of signs for same is not permitted.
11.4. Provide and pay for sufficient quantity of hinged lid steel industrial waste containers to accommodate waste products and debris. Arrange for removal of full containers and receipt of empty containers during Work.
11.5. Locate containers within hoarding or in location acceptable to Owner.
11.6. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

01 60 00 PRODUCT REQUIREMENTS

1.Reference standards
1.1. Conform to the standards referenced with the specifications, in whole or in part, as specifically requested.
1.2. Conform to latest date of issue of reference standards effect on date of submission of bids except where a specific date or issue is specifically noted.

2.Products and materials
2.1. Quality:
2.1.1. Refer to GC 3.9 labour and products.
2.1.2. Storage, handling and protection:
2.1.2.1. Handle and store products in a manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
2.1.2.2. Store packaged or bundled Products in original and undamaged condition with manufacturer's seals and labels intact. Do not remove from packaging or bundling until required in Work.
2.1.2.3. Store and mix paints in a heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
2.1.2.4. Pay costs of transportation of Products required in performance of Work.

3.Manufacturers' instructions
3.1. Unless indicated otherwise in specifications, install or erect Products in accordance with manufacturers' instructions. Do not rely on labels or enclosures provided with Products. Obtain written instructions directly from manufacturers.

4.Workmanship
4.1. General: Refer to GC 3.9.3
4.2. Refer to GC 3.13 cutting and remedial work.
4.3. Protection of work in progress and completed work: Refer to GC PART 9 PROTECTION OF PERSONS AND PROPERTY.

5.Toxic or hazardous substances and materials
5.1. Products and materials incorporated in the work shall be free as possible of noxious or toxic volatile emissions or emissions of irritating or toxic particles, so that the interior air of completed building shall be as pollution-free as possible. (For example, products emitting benzene, mercury, lead or other known toxic compounds are not acceptable).

6.WHMIS program
6.1. The Contractor shall maintain Workplace Hazardous Materials Information System (WHMIS) Program which will include:
6.1.1. Maintaining all Material Safety Data Sheets (MSDS) on site for hazardous products.
6.1.2. Providing the Consultant with copies of Material Safety Data Sheets
6.1.3. Educate and train its employees on the WHMIS Program and ensure that the employees wear the appropriate personal protective equipment where necessary.

01 77 00 CLOSEOUT PROCEDURES

1.As-Built Drawings :
1.1. Contractor shall provide mark-up drawings to the Architect upon the substantial completion of the Project.

2.Operating and Maintenance Manual
2.1. Submit to the Consultant one (1) copy of architectural, mechanical, and electrical maintenance, operating and instruction manuals.
2.2. Separately bound manuals are to be prepared for the following trade work:
2.2.1. Building: Architectural elements, fixtures, finishes, casework, hardware, specialties, etc.
2.2.2. Mechanical: Heating ventilating, air conditioning, etc.
2.2.3. Plumbing: Plumbing, fire sprinklers, etc.
2.2.4. Electrical: Power, lighting, fire alarm system, data, communications, security, etc.
2.3. Provide maintenance manuals in hard and electronic format as specified hereafter, giving full operating and maintenance instructions for each system and major piece of equipment, as well as, maintenance instructions for building elements, fixtures and finishes.
2.4. Manuals are to contain pertinent maintenance operational and installation instruction information on equipment, materials cleaning and lubrication schedules, filters, overhaul, replacement, adjustment schedules, and emergency procedures as applicable. Instructions in manuals shall be in simple language so as to guide the Owner in the proper operation and maintenance of building material, components, equipment and systems.
2.5. Include all items covered by Change Orders.
2.6. Update the manuals periodically during the installation and commissioning phase of the Work so that the manuals are final by the scheduled turnover date.
2.7. Include equipment supplied by the Owner and pre-tendered equipment.
2.8. Binders:
2.8.1. Binders shall be ACCO Canadian Co. Ltd. or approved substitution as follows:
2.8.2. ACCO Inview D-Ring Binders - color Black
a. 1 inch - 41805-0
b. 2 inch - 41807
2.8.3. ACCO expanding bar-lock catalogue binder - color Black
a. 3 to 5.5 inches - 05426-0
2.8.4. Pages:
2.8.4.1. Descriptions and lists are to be neatly typed or printed on lettersize heavy bond paper. Duplicate pages shall be made by electrostatic dry copier.
2.8.4.2. The maximum paper size for schedules and diagrams is 11" x 17".
2.8.4.3. Alphabetical index tab separators are to be used in each manual to identify each information "Section".
2.8.5. Manual contents shall be organized into applicable categories of Work, parallel to specifications divisions and sections.
2.9. Architectural manuals shall include in general, but shall not necessarily be limited to, the following:
2.9.1. List of all Subcontractors, manufacturers, suppliers, complete with addresses and telephone and facsimile numbers.
2.9.2. Copy of hardware schedule and paint schedules, complete with the actual manufacturer, supplier and identification names and numbers.
2.9.3. All manufacturer's equipment, materials, products, data, details, identification, list, schedules of maintenance, operational and installation instruction information as required in accordance with the various sections of the specification.
2.9.4. All extended guarantees, warranties, maintenance bonds, certificates, letters of guarantees, registration cards, as called for in the various sections of the specification, with the following information:
Name and address of subject.
a. Name and address of subject.
b. Commencement date (Substantial Performance of the Work) of guarantees and warranties.
c. Duration and expiry date of guarantees and warranties.
d. Signature and seal of the Contractor, Installer, manufacturer and/or supplier as applicable.
e. Complete set of all final reviewed shop drawings.
2.9.5. Certificated of Inspection.
2.9.6. Test reports and certificates as applicable.
2.9.7. Confirmation letters of all extra, reserve, replacement materials as required in accordance with agreed quantities of the specification has been properly handed over and received by the Owner in good order.
2.9.8. Confirmation letters of all portable units, equipment, materials such as fire extinguishers, spade mattock tools, keys for all equipment and/or panels, elevator pads/accessories, keys to millwork, casework, has been properly handed over and received by the Owner in good order.

3.Electronic Copies of Manuals
3.1. In addition to the printed copies, submit electronic copies of all operating and maintenance data as specified under clause 1.4.
3.2. Submit data on "read only" CDs. Provide one (1) copy of each CD for the Owner and 1 copy to the Consultant.
3.3. Do not provide separate CDs for each major section. Use more than one CD only if the volume of data exceeds the capacity of a single CD. Professionally label each CD and CD jewel case, including the name of the Owner, project and CD title.
3.4. Organize electronic data using directories and sub-directories as generally described in clause 1.4. Prior to assembling the electronic data, submit to the Consultant a detailed list of the proposed directory/sub-directory structure including proposed files names. File names to be easily recognizable without the need to open the document to know what information the file contains. Directory structure and file naming is subject to the approval of the Consultant.
3.5. Provide information in Portable Document Format (PDF). Break down large files into sections and use bookmark structure for easy navigation.

ARCHITECT :

DCYT ARCHITECTURE
HEALTHCARE . COMMERCIAL . RESIDENTIAL . INTERIOR DESIGN

WWW.DCYTARCHITECTURE.CA

No.	REVISION	DATE	BY
6	ISSUED FOR CONSTRUCTION	FEB 14, 2019	DC
5	ISSUED FOR TENDER	DEC 19, 2018	DC
4	ISSUED FOR 80% CD	NOV 8, 2018	DC
3	NOT ISSUED	-	-
2	NOT ISSUED	-	-
1	NOT ISSUED	-	-

northern health
the northern way of caring

BULKLEY VALLEY DISTRICT HOSPITAL

SMITHERS BC

DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS

PHASE 2 - CT INSTALLATION

SPECIFICATIONS - GENERAL CONDITIONS

SCALE: N/A
DATE: FEB 2018
DRAWN: DC
CHECKED: DC
JOB No.: DCYT1802

PHASE 2
A5.01

02 41 00 DEMOLITION

1. The demolition permit is included as part of the Building Permit. The Owner will obtain and pay for the Building Permit.
2. Do all demolition work according to the requirements of the latest **B.C. Building Code**, and Worksafe BC. Accident Prevention Regulations, and the Canadian Construction Safety Code.
3. Provide one (1) person on site who is responsible for maintaining the safety barriers and protection of the workers and the public. Provide the name of this person to the Owner. Any changes in personnel must also be reported to the Owner.
4. The Contractor shall accept the site as it exists and will be responsible for all demolition work as required.
5. The Contractor shall visit the site at his own expense prior to the submission of tenders and take whatever time is required to ascertain existing site conditions and surrounding features related to the proposed demolition and new construction work, and ensure himself that conditions are suitable for execution of the work.
6. Arrange for a site visit together with Consultant, to examine existing exterior and interior site conditions adjacent to demolition and new construction work. Take pictures of any existing damage and record same in writing to avoid any disputes at a later date. Photograph all rooms where partial demolition is to occur before work commences in order to provide a record of existing conditions.
7. Provide temporary enclosures for securing off of work and the maintenance of any services necessary to the proper and efficient operation of the project.
8. Conduct construction operations with minimum interference to existing buildings operations, adjacent buildings, adjacent public or private roadways, parking lots, sidewalks and access facilities in general. Keep such areas free of material debris and equipment at all times.
9. The Contractor shall provide any hoardings, barricades, warning signs and lights, as necessary, for the protection of all people and property on and adjacent to the site as specified herein or by the Worker's Compensation Board of British Columbia. The Contractor shall alter, adapt, maintain, relocate and remove these additional barricades, etc., as necessary due to the work. The Owner and Consultant shall be saved harmless from any loss, damage, death or injury occurring through neglect, carelessness or incompetence of the Contractor, or the handling or condition of his equipment.
10. Where existing items are removed, "make good" to existing surfaces if they are to remain exposed. "Making Good" shall be defined as preparing new surfaces which are identical to adjacent surfaces (with similar backing materials), and finished off in such a manner that there are no visible traces (at a distance of 2 feet), between existing work and the work of new patching.
11. Submit to the Primary Consultant
   11.1. Proposed dust-control measures.
   11.2. Dates for shutoff, capping, and continuation of utility services.
   11.3. Phasing and dates for sectional shutoff of sprinkler system serving existing buildings which are to remain.
   11.4. Inventory of items to be removed and salvaged.
   11.5. Photos or video, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by demolition operations.
   11.6. Landfill records indicating receipt and acceptance of hazardous wastes by a landfill or other facility authorized to accept hazardous wastes.
12. Stop work around an area where existing previously unidentified hazardous material is discovered, including materials suspected of containing asbestos, and immediately contact the Project Manager for direction before continuing with the work affected.
13. No temporary stockpiling of demolished materials permitted on site. All demolition materials from excavations must be removed from site daily. Dispose of materials in a legal manner.
14. Contractor to keep the premises clean and free from rubbish, debris, surplus materials and equipment. At the end of each day's work, leave work in safe condition so that no parts are in danger of toppling or falling.

06 40 00 ARCHITECTURAL WOODWORK

1. Reference: Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
2. Submit shop drawings and hardware cut sheets in accordance with Section 013300. Indicate locations of all typical and special installation conditions; all connections, attachments, anchorage and locations of exposed fastenings.
3. Submit full range HPDL colour charts for Consultant's colour selection use.
4. The Trade Contractor shall furnish a two (2) year maintenance bond, to the full value of the architectural woodwork subcontract, certifying that the architectural woodwork has been manufactured and/or installed in accordance with the standards incorporated in the AWMAC Manual.
5. If the Trade Contractor is an AWMAC member in good standing, a two (2) year AWMAC Guarantee Certificate will be issued instead of the maintenance bond.
6. The maintenance bond/guarantee certificate shall cover replacing, reworking and/or refinishing to make good any defects in architectural woodwork due to faulty workmanship or defective materials supplied by the Trade Contractor that appear during a two (2) year period following the date of Substantial Completion of the architectural woodwork contract.
7. Casework : HPDL
   7.1. AWS quality grade : Custom
   7.2. Core : formaldehyde free minimum 769 kg/m3 density MDF to ANSI A208.2 and AWMAC requirements.
   7.3. Finish :
      7.3.1. Countertops : Horizontal General Purpose Standard Grade (HGS)
      7.3.2. Vertical surfaces : Vertical General Purpose Standard Grade (VGS)
      7.3.3. Semi-exposed parts : Face Veneer : Cabinet Liner Standard Grade (CLS)
      7.3.4. Backing Sheet Grade (BK)
   7.4. Approved product : **See Finishes Schedule on Dwg A4.03**

07 84 00 FIRE AND SMOKE SEALS

1. Fire stopping and smoke seal systems: in accordance with CAN/ULC-S115 "Fire Tests of Firestop Systems".
   1.1. Use materials free of asbestos and ceramic fibres. Use systems capable of maintaining effective barrier against flame, smoke and gases in compliance with requirements of CAN/ULC-S115 and not to exceed opening sizes for which they are intended.
   1.2. Fire stop system rating: to respective wall or floor rating.
2. Service penetration assemblies: certified by ULC in accordance with CAN/ULC-S115 and listed in ULC Guide No. 40 U19.
3. Fire stop components: certified by ULC in accordance with CAN/ULC-S115 and listed in ULC Guide No. 40 U19.13 and ULC Guide No. 40 U19.15 under Label Service of ULC.
4. Fire-resistance rating of installed fire stopping assembly not less than fire-resistance rating of surrounding floor and wall assembly.
5. Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal; do not use cementitious or rigid seal at such locations.
6. Firestopping and smoke seals at building expansion and seismic control joints: pre-formed, semi-rigid non-combustible mineral wool material.
   6.1. Approved product: A/D Firebarrier by A/D Fire Protection.
7. Sealant: to CAN4-S115-M, primerless single component silicone sealant.
   7.1. Approved product: A/D Firebarrier Silicone by A/D Fire Protection.
8. Primers: to manufacturers' recommendation for specific material, substrate and end use.
9. Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.
10. Damming and back-up materials, supports and anchoring devices: to manufacturers' recommendations and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.
11. Sealants for vertical joints: non-sagging.
12. Installations of fire and smoke protection shall be by experienced installers familiar with ULC systems and approved by the manufacturer.
13. Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are clean, dry and frost free.
14. Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturers' instructions.
15. Install fire stopping and smoke seal material and components in accordance with ULC certification and manufacturers' instructions.
16. Seal holes and voids made through penetrations, poke-through termination devices and unpenetrated openings and joints to ensure continuity and integrity of fire separation are maintained.
17. Listing and Test Reports: Submit copies of current ULC listed Firestop System for each system and certified copies of test reports verifying that air seal/firestop and smoke seals meet or exceed specified requirements.
18. Post service penetrations and future use openings/sleeves with permanent signs:
   18.1. identifying locations as firestops/smoke seals,
   18.2. listing material installed including local distributor,
   18.3. detailing procedures for proper re-sealing of disturbed material and
   18.4. warning against painting of installed material.
19. Notify Owner when ready for inspection and prior to concealing or enclosing fire stopping materials and service penetration assemblies.
20. Arrange for inspections by the Owner's independent inspection and testing agency, appointed and paid for by the Owner.
21. Following field inspections provide all repairs as required to comply with the Contract Documents.

07 92 00 JOINT SEALANTS

1. Section includes: joint sealants, joint backer materials and accessories needed to ensure a complete and durable weather and/or tight seal at all locations indicated.
2. Perform work in accord with ASTM C 1193 guidelines except where more stringent requirements are indicated or specified.
3. Provide joints properly dimensioned to receive the approved sealant system.
4. Provide joint surfaces that are clean, dry, sound and free of voids, deformations, protrusions and contaminants which may inhibit application or performance of the joint sealant.
5. Deliver to the Architect signed copies of the following written warranties against leakage, cracking, crumbling, melting, shrinkage, loss of adhesion and/or staining of adjacent surfaces for a period of 3 years from date of completion.
   5.1. Manufacturer's standard warranty covering sealant materials;
   5.2. Applicator's standard warranty covering workmanship.
6. Provide colors selected by Architect from manufacturer's standard color range.
7. Primers : Type to be recommended by sealant manufacturer
8. For concealed partition sealant : CAN/CGSB 19.21 M87 Single-component, non-hardening synthetic rubber sealant - Tremco Acoustical Sealant or approved alternative.
9. For general purpose interior and exterior caulking on vinyl, aluminum and wood siding as well as on bathroom and kitchen fixtures : CAN/CGSB 19-GP-17M Acrylic latex sealant - Tremco Tremflex 834 or approved alternative
10. For interior watertight seal to glass, metal, porcelain, ceramic and painted surfaces : CAN/CGSB-19.13-M87 Single component silicone - Tremco Tremsil 200 or approved alternative
11. Joint cleaner : Non-corrosive type recommended by sealant manufacturer compatible with joint forming materials
12. Bond breaker: Polyethylene tape or other adhesive faced tape as recommended by sealant manufacturer to prevent sealant contact where it would be detrimental to sealant performance.
13. Joint backer: Closed cell or soft rod Polyethylene foam rod or other compatible non-waxing, non-extruding, non-staining resilient material in dimension 25 percent to 50 percent wider than joint width as recommended by sealant manufacturer for conditions and exposures indicated.
14. Masking tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces that is suitable for masking.
15. Remove all traces of previous sealant and joint backer by mechanical methods, such as by cutting, grinding and wire brushing, in manner not damaging to surrounding surfaces.
16. Remove paints from joint surfaces except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer.
17. Remove wax, oil, grease, dirt film residues, temporary protective coatings and other residues by wiping with cleaner recommended for that purpose. Use clean, white, lint-free cloths and change cloths frequently.
18. Provide joint backer material uniformly to depth required by sealant manufacturer for proper joint design using a blunt instrument.
19. Provide bond-breaker where indicated or recommended by sealant manufacturer, adhering strictly to the manufacturers installation requirements.
20. Prime joint substrates where required.
21. Use masking tape where required to prevent sealant or primer contact with adjoining surfaces that would be permanently stained or otherwise damaged by such contact or the cleaning methods required for removal.
22. Install sealants to fill joints completely from the back, without voids or entrapped air, using proven techniques, proper nozzles and sufficient force that result in sealants directly contacting and fully wetting joint surfaces.
23. Install sealants to uniform cross-sectional shapes with depths relative to joint widths that allow optimum sealant movement capability as recommended by sealant manufacturer.
24. Tool sealants in manner that forces sealant against back of joint, ensures firm, full contact at joint interfaces and leaves a finish that is smooth, uniform and free of ridges, wrinkles, sags, air pockets and embedded impurities.
25. Remove sealant from adjacent surfaces in accord with sealant and substrate manufacturer recommendations as work progresses.

08 10 00 HOLLOW METAL DOORS AND FRAMES

1. Reference Documents: Specifications for Commercial Steel Doors and Frames and Canadian Fire Labelling Guide by the Canadian Steel Door and Frame Manufacturers Association (CSDFMA).
2. NFPA 80, Standard for Fire Doors and Fire Windows.
3. Fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with ULC CAN4-S104M and CAN4-S105M for ratings indicated.
4. Steel: Commercial grade steel to ASTM A568-81, Class 1, hot dipped galvanized to ASTMA527-80, coating designation to ASTM A525-81, ZF75.
   4.1. Thickness for steel components shall be in accordance with the CSDFMA specification 'Table 1 - Thickness of Steel for Component Parts' unless otherwise specified.
   4.2. Door frames: 16 ga.
   4.3. Door stiles and rails: 16 ga
   4.4. Door panel: 18 ga
5. Door bumpers : Black rubber/neoprene single stud
6. Fabricate frames as detailed, in accordance with Canadian Steel Door and Frame Manufacturers' Association, "Specifications for Commercial Steel Doors and Frames".
7. Mortise, reinforce, drill and tap frames for mortised hardware. Reinforce frames for surface mounted hardware.
8. Welding shall conform to CSA W59. Cut miters and joints accurately and weld continuously on inside of frame profile.
9. Grind welded corners and joints to flat plane, fill with metallic paste filler and sand to uniform smooth finish. Weld in two temporary jamb spreaders per frame to maintain proper alignment.
10. Shop prime after fabrication
11. Touch-up primer: to CGSB 1-GP-181 zinc rich.
12. Install in accordance with NFPA 80.

08 14 00 WOOD DOORS

1. Supply of non-rated flush solid core wood doors per drawings
2. Reference :
   2.1. ANSI A135.4 - Basic Hardboard.
   2.2. Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
   2.3. British Columbia Building Code (BCBC). 2006.
3. Submittal :
   3.1. Product Data: indicate door core materials and construction; veneer species, type and characteristics.
   3.2. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special blocking for hardware, identify cutouts for glazing and louvers.
   3.3. Samples: Prepare and submit a set of two (2) samples of door with finish 150 x 150 minimum
4. Perform work in accordance with AWMAC, Premium Grade.
5. Finish doors in accordance with AWMAC, Custom Grade.
6. Provide protective wrapping for pre-finished doors during transit and storage
7. Store all doors in a dry place; free from extremes of temperature; properly stacked and protected.
8. Wood doors shall carry manufacturers' Lifetime Guarantee provided from date of Substantial Performance against deformation, bow, cup, warp in surfaces.
9. Interior solid core wood doors :
   9.1. Solid core: CANICSA-0132.2.1: Agrifibre core, no added urea formaldehyde veneer (green screen). Flush or flat panel.
   9.2. .Face: Beech (Rotary Cut) Vertical Grain Veneer
   9.3. .Edge: to match Face.
   9.4. Thickness: 45mm thick door thickness
   9.5. Frame: Pressed Steel, shop primed, painted - See Section 08 10 00 Hollow Metal Doors and Frames
   9.6. Blocking: Minimum 125 mm x 460 mm solid wood with lock blocking at both stiles.
   9.7. Adhesive: Low VOC, Type I PVA waterproof adhesive
   9.8. Finishes: Semi-gloss, clear coat finish
10. Machine cut for hardware.
11. Coordinate installation of doors with installation of frames specified in Section 08 10 00 Hollow Metal Doors and Frames and hardware specified in Section 08 71 00 Door Hardware.
12. Install door plumb and level.
13. Adjust door for smooth and balanced door movement.
14. Adjust closer for full closure.

08 71 00 FINISH HARDWARE

1. Conform to materials specified, in brand and quality, unless otherwise approved in writing by Consultant. Hardware supplier shall be an established contract builder hardware firm.
2. **Inspect all hardware on site for compliance to specifications before** installation.
3. Stored hardware in original sealed packages in a locked, secure place until required for installation.
4. Supply hardware complete with required screws, bolts and fastenings necessary for proper installation.
5. Wrapped hardware in paper and packed in the same package as hardware.
6. All finish hardware, except door closers shall be guaranteed by the hardware manufacturer, by written certification, for a period of one (1) year from certified date of Substantial Performance against any defects in the design, materials, finish, function and workmanship and that any defects shall be made good by the manufacturer at no additional cost to the owner.
7. A similar guarantee for a ten (10) year period shall be provided for door closers by the manufacturer.
8. Obtain final keying requirements from Owner before ordering. Key new locks into existing grand master key (GMK) system. Key to existing master key (MK) for building. Key alike (KA) and key different (KD) locks as directed by Owner.
9. Stamp all keys "Do Not Copy".
10. Keys: provide four (4) per lock or KA group; balance of keys as blanks.
11. Provide square corner box strike for all latchbolt. Finish to match lockset.
12. Mount hardware in accordance with the recommended locations as per standard locations for builders hardware locations (metric) as listed in Canadian Metric Conversion Guide for Steel Doors and Frames prepared by the Canadian Steel Door and Frame Manufacturers Association and B.C. Code for the Physically and Visually Handicapped.
13. Install hardware in accordance with reference standard and regulatory requirements.
14. Set units level, plumb and true to line and location.
15. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
16. Adjust and check each operating item of hardware and each door to ensure proper operation of function of every unit.
17. Replace all hardware which cannot be adjusted and lubricated to operate freely and smoothly as intended for the application made.
18. Correct or replace, if directed, all hardware that is incorrectly located, malfunctioning or improperly installed at no additional cost to the Owner.
19. Prepare door and coordinate electrified hardware with electrical work to ensure proper operation of function
20. Door Hardware Schedule : **See Drawing A4.02**

08 80 00 GLASS AND GLAZING

1. Meet CGSB standards for float, tempered and laminated units. Type, thickness to conform to B.C. Building Code most current edition.
2. Glazing Standards: FGMA Glazing Manual and Sealant Manual
3. Submit two (2) samples, each 150mm x 150mm, of the following to the Consultant for approval.
   3.1. each type of glass
4. Deliver and store materials undamaged and where applicable in their original wrappings or containers with manufacturer's labels and seals intact. Store materials on a dry floor in a weatherproof enclosure.
5. Glass
   5.1. Thickness of Glass: Conform to B.C. Building Code wind load requirements where applicable and according to maximum glass sizes but no less than 6mm thick.
   5.2. For sizes and locations of all lights, refer to the drawings and schedules. Thicknesses indicated and specified are minimum only, thicker glass may be required to meet structural requirements.
   5.3. Glass shall be one of the following types, as designated on the drawings or as further described:
      5.3.1. Leaded Glass - See Section 13 09 00 Radiation Protection
6. Sealant Compounds : CAN/CGSB-19.13-M87 Single component silicone - See Section 07 92 00 Joint Sealants
7. Fabricate glazing to sizes and locations as shown on the drawings in accordance with reviewed shop drawings.
8. Take site measurements prior to shop fabrication.
9. Material for protection markings on glass, such as adhesives for the manufacturer's labels, shall be either neutral or slightly acidic. In no case shall such materials be alkaline. Any staining of glass or other surfaces by such alkaline materials will be cause for rejection.
10. Leave no manufacturer's labels or grade marks on glass except as required by code for safety glass identification.
11. Adjust and Clean

All materials shall be protected during and after installation.

09 20 00 GYPSUM SHEATHING BOARD

1. Work of this section shall conform to the Association of Wall and Ceiling Contractors of BC (AWCC) Specifications Standards Manual.
2. Corner and casing beads shall be shipped in rigid containers and protected from damage and dampness.
3. Store wallboard flat, off the floor, protected from damage by dampness, weather or construction activities. Cementitious materials shall be kept dry and away from damp surfaces. Distribute as required to avoid exceeding live load capacity of the floor.
4. Providing blocking as required for all attached fixtures and millwork.
5. Refer to drawings and wall schedule for extent of each type of gypsum board product and thickness.
6. Gypsum board products, materials and accessories shall conform to AWCC Section 9.6, Part 2
7. Products:
   7.1. Gypsum Wallboard: Conforming to CAN/CSA-A82.27-M1977 noncombustible gypsum core with dimensions 1219mm x max. practical length for min. joints.
   7.2. Fire-Rated Gypsum Wallboard: Conforming to CAN/CSA-A82.27-M91, Type "X" having ULC label for fire-resistance rating; dimensions 1219mm x max. practical length to minimize joints.
   7.3. Moisture Resistant Gypsum Wallboard: Conforming to CAN/CSA-A82.27-M91; specially formulated core to resist moisture penetration covered with multi-layer face and back papers chemically treated to resist moisture penetration. Dimensions 1219mm x max. practical length for min. joints. Type "X" having a ULC label for fire resistance rating.
8. Gypsum Board Screws: Conforming to ASTM C646, self-drilling, self-threading case hardened screws with Phillips type head (bugle head) (stainless steel screws to be utilized for fixing wet area). On steel studs and furring, drywall screws shall have a minimum penetration of 12.7 mm (1/2").
9. Gypsum Board Tape to be 50 mm (2") paper joint tape, of a type recommended by manufacturer of gypsum board products.
10. Gypsum Board Jointing Compound: Casein, vinyl or latex base; slow setting; low shrinkage, noncombustible bedding and finishing compounds of type recommended by manufacturer of gypsum board.
11. Corner Beads: Min. 0.45mm (26 ga.) galvanized sheet steel; square bead with perforated flanges. Use extended leg bead at external corners at double wallboard application.
12. Casing Beads: Min. 0.45mm (26 ga.) galvanized sheet steel; square bead with perforated flanges. Only fillable type J or L beads are acceptable. Thickness to suit gypsum board.
13. Install gypsum wallboard and accessories in accordance with AWCC Specifications Standards Manual.
14. Provide ventilation to dry gypsum drywall fillers properly.
15. Do not locate joints on same stud on opposite sides of partitions. Stagger end joints occurring on same side of partitions.
16. Allow deflection spaces between drywall partitions and building structural framing components to allow for movement of framing components.
17. Box-in electrical, telephone and TV outlets in fire-rated and party walls with drywall, typical.
18. Increase if necessary, depth and width of all furring, bulkheads, chases, etc. to contain and conceal electrical and heating risers, rainwater leaders, plumbing waste, hot and cold water supplies and provide gypsum board concealment to all pipes in visually exposed heated spaces. Check mechanical, plumbing and electrical drawings for extent of piping and conduits.
19. Finish gypsum wallboard in accordance with AWCC Specifications Standards Manual.

09 22 16 NON STRUCTURAL METAL FRAMING

1. Work Included
   1.1. Metal support systems for wall, furring and ceiling.
   1.2. Concealed backing for wall hung millwork and equipment.
2. Work of this section shall conform to the Association of Wall & Ceiling Contractors of B.C. (AWCC) Specifications Standards Manual (latest Edition).
3. Design responsibility
   3.1. All steel stud partitions to be designed to accommodate building structure deflection of 1/360 and seismic restraints to meet all applicable codes.
   3.2. Provide seismic restraints for all suspended ceiling framing.
   3.3. Submit confirmation signed and sealed by a structural engineer registered in British Columbia that all of the above requirements have been met.
   3.4. The structural engineer responsible for the design shall provide letters of assurance Schedule B and C-B.
4. Submit Shop Drawings as required.
5. All components used in fire rated assemblies shall be in accordance with the applicable ULC, Warnock Hersey, or BC Building Code referenced **assembly.**
6. Refer to drawings and wall schedule for size and type of metal framing
7. Interior Non-Load Bearing Steel Stud, Track, and Furring :
   7.1. Conform to CAN/CGSB-7.1-M86,
   7.2. Gauge to be minimum 0.88 mm (20 ga.) 'C' shape with knurled faces on flanges or legs, and knock-out pass through holes in web.
   7.3. Provide 16 ga double studs on both sides of door and window jambs. Anchor studs to structural floor and to structural ceiling above.
   7.4. Hot dipped galvanized steel studs with Z180 (G60) zinc coating to ASTM A525-86, roll formed from ASTM A446/A446M-85, Grade A steel.
   7.5. The minimum stud spacing at all locations should in no case more than 400mm o.c. or as otherwise required by sheathing board manufacturer
   7.6. Provide stud width per wall schedule. Flange depth to be minimum 32mm. Use extended leg for top track, if required, to accommodate deflection.
   7.7. No splicing allowed.
8. Ceiling Framing Materials
   8.1. Tie Wire to be 1.62mm (16 ga) galvanized steel
   8.2. Hangers to be 3.6mm (9 ga) galvanized soft annealed steel wire (up to 1.15 sq.m.) or 4.8 mm diameter zinc coated or cadmium plated steel rod (up to 1.48 sq. m) secured to structural slab with corrosion-resistant anchors
   8.3. Main carrying channels to be minimum 38mm x 12.7 mm x 1.37mm cold formed channels with hot dip galvanized zinc coating spaced as required.
   8.4. Cross furring to be hot dipped galvanized steel hat section, 68.2mm overall width x 22.2mm deep x 0.53mm thick
9. Metal Backing Plates to be 0.91mm (20 ga) thick hot dipped galvanized steel
10. Fasteners and accessories to be of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates, to suit structural conditions, and to fixing requirements that are in accordance with manufacturer's recommendations.
11. Screws: Lengths as required to suit applications, self tapping corrosion resistant drywall screws.
12. Acoustic Gasket or Tape: Self-adhesive foam tape 6 mm x 25 mm closed cell neoprene and/or polyvinyl chloride.
13. Acoustic Caulking: Synthetic rubber acoustic sealant meeting CAN/CGSB 19.21-M87.
14. Unless noted otherwise all partitions shall be full height from floor to underside of structure above.
15. Install floor and ceiling track seated on two continuous beads of acoustic sealant. Ensure continuity for entire perimeter of acoustically-rated wall assemblies. Fasten securely to concrete at maximum 600 mm o.c. using approved concrete fasteners.
16. Provide minimum 2 studs from floor to structural slab above on each side of door and window opening.
17. Install channel stiffener above door heads. Stiffener to run to closest stud adjacent to boxed jamb studs.
18. Install continuous channel stiffener at mid-point of all stud partitions not exceeding 3.60 meters in height and at third (1/3) points for all partitions exceeding 3.6 meters in height.
19. Install all backing for electrical, all rough openings for building in washroom accessories, mirrors, vanities, light cover reflectors, and access panels supplied and installed by others, or supplied and installed under this section. Coordinate with other Sections to provide for washroom accessories. Blocking to be 1.2 mm (18 ga.) sheet metal strips 300 mm (12 inches) wide and positioned to allow for sufficient installation tolerance of accessories.
20. Promptly as work proceeds and at completion, clean up and remove from premises all rubbish and surplus materials resulting from work of this section.

09 51 00 ACOUSTIC CEILING PANELS AND SUSPENSION SYSTEM

1. Conform to the following
   1.1. ASTM C635-04 Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
   1.2. ASTM C636-04 Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
   1.3. ASTM E580-02e1 Standard Practice for Application of Ceiling Suspension Systems for Acoustical Tole and Lay-in Panels in Areas Requiring Seismic Restraint.
   1.4. CAN/ULCS102, Surface Burning Characteristics of Building Materials
2. Design seismic anchorage connections in accordance with BCBC (Section 4.1.9 including Table 4.1.9.1.D - Architectural Parts and Portions of Buildings). Maximum deflection : 1/360th of span to ASTM C635 deflection test.
   2.1. Provide seismic restraints for all suspended ceiling.
   2.2. Submit confirmation signed and sealed by a structural engineer registered in British Columbia that all of the above requirements have been met.
   2.3. The structural engineer responsible for the design shall provide letters of assurance Schedule B and C-B.
3. Store materials in work area 48 hours prior to installation.
4. Provide 5% additional acoustical panels of each type for project maintenance use.
5. Submit samples in accordance with 01 33 00.
6. Suspension System
   6.2. Intermediate duty system to ASTM C635
   6.3. Basic materials for suspension system : commercial quality cold rolled steel zinc coated, **except for MRI Exam Room, use a non-ferrous suspension system only.**
   6.4. Hangers : 2.5mm dia galvanized, 760 degree C melting temperature soft annealed wire, **except for MRI Exam Room, use stainless steel wire of the same size only.**
   6.5. Hanger inserts : purpose-made to provide positive hanger retention and support of suspension system.
   6.6. Exposed suspension system : 2-directional exposed tee bar grid components shop painted, die cut components, double web main tee with rectangular bulb and **15/16**" width rolled cap to exposed face, cross tee lower flange offset to provide flush intersection with main tee lower flange. Typical suspension colour : **white**
   6.7. Accessories : splices, wire ties required to complement respective suspension system and as recommended by system manufacturer.
   6.8. Angle mould : 7/8" x 7/8" angle mould profile, finish to match suspension system.
   6.9. Approved product : **See Finishes Specification on Dwg A4.03**
7. Acoustical Panels (General):
   7.1. Type : lay-in exposed grid
   7.2. Material : non-combustible mineral fibre
   7.3. Surface Finish : factory vinyl latex paint
   7.4. Color : **factory white finish**
   7.5. Light Reflectance : LR-0.83
   7.6. Size : General - **24" x 48" x 5/8" thick**
   7.7. Edges : **square-cut lay-in**
   7.8. NRC Rating : General - 0.55
   7.9. CAC Rating : General - 35
   7.10. Fire Hazard : 0-25 ASTM E84 test
   7.11. Approved Product : **See Finish Specification on Dwg A4.03**
7. Acoustical Panels (MRI): **(Not Applicable)**
   7.1. Type : lay-in exposed grid
   7.2. Material : non-combustible mineral fibre
   7.3. Surface Finish : factory vinyl latex paint
   7.4. Color : **factory white finish**
   7.5. Light Reflectance : **LR-0.90**
   7.6. Size : **24" x 24" x 1 1/2" thick**
   7.7. Edges : **square-cut lay-in**
   7.8. NRC Rating : **1.00**
   7.9. AC Rating : **200**
   7.10. Fire Hazard : 0-25 ASTM E84 test
8. Approved Product : **See Finish Specification on Dwg A4.03**
9. Install suspension assemblies in accordance with system manufacturer's directions, unless state otherwise.
10. Provide seismic restraint of suspension system in accordance with ASTM E580, 4. Areas Subject to Moderate to Severe Seismic Disturbance.
11. Support light fixtures and diffusers independent of suspension system using dedicated hangers or chains secured to overhead structure. Locate supports within 150mm of each corner and at maximum 600mm around perimeter of each fixture and diffuser. This is in addition to slack restraints specified in Division 15 & 16
12. Frame openings for light fixtures, air diffusers, and at changes in ceiling heights.
13. Make finished ceiling systems square to adjoining walls and level tolerance 1:1000.
14. For MRI Room, suspended ceiling must be statically suspended with no moveable clamps or springs or other similar mechanism. Corrugated rods must be fastened securely and galvanic contact between corrugated rods must be guaranteed or by using wire jumper between rods.

09 65 00 RESILIENT FLOORING

1. References
   1.1. ASTM F710, Standard Practice for Preparing Concrete Floors and other Monolithic Floors to Receive Resilient Flooring.
   1.2. ASTM F1913, Standard Specification for Sheet Vinyl Floor Covering Without Backing.
   1.3. ASTM F1516, Standard Practice for Sealing Seams of Resilient Flooring Products by the Heat Weld Method.
   1.4. ASTM F1861, Standard Specification for Resilient Wall Base.
   1.5. ASTM F1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
2. Comply with NFCA "Floor Covering Reference Manual" for all product and installation requirements.
3. Submit samples in accordance with Section 01 33 00.
4. Provide flooring maintenance data for incorporation into maintenance manual described in Section 01 33 00.
5. Subfloor filler for patching, filling and levelling: pre-mixed filler with Portland cement and polymeric modifiers with minimum compressive strength of 20 MPa at 28 days, type as recommended by flooring manufacturer. Primers and sealers: as recommended by flooring manufacturer. Adhesives: solvent-free, low VOC, waterproof type as recommended by flooring manufacturer
6. Heat Welding Rods for Sheet Flooring: as recommended and supplied by flooring manufacturer, solid color and/or patterned rods as selected by the Consultant from manufacturer's standard range to match/compliment sheet flooring type used.
7. Protective Edging and Reducer Strips: heavy duty tapered pebbled vinyl/rubber or smooth metal type to protect resilient floor edges at unlike floor finish transitions and to suit condition as recommended by resilient flooring manufacturer with type, style, finish and color to match existing where applicable as selected by the Consultant from manufacturer's standard range.
8. Sheet vinyl:
   8.1. Composition: Minimum 50% vinyl compound binder consisting of a blended composition of pigments stabilized against heat and light deterioration. Design, color and pattern shall extend through the full thickness.
   8.2. Standards: ASTM F 1913 Vinyl Sheet Floor Covering Without Backing.
   8.3. Intended use: Institutional
   8.4. Thickness: 2 mm.
   8.5. Colors: 2 colors (field and border) to be selected by Consultant from manufacturer's complete range.
   8.6. Approved product: **See Finish Specification on Dwg A4.03**
9. Resilient Integral Base :
   9.1. Composition : sheet vinyl flooring flash coved up walls complete with pre-approved heat welded joint seams and interior and exterior corner details and continuous cap as specified. Refer to Finish Schedule for locations
   9.2. Height : **150mm**
   9.3. Base Supports : as recommended by flooring manufacturer, minimum 19mm radius
   9.4. Base Cap : continuous cap as recommended by flooring manufacturer, colour from manufacture's standard range, to compliment flooring material and as selected by Consultant.
10. Maintenance Materials : At project completion, provide 10% of extra sheet vinyl and resilient base of each type and color for Owner's future maintenance use.
11. Ensure that paint, varnish, oils, release agents, waxes, sealers and curing and hardening compounds not compatible with adhesives employed have been removed.
12. Test existing exposed concrete for moisture using ASTM F 1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride test method and provide written results. Moisture emission not to exceed 1 kg/70 m2 in 24 hours.
13. Test existing exposed concrete for alkalinity and neutralize if required in accordance with NFPA recommendations without using acid.
14. Install flooring in accordance with manufacturers' installation instructions.
15. Install edging strips wherever resilient flooring terminates at unlike floor surface, using longest practical lengths at each location.
16. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
17. Remove excess adhesive from floor, base and wall surfaces without damage.

09 90 00 PAINTING

1. Conform to the standards contained in the Master Painters Institute Architectural Painting Specification Manual, latest edition (hereafter referred to as MPI Painting Specification Manual) for all painting products including preparation and application of materials.
2. Only materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, etc.) listed in the latest edition of the MPI Approved Product List (APL) are acceptable for use on this project.
3. All paint to be premium grade unless otherwise noted.
4. All colors to be selected by Consultant.
5. Allow one (**1**) interior field colors and one (**1**) interior accent colors for walls
6. Allow one (**1**) color for interior ceilings including access hatches , trims and fixtures
7. Allow one (**2**) colors for interior doors and frames
8. Submit color samples
9. Prepare 1000mm x 1000mm mock-ups for each color on site for final approval as instructed by architect.
10. For interior gypsum board surfaces :
   10.1. Surfaces must be clean, screws and nails countersunk and holes filled. Sand joints, then dust clean.
   10.2. Apply latex primer before painting new surfaces.
   10.3. For previously painted latex surfaces, no primer required.
   10.4. Product :
      10.4.1. INT 9.2B: high performance latex, gloss level 3 (eggshell) for walls (except level 5 (semi-gloss) for wet areas) and level 1 (flat) for ceilings.
      10.4.2. Paint : **General Paint HP2000**
      10.4.3. Primer : As recommended by manufacturer
11. For interior galvanized metal :
   11.1. Clean with metal conditioner to assure better adhesion of the paints.
   11.2. Unless new metal surface comes with a primer, apply a coat of latex primer for all new metal surfaces.
   11.3. If rust is present, it should be removed with rust remover, and the affected areas covered with anti-rust primer.
   11.4. For previously painted latex or alkyd surfaces, no primer required.
   11.5. Product :
      11.5.1. INT 5.3K: waterborne light industrial, gloss level 5 (semi-gloss) over waterborne primer
      11.5.2. Paint : Pitt-Glaze WB1 waterborne acrylic epoxy paint
      11.5.3. Primer : Dulux Gripper 250 acrylic primer
12. Maintenance Materials : At project completion, provide 1 can of 4 litres (1 gallon) of extra paint, unopened, for each paint type and color, properly labeled, for Owner's future maintenance use.
13. All materials and paints shall be lead and mercury free and shall have low VOC content where possible.
14. Where required, paints and coatings shall meet flame spread and smoke developed ratings designated by local Code requirements and/or authorities having jurisdiction.
15. Perform no painting work when the ambient air and substrate temperatures are below 50 degrees F (10 degrees C), relative humidity is above 85% or dew point is less than 5 degrees F (3 degrees C) for both interior and exterior work.
16. Previously painted surfaces must be clean, dry, and free from dust, oil, grease, rust, soap, wax, loose paint or other contaminants. Scrape loose paint and sand edges smooth. Clean very well and prime bare spots with recommended primer for original surface type.
17. All surfaces to be painted to receive minimum 3 coats of paint. For deep or bright accent colors, paint more than 3 coats to achieve satisfactory consistency.
18. Sand and dust between each coat.
19. Where painting is around existing mechanical and electrical fixtures and equipment, coordinate with other trades to remove face plates and/or trims before painting.

10 26 00 WALL AND CORNER GUARDS

1. Submit product data and samples in accordance with Section 01 10 00 Submittal Procedures
2. Description :
   2.1. Corner Guards : 2" flange - 90° or 135° or **custom angle if shown on drawings**
   2.2. Approved Product : **See Finish Specification on Dwg A4.03**
   2.3. Wall Protection : High impact rigid sheet with nominal **.060" (1.52mm)** thickness and supplied in 4' x 8' or 10' (1.22m x 2.44m or 3.05m) sheet sizes in suede texture.
   2.4. Approved Product : **See Finish Specification on Dwg A4.03**
   2.5. Crash Rails : Style and size to match existing
3. Colours : **See Finish Specification on Dwg A4.03**
4. Install in accordance with manufacturer's recommendations. Fix mechanically through wall finishes into framing. Heights in accordance with drawings.

13 09 00 RADIATION PROTECTION

1. Section Includes
   1.1. Lead sheets
   1.2. Lead-lined hollow metal door frames with lead-lined wood doors
   1.3. Lead-lined hollow metal view window frames with radiation shielding leaded glass
2. References:
   2.1. **Physicist report prepared by Owner's radiation physicist, if available**
   2.2. Specifications for Commercial Steel Doors and Frames and Canadian Fire Labelling Guide by the Canadian Steel Door and Frame Manufacturers Association (CSDFMA).
   2.3. Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
   2.4. Health Canada Safety Code 35 - Radiation Protection in Radiology (2008)
   2.5. Guideline and Checklist for installation of Lead Shielding in a Diagnostic X-ray Facility from the Centre for Disease Control of BC and NCRP Report 147 (2006)
   2.6. Canadian Nuclear Safety Commission Regulations and Guidelines R129 Rev 1(2004) and RD52(2010)
3. Submittals:
   3.1. Product Data: Manufacturer's data sheets on each product to be used
   3.2. Shop Drawings: Indicate dimensions, description of materials and finishes, general construction, layout of radiation-protected areas, lead thickness or lead equivalencies of components.
   3.3. Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
4. System Requirements:
   4.1. Materials, thicknesses, and configurations indicated on drawings are based on radiation protection design prepared by Owner's radiation health physicist. Provide radiation protection consistent with materials specified in thicknesses and locations indicated.
   4.2. Provide materials and workmanship, including joints and fasteners, that maintain continuity of radiation protection at all points and directions equivalent to materials specified in thicknesses and locations indicated.
   4.3. Lead-Lined Assemblies: Provide lead thickness in doors, door frames, window frames, and other items located in lead-lined assemblies, not less than that indicated for assemblies in which they are installed unless indicated otherwise.
   4.4. Lead Glazing: Provide lead equivalence not less than that indicated for assembly in which glazing is installed unless indicated otherwise.
5. Materials:
   5.1. Lead Sheets: 99.9 percent pure unpierced virgin lead, free from dross, oxide inclusions, scale, laminations, blisters, and cracks.
   5.2. Lead must be "rolled" lead, not acoustic or sound proofing lead.
   5.3. Thickness: As shown on drawings and no less than 1/32 inch (0.7 mm) if not indicated.
   5.4. Variation in sheet thickness shall not exceed 3 percent.
6. Manufactured Units:
   6.1. Lead-Lined Wood Doors:
      6.1.1. Construction: Refer to Section 80 14 00 Wood doors
      6.1.2. Flush veneered construction using single continuous layer of sheet lead in center of door. Laminate wood cores under hydraulic pressure on each side of lead.
      6.1.3. Extend sheet lead lining to door edges providing X-Ray absorption equal to partition in which door
      6.1.4. Edge Strips: Minimum thickness of 2 inches (51 mm) each edges of door.
      6.1.5. Shield cutouts for locksets with lead sheet of same thickness used in door. Lap lining of cutouts with door lining 1 inch (25 mm).
      6.1.6. Provide lead-lined astragals for pairs of doors.
   6.2. Lead-Lined Hollow Metal Door Frames:
      6.2.1. 16 gage (1.5 mm) welded steel frames with 4-7/8 inches (124 mm) throat and 2 inches (51 mm) face. Provide angle iron spot welded at 6 inches (152 mm) on center, and anchor bolts to secure frame if lead thickness is 1/8 inch (3 mm) or greater.
      6.2.2. Door Frame Supports: Double 16ga metal studs both sides anchored to structural slab above - see Section 09 22 16 Non Structural Metal Framing for metal stud requirements
   6.3. Radiation Shielding Leaded Glass:
      6.3.1. Clear leaded glass containing 48 percent lead oxide (by weight) and 15 percent barium. Thickness as required to provide radiation protection equivalent to that provided by sheet lead in partition in which lead glass is installed. Equivalencies based on 150 kVp unless indicated otherwise.
   6.4. Lead-Lined Hollow Metal View Window Frames:
      6.4.1. 16 gage (1.5 mm) welded steel frames adjustable from 4-1/4 inches (108 mm) to 6 inches (152 mm) wall thickness. Design window frames to accept any thickness of radiation shielding leaded glass, radiation shielding X-Ray safety glass, or radiation shielding leaded acrylic.
      6.4.2. Protection: Provide radiation protection equivalent to that provided by sheet lead in partition in which view window is installed.
      6.4.3. Stops: Provide 1/2 inch (13 mm) removable stops.
7. Installation of doors and frames
   7.1. Install lead-lined steel door frames per Section 08 10 00 Hollow Metal Doors and Frames
      7.1.1. Lap lead lining of frames over lining in walls at least 1 inch (25 mm).
      7.1.2. Lead Lining of Frames: Line inside of frames with lead of thickness not less than that required in doors and walls in which frames are used. Form lead to match frame contour, continuous in each jamb and across head, lapping stops. Form lead shields around areas prepared to receive hardware. Lap lining over lining in walls at least 1 inch (25 mm).
   7.2. Install lead-lined wood doors per Section 08 14 00 Wood Doors
   7.3. Line covers, escutcheons, and plates to provide shielding at cutouts and penetrations of frames and doors.
8. Installation of window frames and glazing to maintain continuity of radiation protection and with radiation resistant glazing in frame.
9. Installation of lead sheet
   9.1. Screwed lead sheet directly on steel stud. All seams must be on studs and seams must overlap by a minimum of 2".
   9.2. If there are solid structural column, lead sheet needs only to overlap column by 4" (100mm)
   9.3. At any penetrations of lead linings, provide lead shields to maintain continuity of protection.
   9.4. Outlet Boxes and Conduit: Cover or line with lead sheet lapped over adjacent lead lining at least 1 inch (25 mm). Wrap conduit with lead sheet for 10 inches (250 mm) from box.
   9.5. Duct Openings: Unless otherwise indicated, line or wrap ducts with lead sheet for distance from partition/ceiling equal to 3 times the largest opening dimension. Lap lead sheet with adjacent lead lining at least 1 inch (25 mm).
   9.6. Piping: Wrap piping with lead sheet for 10 inches (250 mm) from point of penetration.
   9.7. Secure shields at penetrations using adhesive or wire ties, but not penetrating fasteners.
10. Field Quality Control
   10.1. Field Inspection: Lead installation must be examined, tested and approved by qualified independent testing agency and/or radiation health physicist hired by owner before installation of drywall.
   10.2. Correct deficiencies and remove and replace radiation protection that inspection reports indicate does not comply with specified requirements.
11. Protection
   11.1. Lock radiation-protected rooms once doors hardware is installed. Limit access to only those persons performing Work in radiation-protected rooms or as directed by Owner.

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No.	REVISION	DATE	BY
6	ISSUED FOR CONSTRUCTION	FEB 14, 2019	DC
5	ISSUED FOR TENDER	DEC 19, 2018	DC
4	ISSUED FOR 80% CD	NOV 8, 2018	DC
3	NOT ISSUED	-	-
2	NOT ISSUED	-	-
1	NOT ISSUED	-	-

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BULKLEY VALLEY
DISTRICT HOSPITAL
SMITHERS BC

DIAGNOSTIC IMAGING
DEPARTMENT RENOVATIONS
PHASE 2 - CT INSTALLATION

SPECIFICATIONS -
MATERIALS & FINISHES

SCALE:
N/A
DATE:
FEB 2018
DRAWN:
DC
CHECKED:
DC
JOB No.:
DCYT1802

PHASE 2
A5.02

GENERAL NOTES

1. The tenant improvements shown on these drawings have been designed in accordance with the British Columbia Building Code 2012 and will not adversely affect the seismic capacity of the existing building.

2. Read structural drawings together with architectural, mechanical and other drawings for detail dimensions, duct work, recesses, inserts and other items. In the event of discrepancies between drawings, the more stringent requirements shall be followed.

3. Verify all dimensions and examine site conditions prior to fabrication of all items to ensure correct fit.

4. For conditions not explicitly shown, contractor shall immediately request clarifications from the structural engineer.

5. All connection details to the existing building shown on these drawings are subject to verification of existing conditions on site. Field conditions may require modified or alternate details to be issued by the structural engineer. For conditions not explicitly shown, details to be similar to those shown on the drawings.

6. Provide adequate shoring or bracing during construction to resist all forces including forces such as wind, seismic and unbalanced forces due to construction sequence.

7. Observe and enforce all construction safety measures required by the Worker's Compensation Board of British Columbia and Part 8 of the British Columbia Building Code 2012.
Employ a qualified professional specialty Engineer registered in British Columbia for the design of all falsework and temporary support of all structural elements, earth banks, roads, etc. It is the sole responsibility of the Contractor to ensure that no part of the work is subjected to a load which will endanger the safety of the building or workers. Use temporary bracing where necessary to support all loads to which structure may be subjected, including erection equipment and construction operations.

8. Field Reviews
Provide a minimum of 24 hours notice to the Engineer for routine field review of:
core, cutting, and anchor marked locations, prior to coring, drilling, and cutting
drilled anchor holes prior to installing anchor or adhesives and anchors prior to concealment
unistrut framing prior to concealment

The Contractor is responsible for pre-inspecting the work to confirm completeness prior to field review by the Engineer.

9. Design Live Loads

Snow Load Values	Ss = 66.9 psf	Is=1.25
	Sr = 4.2 psf	
Basic roof snow load	72.2 psf	

(plus additional snow build-up where applicable)

Ground Floor	100 psf	
Basic wind pressure(1:50)	8.4 psf	Iw=1.25
Seismic Factors:		
Sa(0.2)= 0.11 Sa(0.5)= 0.08		Ie= 1.5
Assumed Site Class= C	Fa= 1.0	
Equipment Factors:		
Cp =1.0 Ar = 2.5	Rp = 2.5	

10. Grout/Concrete Anchors
Grout (where shown): non-shrink, non-ferrous, premixed grout developing a minimum compressive strengths of 4350 psi at 3 days, and 8000 psi at 28 days.
Epoxy grout: Hilti HY-200 or pre-approved alternate.
Concrete anchors and inserts: Use Hilti anchors and inserts in strict accordance with the manufacturers instructions where shown or required.
No substitutions permitted without the prior written consent of the Engineer.
Anchor bolts, nuts and washers: to ASTM A307 u.n.o.

12. Concrete
Provide concrete and perform work to CSA A23.1-09.
Properties of Concrete Mix:

Strength	Slump	Air	Aggregate	Class
25 MPa	80 +/- 20	3-5%	20 mm	N

Cement: GU Portland cement or GUb blended hydraulic cement to CSA-A3000-08.
Calcium chloride: not permitted
The Contractor shall be responsible for design of all formwork, falsework and temporary shoring. Use mechanical vibrators throughout to compact concrete.

13. Reinforcing Steel
Use new deformed reinforcing bars conforming to CSA G30.18-09, grade 400W u.n.o.
Place reinforcing steel to CSA A23.1-09.
Splice reinforcement as follows (unless noted otherwise):

Bar size	10M	15M
Lap splice	20"	28"

All concrete to be reinforced.
15M @ 16" EW

14. Saw cutting and coring:
All work to be done by qualified workers. Prior to cutting or coring of any concrete, Contractor must scan the area for reinforcement and utility services. Mark results from scan and proposed locations of cuts and cores for review by the engineer prior to cutting. Do not over-cut corners or edges of openings. At corners, core hole tangent to corner and saw cut remainder of cut. Use small tools as necessary to complete work. Cut material into pieces that can be transported to their disposal outside the building without overloading the floor structures. Where reinforcing steel bars are cut, touch up ends of bars with zinc-rich paint. See plans for additional notes for coring and cutting.

15. Equipment Installation
Handle and install equipment in accordance with all applicable instructions by equipment manufacturer. See plan for travel path inside building.

16. Metal Framing System
Use Unistrut Metal Framing System members with designation as shown in strict accordance with manufacturers instructions where shown and required. No substitutions permitted without prior written consent of Engineer.
Bolts, nuts and washers: to ASTM A307, minimum size 1/2"

ABBREVIATIONS

&	AND	LG	LONG
@	AT	MAX	MAXIMUM
AB	ANCHOR BOLT	MECH	MECHANICAL
ALT	ALTERNATE(LY)	MFR	MANUFACTURER
APPROX	APPROXIMATE(LY)	MIN	MINIMUM
ARCH	ARCHITECT(URAL)	ML	MICROLLAM
B, BOT	BOTTOM	N/S	NEAR SIDE
B TO B	BACK TO BACK	NTS	NOT TO SCALE
BETW'N	BETWEEN	OC	ON CENTRE
BLDG	BUILDING	OPNG	OPENING
B.BOT	BOTTOM	OPP	OPPOSITE
BU	BUILT UP	PERP	PERPENDICULAR
CL, ℄	CENTRELINE	PL, ℙ	PLATE
C/W	COMPLETE WITH	PT	PRESSURE TREATED
CC, OC	CENTRE TO CENTRE, ON CENTRE	R	RADIUS
COL	COLUMN	REINF	REINFORCEMENT
CONC	CONCRETE	REQ'D	REQUIRED
CONST	CONSTRUCTION	REV	REVISION
CONT	CONTINUOUS (LAP SPLICE)	R/W	REINFORCED WITH
CTR	CENTRE	SECT	SECTION
DET	DETAIL	SIM	SIMILAR
DIM	DIMENSION	SK	SKETCH
DN	DOWN	S.O.G.	SLAB ON GRADE
DP	DEEP	SP	SPACE(D)(S)(ING)
DWGS	DRAWINGS	SS	STAINLESS STEEL
EA	EACH	STAGG	STAGGERED
EF	EACH FACE	STL	STEEL
EL, ELEV	ELEVATION	SW	SHORT WAY
EQ SP	EQUAL(LY) SPACES(D)	T&B	TOP AND BOTTOM
EW	EACH WAY	THK	THICK(NESS)
EXIST, EX	EXISTING	TOC	TOP OF CONCRETE
FDN, FTG	FOUNDATION	TOS	TOP OF STRUCTURAL STEEL
FIN GR	FINISHED,FINAL GRADE	TOW	TOP OF WALL
FIN FL	FINISHED FLOOR	TUL	TOP UPPER LAYER
FL	FLOOR	TLL	TOP LOWER LAYER
F/S	FAR SIDE	TYP	TYPICAL
FTG	FOOTING	U/S	UNDERSIDE
GA	GAUGE	UNO	UNLESS NOTED OTHERWISE
GALV	GALVANIZED	VERT	VERTICAL
GL	GRIDLINE, BAYLINE	W	WIDE
GND	GROUND	W/	WITH
GRD	GRADE	WP	WORK POINT
HORIZ	HORIZONTAL		

ON STRUCTURAL DRAWINGS, *EXISTING ELEMENTS ARE TYPICALLY ANNOTATED WITH ITALIC TEXT*
ALL WORK IN NON-ITALICIZED TEXT IS NEW EXCEPT WHERE NOTED.

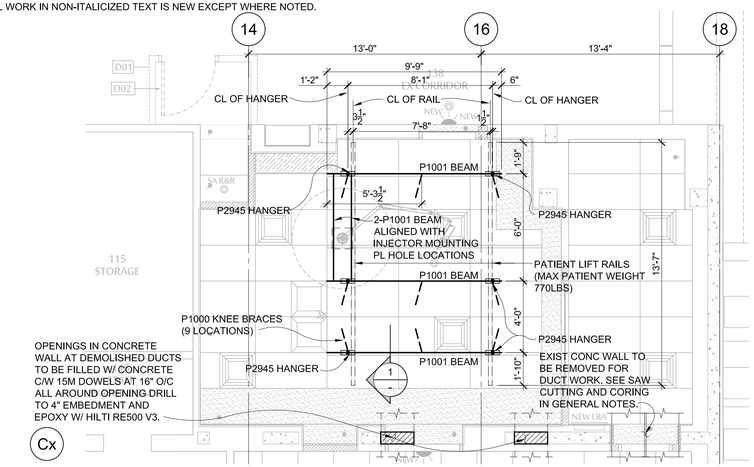
SYMBOLS

ON SMALL SCALE PLANS

- 1 / S5 — SECTION NUMBER; DRAWING WHERE SECTION IS LOCATED
- 1 / S5 — DETAIL NUMBER; DRAWING WHERE DETAIL IS LOCATED

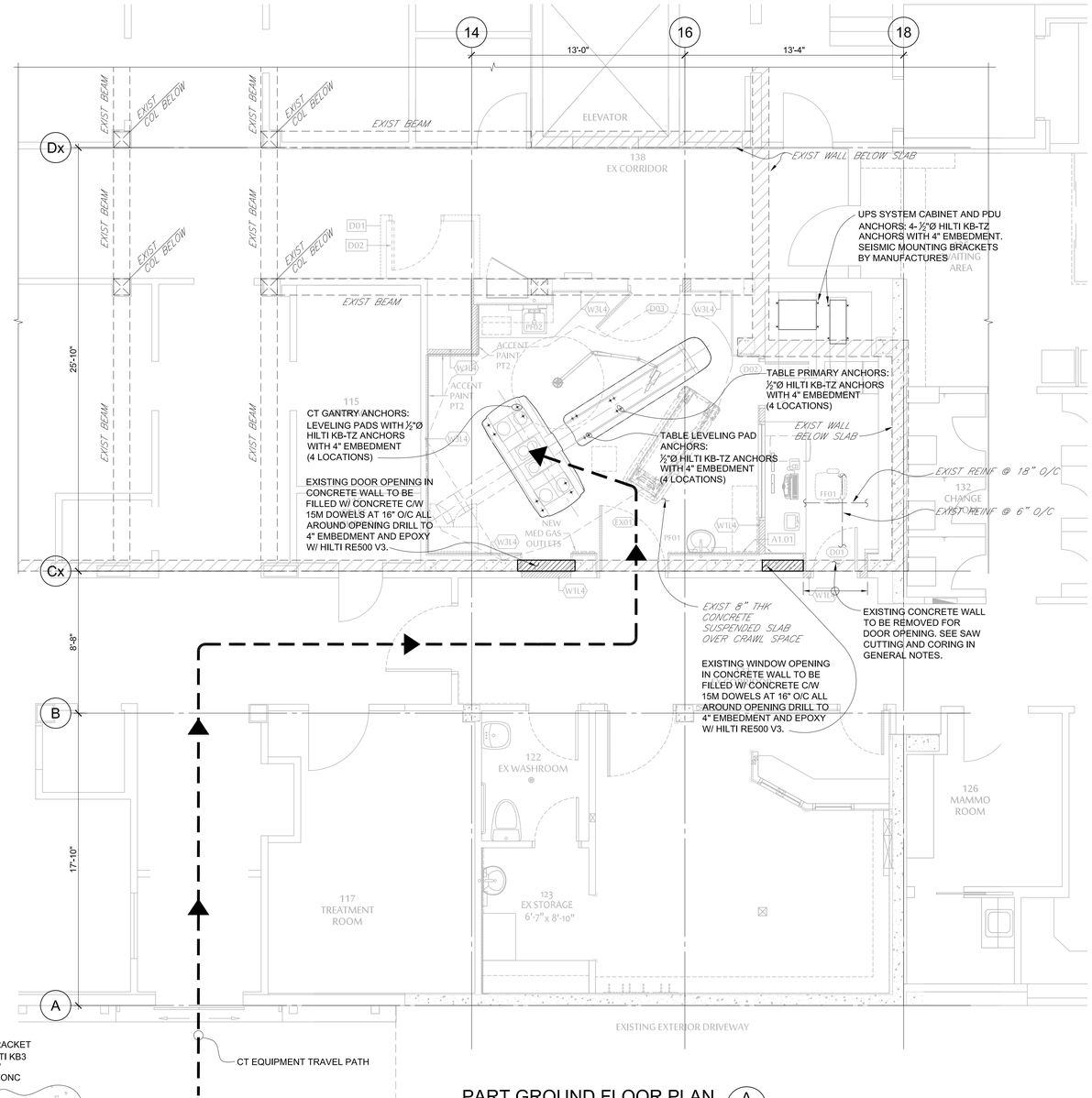
SECTION 1:20 — 1 / S1 — SECTION NUMBER; DRAWING WHERE SECTION TAKEN FROM

DETAIL 1:20 — 1 / S1 — DETAIL NUMBER; DRAWING WHERE DETAIL TAKEN FROM



PART REFL CEILING PLAN B / 1/4"=1'-0"

SUSPENDED CEILING NOTES:
1. 12 GA HANGING WIRE AT 4'-0" O/C AT TEES AND 8" FROM WALLS. ATTACH TO U/S SLAB W/ HILTI HLC-T ANCHORS. TIE ENDS OF WIRE TO COMPONENTS WITH 3 TIGHT WRAPS TYP.
2. 1" NOM DIA EMT COMPRESSION STRUTS AT 12'-0" O/C WITH DIAG (45°) 12 GA WIRE IN DIRECTION OF TEES.
3. ATTACH TO WALL WITH 1½x1½ PERIMETER ANGLE.
4. INSTALL CEILING TO MFR RECOMMENDATIONS FOR SEISMIC ZONES.

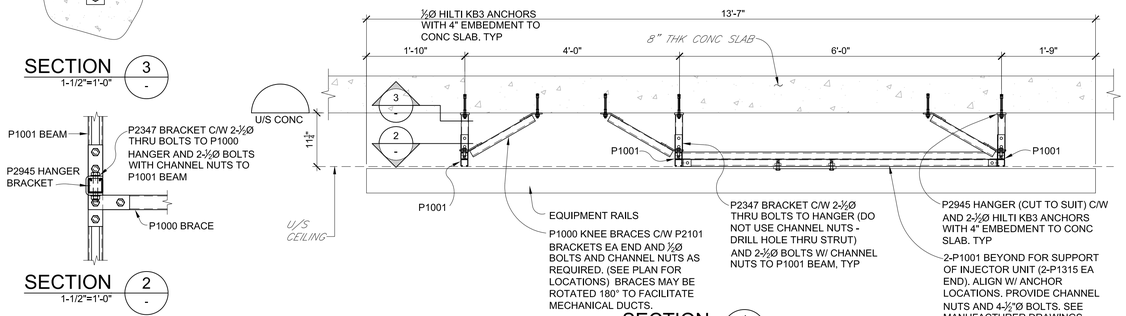


PART GROUND FLOOR PLAN A / 1/4"=1'-0"

P2945 HANGER BRACKET C/W AND 2-½Ø HILTI KB3 ANCHORS WITH 4" EMBEDMENT TO CONC SLAB. TYP

SECTION 3 / 1-1/2"=1'-0"

SECTION 2 / 1-1/2"=1'-0"



SECTION 1 / 3/4"=1'-0"

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No.	REVISION	DATE	BY
	ISSUED FOR CONST.	2019.02.14	
	ISSUED FOR TENDER	2018.12.19	
	80% CD DRAWINGS	2018.11.08	
	ISSUED FOR BLDG PERMIT	2018.10.12	
	80% DD DRAWINGS	2018.10.03	
	ISSUED FOR SCHEMATIC DESIGN	2018.09.14	

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northern health
the northern way of caring

BULKLEY VALLEY DISTRICT HOSPITAL
SMITHERS BC

DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS
PHASE 2 - CT INSTALLATION

GENERAL NOTES AND PLAN

SCALE: AS SHOWN
DATE: 2018.11.15
DRAWN: CN
CHECKED: KM
JOB No.: 11332

PHASE 2
S3

BULKLEY VALLEY DISTRICT HOSPITAL

SYMBOL SCHEDULE

- ELBOW DOWN
- ELBOW UP
- TEE DOWN
- TEE UP
- FLOW DIRECTION
- P–TRAP
- GATE VALVE
- BALL VALVE
- CHECK VALVE
- BALANCING VALVE
- 2–WAY CONTROL VALVE
- 3–WAY CONTROL VALVE
- PRESSURE REDUCING VALVE
- STRAINER
- BACKFLOW DEVICE
- GAS COCK
- PIPE BREAK
- CLEANOUT AT GRADE
- PIPE CAP
- PIPE UNION
- PUMP
- RELIEF VALVE
- AIR VENT
- THERMOMETER
- PIPE TO DRAIN
- FLOOR DRAIN
- FUNNEL FLOOR DRAIN
- SAN — SANITARY DRAIN
- PSAN — PARKING SANITARY DRAIN
- ST — STORM DRAIN
- SAN — SANITARY – BELOW GRADE
- ST — STORM – BELOW GRADE
- X — DRAIN TILE (PERFORATED)
- G — GAS – PROPANE
- V — SANITARY VENT
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- NP — NON–POTABLE DOMESTIC COLD WATER
- NP — NON–POTABLE DOMESTIC HOT WATER
- HWS — HEATING WATER SUPPLY
- HWR — HEATING WATER RETURN
- RS — REFRIGERANT SUPPLY
- RR — REFRIGERANT RETURN
- HEAT TRACING
- DOWN UP — SUPPLY AIR DUCT
- DOWN UP — RETURN AIR DUCT
- DOWN UP — EXHAUST AIR DUCT
- THERMOSTAT
- TEMPERATURE SENSOR
- DUCT ACOUSTIC INSULATION
- SQUARE ELBOW WITH TURNING VANES
- ROUND ELBOW, r/W = 1.5
- ROUND DUCT UP
- ROUND DUCT DOWN
- FLOOR GRILLE
- ROUND DUCT BREAK
- BALANCING DAMPER
- SUPPLY AIR DIFFUSER / GRILLE
- RETURN GRILLE
- EXHAUST GRILLE
- CABINET EXHAUST FAN
- FIRE DAMPER IN VERTICAL DUCT
- FIRE DAMPER IN HORIZONTAL DUCT
- AIRFLOW DIRECTIONAL ARROW
- 3 / M101 — DETAIL DESIGNATION / DRAWING TO FIND DETAIL
- # — EQUIPMENT IDENTIFIER – REFER TO EQUIPMENT SCHEDULES FOR NEW EQUIPMENT.
- GRILLE TYPE – REFER TO EQUIPMENT SCHEDULES. / INLET SIZE / AIRFLOW (CFM)
- INV. ____' — PIPE INVERT RELATIVE TO REFERENCE FLOOR ELEVATION

CIVIC ADDRESS

3950 8TH AVE, SMITHERS, BC

FIRE PROTECTION

THE EXISTING WORK AREA IS NOT CURRENTLY SPRINKLERED

BUILDING CODE REFERENCE

BC BUILDING CODE 2012

DOMESTIC WATER SIZING

DOMESTIC WATER PIPING IS SIZED AS PER BCPC 2012 SECTION 2.6.3.1.(2) AND A–2.6.3.1.(2) USING THE AVERAGE PRESSURE LOSS METHOD

1. FIXTURE UNITS ARE BASED ON BCPC TABLE 2.6.3.2.A
2. COLD WATER PIPE SIZING BASED ON BCPC TABLE A–2.6.3.1.(2)E USING A VELOCITY OF 5 FT/S
3. HOT WATER PIPING SIZED BASED ON BCPC TABLE A–2.6.3.1.(2)E USING A VELOCITY OF 4 FT/S
4. PIPING MATERIAL: TYPE K COPPER

DRAWING LIST

M0.00	COVER PAGE	N.T.S
M1.00	PLUMBING DEMO PLAN	1/4" = 1'–0"
M2.00	HVAC DEMO PLAN	1/4" = 1'–0"
M3.00	PLUMBING PLAN	1/4" = 1'–0"
M4.00	HVAC PLAN	1/4" = 1'–0"
M4.01	ELECTRICAL ROOM HVAC PLAN	1/4" = 1'–0"
M5.00	ROOF PLAN	1/4" = 1'–0"
M6.00	DETAILS	N.T.S
M7.00	SPECIFICATIONS	N.T.S
M7.01	SPECIFICATIONS	N.T.S
M7.02	SPECIFICATIONS	N.T.S

GENERAL NOTES

1. THE MECHANICAL SYSTEM SHALL CONSIST OF ALL THE WORK SHOWN ON DRAWINGS, SCHEMATICS, AND AS DESCRIBED IN SPECIFICATIONS.
2. INSTALL ALL MECHANICAL WORK AS HIGH AS POSSIBLE, TIGHT TO STRUCTURE ABOVE, EXCEPT WHERE CONFLICT OCCURS WITH REQUIREMENTS LISTED UNDER SPECIFICATION (VIBRATION ISOLATION).
3. THE MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE AND DO NOT ATTEMPT TO SHOW ALL REQUIRED OFFSETS. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR CONSTRUCTION DETAILS.
4. ITEMS NOTED "TYPICAL" OR "TYP" ON ANY SHEET APPLY TO THAT PARTICULAR SHEET.
5. COORDINATE WITH SPECIFICATION. IN CASE OF CONFLICT BETWEEN SPECIFICATIONS AND DRAWINGS THE MORE STRINGENT SHALL APPLY.
6. PROVIDE ELECTRICAL CODE MINIMUM HORIZONTAL AND VERTICAL WORKING CLEARANCE FOR ALL ELECTRICAL PANELS AND EQUIPMENT. OFFSET MECHANICAL AS REQUIRED.
7. COORDINATE ALL MECHANICAL WORK WITH THAT OF OTHER TRADES TO ENSURE PROPER AND ADEQUATE INTERFACE OF THEIR WORK WITH THE WORK OF THIS CONTRACTOR. PROVIDE COORDINATED SHOP DRAWINGS PRIOR TO FABRICATION AND INSTALLATION.
8. MECHANICAL EQUIPMENT SHALL NOT BE USED FOR TEMPORARY HEAT DURING CONSTRUCTION.
9. ALL DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS. ADD APPROPRIATE DIMENSION FOR INSULATION OR DUCT LINER TO OBTAIN "TOTAL" DUCT SIZE.
10. INSTALL FIRE DAMPERS AT ALL LOCATIONS WHERE DUCTS PENETRATE FIRE RATED WALLS OR OCCUPANCY SEPARATION WALLS. DAMPER FIRE RATING SHALL BE 1–1/2 HOUR UNLESS NOTED OTHERWISE. COORDINATE DAMPER ACCESS WITH ARCHITECT.
11. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS AND ELEVATIONS FOR EXACT LOCATION OF ALL DIFFUSERS AND GRILLES.
12. MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 5'–0" WITH 0.5 X DUCT DIAMETER OFFSET UNLESS NOTED OTHERWISE.
13. CONTRACTOR TO REFER TO SPECIFICATIONS FOR TYPE OF DUCT CONSTRUCTION ALLOWED.
14. COORDINATE LOCATION OF ACCESS PANELS FOR ANY VALVES, DAMPERS, EQUIPMENT OVER DRYWALL CEILINGS.
15. PROVIDE TRANSITIONS AS REQUIRED TO CONNECT DUCTWORK TO FANS AND OTHER MECHANICAL EQUIPMENT.
16. PROVIDE DIFFUSER AND GRILLE FRAMES COMPATIBLE WITH ARCHITECTURAL CEILING TYPE. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING TYPE. COORDINATE DIFFUSER AND GRILLE EXACT LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.
17. COORDINATE EXACT LOCATIONS OF ALL ROOM THERMOSTATS AND/OR ROOM TEMPERATURE SENSORS WITH ARCHITECT PRIOR TO INSTALLATION.
18. PROVIDE VOLUME DAMPER FOR EACH SUPPLY, RETURN AND EXHAUST OPENING. PROVIDE BALANCING DAMPER IN BRANCHES WHERE THREE OR MORE OPENINGS ARE ASSOCIATED WITH THE BRANCH AND ELSEWHERE AS NOTED ON THE DRAWINGS AND SPECIFICATIONS.
19. PROVIDE 1" THICK FIBRE FREE DUCT LINER IN ALL TRANSFER DUCTWORK UNLESS NOTED OTHERWISE.
20. COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS OF ALL PLUMBING FIXTURES WITH CASEWORK AND ARCHITECTURAL DRAWINGS.
21. TRAP PRIMERS ARE REQUIRED ON ALL FLOOR DRAIN TRAPS UNLESS OTHERWISE NOTED. NOTE THAT THE PIPING AND TRAP PRIMERS ARE NOT SHOWN ON DRAWINGS AND ARE TO BE FIELD ROUTED ONSITE BY MECHANICAL CONTRACTOR.
22. CONTRACTOR TO ALLOW FOR DUCT TRANSITIONS ON EXHAUST FANS AND AIR HANDLING UNITS.
23. INSULATE DUCT PLENUMS FOR OUTSIDE AIR, RETURN AIR AND EXHAUST AIR. FOR ALL OTHER DUCTWORK INSULATION REFER TO SPECIFICATIONS.
24. REFER TO MECHANICAL DETAILS FOR ADDITIONAL ACOUSTICAL AND THERMAL INSULATION REQUIREMENTS FOR DUCT AND EQUIPMENT.
25. SEISMIC RESTRAINTS FOR ALL EQUIPMENT AND PIPING SHALL BE COVERED BY MECHANICAL CONTRACTOR.
26. SEISMIC ENGINEER SHALL BE RETAINED UNDER THE MECHANICAL CONTRACTOR'S SCOPE OF WORK TO ENSURE SEISMIC INSTALLATIONS ARE INSTALLED IN ACCORDANCE WITH CODE. SEISMIC INSTALLATION SHALL BE APPROVED BY A CERTIFIED SEISMIC ENGINEER AND PROVIDE SIGNED SEALED SHOP DRAWINGS TO THAT EFFECT.
27. ANY SERVICES NOT SHOWN ON THE DRAWINGS THAT ARE EXPOSED DURING CONSTRUCTION SHALL BE VERIFIED BY THE CONTRACTOR AS TO THE SOURCE AND ROUTING. REPORT TO THE CONSULTANT WITH PROPOSED RESOLUTIONS FOR THE SERVICES THAT HAVE BEEN EXPOSED AT NO EXTRA COST TO CLIENT.
28. UNLESS NOTED OTHERWISE, ALL SANITARY AND STORM DRAINS OF SIZES 3 INCHES (75 MM) AND SMALL SHALL BE SLOPED TO 2%, AND DRAINS OF SIZES 4 INCHES (100MM) AND LARGER TO BE SLOPED AT 1%.

AIR TERMINALS

UNIT REF	DESCRIPTION	NOTES
S–1	E.H. PRICE MODEL SPD/31 600x600 SQUARE PLAQUE DIFFUSER B12 FINISH	A,B,C,D
R–1	E.H. PRICE MODEL 530 BLADE ORIENTATION "L" STEEL LOUVERED FACE RETURN .	A,B,C,D

A – COLOURS SHALL BE CONFIRMED BY THE ARCHITECT PRIOR TO ORDERING.

B – GRILLES, DIFFUSERS AND REGISTERS SHALL BE PROVIDED TO CONFORM TO ARCHITECTURAL AND STRUCTURAL DETAILING. REFER TO CEILING TYPE FOR MOUNTING DETAILS. CONFIRM:
a) STRUCTURAL OPENING SIZES RELATIVE TO GRILLE REQUIREMENTS
b) ARCHITECTURAL CEILING GRID MEASUREMENTS AND CEILING TYPE (ie. HARD METRIC / IMPERIAL)

C – ALL GRILLES, DIFFUSERS AND REGISTERS WHICH ARE DUCT CONNECTED ARE TO BE PROVIDED WITH MANUAL DAMPERS AT CONNECTION DUCTS EXCEPT WHERE MANUAL DAMPERS ARE SPECIFIED INTEGRAL TO GRILLES

D – REFER TO DRAWING TO CONFIRM NECK AND GRILLE SIZES.

HYDRONIC HEATING COIL

UNIT REF	CAPACITY (MBH)	EWT (F)	LWT (F)	FLOW RATE (GPM)	AIRFLOW (CFM)	EAT (F)	LAT (F)	NOTES
RHC–1	21	180	160	2	700	55	80	A, B, C, D

ACCESSORIES:		
A – 1 ROW COIL	D – EH PRICE SIZE 9	
B – C/W 2–WAY CONTROL VALVE		
C – MAX AIR PRESSURE DROP 0.15"		
APPROVED EQUALS: EH PRICE		

OUTDOOR HEATPUMP UNIT SCHEDULE (COOLING ONLY)

UNIT REF	MATCHING INDOOR UNIT	MANUFAC.	MODEL No.	COOLING(BTUH)	M.C.A.	POWER	WEIGHT (lbs.)	NOTES
CU–1 (SEPARATE PRICE)	FC–1	MITSUBISHI ELE.	PUY–A24NHA6	24000	18	208/1/60	163	A, B, C, D, E, F, G, H, J
CU–2	FC–2	MITSUBISHI ELE.	PUY–A42NHA5	42000	26	208/1/60	247	A, B, C, D, E, F, G, H, J

ACCESSORIES:		
A – R410 REFRIGERANT	D – DEFROST CONTROL	G – SEISMIC RESTRAINTS
B – PRECHARGED AND INSULATED REFRIGERANT KIT	E – CSA APPROVAL	H – COOLING – ULTRA LOW AMBIENT KIT
C – EXPANSION VALVE	F – PIPE AND CONTROLS TO INDOOR FAN COIL UNIT	J – PROVIDE AND INSTALL INTERCONNECTING POWER/CONTROL WIRE BETWEEN INDOOR AND OUTDOOR UNIT.
APPROVED EQUALS: LG, MITSUBISHI		

INDOOR FAN COIL UNIT SCHEDULE (COOLING ONLY)

TAG	AREA SERVED	MAKE	MODEL	CFM	COOLING (BTUH)	MCA	ELETRICAL	WEIGHT (lbs)	NOTES
FC–1 (SEPARATE PRICE)	ELECTRIC ROOM	MITSUBISHI ELE.	PEAD–A24AA5	636	24000	2.63	208–1	73	A, B, C, D, E, F, G, H, J, K
FC–2	CT ROOM	MITSUBISHI ELE.	PEAD–A42AA4	1254	42000	3.5	208–1	95	A, B, C, D, E, F, G, H, J, K

ACCESSORIES:		
A – DISCONNECT SWITCH BY DIV. 16	E – C/W PROGRAMMABLE THERMOSTAT	
B – INTERNAL VIBRATION ISOLATION	F – HIGH EFFICIENCY FILTER	
C – SEISMIC RESTRAINTS, FLEXIBLE DUCT CONNECTION, AND SPRING ISOLATORS	G – PIPE AND WIRE TO THE CORRESPONDING CONDENSING UNIT MOUNTED ON PARKADE WALL	
D – 410 REFRIGERANT	H – INTEGRAL CONDENSATE PUMP. PIPING FROM FAN COIL UNITS TO STORM DRAIN SYSTEM (BY PLUMBING CONTRACTOR)	
APPROVED EQUALS: LG, MITSUBISHI		

ARCHITECT :

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	DATE	ISSUED FOR	BY
1	2018.10.04	80% DD	JL
2	2018.10.12	BUILDING PERMIT	JL
3	2018.11.09	ISSUED FOR 80%	JL
4	2018.12.19	ISSUED FOR TENDER	JL
5	2019.02.14	ISSUED FOR CONSTRUCTION	JL

N

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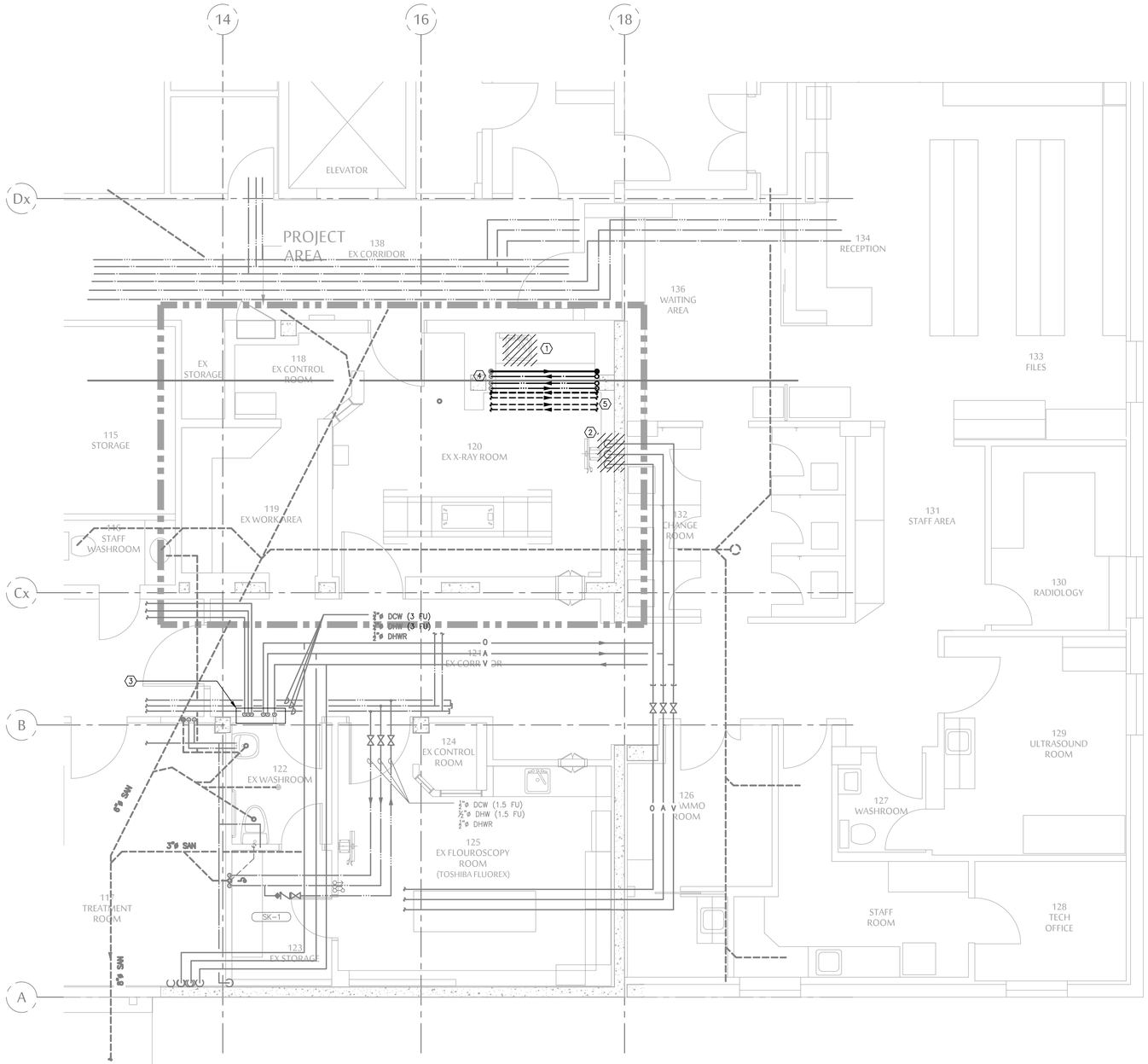
BULKLEY VALLEY DISTRICT HOSPITAL
SMITHERS BC

DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS
PHASE 2 - X-RAY INSTALLATION

Cover Page

SCALE: 1:1
DATE: 2018.10.12
DRAWN: RZ
CHECKED: JL
JOB No.: 18103-V

PHASE 2
M0.00



1 M1.00 PLUMBING DEMO PLAN
SCALE: 1/4"=1'-0"

DEMOLITION NOTES:

1. EXISTING PLUMBING FIXTURE TO BE REMOVED C/W POTABLE WATER PIPING, SANITARY AND VENT PIPING. SAW CUT SLAB AND CAP SANITARY WITHIN CRAWLSPACE.
2. EXISTING MEDICAL OXYGEN, VACUUM AND AIR OUTLETS TO BE REMOVED. CUT PIPING BACK AT MAINS IN CEILING.
3. EXISTING MEDICAL ZONE VALVE BOX TO BE REMOVED AND REPLACED WITH NEW COORDINATE SHUTDOWN WITH DEPARTMENT AND FMO.
4. EXISTING 4" SANITARY STACK, 1.25" DCW, 1" DHW, 3/4" DHWR TO BE OFFSET WITHIN CEILING SPACE, AND RECONNECT TO EXISTING PIPES WITHIN CRAWLSPACE.
5. 4" SANITARY STACK, 1.25" DCW, 1" DHW, 3/4" DHWR PIPES WITHIN CRAWLSPACE. PIPES SHOWN OFFSET FOR CLARITY.

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1	2018.10.04	80% DD	JL
2	2018.10.12	BUILDING PERMIT	JL
3	2018.11.09	ISSUED FOR 80%	JL
4	2018.12.19	ISSUED FOR TENDER	JL
5	2019.02.14	ISSUED FOR CONSTRUCTION	JL

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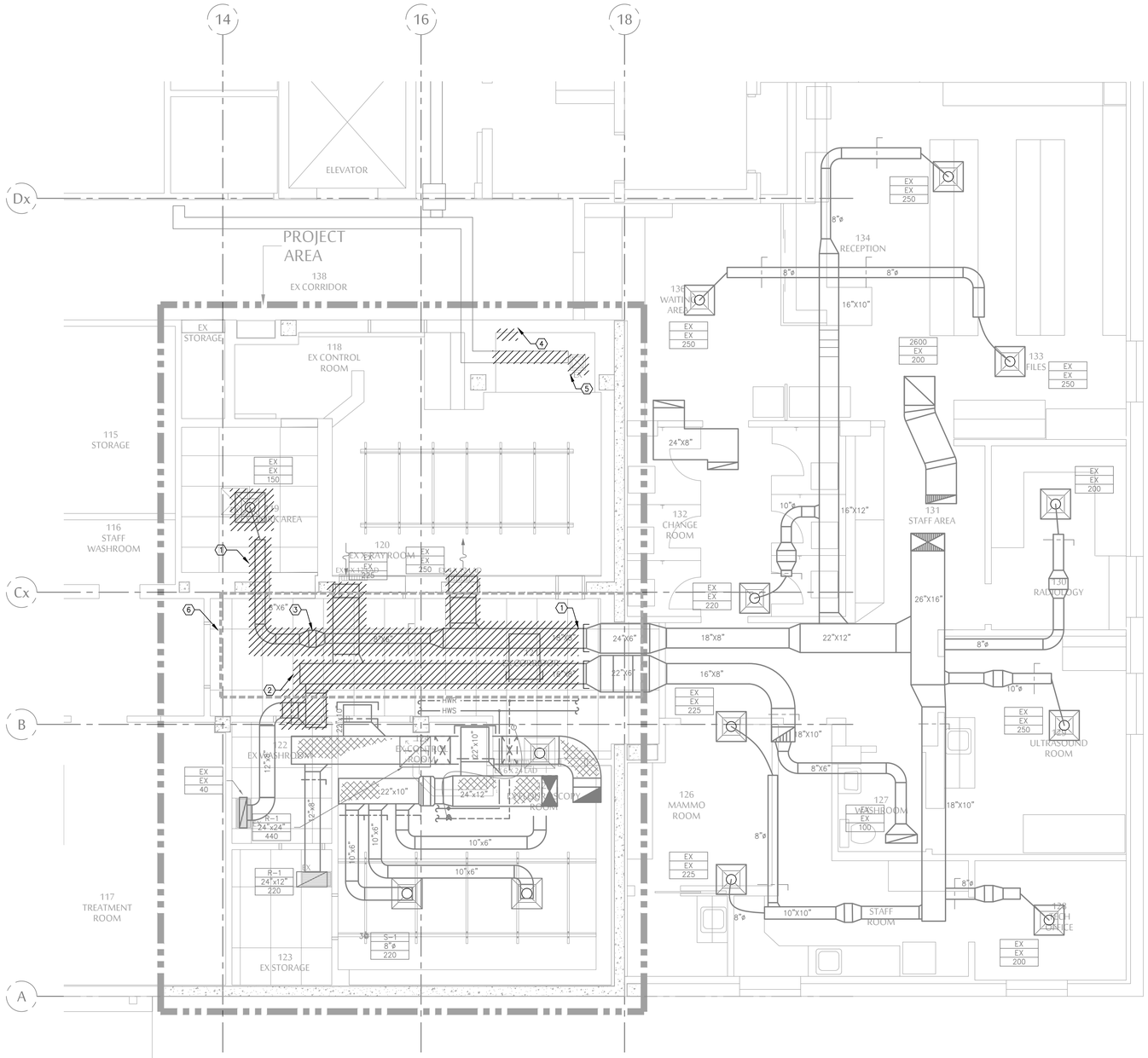
DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS

PHASE 2 - X-RAY INSTALLATION

Plumbing Demo Plan

SCALE: 1/4"= 1'-0"
DATE: 2018.10.12
DRAWN: RZ
CHECKED: JL
JOB No.: 18103-V

PHASE 2
M1.00



1 M2.00 HVAC DEMO PLAN
SCALE: 1/4"=1'-0"

DEMOLITION NOTES:

1. REMOVE ALL EXISTING SUPPLY DUCTING C/W ASSOCIATED GRILLES. CAP DUCT MAIN AS SHOWN.
2. REMOVE EXISTING EXHAUST AIR DUCT.
3. EXISTING HYDRONIC REHEAT COIL TO BE REMOVED C/W ASSOCIATED CONTROLS, THERMOSTAT AND HOT WATER PIPING CAP HOT WATER AT MAINS.
4. EXISTING HYDRONIC BASEBOARD HEATER TO BE REMOVED C/W ASSOCIATED CONTROLS, THERMOSTAT AND PIPING. CAP HEATING WATER PIPES AT THE MAINS WITHIN CORRIDOR.
5. EXISTING EXHAUST GRILLE C/W ASSOCIATED DUCTWORK TO BE REMOVED.
6. MECHANICAL SCOPE WITHIN CORRIDOR TO BE COMPLETED AFTER HOURS AND TO BE PHASED. REFER TO ARCHITECTURAL DRAWINGS FOR PHASING DETAILS.

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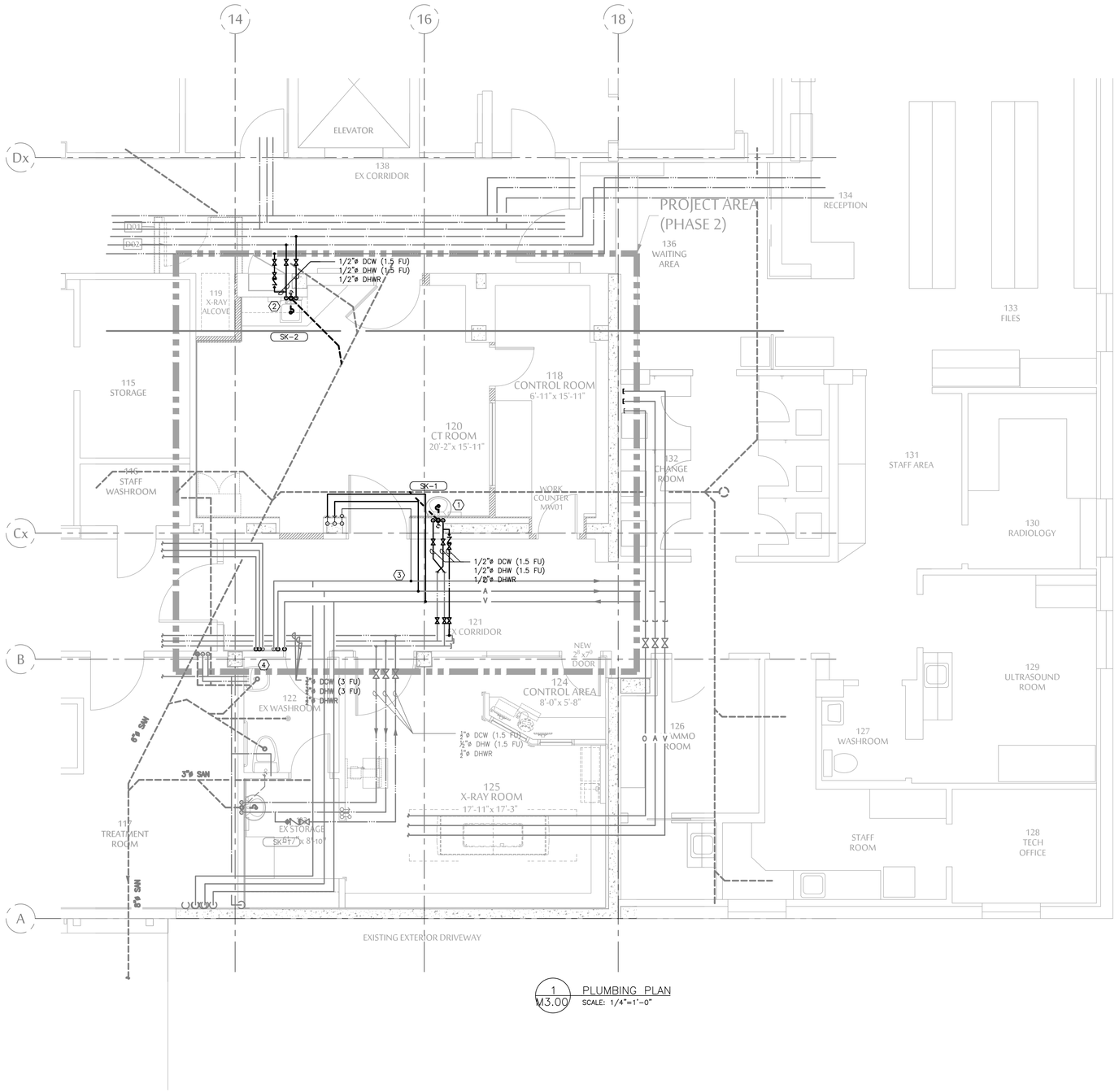
JOB No.: 18103-V

PHASE 2
M2.00



1 M3.00 PLUMBING PLAN
SCALE: 1/4"=1'-0"

DRAWING NOTES:

1. PROVIDE AND INSTALL NEW HAND HYGIENE SINK C/W 1/2" DCW, 1/2" DHW, 2" VENT AND 2" SANITARY PIPING. MAKE CONNECTION TO EXISTING 3/4" DCW, 3/4" DHW AND 2" VENT. MAKE CONNECTION TO EXISTING 4" SANITARY MAIN WITHIN CRAWL SPACE.
2. PROVIDE AND INSTALL NEW SINK C/W 1/2" DCW, 1/2" DHW, 2" VENT AND 2" SANITARY PIPING. MAKE CONNECTION TO EXISTING 2" DCW, 1-1/4" DHW AND 2" VENT. MAKE CONNECTION TO EXISTING 4" SANITARY MAIN WITHIN CRAWL SPACE.
3. PROVIDE AND INSTALL NEW 1/2" OXYGEN, 1/2" AIR AND 3/4" VACUUM PIPING TO NEW MEDICAL GAS OUTLETS. MAKE CONNECTION TO EXISTING 1/2" OXYGEN, 1/2" AIR AND 1" VACUUM PIPING WITHIN CORRIDOR. INSTALLATION TO BE AS PER CSA Z7396.1 STANDARDS.
4. EXISTING MEDICAL ZONE VALVE TO BE REPLACED WITH NEW. EXISTING INCOMING MEDICAL GAS LINE ARE 3/4" OXYGEN, 3/4" AIR AND 1" VACUUM. COORDINATE SHUT-DOWN WITH DEPARTMENT AND FMO. INSTALLATION TO BE AS PER CSA Z7396.1 STANDARDS.

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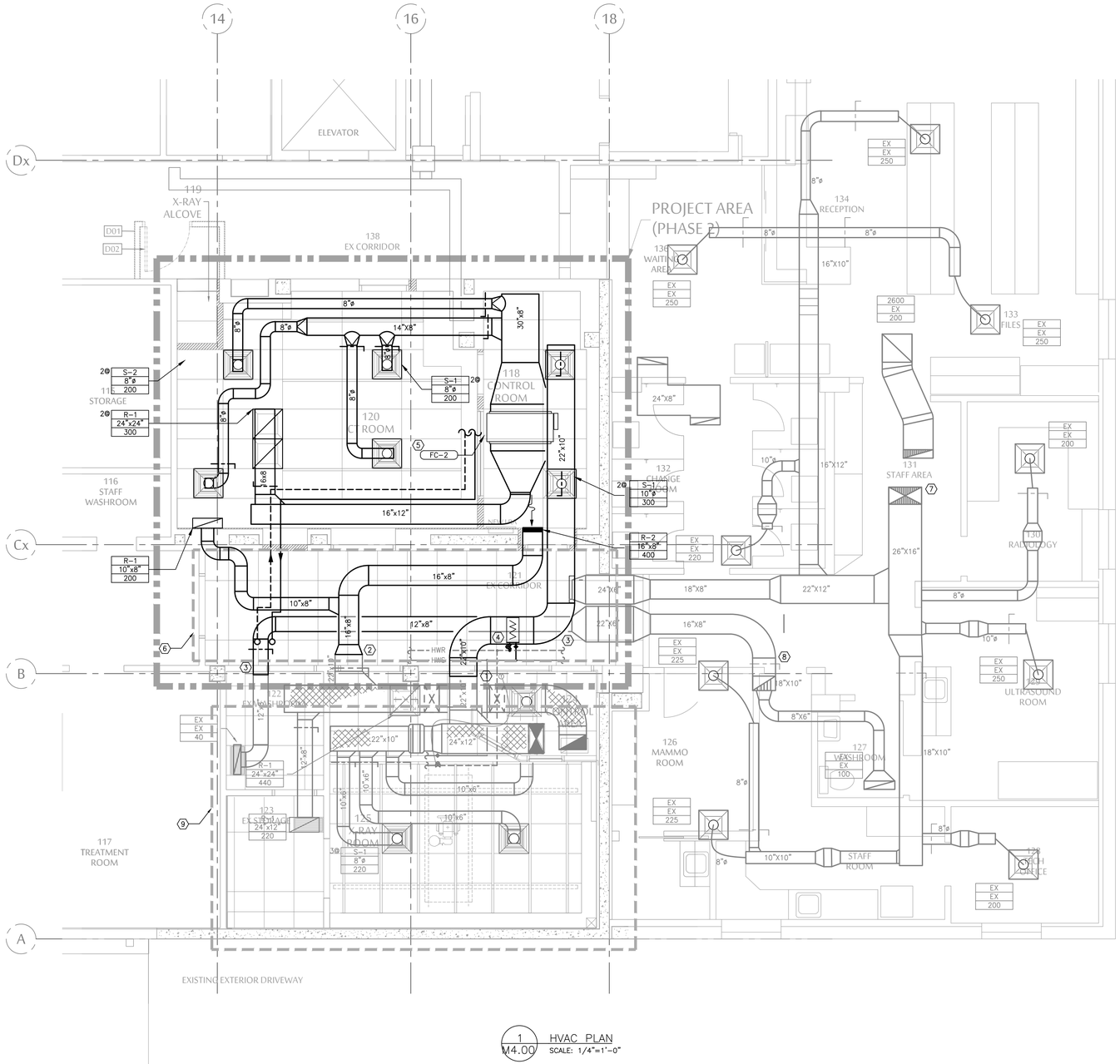
DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS

PHASE 2 - X-RAY INSTALLATION

Plumbing Plan

SCALE: 1/4"= 1'-0"
DATE: 2018.10.12
DRAWN: RZ
CHECKED: JL
JOB No.: 18103-V

PHASE 2
M3.00



1 M4.00 HVAC PLAN
SCALE: 1/4"=1'-0"

DRAWING NOTES:

1. PROVIDE AND INSTALL NEW 22"X10" S/A DUCT AND MAKE CONNECTION TO EXISTING 22"X10" CAPPED DUCT.
2. PROVIDE AND INSTALL NEW 22"X10" R/A DUCT AND MAKE CONNECTION TO EXISTING 22"X10" CAPPED DUCT.
3. PROVIDE AND INSTALL NEW 12"X8" E/A DUCT AND MAKE CONNECTION TO EXISTING 22"X6" DUCT C/W SHEET METAL TRANSITIONS.
4. PROVIDE AND INSTALL NEW HYDRONIC REHEAT COIL C/W 3/4"ø HWS/HWR PIPING, THERMOSTAT, AND CONTROL VALVE. MAKE CONNECTION TO EXISTING 1"ø HWS/HWR MAINS.
5. PROVIDE AND INSTALL NEW DX SPILT INDOOR UNIT C/W INTEGRAL CONDENSATE PUMP, REFRIGERANT PIPING, 1" THICK INSULATION AND SEISMIC RESTRAINTS. PROVIDE AND INSTALL INTERCONNECTING POWER/COMMUNICATION WIRING TO/FROM OUTDOOR UNIT. PIPE THE 1" CONDENSATE TO THE NEAREST DRAIN.
6. MECHANICAL SCOPE WITHIN CORRIDOR TO BE COMPLETED AFTER HOURS AND IN PHASES. REFER TO ARCHITECTURAL PLANS FOR PHASING DETAILS.
7. REBLANCE EXISTING RETURN AND SUPPLY GRILLES OF THE EXISTING SYSTEM.
8. ADJUST EXISTING ROOFTOP EXHAUST FAN SHEAVES AS REQUIRED AND ADJUST BALANCING DAMPERS TO ACHIEVE THE NEW AIRFLOWS FOR THE EXISTING EXHAUST FAN.
9. REBALANCE ALL AIRFLOW (SUPPLY AND RETURN) IN THE PHASE 1 AREA TO ENSURE AIRFLOWS HAVE BEEN MAINTAINED.

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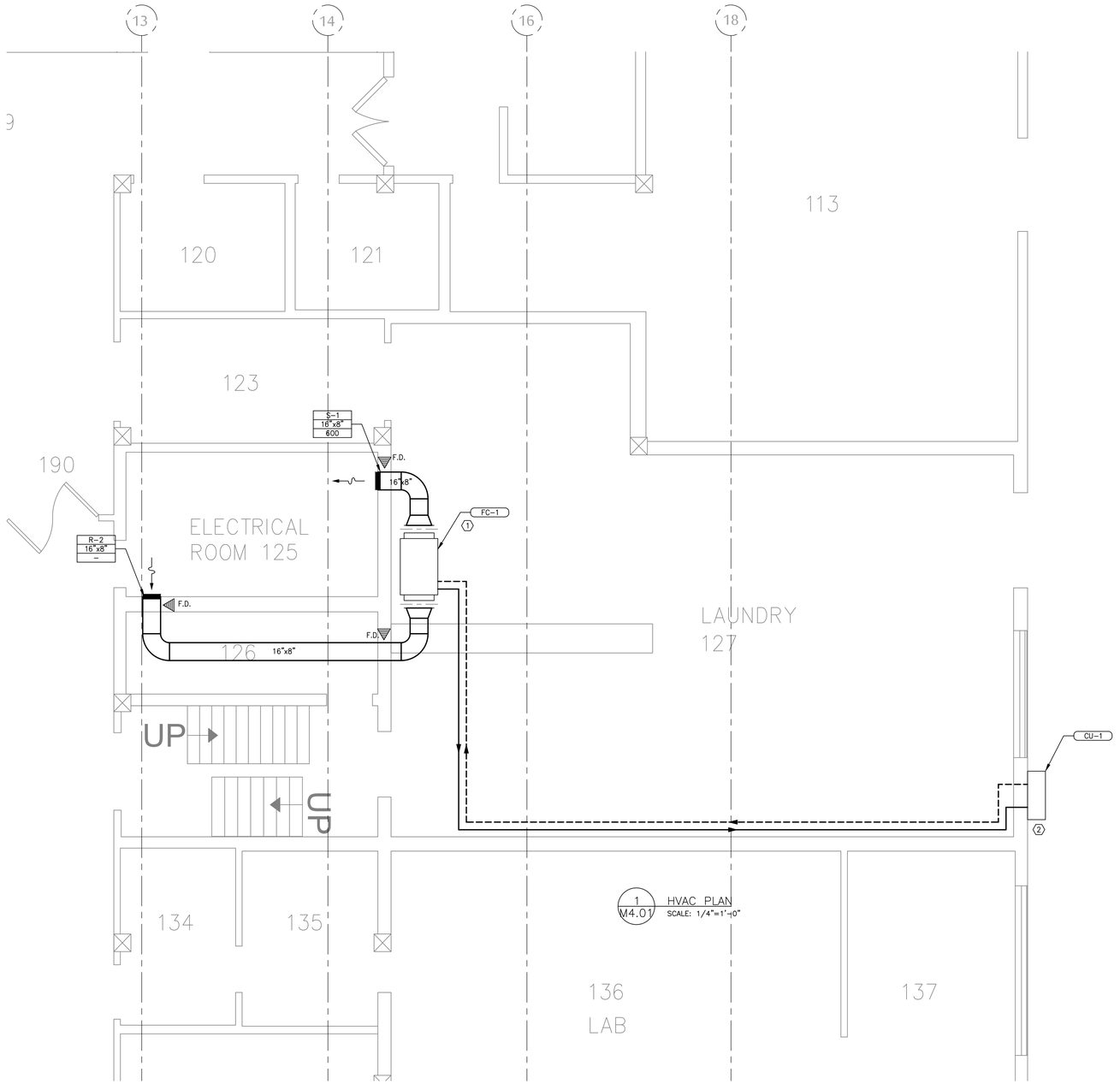
DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS

PHASE 2 - X-RAY INSTALLATION

HVAC Plan

SCALE: 1/4"= 1'-0"
DATE: 2018.10.12
DRAWN: RZ
CHECKED: JL
JOB No.: 18103-V

PHASE 2
M4.00



1 M4.01 HVAC PLAN
SCALE: 1/4"=1'-0"

SEPARATE PRICE NOTE:

(A) PROVIDE A SEPARATE PRICE FOR THE MECHANICAL SCOPE ASSOCIATED WITH ELECTRICAL ROOM COOLING SYSTEM (FC-1 AND CU-1).

DRAWING NOTES:

(1) PROVIDE AND INSTALL NEW DX SPILT INDOOR UNIT C/W INTEGRAL CONDENSATE PUMP, REFRIGERANT PIPING, 1" THICK INSULATION AND SEISMIC RESTRAINTS. PROVIDE AND INSTALL INTERCONNECTING POWER/COMMUNICATION WIRING TO/FROM OUTDOOR UNIT. PIPE THE 1" CONDENSATE TO THE NEAREST DRAIN.

(2) PROVIDE AND INSTALL NEW DX SPLIT OUTDOOR UNIT C/W WALL MOUNTED BRACKETS, REFRIGERANT PIPING, INSULATION JACKET, AND SEISMIC RESTRAINTS. INSTALLATION TO BE AS PER MANUFACTURER'S LITERATURE.

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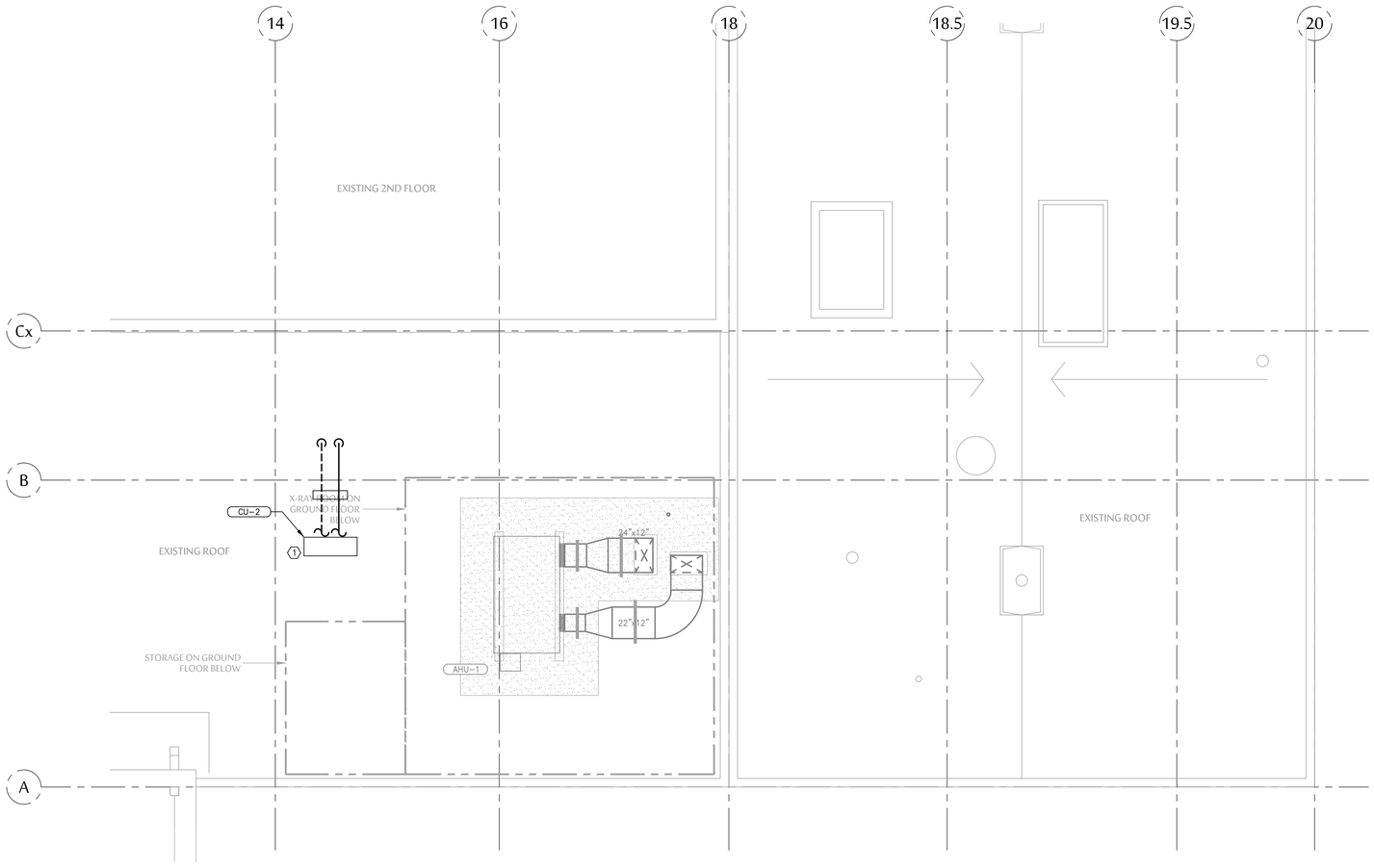
DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS
PHASE 2 - X-RAY INSTALLATION

Electrical Room HVAC Plan

SCALE: 1/4"= 1'-0"
DATE: 2018.10.12
DRAWN: RZ
CHECKED: JL
JOB No.: 18103-V

PHASE 2
M4.01



1 M5.00 ROOF PLAN
SCALE: 1/4"=1'-0"

DRAWING NOTES:

1. PROVIDE AND INSTALL NEW DX SPLIT OUTDOOR UNIT C/W WALL MOUNTED BRACKETS, REFRIGERANT PIPING, INSULATION JACKET, AND SEISMIC RESTRAINTS. INSTALLATION TO BE AS PER MANUFACTURER'S LITERATURE. REFRIGERANT PIPING ON THE ROOF TO BE C/W ROOF SUPPORTS

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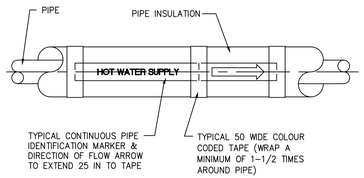
DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS

PHASE 2 - X-RAY INSTALLATION

Roof Plan

SCALE: 1/4"= 1'-0"
DATE: 2018.10.12
DRAWN: RZ
CHECKED: JL
JOB No.: 18103-V

PHASE 2
M5.00



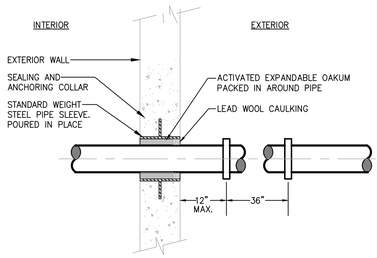
NOTES

APPLY A CONTINUOUS COATING OF CONTACT CEMENT TO THE LABEL TO ENSURE PERMANENT ADHESION

REFER TO SPECIFICATION FOR COLOUR CODING OF SERVICES

INSTALL AT 15000 INTERVALS (MAXIMUM) AND AT EACH CHANGE DIRECTION.

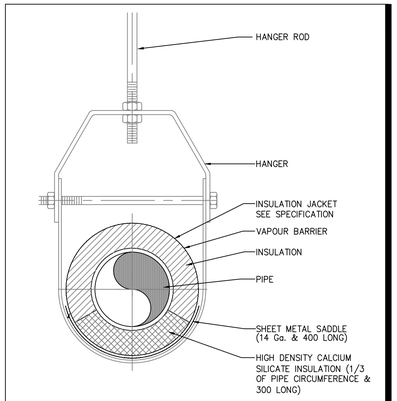
1 M6.00 PIPE INDENTIFICATION DETAIL
N.T.S.



NOTES:

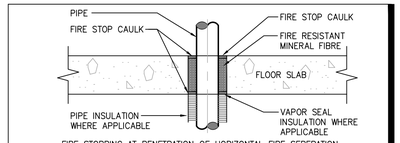
- EXCAVATE AND INSTALL EXTERIOR PIPING ONLY AFTER BACKFILLING TO GRADE HAS BEEN COMPACTED TO 85% MODIFIED PROCTOR DENSITY.
- REFER TO GEOTECHNICAL CONSULTANT SOILS REPORT. POVIDE FLEXIBLE PIPE FITTING AT WALL PENETRATION IF DIFFERENTIAL SETTLEMENT IS EXPECTED.

2 M6.00 EXTERIOR WALL PIPE SEAL DETAIL
N.T.S.

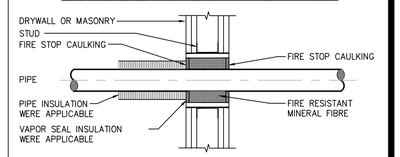


3 M6.00 INSULATED PIPE HANGER DETAIL
N.T.S.

4 M6.00 NOT USED
N.T.S.



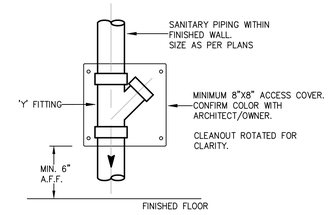
FIRE STOPPING AT PENETRATION OF HORIZONTAL FIRE SEPERATION



FIRE STOPPING AT PENETRATION OF VERTICAL FIRE SEPERATION

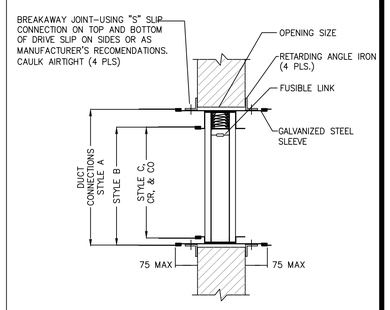
NOTES:
1. THICKNESS OF FIRE RESISTANT MINERAL FIBRE AND FIRE STOP CAULKING AS REQUIRED FOR FIRE SEPERATION RATING.
2. FIRE STOPPING SHALL BE INSTALLED BY A QUALIFIED APPLICATOR.
3. FIRE STOPPING TO BE AN APPROVED SYSTEM. REFER TO MECHANICAL SPECIFICATION.

5 M6.00 FIRE SEPERATION PIPE PENETRATION DETAIL
N.T.S.



NOTE:
CLEANOUTS TO BE INSTALLED IN CONCEALED LOCATIONS WHEREVER POSSIBLE. (IE. CABINETS, BELOW COUNTERS, ETC.)
IN FINISHED ARERAS WHERE THIS IS NOT ACHIEVABLE,CONSULT WITH MECHANICAL ENGINEER PRIOR TO INSTALLATION.

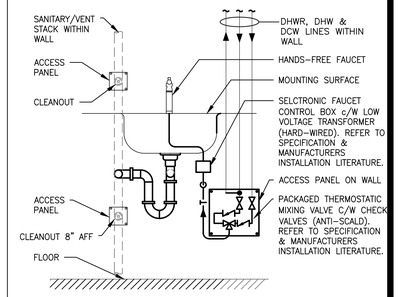
6 M6.00 WALL CLEANOUT DETAIL
N.T.S.



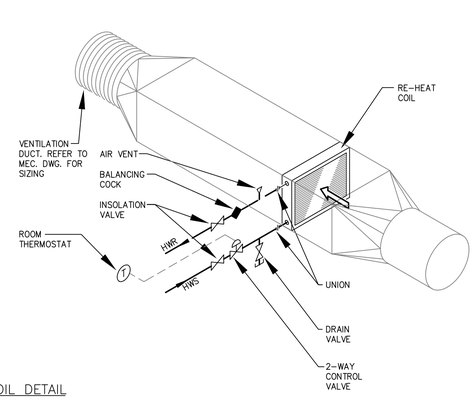
NOTE:

MIN DUCT SIZE 225X225 WITH 150X150 ACCESS PANEL

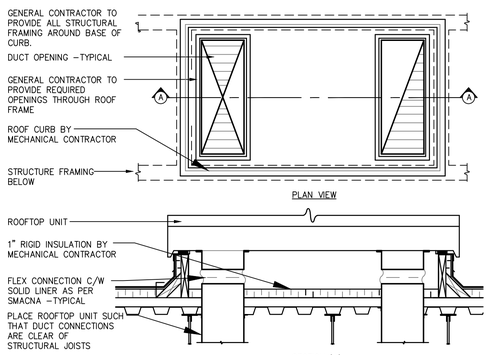
9 M6.00 SHUTTER TYPE FIRE DAMPER
N.T.S.



12 M6.00 SINK CONNECTION DETAIL
N.T.S.



13 M6.00 REHEAT COIL DETAIL
N.T.S.



NOTES
1. ALL MATERIAL AND LABOUR INDICATED ON DETAILS ARE BY MECHANICAL CONTRACTORS UNLESS SPECIFIED OTHERWISE.
2. MINIMUM CURB HEIGHT MUST BE 8" ABOVE MEMBRANE AS PER RCABC REQUIREMENTS.
3. SOLDER ALL FLASHING JOINTS WEATHER TIGHT TO RCABC STANDARDS.

14 M6.00 ROOF CURB DETAIL
N.T.S.

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DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS
PHASE 2 - X-RAY INSTALLATION

Details

SCALE: 1:1
DATE: 2018.10.12
DRAWN: RZ
CHECKED: JL
JOB No.: 18103-V

PHASE 2
M6.00

15000 MECHANICAL GENERAL CONDITIONS

1 DESCRIPTION OF THE WORK

.1 WORK OF THIS DIVISION INCLUDES THE PROVISION OF COMPLETE, OPERATIONAL, TESTED AND COMMISSIONED HEATING, VENTILATION, PLUMBING AND FIRE PROTECTION SYSTEMS.

.2 PROVIDE ALL LABOUR, MATERIALS AND PRODUCTS AS SPECIFIED HEREIN AND SHOWN ON THE DRAWINGS AS REQUIRED TO ACCOMPLISH THIS WORK.

.3 REFER ALSO TO THE ARCHITECTURAL SPECIFICATIONS AND DRAWINGS AND THE GENERAL CONDITIONS FOR OTHER REQUIREMENTS OF THE CONTRACT.

.4 THE FOLLOWING SUB-SECTIONS OF THE MECHANICAL SPECIFICATION COMPRISE THE WORK OF THIS PROJECT.
   .1 15000 MECHANICAL GENERAL REQUIREMENTS
   .2 15100 AIR AND WATER SYSTEMS BALANCING
   .3 15200 VIBRATION AND SEISMIC CONTROL
   .4 15250 PIPE, DUCT AND EQUIPMENT INSULATION
   .5 15400 PLUMBING SYSTEMS AND EQUIPMENT
   .6 15450 PLUMBING FIXTURES
   .7 15600 HEATING SYSTEMS AND EQUIPMENT
   .8 15800 AIR DISTRIBUTION SYSTEMS AND EQUIPMENT
   .9 15900 CONTROLS

2 COORDINATION

.1 COORDINATE ALL MECHANICAL WORK WITH THE WORK OF OTHER SECTIONS TO AVOID CONFLICT.

.2 LOCATE DISTRIBUTION SYSTEMS, EQUIPMENT AND MATERIALS TO ELIMINATE INTERFERENCE, CONSERVE HEADROOM AND LEAVE MAXIMUM USABLE SPACE.

.3 ROUTE PIPING AND DUCTWORK IN AN ORDERLY MANNER, AS INDICATED ON THE DRAWINGS. GENERALLY FOLLOW ROUTES PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE.

.4 IF INTERFERENCE SHOULD OCCUR THE CONSULTANT WILL REVIEW RELOCATION OF EQUIPMENT AND MATERIALS REGARDLESS OF INSTALLATION ORDER. NO INSTALLATION SHALL PROCEED WITHOUT COMPLETE COORDINATION BETWEEN ALL TRADES.

.5 MAKE ANY NECESSARY MINOR CHANGES OR ADDITIONS TO RUNS OF DUCTS OR PIPES, ETC., TO ACCOMMODATE STRUCTURAL CONDITIONS WITHOUT ADDITIONAL CHARGE OR EXPENSE TO THE OWNER.

.6 ALTER LOCATION OF DUCTS OR PIPES AT THE DIRECTION OF THE CONSULTANT WITHOUT CHARGE TO THE OWNER, SO LONG AS THE CHANGE IS MADE BEFORE INSTALLATION AND DOES NOT NECESSITATE ADDITIONAL MATERIALS.

.7 REFER TO ARCHITECTURAL DRAWINGS FOR CEILING AND BULKHEAD DETAILS AND LOCATIONS.

.8 NO STRUCTURAL BEAMS OR JOISTS SHALL BE ALTERED OR CUT TO ACCOMMODATE PIPING WITHOUT WRITTEN AUTHORIZATION FROM STRUCTURAL ENGINEER.

3 CODES AND STANDARDS

.1 INSTALL TO THE REQUIREMENTS OF THE BC BUILDING CODE 2012, CSA Z317.2–15 'SPECIAL REQUIREMENTS FOR HVAC SYSTEMS IN HEALTHCARE FACILITIES', CSA Z8000–11 ' CANADIAN HEALTHCARE FACILITIES' AND THE RECOMMENDED INSTALLATION PROCEDURES OF SMACNA AND ALL EQUIPMENT MANUFACTURERS AND SUPPLIERS.

.2 ELECTRICAL WORK TO THE REQUIREMENTS OF THE CANADIAN ELECTRICAL CODE AND THE PROVINCIAL ELECTRICAL INSPECTOR. ELECTRICAL EQUIPMENT SHALL BEAR CSA AND ULC LABELS ATTESTING THAT EQUIPMENT MEETS THE TESTING STANDARDS OF THESE AGENCIES.

.3 CONFORM TO THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS, AUTHORITIES HAVING JURISDICTION, AND ALL APPLICABLE RELATED CODES AND REGULATIONS.

4 PERMITS AND INSPECTIONS OF THE WORK

.1 OBTAIN AND PAY FOR ALL NECESSARY PERMITS REQUIRED TO CARRY OUT THE WORK SPECIFIED.

.2 DO NOT CONCEAL ANY INSTALLATION PRIOR TO REVIEW BY THE CONSULTANT OR THE APPROPRIATE INSPECTION AUTHORITY. ENSURE 72 HOURS WRITTEN NOTICE IS PROVIDED TO EACH OF THESE PARTIES PRIOR TO REQUIREMENT FOR AN INSPECTION OF THE WORK. THIS INCLUDES ANY PRESSURE TESTS OF PIPING, DRAINAGE SYSTEMS, DUCTWORK, SAFETY DEVICES ETC.

.3 FURNISH CERTIFICATES AND INSPECTION CERTIFICATES RECEIVED FROM AUTHORITIES WITH JURISDICTION, VERIFYING THAT WORK INSTALLED CONFORMS TO NECESSARY CODES AND STANDARDS.

5 QUALITY ASSURANCE

.1 AT COMPLETION OF THE WORK PROVIDE WRITTEN DECLARATION THAT ALL SYSTEMS ARE INSTALLED AND OPERATING AS PER THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, AND THAT THE CONTRACTOR WARRANTIES THE WORK, INCLUDING ALL REQUIRED PARTS AND LABOUR FOR A PERIOD OF ONE FULL YEAR FROM THE DATE OF SUBSTANTIAL PERFORMANCE.

.2 INSTALLATION OF ALL VENTILATION, HEATING, PLUMBING AND FIRE PROTECTION SYSTEMS MUST BE CARRIED OUT BY SKILLED TRADESMAN HOLDING A VALID TQ LICENCE, OR APPRENTICES WORKING UNDER THE SUPERVISION OF A LICENCED TRADESMAN. WHEN APPRENTICES ARE WORKING, THE LICENCED TRADESMAN FOR EACH DISCIPLINE MUST BE ON THE SITE.

6 SUBMITTAL REQUIREMENTS

6.1 SHOP DRAWINGS

.1 PROVIDE ELECTRONIC SHOP DRAWINGS FOR THE EQUIPMENT LISTED BELOW. SHOP DRAWINGS SHALL INDICATE ALL ASPECTS OF THE CONSTRUCTION AND OPERATING PERFORMANCE OF THE PRODUCT PROPOSED FOR SUPPLY. PROVIDE FOR:

DX SPLIT AC
AIR TERMINALS
FIRE STOPPING
INSULATION
MEDICAL GAS VALVE AND PIPING

6.2 OPERATING AND MAINTENANCE MANUALS

.1 SUPPLY TWO COPIES OF AN OPERATING AND MAINTENANCE MANUAL FOR THE COMPLETED INSTALLATION. MANUALS WILL BE INDEXED AS FOLLOWS:

PART 1 –DESCRIPTION OF SYSTEMS:
.1 TITLE PAGE INDICATING PROJECT TITLE AND THE NAMES, ADDRESSES, TELEPHONE AND FAX NUMBERS OF THE OWNER, ARCHITECT, MECHANICAL ENGINEER, GENERAL CONTRACTOR, MECHANICAL CONTRACTOR AND THE AGENCY PREPARING THE MANUALS.
.2 LIST OF MECHANICAL DRAWINGS.
.3 DESCRIPTION OF HEATING, VENTILATION, PLUMBING AND FIRE PROTECTION SYSTEMS, INCLUDING DESCRIPTION OF SYSTEM OPERATION AND COMPONENTS COMPRISING THE SYSTEM. DESCRIBE SYSTEMS OPERATION AND SEQUENCE OF CONTROL OPERATION.

PART 2 –MAINTENANCE AND TEST INFORMATION
.1 MAINTENANCE PROCEDURES AND LUBRICATION REQUIREMENTS, INCLUDING PREVENTATIVE MAINTENANCE PROCEDURES, LUBRICATION SCHEDULES AND A BELT SCHEDULE.
.2 LIST OF EQUIPMENT MANUFACTURERS AND SUPPLIERS AND SUB–CONTRACTORS USED ON THE PROJECT.
.3 COPIES OF:
   .1 HYDROSTATIC TESTS PERFORMED ON PLUMBING AND SPRINKLER PIPING.
   .2 INSPECTION CERTIFICATES FOR PLUMBING SYSTEMS.
   .3 BALANCING REPORTS FOR AIR SYSTEMS.
   .4 CERTIFICATE OF GUARANTEE.

PART 3 – SHOP DRAWINGS
.1 INCLUDE A COPY OF ALL SHOP DRAWINGS. VERSION INCLUDED TO BE VERSION GIVEN "REVIEWED" STATUS BY CONSULTANT.
.2 THE OPERATING AND MAINTENANCE MANUALS ARE TO BE SUBMITTED IN HARD COVER THREE RING BINDERS. THE FRONT COVER AND SPINE OF THE BINDERS ARE TO BEAR THE TEXT "OPERATING AND MAINTENANCE MANUAL– UFV SCIENCE LAB RENOVATION.

6.3 RECORD DRAWINGS

.1 MAINTAIN A SET OF RECORD DRAWINGS AT THE SITE. RECORD DRAWINGS SHALL BE DRAWN NEATLY ON A SET OF PRINTS PROVIDED TO THE CONTRACTOR. DRAWINGS ARE TO BE MAINTAINED IN AN UP TO DATE CONDITION AT ALL TIMES, RECORDING ALL CHANGES AND DEVIATIONS TO THE INSTALLATION FROM THOSE INDICATED ON THE CONSTRUCTION ISSUE DRAWINGS. THE RECORD DRAWINGS SHALL BE AVAILABLE ON SITE TO CONSULTANT AT ALL TIMES.

.2 AT THE COMPLETION OF THE PROJECT, THE CONSULTANT WILL PROVIDE A SET OF CLEAN WHITE PRINTS TO THE CONTRACTOR, WHO WILL ACCURATELY TRANSFER EACH OF THE CHANGES PREVIOUSLY RECORDED ON THE SITE COPY TO THE NEW SET OF PRINTS. VELLUM PLOTS OF EACH OF THE DRAWINGS WILL THEN BE OBTAINED AND THE NOTATION "CERTIFIED AS–BUILT" ADDED AND THE DRAWINGS SIGNED AND DATED BY THE CONTRACTOR, AND THEN TURNED OVER TO THE OWNER.

7 STANDARD OF ACCEPTANCE

.1 BASE BID MEANS AN ITEM IS SPECIFIED BY MANUFACTURER AND MODEL NUMBER MEETS THE SPECIFICATIONS IN ALL RESPECTS REGARDING PERFORMANCE, QUALITY OF MATERIAL AND WORKMANSHIP AND IS ACCEPTABLE TO THE CONSULTANT WITHOUT QUALIFICATION. BASE BID EQUIPMENT IS AS LISTED IN THE SPECIFICATION AND MECHANICAL EQUIPMENT SCHEDULES AND ON THE DRAWINGS.

.2 REQUEST FOR REVIEW FROM MANUFACTURERS OF MATERIALS, FIXTURES AND EQUIPMENT WHO ARE NOT LISTED AS EQUAL AND WISH TO BE ACCORDED "EQUAL" STATUS, SHALL BE MADE AT LEAST SEVEN (7) DAYS PRIOR TO CLOSE OF TENDER. SUCH MATERIAL, FIXTURES, AND EQUIPMENT SHALL MEET THE REQUIREMENTS FOR AN EQUAL AS DESCRIBED IN THE STANDARD OF ACCEPTANCE. ALL INFORMATION REQUIRED BY THE CONSULTANT TO EVALUATE PROPOSED MANUFACTURER SHALL FURNISH THE PROPOSAL AT THE TIME OF THE REQUEST.

.3 BASE BID AND APPROVED EQUAL MANUFACTURERS

ACCESS DOORS
ACUDOR, E.H. PRICE, MAXAM, MILCOR

PACKAGED AIR HANDLING UNITS
DAIKIN, TRANE, YORK

BALANCING AND COMMISSIONING
MDT SYSTEMS, WESTERN MECHANICAL, KD ENGINEERING, BC TECH ENGINEERING, AIRMEC, OWNERS APPROVED CONTRACTOR

BACKFLOW PROTECTION
WATTS, CLAYTON, WILKINS, CONBRACO,

DRAINS – AREA, ROOF AND FLOOR
JAY R. SMITH, ANCON, ZURN, MIFAB, WADE

DAMPERS –FIRE AND SMOKE
CANADIAN ADVANCED AIR, MAXAM, RUSKIN, CONTROLLED AIR, NAILOR INDUSTRIES, POTTOROFF

FANS – ROOF AND WALL MOUNTED EXHAUST
COOK, GREENHECK, TWIN CITY

FIRE DAMPERS
CANADIAN ADVANCED AIR, MAXAM, RUSKIN, CONTROLLED AIR, NAILOR–HART

FIRESTOPPING AND SMOKE SEALS
3M, TREMCO, HILTI

GRILLES, REGISTERS AND DIFFUSERS
TITUS, E.H. PRICE, NAILOR INDUSTRIES, KRUEGER, TUTTLE & BAILEY, METALAIRE, VENTEX/ALUMAVENT

INSULATION –PIPING AND DUCT
3M, DOW, FIBREX, KNAUF, JOHNS–MANVILLE, OWENS CORNING, PITTSBURGH CORNING, MANSON, ROXUL, FIBREGLASS CANADA, CERTAINTEED

INSULATION JACKETING
CHILDERS, FIBERGLAS, JOHNS–MANVILLE

PIPE FITTINGS AND FLANGES
CRANE, GRINNELL, JENKINS

PIPE SUPPORTS AND HANGERS
CRANE, UNISTRUT, MYATT, GRINNELL, SARCO

PRESSURE GAUGES
WEISS, AMETEK, TRERICE

RELIEF VALVES
CROSBY, SARCO, WATTS

STRAINERS
RED & WHITE, CRANE, SARCO, ARMSTRONG, KITZ

VALVES (BALL)
RED & WHITE, GRINNELL, WATTS, KITZ, MILWAUKEE

VALVES (GATE)
RED & WHITE, CRANE, JENKINS, KITZ, GRINNELL, MILWAUKEE

WATER HAMMER ARRESTORS
JAY R. SMITH, ANCON, ZURN

WATER PRESSURE REDUCING VALVES
WATTS, CLAYTON, CONBRACO

8 TEMPORARY USE OF EQUIPMENT

.1 PERMANENT SYSTEMS AND EQUIPMENT ARE NOT TO BE USED DURING CONSTRUCTION PERIOD WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER.

.2 EQUIPMENT USED DURING THE CONSTRUCTION PERIOD IS TO BE THOROUGHLY CLEANED AND OVERHAULED. REPLACE WORN OR DAMAGED PARTS SO EQUIPMENT IS IN PERFECT CONDITION, TO THE SATISFACTION OF THE OWNER AND THE CONSULTANT.

.3 TEMPORARY USE OF SYSTEMS AND EQUIPMENT SHALL IN NO WAY AFFECT THE TWELVE–MONTH GUARANTEE ON ALL MECHANICAL SYSTEMS INSTALLED, WHICH COMES INTO EFFECT FROM THE DATE OF SUBSTANTIAL PERFORMANCE.

9 ELECTRIC WIRING AND MOTORS

.1 ALL ELECTRICAL EQUIPMENT SUPPLIED BY THE MECHANICAL CONTRACTOR SHALL BEAR CSA LABEL. OBTAIN SPECIAL INSPECTION LABEL REQUIRED BY PROVINCIAL AUTHORITY HAVING JURISDICTION FOR EQUIPMENT THAT DOES NOT HAVE A CSA LABEL AND/OR A ULC LABEL.

.2 CONFORM TO REQUIREMENTS OF CANADIAN ELECTRICAL CODE AND THE PROVINCIAL ELECTRICAL INSPECTOR.

.3 DIVISION 16 WILL PROVIDE ALL POWER WIRING, CONNECTIONS AND OTHER ELECTRICAL ITEMS REQUIRED FOR OPERATION OF MECHANICAL SYSTEMS EXCEPT FOR FACTORY INSTALLED WIRING AND EQUIPMENT ON PACKAGE UNITS PROVIDED BY DIVISION 15 AND CONTROL WIRING AS SPECIFIED IN SECTION 15900.

.4 DIVISION 16 PROVIDES AND INSTALLS MOTOR STARTERS FOR ELECTRIC MOTORS EXCEPT WHERE EQUIPMENT IS FURNISHED WITH INTEGRAL STARTERS.

.5 IT SHALL BE THE RESPONSIBILITY OF DIVISION 15 TO SUPPLY MOTORS WITH PROPER VOLTAGE CHARACTERISTICS TO SUIT ELECTRICAL DISTRIBUTION SYSTEMS AND SUITABLE CONSTRUCTION SUCH AS EXPLOSION PROOF, DUST PROOF, PART WIND STARTING, ETC., AS REQUIRED TO SUIT OPERATING CONDITIONS. DIVISION 15 IS RESPONSIBLE OF COMPLETE WORKING INSTALLATION AND MUST COORDINATE ALL ELECTRICAL AND CONTROL WORK.

10 CUTTING AND PATCHING

.1 THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR LOCATIONS OF PIPE TRENCHES, ROOF AND WALL OPENINGS TO ACCOMMODATE DUCTS AND PIPES.

.2 ALSO COORDINATE WITH THE GENERAL CONTRACTOR, ARCHITECT AND STRUCTURAL ENGINEER ALL CUTTING AND PATCHING OF BEAMS, WALLS, FLOOR SLABS AND MASONRY WORK NECESSARY FOR HANGER RODS, BRACKETS AND SLEEVES.

11 ACCESS DOORS

.1 FOR ADJUSTMENT AND MAINTENANCE OF VALVES, DAMPERS, JOINTS, TRAPS, MOTORS, STARTERS, FILTER BANKS, COILS, TERMINAL UNITS, OR FOR INSPECTION OF SAFETY, OPERATING OR FIRE DEVICES, PROVIDE ACCESS DOORS IN DUCTS AND FOR INSTALLATION BY GENERAL CONTRACTOR IN WALLS AND CEILINGS. WHERE ANY ACCESS DOORS ARE TO BE INSTALLED IN A FIRE SEPARATION, THE DOOR PROVIDED SHALL MEET THE FIRE RATING SO AS TO MAINTAIN THE INTEGRITY OF THE SEPARATION.

12 SHUT–DOWN OF SERVICES

.1 COORDINATE WITH THE OWNER ANY REQUIREMENT TO SHUT DOWN MECHANICAL SYSTEMS OR UTILITY SERVICES TO ACCOMMODATE SERVICE CONNECTIONS. DO NOT SHUT DOWN ANY SUCH SERVICES WITHOUT WRITTEN CONSENT FROM THE OWNER.

13 LIABILITY

.1 THE MECHANICAL CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR LAYING OUT THE WORK OF DIVISION 15 AND FOR ANY DAMAGE CAUSED BY IMPROPER LOCATION OR PERFORMANCE OF THE WORK.

.2 PROTECT WORK AND BUILDING SURFACES FROM DAMAGE DUE TO THE CONTRACTOR'S PERFORMANCE OF THE WORK. PAY PARTICULAR ATTENTION TO THE PROTECTION OF BUILDING VAPOUR BARRIERS AND WATERPROOF MEMBRANES. COVER FLOORS AND OTHER FINISHED SURFACES TO AVOID DAMAGE. DURING PERIODS OF FREEZING WEATHER, ENSURE ALL PIPING IS PROTECTED FROM POTENTIAL FREEZE–UP AND ANY MECHANICAL OPENINGS IN THE BUILDING ENVELOPE ARE WEATHER AND TEMPERATURE PROTECTED.

.3 MAINTAIN THE SITE IN A CLEAN AND ORDERLY CONDITION AT ALL TIMES.

.4 AT THE COMPLETION OF THE WORK REMOVE TOOLS, WASTE AND SURPLUS EQUIPMENT AND MATERIALS FROM THE SITE.

.5 MAINTAIN INSURANCE THAT WILL FULLY PROTECT THE OWNER, THE GENERAL CONTRACTOR, THE MECHANICAL CONTRACTOR AND THE MECHANICAL CONTRACTOR'S SUB–TRADES, FROM ALL CLAIMS WHICH MAY ARISE FROM THE MECHANICAL CONTRACTOR'S PERFORMANCE OF THE WORK.

14 OPENINGS IN FIRE SEPARATIONS

.1 WHEREVER PIPING, DUCTWORK OR CONDUIT PENETRATES FIRE RATED ASSEMBLIES PROVIDE AN INSTALLATION OF A FIRESTOPPING AND SMOKE SEAL SYSTEM.

.2 MATERIALS USED ARE TO BE ASBESTOS–FREE AND CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES IN COMPLIANCE WITH THE REQUIREMENTS OF
   .1 CAN4–S115–M, "SANDARD METHOD OF FIRE TESTS OF FIRESTOP SYSTEMS."
   .2 BRITISH COLUMBIA BUILDING CODE SECTION 3.1.7

.3 ACCEPTABLE PRODUCTS
   .1 3M BRAND FIRE BARRIER PENETRATION SEALING SYSTEM.
   .2 JOHNS MANVILLE FIRETEMP PRODUCTS
   .3 PASSIVE FIRE PROTECTION PRODUCTS

.4 INSTALL IN STRICT ACCORDANCE WITH MANUFACTURERS PRINTED SPECIFICATIONS, INCLUDING FIELD QUALITY CONTROL AFTER INSTALLATION.

.5 ONLY AN APPROVED SPECIALIST FIRM, EMPLOYING SKILLED TRADESMAN EXPERIENCED IN FIRESTOPPING AND SMOKE SEALS APPLICATION, SHALL CARRY OUT THE WORK OF THIS SECTION.

.6 CONTRACTOR SHALL SUBMIT TO CONSULTANT, SUITABLE DOCUMENT SIGNED BY THE MANUFACTURER OR HIS REPRESENTATIVE, STATING:
.1 THE CONTRACTOR HAS RECEIVED SUFFICIENT INSTALLATION INSTRUCTION FROM THE MANUFACTURER OR HIS REPRESENTATIVE
.2 MANUFACTURER OR HIS REPRESENTATIVE WITNESSED INSTALLATION PROCEDURES ON SITE.

.7 FOLLOW MANUFACTURERS PUBLISHED INSTALLATION INSTRUCTIONS PRECISELY INCLUDING FIELD QUALITY CONTROL AFTER INSTALLATION.

.8 THE CONTRACTOR SHALL REMOVE UP TO FOUR (4) FIRESTOPPING ASSEMBLIES FOR RANDOM INSPECTION IF REQUESTED BY THE CONSULTANT, AND REPLACE AT NO COST TO THE OWNER.

14.1 SHOP DRAWINGS

.1 SUBMIT SHOP DRAWINGS AND PRODUCT DATA IN ACCORDANCE WITH SHOP DRAWINGS SECTION

.2 SHOP DRAWINGS TO SHOW PROPOSED MATERIAL, REINFORCEMENT, ANCHORAGE, FASTENINGS, AND METHOD OF INSTALLATION. CONSTRUCTION DETAILS SHALL ACCURATELY REFLECT ACTUAL JOB CONDITIONS.

.3 SUBMIT MANUFACTURER'S PRODUCT DATA FOR MATERIAL AND PREFABRICATED DEVICES. PROVIDE DESCRIPTIONS SUFFICIENT FOR IDENTIFICATION AT JOB SITE. INCLUDE MANUFACTURER'S PRINTED INSTRUCTIONS FOR INSTALLATION.

14.2 PRODUCT DELIVERY, STORAGE AND HANDLING

.1 DELIVER AND STORE ALL MATERIALS IN ORIGINAL WRAPPINGS AND CONTAINERS WITH MANUFACTURER'S SEALS AND LABELS INTACT AND AS RECOMMENDED BY THE APPROVED MANUFACTURER.

.2 PROTECT MATERIALS FROM ENVIRONMENTAL CONDITIONS AS REQUIRED BY MANUFACTURER'S RECOMMENDATIONS.

.3 CONFORM TO MANUFACTURERS RECOMMENDED TEMPERATURES, RELATIVE HUMIDITY AND SUBSTRATE MOISTURE CONTENT FOR APPLICATION AND CURING OF FIRESTOPPING AND SMOKE SEAL MATERIALS.

.4 PROTECT WORKS OF OTHER TRADES AGAINST SOILING AND DAMAGE ARISING OUT OF THIS WORK.

.5 AT COMPLETION REPLACE AND REPAIR ANY DEFECTIVE WORK AND LEAVE PERFECT.

14.3 MATERIALS

.1 FIRESTOPPING AND SMOKE SEAL SYSTEMS: ASBESTOS–FREE MATERIALS AND SYSTEMS CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES IN COMPLIANCE WITH REQUIREMENTS OF CAN/ULC–S115–M OR ULI 1479 AND ASTM 814, AND NOT TO EXCEED OPENING SIZES FOR WHICH THEY ARE INTENDED.

.2 FIRE RESISTANCE RATING OF INSTALLED FIRESTOPPING ASSEMBLY SHALL NOT BE LESS THAN THE FIRE RESISTANCE RATING OF SURROUNDING FLOOR AND WALL ASSEMBLY AS INDICATED (AS SCHEDULED)

.3 PRIMERS: TO MANUFACTURER'S RECOMMENDATION FOR SPECIFIC MATERIAL, SUBSTRATE AND END USE

.4 WATER (IF APPLICABLE): POTABLE, CLEAN AND FREE FROM INJURIOUS AMOUNTS DELETERIOUS SUBSTANCES.

.5 DAMMING AND BACK–UP MATERIALS, SUPPORTS AND ANCHORING DEVICES: TO MANUFACTURER'S RECOMMENDATIONS, AND IN ACCORDANCE WITH AN ASSEMBLY BEING INSTALLED AS PER A LISTED SYSTEM BY AN ACCREDITED TESTING AGENCY.

.6 USE SEALANT AROUND SINGLE PIPES AND DUCTS.

.7 USE FOAM FOR MULTIPLE PIPE INSTALLATION THROUGH A COMMON OPENING

14.4 PREPARATION

.1 EXAMINE SIZES AND CONDITIONS OF VOIDS TO BE FILLED TO ESTABLISH CORRECT THICKNESSES AND INSTALLATION OF MATERIALS. ENSURE THAT SUBSTRATES AND SURFACES ARE DRY AND FROST FREE.

.2 CLEAN AND PREPARE SURFACES IN CONTACT WITH FIRESTOPPING MATERIALS AND SMOKE SEALS TO MANUFACTURER'S INSTRUCTIONS.

.3 MAINTAIN INSULATION AROUND PIPES AND DUCTS PENETRATING FIRE SEPARATION.

.4 PRIME SURFACES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

.5 MASK WHERE NECESSARY TO AVOID SPILLAGE AND OVER COATING ONTO ADJOINING SURFACES; REMOVE STAINS ON ADJACENT SURFACES.

.6 MIX MATERIALS IN STRICT ACCORDANCE WITH MANUFACTURER'S DIRECTIONS.

.7 ENSURE COMPONENTS ARE MIXED THOROUGHLY AND THAT A QUALIFIED WORKER PREPARES THOSE COMPONENTS.

14.5 INSTALLATION

.1 INSTALL FIRESTOPPING AND SMOKE SEAL MATERIAL AND COMPONENTS THAT HAVE BEEN TESTED BY CERTIFIED TESTING AGENCIES, ULC, CUL, OR INTERTEK, AND MANUFACTURER'S INSTRUCTIONS TO PROVIDE A FLAME RATED SEAL NOT LESS THAN THE FIRE RESISTANCE RATING OF THE SURROUNDING WALL OR FLOOR ASSEMBLY. TEMPERATURE RATINGS MAY BE REQUIRED IN CERTAIN INSTANCES AND SHOULD BE SPECIFIED BY THE ENGINEERING OR ARCHITECTURAL AUTHORITY.

.2 INSTALL TO MECHANICAL SERVICE THROUGH–PENETRATIONS TO FORMED, SLEEVED OR CORED OPENINGS IN FIRE RATED WALL AND FLOOR ASSEMBLIES.

.3 SEAL HOLES OR VOIDS MADE BY THROUGH–PENETRATIONS, POKE–THROUGH TERMINATION DEVICES, AND UNPENETRATED OPENINGS OR JOINTS TO ENSURE CONTINUITY AND INTEGRITY OF FIRE SEPARATION ARE MAINTAINED.

.4 PROVIDE TEMPORARY FORMING AS REQUIRED AND REMOVE FORMING ONLY AFTER MATERIALS HAVE GAINED SUFFICIENT STRENGTH AND AFTER INITIAL CURING.

.5 PREPARE ALL SURFACES SO THEY ARE CLEAN, DRY, AND FROST FREE, AS PER MANUFACTURER'S PUBLISHED RECOMMENDATIONS.

.6 TOOL OR TROWEL EXPOSED SURFACES OF FIRE STOPPING OR SEALS TO A NEAT FINISH.

.7 REMOVE EXCESS COMPOUND PROMPTLY AS WORK PROGRESSES AND UPON COMPLETION.

14.6 CURING

.1 CURE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS.

.2 DO NOT COVER UP MATERIALS UNTIL PROPER CURING HAS TAKEN PLACE.

14.7 INSPECTION

.1 REMOVE EXCESS MATERIALS AND DEBRIS AND CLEAN ADJACENT SURFACES IMMEDIATELY AFTER APPLICATION.

.2 REMOVE TEMPORARY DAMS AFTER INITIAL SET OF FIRESTOPPING AND SMOKE SEAL MATERIALS.

.3 THE CONTRACTOR SHALL REMOVE UP TO FOUR (4) FIRESTOPPING ASSEMBLIES FOR RANDOM INSPECTION IF REQUESTED BY THE CONSULTANT, AND REPLACE AT NO EXTRA COST TO OWNER.

14.8 SCOPE

.1 APPLICABLE TO PIPING, DUCTWORK AND CONTROL CONDUIT OR WIRING PENETRATING:
   .1 THE FLOOR ASSEMBLY SEPARATING ANY TWO FLOORS
   .2 THE CORRIDOR WALLS
   .3 THE WALLS, FLOOR OR CEILINGS OF STORAGE AND JANITOR'S ROOMS.
   .4 THE WALLS OR CEILING OF THE MECHANICAL ROOM
   .5 FIRE RATED SHAFTS
   .6 THE WALLS, FLOOR OR CEILINGS OF ELECTRICAL
   .7 STAIRSHAFTS
   .8 ROOF ASSEMBLY

15 IDENTIFICATION

15.1 PIPING

.1 IN MECHANICAL ROOMS AND BEHIND ACCESS DOORS TO SERVICE CHASES AND CEILING SPACES, PROVIDE IDENTIFICATION ON PIPING WITH MARKERS SHOWING NAME, PIPE SIZE AND SERVICE, INCLUDING TEMPERATURE AND PRESSURE WHERE RELEVANT, AND WITH ARROWS TO INDICATE FLOW DIRECTION.

.2 USE CGSB 23 GP 3A AND CSA B53 COLOR CODLINGS AND IDENTIFICATION SYSTEMS, USING CGSB 1 GP 12C COLOR CODING SYSTEM SCHEDULE.

.3 STANDARD OF ACCEPTANCE: WH BRADY IDENTIFICATION TAPES, BANDS, AND MARKERS.

.4 FOR RETROFIT PROJECTS MATCH EXISTING IDENTIFICATION SYSTEM PRESENT IN BUILDING.

15.2 VALVES AND CONTROLLERS

.1 IN MECHANICAL OR SERVICE ROOMS PROVIDE ALUMINUM OR LAMACOID TAGS WITH STAMPED CODE LETTERING AND NUMBERS IDENTIFYING ALL VALVES.

15.3 EQUIPMENT MANUFACTURER'S NAMEPLATES

.1 PROVIDE FACTORY SUPPLIED AND INSTALLED NAMEPLATE ON EACH PIECE OF EQUIPMENT.

.2 PROVIDE REGISTRATION/APPROVAL NAMEPLATES (IE. CSA, ULC, ASME) IN ACCORDANCE WITH THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

15100 AIR AND WATER SYSTEMS BALANCING

1 SUBMITTAL REQUIREMENTS

.1 PROVIDE BALANCING OF AIR SYSTEMS AS INDICATED BELOW. PROVIDE THREE COPIES OF THE BALANCE REPORT, TWO FOR INCLUSION IN THE OPERATING AND MAINTENANCE MANUALS AT THE TIME OF SUBSTANTIAL PERFORMANCE OF THE CONTRACT AND ONE FOR THE CONSULTANT'S REVIEW TWO WEEKS PRIOR TO SUBSTANTIAL PERFORMANCE.

2 AIR SYSTEMS

.1 SPOT CHECK AND REBALANCE AIR (IF REQUIRED), THE DISTRIBUTION SYSTEMS OF EXISTING AC–1 AND PHASE 1 AHU–1 AIR SYSTEMS.

.2 INDICATE IN THE BALANCE REPORT:
.1 AIR FLOW FROM EACH OVERALL FAN SYSTEM AND INDIVIDUAL SUPPLY AND EXHAUST OUTLETS.
.2 MOTOR HP DRAW AND FAN AND MOTOR RPM OF EACH FAN.
.3 INDICATE INDIVIDUAL GRILLE AND DIFFUSER FLOW RATES GRAPHICALLY, WITH SINGLE LINE DUCT LAYOUTS, AS WELL AS IN TABULAR FORMAT.

.3 MEASURE AIRFLOW IN DUCTS BY VELOCITY TRAVERSE OF ENTIRE CROSS SECTION OF DUCT.

.4 ENSURE ALL TEST HOLES ARE PROPERLY SEALED AFTER USE WITH RUBBER GROMMET TYPE PLUGS.

.5 PROVIDE MAJOR VOLUME CONTROL IN MAIN AND BRANCH DUCTS ONLY BY USE OF DUCT BALANCING DAMPERS OR ADJUSTMENT OF FAN SPEED, NOT BY THROTTLING OF TERMINAL GRILLES, REGISTERS OR DIFFUSERS. MINOR ADJUSTMENT AT TERMINAL INLET AND OUTLETS MAY BE BY THROTTLING OF INDIVIDUAL DAMPERS OR GRILLE BLADES.

3 WATER SYSTEMS

.1 BALANCE ALL WATER SYSTEMS AS FOLLOWS:
   .1 DOMESTIC HOT WATER RECIRCULATION
   .2 HEATING WATER

15200 VIBRATION AND SEISMIC CONTROL

1 FLEXIBLE DUCT CONNECTIONS FOR ISOLATED FANS

.1 WHERE REQUIRED TO ELIMINATE VIBRATION FROM FANS PROVIDE FLEXIBLE DUCT CONNECTORS OF DURODYNE WITH DUROLON FABRIC OR APPROVED EQUAL.

.2 INSTALL FLEXIBLE DUCT CONNECTIONS WITH A MINIMUM 40 MM (1 ½ INCHES) METAL–TO–METAL GAP.

2 SEISMIC RESTRAINT

.1 PROVIDE RESTRAINTS ON ALL CEILING HUNG EQUIPMENT (FANS, DIFFUSERS, ETC.), ISOLATED EQUIPMENT, PIPING AND DUCTWORK IN ACCORDANCE WITH NATIONAL BUILDING CODE OF CANADA AND SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS."

.2 PROVIDE SEISMIC RESTRAINT FOR ALL MECHANICAL AND PLUMBING SYSTEMS INSTALLED UNDER THIS CONTRACT, WITH THE FOLLOWING EXCEPTIONS:
.1 WATER PIPING IN MECHANICAL EQUIPMENT ROOMS OF 32 MM (NPS 1 1/4) DIAMETER AND SMALLER.
.2 ALL OTHER PIPING OF 65 MM (NPS 2 1/2) DIAMETER AND SMALLER.
.3 ALL PIPING SUSPENDED BY INDIVIDUAL HANGERS 300 MM (12 INCHES) OR LESS IN LENGTH FROM THE TOP OF PIPE TO THE BOTTOM OF THE SUPPORT FOR THE HANGER.
.4 ALL RECTANGULAR AIR HANDLING DUCTS LESS THAN 0.56 SQ. METERS (6 SQ. FT.) IN CROSS SECTIONAL AREA.
.5 ALL ROUND AIR HANDLING DUCTS LESS THAN 710 MM (28 INCHES) IN DIAMETER.
.6 ALL DUCTS SUSPENDED BY HANGERS 300 MM (12 INCHES) OR LESS IN LENGTH FROM THE TOP OF THE DUCT TO THE BOTTOM OF THE SUPPORT FOR THE HANGER.

.3 SEISMIC BRACING AND SUPPORT OF FIRE SPRINKLER PIPING IS AS REQUIRED BY NFPA–13.

.4 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASCERTAIN THAT AN APPROPRIATE SIZE RESTRAINT DEVICE BE SELECTED FOR EACH INDIVIDUAL PIECE OF EQUIPMENT. SUBMIT DETAILS ON SHOP DRAWINGS.

.5 BOLT ALL NON ISOLATED EQUIPMENT TO THE STRUCTURE. DESIGN ANCHORS AND BOLTS FOR SEISMIC FORCE APPLIED HORIZONTALLY THROUGH THE CENTRE OF GRAVITY.

.6 RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER, REGISTERED IN THE PROVINCE OF BRITISH COLUMBIA, AND SPECIALIZING IN THE DESIGN OF SEISMIC RESTRAINT SYSTEMS OR STRUCTURAL ENGINEERING TO ASCERTAIN THAT ALL MECHANICAL EQUIPMENT INSTALLED UNDER THIS CONTRACT ARE ADEQUATELY SEISMICALLY RESTRAINED. PROVIDE THE REQUIRED SCHEDULE B & C FOR ALL MECHANICAL AND PLUMBING SEISMIC WORK FOR INSURANCE TO THE CITY.

.7 DESIGN SEISMIC RESTRAINTS TO MEET THE STRUCTURAL REQUIREMENTS OF THE BRITISH COLUMBIA BUILDING CODE

.8 IT IS THE RESPONSIBILITY OF THE CONTRACTOR'S SEISMIC ENGINEER TO ASCERTAIN THAT AN APPROPRIATE SIZE RESTRAINT DEVICE IS SELECTED FOR EACH PIECE OF EQUIPMENT.

.9 AT THE COMPLETION OF THE PROJECT OBTAIN A LETTER BEARING THE SEAL OF THE ENGINEER, FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS, STATING THAT THE MECHANICAL. INSTALLATION IS SEISMICALLY RESTRAINED IN ACCORDANCE WITH BUILDING CODE AND SMACNA REQUIREMENTS.

15250 INSULATION

1 QUALITY ASSURANCE

.1 INSTALL INSULATION TO THE REQUIREMENTS OF THE BRITISH COLUMBIA INSULATION CONTRACTORS ASSOCIATION STANDARDS MANUAL FOR MECHANICAL INSULATION, IN CONJUNCTION WITH ANY MORE RECENT AMENDMENTS. CODE NUMBERS QUOTED REFER TO THIS SPECIFICATION FOR INSTALLATION STANDARDS.

.2 PROVIDE MATERIALS CONFORMING TO BRITISH COLUMBIA BUILDING CODE REQUIREMENTS FOR MAXIMUM SMOKE DEVELOPED RATING OF 50 AND FLAME SPREAD RATING OF 25.

2 PIPE INSULATION

2.1 DOMESTIC WATER PIPING

.1 PROVIDE MINERAL FIBRE THERMAL INSULATION ON ALL DOMESTIC, HOT, COLD AND HOT WATER RECIRCULATION. ALL INSULATION TO BE TYPE A–2 AS DEFINED BY BCICA QUALITY STANDARDS SPECIFICATIONS 1501–H AND 1501–C.

.2 WHERE EXPOSED PIPING SHALL HAVE A CANVAS COVERING WITH WHITE PVC ELBOWS TO PROTECT INSULATION FROM DAMAGE. (EXPOSED MEANS NOT CONCEALED WITHIN WALLS, FLOOR ASSEMBLIES OR CEILING PLENUMS).

.3 ON COLD WATER LINES PROVIDE HIGH–DENSITY TYPE A3 CALCIUM SILICATE INSULATION AT LOCATIONS OF PIPE HANGERS AND SHEET METAL INSULATION SHIELDS BETWEEN INSULATION AND PIPE SUPPORT

.4 DOMESTIC COLD WATER PIPING INSULATION THICKNESS
   .1 ALL PIPE WITH 25 MM (1 INCH) THICK INSULATION

.5 DOMESTIC HOT WATER PIPING INSULATION THICKNESS
   .1 50 MM (2 INCHES) AND UNDER –25 MM (1 INCH) THICK INSULATION
   .2 65 MM (2 ½ INCHES) AND OVER –38 MM (1 ½ INCH) THICK INSULATION.

2.2 STORM WATER PIPING

.1 PROVIDE 25 MM (1 INCH) THICK MINERAL FIBRE THERMAL INSULATION ON UNDERSIDE OF ROOF DRAIN BODIES AND ALL INTERIOR RAIN WATER LEADER PIPING TO POINT OF PENETRATION THROUGH LOWER FLOOR TO UNDERGROUND. ALL INSULATION TO BE TYPE A–2 AS DEFINED BY BCICA QUALITY STANDARDS SPECIFICATION 1501–C.

.2 WHERE EXPOSED PIPING SHALL HAVE A CANVAS COVERING WITH WHITE PVC ELBOWS TO PROTECT INSULATION FROM DAMAGE.

.3 ON HORIZONTAL RUNS PROVIDE HIGH–DENSITY TYPE A3 CALCIUM SILICATE INSULATION AT LOCATIONS OF PIPE HANGERS AND SHEET METAL INSULATION SHIELDS BETWEEN INSULATION AND PIPE SUPPORT

2.3 WASTE ARMS ON HANDICAPPED SINKS

.1 PROVIDE 25 MM (1 INCH) THICK MINERAL FIBRE INSULATION, WITH PREMIUM PF–2 FINISH ON ALL WASTE ARMS AND P–TRAPS AT HANDICAPPED SINK LOCATIONS. INSULATION TO BE TYPE A2 AS DEFINED BY BCICA QUALITY STANDARDS SPECIFICATION 1501–C.

.2 ALTERNATIVELY, PREFORMED PVC FITTINGS, AS DESCRIBED UNDER CLAUSE 4.7 BELOW ARE ACCEPTABLE.

2.4 HEATING WATER PIPING

.1 PROVIDE MINERAL FIBRE THERMAL INSULATION ON HEATING WATER PIPING. ALL INSULATION TO BE TYPE A2 AS DEFINED BY BCICA QUALITY STANDARDS SPECIFICATIONS 1501–H AND 1501–C.

.2 HOT WATER PIPING INSULATION THICKNESS
   .1 50 MM (2 INCHES) AND UNDER –25 MM (1 INCH) THICK INSULATION
   .2 65 MM (2 ½ INCHES) AND OVER –38 MM (1 ½ INCH) THICK INSULATION.

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	DATE	ISSUED FOR	BY
1	2018.10.04	80% DD	JL
2	2018.10.12	BUILDING PERMIT	JL
3	2018.11.09	ISSUED FOR 80%	JL
4	2018.12.19	ISSUED FOR TENDER	JL
5	2019.02.14	ISSUED FOR CONSTRUCTION	JL

northern health
the northern way of caring

BULKLEY VALLEY
DISTRICT HOSPITAL
SMITHERS BC

DIAGNOSTIC IMAGING
DEPARTMENT RENOVATIONS
PHASE 2 - X-RAY INSTALLATION

Specifications

SCALE: 1/4"= 1'-0"
DATE: 2018.10.12
DRAWN: RZ
CHECKED: JL
JOB No.: 18103-V

PHASE 2
M7.00

3 DUCT INSULATION

3.1 SUPPLY AIR DUCTWORK

.1 EXCEPT WHERE DUCTS HAVE INTERNAL ACOUSTIC DUCT LINING, WHERE SUPPLY AIR DUCTWORK IS CONCEALED WITHIN CEILING PLENUMS, CHASES OR FURRINGS PROVIDE 50-MM (2-INCH) THICK EXTERNAL, FLEXIBLE MINERAL FIBRE THERMAL INSULATION WITH VAPOUR BARRIER TO ASTM C612, WITH MINIMUM THERMAL R-VALUE OF 1.9 HOUR-DEG F-FT2/BTU. INSULATION TO BE TYPE B-2 AS DEFINED BY BCICA QUALITY STANDARDS SPECIFICATION 1502,

3.2 RIGID INSULATION FOR EXTERIOR DUCTWORK

.1 ON EXTERIOR OF OUTDOOR SUPPLY AIR DUCTWORK PROVIDE 50-MM (2-INCH) THICK EXTERNAL RIGID FIBERGLASS DUCT INSULATION, MEETING ASTM C-1071 REQUIREMENTS FOR MICROBIAL GROWTH AND SOUND TRANSMISSION, MANVILLE PERMACOTE LINACOUSTIC R-300 OR APPROVED EQUAL. COVER EXTERNALLY INSULATED DUCTWORK WITH PRESSURE SENSITIVE, SELF ADHESIVE, WEATHER RESISTANT ALUMINUM FOIL COVERING. VENTURE CLAD 1577CW FILM WITH 1578CW TAPE.

3.3 EXHAUST DUCTWORK

.1 PROVIDE 25 MM (1 INCH) THICK EXTERNAL MINERAL FIBRE THERMAL INSULATION ON ALL EXHAUST DUCTWORK WITHIN 2 METRES OF DISCHARGE POINT FROM BUILDING. ALL OTHER EXHAUST DUCTWORK DOES NOT REQUIRE THERMAL INSULATION.

3.4 ACOUSTIC DUCT LINER (FIBRE FREE)

.1 WHERE INDICATED ON THE DRAWINGS PROVIDE 25 MM (1 INCH) THICK ACOUSTIC DUCT FIBRE FREE LINER WITH NEOPRENE BACKING. INSTALL ON MECHANICAL FASTENERS 300 MM CENTRE TO CENTRE. CUT OFF ENDS OF FASTENERS AND COVER WITH NEOPRENE CAPS AND PROVIDE METAL Z BARS TO PROTECT ALL EDGES OF INSULATION. (TYPICALLY WITHIN 3 METERS OF THE OUTLET OF FAN COILS, MAKE-UP AIR UNITS, ROOF TOP UNITS, ETC ON BOTH THE SUPPLY AND RETURN SIDE OF UNIT).

4 FASTENINGS, ADHESIVES, COATINGS

.1 COVER EXTERNALLY INSULATED DUCTWORK WITH PRESSURE SENSITIVE, SELF ADHESIVE, WEATHER RESISTANT ALUMINUM FOIL COVERING. VENTURE CLAD 1577CW FILM WITH 1578CW TAPE.

.2 APPLY TO DRY, CLEAN SURFACES.

.3 BRUSH ON A FIRST COAT ONTO ALL JOINTS, RIVETS, BOLTS, ETC. BRUSH OR SPRAY A SECOND COAT OVER THE ENTIRE SURFACE OF EXPOSED DUCTWORK. TAKE CARE TO PROTECT SURROUNDING ROOF SURFACES FROM OVERSPRAY OR DRIPS.

.4 PRODUCT: TREMCO VULKERN 640 / 642.
INTERNAL DUCTWORK
- .1 PROVIDE ALL WIRE INSULATION FASTENINGS, STAPLES, ADHESIVE TAPES, CONTACT ADHESIVES AND BARRIER COATINGS AS REQUIRED FOR A COMPLETE, NEAT INSULATION INSTALLATION AND FINISH.
- .2 INSULATION FASTENINGS
  - .1 16 GAUGE GALVANIZED OR COPPER WIRE
- .3 JACKET FASTENINGS
  - .1 THERMOCANVAS: STAPLES, COMPATIBLE JACKET FINISHING TAPE WITH CONTACT ADHESIVE AS RECOMMENDED BY JACKET SUPPLIER.
  - .2 PVC COVERING: STAPLES AND PVC SELF ADHESIVE TAPE.
- .4 ADHESIVES
  - .1 VAPOUR BARRIER JACKET ADHESIVE: BAKELITE 230-39, CHILDERS CP-82 OR FOSTER 85-20.
  - .2 FABRIC ADHESIVE: BAKELITE 120-18, CHILDERS CP-52 OR FOSTER 30-36.
- .5 FINISH JACKETS
  - .1 THERMOCANVAS JACKET: S. FATTAL THERMOCANVAS
  - .2 ALL SERVICE JACKET: KNAUF ASJ, MANSON AP OR FIBREGLASS ASJ
- .6 CEMENT
  - .1 FIBREX SUPERCOTE OR RYDER THERMOKOTE
- .7 PREFORMED PVC COVERS
  - .1 SUPPLIED BY S. FATTAL, CHILDERS OR KNAUF
- .8 EXPOSED DUCTWORK
- .9 REFRIGERANT PIPE

5 EXECUTION

.1 NO INSULATION IS TO BE APPLIED PRIOR TO HYDROSTATIC TESTING OF PIPE INSTALLATIONS AND CONFIRMATION FROM THE CONSULTANT AND THE BUILDING INSPECTOR THAT PIPING IS INSTALLED IN CONFORMANCE WITH CODE AND SPECIFICATION REQUIREMENTS.

.2 ENSURE ALL SURFACES TO BE COVERED ARE CLEAN AND DRY.

.3 CLEAN AND DEGREASE PIPING, HANGER RODS, ETC., AS REQUIRED TO ASSURE PROPER ADHESION OF INSULATION MATERIALS.

.4 ENSURE THAT INSULATION IS CLEAN AND DRY DURING INSTALLATION AND APPLICATION OF ALL FINISHES.

.5 INSTALL INSULATION WITH SMOOTH AND EVEN SURFACES.

.6 APPLY INSULATION MATERIALS, ACCESSORIES AND FINISHES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

.7 PROTECT INSULATION OF EXPOSED PIPES PASSING THROUGH FLOORS WITH 1.3 MM GALVANIZED IRON JACKET TO 100 MM (4 INCHES) ABOVE FINISHED FLOOR.

15400 PLUMBING

1 SCOPE OF WORK

.1 SANITARY DRAINAGE AND VENT PIPING

.2 DOMESTIC HOT AND COLD WATER PIPING

.3 STORM DRAINAGE PIPING

.4 MEDICAL GAS

2 CODES, STANDARDS AND APPROVALS

.1 THE INSTALLATION SHALL CONFORM TO THE FOLLOWING STANDARDS:
- .1 PART 7 AND PART 9 OF THE 2014 VANCOUVER BUILDING BYLAW.
- .2 CAN1-B149.1-M95 INSTALLATION CODE FOR NATURAL GAS APPLIANCES AND EQUIPMENT.

.2 DO NOT CONCEAL ANY PLUMBING INSTALLATION, WHETHER BURIED OR WITHIN WALLS, PRIOR TO REVIEW BY THE CONSULTANT AND THE LOCAL PLUMBING INSPECTOR. ENSURE 72 HOURS WRITTEN NOTICE IS PROVIDED TO EACH OF THESE PARTIES PRIOR TO REQUIREMENT FOR AN INSPECTION OF THE WORK.

.3 ROUTE PIPING INSTALLATION IN AN ORDERLY MANNER, AS INDICATED ON THE DRAWINGS. GENERALLY FOLLOW ROUTES PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE.

3 ALLOWABLE MATERIALS
STORM DRAIN, SANITARY DRAIN AND VENT PIPE

3.1 STORM DRAIN, SANITARY DRAIN AND VENT INSIDE BUILDING

MATERIAL	CODE REF	CONFORM TO	FITTINGS
ABS (DWV)	BCBC 7.2.5.10 BCBC 7.2.5.11	CAN/CSA	B181.1-M
PVC (DWV)	BCBC 7.2.5.10 BCBC 7.2.5.11	CAN/CSA	B181.2-M
TYPE DWV COPPER	BCBC 7.2.7.4	ASTM B306	WROUGHT COPPER WITH 50-50 SOLDER
CAST IRON	BCBC 7.2.6.1	CAN/CSA	B70-M MJ WITH SS BANDS AND CLAMPS

3.3 INSTALLATION

.1 GRADE STORM AND SANITARY PIPING AS INDICATED ON THE DRAWINGS.BED BURIED LINES IN MINIMUM 150 MM BEDDING SAND ABOVE AND BELOW PIPE. TRENCHING AND BACKFILLING WILL BE PROVIDED BY THE GENERAL CONTRACTOR.

.2 INSTALL NEOPRENE PADS UNDER ALL CLAMPS AT VERTICAL WASTE PIPING WHICH RESTS ON STUD FLOOR SYSTEMS.

.3 PIPING PENETRATIONS THROUGH DRYWALL (OTHER THAN FIRE RATED WALLS) SHOULD BE ¼ INCH OVERSIZED AND GAP CAULKED WITH SILICONE SEALANT. FOR FIRE RATED WALLS REFER TO THE REQUIREMENTS FOR FIRESTOPPING.

4 ALLOWABLE MATERIALS - DOMESTIC WATER PIPE

4.1 DOMESTIC WATER INSIDE BUILDING

MATERIAL	CODE REF	CONFORM TO	FITTINGS
TYPE K COPPER	BCBC 7.2.7.4 WROUGHT 95.5%	ASTM B88	COPPER WITH SILVABRITE SOLDER SN, 4% CU, 0.5%AG

4.3 INSTALLATION

.1 PROVIDE CONCRETE THRUST BLOCKS AT ALL CHANGES OF DIRECTION ON WATER LINES.

.2 PROVIDE ECCENTRIC PIPE REDUCERS FOR DOMESTIC WATERLINES TO PREVENT COLLECTION OF AIR POCKETS.

.3 PROVIDE WATER HAMMER ARRESTORS AT THE TOP OF ALL DOMESTIC COLD WATER RISERS, ON EACH DOMESTIC HOT WATER SYSTEM AND AT ANY QUICK CLOSING VALVES. (REFER TO CLAUSE 7 BELOW).

.4 AT COMPLETION OF THE DOMESTIC WATER INSTALLATION, THOROUGHLY FLUSH THE SYSTEM AND RETAIN A WATER TREATMENT SPECIALIST TO CHLORINATE THE SYSTEM, REMOVE TWO SAMPLES OF WATER 24 HOURS AFTER CHLORINATING AND PROVIDE TEST LAB RESULTS OF SAMPLES. BOTH SAMPLE TESTS MUST INDICATE LESS THAN 10 PPM RESIDUAL CHLORINE AND LESS THAN 1 PPM TOTAL COLIFORM. IF NOT, REPEAT CHLORINATION AND TESTING PROCEDURE UNTIL SATISFACTORY RESULTS ARE OBTAINED.

.5 PROVIDE WRITTEN CONFIRMATION, FOR INCLUSION IN BUILDING MAINTENANCE AND OPERATING MANUALS, THAT LEAD FREE SOLDER WAS USED ON ALL POTABLE WATER PIPING.

.6 PROVIDE SHUT-OFF VALVES FOR ALL FIXTURES, LOCATED IN ACCESSIBLE LOCATIONS.

.7 PIPING PENETRATIONS THROUGH DRYWALL (OTHER THAN FIRE RATED WALLS) SHOULD BE ¼ INCH OVERSIZED AND GAP CAULKED WITH SILICONE SEALANT. FOR FIRE RATED WALLS REFER TO THE REQUIREMENTS FOR FIRESTOPPING.

8 DO NOT INSTALL DOMESTIC WATER PIPING IN EXTERIOR WALLS. WHERE UNAVOIDABLE FURR OUT CHASES AND PROTECT THE PIPE WITH INSULATION 1.5 TIMES THE R VALUE OF THE BUILDING INSULATION IN THE ADJACENT WALL CONSTRUCTION.

.9 DO NOT INSTALL DOMESTIC WATER PIPING IN ANY PARTY WALLS. CHASES ARE PROVIDED FOR ROUTING ALL PIPING INTO SUITES. REFER TO THE ARCHITECTURAL AND MECHANICAL DRAWINGS.

.10 PROVIDE A SHUT-OFF VALVE FOR EACH DOMESTIC WATER RISER.

6 HANGERS

.1 FOR NON-COMBUSTIBLE PIPE 3 INCH DIAMETER AND LARGER USE STEEL RING AND CLEVIS TYPE HANGERS ATTACHED TO GALVANIZED STEEL RODS TO SUPPORT ALL SUSPENDED PIPING.

.2 THE USE OF PERFORATED BAND IRON IS PERMITTED ONLY FOR COMBUSTIBLE PIPE AND COMBUSTIBLE PIPE 2.5 INCHES AND SMALLER. INSTALL HANGERS WITH MAXIMUM SEPARATION AS INDICATED IN TABLE BELOW AND WHERE REQUIRED ELSEWHERE TO AVOID SAG IN PIPE INSTALLATION. PROVIDE SHEET METAL SHIELDS TO PROTECT INSULATION FROM BEING CRUSHED AT HANGER LOCATIONS.

.3 HANGERS FOR COPPER PIPE SHALL BE COPPER PLATED AND PLASTIC DIPPED, OR PIPE WRAPPED WITH POLYKEN TAPE AT HANGERS.

.4 MAXIMUM HANGER SPACING: (MAXIMUM SPACING FOR CAST IRON IS 1.5M).

PIPE DIAMETER	ROD DIAMETER	STEEL	COPPER
UP TO 19MM	10MM	1.8M	1.8M
25MM TO 32MM	10MM	2.4M	1.8M
38MM TO 50MM	10MM	3.0M	2.4M
65MM TO 75MM	13MM	3.6M	2.4M
100MM TO 130MM	16MM	3.6M	2.4M
150MM	19MM	3.6M	

7 WATER HAMMER ARRESTORS

.1 PROVIDE PLUMBING AND DRAINAGE INSTITUTE (PDI) CERTIFIED STAINLESS STEEL, BELLOWS TYPE WATER HAMMER ARRESTORS ON WATER LINE SUPPLYING EACH FIXTURE OR GROUP OF FIXTURES, ON EACH DOMESTIC HOT WATER SYSTEM AND AT EACH QUICK CLOSING VALVE, INCLUDING CLOTHES WASHERS AND DISHWASHERS.

.2 SIZE OF ARRESTORS TO PDI WH 201.

.3 MODEL: JAY R. SMITH 5000 SERIES HYDROTROLS.

8 CLEANOUTS

8.1 GENERAL REQUIREMENTS

.1 PROVIDE CLEANOUTS IN THE FOLLOWING LOCATIONS FOR STORM AND SANITARY DRAINAGE SYSTEMS:
- .1 WHERE BUILDING DRAIN EXITS THE BUILDING, ON THE UPSTREAM SIDE OF THE EXTERIOR WALL.
- .2 AT CHANGES OF DIRECTION OF MORE THAN 45 DEGREES.
- .3 ON HORIZONTAL BRANCHES OR BUILDING DRAINS, AT INTERVALS OF NOT MORE THAN 15 M (50 FEET) FOR 100MM (4 INCH) AND SMALLER PIPING, AND 1 NOT MORE THAN 30 M (100 FEET) FOR 150MM (6 INCH) AND LARGER PIPING.
- .4 IN THE FIXTURE DRAIN OF SINKS.
- .5 AT THE END OF ALL HORIZONTAL DRAINAGE LINES.
- .6 AT THE BASES OF SOIL OR WASTE STACKS AND RAINWATER LEADERS.
- .7 WHERE REQUIRED BY THE VBBL AND BCBC.

.2 CLEANOUTS SHALL BE FULL SIZE FOR PIPE UP TO 100MM (4 INCH) AND NOT LESS THAN 100MM (4 INCH) ON LARGER PIPE SIZES.

.3 MAKE CLEANOUTS WITH BARRETT TYPE FITTING THAT HAS A THREADED PLUG, OR A CLEANOUT FERRULE THAT IS INSTALLED IN A "Y" OR EXTENDED "Y".

.4 CLEANOUTS SHALL BE COORDINATED WITH MILLWORK AND WITH OTHER ARCHITECTURAL OBSTRUCTIONS AND SHALL BE LOCATED SO AS TO BE EASILY ACCESSIBLE WITH SUFFICIENT CLEARANCE FOR RODDING AND CLEANING.

.5 EXTEND ALL CLEANOUTS TO FINISHED FLOOR OR WALL ABOVE MAIN FLOOR SLAB.

.6 CLEANOUTS IN WET FLOOR AREAS SHALL EXTEND TO WALLS, OR BE PROVIDED WITH GASKETTED WATERPROOF TOPS.

.7 CLEANOUTS ON OUTSIDE DRAINS SHALL BE BROUGHT TO GRADE AND ANCHORED IN A CONCRETE COLLAR.

.8 CLEANOUTS IN INSIDE FINISHED AREAS SHALL ALL BE SAME SHAPE (SQUARE OR ROUND).

8.2 CLEANOUTS FOR FOOT AND MEDIUM LOAD WHEELED TRAFFIC AREAS

.1 COVER: ROUND NICKEL BRONZE TOP

.2 MODEL: JAY R. SMITH 4020S, CAST IRON EXTENDED FERRULE, TAPERED GASKET SEAL, ABS PLUG AND ADJUSTABLE ROUND SECURE NICKEL BRONZE TOP.

8.3 CLEANOUTS FOR FINISHED HEAVY DUTY TRAFFIC AREAS

.1 COVER: ROUND NICKEL BRONZE TOP

.2 MODEL: JAY R. SMITH 4100S, CAST IRON EXTENDED FERRULE, TAPERED GASKET SEAL, ABS PLUG AND ADJUSTABLE ROUND SECURE NICKEL BRONZE TOP.

8.4 CLEANOUTS FOR UNFINISHED HEAVY DUTY TRAFFIC AREAS

.1 COVER: ROUND CAST IRON TOP

.2 MODEL: JAY R. SMITH 4220S, CAST IRON EXTENDED FERRULE, TAPERED GASKET SEAL, ABS PLUG AND ADJUSTABLE ROUND SECURE CAST IRON TOP.

8.5 CLEANOUTS FOR VINYL FLOOR AREAS

.1 COVER: ROUND NICKEL BRONZE TILE TOP -

.2 MODEL: JAY R. SMITH 4140S, CAST IRON EXTENDED FERRULE, TAPERED GASKET SEAL, ABS PLUG AND ADJUSTABLE ROUND RECESSED SECURE NICKEL BRONZE TOP.

9 PIPE SLEEVES & ESCUTCHEONS

.1 WHERE GAPS BETWEEN WALL SLEEVES AND OUTSIDE SURFACE OF PIPES IS 13-MM (1/2 INCH) OR LESS, CAULK GAPS.

.2 WHERE GAPS ARE GREATER THAN 13-MM (1/2 INCH) PROVIDE CHROME ESCUTCHEON PLATES. IF THE GAP IS LARGER THAN THE ESCUTCHEON, NEATLY PATCH THE WALL TO MATCH THE ADJACENT WALL SURFACE.

.3 FOR PIPE PENETRATIONS THROUGH CONCRETE WALLS AND FLOORS, OR THROUGH ANY WALLS OR FLOORS OF ANY CONSTRUCTION WHICH HAVE A FIRE RATING, AND THROUGH FLOORS IN WET AREAS, PROVIDE PIPE SLEEVES.
- .1 SLEEVES TO BE MANUFACTURED OF SCHEDULE 40 STEEL PIPE.
- .2 SIZE SLEEVES TO ALLOW FOR CONTINUITY OF INSULATION. REFER ALSO TO REQUIREMENTS FOR FIRESTOPPING.
- .3 EXTEND SLEEVES 50MM (2 INCHES) ABOVE FLOOR SLABS.

10 VALVES

.1 PROVIDE SHUT-OFF STOPS ON HOT AND COLD WATER CONNECTIONS FOR ALL INDIVIDUAL PLUMBING FIXTURES

.2 BALL VALVES FOR SHUT-OFF SERVICE:
- .1 FOR 862 KPA (125 PSIG) SERVICE, 50 MM (2 INCH) AND UNDER WITH SCREWED CONNECTIONS:
  - .1 WATTS B 6000
  - .2 APOLLO 70 SERIES
  - .3 JENKINS 1101 T
  - .4 CRANE 93 TF
  - .5 RED & WHITE FIG. 5044A.

.3 GATE VALVES FOR SHUT-OFF SERVICE
- .1 FOR 862 KPA (125 PSIG) SERVICE, 65 MM (2 ½ INCH) AND LARGER WITH FLANGED CONNECTIONS:
  - .1 CRANE 465 1/2
  - .2 JENKINS 404
  - .3 LUNKENHEIMER1430C
  - .4 RED & WHITE 421A.

11 INSTALLATION

11.1 GENERAL

.1 COPPER PIPE SHALL NOT BE BURIED EXCEPT WHERE SPECIFICALLY NOTED ON DRAWINGS.

.2 ALL CONNECTIONS TO FIXTURES SHALL BE WITH UNIONS.

11.2 TESTS AND INSPECTIONS

.1 TESTS ON PLUMBING SYSTEMS SHALL CONSIST OF THE FOLLOWING. ALL LEAKS SHALL BE CORRECTED BY REMAKING THE JOINTS AND THE SYSTEMS RETESTED UNTIL NO LEAKS ARE OBSERVED.
- .1 SANITARY WASTE AND VENT SYSTEM, STORM DRAINAGE SYSTEM
  - .1 3 METRE (10 FOOT) STANDING WATER TEST FOR 8 HOURS.
- .2 DOMESTIC WATER SYSTEM
  - .1 1030 KPA (150 PSIG) HYDRAULIC TEST FOR 8 HOURS.

.2 ALL PLUMBING FIXTURES SHALL BE TESTED FOR SOUNDNESS, STABILITY OF SUPPORT AND CORRECT OPERATION.

.3 ALL PRESSURE TESTS SHALL BE WITNESSED BY THE MECHANICAL CONSULTANT AND AUTHORITY HAVING JURISDICTION. PROVIDE 72 HOURS NOTICE TO CONSULTANT. FAILURE TO DO SO WILL POTENTIALLY RESULT IN DELAY TO INSPECTION AT THE CONTRACTOR'S EXPENSE.

11.3 PIPING EXPANSION

.1 ALL PIPING SYSTEMS, INCLUDING ALL TAKE OFFS SHALL BE SO INSTALLED WITHIN THE BUILDING THAT THE PIPING AND CONNECTED EQUIPMENT WILL IN NO WAY BE DISTORTED BY EXPANSION, CONTRACTION OR SETTLING.

12 MEDICAL GAS SYSTEMS

GENERAL REQUIREMENTS:

.1 INSTALLATION OF COMPLETE, OPERATIONAL, TESTED AND CERTIFIED MEDICAL GAS SYSTEMS, INSTALLED IN ACCORDANCE WITH CSA STANDARD Z7396.1-12, "MEDICAL GAS PIPELINE SYSTEMS - PART 1 PIPELINES FOR MEDICAL GASES AND VACUUM.
- .1 OXYGEN SYSTEM INCLUDING PIPING TO EXISTING LOCATION OF ISOLATION VALVE, ALL CONNECTIONS, FITTINGS, PIPING, CORING, WIRING, SLEEVES, FLASHINGS, SEALING, HANGERS, ATTACHMENTS, VALVES, CONTROLS, SWITCHES, OUTLETS AND ASSOCIATED ACCESSORIES.
- .2 VACUUM SYSTEMS, INCLUDING ALL PIPING, FITTINGS, PIPE HANGERS, VALVES, CONTROLS, OUTLETS, AND ACCESSORIES.
- .3 PIPE IDENTIFICATION
- .4 TESTING OF PIPING AND OUTLETS.
- .5 LOW VOLTAGE WIRING FOR ALARMS AND CONTROLS

.2 PRODUCTS:
- .1 ALL PIPING USED FOR MEDICAL GAS INSTALLATIONS SHALL BE TYPE L SEAMLESS HARD COPPER TUBING, CLEANED, DEGREASED, SEALED AT THE FACTORY AND STAMPED FOR MEDICAL USE.
- .2 ALL FITTINGS AND CONNECTIONS SHALL BE MANUFACTURED OF WROUGHT COPPER AND NITROGEN PURGED SILVER BRAZING.
- .3 MEDICAL GAS PIPING SHALL BE SUPPORTED WITH HANGERS SPACED AS FOLLOWS:

PIPE SIZE (MM)	SPACING OF SUPPORTS (MM)
12	1800
18	2400
25	2400
30 & LARGER (HORIZONTAL)	3000
30 & LARGER (VERTICAL)	MAXIMUM 3000 OR AT EVERY FLOOR LEVEL

- .4 DROPS OR RISERS SHALL BE SUPPORTED NOT MORE THAN 250 MM FROM OUTLETS.
- .5 ALL MEDICAL VACUUM LINES SHALL BE 18 MM MINIMUM SIZE

SHUT OFF VALVES
- .1 ALL VALVES IN THE MEDICAL GAS PIPING SYSTEM SHALL BE MEDICAL QUALITY BALL TYPE VALVES WHICH OPERATE WITH NOT MORE THAN ONE-QUARTER TURN OF THE OPERATING HANDLE BETWEEN FULL OPEN AND FULL CLOSED

MEDICAL GAS OUTLETS
- .1 INSTALL WHERE INDICATED ON THE DRAWINGS.
- .2 EACH STATION OUTLET FOR MEDICAL GAS SHALL BE EQUIPPED WITH AN AUTOMATIC SHUT-OFF VALVE AND BE DESIGNED TO PREVENT ERRORS IN CROSS-FITTING
- .3 PIPING SHALL HAVE FIXED, COLOUR-CODED LABELS INDICATING THE TYPE OF GAS IN EACH LINE.
- .4 ALL MEDICAL GAS OUTLET PLATES SHALL BE GROUNDED
- .5 MEDICAL GAS OUTLETS SHALL BE AMICO DISS TYPE

PRESSURE REGULATORS
- .1 PRESSURE REGULATORS SHALL BE PROVIDED FOR EACH MEDICAL GAS SYSTEMS TO INDICATE HIGH OR LOW PRESSURE

LINE MONITORING GAUGES
- .1 SUPPLY AND INSTALL LINE MONITORING PRESSURE GAUGES, WIRED TO ALARM PANELS.
- .2 ALL PRESSURE GAUGES FOR MEDICAL GAS SYSTEMS SHALL SHOW PRESSURE IN KPA.

ALARM AND CONTROL PANELS AND VALVE BOXES

GENERAL

1. SUPPLY AND INSTALL ZONE SHUT-OFF VALVES AND BOXES AS INDICATED ON THE MECHANICAL DRAWINGS SIZED TO SUIT THE LINE SIZES FOR EACH GAS AND WITH BALL VALVES FOR EACH GAS.

   .2 SUPPLY AND INSTALL AUTOMATIC LOCAL AND MASTER ALARMS WHERE INDICATED ON THE DRAWINGS.

   .3 ALARM PANELS SHALL BE RECESSED FOR BOTH LOCAL AND MASTER ALARMS, CSA APPROVED, WITH BOTH AUDIBLE AND VISUAL SIGNALS. DIVISION 16 WILL INSTALL 120 VOLT WIRING TO ALARM PANELS. DIVISION 15 TO INSTALL LOW VOLTAGE (24 VOLT) WIRING TO ALL COMPONENTS OF THE SYSTEM REQUIRING ALARM.

.2 COMBINATION ALARM AND SHUTOFF VALVE STATION

- .1 VALVE BOX: ZONE VALVE BOX ASSEMBLY WITH QUARTER TURN ON/OFF BALL VALVES. BALL VALVES TO BE 25MM DIAMETER AND 32MM DIAMETER, FULL PORT STYLE SUITABLE FOR MEDICAL GAS SERVICE. PROVIDE C/W VALVE PIPING EXTENSIONS, 0-100PSI AND 0-30"HG GAUGES, 6MM DIAMETER NPTF GAUGE PORT, SUITABLE FOR WOG SERVICE TO 400 PSIG, VACUUM SERVICE OF -29"HG. SECURELY FASTEN WITHIN 18 GAUGE PAINTED STEEL CASING. PROVIDE WITH ADJUSTABLE MOUNTING FRAME AND COVER. COVER TO HAVE REMOVABLE WINDOW MARKED CAUTION -MEDICAL GAS SHUT-OFF VALVES -CLOSE ONLY IN EMERGENCY.

  AMICO ALERT SERIES OR EQUIVALENT

.3 INSTALLATION

AREA/ZONE VALVES INSTALLED 1150 MM ABOVE FLOOR TO BOTTOM OF VALVE BOX.

.2 AREA ALARM PANELS INSTALLED 1650 MM ABOVE FLOOR TO TOP OF BOX.

.3 MEDICAL GAS MASTER ALARM PANELS INSTALLED 1150 MM ABOVE FLOOR TO BOTTOM OF PANEL OR 150 MM ABOVE WORK BENCHES TO BOTTOM OF PANEL.

.4 COORDINATE GAS ALARMS PANELS WITH ARCHITECTURAL DETAILS.

.5 INSTALL PIPING AS TIGHT AS POSSIBLE TO THE BUILDING STRUCTURE TO CONSERVE HEADROOM.

.6 PIPE SHALL BE FACTORY CLEANED AND STAMPED FOR USE IN MEDICAL GAS INSTALLATIONS.

.7 MAINTAIN ALL PIPE FREE OF CONTAMINATION, DURING ON OR OFF-SITE STORAGE AND DURING INSTALLATION BY CAPPING ALL EXPOSED PIPE ENDS.

.8 TOOLS USED IN CUTTING OR REAMING OF PIPE SHALL BE CLEANED PRIOR TO USE.

.9 ALL MANUALLY OPERATED VALVES AND QUICK COUPLING DEVICES SHALL BE EQUIPPED WITH NON-INTERCHANGEABLE CONNECTIONS COMPLYING WITH THE CSA DIAMETER INDEX SAFETY SYSTEM (DISS).

.10 THE SYSTEMS WILL BE CERTIFIED BY AN INDEPENDENT MEDICAL GAS-TESTING AGENCY RETAINED BY THE OWNER

.11 PROVIDE AND INSTALL CONSTRUCTION VALVES WHEN CONNECTING TO EXISTING MEDICAL GAS MAINS.

.12 PROVIDE AND INSTALL ISOLATION VALVES UPSTREAM OF ZONE VALVE BOXES.

.4 TESTING

.1 AFTER INSTALLATION OF THE PIPING AND VALVES, BUT BEFORE INSTALLATION OF THE SERVICE OUTLETS, ALARM ACTUATING SWITCHES AND GAUGES, THE LINE SHALL BE BLOWN CLEAR BY MEANS OF NITROGEN.

.2 AFTER INSTALLATION OF THE ROUGH-IN PORTION OF SERVICE OUTLETS AND AREA LINE PRESSURE ALARMS, BUT BEFORE CLOSING OF THE WALLS, EACH SECTION OF PIPING SYSTEM SHALL BE SUBJECTED TO A TEST PRESSURE OF ONE AND ONE-HALF (1½) TIMES THE MAXIMUM WORKING PRESSURE, BUT NOT LESS THAN 1030 KPA WITH NITROGEN. THIS TEST PRESSURE SHALL BE MAINTAINED UNTIL EACH JOINT HAS BEEN EXAMINED FOR LEAKAGE BY MEANS OF SOAPY WATER OR OTHER EFFECTIVE MEANS OF LEAK DETECTION SAFE FOR USE WITH OXYGEN.

.3 ALL LEAKS SHALL BE REPAIRED AND THE SECTION RETESTED.

.4 AFTER COMPLETING THE TESTING OF EACH INDIVIDUAL PIPING SYSTEM, ALL OF THE MEDICAL GAS SYSTEMS SHALL BE SUBJECTED TO A 24-HOUR STANDING PRESSURE TEST AT ONE AND ONE-HALF (1½) TIMES THE MAXIMUM WORKING PRESSURE, BUT NOT LESS THAN 1030 KPA. THE TEST GAS SHALL BE NITROGEN. THE MAIN LINE SHUT-OFF VALVE SHALL BE CLOSED DURING THE TEST.

.5 AFTER COMPLETION OF THE ABOVE TEST PROCEDURES, THE FINISHING ASSEMBLIES OF STATION OUTLETS, ALARMS, AND ALL COMPONENTS (E.G., PRESSURE SWITCHES, GAUGES, RELIEF VALVES, ETC.) SHALL BE INSTALLED AND ALL MEDICAL GAS PIPING SYSTEMS SHALL BE SUBJECTED TO A 24-HOUR STANDING PRESSURE TEST AT 20% ABOVE THE NORMAL OPERATING LINE PRESSURE. THE MAIN LINE SHUT-OFF VALVE SHALL BE CLOSED DURING THIS TEST.

.6 LEAKS, IF ANY, SHALL BE LOCATED, REPAIRED, AND THE SYSTEM RETESTED.

.7 PROVIDE PURGING VALVES FOR THIS PURPOSE.

.8 USE TEMPORARY CYLINDERS FOR THIS PURPOSE.

.9 PERFORM PRESSURE TEST AND CROSS CONNECTION TEST AS PER CODE REQUIREMENTS. REFER TO CSA STANDARD Z-7396.1, LATEST EDITION

.5 FINAL TESTING AND CERTIFICATION

THE FINAL TESTING, CROSS CONNECTION TESTING AND CERTIFICATION OF THE MEDICAL GAS SYSTEMS SHALL BE DONE BY AN INDEPENDENT, CERTIFIED, TESTING AGENCY THAT MEETS THE REQUIREMENTS OF CSA STANDARD Z.7396.1, AND THE TESTING AGENCY SHALL BE EMPLOYED DIRECTLY BY OWNER.

.2 MEDICAL-GAS SYSTEM SHALL BE TESTED IN ACCORDANCE WITH NFPA 99, LATEST EDITION. THE ALARM SYSTEM SHALL BE TESTED PER NFPA 99 AND CSA Z7396.1.

.3 IN ADDITION TO CROSS-CONNECTION TESTING, THIS SPECIFICATION SHALL REQUIRE THE EQUIPMENT MANUFACTURER TO TEST EACH INDIVIDUAL PIPELINE-SYSTEMS COMPONENT FOR PERFORMANCE TO DESIGN SPECIFICATIONS AND MAKE ANY NECESSARY ADJUSTMENTS TO ENSURE A COMPLETE AND WORKING SYSTEM IS PROVIDED.

.4 AGENCY SHALL CERTIFY THAT THE SYSTEMS ARE COMPLETE IN ALL RESPECT, THAT ZONE VALVES ARE INSTALLED, ALARM SYSTEMS ARE FUNCTIONAL AND THAT ALL TESTS WERE CONDUCTED IN ACCORDANCE WITH CSA STANDARD Z7396.1, LATEST EDITION.

.5 THE MEDICAL GAS PIPING SYSTEM SHALL NOT BE USED UNTIL THE ABOVE DOCUMENTATION HAS BEEN CERTIFIED COMPLETE AND A COPY HAS BEEN ACCEPTED.

.6 ITEMS TO BE COMPLETED PRIOR TO AGENCY'S ARRIVAL ON SITE ARE:
- .1 ALL PIPING AND OUTLETS IDENTIFIED
- .2 MEDICAL GAS SYSTEMS IDENTIFIED
- .3 ITEMS SPECIFIED COMPLETED

.5 CERTIFICATION OF INSTALLED SYSTEMS

THE CERTIFICATION AGENCY WILL VERIFY:
- .1 THAT PIPING MATERIALS ARE CERTIFIED FOR MEDICAL GAS USE.
- .2 THAT ALL BRAZING IS PERFORMED WITH NITROGEN PURGING.
- .3 THAT ALL VALVES ARE INSTALLED AND OPERATIONAL.
- .4 THAT PRESSURE TESTS HAVE BEEN COMPLETED AS REQUIRED.
- .5 THAT ALL REQUIRED ALARM SYSTEMS ARE OPERATIONAL AND PROPERLY MONITORED.
- .6 THAT ALL PIPING IS CORRECTLY IDENTIFIED.
- .7 THAT THE INSTALLED SYSTEMS PASS CROSS-CONNECTION, CONCENTRATION AND PURITY TESTS.
- .8 THAT ALL EQUIPMENT IS FUNCTIONING PROPERLY AND THAT ALL SYSTEMS ARE COMPLETE AND OPERABLE

15450 PLUMBING FIXTURES

1 SCOPE OF WORK

.1 PROVISION, INSTALLATION, SET-UP AND TESTING OF ALL PLUMBING FIXTURES AND TRIM AS SPECIFIED HEREIN.

2 QUALITY ASSURANCE

.1 ALL FIXTURES AND EQUIPMENT FOR HANDICAPPED USE SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS.

.2 FIXTURES INDICATED FOR HANDICAPPED USE SHALL BE IN ACCORDANCE WITH THE 2012 BRITISH COLUMBIA BUILDING CODE.

.3 PLUMBING FIXTURES SHALL CONFORM TO CSA B45.0. AND CSA Z-8000

.4 CERAMIC PLUMBING FIXTURES SHALL CONFORM TO CSA B45.1.

.5 ENAMELED CAST IRON PLUMBING FIXTURES SHALL CONFORM TO CSA B45.2.

.6 PORCELAIN ENAMELED STEEL PLUMBING FIXTURES SHALL CONFORM TO CSA B45.3.

.7 STAINLESS STEEL FIXTURES SHALL BE IN ACCORDANCE WITH CSA B45.4.

3 GENERAL REQUIREMENTS

.1 FIXTURES SHALL BE FREE FROM FLAWS OR BLEMISHES. SURFACES SHALL BE CLEAR, SMOOTH AND BRIGHT AND HAVE DIMENSIONAL STABILITY. VISIBLE PARTS OF THE FIXTURE SUPPLY TRIM SHALL BE CHROME-PLATED, UNLESS OTHERWISE NOTED.

.2 EXPOSED TRIM, SUPPLIES, TRAPS, TUBING, ESCUTCHEONS AND VALVES TO SANITARY FIXTURES SHALL BE CHROME-PLATED FINISH.

.3 SUPPLY AND INSTALL ALL HANGERS, SUPPORTS, BRACKETS, REINFORCEMENT, 14 GAUGE STEEL BACK-UP PLATES, FLOOR FLANGES AND ALL ACCESSORY PIPING AND FITTINGS, FOR THE PROPER INSTALLATION AND SUPPORT OF ALL FIXTURES AND THEIR RESPECTIVE SUPPLY FITTINGS.

.4 ALL FIXTURES SHALL BEAR STAMP INDICATING CSA APPROVAL.

.5 WHERE PLUMBING FIXTURES COME IN CONTACT WITH WALL AND/OR FLOOR, JOINTS SHALL BE SEALED WITH DOW CORNING 781 BUILDING SEALANT, MADE WATERTIGHT AND BEADED SMOOTH IN A NEAT AND WORKMANLIKE MANNER.

8.1 TRAP PRIMERS

.1 PROVIDE TRAP PRIMERS ON ALL FLOOR DRAINS CONNECTED TO SANITARY SYSTEM. OREGON #1 TYPE, AUTOMATICALLY ACTIVATED AND CONNECTED TO NEAREST COLD WATER LINE. PIPE TRAP DISCHARGE INTO FIXTURE TRAP.

8.2 FLOOR DRAINS, ROOF DRAIN, DECK DRAIN, PLANTER DRAIN

.1 REFER TO SCHEDULES FOR SPECIFICATIONS OF ALL DRAINS.

9.0 PLUMBING FIXTURES:

1.1. SK-1

SINK: AMERICAN STANDARD Z-8000 COMPLIANT INFECTION CONTROL SINK C/W SELECTRONIC FAUCET. MODEL 9118.111.020 ICS SINK. FAUCET 1.5 GPM LAMINAR FLOW, VANDAL RESISTANT. HARDWIRED c/w BATTERY BACK-UP
MIXING VALVE: THERMOSTATIC MIXING VALVE 605XTMV
SUPPLY MCGUIRE #H170BV, FAUCET SUPPLIES, CHROME FINISH POLISHED BRASS, COMMERCIAL DUTY 1/4 TURN BALL VALVE ANGLE
STOPS, 13 MM (1/2") I. D. INLET X 127 MM (5") HORIZONTAL EXTENSION TUBES, COMBINATION V. P. LOOSE KEY HANDLES, ESCUTCHEON AND
FLEXIBLE COPPER RISERS. PROVIDE
P-TRAP , ADJUSTABLE ALL METAL CONSTRUCTION, 38 MM (1-1/2") SIZE, AND ESCUTCHEON.
PROVIDE ADDITIONAL INLINE CHECKS ON HOT AND COLD INLETS
PROVIDE JR SMITH FLOOR MOUNTED WALL CARRIER

1.1. SK-2

FRANKE COMMERCIAL #LBS4608P-1/3 SINGLE BOWL COUNTERTOP MOUNT SINK, 3 HOLES, 8" (203 MM) CENTER, 460 MM (18-1/8") WIDE X 478 MM (18-13/16") LONG X 203 MM (8") HIGH DEEP, COUNTER MOUNTED, BACKLEDGE, GRADE 18-10 18 GA. (1.2 MM) TYPE 304 STAINLESS STEEL, SELF-RIMMING, SATIN FINISH RIM AND BOWLS, MOUNTING KIT PROVIDED, FULLY UNDERCOATED TO REDUCE CONDENSATION AND RESONANCE, FACTORY APPLIED RIM SEAL, 3-1/2" (89 MM) CRUMB CUP WASTE ASSEMBLY WITH 1-1/2" (38 MM) TAILPIECE.
CHICAGO FAUCETS #786-GN8FCABCP TWO HANDLES FAUCET, CHROME PLATED FINISH, ECAST CONSTRUCTION LEAD FREE (EQUAL OR LESS THAN 0.25%) BRONZE CONSTRUCTION WITH ONE PIECE CONCEALED ROUGH BODY, QUATURN COMPRESSION

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	DATE	ISSUED FOR	BY
1	2018.10.04	80% DD	JL
2	2018.10.12	BUILDING PERMIT	JL
3	2018.11.09	ISSUED FOR 80%	JL
4	2018.12.19	ISSUED FOR TENDER	JL
5	2019.02.14	ISSUED FOR CONSTRUCTION	JL

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SMITHERS BC

DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS
PHASE 2 - X-RAY INSTALLATION

Specifications

SCALE: 1/4"= 1'-0"
DATE: 2018.10.12
DRAWN: RZ
CHECKED: JL
JOB No.: 18103-V

PHASE 2
M7.01

OPERATING CARTRIDGE, 5.7 LPM (1.5 GPM) LAMINAR FLOW CONTROL INSERT IN SPOUT INLET, PLAIN END OUTLET, 203 MM (8") PROJECTION FLOW CONTROL RIGID/SWING GOOSENECK SPOUT, 102 MM (4") METAL VANDAL PROOF WRISTBLADE HANDLES WITH BLUE AND RED INDEX BUTTONS. LAWLER #TMM-1070, BELOW DECK MECHANICAL WATER MIXING VALVE, BRONZE BODY, TEMPERATURE ADJUSTING DIAL, 10 MM (3/8") INLETS AND OUTLET COMPRESSION FITTINGS, HIGH TEMPERATURE THERMOSTATIC LIMIT STOP, SHUT-OFF WITH AUTOMATIC RESET WHEN TEMPERATURE EXCEEDS 120 °F (48.8 °C), INTEGRAL CHECKS, OFFER TEMPERATURE RANGE FROM FULL COLD THROUGH 46 °C (114.8 °F). PROVIDE TEE, ADAPTORS AND FLEX COPPER TUBING TO SUIT INSTALLATION. PROVIDE TEMPERED WATER TO HOT SIDE OF FAUCET. MCGUIRE #LFH165LKN3 FAUCET SUPPLIES, CHROME PLATED FINISH POLISHED BRASS, HEAVY DUTY ANGLE STOPS, 10 MM (3/8") I.P.S. INLET X 76 MM (3") LONG RIGID HORIZONTAL NIPPLES, V.P. LOOSE KEYS, ESCUTCHEON AND FLEXIBLE COPPER RISERS. MCGUIRE #8912CB P-TRAP, HEAVY CAST BRASS ADJUSTABLE BODY, WITH SLIP NUT, 38 MM (1-1/2") SIZE, BOX FLANGE AND SEAMLESS TUBULAR WALL BEND.

15800 VENTILATION SYSTEMS AND EQUIPMENT

4 DUCTWORK AND DUCT ACCESSORIES

4.1 GALVANIZED SHEET METAL DUCTWORK

.1 GALVANIZED STEEL LOCK FORMING DUCTWORK, WITH GALVANIZED COATING CONFORMING TO ASTM A525 G90, FABRICATED TO THE REQUIREMENTS OF SMACNA STANDARDS FOR THE SPECIFIED CLASSIFICATIONS. ALL DUCTWORK USED ON THIS PROJECT SHALL BE CLEAN AND FREE OF SCALE.

.2 SUPPLY DUCTWORK ON THIS PROJECT IS CLASSIFIED AS LOW PRESSURE. SHEET METAL SCREWS MAY BE USED FOR FASTENING JOINTS. WRAP ALL JOINTS WITH FIRE AND WATER RESISTIVE DUCT TAPE AND SEALANT TO ENSURE NO DISCERNIBLE AIR LEAKAGE.

.3 DUCTS THAT PENETRATE EXTERIOR WALLS ASSEMBLIES MUST BE SEALED TO THE WEATHER BARRIER USING SELF ADHESIVE BITUMINOUS MEMBRANE AND EXPANDING FOAM SEALANT.

6.2 DUCT ACCESS DOORS

.1 ACCESS DOORS SHALL HAVE ULC LISTING AND SHALL BE 450 X 450 UNLESS OTHERWISE REQUIRED BY DUCT SIZE.

6.3 FIRE DAMPERS

.1 FIRE DAMPERS SHALL BE ULC LISTED AND CONSTRUCTED TO THE REQUIREMENTS OF ULC STANDARD S112, BLADE OR CURTAIN TYPE. FUSIBLE LINKS TO ULC STANDARD S505, SET FOR OPERATION AT 72 DEG C. WHERE REQUESTED BY THE OWNER OR CONSULTANT, DEMONSTRATE OPERATION OF FIRE DAMPERS AND RE-SET.

6.4 BALANCING DAMPERS

.1 FABRICATED FROM MINIMUM 1.6 MM THICK GALVANIZED STEEL, WITH ADJUSTMENT ROD AND LOCK SCREW. PROVIDE AS INDICATED ON THE DRAWINGS.

6.5 BACKDRAFT DAMPERS

.1 FABRICATED OF ALUMINUM WITH FRAME MINIMUM OF 20 MM THICK AND BLADES MINIMUM 2 MM THICK. AXLES MINIMUM 12 MM DIAMETER BALL BEARING PRESSED INTO THE FRAME. BLADE SEAL TO HAVE EXTRUDED VINYL SEALS. PROVIDE ADJUSTABLE COUNTERBALANCES. PROVIDE BACKDRAFT DAMPERS AT INLET TO ANY EXHAUST FANS NOT PROVIDED WITH AUTOMATIC CONTROL DAMPERS.

6.6 FLEXIBLE CONNECTIONS

.1 INSTALL CANVAS FLEXIBLE CONNECTIONS ON INLET TO ALL EXHAUST FANS, AND INLET AND OUTLET OF ROOF MOUNTED AIR HANDLING UNITS. ENSURE THAT FLEX DOES NOT IMPEDE AIRFLOW AND ALLOW MOVEMENT OF EQUIPMENT WITHOUT TRANSMITTING VIBRATION INTO THE DUCTWORK.

6.7 TURNING VANES

.1 AIRFOIL TYPE WITH RUNNER CHANNELS. PROVIDE FOR ALL SQUARE OR RECTANGULAR DUCT ELBOWS.

7 GRILLES, REGISTERS, DIFFUSERS AND LOUVRES

15900 CONTROLS

PART 1 GENERAL

1.1 SCOPE OF WORK

.1 INSTALLATION OF ALL CONTROLS HARDWARE, WIRING AND PROGRAMMING AS REQUIRED FOR A COMPLETELY OPERATIONAL, COMMISSIONED CONTROL INSTALLATION FOR THE MECHANICAL SYSTEMS DESCRIBED HEREIN.

.2 THE HVAC EQUIPMENT WILL BE COMPLETE WITH A CONTROLS PACKAGE TO ALLOW FOR INTEGRATION WITH THE BASE BUILDING CONTROLS SYSTEM, SIMPSON CONTROLS

.3 THE CONTRACTOR SHALL RETAIN THE SERVICES OF THE BASE BUILDING CONTROLS CONTRACTOR, SIMPSON CONTROLS, TO COMPLETE THE SCOPE OF WORK.

.5 WIRING:

.1 PROVIDE ALL CONTROL WIRING, WHETHER LINE OR LOW VOLTAGE, ALL SYSTEM COMPONENTS, DEVICES, ACTUATORS, RELAYS, ETC. AS NECESSARY FOR OPERATION OF THE SYSTEM.

.2 ALL WIRING SHALL CONFORM TO THE REQUIREMENTS OF DIVISION 16000 AND THE CANADIAN ELECTRICAL CODE.

.3 COMMISSION THE CONTROL SYSTEM INSTALLED WITH END-TO-END CHECKS, VERIFICATION AND CALIBRATION CHECK SHEETS AND COOPERATE WITH THE TESTING, ADJUSTING AND BALANCING (TAB) AGENCY.

.6 PROVIDE FOR INCLUSION OF THE OPERATION AND MAINTENANCE MANUAL COMPLETE AS-BUILT CONTROL DRAWINGS, SEQUENCES OF OPERATION, PRODUCT DATA SHEETS FOR ALL NEWLY INSTALLED PRODUCTS AND END-TO-END VERIFICATION CHECK SHEETS. CONTROL DRAWINGS ARE TO COMPLETELY REPLACE ALL EXISTING CONTROL DRAWINGS FOR PROJECTS UNDERGOING RETROFIT.

1.3 COORDINATION AND WORK BY OTHER TRADES

.1 BY SHEET METAL CONTRACTOR:
.1 SUPPLY AND INSTALLATION OF ALL DAMPERS NOT CONTROLLED BY THE EMCS, INCLUDING BACK-DRAFT AND FIRE DAMPERS SHALL BE BY THE SHEET METAL CONTRACTOR.

.2 INSTALLATION OF ALL CONTROL DAMPERS SUPPLIED BY THE CONTROL CONTRACTOR.

.2 BY ELECTRICAL CONTRACTOR:

.1 ALL POWER WIRING TO MECHANICAL EQUIPMENT, INCLUDING LINE VOLTAGE WIRING FOR CONTROLS WHICH DIRECTLY SWITCH THE POWER TO SINGLE PHASE MOTORS.

.2 INSTALLATION AND WIRING OF VARIABLE FREQUENCY DRIVES

.3 BY MECHANICAL CONTRACTOR

.1 INSTALLATION OF ALL VALVES, TEMPERATURE WELLS, FLOW METERS, AND FLOW SWITCHES SUPPLIED BY THE CONTROLS CONTRACTOR.

PART 2 PRODUCTS

2.1 CONTROL DAMPERS

.1 AUTOMATIC CONTROL DAMPERS SHALL BE COMPOSED OF 16-MM GALVANIZED STEEL OR EXTRUDED ALUMINUM MULTIPLE BLADES MOUNTED IN A 2.8-MM STEEL OR EXTRUDED ALUMINUM FRAME. INDIVIDUAL BLADES SHALL NOT EXCEED 150-MM IN WIDTH OR 1200 MM IN LENGTH WITH INTERLOCKING EDGES AND COMPRESSIBLE NEOPRENE EDGE SEALS.

2.2 CONTROL DAMPER ACTUATORS

.1 PROVIDE DRIVE-PIN MOUNTED, SYNCHRONOUS MOTOR DRIVEN DAMPER ACTUATORS WITH ADJUSTABLE STROKE AND SPRING RETURN FAIL-SAFE TO NORMALLY OPEN OR NORMALLY CLOSED POSITION AS REQUIRED BY THE SEQUENCE OF OPERATION. PROVIDE SUFFICIENT ACTUATORS AND TOTAL TORQUE ON EACH DAMPER TO ACHIEVE SMOOTH TRAVEL THROUGHOUT FULL RANGE OF DAMPER AND TIGHT SHUT-OFF.

.2 PROVIDE FULLY MODULATING OR TWO-POSITION ACTUATORS AS REQUIRED BY THE SEQUENCE OF OPERATION. MODULATING ACTUATORS SHALL HAVE ADJUSTABLE MINIMUM SETPOINT AND SPAN RANGE TO ALLOW SEQUENCING.

2.4 CONTROL VALVES

.1 PROVIDE FULLY MODULATING VALVES WITH PRESSURE RATINGS SUITABLE FOR SYSTEM OPERATING PRESSURES. TWO-WAY HYDRONIC VALVES FOR SHALL HAVE EQUAL PERCENTAGE CHARACTERISTICS. ALL HEATING CONTROL VALVES TO BE (BELIMO) OR (SIEMENS)

.2 TWO-PORT VALVES SHALL BE SCREWED TYPE, NPT CONNECTIONS WITH ANSI 125 BRONZE BODY, FIELD ADJUSTABLE CV, FIELD REPLACEABLE PACKINGS, STAINLESS STEEL STEM, BRASS PLUG WITH EPT DISK, AND BRASS SEAT, CONSTRUCTED TO ANSI LEAKAGE CLASS IV. SIZE WITH A MAXIMUM OF 3 PSI PRESSURE DROP WHEN FULLY OPEN.

2.5 CONTROL VALVE ACTUATORS

.1 PROVIDE FULLY MODULATING MOTOR DRIVEN VALVE ACTUATORS WITH ADJUSTABLE STROKE, FAILING TO FULLY OPEN POSITION ON LOSS OF POWER OR ZERO CONTROL SIGNAL.

2.6 ANALOG CURRENT SENSITIVE RELAYS

.1 PROVIDE A SEALED UNIT INCORPORATING THE CURRENT TRANSFORMER AND RELAY WITH DRY CONTACT OUTPUT FOR MOTORS WITH A RATING OF ½ HP OR LESS.

.2 PROVIDE A CURRENT TRANSFORMER WITH ANALOG OUTPUT CALIBRATED SUCH THAT POWER CONSUMPTION CAN BE CALCULATED AND TRENDED FOR ALL MOTORS WITH A RATING OF GREATER THAN ½ HP.

PART 3 EXECUTION

3.1 GENERAL

.1 CONTROL SYSTEM COMPONENT LOCATIONS ARE THE RESPONSIBILITY OF THE SYSTEM CONTRACTOR. ALL CONTROL SYSTEM COMPONENTS SHALL BE INSTALLED IN LOCATIONS AS REQUIRED TO PROPERLY SENSE THE CONTROLLED MEDIUM AND SHALL BE EASILY ACCESSIBLE FOR ADJUSTMENT AND SERVICE. ALL COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH THE COMPONENT MANUFACTURER'S RECOMMENDATIONS.

.2 THE SYSTEM SHALL BE INSTALLED SUCH THAT ALL WIRING, COMMUNICATION, ANALOG OR DIGITAL, INPUT OR OUTPUT SHALL BE CAPABLE OF SHARING SINGLE CONDUIT RUNS WITHOUT AFFECTING SIGNAL PERFORMANCE.

3.2 VALVE AND DAMPER ACTUATORS

.1 CHECK OPERATION OF VALVE AND DAMPER ACTUATOR COMBINATIONS TO CONFIRM THAT ACTUATOR MODULATES DAMPER SMOOTHLY THROUGHOUT STROKE TO BOTH OPEN AND CLOSED POSITIONS.

.2 SPRING RETURN ACTUATORS SHALL BE PROVIDED.

.3 MODULATING ACTUATORS SHALL BE PROVIDED.

PART 4 EQUIPMENT

.4.1 EXISTING ROOF TOP UNIT
.1 A ROOF TOP AHU WAS INSTALLED IN PHASE 1. PROVIDE REQURIED VERIFICATIONS, AND COMMISSIONING TO EXTEND SYSTEM TO SERVE PHASE 2 CT CONTROL AREA.

4.2 HYDRONIC REHEAT COIL
.1 MODULATE HEATING WATER CONTROL VALVE TO MAINTAIN ROOM TEMPERATURE SET POINT.

4.3 DX SPLIT – CT SCAN ROOM
.1 PROVIDE ENABLE/DISABLE SIGNAL TO DX SPLIT AC SYSTEM C/W STATUS POINT
.2 PROVIDE DDC THERMOSTAT TO MONITOR ROOM TEMPERATURE
.3 INTEGRATE WITH BACNET CARD

4.4 DX SPLIT – ELECTRICAL ROOM (SEPARATE PRICE)
.1 PROVIDE ENABLE/DISABLE SIGNAL TO DX SPLIT AC SYSTEM C/W STATUS POINT
.2 PROVIDE DDC THERMOSTAT TO MONITOR ROOM TEMPERATURE

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	DATE	ISSUED FOR	BY
1	2018.10.04	80% DD	JL
2	2018.10.12	BUILDING PERMIT	JL
3	2018.11.09	ISSUED FOR 80%	JL
4	2018.12.19	ISSUED FOR TENDER	JL
5	2019.02.14	ISSUED FOR CONSTRUCTION	JL

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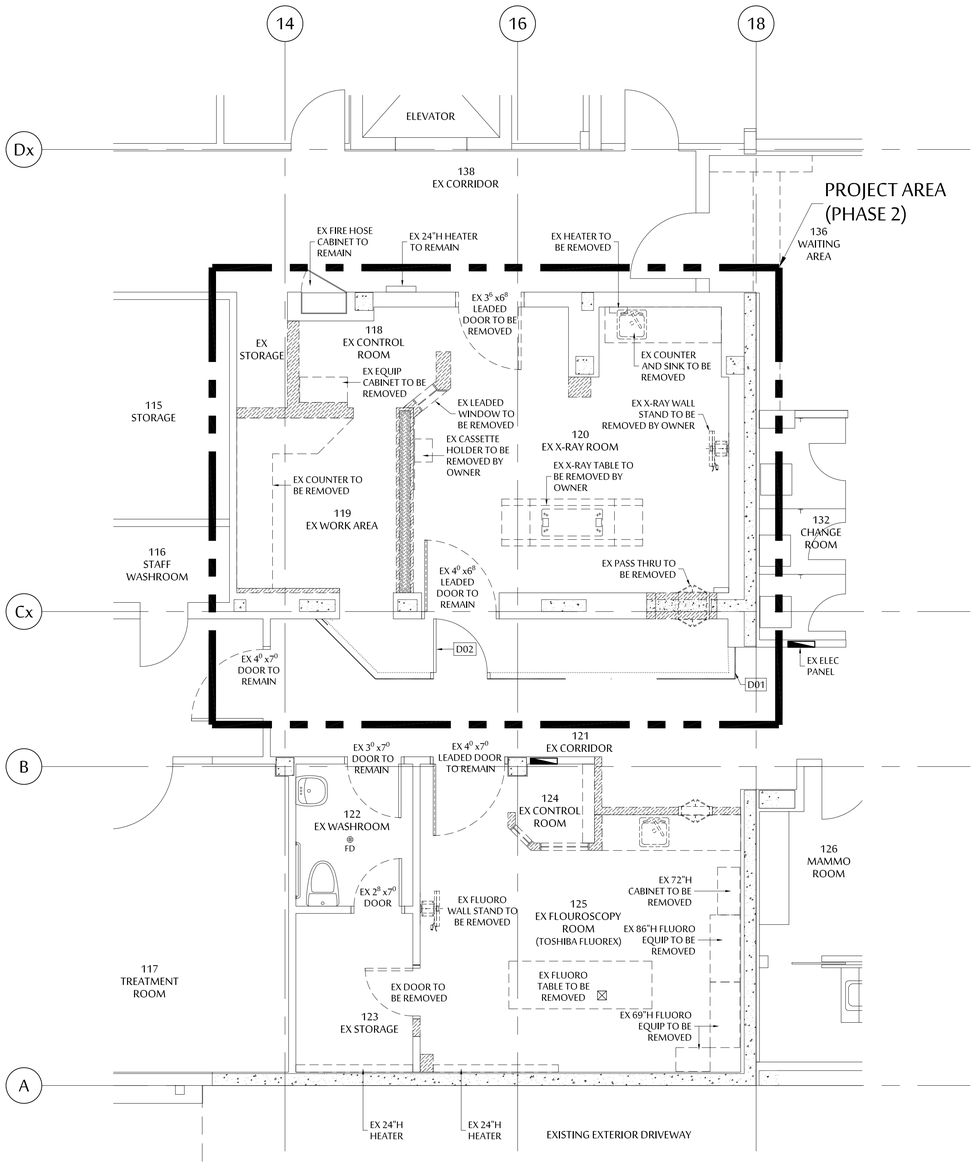
DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS

PHASE 2 - X-RAY INSTALLATION

Specifications

SCALE: 1/4"= 1'-0"
DATE: 2018.10.12
DRAWN: RZ
CHECKED: JL
JOB No.: 18103-V

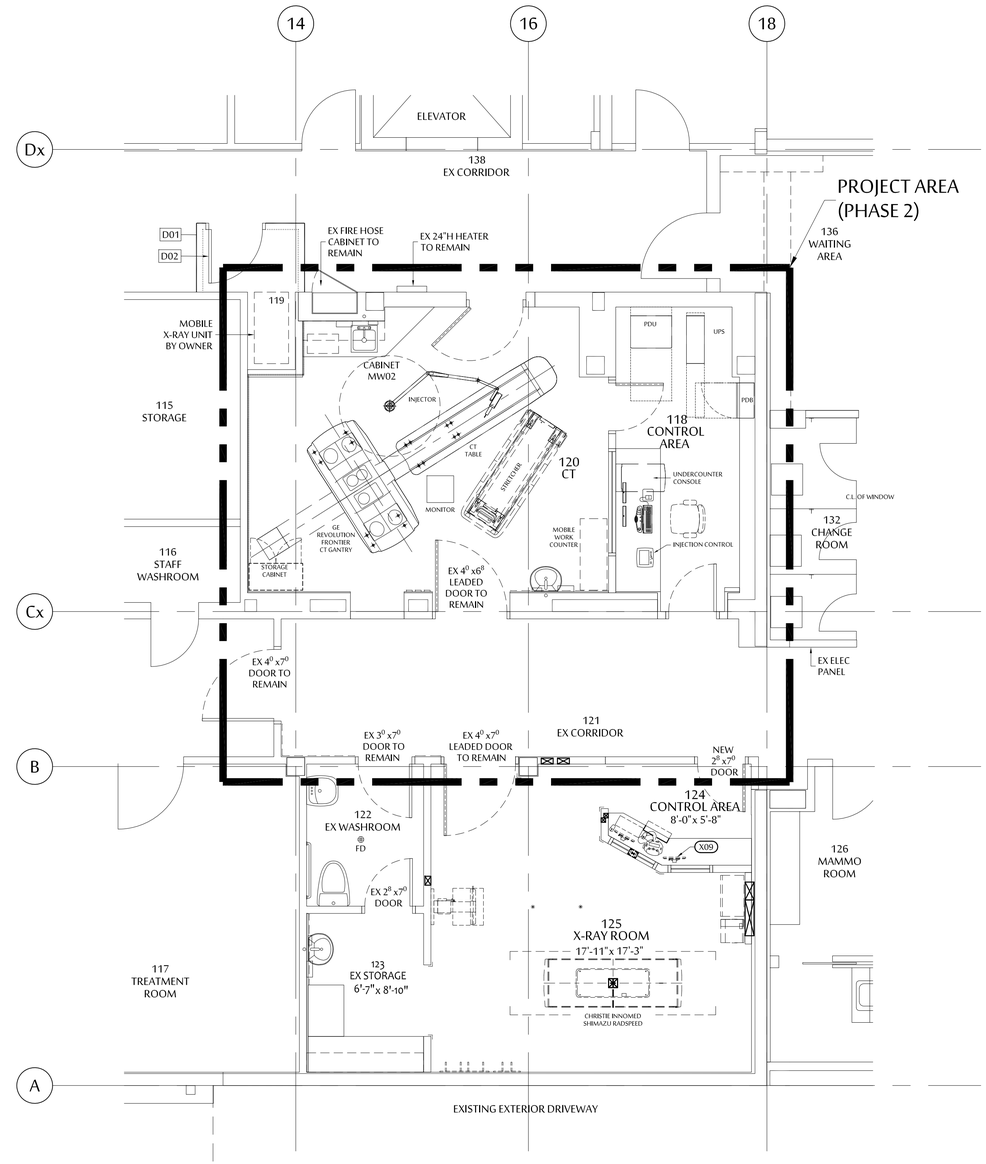
PHASE 2
M7.02



1 PHASE 2 - GROUND FLOOR DEMOLITION PLAN

SCALE : 1/4" = 1'-0"

PHASE 2 PROJECT
FLOOR AREA = 435 SF



2 PHASE 2 - GROUND FLOOR CONSTRUCTION PLAN

SCALE : 1/4" = 1'-0"

NOTES:

1. PROVIDE ELECTRICAL DEMOLITION FOR ALL WALLS BEING REMOVED.
2. REMOVE ALL EXISTING SURFACE MOUNT ELECTRICAL EQUIPMENT ON WALLS.
3. IDENTIFY ALL EXISTING CIRCUITS – EXISTING CIRCUITS FOR LIGHTING MAY BE REUSED.
4. EXISTING CIRCUITS FOR RECEPTACLES MAY BE REUSED PROVIDED CIRCUITING LAYOUTS SHOWN ON DRAWING E2 IS MAINTAINED. SHOW ALL CIRCUITING ON AS BUILT DRAWINGS.

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DRAWING LEGEND

- EXISTING WALL TO BE REMOVED (INCL ELEC, MECH, PLUMB & SPRINKLER WORK WITHIN WALL)
- EXISTING WALL TO REMAIN
- NEW WALL
- NEW WALL WITH ACOUST INSULATION
- EX 3'X7' DOOR — EXISTING DOOR TO REMAIN
- EX 3'X7' DOOR — EXISTING DOOR TO BE REMOVED OR RELOCATED
- D1 — NEW DOOR (SEE DOOR SCHEDULE)
- 1 / A1.01 — INTERIOR ELEVATION # / DWG #
- 1 / A1.01 — CROSS SECTION # / DWG #
- W1L4 — WALL TYPE - SEE WALL SCHEDULE FOR DETAILS
- W1 — WINDOW TYPE - SEE WINDOW SCHEDULE FOR DETAILS
- NEW FURNITURE (SHOWN DASHED) TO BE SUPPLIED BY OWNER (NIC)
- CG1 — 90° CORNER GUARD **(SEE DET 5/A4.04)**
- CG2 — 135° (OR CUSTOM ANGLE) CORNER GUARD **(SEE DET 6/A4.04)**
- CG3 — WRAP AROUND CORNER GUARD
- FD — FLOOR DRAIN
- GB — GRAB BAR
- HMI — HANDICAPPED MIRROR
- MI — MIRROR

No.	REVISION	DATE	BY
-	ISSUED FOR CONSTRUCTION	FEB 14, 2019	SY
-	ISSUED FOR TENDER	DEC 19, 2018	SY
-	ISSUED FOR 80% CONTRACT DOCS	NOV 8, 2018	SY
-	ISSUED FOR BP	OCT 12, 2018	SY
-	ISSUED FOR 80% DESIGN DEVELOPMENT	OCT 03, 2018	SY
-	ISSUED FOR SCHEMATIC DESIGN REVIEW	SEPT 13, 2018	SY
-	ISSUED TO S/M/E FOR SD BASE DWGS	SEPT 08, 2018	DC

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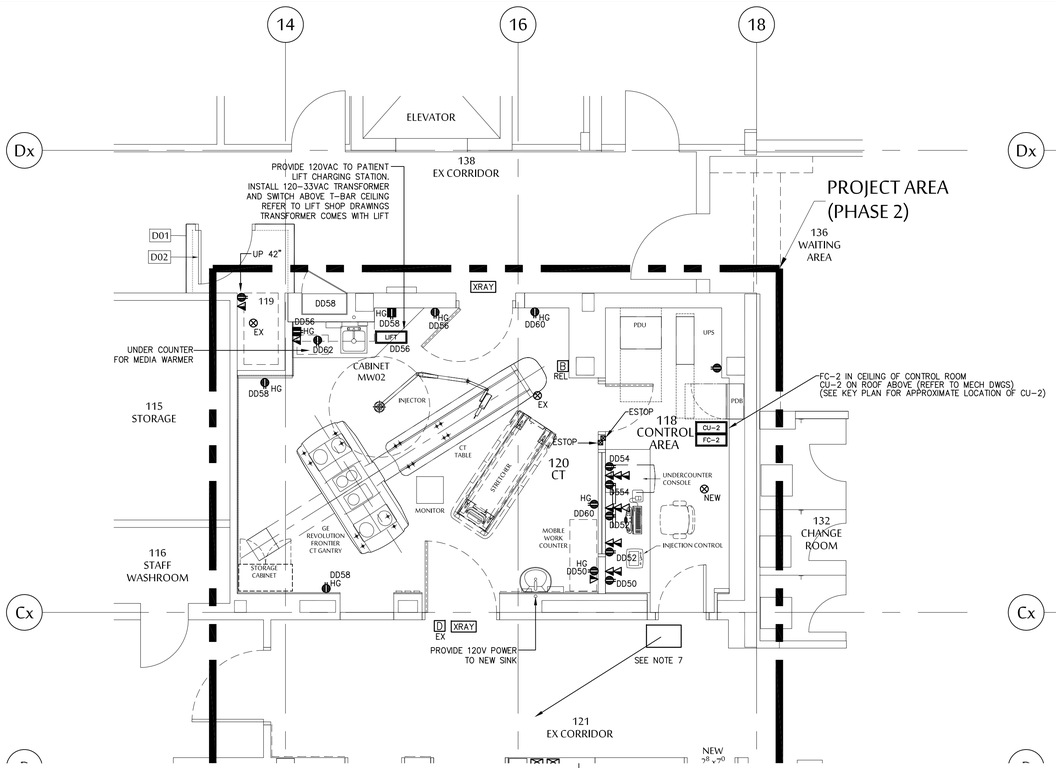
DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS

PHASE 2 - CT INSTALLATION

EXISTING AND PROPOSED FLOOR PLAN

SCALE: 1/4" = 1'-0"
DATE: FEB 2018
DRAWN: DC
CHECKED: DC
JOB No.: DCYT1802

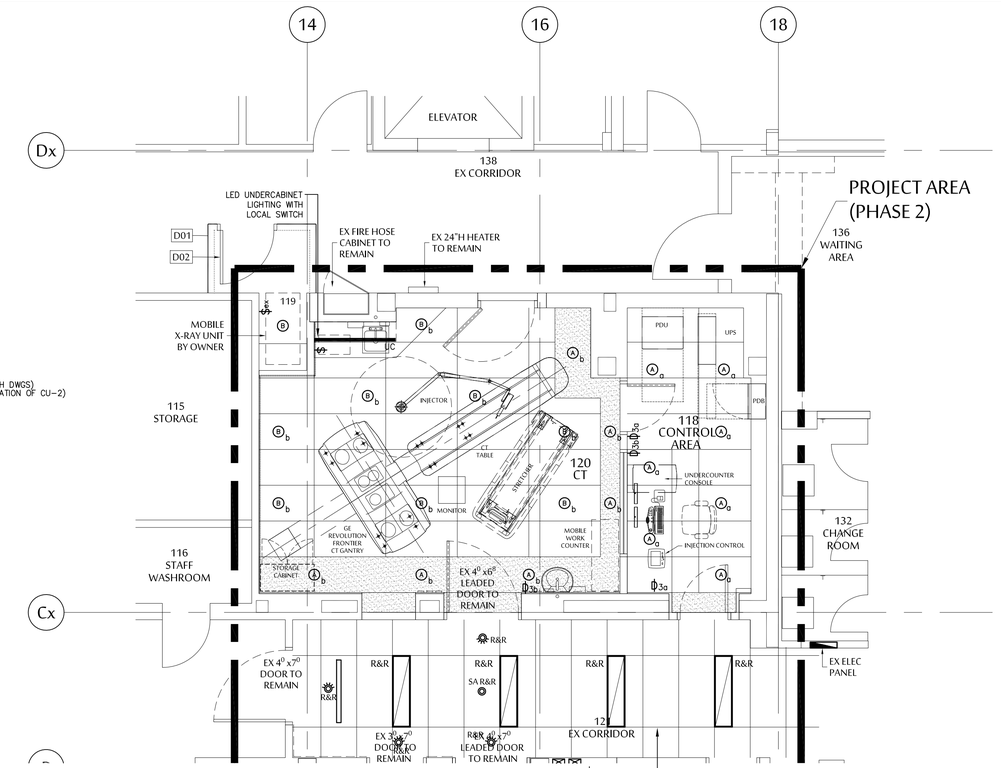
PHASE 2
E1



POWER LAYOUT

SCALE 1/4"=1'-0"

REFER TO DRAWING E3 FOR CT ELECTRICAL REQUIREMENTS



LIGHTING LAYOUT

SCALE 1/4"=1'-0"

REFER TO ARCHITECTURAL DRAWING A2.02 FOR WORK IN CORRIDOR. EXISTING FIXTURES, FIRE ALARM, NURSE CALL AND OTHER ELECTRICAL EQUIPMENT TO BE REMOVED AND REPLACED TO ALLOW T-BAR TO BE REMOVED FOR HVAC DUCT INSTALLATION. WORK TO BE PERFORMED IN STAGES – REFER TO ARCHITECTURAL

LIGHTING LEGEND

A	RECESSED 3" LED DIMMING LIGHT 7 WATTS, 590 LUMENS, 3500 DEGK	LITELINE RA3-7G-WH-P2810
B	RECESSED 4" LED DIMMING LIGHT 12 WATTS, 1030 LUMENS, 3500 DEGK	LITELINE RA4-12G-35-WH-P4020
UC	UNDERCABINET LED STRIP LIGHT IN CHANNEL 1.5 W/FT, 3400K, 24VDC. PROVIDE POWER SUPPLY AND CONCEAL ALL WIRING	DIFFUSION LIGHTING SLI-IN 16 24V 3400K / SL-002S
$\$_m$	15A MOTION ACTIVATED LIGHT SWITCH 1250mm ABOVE FLOOR	LUTRON MS-OPS2H-WH
$\$_3$	DIMMER SWITCH FOR LED, 3 WAY DIMMING WHERE NOTED FOR 3 WAY DIMMING USE ONE DIMMER AND ONE MA-R COMPANION DIMMER	LUTRON MACL-153M-WH MA-R COMPANION DIMMER FOR 3-WAY
XRAY	X-RAY WARNING LIGHT – LED, 24 VOLT WITH 'X-RAY IN USE' WORDING	BIGHELLI STELLA RM WITH SPECIAL WORDING

ELECTRICAL LEGEND

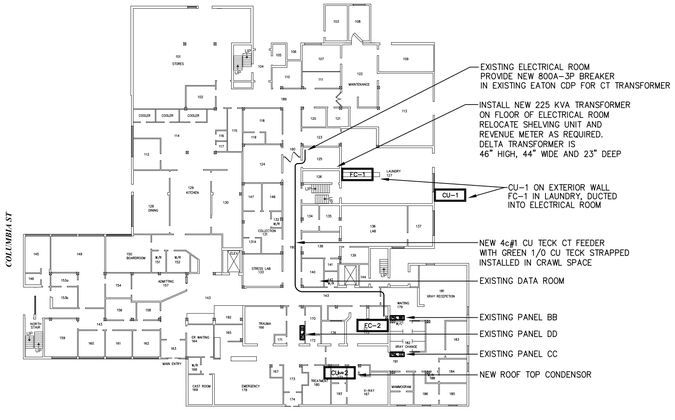
	ITEM DESCRIPTION	MANUFACTURER PART NUMBER
	15A DUPLEX RECEPTACLE – WHITE WITH STAINLESS STEEL COVERPLATE	HUBBELL 5262-W
	15A DUPLEX DEDICATED RECEPTACLE WITH STAINLESS STEEL COVERPLATE	HUBBELL 5262-R
HG	15A DUPLEX DEDICATED RECEPTACLE – HOSPITAL GRADE WITH STAINLESS STEEL COVERPLATE	HUBBELL HBL8200R
	COMPUTER OUTLET – FT6 RATED CATEGORY 6 CABLE TO DATA ROOM PROVIDE PLASTER RING AND 3/4" EMT TO ABOVE SUSPENDED CEILING SPACE	REFER TO SPECIFICATIONS
	DEDICATED PHONE OUTLET – FT6 RATED CATEGORY 6 CABLE TO DATA ROOM PROVIDE PLASTER RING AND 3/4" EMT TO ABOVE SUSPENDED CEILING SPACE	REFER TO SPECIFICATIONS
	FIRE ALARM SMOKE DETECTOR	SIMPLEX TO MATCH EXISTING

NURSE CALL LEGEND

B	NURSE CALL SYSTEM CODE BLUE / STAFF HELP STATION WITH HINGED PLASTIC COVER	RAULAND 4000 EXISTING TO BE RELOCATED
D	NURSE CALL SYSTEM CORRIDOR ROOM INDICATOR LIGHT – CEILING MOUNTED	RAULAND 4000 EXISTING TO REMAIN

NOTES:

1. PROVIDE NEW ADDRESSABLE SMOKE DETECTOR IN CONTROL ROOM TO MATCH EXISTING SIMPLEX SYSTEM. PROVIDE SERVICES OF SIMPLEX TECHNICIAN TO COMPLETE ALL PROGRAMMING AND VERIFICATION REPORT WHEN COMPLETE.
2. ALL NEW RECEPTACLES TO BE CIRCUITED FROM EXISTING EATON PANEL DD.
3. CIRCUIT NEW CONDENSING UNIT FOR THE ELECTRICAL ROOM FROM THE NEAREST PANEL. SHOW CIRCUITS ON AS BUILT DRAWINGS.
4. DATA CABLING AND CONNECTORS TO BE PANDUIT. TERMINATE DATA CABLES IN EXISTING DATA RACK PATCH PANEL. THERE ARE 16 SPARE PORTS IN PATCH PANEL ON TOP SLOT OF EXISTING DATA RACK.
5. RUN TECK FEEDER TO CT IN CRAWL SPACE – PROVIDE CABLE SUPPORTS SPACED TO CODE REQUIREMENTS.
6. RELOCATE EXISTING FIRE ALARM DETECTORS IN CT ROOM AND MOBILE XRAY ALCOVE – PROVIDE FLEX DOWN TO NEW T-BAR CEILING IN CT ROOM. PROVIDE NEW SMOKE DETECTOR IN CONTROL ROOM. PROVIDE SERVICES OF SIMPLEX TECHNICIAN TO PROGRAM NEW DEVICES AND PROVIDE VERIFICATION OF ALL NEW AND RELOCATED DEVICES.
7. RELOCATE EXISTING ELECTRICAL BOX. BOX CONTAINS SHUT DOWN CONTACTOR FOR XRAY ROOM 125. ONCE THE EXISTING MECHANICAL DUCTWORK HAS BEEN REMOVED, RELOCATE BOX TO CLEAR DUCTWORK AND EXISTING PIPING. LOCATION TO BE CONFIRMED ON SITE DURING CONSTRUCTION. ALLOW FOR EXTENSION OF XRAY FEEDER AND CONTROL WIRING TO SUIT NEW LOCATION.
8. ALL WORK RELATED TO CU-1 AND FC-1 IS TO BE INCLUDED IN A SEPARATE PRICE – REFER TO TENDER DOCUMENTS.



MAIN FLOOR KEY PLAN

SCALE 1/32"=1'-0"

MECHANICAL EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	UNIT LOCATION	SERVICE	MCA	VOLTAGE	PHASE	BREAKER	FEEDER	CIRCUIT	STARTER			TYPE	DISC SW	NOTES	
										SUPPLIED	INSTALLED	CONNECTED				
CU-2	OUTDOOR CONDENSING UNIT	ROOF	CT EXAM ROOM COOLING	26A	208	1	40A	3c#8	DD 57/59	DIV 15	DIV 15	DIV 16	WP	DIV 16		
FC-2	INDOOR FAN COIL	CONTROL ROOM CEILING	CT EXAM ROOM COOLING	3.5A	208	1		2c#12	–	DIV 15	DIV 15	DIV 16	–	DIV 16	INDOOR UNIT POWERED BY OUTDOOR UNIT	
CU-1	OUTDOOR CONDENSING UNIT	OUTSIDE LAUNDRY AREA	ELEC ROOM COOLING	18A	208	1	30A	3C#10	–	DIV 15	DIV 15	DIV 16	WP	DIV 16	CIRCUIT FROM NEAREST PANEL	SEE NOTE 8
FC-1	INDOOR FAN COIL	LAUNDRY ROOM	ELEC ROOM COOLING	2.63A	208	1		2C#12	–	DIV 15	DIV 15	DIV 16	–	DIV 16	INDOOR UNIT POWERED BY OUTDOOR UNIT	SEE NOTE 8
MISC																
HANDS FREE SINK	HANDS FREE SINK	CT EXAM ROOM	HAND HYGIENE SINK		120	1									PROVIDE JB FOR CONTROL POWER	
MED ZONE VALVE BOX	MED ZONE VALVE BOX	OUTSIDE ADJACENT X-RAY	EXISTING VALVE BOX REPLACED WITH NEW		120	1										
DDC CONTROLS	DDC CONTROLS	ABOVE CONTROL ROOM			120	1									PROVIDE JB FOR CONTROL POWER	

ABOVE INFORMATION HAS BEEN PROVIDED FROM THE MECHANICAL DESIGNER AND MAY NOT BE COMPLETE. ELECTRICAL CONTRACTOR SHALL REVIEW THE MECHANICAL DRAWINGS, SPECIFICATIONS AND ADDENDA FOR A COMPLETE LIST OF MECHANICAL EQUIPMENT BEFORE SUBMITTING TENDER. PROVIDE ELECTRICAL CONNECTION AND CONTROL AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM AND INCLUDE ALL COSTS IN THE TENDER PRICE. CONTRACTOR TO CONFIRM STARTER AND CONTROL REQUIREMENTS WITH MECHANICAL DIVISION BEFORE SUBMITTING TENDER.

ARCHITECT :

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DRAWING LEGEND

- EXISTING WALL TO BE REMOVED (INCL ELEC, MECH, PLUMB & SPRINKLER WORK WITHIN WALL)
- EXISTING WALL TO REMAIN
- NEW WALL
- NEW WALL WITH ACOUST INSULATION
- EX 3'X7' DOOR – EXISTING DOOR TO REMAIN
- EX 3'X7' DOOR – EXISTING DOOR TO BE REMOVED OR RELOCATED
- D1 – NEW DOOR (SEE DOOR SCHEDULE)
- 1 / A1.01 – INTERIOR ELEVATION # / DWG #
- 1 / A1.01 – CROSS SECTION # / DWG #
- W1L4 – WALL TYPE - SEE WALL SCHEDULE FOR DETAILS
- W1 – WINDOW TYPE - SEE WINDOW SCHEDULE FOR DETAILS
- NEW FURNITURE (SHOWN DASHED) TO BE SUPPLIED BY OWNER (NIC)
- CG1 – 90° CORNER GUARD **(SEE DET 5/A4.04)**
- CG2 – 135° (OR CUSTOM ANGLE) CORNER GUARD **(SEE DET 6/A4.04)**
- CG3 – WRAP AROUND CORNER GUARD
- FD – FLOOR DRAIN
- GB – GRAB BAR
- HMI – HANDICAPPED MIRROR
- MI – MIRROR

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POWER AND LIGHTING LAYOUT

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PHASE 2
E2

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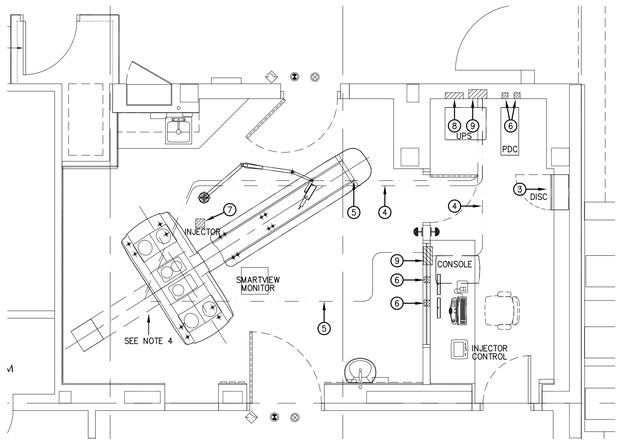
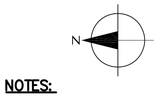


CT CONDUIT/BOX LAYOUT

SCALE 1/4"=1'-0"



ITEM	DESCRIPTION
3	MAIN DISCONNECT PANEL @ 5'-0" A.F.F.
4	64 [2 1/2"] conduit below floor
5	89 [3 1/2"] conduit below floor
6	100 x 100 x 100 [4" x 4" x 4"] box 450 [18"] above finished floor
7	150 x 150 x 100 [6" x 6" x 4"] box above ceiling
8	300 x 400 x 100 [12" x 16" x 4"] box for power distribution unit 18" above finished floor
9	300 x 400 x 150 [12" x 16" x 6"] box for power distribution unit 18" above finished floor
10	100 x 100 x 50 [4" x 4" x 2"] box
	System emergency off (SEO), (recommended height 4'-0" above floor)
⊗	X-Ray room warning light control panel - Available from GEHC, Call: 800-279-7925 or local GE Installation Project Manager
	X-Ray ON lamp (L1) - 24V

CONDUITS REQUIRED FOR BASE SYSTEM			
Warning Light	TO	Warning Light Control	ONE 0.5" (13mm) CONDUIT
Warning Light Control	TO	PDU	ONE 0.5" (13mm) CONDUIT
PDU	TO	Main Disconnect Panel	ONE CONDUIT AS REQUIRED
Main Disconnect Panel	TO	Feeder	ONE CONDUIT AS REQUIRED
Main Disconnect Panel	TO	System Emergency Off (SEO)	ONE 0.5" (13mm) CONDUIT
Warning Light Control	TO	120V 1Ø Power	ONE 0.5" (13mm) CONDUIT
UPS	TO	Main Disconnect Panel	TECK CABLE - REFER TO DWG E2
UPS	TO	PDU	ONE 2" (51mm) CONDUIT
CT Floobox	TO	Operators Console	ONE 1" (25mm) CONDUIT
CT Floorbox	TO	Operators Console	ONE 2" (51mm) CONDUIT
Injector	TO	Injector Control	ONE 2.5" (64mm) CONDUIT

NOTES:

1. DRAWINGS SHOW SCHEMATIC REQUIREMENTS FOR CONDUIT AND BOXES. REFER TO GE INSTALLATION MANUAL FOR A COMPLETE DESCRIPTION OF ELECTRICAL REQUIREMENTS TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR.

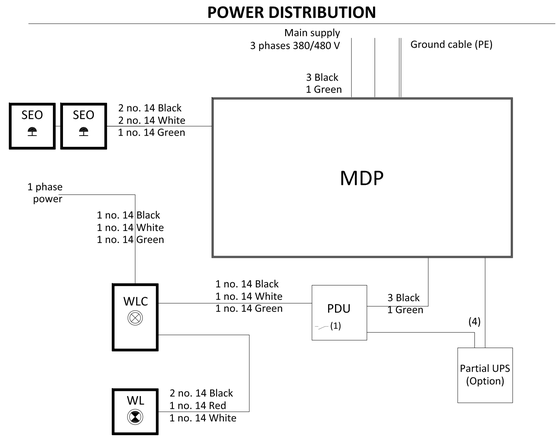
2. REFER TO GE INSTALLATION DRAWINGS FOR DIMENSIONED LOCATION OF JB'S AND CONDUIT STUB UP LOCATIONS.

3. CONDUITS TO BE RUN IN CRAWL SPACE BELOW CT ROOM OR ABOVE CEILING AS REQUIRED.

4. PROVIDE A 400x400x200mm JUNCTION BOX BELOW FLOOR WITH TWO 100mm CONDUITS CORED THROUGH FLOOR. CONDUITS TO BE FLUSH WITH FLOOR AND GROUTED IN PLACE. CONDUITS TO BE DE-BURRED TO ENSURE NO SHARP EDGES.

5. PROVIDE LABELLED PULLSTRINGS IN ALL CONDUITS.

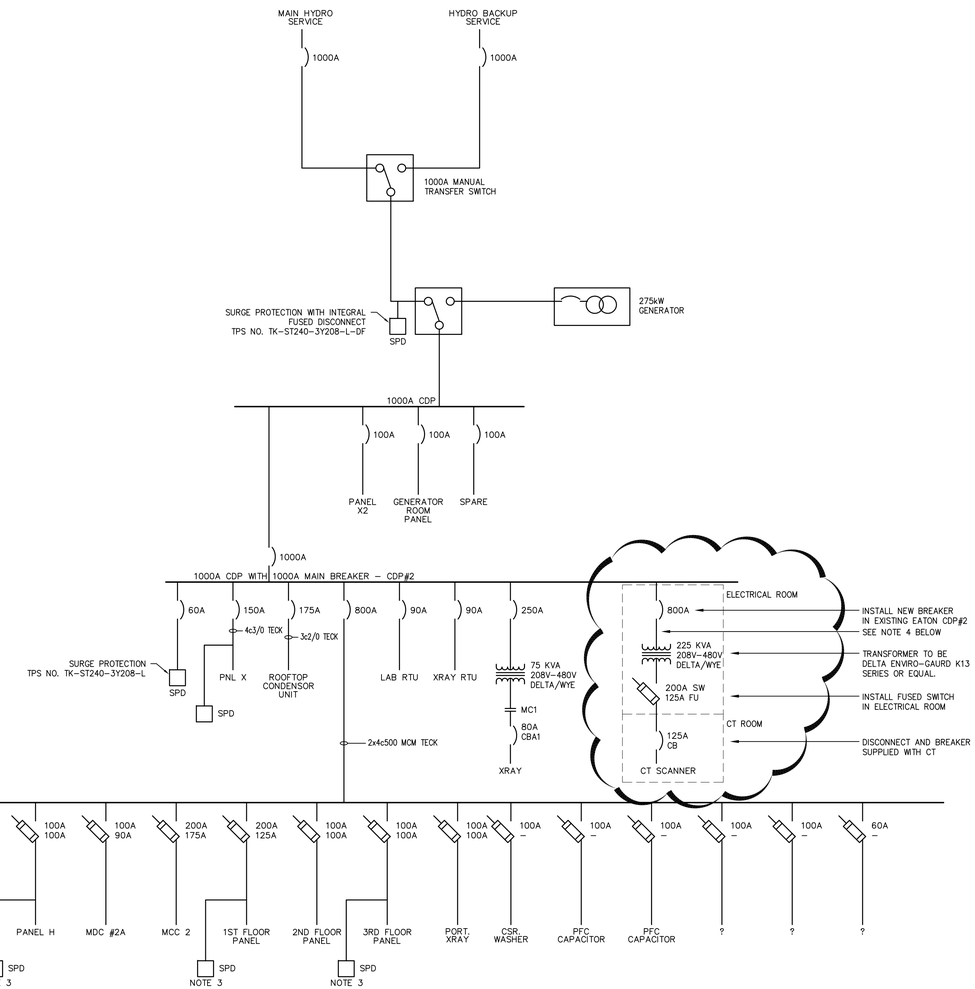
POWER DISTRIBUTION

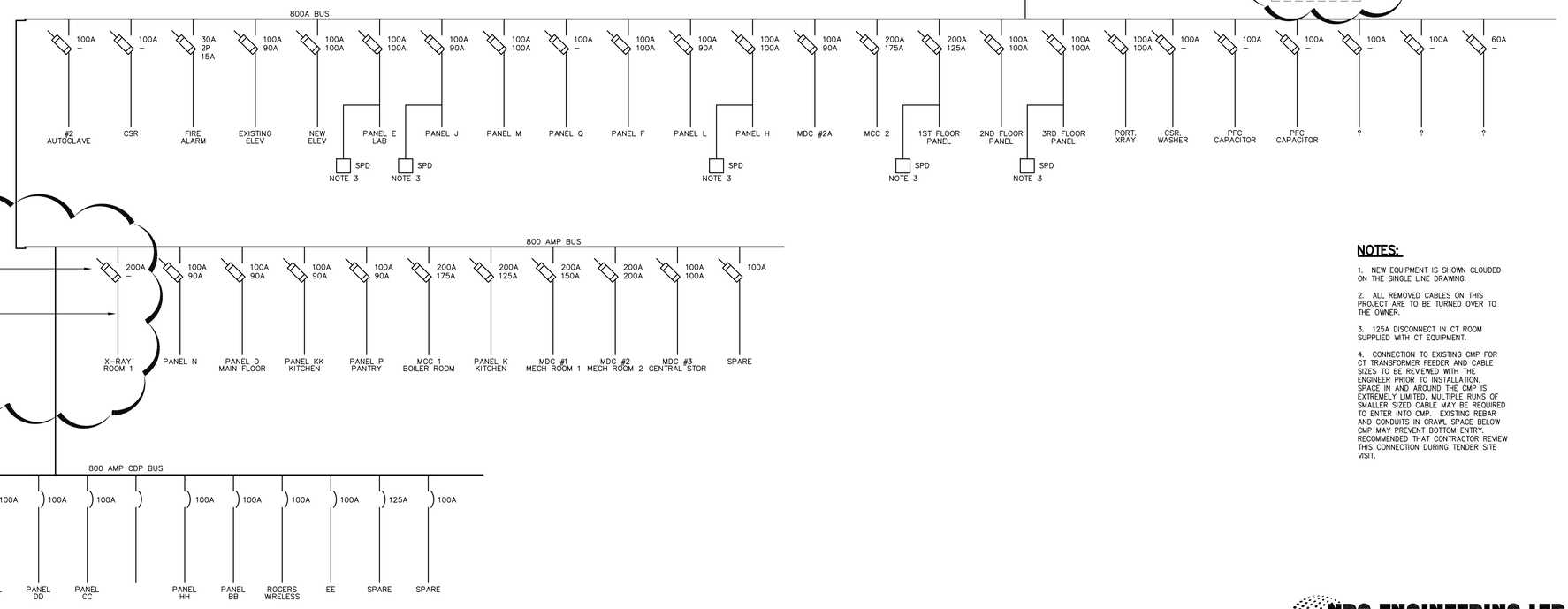


MDP Main Disconnect Panel
PDU Power distribution unit
SEO Emergency OFF button (Control Room), located 1.50m (4.9') above floor
WLC Warning Light Control
WL Warning Light

Notes :
(1) Two dry contacts: "System ON" and "X-Ray ON", both released by PDU. Max. voltage = 30 V
(2) If length < 10 m (32.8') Cable with 2m (6.6') extra length on the floor behind the back of PDU
(3) Cable with 2m (6.6') extra length on the floor behind the back of PDU
(4) Cable delivered with partial UPS installed by GE (Option)

Cable SUPPLIED BY CUSTOMER
Cable SUPPLIED BY GE
Equipment SUPPLIED BY CUSTOMER
Equipment SUPPLIED BY GE





NOTES:

1. NEW EQUIPMENT IS SHOWN CLOUDED ON THE SINGLE LINE DRAWING.

2. ALL REMOVED CABLES ON THIS PROJECT ARE TO BE TURNED OVER TO THE OWNER.

3. 125A DISCONNECT IN CT ROOM SUPPLIED WITH CT EQUIPMENT.

4. CONNECTION TO EXISTING CMP FOR CT TRANSFORMER FEEDER AND CABLE SIZES TO BE REVIEWED WITH THE ENGINEER PRIOR TO INSTALLATION. SPACE IN AND AROUND THE CMP IS EXTREMELY LIMITED, MULTIPLE RUNS OF SMALLER SIZED CABLE MAY BE REQUIRED TO ENTER INTO CMP. EXISTING REBAR AND CONDUITS IN CRAWL SPACE BELOW CMP MAY PREVENT BOTTOM ENTRY. RECOMMENDED THAT CONTRACTOR REVIEW THIS CONNECTION DURING TENDER SITE VISIT.

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DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS

PHASE 2 - CT INSTALLATION

SINGLE LINE AND CT ROOM LAYOUTS

SCALE: 1/4" = 1'-0"
DATE: DRAWING
DRAWN: DC
CHECKED: DC
JOB No.: DCYT1802

PHASE 2
E3

DIVISION 16 – ELECTRICAL SPECIFICATION:

16.1 GENERAL

1. THE CONTRACTOR SHALL PROVIDE ALL LABOUR, MATERIALS, TOOLS AND EQUIPMENT REQUIRED FOR THE WORK, TO PROVIDE A COMPLETE AND OPERATIONAL INSTALLATION.

2. IT IS THE INTENT OF THE DRAWINGS AND NOTES TO PROVIDE A COMPLETE AND WORKABLE INSTALLATION. ANY WORK, FITTING AND/OR NECESSARY MATERIAL NOT SPECIFICALLY MENTIONED OR SHOWN ON THE PLANS, BUT OBVIOUSLY NECESSARY TO COMPLETE THE INSTALLATION, SHALL BE FURNISHED BY THE CONTRACTOR AS IF SPECIFICALLY MENTIONED HEREIN AND DETAILED.

3. EXAMINE THE SITE OF WORK AND BECOME FAMILIAR WITH ALL FEATURES AND CHARACTERISTICS AFFECTING THIS WORK BEFORE SUBMITTING TENDER. NO ADDITIONAL COMPENSATION WILL BE GIVEN FOR EXTRA WORK DUE TO EXISTING CONDITIONS WHICH SUCH EXAMINATION SHOULD HAVE DISCLOSED.

4. IF DISCREPANCIES OR OMISSIONS IN THE DRAWINGS ARE FOUND, OR IF INTENT OR MEANING IS NOT CLEAR, ADVISE THE ENGINEER FOR CLARIFICATION BEFORE SUBMITTING TENDER.

5. MAINTAIN A MARKED UP SET OF "AS BUILT" DRAWINGS ON THE SITE AND SUBMIT TO THE ENGINEER AT COMPLETION OF THE PROJECT.

6. ALL EQUIPMENT AND INSTALLATION SHALL COMPLY WITH THE CANADIAN ELECTRICAL CODE C22.1, CURRENT EDITION AS MODIFIED FOR USE IN BRITISH COLUMBIA, TOGETHER WITH ALL DIRECTIVES, BULLETINS AND AMENDMENTS BY AUTHORITIES HAVING JURISDICTION OVER THE WORK AND ANY LOCAL BYLAWS.

7. REQUESTS FOR APPROVAL OF ALTERNATE MATERIALS MUST BE SUBMITTED AS FOLLOWS: FOUR COPIES OF DRAWING AND SPECIFICATION ARE TO BE SUBMITTED, CLEARLY INDICATING WHICH MAKE, MODEL AND/OR CATALOGUE NUMBER IS PROPOSED AND TO WHICH PRODUCT IT IS SUBMITTED AS EQUAL.

8. IMMEDIATELY AFTER NOTIFICATION OF AWARD OF CONTRACT, SUBMIT A LIST OF PROPOSED PRODUCTS. AFTER RECEIVING APPROVAL OF LIST OF PRODUCTS AND PRIOR TO DELIVERY OF ANY PRODUCTS TO JOB SITE, SUBMIT SHOP DRAWINGS TO ENGINEER FOR REVIEW.

9. SHOP DRAWINGS TO BE SUBMITTED VIA EMAIL IN PDF FORMAT FOR ALL ELECTRICAL EQUIPMENT TO BE USED ON THE PROJECT. FIRST PROGRESS PAYMENT WILL NOT BE APPROVED UNTIL ALL SHOP DRAWINGS HAVE BEEN SUBMITTED AND APPROVED.

10. ALL PRODUCTS PROVIDED SHALL BE APPROVED BY CSA, OR OTHER B.C. ACCREDITED TESTING AND CERTIFICATION ORGANIZATION, OR CARRY AN EQUIVALENT APPROVAL ACCEPTABLE TO THE BC INSPECTION AUTHORITY AND SHALL BE NEW, UNLESS OTHERWISE SPECIFIED.

11. UNLESS OTHERWISE SPECIFICALLY CALLED FOR IN THE DRAWINGS, UNIFORMITY OF MANUFACTURER SHALL BE MAINTAINED FOR SIMILAR PRODUCTS THROUGHOUT THE WORK.

12. EXAMINE THE DRAWINGS AND SPECIFICATIONS OF ALL DIVISIONS OF THE PROJECT. BEFORE COMMENCING WORK, OBTAIN A RULING FROM THE ENGINEER IF ANY CONFLICT EXISTS; OTHERWISE NO ADDITIONAL COMPENSATION WILL BE MADE FOR ANY NECESSARY ADJUSTMENTS.

13. MAINTAIN SEPARATION BETWEEN ELECTRICAL WIRING SYSTEM AND BUILDING PIPING, DUCT WORK, ETC., SO THAT WIRING SYSTEM IS ISOLATED (EXCEPT AT APPROVED CONNECTIONS TO SUCH SYSTEMS) TO PREVENT GALVANIC CORROSION OR OTHER ADVERSE CONDITIONS.

14. BEFORE ENERGIZING THE SYSTEM, CHECK ALL CONNECTIONS AND SET AND CALIBRATE ALL CIRCUIT BREAKERS, RELAYS AND INSTRUMENTS FOR PROPER OPERATION. OBTAIN NECESSARY CLEARANCES, APPROVAL AND INSTRUCTIONS FROM SUPPLY AUTHORITY.

15. ARRANGE FOR AND PAY ALL COSTS ASSOCIATED WITH ALL CUTTING AND PATCHING REQUIRED AS A RESULT OF WORK PERFORMED BY THIS DIVISION. REPAIR ANY DAMAGED SURFACES TO THE CONDITION OF SURROUNDING SURFACES AT NO COST TO THE OWNER.

16. PROVIDE A WRITTEN GUARANTEE AGAINST ALL DEFECTIVE MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION.

17. PROVIDE ALL PERMITS AND LICENSES

16.2 WIRE

1. CONDUCTORS ARE TO BE COPPER WITH 600V MIN. INSULATION OF CHEMICALLY CROSS-LINK THERMOSETTING POLYETHYLENE MATERIAL. NO WIRE SMALLER THAN #12 AWG SOLID FOR BRANCH CIRCUITS. CONTROL WIRING SHALL BE #14 AWG OR #12 AWG STRANDED, OR AS INDICATED ON THE DRAWING.

2. ALL BUILDING WIRE SHALL BE AWG/MCM GAUGE, 98% CONDUCTIVITY COPPER WITH MINIMUM 600V INSULATION AND BEAR CSA APPROVAL LABEL. ALARM AND COMMUNICATION CABLES ARE TO BE TYPES APPROVED FOR THE AREA OF INSTALLATION AND AS RECOMMENDED BY THE MANUFACTURER OF THE SPECIFIC EQUIPMENT.

3. SOLDERLESS, SELF-INSULATED CONNECTORS FOR HAND TWIST JOINTS FOR LIGHTING, SMALL POWER, HEATING AND ASSOCIATED CONTROL DEVICES, ARE TO BE IDEAL "SUPERNUT", OR ENGINEER APPROVED EQUAL.

4. INSTALL AND RATE WIRE IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE REQUIREMENTS, AS AMENDED FOR USE IN BRITISH COLUMBIA AND IN ACCORDANCE WITH THE DRAWINGS. PANEL FEEDERS AND SERVICES TO MECHANICAL EQUIPMENT 100 AMPS OR LARGER MAY BE IN ALUMINUM, PROVIDED THE AMPACITY IS EQUAL TO OR GREATER THAN THE SPECIFIED COPPER FEEDER. CONDUCTOR AMPACITY TO BE RATED IN ACCORDANCE WITH THE TEMPERATURE RATING OF THE EQUIPMENT BEING SERVED.

5. EXPOSED WIRING, OR WIRING SUBJECT TO MECHANICAL DAMAGE, IS TO BE IN CONDUIT, EXCEPT PANEL AND EQUIPMENT FEEDERS WHICH MAY BE TECK 90, IF APPROVED BY THE ENGINEER. WIRING IN AIR RETURN PLENUM SPACES AND WIRING RUN EXPOSED ABOVE T-BAR CEILINGS SHALL BE IN EMT CONDUIT, WITH AC90 DROPS TO FIXTURES AND SWITCHES.

6. NO HORIZONTAL WIRING PERMITTED IN INTERIOR REMOVABLE PARTITION WALLS. VERTICAL DROPS FROM JUNCTION BOXES ONLY TO FACILITATE FUTURE CHANGES.

7. ALL CABLES TO BE SUPPORTED WITH METAL CABLE CLAMPS FIRMLY ATTACHED TO BUILDING STRUCTURE OR OTHER ENGINEER APPROVED METHOD. THE USE OF NYLON CABLE TIES IS NOT PERMITTED.

16.3 CONDUIT

1. ALL EXPOSED WIRING IS TO BE IN EMT CONDUIT EXCEPT WHERE OTHERWISE INDICATED. ALL EMPTY CONDUIT IS TO BE LEFT WITH 4mm NYLON PULLCORD INSTALLED. FEEDERS TO PANELBOARDS AND SERVICES TO MECHANICAL EQUIPMENT MAY BE TECK90 UNLESS INDICATED AS CONDUIT. AC90 TO BE USED FOR ALL WIRING NOT IN EMT CONDUIT.

2. SECURE CONDUIT WITH APPROVED SUPPORTS WITHIN 3 FEET OF EVERY JUNCTION BOX OR PANEL.

3. SURFACE RUNS OF CONDUIT WILL BE NEAT IN APPEARANCE, INSTALLED IN STRAIGHT RUNS FOLLOWING LINES OF THE BUILDING.

4. BENDS WILL NOT BE MADE OVER SHARP OBJECTS. IMPROPERLY FORMED BENDS WILL NOT BE ACCEPTED. CONDUITS ARE TO BE LAID OUT TO AVOID INTERFERENCE WITH OTHER WORK AND TO AVOID POCKETS IN WHICH WATER CAN COLLECT.

5. BEFORE PULLING WIRE, ENSURE CONDUIT IS DRY AND CLEAN. IF MOISTURE IS PRESENT, THOROUGHLY DRY OUT CONDUITS, VACUUM IF NECESSARY. EMPLOY SUITABLE TECHNIQUES TO PREVENT DAMAGE TO WIRE AND INSULATION DURING PULLING.

16.4 GROUNDING & BONDING

1. INSTALL A COMPLETE, PERMANENT GROUNDING AND BONDING SYSTEM. ENSURE UNIFORMITY OF GROUNDING PRACTICES THROUGHOUT INSTALLATION.

2. GROUNDING EQUIPMENT AND BONDING CONDUCTORS ARE TO BE BARE, STRANDED, SOFT ANNEALED COPPER, UNLESS THEY ARE PART OF A MULTI-CONDUCTOR CABLE CONSTRUCTION OR REQUIRED TO BE INSULATED BY CEC RULE 10-806(5).

3. PROVIDE GROUNDING FOR PATIENT CARE RECEPTACLES IN THE XRAY ROOM AS NOTED ON THE DRAWINGS. PROVIDE AN INDEPENDENT TESTING AGENCY TO TEST THE RECEPTACLES IN ACCORDANCE WITH CSA Z32 STANDARDS AND PROVIDE REPORT TO THE ENGINEER.

16.5 IDENTIFICATION

1. PROVIDE A COMPLETE SYSTEM OF LAMICOID LABELS, WIRE LABELS AND OTHER ITEMS TO COMPLETELY IDENTIFY ALL ELECTRICAL SYSTEMS. LABELS ARE TO BE 3 PLY LAMICOID, OUTER PLIES WHITE, CENTER PLY BLACK. TEXT IS TO BE 6mm HIGH, CENTERED ON LABEL. LABELS ARE TO BE PROVIDED FOR ALL ELECTRICAL EQUIPMENT INCLUDING THE MAIN SWITCH, SPLITTER, DISCONNECT SWITCHES, DISTRIBUTION PANELBOARDS AND RECEPTACLES. CONFIRM EXACT WORDING WITH ENGINEER PRIOR TO MANUFACTURING LABELS. LABELLING OF RECEPTACLES IS NOT REQUIRED WITHIN SUITES.

2. LABELS FOR OUTLETS AND JUNCTION BOXES MAY BE OF A TYPE SIMILAR TO BROTHER P-TOUCH, CLEAR LABEL WITH BLACK LETTERING. ALL LABELS MUST BE CLEAN AND INSTALLED TO THE SATISFACTION OF THE ENGINEER.

3. FOR ALL WIRE CONTAINED IN CONTROL PANELS PROVIDED BY THIS DIVISION, PROVIDE PERMANENT HEAT SHRINK OR GRAFOPLAST WIRE MARKERS AT BOTH ENDS OF EACH WIRE. NO WRAP-ON MARKERS WILL BE ACCEPTABLE.

16.6 MECHANICAL EQUIPMENT CONTROL & POWER WIRING

1. LINE VOLTAGE AND LOW VOLTAGE CONTROL WIRING WILL BE BY DIVISION 15. POWER SUPPLY TO MECHANICAL EQUIPMENT IS BY DIVISION 16. MOTOR STARTERS, CONTACTORS, RELAYS AND DISCONNECT SWITCHES ARE TO BE PROVIDED BY DIVISION 16.

2. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR OR CONTROLS CONTRACTOR TO DETERMINE LINE VOLTAGE WIRING REQUIREMENTS, CONTROL WIRING REQUIREMENTS AND TYPE OF STARTERS REQUIRED.

16.7 LIGHTING

1. PROVIDE NEW LED FIXTURES AS INDICATED. FIXTURES ARE TO BE AS NOTED IN THE LEGEND. ALL FIXTURES ARE TO BE NEW AND IN PLACE AND OPERATIONAL AT TIME OF FINAL INSPECTION.

2. FIXTURES ARE TO BE LOCATED TO SCALE FROM DRAWINGS. EXACT LOCATION IS TO BE DETERMINED BY SITE CONDITIONS.

3. ALL LIGHT FIXTURES WILL BE CLEANED AFTER INSTALLATION AND LEFT FREE OF DIRT, GREASE, CHIPS, DENTS AND DEFECTS.

4. REFER TO LIGHTING LEGEND FOR DESCRIPTION OF ALL LIGHT FIXTURES.

5. RECESSED FIXTURES SHALL BE REMOVABLE. THEY ARE TO BE CONNECTED TO JUNCTION BOX USING AT LEAST 3000mm OF 12mm FLEXIBLE CONDUIT AND APPROVED FIXTURE WIRE OR AC90 CABLE. JUNCTION BOX MUST BE ACCESSIBLE AND LOOPING BETWEEN FIXTURES WILL NOT BE ACCEPTED.

6. PROVIDE TWO HANGER WIRES, INDEPENDENT OF THE T-BAR CEILING, FOR ALL NEW RECESSED FIXTURES. HANGER WIRES TO BE ON OPPOSITE CORNERS OF THE FIXTURE.

16.10 WIRING DEVICES

1. ALL WIRING DEVICES ARE TO BE "SPECIFICATION GRADE" UNLESS OTHERWISE INDICATED AS BEING "HOSPITAL GRADE". PRE-APPROVED MANUFACTURERS ARE: ARROW-HART, BRYANT, HUBBELL, LEVITON AND PASS-SEYMOUR. DEVICES IN SUITES MAY BE "COMMERCIAL GRADE".

2. DUPLEX RECEPTACLES ARE TO HAVE IMPACT RESISTANT NYLON FACE, FOUR SIDE WIRING SCREWS, TRIPLE WIPE POWER CONTACTS AND RIVETED GROUNDING CONTACTS. CSA TYPE 5-15R OR 15-20R, 125V RATED AS INDICATED.

3. LIGHT SWITCHES ARE TO HAVE HEAVY DUTY MOUNTING STRAP, SIDE WIRING SCREWS, ONE PIECE NYLON TOGGLE AND BE 15A, 125V RATED.

4. PROVIDE BRUSHED STAINLESS STEEL COVERPLATES FOR ALL WIRING DEVICES. USE SHEET STEEL UTILITY BOX COVER FOR ALL WIRING DEVICES INSTALLED IN SURFACE MOUNTED UTILITY BOXES.

5. ALL OUTLET BOXES INSTALLED IN STEEL STUD WALLS ARE TO HAVE AN OUTLET BOX SUPPORT INSTALLED ON THE NON-STUD SIDE OF THE BOX.

6. WHEREVER POSSIBLE, MOUNT EQUIPMENT IN A STRAIGHT LINE AT A UNIFORM HEIGHT, COORDINATED WITH OTHER EQUIPMENT AND MATERIALS.
- RECEPTACLES: 300mm ABOVE FLOOR OR AS INDICATED.
- SWITCHES: 1250mm ABOVE FLOOR OR AS INDICATED.

16.11 STARTERS & DISCONNECT SWITCHES

1. ALL MOTORS ARE TO BE PROVIDED WITH LOCAL DISCONNECTING MEANS OR AS INDICATED ON THE DRAWINGS.

2. LOCAL DISCONNECTS FOR SINGLE PHASE MOTORS UP TO 2 HP, 240 VOLT ARE TO BE BRYANT 4901 OR APPROVED EQUAL.

3. LOCAL DISCONNECTS FOR THREE PHASE MOTORS ARE TO BE BRYANT TECH-SPEC 30000, 40000, OR 60000 SERIES OR APPROVED EQUAL, AS REQUIRED. PROVIDE WEATHERPROOF ENCLOSURE (3R) FOR OUTDOOR USE.

4. THREE POLE FUSED DISCONNECT SWITCHES ARE TO BE AS MANUFACTURED BY SQUARE-D, OR APPROVED EQUAL, TYPE H36x OR A8634x WITH SIZE AS INDICATED ON THE DRAWINGS.

5. STARTERS ARE TO BE AS INDICATED ON DRAWINGS, COMPLETE WITH OVERLOAD ELEMENTS, HAND-OFF-AUTO SELECTOR SWITCH AND PILOT LIGHT. PROVIDE CEMA 1 ENCLOSURES FOR ALL STARTERS. UNITS ARE TO BE FVNR, FULLY RATED FOR THE LOAD BEING SERVED AT 240V, UNLESS OTHERWISE INDICATED.

6. MOUNT STARTERS FIRMLY ATTACHED TO WALL AT 1500mm ABOVE FLOOR AND WITHIN 9 METERS OF AND WITHIN SIGHT OF EQUIPMENT SERVICED.

16.12 COMMUNICATION WIRING

0. CONFIRM ALL COMMUNICATION WIRING REQUIREMENTS WITH THE OWNER PRIOR TO INSTALLATION. REQUIREMENTS SHOWN BELOW ARE FOR TENDER PURPOSES ONLY.

1. FOR DATA, INSTALL FOUR TWISTED PAIR, 24 GAUGE, FT6 RATED IN PLENUM AREAS, SOLID COPPER WIRE, CATEGORY 6 INSULATED & UNSHIELDED, FROM THE DATA ROOM TO THE MODULAR JACK AT EACH OUTLET. CABLE IS TO BE BLUE JACKETED.

2. DATA CABLES ARE TO BE TERMINATED IN THE EXISTING DATA RACK AND MODULAR WALL OUTLET AS SPECIFIED IN THE EIA 568-B STANDARDS, ON CATEGORY 6, RJ45 MODULAR JACKS. JACK MODULE COLOUR IS TO BE BLUE.

3. ALL DATA CABLES ARE TO BE RUN TO THE DATA ROOM, LABELED AND NEATLY COILED. PROVIDE 10' EXCESS LENGTH FOR ALL CABLES. TERMINATE CABLES IN EXISTING PATCH PANELS, EQUIPMENT TO MATCH EXISTING.

4. ALL DATA CABLES ARE TO BE TESTED FOR CONTINUITY, CROSSTALK AND ATTENUATION AND BE WITHIN LIMITS SPECIFIED IN EIA/TIA BULLETIN TSB67. SUBMIT TEST RESULTS TO ENGINEER FOR REVIEW.

5. HORIZONTAL RUNS OF COMMUNICATION CABLE ARE TO BE SUPPORTED USING CAT-5 J HOOKS CONNECTED TO THE BUILDING STRUCTURE OR T-BAR CEILING SYSTEM. CADDY CABLE-CAT OR APPROVED EQUAL.

6. PROVIDE LABELING OF OUTLETS, CABLING AND PATCH PANELS. CONFIRM METHODS WITH THE ENGINEER PRIOR TO INSTALLATION. REFER TO DETAILS ON DRAWING WHEN CONFIRMING LABELING TECHNIQUES.

7. PROVIDE 1 METER SPARE CABLE AT WORKSTATION OUTLET AND 3 METERS SPARE CABLE AT COMMUNICATION BACKBOARD, FOR ALL CABLES.

8. WHERE OUTLETS ARE INSTALLED BELOW T-BAR CEILINGS, PROVIDE 1" EMT CONDUIT FROM OUTLET LOCATION TO 6" ABOVE T-BAR CEILING.

9. CONTRACTOR MUST BE A QUALIFIED INSTALLER, TRAINED AND AUTHORIZED BY AN APPROVED MANUFACTURER.

16.13 MAINTENANCE MANUALS & GUARANTEES

1. PREPARE MANUALS COVERING THE OPERATING AND MAINTENANCE OF ALL ELECTRICAL EQUIPMENT INSTALLED UNDER THIS CONTRACT.

2. PROVIDE A DRAFT COPY TO THE ENGINEER FOR APPROVAL AT LEAST 15 DAYS BEFORE FINAL INSPECTION. PROVIDE 1 FINAL APPROVED COPY IN SUITABLY LABELED, COLOUR CODED, TAB INDEXED, 3-RING, LOOSE LEAF HARD COVERED BINDER, AND ELECTRONIC COPY IN SINGLE PDF FILE FORMAT.

3. THE MANUALS ARE TO CONTAIN THE FOLLOWING INFORMATION, ORGANIZED FOR EASY INTERPRETATION AND REFERENCE BY OPERATING PERSONNEL:
- GENERAL DESCRIPTION OF EACH SYSTEM STATING FUNCTION OF EQUIPMENT.
- COPIES OF APPROVED SHOP DRAWINGS AND AS-BUILT DRAWINGS
- MANUFACTURERS MAINTENANCE BROCHURES FOR EACH ITEM, INCLUDING WIRING DIAGRAMS AND PARTS LISTS. CLEARLY INDICATE THE SPECIFIC MODEL, OPTIONS, FEATURES AND MODE OF CONTROL ON ALL SHEETS.
- NORMAL MAINTENANCE SCHEDULE AND TROUBLE SHOOTING INFORMATION.
- COPIES OF THE ULC FIRE STOPPING INSTALLATION SHEETS FOR EACH DIFFERENT METHOD USED.
- DESCRIPTION OF AUTOMATIC CONTROL SYSTEMS, INSTRUCTIONS COVERING THE OPERATION AND MAINTENANCE OF SYSTEMS AND SCHEMATIC DIAGRAMS INDICATING FINAL CONTROL SETTINGS.
- LETTER FROM CONTRACTOR STATING THAT ALL LABOUR AND EQUIPMENT INSTALLED UNDER THE CONTRACT WILL BE WARRANTIED FOR ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. ANY EQUIPMENT THAT FAILS DURING THIS TIME WILL BE REPAIRED/ REPLACED AT NO COST TO THE OWNER.
- INCLUDE CONTRACTOR'S NAME, ADDRESS, AND TELEPHONE NUMBER.

16.16 MOUNTING OF ELECTRICAL EQUIPMENT

1. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED MOUNTING HARDWARE, SUPPORTS, BRACKETS AND SIMILAR EQUIPMENT REQUIRED TO FIRMLY ATTACH ALL EQUIPMENT PROVIDED TO THE LOCATIONS SHOWN ON THE DRAWINGS.

2. WHEREVER POSSIBLE THE CONTRACTOR SHALL UTILIZE MANUFACTURER APPROVED AND SUPPLIED MOUNTING HARDWARE. WHERE CUSTOM FABRICATED HARDWARE IS PROVIDED BY THE CONTRACTOR, HE SHALL REVIEW THE PROPOSED INSTALLATION METHOD WITH THE ARCHITECT OR HIS REPRESENTATIVE PRIOR TO INSTALLATION, AND SHALL PROVIDE SHOP DRAWINGS WHERE REQUIRED.

3. ALL MOUNTING HARDWARE SHALL SEISMICALLY RESTRAIN THE ELECTRICAL EQUIPMENT AND PREVENT INJURY TO PERSONS IN AND AROUND THE BUILDING DURING AN EARTHQUAKE.

4. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION, UPON REQUEST, FROM THE MANUFACTURER OR A REGISTERED PROFESSIONAL ENGINEER INDICATING THAT THE PROPOSED SEISMIC RESTRAINTS COMPLY FULLY WITH THE BC BUILDING CODE, ACCEPTED PRACTICE AND SOUND ENGINEERING PRINCIPLES.

16.17 SCOPE OF WORK

1. PROVIDE LOAD CENTRES, FIXTURES, SWITCHES, OUTLETS, CONDUIT AND WIRING TO FURNISH COMPLETE AND OPERATIONAL SYSTEMS FOR THE RENOVATIONS.

2. PROVIDE CONDUIT SYSTEM FOR COMPUTERS AND TELEPHONE SYSTEMS, INCLUDING CABLING AND CONNECTORS FOR EACH SYSTEM.

3. PROVIDE POWER SUPPLY TO AND LOCAL DISCONNECTING MEANS FOR ALL ELECTRICAL EQUIPMENT PROVIDED BY MECHANICAL DIVISION OR BY OTHERS. PROVIDE MAGNETIC OR MANUAL STARTERS FOR EQUIPMENT NOTED ON DRAWINGS.

4. PROVIDE ALL LIGHTING SYSTEMS.

5. PROVIDE DETAILED LABELING OF ALL ELECTRICAL EQUIPMENT.

6. PROVIDE FIRE STOPPING AROUND ALL ELECTRICAL PENETRATIONS OF FIREWALLS OR FIRE SEPARATIONS. FIRE STOPPING TO BE FROM ONE MANUFACTURER AND BE INSTALLED AS PER THE MANUFACTURER'S ULC INSTALLATION SHEET FOR THE PARTICULAR TYPE OF WALL STRUCTURE AND CABLE/CONDUIT SYSTEM USED. PROVIDE COPIES OF THE INSTALLATION SHEET IN THE OPERATION AND MAINTENANCE MANUAL FOR EACH SYSTEM USED.

7. PROVIDE CONDUIT SYSTEM FOR GE CT SCANNER EQUIPMENT AS SHOWN ON THE DRAWINGS AND DETAILED IN GE INSTALLATION DRAWINGS. PROVIDE CORING AS REQUIRED, INCLUDING X-RAY OR SCANS OF FLOOR PRIOR TO CORING.

8. PROVIDE THIRD PARTY TESTING OF PATIENT AREA RECEPTACLES TO CSA Z32 STANDARDS AND PROVIDE WRITTEN REPORT TO ENGINEER.

9. PROVIDE CHANGES TO FIRE ALARM SYSTEM, INCLUDING PROGRAMMING AND VERIFICATION BY SIMPLEX FIRE ALARM TECHNICIAN.

NRS ENGINEERING LTD
Consulting Electrical Engineers
#212-556 North Nechako Road
Prince George BC V2K 1A1
www.nrsengineering.ca
Tel 250.562.0551
Fax 250.562.0558

ARCHITECT :

DCYT ARCHITECTURE
HEALTHCARE . COMMERCIAL . RESIDENTIAL . INTERIOR DESIGN

WWW.DCYTARCHITECTURE.CA

DRAWING LEGEND

- EXISTING WALL TO BE REMOVED (INCL ELEC, MECH, PLUMB & SPRINKLER WORK WITHIN WALL)
- EXISTING WALL TO REMAIN
- NEW WALL
- NEW WALL WITH ACOUST INSULATION
- EX 3'X7' DOOR — EXISTING DOOR TO REMAIN
- EX 3'X7' DOOR — EXISTING DOOR TO BE REMOVED OR RELOCATED
- D1 — NEW DOOR (SEE DOOR SCHEDULE)
- 1 / A1.01 — INTERIOR ELEVATION # / DWG #
- 1 / A1.01 — CROSS SECTION # / DWG #
- W1L4 — WALL TYPE - SEE WALL SCHEDULE FOR DETAILS
- W1 — WINDOW TYPE - SEE WINDOW SCHEDULE FOR DETAILS
- NEW FURNITURE (SHOWN DASHED) TO BE SUPPLIED BY OWNER (NIC)
- CG1 — 90° CORNER GUARD **(SEE DET 5/A4.04)**
- CG2 — 135° (OR CUSTOM ANGLE) CORNER GUARD **(SEE DET 6/A4.04)**
- CG3 — WRAP AROUND CORNER GUARD
- FD — FLOOR DRAIN
- GB — GRAB BAR
- HMI — HANDICAPPED MIRROR
- MI — MIRROR

No.	REVISION	DATE	BY
-	ISSUED FOR CONSTRUCTION	FEB 14, 2019	SY
-	ISSUED FOR TENDER	DEC 19, 2018	SY
-	ISSUED FOR 80% CONTRACT DOCS	NOV 8, 2018	SY
-	ISSUED FOR BP	OCT 12, 2018	SY
-	ISSUED FOR 80% DESIGN DEVELOPMENT	OCT 03, 2018	SY
-	ISSUED FOR SCHEMATIC DESIGN REVIEW	SEPT 13, 2018	SY
-	ISSUED TO S/M/E FOR SD BASE DWGS	SEPT 08, 2018	DC

northern health
the northern way of caring

BULKLEY VALLEY DISTRICT HOSPITAL
SMITHERS BC

DIAGNOSTIC IMAGING DEPARTMENT RENOVATIONS
PHASE 2 - CT INSTALLATION

ELECTRICAL SPECIFICATIONS

SCALE: 1/4" = 1'-0"
DATE: DRAWING
DRAWN: DC
CHECKED: DC
JOB No.: DCYT1802

PHASE 2
E4

REV	DATE	MODIFICATIONS
B	05/DEC/2018	Revision based on request DC-79669; updated architecture
A	30/OCT/2018	Final based on request DC-74636

Nha Bulkley Valley District Hospital
Smithers, BC
USA

GE Healthcare
Michael Sloan
519 503 8911
M.sloan@med.ge.com

A mandatory component of this drawing set is the GE Healthcare Pre Installation manual. Failure to reference the Pre Installation manual will result in incomplete documentation required for site design and preparation.
Pre Installation documents for GE Healthcare products can be accessed on the web at: www.gehealthcare.com/siteplanning

REVOLUTION FRONTIER
FINAL STUDY

Drawn by	Verified by	Concession	S.O. (GON)	PIM Manual	Rev
APP	APP	185774116	PR13C55475V1	5786386-1EN	2

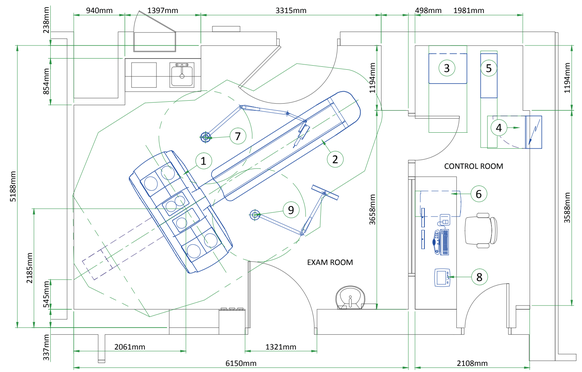
Format	Scale	File Name	Date	Rev	Sheet
A3	1:50	CT-C121946-FIN-00.DWG	05/DEC/2018	A	01/12

EQUIPMENT LAYOUT

ITEM	DESCRIPTION	DIMENSIONS LxWxH (mm)	WEIGHT (kg)
1	GANTRY	2267x1007x1895	1837
2	PATIENT TABLE (2000X)	650x2908x1049	801
3	POWER DISTRIBUTION UNIT (PDU)	700x550x1062	370
4	POWER DISTRIBUTION BOX (PDB)	600x300x800	42
5	PARTIAL UPS	305x813x1245	281.5
6	OPERATOR CONSOLE	738x470x655	71.2
7	INJECTOR ON CEILING	-	36
8	INJECTOR CONTROL	-	-
9	MONITOR ON ~~CEILING~~ cart (cart to be supplied by owner)		36
10	STORAGE CABINET	610x915x1070	41

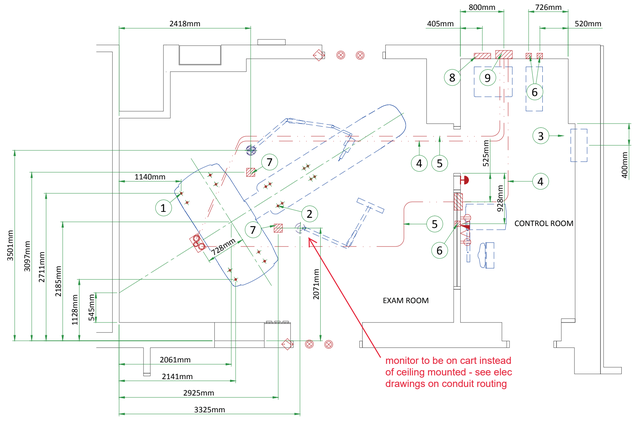
EXAM ROOM HEIGHT	
FINISHED FLOOR TO SLAB HEIGHT	-
FALSE CEILING HEIGHT	2.46m

POSITION TO BE DEFINED
10



LEGEND

	ARCHITECTURAL ELEMENTS	
	GE SUPPLIED	
	EQUIPMENT MOVEMENT	
	SERVICE CLEARANCE	
	MAIN AXIS	
	DIMENSIONS	
	CUSTOMER SUPPLIED ITEMS	



STRUCTURAL-ELECTRICAL LAYOUT

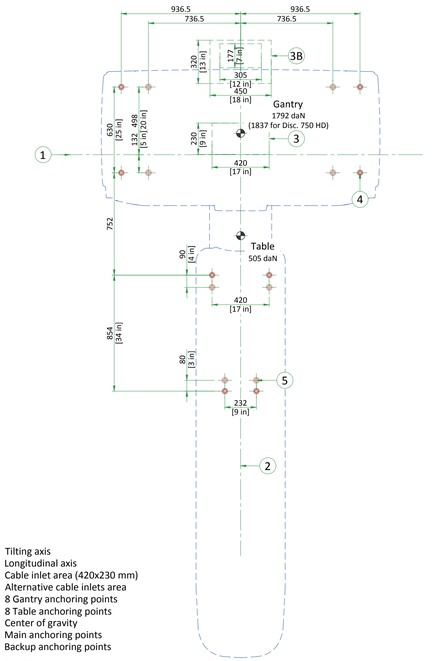
ITEM	DESCRIPTION
1	GANTRY ANCHORING (SEE STRUCTURAL DETAILS)
2	TABLE ANCHORING (SEE STRUCTURAL DETAILS)
3	MAIN DISCONNECT PANEL @ 5'-0" A.F.F.
4	64 [2 1/2"] conduit below floor
5	89 [3 1/2"] conduit below floor
6	100 x 100 x 100 [4" x 4" x 4"] box 450 [18"] above finished floor
7	150 x 150 x 100 [6" x 6" x 4"] box above ceiling
8	300 x 400 x 100 [12" x 16" x 4"] box for power distribution unit
9	300 x 400 x 150 [12" x 16" x 6"] box for power distribution unit
10	100 x 100 x 50 [4" x 4" x 2"] box

Basic system	
	RJ 45 network socket
	System emergency off (SEO), (recommended height 4'-0" above floor)
	X-Ray room warning light control panel - Available from GEHC, Call: 800-279-7925 or local GE Installation Project Manager
	X-Ray ON lamp (L1) - 24V
	Door interlock switch (needed only if required by state/local codes)
	120V Duplex hospital grade outlet
	Dedicated phone line

CONDUITS REQUIRED FOR BASE SYSTEM (CONDUITS ARE LOCATED ABOVE CEILING)

Warning Light	TO	Warning Light Control	ONE 0.5" (13mm) CONDUIT
Warning Light Control	TO	PDU	ONE 0.5" (13mm) CONDUIT
PDU	TO	Main Disconnect Panel	ONE CONDUIT AS REQUIRED
Main Disconnect Panel	TO	Feeder	ONE CONDUIT AS REQUIRED
Main Disconnect Panel	TO	System Emergency Off (SEO)	ONE 0.5" (13mm) CONDUIT
Warning Light Control	TO	120V 1Ø Power	ONE 0.5" (13mm) CONDUIT
Door Interlock Switch	TO	PDU	ONE 0.5" (13mm) CONDUIT
UPS	TO	Main Disconnect Panel	ONE 1.25" (31mm) CONDUIT
UPS	TO	PDU	ONE 2" (51mm) CONDUIT (Optional)
SmartView Monitor	TO	Operators Console	ONE 1" (25mm) CONDUIT
SmartView Monitor	TO	Operators Console	ONE 2" (51mm) CONDUIT
Injector	TO	Injector Control	ONE 2.5" (64mm) CONDUIT

ANCHORING/LOADING DISTRIBUTION TO THE FLOOR

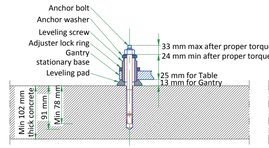


(1) Tilting axis
(2) Longitudinal axis
(3) Cable inlet area (420x230 mm)
(3B) Alternative cable inlets area
(4) 8 Gantry anchoring points
(5) 8 Table anchoring points
Center of gravity
Main anchoring points
Backup anchoring points

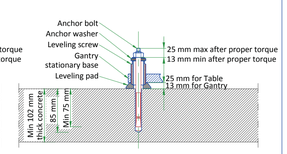
SCALE 1:20

FLOOR REQUIREMENTS

GE SUPPLIED ANCHORS (2106573)



GE SUPPLIED ANCHORS (5487992-2)



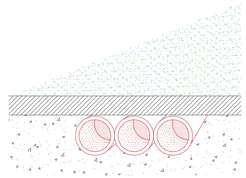
FINISHED FLOOR REQUIREMENTS

- Installation requires a finish floor in the scan and control rooms
- The floor surface in the scan room directly under the gantry and table must be level.
- The floor levelness tolerance of the floor surface that the gantry and table will rest on is 6 mm over a 3000 mm distance.
- Shims should not be used to compensate for a floor that does not meet this requirement.
- Eight or more floor covering openings that are 101.6 mm in diameter are made to ensure the table and gantry rest on a solid surface. These floor penetrations can be sealed if required.
- The distance from central line of anchor to the edge of concrete basement of Gantry/table should not be less than 178 mm.
- These requirements apply to all installation types.

NOT TO SCALE

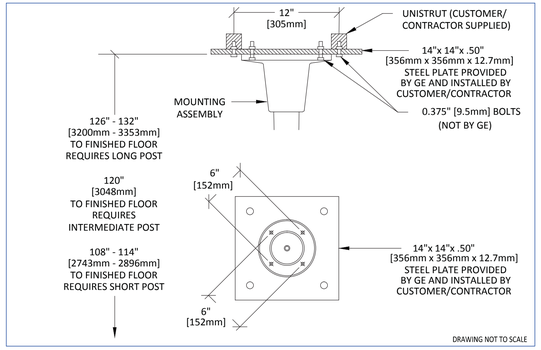
CABLE MANAGEMENT

CONDUIT IN THE FLOOR



NOT TO SCALE

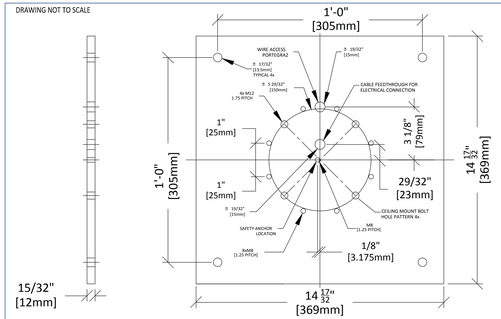
MEDRAD MOUNTING DETAILS FOR CEILING INJECTOR



DRAWING NOT TO SCALE

MOUNTING DETAILS FOR CEILING MONITOR

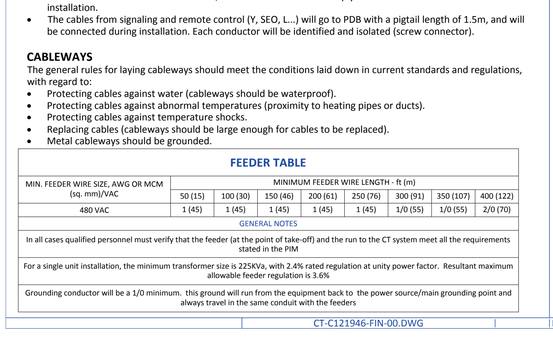
DRAWING NOT TO SCALE



NOTE: THE SUPPORT STRUCTURE FOR THIS CEILING MOUNTED OPTION AND A FLUSH MOUNTING PLATE MUST BE DESIGNED BY A STRUCTURAL ENGINEER AND INSTALLED BY A QUALIFIED CONTRACTOR PRIOR TO THE CT INSTALLATION.

MEDRAD MOUNTING DETAILS FOR CEILING INJECTOR

VERIFY MOUNTING ASSEMBLY DIMENSIONS WITH INJECTOR MANUFACTURER.



POST	LENGTHS	GE ECAT #
SHORT	22.8" / 580mm	E8007NB, ND, NG, NY, PB & PE
INTERMEDIATE	33.5" / 850mm	E8007PP, PN, PK, PR & PY
LONG	39.4" / 1000mm	E8007NE, NF, NJ, NN, PD & E8018AA

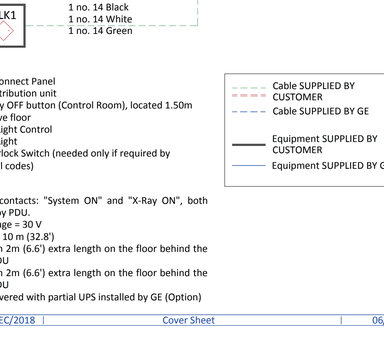
POST	MIN. PLATE HEIGHT	MAX. PLATE HEIGHT
SHORT	108" [2743mm]	114" [2896mm]
INTERMEDIATE	120" [3048mm]	
LONG	126" [3200mm]	132" [3353mm]

DRAWING NOT TO SCALE

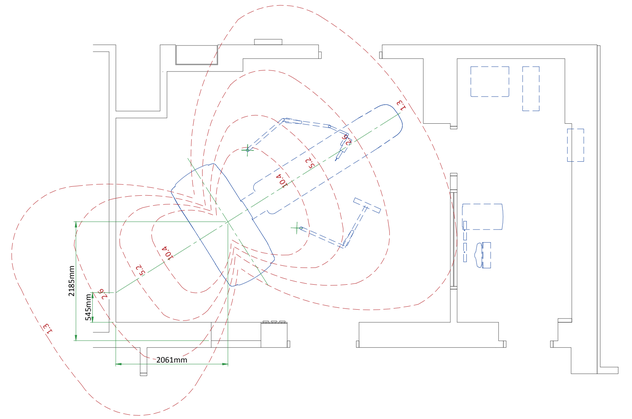
MOUNTING DETAILS FOR CEILING MONITOR

VERIFY MOUNTING ASSEMBLY DIMENSIONS WITH MONITOR MANUFACTURER.

° INDICATES CENTER OF GRAVITY



DRAWING NOT TO SCALE



RADIATION PROTECTION LAYOUT

SHIELDING REQUIREMENTS SCALING

CHANGED PARAMETER (mAs)	MULTIPLICATION FACTOR (new mAs/100)
80 kV	0.24
100 kV	0.45
120 kV	0.71
140 kV	1.00
1 mm aperture	0.20
3 mm aperture	0.22
5 mm aperture	0.27
10 mm aperture	0.38
15 mm aperture	0.48
20 mm aperture	0.59
30 mm aperture	0.79
40 mm aperture	1.00

SHIELDING REQUIREMENTS:

Engage a qualified radiological health physicist to review your scan room shielding requirements, taking into consideration:

- Scatter radiation levels within the scanning room
- Equipment placement.
- Weekly projected work-loads (number of patients/day technique (kvp*ma))
- Materials used for construction of walls, floors, ceiling, doors, and windows.
- Activities in surrounding scan room areas.
- Equipment in surrounding scan room areas (e.g., film developer, film storage)
- Room size and equipment placement within the room relative to room size.

The Illustrations on this page depict measured radiation levels within the scanning room, while scanning a 32 cm CTDI phantom placed on the patient table and using a large filter, with the technique shown. Use the mAs, kV and aperture scaling factors in the table shown here to adjust exposure levels to the scan technique used at the site.
Example: (using the Illustration) The exposure level for a 120 kV, 800mA, 1 sec. scan at 1270 mm (50 in) away from the scan place is 10.4 µGy x 0.71 x 800/100 = 59.2 µGy.

NOTE: Actual measurements can vary. Expected deviations equals ±15%, expect for the 5 mA and 1mm techniques, where variations may be greater (up to a factor of 2), due to the inherent deviation in small values. The maximum deviation anticipated for tube output equals ±40%.

POWER REQUIREMENTS

POWER SUPPLY	**3 PHASES+N+G 380/400/420/440/460/480 V ± 10%**
FREQUENCIES	**50/60Hz ± 3Hz**
MAXIMUM POWER DEMAND	**150 kVA**
AVERAGE (CONTINUOUS) POWER DEMAND	**11 kVA**
POWER FACTOR	**0.85**

- Power supply should come into a power distribution box (PDB) containing the protective units and controls.
- The section of the supply cable should be calculated in accordance with its length and the maximum permissible voltage drops.
- There must be discrimination between supply cable protective device at the beginning of the installation (main low-voltage transformer side) and the protective devices in the PDB.

SUPPLY CHARACTERISTICS

- Power input must be separate from any others which may generate transients (elevators, air conditioning, radiology rooms equipped with high speed film changers...).
- All equipment (lighting, power outlets, etc...) installed with GE system components must be powered separately.
- Phase imbalance 2% maximum.
- Transients must be less than 1500V peak. (on a 400V line)

GROUND SYSTEM

- System of equipotential grounding.
- Equipotential: The equipotential link will be by means of an equipotential bar. This equipotential bar should be connected to the protective earth conductors in the ducts of the non GE cableways and to additional equipotential connections linking up all the conducting units in the rooms where GE system units are located.

CABLES

- Power and cable installation must comply with the distribution diagram.
- All cables must be isolated and flexible, cable color codes must comply with standards for electrical installation.
- The cables from signaling and remote control (Y, SEO, L...) will go to PDB with a pigtail length of 1.5m, and will be connected during installation. Each conductor will be identified and isolated (screw connector).

CABLEWAYS

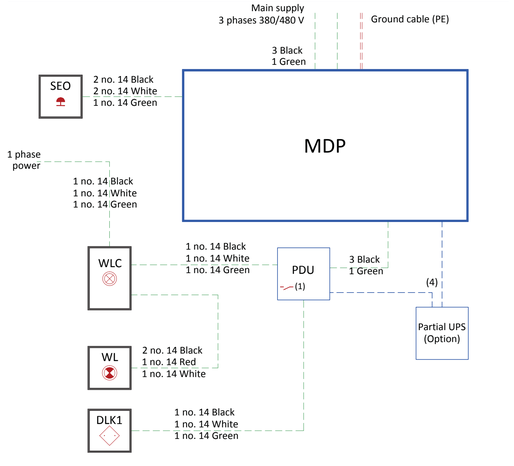
The general rules for laying cableways should meet the conditions laid down in current standards and regulations, with regard to:

- Protecting cables against water (cableways should be waterproof).
- Protecting cables against abnormal temperatures (proximity to heating pipes or ducts).
- Protecting cables against temperature shocks.
- Replacing cables (cableways should be large enough for cables to be replaced).
- Metal cableways should be grounded.

FEEDER TABLE

MIN. FEEDER WIRE SIZE, AWG OR MCM (sq. mm)/VAC	MINIMUM FEEDER WIRE LENGTH - ft (m)							
	50 (15)	100 (30)	150 (46)	200 (61)	250 (76)	300 (91)	350 (107)	400 (122)
480 VAC	1 (45)	1 (45)	1 (45)	1 (45)	1 (45)	1/0 (55)	1/0 (55)	2/0 (70)
GENERAL NOTES								
In all cases qualified personnel must verify that the feeder (at the point of take-off) and the run to the CT system meet all the requirements stated in the PIM								
For a single unit installation, the minimum transformer size is 225KVa, with 2.4% rated regulation at unity power factor. Resultant maximum allowable feeder regulation is 3.6%								
Grounding conductor will be a 1/0 minimum. this ground will run from the equipment back to the power source/main grounding point and always travel in the same conduit with the feeders								

POWER DISTRIBUTION



MDP	Main Disconnect Panel
PDU	Power distribution unit
SEO	Emergency OFF button (Control Room), located 1.50m (4.9') above floor
WLC	Warning Light Control
WL	Warning Light
DLK1	Door Interlock Switch (needed only if required by state/local codes)

Cable SUPPLIED BY CUSTOMER
Cable SUPPLIED BY GE
Equipment SUPPLIED BY CUSTOMER
Equipment SUPPLIED BY GE

Notes :

(1) Two dry contacts: "System ON" and "X-Ray ON", both released by PDU.
Max. voltage = 30 V

(2) If length < 10 m (32.8')
Cable with 2m (6.6') extra length on the floor behind the back of PDU

(3) Cable with 2m (6.6') extra length on the floor behind the back of PDU

(4) Cable delivered with partial UPS installed by GE (Option)

TEMPERATURE AND HUMIDITY SPECIFICATIONS

IN-USE CONDITIONS

	EXAM ROOM			CONTROL ROOM		
Temperature	Min	Recommended	Max	Min	Recommended	Max
	18°C	22°C	26°C	18°C	22°C	26°C
Temperature gradient	**≤ 3°C/h**			**≤ 3°C/h**		
Relative humidity (1)	30% to 60%			30% to 60%		
Humidity gradient	**≤ 5%/h**			**≤ 5%/h**		

STORAGE CONDITIONS

Temperature	+0°C to +30°C
Temperature gradient	**≤ 3°C/h**
Relative humidity (1)	**≤** 70%
Humidity gradient	**≤ 5%/h**

Storage longer than 6 months is not recommended.
(1) Non-condensing

AIR RENEWAL

According to local standards.

NOTE
In case of using air conditioning systems that have a risk of water leakage it is recommended not to install it above electric equipment or to take measures to protect the equipment from dropping water.

HEAT DISSIPATION

ROOM	DESCRIPTION	HEAT DISSIPATION (kW)
		MAX
Exam Room	Gantry	9.00
	Table (Without patient)	0.76
	TOTAL	**9.76**
Exam/Technical Room*	Power distribution unit (PDU)	0.50
	UPS **	0.59
	TOTAL	**1.09**
Control Room	Console	0.84
	LCD monitor (Total amount of 2 monitors)	0.1
	TOTAL	0.94

* Technical Room is not mandatory, the placements of these elements are recommended in the Exam Room.
** Option items

ENVIRONMENT

MAGNETIC FIELD SPECIFICATIONS

- Limit the magnetic interference to guarantee specified imaging performance.

Gantry :
- Ambient static magnetic fields less than 1 Gauss.
- Ambient AC magnetic fields less than 0.01 Gauss peak.

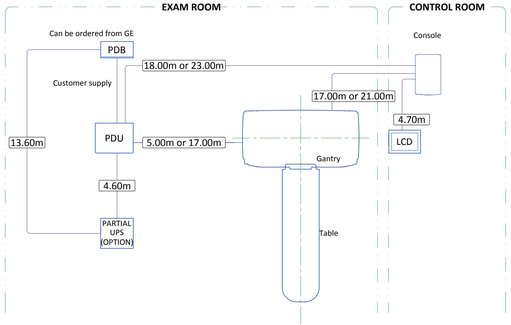
Operator console :
- Ambient static magnetic fields less than 10 Gauss.

- Use static dissipative vinyl.

MAXIMUM GANTRY AUDIBLE NOISE LEVEL

- The maximum ambient noise level is produced by the gantry during a CT scan acquisition.
- It is less than 70 dBA when measured at a distance of one meter from the nearest gantry surface, in any direction.

INTERCONNECTIONS



CONNECTIVITY REQUIREMENTS

Broadband Connections are necessary during the installation process and going forward to ensure full support from the Engineering Teams for the customers system. Maximum performance and availability for the customers system is maintained and closely monitored during the lifetime of the system.

Proactive and reactive maintenance is available utilizing the wide range of digital tools using the connectivity solutions listed below:

- Site-to-Site VPN/GE Solution
- Site-to-Site VPN/Customer Solution
- Connection through Dedicated Service Network
- Internet Access - connectivity for InSite 2.0

The requirements for these connectivity solutions are explained in the broadband solutions catalogue (separate document).

CEILING SUSPENSION DISCLAIMER

REQUIREMENTS TO BE MET PRIOR TO INSTALLATION:

Prior to installation, a structural engineer of record must ensure that the ceiling is designed in such a way that the loads of the installed pendant system can be securely borne and transferred. The load bearing capacity of the ceiling must be checked by structural analysis and confirmed by means of an acceptable certificate. The installation must be inspected by the engineer and certified in accordance with any regional construction regulations. The layout of the installation, the selection of appropriate installations fastenings and torque is the sole responsibility of the structural engineer.

WARNING:

Do not alter the length of the ceiling column or remove any securing screws.

DELIVERY

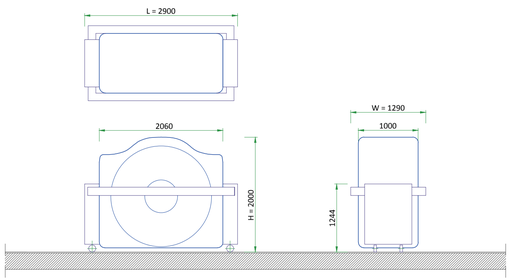
THE CUSTOMER/CONTRACTOR SHOULD:

- Provide an area adjacent to the installation site for delivery and unloading of the GE equipment.
- Ensure that the dimensions of all doors, corridors, ceiling heights are sufficient to accommodate the movement of GE equipment from the delivery area into the definitive installation room.
- Ensure that access routes for equipment will accommodate the weights of the equipment and any transportation, lifting and rigging equipment.
- Ensure that all necessary arrangements for stopping and unloading on public or private property not belonging to the customer have been made.

DIMENSIONS OF DELIVERY WITH DOLLY TRANSPORT EQUIPMENT

EQUIPMENT	DIMENSIONS				WEIGHT
GANTRY	LENGTH	3100 mm	122 in	2016 kg	4445 lbs
	WIDTH	1290 mm	51 in		
	HEIGHT	2030 mm	80 in		
HIGH CAPACITY TABLE	LENGTH	2997 mm	118 in	639 kg	1407 lbs
	WIDTH	762 mm	30 in		
	HEIGHT	1143 mm	45 in		

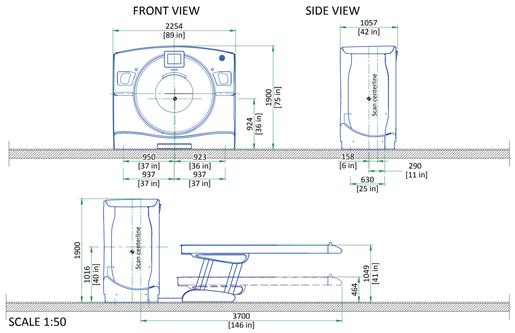
GANTRY DELIVERY



- The gantry is shipped on a dolly equipped with elevating casters (normal shipping configuration).

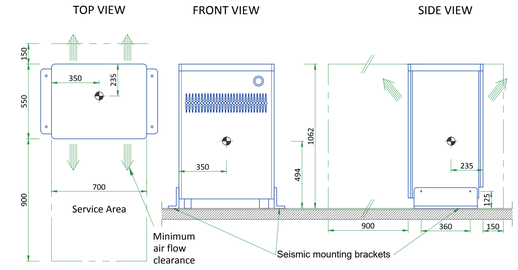
NOT TO SCALE

GANTRY WITH GT2000/GT2000X TABLE



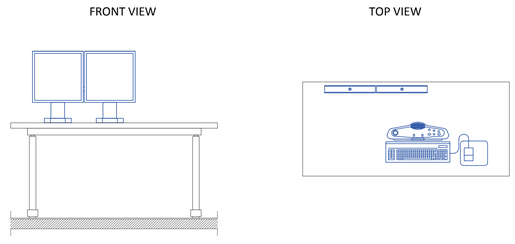
SCALE 1:50

POWER DISTRIBUTION UNIT (PDU)

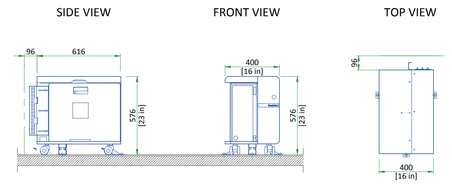


SCALE 1:20

CUSTOMER SUPPLIED TABLE



CONSOLE



(Weight: 65.1 kg)

DISCLAIMER

GENERAL SPECIFICATIONS

- GE is not responsible for the installation of developers and associated equipment, lighting, cassette trays and protective screens or derivatives not mentioned in the order.
- The final study contains recommendations for the location of GE equipment and associated devices, electrical wiring and room arrangements. When preparing the study, every effort has been made to consider every aspect of the actual equipment expected to be installed.
- The layout of the equipment offered by GE, the dimensions given for the premises, the details provided for the pre-installation work and electrical power supply are given according to the information noted during on-site study and the wishes expressed by the customer.
- The room dimensions used to create the equipment layout may originate from a previous layout and may not be accurate as they may not have been verified on site. GE cannot take any responsibility for errors due to lack of information.
- Dimensions apply to finished surfaces of the room.
- Actual configuration may differ from options presented in some typical views or tables.
- If this set of final drawings has been approved by the customer, any subsequent modification of the site must be subject to further investigation by GE about the feasibility of installing the equipment. Any reservations must be noted.
- The equipment layout indicates the placement and interconnection of the indicated equipment components. There may be local requirements that could impact the placement of these components. It remains the customer's responsibility to ensure that the site and final equipment placement complies with all applicable local requirements.
- All work required to install GE equipment must be carried out in compliance with the building regulations and the safety standards of legal force in the country concerned.
- These drawings are not to be used for actual construction purposes. The company cannot take responsibility for any damage resulting therefrom.

CUSTOMER RESPONSIBILITIES

- It is the responsibility of the customer to prepare the site in accordance with the specifications stated in the final study. A detailed site readiness checklist is provided by GE. It is the responsibility of the customer to ensure all requirements are fulfilled and that the site conforms to all specifications defined in the checklist and final study. The GE Project Manager of Installation (PMI) will work in cooperation with the customer to follow up and ensure that actions in the checklist are complete, and if necessary, will aid in the rescheduling of the delivery and installation date.
- Prior to installation, a structrual engineer of record must ensure that the floor and ceiling is designed in such a way that the loads of the installed system can be securely borne and transferred. The layout of additional structural elements, dimensioning and the selection of appropriate installation methods are the sole responsibility of the structural engineer. Execution of load bearing structures supporting equipment on the ceiling, floor or walls are the customer's responsibility.

RADIO-PROTECTION

- Suitable radiological protection must be determined by a qualified radiological physicist in conformation with local regulations. GE does not take responsibility for the specification or provision of radio-protection.

THE UNDERSIGNED, HEREBY CERTIFIES THAT I HAVE READ AND APPROVED THE PLANS IN THIS DOCUMENT.		
DATE	NAME	SIGNATURE

GLOBAL SITE READINESS CHECKLIST (DI)

DOC1809666 Rev. 5

Customer Name:	PMI Name:
GON/SO Number:	Field Service Name:
Equipment:	Country/City or City/State:
Required site assessment milestones	**Date of completion (dd/mm/yyyy)**
1) Check site before Equipment Delivery to Storage	
2) Check site before installation start	

Place an "X" in either Y or N column

Site Ready Checks at Installation	Y	N
General Site Planning		
Room dimensions, including ceiling height, for all Exam, Equipment/Technical & Control rooms meets GE specifications.		
Ceiling support structure, if indicated on the GE drawing, is in the correct location and at the correct height according to the Original Equipment Manufacturer specifications. Levelness and spacing has been measured, and is ready for the installation of any GE supplied components. Overhead support Structure has been confirmed with customer/contractor to meet required GE provided criteria.		
Rooms that will contain equipment, including staging areas if applicable, are construction debris free. Precautions must be taken to prevent debris from entering rooms containing equipment.		
Finished ceiling is installed. If applicable ceiling tiles installed per PMI discretion.		
Adequate delivery route from truck to final place of installation has been reviewed with all stakeholders, all communications/notifications have occurred, arrangements have been made for special handling (rigging, elevator, fork lift, etc.). All floors along delivery route will support weight of the equipment, temporary reinforcements arranged if needed.		
System power & grounding (PDB/MDP) is available as per GE specifications, installed at point of final connection and ready to use. Lock Out Tag Out is available.		
System power and grounded audit has been scheduled to be completed during installation of equipment. (If Required) GEHC PM to confirmed if needed.		
Adequate room illumination installed and working.		
Cable ways (floor/wall/ceiling/Access Flooring) are available for installation of GE cables and are of correct length and diameter. Cable ways routes per GE Final drawings and cable access openings areas installed at a time determined by GEHC PM. Surface floor duct can be installed at time of system installation.		
HVAC systems Installed, and the site meets minimum environmental operational system requirements.		
Network outlets installed and computer network available and working.		
Hospital IT/connectivity contacts have been engaged and information has been added to Project management tool. (If Required)		
Customer supplied countertops where GE equipment will be installed are in place.		
Floor levelness/flatness is measured and within tolerance, and there are no visible defects per GEHC specifications. Floor Strength and thickness have been discussed with customer/contractor and they have confirmed GE requirements are met.		
Specific for CT & X-ray		
Doors and windows complete or scheduled to be installed. If applicable, radiation protection (shielding) finished & radioprotection regulatory approval for installation obtained.		

Status of work

General comments	
System can be delivered	PMI signature
Site ready for installation	FS signature: optional

SIGNOFF / APPROVAL NOTES

1. **The ceiling minimum structure capacity must be able to support the load specified on the installation drawing.**
2. **Electrical power source to be provided by the facility, position to be verified in the field.**
3. **Guldmann Inc. reserves the right to slightly modify the track layout if necessary without Facility approval. This includes lowering the system to avoid ceiling objects.**
4. **Guldmann Inc. will not be held responsible for any damages, inconvenience, resulting from hitting any non visible conduits during our installation process of which we have not been advised.**
5. **Modifications of door headers by the facility.**
6. ***Signed drawings are required prior to ordering and installation of ceiling lifts.*** **This signature of each drawing confirms agreement of all the conditions listed above.**
7. **Systems are tested at 1.5 times capacity. 550 lbs. tested at 825 lbs.; 770 lbs. tested at 1155 lbs.; 825 lbs. tested at 1238 lbs.; 1100 lbs. tested at 1650 lbs.**

MY SIGNATURE BELOW VERIFIES THAT I HAVE:

Reviewed all 5 pages, with a total quantity of 1 room(s), 1 system(s) for the approbation of layout for each room and the approbation of structure for each room.

CUSTOMER APPROVAL: _____ DATE: _____

Bulkley Valley District Hospital
NHA BULKLEY DI PH2
3950 8 Avenue
Smithers, BC V0J 2N0
PROJECT ID: 101185

Revision Schedule

Date	Issued by	Number	Description
11/06/18	STE	A	NEW CAD / 8' - 1" CEILING
12/18/18	BWE	B	CORRECTIONS PER REVIEW AND STRUT LAYOUT

Guldmann Inc.
14401 McCormick Drive
Tampa Fl. 33626 Unit A
Toll Free: 1(800)-664-8834
Fax: 1(813)-880-9558
Email: Info@Guldmann.net

NOTES

1. HOIST = 770 LBS.
2. NON-RECESSED / BOXED.
3. CEILING HEIGHT = 8' - 1"
4. AFF TO DECK = UNISTRUT FLUSH WITH CEILING
5. ATTACHMENT TYPE = UNISTRUT INSTALLED BY OTHERS

DATE: 10/11/2018 | DRAWN BY: STE
APPROVED BY:
PROJECT NAME: NHA BULKLEY DI PH2
SHEET DESCRIPTION: FACILITY SIGNOFF
SHEET NO: GUL101

Electrical installations
Connection for Class I systems

Fixed rail systems
Fixed rail systems must be connected by Guldmann Service Team or by a qualified installer. A Guldmann class I transformer must be used. Installation to follow existing rules for authorized electricians and according to IEC/UL 60601-1.

Protective ground must be available and connected correctly. From the "connecting point/neutral point" protective ground to rail maximum permissible resistance is 0.2 Ohm.
See "Instructions: Connecting protective ground to rail".
See wiring diagram: "Classification of Transformer Class I for Guldmann Hoist System - Permanent installation with protective ground on rails".

(Classification of Guldmann Hoist System Class I - Permanent installation with protective ground on rails)

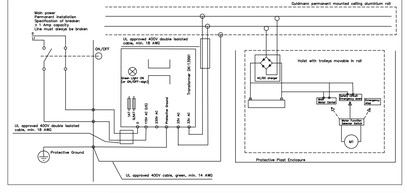
Connection of Power Supply Class I for Guldmann rail System - Permanent installation with protective ground on rails

Terminals on transformers Class I
Double-insulated UL approved cable must be used (Cable specification: UL category: AVLV2, min.300V, min. 80 °C, min. 16AWG (1 mm²)).

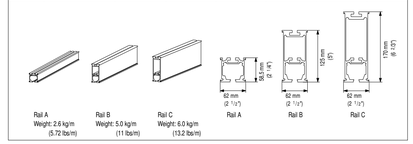
Transformer DK-13991
In:
Terminal 1 = N
Terminal 2 = 100-115V AC
Terminal 3 = 230V AC
Terminal 4 = Protective ground

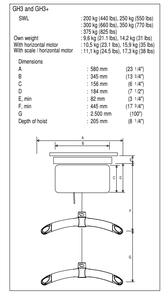
Out:
Terminal 5 = 33V AC
Terminal 6 = 33V AC

Note:
Avoid contact to the terminals in the fuse holder when replacing fuses. There can be a risk of electrical shock, if the power supply is not disconnected.



RAIL	CANTILEVER	SPAN LIMITS BASED ON HOIST SIZE 450 lbs	560lbs	660 lbs	770 lbs	825 lbs	1100 lbs
A	9"	78"	68"	59"	59"	49"	49"
B	27"	206"	187"	177"	157"	157"	137"
C	47"	314"	285"	265"	246"	236"	206"





Electronics

On/off: : Automatic when used. Soft start/stop. Overload protection.

SWL: 200 kg (440 lbs)
Battery : 1 x 24 V NiMH
Max charge time : 2 Hours

SWL : 250 kg (550 lbs)
Battery : 2 x 24 V NiMH
Max charge time : 4 Hours

SWL : 300 kg (660 lbs), 350 kg (770 lbs), 375 kg (825 lbs)
Battery : 2 x 24 V NiMH
Max charge time : 4 Hours

SWL : 500 kg (1100 lbs)
Battery : 4 x 24 V NiMH
Max charge time : 8 Hours

Battery protection : At battery voltage below 22V the indicator light turns orange. The hoist stops if voltage falls below 20V.

Power supply : 33 V AC, 2.5 A

Supply voltage, transformer : 100-115/230V AC, 50/60 Hz

Protection classification (IP) according to IEC 60529
Lifting module: IP 20
Hand Control: IP 44
Remote control: IP 20
Transformer: IP 20
Declaration of conformity
This hoist is manufactured in compliance with the EuropeaniVledical Device Directive 93/42/EEC - with amendments, as Medical'Device Class I.

PROJECT ID: 101185

Guldmann Inc.
14401 McCormick Drive
Tampa Fl. 33626 Unit A
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Email: Info@Guldmann.net

NOTES

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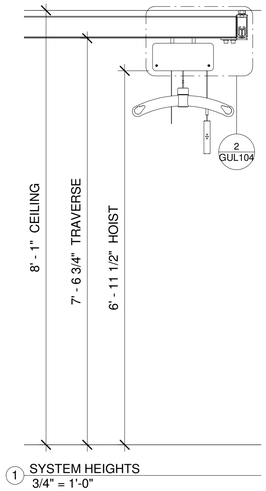
4. AFF TO DECK = UNISTRUT FLUSH WITH CEILING
5. ATTACHMENT TYPE = UNISTRUT INSTALLED BY OTHERS

DATE: 10/11/2018 | DRAWN BY: STE

Rev. Date	Issued by	Rev.
11/06/18	STE	A
12/18/18	BWE	B

APPROVED BY:
PROJECT NAME: NHA BULKLEY DI PH2
SHEET DESCRIPTION: GEN. DETAIL
SHEET NO: GUL102



DIRECT TO STRUT		
TAG	ITEM NUMBER	DESCRIPTION
1	550435	CEILING BRACKET - KIT Guldmann
2	377885	MQA-F SADDLE NUT 3/8"
3	411764	3/8" X 1-1/4" BOLT

DRAWINGS APPROVED FOR THE GULDMANN GH-3 1100 POUNDS LIFTER SYSTEM STANDARD INSTALLATION OF SUPPORT AND CONNECTION DIRECT TO STRUT SYSTEM TESTED AT 1650 LBS.

SYSTEMS INSTALLED FOR 770 POUNDS WILL BE TESTED AT 1155 POUNDS.

SYSTEMS INSTALLED FOR 550 POUNDS WILL BE TESTED AT 825 POUNDS.

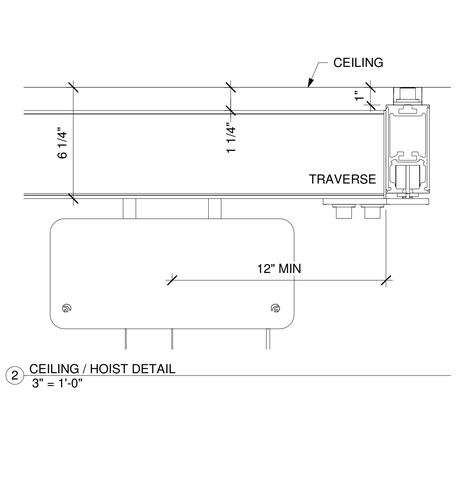
Bulkley Valley District Hospital
NHA BULKLEY DI PH2
3950 8 Avenue
Smithers, BC V0J 2N0
PROJECT ID: 101185

SIGNATURE: DATE:

Guldmann Inc.
14401 McCormick Drive
Tampa Fl. 33626 Unit A
Toll Free: 1(800)-664-8834
Fax: 1(813)-880-9558
Email: Info@Guldmann.net

DATE: 11/06/2018 | DRAWN BY: STE
SHEET DESCRIPTION: INSTALLATION SIGNOFF
SHEET NO: GUL103

1 SYSTEM HEIGHTS
3/4" = 1'-0"



2 CEILING / HOIST DETAIL
3" = 1'-0"

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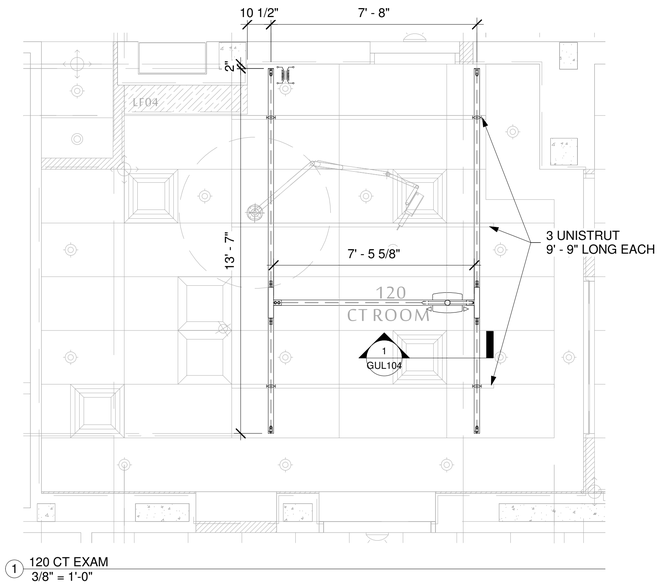
5. ATTACHMENT TYPE = UNISTRUT INSTALLED BY OTHERS

DATE: 10/11/2018 | DRAWN BY: STE

Rev. Date	Issued by	Rev.
11/06/18	STE	A
12/18/18	BWE	B

APPROVED BY:
PROJECT NAME: NHA BULKLEY DI PH2
SHEET DESCRIPTION: PROJECT DETAILS
SHEET NO: GUL104

PROJECT ID: 101185



1 120 CT EXAM
3/8" = 1'-0"

PROJECT ID: 101185

Guldmann Inc.
14401 McCormick Drive
Tienne Fl. 33626 Unit A
Toll Free: 1(800)-664-8834
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KEY

- Hoist Transformer
- Ceiling bracket, Extended
- B rail
- Hoist

DATE:	DRAWN BY:
10/11/2018	STE

Rev. Date	Issued by	Rev.
11/06/18	STE	A
12/18/18	BWE	B

APPROVED BY:

PROJECT NAME:
NHA BULKLEY DI PH2

SHEET DESCRIPTION:
120 CT EXAM

SHEET NO:
GUL105