CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

CROW SERVICE UNIT

PROJECT TEAM

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LOCATION MAP

CROW AGENCY, MONTANA

NORTH

BID PACKAGE 2
ISSUED FOR BIDS

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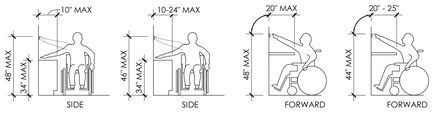
PROJECT NO: 241532
CAD DWG FILE: G001.2.dwg
DRAWN BY: PC
CHECKED BY: DM

SHEET TITLE:
COVER SHEET

G001.2

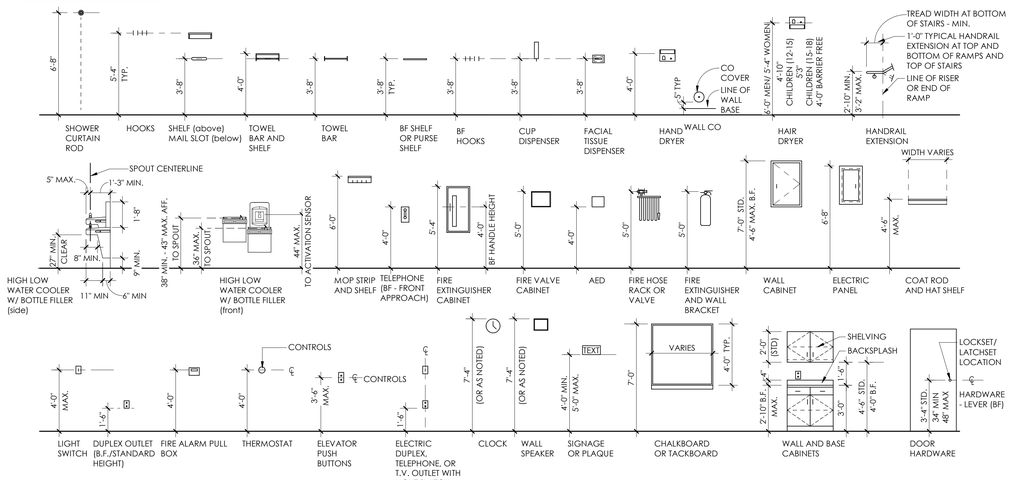


OBSTRUCTED REACH

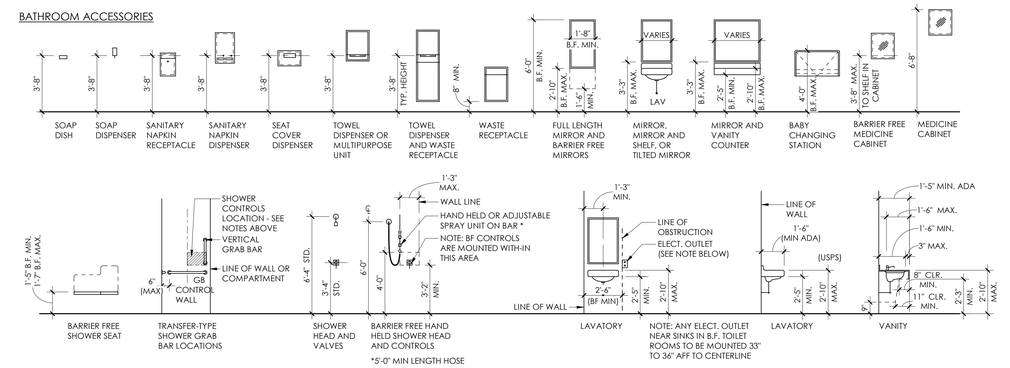
UNOBSTRUCTED REACH

TYPICAL MOUNTING HEIGHTS

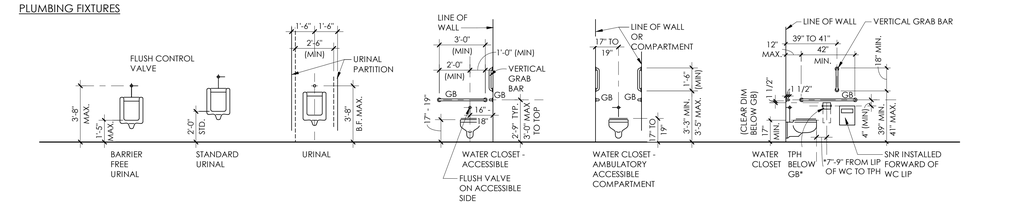
MISCELLANEOUS EQUIPMENT



BATHROOM ACCESSORIES



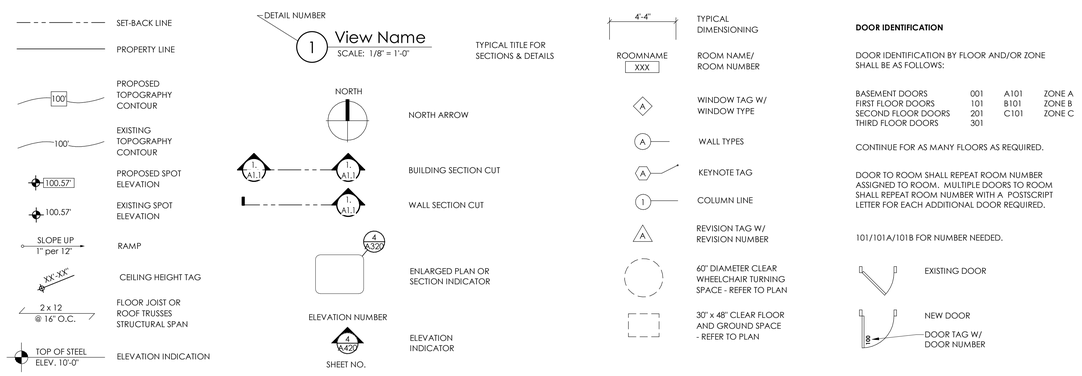
PLUMBING FIXTURES



MOUNTING HEIGHT GENERAL NOTES:

1. REFER TO EQUIPMENT SHEETS FOR ABBREVIATIONS AND LOCATIONS.
2. REFER TO INTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.
3. ITEMS ON THIS SHEET ARE NOT NECESSARILY INCLUDED IN THIS PROJECT.
4. CONTRACTOR TO VERIFY ALL EQUIPMENT MOUNTING HEIGHTS WITH OWNER/AE PRIOR TO INSTALLATION.
5. REFER TO MECHANICAL/ELECTRICAL DRAWINGS FOR DEVICE MOUNTING HEIGHTS.
6. MOUNTING HEIGHTS SHOWN ARE PROPOSED FOR ALL ACCESSORIES AND FIXTURES REQUIRED UNLESS OTHERWISE NOTED OR DIMENSIONED ON DRAWINGS FOR SPECIFIC CONDITIONS (BF - DENOTES ACCESSIBLE BARRIER FREE REQUIREMENTS)

ARCHITECTURAL SYMBOLS & PLAN INDICATORS



DOOR IDENTIFICATION

DOOR IDENTIFICATION BY FLOOR AND/OR ZONE SHALL BE AS FOLLOWS:

BASEMENT DOORS	001	A101	ZONE A
FIRST FLOOR DOORS	101	B101	ZONE B
SECOND FLOOR DOORS	201	C101	ZONE C
THIRD FLOOR DOORS	301		

CONTINUE FOR AS MANY FLOORS AS REQUIRED.

DOOR TO ROOM SHALL REPEAT ROOM NUMBER ASSIGNED TO ROOM. MULTIPLE DOORS TO ROOM SHALL REPEAT ROOM NUMBER WITH A POSTSCRIPT LETTER FOR EACH ADDITIONAL DOOR REQUIRED.

101/101A/101B FOR NUMBER NEEDED.

BID PACKAGE 2
ISSUED FOR BIDS

ABBREVIATIONS

@	AT
A/C	AIR CONDITIONING/AIR CONDITIONER
ACOUS	ACOUSTICAL
AD	AREA DRAIN, AUTOMATIC DAMPER
ADJ	ADJUST, ADJUSTABLE
ALUM	ALUMINUM
AP	ACCESS PANEL
ACT	ACOUSTICAL CEILING
B	BASE
BAR	BARRIER
BD	BOARD
BF	BARRIER FREE
BKT	BRACKET
BLDG	BUILDING
BLKG	BLOCKING
BOTT	BOTTOM
C TO C	CENTER TO CENTER
CAB	CABINET
CE	COLUMN ENCLOSURE
CIR	CIRCLE
CIR	CIRCUIT
CL	CENTER LINE, CLEARANCES
CLG	CEILING
CJ	CONTROL JOINT
CLKG	CAULKING
CLO	CLOSET
CMT	CERAMIC MOSAIC TILE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
CORR	CORRIDOR
CPT	CARPET
CSS	CLINICAL SERVICE SINK
CT	CERAMIC TILE
CTR	CENTER
CUH	CABINET UNIT HEATER
DEMO	DEMOLITION, DEMOLISH
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DIA, D	DIAMETER
DIM	DIMENSION
DN	DOWN
DR	DRAIN
DS	DOWNSPOUT
EJ	EXPANSION JOINT
ELECT	ELECTRICAL
ELEV	ELEVATION
ENTR	ENTRANCE
EQ	EQUAL
EP	ELECTRICAL PANEL
EXH	EXHAUST
EXP	EXPOSED
EXIST	EXISTING, EXSIST'G
EXT	EXTERIOR
EW	EACH WAY
FA	FIRE ALARM
FD	FIRE DAMPER OR FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FIN	FINISH
FL, FLR	FLOOR FINISH
FLG, FLRG	FLOORING, FLOOR'G
FURN	FURNITURE, FURNACE
FWC	FABRIC WALL COVERING
FT	FEET, FOOT
GALV	GALVANIZE(D)
GL	GLASS
GSB	GYPSUM SHEATHING BOARD
GWB	GYPSUM WALLBOARD
GYP. BD	GYPSUM BOARD
ID	INSIDE DIAMETER
INSUL	INSULATION
IN	INCH(ES)
JAN	JANITOR'S CLOSET
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HR	HANDRAIL
HT	HEIGHT
HW	HEADWALL
LAM	LAMINATED
LF	LINEAL FEET
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MANUF	MANUFACTURED, MANUFACTURER
MIN	MINIMUM
MLD'G	MOLDING
MTL	METAL
N	NORTH
NAT	NATURAL
NIC	NOT IN CONTRACT
NORM	NORMAL
NTS	NOT TO SCALE
O.C.	ON CENTER
OPN'G	OPENING
O, O2	OXYGEN
PLAST	PLASTIC
PT	PAINT
PREFAB	PREFABRICATED
PLYWD	PLYWOOD, PLYW'D
R	RADIUS
RA	RETURN AIR
REQ'D	REQUIRED
RM	ROOM
S	SINK, SOUTH, SHINGLE
SA	SUPPLY AIR
SAN	SANITARY
SMKD	SMOKE DAMPER
SECT	SECTION
SHWR	SHOWER
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	SERVICE SINK, STAINLESS STEEL
STD	STANDARD
STOR	STORAGE
SUSP	SUSPEND(ED)
SYM	SYMBOL, SYMMETRICAL
TOIL	TOILET
TYP	TYPICAL
UNFIN	UNFINISHED
UTIL	UTILITY
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VCT	VINYL COMPOSITION TILE
VD	VOLUME DAMPER
VERT	VERTICAL
V.I.F.	VERIFY IN FIELD
VT	VINYL TILE
VWC	VINYL WALL COVERING
W/	WITH
WC	WATER CLOSET
WD	WOOD
WNDW	WINDOW
W, HTR	WATER HEATER
W/O	WITHOUT
WP	WALL PROTECTION

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GENERAL INFORMATION & SYMBOL LEGEND

G002.2

CLASS OF PRECAUTIONS

	TYPE A	TYPE B	TYPE C	TYPE D
LOW	I	II	II	III
MEDIUM	I	II	III	IV
HIGH	I	III	IV	V
HIGHEST	III	IV	V	V

PATIENT RISK GROUP

LOW: NON-PATIENT CARE AREAS

- PUBLIC HALLWAYS AND GATHERING AREAS NOT ON CLINICAL UNITS.
- OFFICE AREAS NOT ON CLINICAL UNITS.
- BREAKROOMS NOT ON CLINICAL UNITS.
- BATHROOMS OR LOCKER ROOMS NOT ON CLINICAL UNITS.
- MECHANICAL ROOMS NOT ON CLINICAL UNITS.
- EVS CLOSETS NOT ON CLINICAL UNITS.

MEDIUM: PATIENT CARE SUPPORT AREAS

- WAITING AREAS.
- CLINICAL ENGINEERING.
- MATERIALS MANAGEMENT.
- STERILE PROCESSING DEPARTMENT - DIRTY SIDE.
- KITCHEN, CAFETERIA, GIFT SHOP, COFFEE SHOP, AND FOOD KIOSKS.

HIGH: PATIENT CARE AREAS

- PATIENT CARE ROOMS AND AREAS
- ALL ACUTE CARE UNITS
- EMERGENCY DEPARTMENT
- EMPLOYEE HEALTH
- PHARMACY - GENERAL WORK ZONE
- MEDICATION ROOMS AND CLEAN UTILITY ROOMS
- IMAGING SUITES: DIAGNOSTIC IMAGING LABORATORY.

HIGHEST: INVASIVE, STERILE OR HIGHLY COMPROMISED CARE

- ALL TRANSPLANT AND INTENSIVE CARE UNITS.
- ALL ONCOLOGY UNITS.
- OR THEATERS AND RESTRICTED AREAS.
- PROCEDURAL SUITES.
- PHARMACY COMPOUNDING.
- STERILE PROCESSING DEPARTMENT - CLEAN SIDE.
- TRANSFUSION SERVICES.
- DEDICATED ISOLATION WARDS/UNITS.
- IMAGING SUITES: INVASIVE IMAGING.

TYPE OF ACTIVITY

TYPE A: NON-INVASIVE

INCLUDES BUT IS NOT LIMITED TO:

- REMOVAL OF CEILING TILE FOR VISUAL INSPECTION-LIMITED TO 1 TILE PER 50 SQUARE FEET WITH LIMITED EXPOSURE TIME.
- LIMITED BUILDING SYSTEM MAINTENANCE (E.G., PNEUMATIC TUBE STATION, HVAC SYSTEM, FIRE SUPPRESSION SYSTEM, ELECTRICAL AND CARPENTRY WORK TO INCLUDE PAINTING WITHOUT SANDING) THAT DOES NOT CREATE DUST OR DEBRIS.
- CLEAN PLUMBING ACTIVITY LIMITED IN NATURE.

TYPE B: SMALL-SCALE, SHORT DURATION

INCLUDES BUT IS NOT LIMITED TO:

- WORK CONDUCTED ABOVE THE CEILING (E.G., PROLONGED INSPECTION OR REPAIR OF FIREWALLS AND BARRIERS, INSTALLATION OF CONDUIT AND/OR CABLING, AND ACCESS TO MECHANICAL AND/OR ELECTRICAL CHASE SPACES).
- FAN SHUTDOWN/STARTUP.
- INSTALLATION OF ELECTRICAL DEVICES OR NEW FLOORING THAT PRODUCES MINIMAL DUST AND DEBRIS.
- THE REMOVAL OF DRYWALL WHERE MINIMAL DUST AND DEBRIS IS CREATED.
- CONTROLLED SANDING ACTIVITIES (E.G., WET OR DRY SANDING) THAT PRODUCE MINIMAL DUST AND DEBRIS.

TYPE C: LARGE-SCALE, LONGER DURATION

INCLUDES BUT IS NOT LIMITED TO:

- REMOVAL OF PREEXISTING FLOOR COVERING, WALLS, CASEWORK OR OTHER BUILDING COMPONENTS.
- NEW DRYWALL PLACEMENT.
- RENOVATION WORK IN A SINGLE ROOM.
- NONEXISTENT CABLE PATHWAY OR INVASIVE ELECTRICAL WORK ABOVE CEILINGS.
- THE REMOVAL OF DRYWALL WHERE A MODERATE AMOUNT OF DUST AND DEBRIS IS CREATED.
- DRY SANDING WHERE A MODERATE AMOUNT OF DUST AND DEBRIS IS CREATED.
- WORK CREATING SIGNIFICANT VIBRATION AND/OR NOISE.
- ANY ACTIVITY THAT CANNOT BE COMPLETED IN A SINGLE WORK SHIFT.

TYPE D: MAJOR DEMOLITION, CONSTRUCTION

INCLUDES BUT IS NOT LIMITED TO:

- REMOVAL OR REPLACEMENT OF BUILDING SYSTEM COMPONENT(S).
- REMOVAL/INSTALLATION OF DRYWALL PARTITIONS.
- INVASIVE LARGE-SCALE NEW BUILDING CONSTRUCTION.
- RENOVATION WORK IN TWO OR MORE ROOMS.

FIRE AND SAFETY NOTES

1. MAINTAINING THE INTEGRITY OF THE FIRE AND SAFETY SYSTEMS IN PLACE IN THE MEDICAL CENTER AND ALL OF ITS OUT BUILDINGS DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
2. IN ADDITION TO ALL VA MEDICAL CENTER POLICIES, ALL NATIONAL, STATE, AND LOCAL CODES AND ORDINANCES SHALL APPLY TO ALL OF THEIR CONTRACTORS AND SUB-CONTRACTORS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL PERTINENT OSHA SAFETY REQUIREMENTS.
4. PROVIDE LOCKOUT-TAGOUT AND CONFINED SPACE ENTRY POLICIES AS APPLICABLE AND AS REQUIRED BY OSHA. THESE POLICIES SHALL BE SUBMITTED FOR PRIOR APPROVAL BY THE VA SAFETY OFFICER / COR.
5. SUBMIT APPROPRIATE INTERIM LIFE SAFETY MEASURES. REFER TO SPECIFICATION 01 35 26 FOR MORE INFORMATION.
6. CONSTRUCT TEMPORARY CONSTRUCTION PARTITIONS OF NON-COMBUSTIBLE MATERIALS WHICH PROVIDE A SMOKE TIGHT SEPARATION BETWEEN THE CONSTRUCTION AREAS AND ALL OTHER OCCUPIED AREAS. MAINTAIN INTEGRITY OF THE ENCLOSURE DURING THE CONSTRUCTION. REFER TO SPECIFICATION SECTION 07 84 00-1HR.
7. EXISTING FIRE PROTECTION SYSTEMS, INCLUDING FIRE ALARM SYSTEMS, SMOKE DETECTION SYSTEMS, AND SPRINKLER SYSTEMS SHALL NOT BE IMPAIRED DURING CONSTRUCTION. SMOKE DETECTOR DISABLE REQUESTS: OUTAGE REQUESTS TO BE SUBMITTED TO FM ENGINEER FOR APPROVAL FOR SPECIFIC DATE AND TIME. ALARMS WILL ONLY BE TURNED OFF FOR SPECIFIC SHIFTS REQUESTED AND WHEN CONTRACTORS ARE IN THE CONSTRUCTION AREA. ALARMS WILL BE RESTORED AT THE END OF THE WORK DAY BY CALLING THE SAME EXTENSION. AT NO TIME WILL ALARMS REMAIN OFF OVERNIGHT. SMOKE DETECTORS AND OR SPRINKLER HEADS: DO NOT COVER BY BAGS, TAPE, AND PLASTIC OR IN ANY OTHER MANNER THAT WILL DEFEAT THEIR ABILITY TO SENSE SMOKE OR HEAT AND OPERATE AS DESIGNED.
8. DAILY ACCUMULATIONS OF TRASH, COMBUSTIBLE MATERIALS, PACKAGING, AND DEBRIS SHALL BE REMOVED FROM THE CONSTRUCTION AREA ON A DAILY BASIS. FLAMMABLE MATERIALS MAY BE STORED ON SITE IN AN APPROVED AND APPROPRIATELY MARKED FLAMMABLE MATERIALS CABINET.
9. MILWAUKEE VA MEDICAL CENTER IS A TOBACCO FREE ZONE. USE OF TOBACCO PRODUCTS IS PROHIBITED,

INFECTION CONTROL RISK ASSESSMENT NOTES - CLASS III - TYPE C

DURING CONSTRUCTION PROJECT

1. PROVIDE ACTIVE MEANS TO PREVENT AIRBORNE DUST DISPERSION INTO THE OCCUPIED AREAS.
2. MEANS FOR CONTROLLING MINIMAL DUST DISPERSION MAY INCLUDE HAND-HELD HEPA VACUUM DEVICES, POLYETHYLENE PLASTIC CONTAINMENT, OR ISOLATION OF WORK AREA BY CLOSING ROOM DOOR.
3. REMOVE OR ISOLATE RETURN AIR DIFFUSERS TO AVOID DUST FROM ENTERING THE HVAC SYSTEM.
4. REMOVE OR ISOLATE THE SUPPLY AIR DIFFUSERS TO AVOID POSITIVE PRESSURIZATION OF THE SPACE,
5. IF WORK AREA IS CONTAINED, THEN IT MUST BE NEGATIVELY PRESSURIZED AT ALL TIMES.
6. SEAL ALL DOORS WITH TAPE THAT WILL NOT LEAVE RESIDUE.
7. CONTAIN ALL TRASH AND DEBRIS IN THE WORK AREA.
8. NONPOROUS/SMOOTH AND CLEANABLE CONTAINERS (WITH A HARD LID) MUST BE USED TO TRANSPORT TRASH AND DEBRIS FROM THE CONSTRUCTION AREAS. THESE CONTAINERS MUST BE DAMP-WIPED CLEANED AND FREE OF VISIBLE DUST/DEBRIS BEFORE LEAVING THE CONTAINED WORK AREA.
9. INSTALL A STICKY (DUST COLLECTION) MAT AT ENTRANCE OF CONTAINED WORK AREA BASED ON FACILITY POLICY. STICKY MATS MUST BE CHANGED ROUTINELY AND WHEN VISIBLY SOILED.
10. MAINTAIN CLEAN SURROUNDINGS WHEN AREA IS NOT CONTAINED BY DAMP MOPPING OR HEPA VACUUMING SURFACES.

UPON COMPLETION OF PROJECT

CONSTRUCTION AREAS MUST BE INSPECTED BY AN INFECTION PREVENTIONIST OR DESIGNEE AND ENGINEERING REPRESENTATIVE FOR DISCONTINUATION OR DOWNGRADING OF ICRA PRECAUTIONS.

WORK AREA CLEANING:

1. CLEAN WORK AREAS INCLUDING ALL ENVIRONMENTAL SURFACES, HIGH HORIZONTAL SURFACES AND FLOORING MATERIALS.
2. CHECK ALL SUPPLY AND RETURN AIR REGISTERS FOR DUST ACCUMULATION ON UPPER SURFACES AS WELL AS AIR DIFFUSER SURFACES.

REMOVAL OF CRITICAL BARRIERS:

1. CRITICAL BARRIERS MUST REMAIN IN PLACE DURING ALL WORK INVOLVING DRYWALL REMOVAL, CREATION OF DUST AND ACTIVITIES BEYOND SIMPLE TOUCH-UP WORK. THE BARRIER MAY NOT BE REMOVED UNTIL A WORK AREA CLEANING HAS BEEN PERFORMED.
2. ALL (PLASTIC OR HARD) BARRIER REMOVAL ACTIVITIES MUST BE COMPLETED IN A MANNER THAT PREVENTS DUST RELEASE. USE THE FOLLOWING PRECAUTIONS WHEN REMOVING HARD BARRIERS:
3. CAREFULLY REMOVE SCREWS AND PAINTER TAPE.
4. IF DUST WILL BE GENERATED DURING SCREW REMOVAL, USE HAND-HELD HEPA VACUUM.
5. DRYWALL CUTTING IS PROHIBITED DURING REMOVAL PROCESS.
6. CLEAN ALL STUD TRACKS WITH HEPA VACUUM BEFORE REMOVING OUTER HARD BARRIER.
7. USE A PLASTIC BARRIER TO ENCLOSE AREA IF DUST COULD BE GENERATED.

NEGATIVE AIR REQUIREMENTS:

1. THE USE OF NEGATIVE AIR MUST BE DESIGNED TO REMOVE CONTAMINATES FROM THE WORK AREA.
2. NEGATIVE AIR DEVICES MUST REMAIN OPERATIONAL AT ALL TIMES AND IN PLACE FOR A PERIOD AFTER COMPLETION OF DUST CREATING ACTIVITIES TO REMOVE CONTAMINANTS FROM THE WORK AREA AND BEFORE REMOVAL OF CRITICAL BARRIERS.
3. MAINTAIN MINIMUM NEGATIVE AIR PRESSURE, 0.01 INCHES OF WATER GAUGE WITHIN WORK SITE UTILIZING HEPA EQUIPPED AIR FILTRATION UNITS AND CONTINUOUSLY MONITORED WITH A DIGITAL DISPLAY, RECORDING AND ALARM INSTRUMENT, WHICH MUST BE CALIBRATED ON INSTALLATION, MAINTAINED WITH PERIODIC CALIBRATION, AND MONITORED.

HVAC SYSTEMS:

1. UPON REMOVAL OF CRITICAL BARRIERS, REMOVE ISOLATION OF HVAC SYSTEM IN AREAS WHERE WORK IS BEING PERFORMED.
2. VERIFY THAT HVAC SYSTEMS ARE CLEAN AND OPERATIONAL.
3. VERIFY THE HVAC SYSTEMS MEETS ORIGINAL AIRFLOW AND AIR EXCHANGE DESIGN SPECIFICATIONS.

INFECTION CONTROL RISK ASSESSMENT NOTES - CLASS IV - TYPE C/D

DURING CONSTRUCTION PROJECT

1. CONSTRUCT AND COMPLETE CRITICAL BARRIERS MEETING NFPA 241 REQUIREMENTS. BARRIERS MUST EXTEND TO THE CEILING OR IF CEILING TILE IS REMOVED, TO THE DECK ABOVE.
2. ALL (PLASTIC OR HARD) BARRIER CONSTRUCTION ACTIVITIES MUST BE COMPLETED IN A MANNER THAT PREVENTS DUST RELEASE. PLASTIC BARRIERS MUST BE EFFECTIVELY AFFIXED TO GROUND AND CEILING AND SECURE FROM MOVEMENT OR DAMAGE. APPLY TAPE THAT WILL NOT LEAVE A RESIDUE TO SEAL GAPS BETWEEN BARRIERS, CEILING OR FLOOR.
3. SEAL ALL PENETRATIONS IN CONTAINMENT BARRIERS, INCLUDING FLOORS AND CEILING, USING APPROVED MATERIALS (UL SCHEDULE FIRESTOP IF APPLICABLE FOR BARRIER TYPE).
4. CONTAINMENT UNITS OR ENVIRONMENTAL CONTAINMENT UNITS (ECUS) APPROVED FOR CLASS IV PRECAUTIONS IN SMALL AREAS TOTALLY CONTAINED BY THE UNIT AND THAT HAS HEPA-FILTERED EXHAUST AIR.
5. REMOVE OR ISOLATE RETURN AIR DIFFUSERS TO AVOID DUST ENTERING THE HVAC SYSTEM.
6. REMOVE OR ISOLATE THE SUPPLY AIR DIFFUSERS TO AVOID POSITIVE PRESSURIZATION OF THE SPACE.
7. NEGATIVE AIRFLOW PATTERN MUST BE MAINTAINED FROM THE ENTRY POINT TO THE ANTEROOM AND INTO THE CONSTRUCTION AREA. THE AIRFLOW MUST CASCADE FROM OUTSIDE TO INSIDE THE CONSTRUCTION AREA. THE ENTIRE CONSTRUCTION AREA MUST REMAIN NEGATIVELY PRESSURIZED.
8. MAINTAIN NEGATIVE PRESSURIZATION OF THE ENTIRE WORKSPACE BY USE OF HEPA EXHAUST AIR SYSTEMS DIRECTED OUTDOORS. EXHAUST DISCHARGED DIRECTLY TO THE OUTDOORS THAT IS 25 FEET OR GREATER FROM ENTRANCES, AIR INTAKES AND WINDOWS DOES NOT REQUIRE HEPA-FILTERED AIR.
9. IF EXHAUST IS DIRECTED INDOORS, THEN THE SYSTEM MUST BE HEPA FILTERED. PRIOR TO START OF WORK, HEPA FILTRATION MUST BE VERIFIED BY PARTICULATE MEASUREMENT AS NO LESS THAN 99.97% EFFICIENCY AND MUST NOT ALTER OR CHANGE AIRFLOW/PRESSURE RELATIONSHIPS IN OTHER AREAS.
10. EXHAUST INTO SHARED OR RECIRCULATING HVAC SYSTEMS, OR OTHER SHARED EXHAUST SYSTEMS (E.G., BATHROOM EXHAUST) IS NOT ACCEPTABLE.
11. INSTALL DEVICE (DIGITAL MONITORING) ON EXTERIOR OF WORK CONTAINMENT TO CONTINUALLY MONITOR NEGATIVE PRESSURIZATION. THE "BALL IN THE WALL" OR SIMILAR APPARATUS ARE NOT ACCEPTABLE.
12. CONTAIN ALL TRASH AND DEBRIS IN THE WORK AREA.
13. NONPOROUS/SMOOTH AND CLEANABLE CONTAINERS (WITH A HARD LID) MUST BE USED TO TRANSPORT TRASH AND DEBRIS FROM THE CONSTRUCTION AREAS. THESE CONTAINERS MUST BE DAMP-WIPED CLEANED AND FREE OF VISIBLE DUST/DEBRIS BEFORE LEAVING THE CONTAINED WORK AREA.
14. WORKER CLOTHING MUST BE CLEAN AND FREE OF VISIBLE DUST BEFORE LEAVING THE WORK AREA. HEPA VACUUMING OF CLOTHING OR USE OF COVER SUITES IS ACCEPTABLE.
15. WORKERS MUST WEAR SHOE COVERS PRIOR TO ENTRY INTO THE WORK AREA. SHOE COVERS MUST BE CHANGED PRIOR TO EXITING THE ANTEROOM TO THE OCCUPIED SPACE (NON-WORK AREA). DAMAGED SHOE COVERS MUST BE IMMEDIATELY CHANGED.
16. INSTALL A STICKY (DUST COLLECTION) MAT AT ENTRANCE OF CONTAINED WORK AREA BASED ON FACILITY POLICY. STICKY MATS MUST BE CHANGED ROUTINELY AND WHEN VISIBLY SOILED.
17. IN THE EVENT THAT THERE IS A DEVIATION IN PLACE TO DISCHARGE THE EXHAUST AIR INTO OCCUPIED SPACE (AND NOT OUTSIDE), THEN CONSIDER PARTICULATE SAMPLING TO HELP IDENTIFY CONTAMINANTS THAT MAY ENTER PATIENT CARE AREAS.

UPON COMPLETION OF PROJECT

CONSTRUCTION AREAS MUST BE INSPECTED BY AN INFECTION PREVENTIONIST OR DESIGNEE AND ENGINEERING REPRESENTATIVE FOR DISCONTINUATION OR DOWNGRADING OF ICRA PRECAUTIONS.

WORK AREA CLEANING:

1. CLEAN WORK AREAS INCLUDING ALL ENVIRONMENTAL SURFACES, HIGH HORIZONTAL SURFACES AND FLOORING MATERIALS.
2. CHECK ALL SUPPLY AND RETURN AIR REGISTERS FOR DUST ACCUMULATION ON UPPER SURFACES AS WELL AS AIR DIFFUSER SURFACES.

REMOVAL OF CRITICAL BARRIERS:

1. CRITICAL BARRIERS MUST REMAIN IN PLACE DURING ALL WORK INVOLVING DRYWALL REMOVAL, CREATION OF DUST AND ACTIVITIES BEYOND SIMPLE TOUCH-UP WORK. THE BARRIER MAY NOT BE REMOVED UNTIL A WORK AREA CLEANING HAS BEEN PERFORMED.
2. ALL (PLASTIC OR HARD) BARRIER REMOVAL ACTIVITIES MUST BE COMPLETED IN A MANNER THAT PREVENTS DUST RELEASE. USE THE FOLLOWING PRECAUTIONS WHEN REMOVING HARD BARRIERS:
3. CAREFULLY REMOVE SCREWS AND PAINTER TAPE.
4. IF DUST WILL BE GENERATED DURING SCREW REMOVAL, USE HAND-HELD HEPA VACUUM.
5. DRYWALL CUTTING IS PROHIBITED DURING REMOVAL PROCESS.
6. CLEAN ALL STUD TRACKS WITH HEPA VACUUM BEFORE REMOVING OUTER HARD BARRIER.
7. USE A PLASTIC BARRIER TO ENCLOSE AREA IF DUST COULD BE GENERATED.

NEGATIVE AIR REQUIREMENTS:

1. THE USE OF NEGATIVE AIR MUST BE DESIGNED TO REMOVE CONTAMINATES FROM THE WORK AREA.
2. NEGATIVE AIR DEVICES MUST REMAIN OPERATIONAL AT ALL TIMES AND IN PLACE FOR A PERIOD AFTER COMPLETION OF DUST CREATING ACTIVITIES TO REMOVE CONTAMINANTS FROM THE WORK AREA AND BEFORE REMOVAL OF CRITICAL BARRIERS.
3. MAINTAIN MINIMUM NEGATIVE AIR PRESSURE, 0.01 INCHES OF WATER GAUGE WITHIN WORK SITE UTILIZING HEPA EQUIPPED AIR FILTRATION UNITS AND CONTINUOUSLY MONITORED WITH A DIGITAL DISPLAY, RECORDING AND ALARM INSTRUMENT, WHICH MUST BE CALIBRATED ON INSTALLATION, MAINTAINED WITH PERIODIC CALIBRATION, AND MONITORED.

HVAC SYSTEMS:

1. UPON REMOVAL OF CRITICAL BARRIERS, REMOVE ISOLATION OF HVAC SYSTEM IN AREAS WHERE WORK IS BEING PERFORMED.
2. VERIFY THAT HVAC SYSTEMS ARE CLEAN AND OPERATIONAL.
3. VERIFY THE HVAC SYSTEMS MEETS ORIGINAL AIRFLOW AND AIR EXCHANGE DESIGN SPECIFICATIONS.

INFECTION CONTROL GENERAL NOTES

1. REFER TO LIST OF REQUIRED INFECTION CONTROL PRECAUTIONS OUTLINED BY CLASS IN SPECIFICATION 010110 AND ADDITIONAL INFORMATION.
2. REFER TO DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. COORDINATE FULL SCOPE OF WORK WITH ENGINEERING DRAWINGS AND FIELD VERIFICATION. CONTRACTOR IS RESPONSIBLE FOR SCOPE OF ABOVE CEILING WORK REQUIRED ABOVE AND BELOW THE FLOOR PLATE OF THE PROJECT BOUNDARY.
4. COORDINATE LOCATION OF TEMPORARY INFECTION CONTROL (IC) BARRIER WALL CONSTRUCTION AND INFECTION CONTROL (IC) MEASURES WITH COR AND PATIENT SAFETY/ INFECTION CONTROL REPRESENTATIVE. TEMPORARY IC BARRIER WALL CONSTRUCTION LOCATIONS IN DRAWINGS ARE APPROXIMATE. CONTRACTOR SHALL PROVIDE DRAWING TO COR AND PATIENT SAFETY/ INFECTION CONTROL REPRESENTATIVE ONCE ICRA PROTOCOLS AND PLAN IS APPROVED.
5. SCHEDULE AND TIME OF CONSTRUCTION WORK TO BE APPROVED BY COR AND NURSING STAFF BEFORE CONSTRUCTION MAY BEGIN. PROVIDE PHASING INFORMATION FOR ABOVE CEILING WORK IN THE CONTRACTOR PROVIDED CMP SCHEDULE FOR WORK ALSO REQUIRED ABOVE AND BELOW THE FLOOR PLATE OF THE PROJECT BOUNDARY.
6. ABOVE CEILING WORK SHALL TAKE PLACE BETWEEN THE HOURS OF 5:00 PM AND 5:00 AM. IN AREAS THAT REQUIRE ABOVE CEILING WORK WHERE CEILINGS ARE TO REMAIN, CEILING TILES SHALL BE REMOVED AND STORED IN A SAFE MANNER UNTIL CEILING TILES CAN BE REINSTALLED. DAMAGED AND BROKEN CEILING TILES SHALL BE REPLACED BY CONTRACTOR.
7. EXIT/ACCESS FOR ADJACENT OPERATIONAL AREAS SHALL BE MAINTAINED DURING NORMAL BUSINESS HOURS. SEE SPECIFICATION FOR HOURS OF OPERATION.
8. WORK REQUIRING VIBRATION OR LOUD NOISE SHALL TAKE PLACE BETWEEN THE HOURS OF 8:00 AM AND 5:00 PM. EVERY EFFORT SHALL BE MADE TO KEEP NOISE AND VIBRATION TO A MINIMUM.
9. PROVIDE THE FOLLOWING INFECTION CONTROL MEASURES, A 24"X36" STICKY WALK OFF MAT AND HAND SANITIZER AT EACH TEMPORARY DOOR LOCATION AND AS SHOWN. MAT SHALL BE REPLACED OR CLEANED AS NECESSARY
10. PROVIDE THE IHS OSHA REQUIRED TEMPORARY SIGNAGE AT EACH TEMPORARY DOOR LOCATION.
11. CONTRACTOR SHALL SUPPLY SPILL KIT. SPILL KIT TO INCLUDE SHOP VAC, MULTI-PURPOSE SPILL CONTROL SORBENTS TO ABSORB NON AGGRESSIVE LIQUIDS UP TO 30 GALLONS.
12. ALL NEW MATERIAL MOVED THROUGH THE FACILITY SHALL BE COVERED WITH 4 MIL. POLY SHEET.
13. ALL DEMOLITION MATERIAL SHALL BE REMOVED FROM THE PROJECT BOUNDARY THROUGH THE FACILITY TO DUMPSTER ALONG IHS APPROVED ROUTE IN ENCLOSED DUMPSTER CART DESIGNED FOR SUCH PURPOSED WITH A LID.
14. ALL MATERIAL, DEBRIS AND HAZARDOUS MATERIALS SHALL BE PROPERLY STORED IN DESIGNATED AREAS AND IN APPROVED CONTAINERS. FLAMMABLE MATERIALS SHALL NOT BE STORED IN THE FACILITY.
15. PROVIDE CONTAINMENT CART FOR ABOVE CEILING ACCESS OUTSIDE PROJECT BOUNDARY.

GENERAL CONSTRUCTION NOTES

1. PATCH AND REPAIR ALL AREAS AFFECTED BY DEMO AND / OR CONSTRUCTION TO MATCH EXISTING. PATCHED AREAS ARE TO RECEIVE FINISHES AND TRIM TO MATCH ADJACENT AREA, EXCEPT AS NOTED IN THE ROOM FINISH PLANS. PATCH CEILINGS AND FLOORS TO ACHIEVE A CONTINUOUS FINISHED APPEARANCE.
2. ALL EQUIPMENT TO BE DISCONNECTED AND REMOVED BY CONTRACTOR. IHS TO BE NOTIFIED WHEN EQUIPMENT IS AVAILABLE AND BE GIVEN THE OPTION TO TAKE POSSESSION OF ALL EQUIPMENT. CONTRACTOR TO DISPOSE OF ALL EQUIPMENT THE IHS DOES NOT WANT AND REMOVE ALL ITEMS WITH EXTREME CARE.
3. REMOVE, RELOCATE, STORE AND REINSTALL PORTABLE EQUIPMENT, FURNITURE, SHELVES, CURTAIN RODS, DRAPERY, BULLETIN BOARDS, WHICH WOULD INTERFERE WITH DEMOLITION WORK.
4. REFER TO SPECIFICATIONS FOR SHORING REQUIREMENTS WHERE DEMOLITION WORK AFFECTS THE STRUCTURAL INTEGRITY OF WALLS OR FLOORS. IF NOT SO INDICATED IN SPECIFICATIONS, CONTRACTOR SHALL SUBMIT SHORING PLAN AND SHOP DRAWINGS SIGNED BY AN ENGINEER FOR IHS APPROVAL. ALL SHORING IS CONTRACTOR'S RESPONSIBILITY.
5. PROTECT ALL EXISTING SURFACES FROM DAMAGE. ANY DAMAGED SURFACES SHALL BE REPLACED TO MATCH ORIGINAL ITEM OR REPAIRED TO MATCH EXISTING OR ADJACENT MATERIAL AS APPROVED BY THE VA COR.
6. VERIFY EXISTING CONDITIONS AND LOCATIONS IN FIELD PRIOR TO SUBMITTING PROPOSAL. FAILURE TO DO SO SHALL NOT RELIEVE THIS CONTRACTOR FROM PERFORMING THE WORK REQUIRED UNDER THIS CONTRACT.
7. ALL SUB-CONTRACTORS ARE ENCOURAGED TO VISIT AND ATTEND A PRE-BID WALK THRU TO INSPECT THE EXISTING AREA AND THOROUGHLY FAMILIARIZE THEMSELVES WITH ACTUAL JOB CONDITIONS BEFORE SUBMITTING BID.
8. WHILE THE SIZE AND LOCATION OF NEW WORK AND EQUIPMENT IN THE EXISTING AREA HAS BEEN INDICATED ON THE DRAWINGS AS ACCURATELY AS POSSIBLE, CONTRACTOR SHALL ADJUST HIS WORK AS REQUIRED TO AVOID EXISTING UTILITIES, GAS LINES, SEWER, FIRE ALARM, ROOF DRAINS, ACCESS COVERS, AND OTHER STRUCTURES NOT PARTICULARLY SHOWN ON THE PLAN AT NO ADDITIONAL COST. BEFORE CONSTRUCTION, INSPECT PREMISES MAKE A DETAILED EXAMINATION OF ALL LOCATIONS WHERE NEW WORK IS TO BE INSTALLED, EXAMINE EXISTING PIPING, CONDUITS, STRUCTURAL SUPPORTING BEAMS, AND OTHER CONDITIONS.
9. DISCONNECT AT SOURCE AND REMOVE EXISTING MECHANICAL AND ELECTRICAL MATERIALS AND EQUIPMENT WHICH ARE RENDERED OBSOLETE BY THESE ALTERATIONS AND ADDITIONS. VA TO BE GIVEN THE OPTION TO TAKE POSSESSION OF REMOVED EQUIPMENT AND MATERIALS. ANY EQUIPMENT THAT THE VA DOES NOT WANT ARE THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE. NO MECHANICAL, ELECTRICAL, PLUMBING EQUIPMENT, ETC. SHALL BE ABANDONED IN PLACE.
10. DISCONNECT, REMOVE AND RELOCATE EXISTING MECHANICAL AND ELECTRICAL MATERIALS AND EQUIPMENT WHICH INTERFERE OR ARE INTERFERED WITH, OBSTRUCT OR ARE OBSTRUCTED BY, THESE ALTERATIONS AND ADDITIONS. PERMANENTLY INSTALL SUCH ITEMS IN NEW LOCATIONS AS DIRECTED. RECONNECT SUCH ITEMS IN PROPER OPERATING CONDITION AT NEW LOCATIONS.
11. DO NOT INTERFERE WITH EXISTING BUILDING'S MECHANICAL, ELECTRICAL, AND SECURITY SYSTEMS OPERATIONS. IF IT IS ABSOLUTELY NECESSARY TO SHUT DOWN FACILITY SYSTEMS AT ANY TIME, CONSULT COR TO MAKE ARRANGEMENTS TO DO SO ON OFF WORKING HOUR PERIODS AT THE OWNER'S CONVENIENCE. PRIOR NOTICE SHALL BE GIVEN TO THE COR (14) DAYS IN ADVANCE OF THE DESIRED SHUT-DOWN TIME. ANY PREMIUM OR OVERTIME COSTS NECESSARY TO ACCOMPLISH THE ABOVE SHALL BE INCLUDED IN THIS BID. FAILURE TO PROCEED WITHOUT PROPER PRIOR NOTIFICATION MAY RESULT IN THE ASSESSMENT OF A REDIT TO THE CONTRACT.
12. TYPICAL EXISTING FLOOR TO FLOOR HEIGHTS ARE 13'-9-3/8" (+/-) FROM BASEMENT TO SECOND FLOORS AND 11'-6-5/8" (+/-) FROM THIRD FLOOR THRU TENTH FLOOR. FLOOR CONSTRUCTION IS 10" (+/-) CONCRETE FLOORS, WITH CONCRETE COLUMNS AND FLOOR BEAMS. ALL AS-BUILT CONDITIONS SHOULD BE VERIFIED BY THE CONTRACTOR IN THE FIELD.
13. IN ALL CONSTRUCTION ZONES AND AREAS, CONTRACTOR RESPONSIBLE FOR MAINTAINING AN ACTIVE STROBE SPEAKER SYSTEM AT ALL TIMES. TYPICAL FOR ALL CONSTRUCTION ZONES FOR ALL BUILDINGS.

SECURITY NOTES

1. NO TOOLS OR EQUIPMENT TO BE LEFT UNATTENDED.
2. CONTRACTOR TO PROVIDE TEMPORARY SECURITY WALLS IN HIGH SECURITY AREAS.
3. CONTRACTOR VA IDENTIFICATION TO BE DISPLAYED AT ALL TIMES ON PERSON.
4. TOOLS AND EQUIPMENT NOT NEEDED FOR TASKS AT HAND TO BE STORED OFF SITE.

4 T2- TEMPORARY WALL PARTITION
SCALE: 3/4" = 1'-0"

3 T1 - TEMPORARY WALL PARTITION
SCALE: 3/4" = 1'-0"

2 DUST BARRIER PREP INSTALLATION
SCALE: 3/8" = 1'-0"

1 ACCESS POINT/ BARRIER PREP INSTALLATION
SCALE: 3/8" = 1'-0"

BID PACKAGE 2
ISSUED FOR BIDS

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A/E SEAL

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INDIAN HEALTH SERVICE
CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

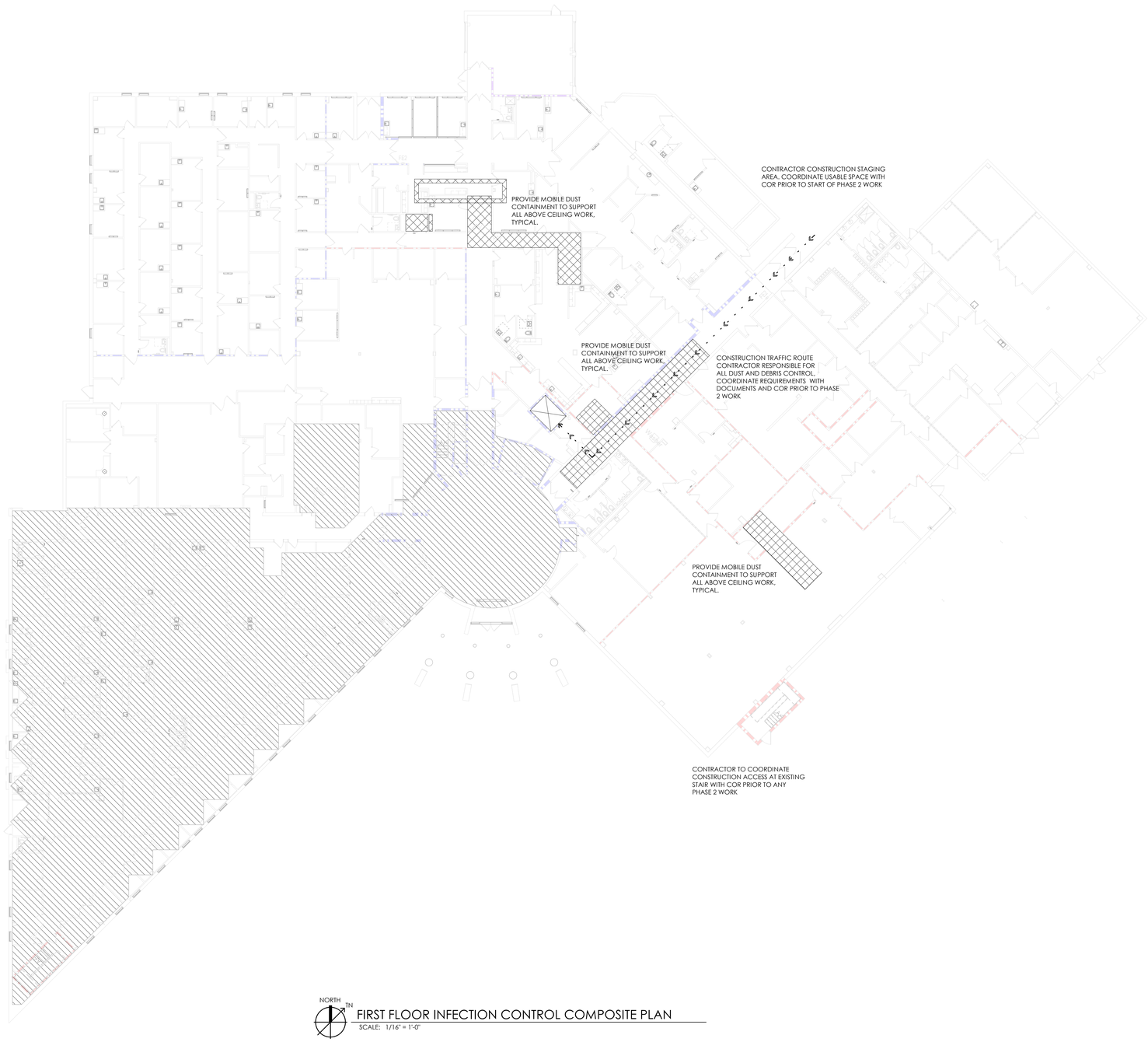
REVIEWED:
ES ARCHITECT / ENGINEER DATE
APPROVED:
ES PROJECT MANAGER DATE
ES BRANCH CHIEF DATE
CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: G100.2.dwg
DRAWN BY: PC
CHECKED BY: JK

SHEET TITLE:
INFECTION CONTROL GENERAL INFORMATION

G100.2



NORTH TN

FIRST FLOOR INFECTION CONTROL COMPOSITE PLAN

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

INFECTION CONTROL PROJECT INFORMATION

CONSTRUCTION ACTIVITY - FIRE RISK: B/D

PATIENT RISK GROUP: MEDIUM

CLASS OF PRECAUTION MATRIX: III

INFECTION CONTROL GENERAL NOTES

1. REFER TO LIST OF REQUIRED INFECTION CONTROL PRECAUTIONS OUTLINED BY CLASS IN SPECIFICATION 01 01 10 SN AND 01 35 16 ARTICLE 1.12 FOR MORE INFORMATION. REFER TO DRAWINGS FOR ADDITIONAL INFORMATION AND PHASING.

2. THE INTENT OF IC ISOLATION IS TO PROTECT PATIENTS WITH LOW IMMUNE LEVELS. THEREFORE, CONTRACTOR SHALL ENSURE THEIR IC BARRIERS CONTAIN DUST AND PARTICULATE MATTER TO THE CONSTRUCTION AREA.

3. PROVIDE TRIATEK NEGATIVE AIR ISOLATION MONITORS (MINIMUM (1) ONE IN AREAS LESS THAN 1000 SF, (2) TWO MINIMUM IN AREAS BETWEEN 1000 SF AND 5000 SF, AND (3) THREE FOR AREAS BETWEEN 5000 SF AND 10000 SF.) DURING CLASS III OR CLASS IV CONSTRUCTION OPERATIONS THAT LAST THREE DAYS OR MORE. EACH AREA TO BE UNDER NEGATIVE PRESSURE (0.02" WC) DURING THESE CONSTRUCTION OPERATIONS. MONITOR AND DOCUMENT AS DIRECTED BY THE COR.

4. COORDINATE LOCATION OF TEMPORARY INFECTION CONTROL (IC) BARRIER WALL CONSTRUCTION AND INFECTION CONTROL (IC) MEASURES WITH COR AND PATIENT SAFETY/ INFECTION CONTROL REPRESENTATIVE. TEMPORARY IC BARRIER WALL CONSTRUCTION LOCATIONS IN DRAWINGS ARE APPROXIMATE. CONTRACTOR SHALL PROVIDE DRAWING TO COR AND PATIENT SAFETY/ INFECTION CONTROL REPRESENTATIVE ONCE ICRA PROTOCOLS AND PLAN IS APPROVED. CONSTRUCT I.C. CONSTRUCTION BARRIER FROM FLOOR TO DECK/FLOOR ABOVE.

5. EXIT/ACCESS FOR ADJACENT OPERATIONAL AREAS SHALL BE MAINTAINED AT ALL TIMES.

6. PROVIDE THE FOLLOWING INFECTION CONTROL MEASURES. A 24"X36" STICKY WALK OFF MAT AT THE ENTRY (OUTSIDE OF CONTAINMENT) AND EXIT (INSIDE OF CONTAINMENT), AND HAND SANITIZER AT EACH TEMPORARY DOOR LOCATION. MAT SHALL BE REPLACED TO MEET MANUFACTURER'S RECOMMENDATIONS. VERIFY REPLACEMENT SCHEDULE WITH HOSPITAL'S INFECTION CONTROL MANAGEMENT PERSONNEL.

7. PROVIDE THE IHS AND OSHA REQUIRED TEMPORARY SIGNAGE AT EACH TEMPORARY DOOR LOCATION.

8. CONTRACTOR SHALL SUPPLY SPILL KIT. SPILL KIT TO INCLUDE SHOP VAC, MULTI-PURPOSE SPILL CONTROL SORBENTS TO ABSORB NON AGGRESSIVE LIQUIDS UP TO 30 GALLONS.

9. ALL NEW MATERIAL MOVED THROUGH THE FACILITY SHALL BE COVERED WITH 4 MIL. POLY SHEET. ALL CONTAINERS SHALL BE TRANSPORTED DOWN THE "B" BANK FREIGHT ELEVATORS.

10. ALL DEMOLITION MATERIAL SHALL BE REMOVED FROM THE PROJECT BOUNDARY THROUGH THE FACILITY TO DUMPSTER ALONG VA APPROVED ROUTE IN ENCLOSED DUMPSTER CART DESIGNED FOR SUCH PURPOSED WITH A LID. ALL CONTAINERS SHALL BE TRANSPORTED DOWN THE "B" BANK FREIGHT ELEVATORS.

11. ALL MATERIAL, DEBRIS AND HAZARDOUS MATERIALS SHALL BE PROPERLY STORED IN DESIGNATED AREAS AND APPROVED CONTAINERS. FLAMMABLE MATERIALS SHALL NOT BE STORED IN THE FACILITY.

12. PROVIDE HEPA FILTERED CONTAINMENT CART FOR ABOVE CEILING ACCESS OUTSIDE PROJECT BOUNDARY.

13. PROVIDE HEPA FILTERED NEGATIVE AIR MACHINES WHEN REQUIRED. THE CONTRACTOR SHALL PROVIDE ENOUGH MACHINES TO COMPLETELY EXCHANGE THE SPACE TO MAINTAIN 0.02" HG. A NEGATIVE AIR MONITOR SHALL BE PROVIDED AND VISIBLE FROM EXTERIOR OF CONTAINMENT TO ENSURE COMPLIANCE.

14. CORRIDOR REDUCTION TO ALLOW FOR CONSTRUCTION OF A CONTAINMENT IS POSSIBLE, YET MUST MAINTAIN A MINIMUM OF 5 FEET FOR HOSPITAL CIRCULATION, REVIEWED WITH HOSPITAL SAFETY AND INFECTION PREVENTION AND HAVE A POSTED ILSM, AS NEEDED.

15. PRIOR TO ANY REMOVAL OF SMOKE BARRIER FIRE RATED WALLS, CONSTRUCT NEW SMOKE BARRIER/APPROPRIATE FIRE RATED WALLS PER NEW PLANS OR CONSTRUCT INFECTION CONTROL BARRIER TO ACT AS SMOKE BARRIER.

PHASING GENERAL NOTES

PROJECT AREAS TO BE OCCUPIED BY STAFF AND PATIENTS THROUGHOUT CONSTRUCTION.

ALL WORK TO BE AFTERHOURS/OVERNIGHT OR WEEKENDS/HOLIDAYS; INDIVIDUAL TAKE DOWN EACH SHIFT FOR WORK IN THE FOURTH FLOOR AREA.

REFER TO SPECIFICATION 010110 FOR INFORMATION ON WORK DURATION FOR EACH PHASE AND AREA OF WORK.

NEW WORK IN THE DEMO AREA MUST BE COORDINATED TO OCCUR IN SEQUENCE SO TO ONLY DISTURB THE OCCUPANT ONCE.

INFECTION CONTROL PLAN NOTES

1. PROVIDE TEMPORARY CONSTRUCTION ACCESS DOOR WITH CARD READER. REFER TO 'BARRIER PREP INSTALLATION' DETAIL ON SHEET G100.1.
2. PROVIDE TEMPORARY INFECTION CONTROL PLASTIC BARRIER WALL CONSTRUCTION. REFER TO 'BARRIER PREP INSTALLATION' DETAIL ON SHEET G100.1 AND SPECIFICATION FOR ADDITIONAL INFORMATION.

BID PACKAGE 2
ISSUED FOR BIDS

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LICENSED ARCHITECT
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A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:

ES ARCHITECT / ENGINEER — DATE

APPROVED:

ES PROJECT MANAGER — DATE

ES BRANCH CHIEF — DATE

CONCURRENCE

AGENCY REPRESENTATIVE — DATE

TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026

CONTRACT NO: 75H70124D00014 / 75H70125F30005

PROJECT NO: 241532

CAD DWG FILE: G111.2.dwg

DRAWN BY: JK

CHECKED BY: DM

SHEET TITLE:

FIRST FLOOR INFECTION CONTROL PLAN

G111.2

INFECTION CONTROL PLAN NOTES

1. PROVIDE TEMPORARY CONSTRUCTION ACCESS DOOR WITH CARD READER. REFER TO 'BARRIER PREP INSTALLATION' DETAIL ON SHEET G100.1.
2. PROVIDE TEMPORARY INFECTION CONTROL PLASTIC BARRIER WALL CONSTRUCTION. REFER TO 'BARRIER PREP INSTALLATION' DETAIL ON SHEET G100.1 AND SPECIFICATION FOR ADDITIONAL INFORMATION.

IFC PLAN KEY NOTES

A. PROVIDE STICKY WALK-OFF MAT AT ENTRY TO EACH AREA OF WORK.

B. PROVIDE TEMPORARY INFECTION CONTROL CONSTRUCTION WALLS (BASIS OF DESIGN OF EDGE GUARD OR STARC WALL SYSTEMS) & 4'-0" DOOR WITH CONTRACTOR PROVIDED HARDWARE CAPABLE OF RECEIVING SFIC CONSTRUCTION CORE FROM VA LOCKSMITH AND CARD READER CONNECTIVITY TO BE MADE IN DATA CLOSET 5455 IF NOT WIRELESS. REFER TO MANUF. SPECIFICATION AND INSTALLATION INSTRUCTIONS

C. PROVIDE TEMPORARY INFECTION CONTROL CONSTRUCTION WALLS (BASIS OF DESIGN OF EDGE GUARD OR STARC WALL SYSTEMS). REFER TO MANUF. SPECIFICATION AND INSTALLATION INSTRUCTIONS.

D. PROVIDE MOBILE DUST CONTAINMENT (BASIS OF DESIGN HEPACART) TO SUPPORT ALL ABOVE CEILING WORK OUTSIDE OF THE CONSTRUCTION AREA.

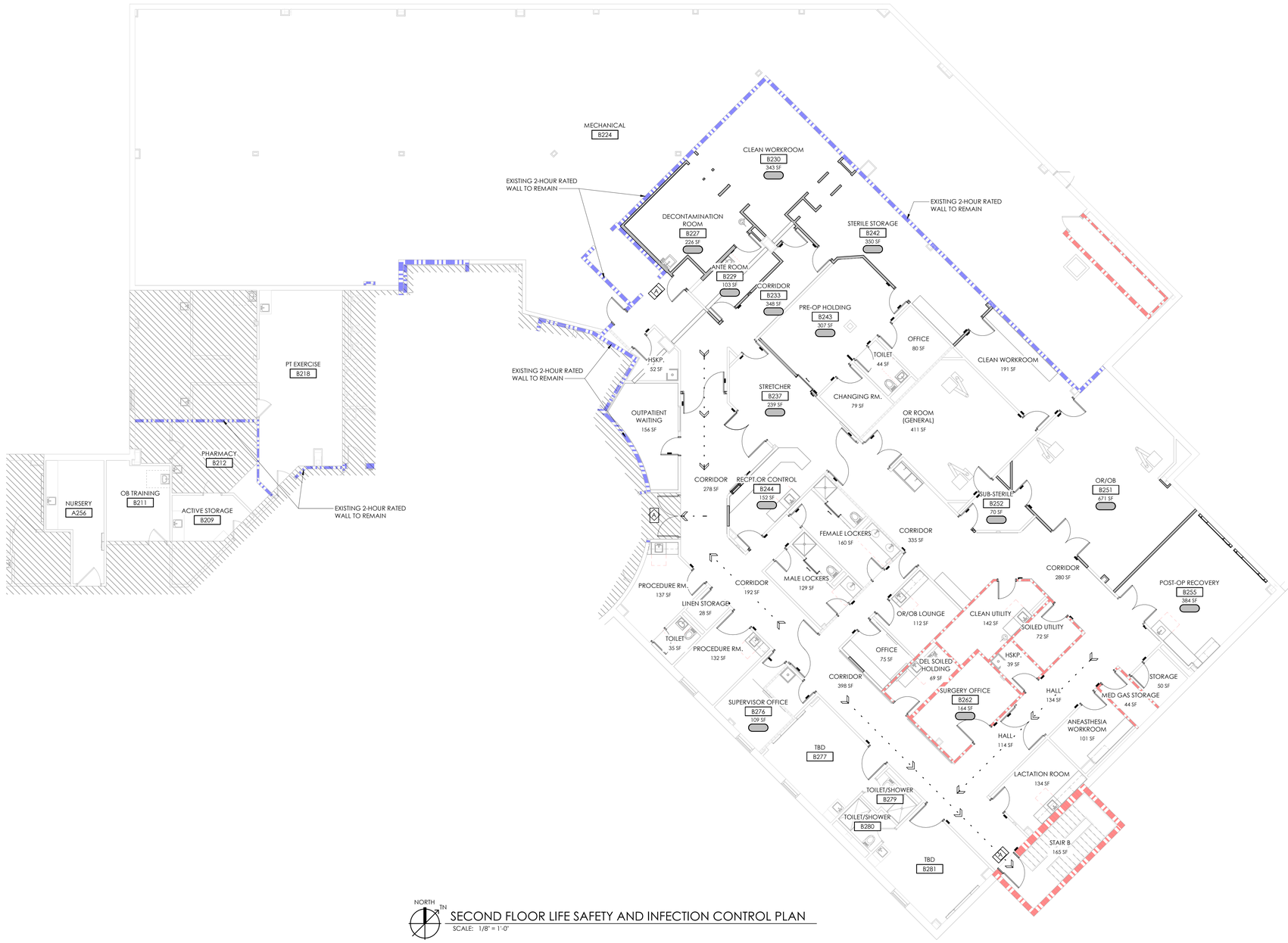
E. NOISE SENSITIVE AREA. LIMIT DEMOLITION IN AREA TO AFTER HOURS, HOLIDAY OR WEEKEND. COORDINATE WITH IHS.

LIFE SAFETY LEGEND

- 1-HOUR FIRE RATED PARTITION
- 2-HOUR FIRE RATED PARTITION
- 1-HOUR SMOKE BARRIER
- AREA NOT IN CONTRACT
- PATH OF TRAVEL
- ROOM NAME / ROOM NUMBER / SQ. FOOTAGE — OCCUPANCY — OCCUPANT LOAD TAG

LIFE SAFETY GENERAL NOTES

1. RATED WALLS SHOWN IN PLANS REFLECT ORIGINAL BUILDING DRAWINGS AND HAVE NOT BEEN VERIFIED IN FIELD.
2. SOME RATED WALLS MAY NOT BE SHOWN.



NORTH TN

SECOND FLOOR LIFE SAFETY AND INFECTION CONTROL PLAN

SCALE: 1/8" = 1'-0"

INFECTION CONTROL PROJECT INFORMATION

CONSTRUCTION ACTIVITY - FIRE RISK: B/D

PATIENT RISK GROUP: MEDIUM

CLASS OF PRECAUTION MATRIX: III

INFECTION CONTROL GENERAL NOTES

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3. PROVIDE TRIATEK NEGATIVE AIR ISOLATION MONITORS (MINIMUM (1) ONE IN AREAS LESS THAN 1000 SF, (2) TWO MINIMUM IN AREAS BETWEEN 1000 SF AND 5000 SF, AND (3) THREE FOR AREAS BETWEEN 5000 SF AND 10000 SF.) DURING CLASS III OR CLASS IV CONSTRUCTION OPERATIONS THAT LAST THREE DAYS OR MORE. EACH AREA TO BE UNDER NEGATIVE PRESSURE (0.02" WC) DURING THESE CONSTRUCTION OPERATIONS. MONITOR AND DOCUMENT AS DIRECTED BY THE COR.

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5. EXIT/ACCESS FOR ADJACENT OPERATIONAL AREAS SHALL BE MAINTAINED AT ALL TIMES.

6. PROVIDE THE FOLLOWING INFECTION CONTROL MEASURES. A 24"X36" STICKY WALK OFF MAT AT THE ENTRY (OUTSIDE OF CONTAINMENT) AND EXIT (INSIDE OF CONTAINMENT), AND HAND SANITIZER AT EACH TEMPORARY DOOR LOCATION. MAT SHALL BE REPLACED TO MEET MANUFACTURER'S RECOMMENDATIONS. VERIFY REPLACEMENT SCHEDULE WITH HOSPITAL'S INFECTION CONTROL MANAGEMENT PERSONNEL.

7. PROVIDE THE IHS AND OSHA REQUIRED TEMPORARY SIGNAGE AT EACH TEMPORARY DOOR LOCATION.

8. CONTRACTOR SHALL SUPPLY SPILL KIT. SPILL KIT TO INCLUDE SHOP VAC, MULTI-PURPOSE SPILL CONTROL SORBENTS TO ABSORB NON AGGRESSIVE LIQUIDS UP TO 30 GALLONS.

9. ALL NEW MATERIAL MOVED THROUGH THE FACILITY SHALL BE COVERED WITH 4 MIL. POLY SHEET. ALL CONTAINERS SHALL BE TRANSPORTED DOWN THE "B" BANK FREIGHT ELEVATORS.

10. ALL DEMOLITION MATERIAL SHALL BE REMOVED FROM THE PROJECT BOUNDARY THROUGH THE FACILITY TO DUMPSTER ALONG VA APPROVED ROUTE IN ENCLOSED DUMPSTER CART DESIGNED FOR SUCH PURPOSED WITH A LID. ALL CONTAINERS SHALL BE TRANSPORTED DOWN THE "B" BANK FREIGHT ELEVATORS.

11. ALL MATERIAL, DEBRIS AND HAZARDOUS MATERIALS SHALL BE PROPERLY STORED IN DESIGNATED AREAS AND APPROVED CONTAINERS. FLAMMABLE MATERIALS SHALL NOT BE STORED IN THE FACILITY.

12. PROVIDE HEPA FILTERED CONTAINMENT CART FOR ABOVE CEILING ACCESS OUTSIDE PROJECT BOUNDARY.

13. PROVIDE HEPA FILTERED NEGATIVE AIR MACHINES WHEN REQUIRED. THE CONTRACTOR SHALL PROVIDE ENOUGH MACHINES TO COMPLETELY EXCHANGE THE SPACE TO MAINTAIN 0.02" HG. A NEGATIVE AIR MONITOR SHALL BE PROVIDED AND VISIBLE FROM EXTERIOR OF CONTAINMENT TO ENSURE COMPLIANCE.

14. CORRIDOR REDUCTION TO ALLOW FOR CONSTRUCTION OF A CONTAINMENT IS POSSIBLE, YET MUST MAINTAIN A MINIMUM OF 5 FEET FOR HOSPITAL CIRCULATION. REVIEWED WITH HOSPITAL SAFETY AND INFECTION PREVENTION AND HAVE A POSTED ILSM, AS NEEDED.

15. PRIOR TO ANY REMOVAL OF SMOKE BARRIER FIRE RATED WALLS, CONSTRUCT NEW SMOKE BARRIER/APPROPRIATE FIRE RATED WALLS PER NEW PLANS OR CONSTRUCT INFECTION CONTROL BARRIER TO ACT AS SMOKE BARRIER.

PHASING GENERAL NOTES

PROJECT AREAS TO BE OCCUPIED BY STAFF AND PATIENTS THROUGHOUT CONSTRUCTION.

ALL WORK TO BE AFTERHOURS/OVERNIGHT OR WEEKENDS/HOLIDAYS; INDIVIDUAL TAKE DOWN EACH SHIFT FOR WORK IN THE FOURTH FLOOR AREA.

REFER TO SPECIFICATION 010110 FOR INFORMATION ON WORK DURATION FOR EACH PHASE AND AREA OF WORK.

NEW WORK IN THE DEMO AREA MUST BE COORDINATED TO OCCUR IN SEQUENCE SO TO ONLY DISTURB THE OCCUPANT ONCE.

BID PACKAGE 2
ISSUED FOR BIDS

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CONSULTANT

LICENSED ARCHITECT
KARL KOWALSKE
22159
STATE OF MONTANA
07-23-26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER — DATE

APPROVED:
ES PROJECT MANAGER — DATE
ES BRANCH CHIEF — DATE

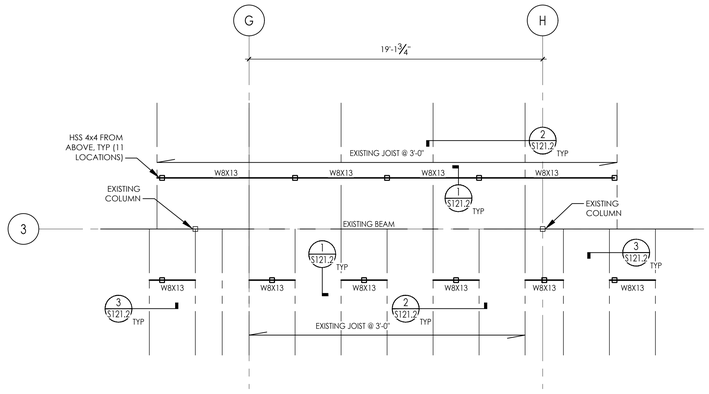
CONCURRENCE
AGENCY REPRESENTATIVE — DATE
TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: G112.2.dwg
DRAWN BY: JK
CHECKED BY: DM

SHEET TITLE:
SECOND FLOOR LIFE SAFETY AND INFECTION CONTROL PLAN

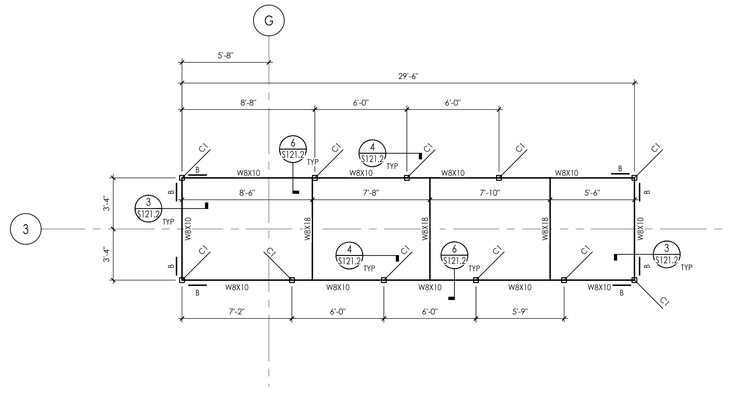
G112.2



NORTH

PARTIAL ROOF FRAMING PLAN

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



NORTH

MECHANICAL PLATFORM FRAMING PLAN

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

SHEET NOTES

1. ALL STEEL TO BE HOT-DIPPED GALVANIZED.
2. CONTRACTOR TO VERIFY DIMENSIONS WITH MECHANICAL.
3. TOP-OF-STEEL (TOS) = 3'-0" MIN ABOVE ROOFING. FIELD VERIFY.
4. FOR FRAMING AT NEW ROOF OPENINGS, SEE DETAIL 7/S121.2.

KEY PLAN

B — REPRESENTS L3x2x¼ DIAGONAL BRACE (GALVANIZED)

COLUMN SCHEDULE

MARK	SIZE
C1	HSS4x4x0.250

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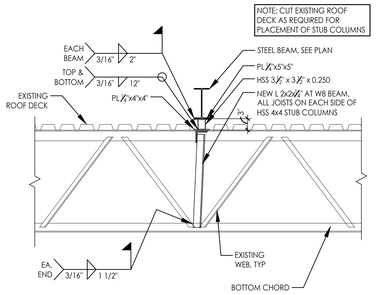
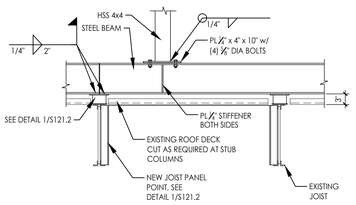


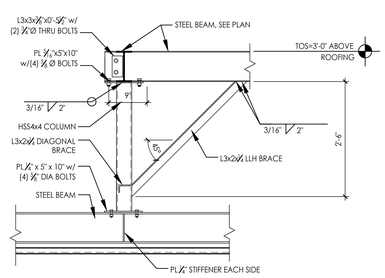
1 S121.2 — FRAMING SECTION

SCALE: 3/4" = 1'-0" — D5B



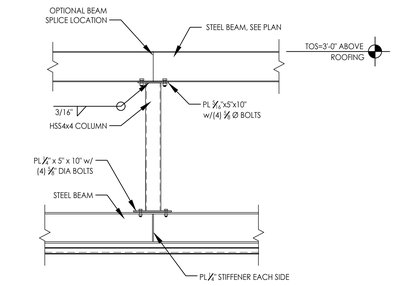
2 S121.2 — FRAMING SECTION

SCALE: 3/4" = 1'-0" — D2



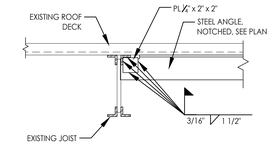
3 S121.2 — FRAMING SECTION

SCALE: 3/4" = 1'-0" — D3



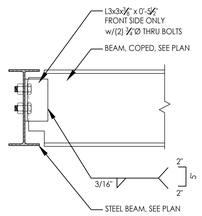
4 S121.2 — FRAMING SECTION

SCALE: 3/4" = 1'-0" — D4



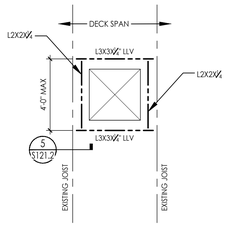
5 S121.2 — CONNECTION DETAIL

SCALE: 3/4" = 1'-0" — D2A



6 S121.2 — CONNECTION DETAIL

SCALE: 3/4" = 1'-0" — D5



7 S121.2 — DECK SUPPORT AT ROOF OPENINGS

NOT TO SCALE — D100

07-29-2026

THOMAS A. PALARZ, JR. No. 61491 PE — LICENSED PROFESSIONAL ENGINEER — MONTANA

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR
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CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
EA SECTION / PROGRAM — DATE

APPROVED:
EA PROJECT MANAGER — DATE
EA BRANCH CHIEF — DATE

CONCURRENCE
AGENCY REPRESENTATIVE — DATE
TITLE

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ISSUE DATE: June 29, 2026
CONTRACT NO.: 75H00226R00014 / 75H00226D00014
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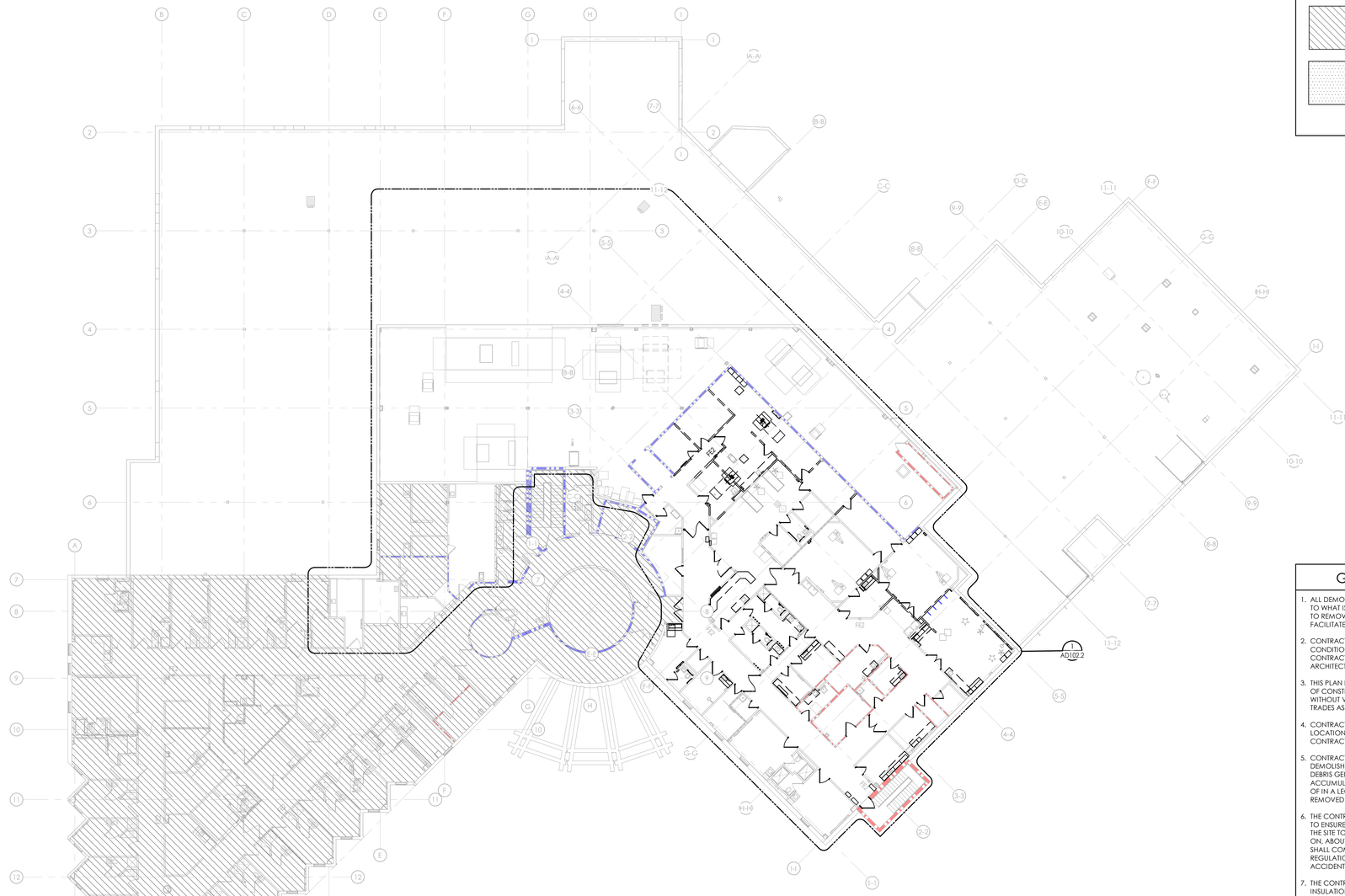
DRAWN BY: CAC
CHECKED BY: TAP

SHEET TITLE:
FRAMING PLANS AND DETAILS

BID PACKAGE 2
ISSUED FOR BIDS

S121.2



NORTH TN

SECOND FLOOR COMPOSITE DEMOLITION PLAN

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

DEMOLITION PLAN LEGEND

- EXISTING CONSTRUCTION TO REMAIN
- EXISTING CONSTRUCTION TO BE DEMOLISHED
- AREA NOT IN CONTRACT (N.I.C.)
- EXISTING FULLY FINISHED SPACE FROM WHICH ALL WALLS, CEILINGS, FINISHES, FLOORING, CASEWORK, PLUMBING FIXTURE, ELECTRICAL DEVICES, ETC., ARE TO BE REMOVED. EXISTING COLUMNS ARE TO REMAIN. REFER TO MECHANICAL ELECTRICAL, AND PLUMBING DRAWINGS FOR EXTENT OF DEMOLITION.

GENERAL DEMO NOTES

1. ALL DEMOLITION WORK REQUIRED IS NOT NECESSARILY LIMITED TO WHAT IS SHOWN ON THE DEMOLITION PLANS. THE INTENT IS TO REMOVE ALL MATERIALS AND ITEMS AS REQUIRED TO FACILITATE NEW CONSTRUCTION.
2. CONTRACTORS ARE TO VERIFY FIELD CONDITIONS. IF CONDITIONS DO NOT REFLECT WHAT IS NOTED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR IS TO NOTIFY THE ARCHITECT.
3. THIS PLAN IS TO BE USED IN CONJUNCTION WITH THE ENTIRE SET OF CONSTRUCTION DOCUMENTS. DO NOT REMOVE ANY ITEMS WITHOUT VERIFYING AND COORDINATING WITH ALL GENERAL TRADES AS TO HOW THEY RELATE TO THE OVERALL PROJECT.
4. CONTRACTOR IS RESPONSIBLE FOR PROVIDING DUMPSTERS. LOCATION OF DUMPSTERS TO BE DETERMINED BY OWNER WITH CONTRACTORS INPUT.
5. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL DEMOLISHED MATERIALS. DO NOT ALLOW MATERIALS AND DEBRIS GENERATED BY DEMOLITION ACTIVITIES TO ACCUMULATE ON THE JOBSITE. REMOVE DAILY AND DISPOSE OF IN A LEGAL MANNER. NO ONSITE SALE OR BURNING OR REMOVED ITEMS IS PERMITTED.
6. THE CONTRACTOR MUST TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THE SAFETY OF THE PUBLIC AND/OR WORKERS ON THE SITE TO PREVENT ACCIDENTS OR INJURY TO ANY PERSON ON, ABOUT OR ADJACENT TO THE PREMISES. THE CONTRACTOR SHALL COMPLY WITH ALL LAWS, ORDINANCES, CODES AND REGULATIONS PERTAINING TO SAFETY AND THE PREVENTION OF ACCIDENTS.
7. THE CONTRACTOR MUST MAINTAIN ADEQUATE SUPPORT, INSULATION, WATERPROOFING, EMERGENCY LIGHTING, SECURITY, ALARMS, ETC. FOR ALL OR PART OF ITEMS WHICH ARE TO REMAIN.
8. THE OWNER RESERVES THE RIGHTS TO ANY REMOVED MATERIALS OR ITEMS. CONTRACTOR TO COORDINATE WITH OWNER.
9. DO NOT CUT AND/OR PATCH STRUCTURAL ELEMENTS IN A MANNER THAT COULD CHANGE THEIR LOAD-CARRYING CAPACITY OR LOAD-DEFLECTION RATIO.
10. PATCH/REPAIR OR REPLACE ALL AREAS DAMAGED BY DEMOLITION. REWORK AS REQUIRED, PREPARE FOR NEW CONSTRUCTION AS REQUIRED. BRICK OR BLOCK PATCHING SHALL BE TOOTHED-IN TO MATCH EXISTING COURSING PATTERN.
11. WHERE WALLS AND CEILINGS ARE TO BE REMOVED, ALL ITEMS THAT FALL WITH THE WALLS AND/OR CEILINGS ARE TO BE REMOVED OR REROUTED. REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING PLANS FOR ADDITIONAL DEMOLITION NOT SHOWN ON THIS SHEET.
12. CONSTRUCTION AREAS TO BE COMPLETELY SEPARATED FROM OCCUPIED AREAS WITH A ONE-HOUR FIRE RATED ASSEMBLY AND WITH SUITABLE DUST BARRIER. TEMPORARILY SEAL OFF ALL RETURN AND SUPPLY AIR DIFFUSERS IN CONSTRUCTION AREA. PROVIDE RECIRCULATING HEPA FILTER IN CONSTRUCTION AREA. ALL DEMOLISHED MATERIAL IS TO BE REMOVED FROM SITE IN A COVERED CONTAINER. NEGATIVE AIR PRESSURE TO BE MAINTAINED WITHIN CONSTRUCTION ZONE.
13. IF HAZARDOUS MATERIALS ARE ENCOUNTERED DURING DEMOLITION, CONTRACTOR SHALL CONTACT OWNER FOR ABATEMENT.
14. REMOVE, REPLACE, PATCH, AND REPAIR MATERIALS AND SURFACES CUT OR DAMAGED DURING DEMOLITION. BY METHODS AND WITH MATERIALS SO AS NOT TO VOID EXISTING WARRANTIES.
15. CLEAN AREAS AND SPACES WHERE CUTTING AND PATCHING ARE PERFORMED.

BID PACKAGE 2
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07-23-26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

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INDIAN HEALTH SERVICE
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ES BRANCH CHIEF — DATE

CONCURRENCE
AGENCY REPRESENTATIVE — DATE
TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026
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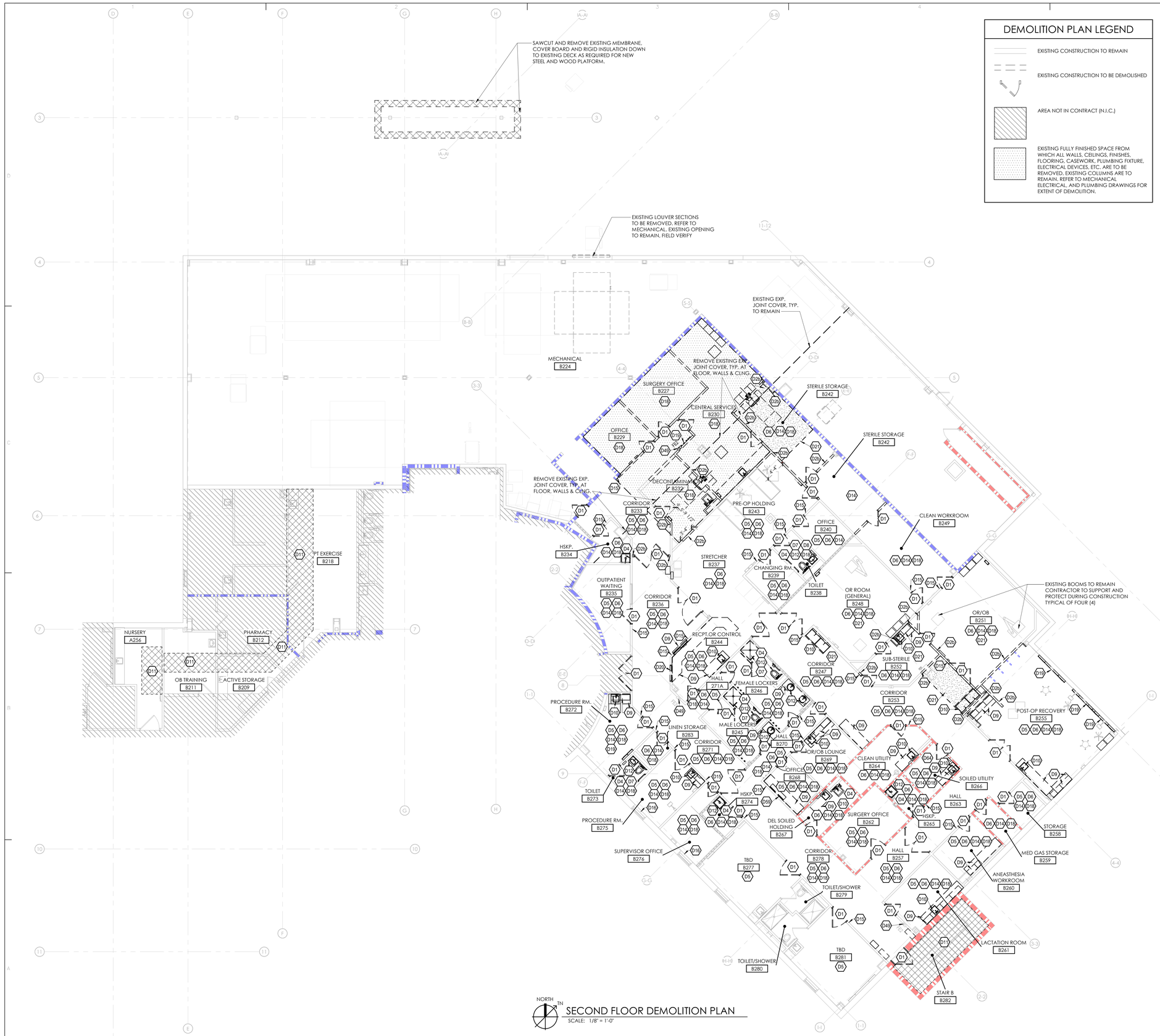
PROJECT NO: 241532
CAD DWG FILE: AD002.2.dwg
DRAWN BY: Author
CHECKED BY: Checker

SHEET TITLE:
SECOND FLOOR COMPOSITE DEMOLITION PLAN

AD002.2



SECOND FLOOR DEMOLITION PLAN

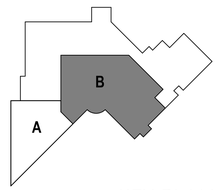
SCALE: 1/8" = 1'-0"

DEMOLITION PLAN LEGEND

- EXISTING CONSTRUCTION TO REMAIN
- EXISTING CONSTRUCTION TO BE DEMOLISHED
- AREA NOT IN CONTRACT (N.I.C.)
- EXISTING FULLY FINISHED SPACE FROM WHICH ALL WALLS, CEILINGS, FINISHES, FLOORING, CASEWORK, PLUMBING FIXTURE, ELECTRICAL DEVICES, ETC. ARE TO BE REMOVED. EXISTING COLUMNS ARE TO REMAIN. REFER TO MECHANICAL ELECTRICAL, AND PLUMBING DRAWINGS FOR EXTENT OF DEMOLITION.

DEMOLITION KEYNOTES

- D1 REMOVE AND DISPOSE OF EXISTING DOOR, FRAME, ANCHORS, HARDWARE AND ALL ASSOCIATED ACCESSORIES. PATCH AND REPAIR REMAINING ADJACENT SURFACES TO MATCH AS REQUIRED FOR NEW CONSTRUCTION.
- D2 REMOVE AND DISPOSE OF EXISTING WALL TILE AND INTERIOR GYPSUM BOARD FULL WALL UNLESS NOTED OTHERWISE.
- D2a REMOVE AND DISPOSE OF EXISTING INTERIOR GYPSUM BOARD, FULL WALL UNLESS NOTED OTHERWISE.
- D2b REMOVE AND DISPOSE OF EXISTING WALL CONSTRUCTION AS SHOWN. PATCH & REPAIR ADJACENT SURFACES TO REMAIN AS NECESSARY TO PREPARE FOR NEW CONSTRUCTION AND/OR NEW FINISHES.
- D3 REMOVE AND DISPOSE OF EXISTING WALL PAPER, COMPLETELY OFF EXISTING WALLS TO REMAIN. PATCH AND REPAIR WALL AS NEEDED.
- D4 REMOVE AND DISPOSE OF ALL EXISTING CERAMIC OR PORCELAIN WALL TILE WITHIN ROOM INCLUDING MORTAR BED OR ADHESIVE. PREP SUBSTRATE FOR NEW WORK.
- D5 REMOVE AND DISPOSE OF EXISTING ACT CEILING TILE AND GRID IN ITS ENTIRETY INCLUDING ALL ASSOCIATED LIGHT FIXTURES AND MECHANICAL DIFFUSERS. SALVAGE ANY CEILING MOUNTED EQUIPMENT FOR REINSTALLATION.
- D6 REMOVE AND DISPOSE OF EXISTING WALL BASE AND FLOORING AND SUBSTRATE DOWN TO EXISTING CONCRETE. PATCH AND REPAIR SUBFLOOR AND WALLS AS REQUIRED FOR INSTALLATION OF NEW FLOORING.
- D7 REMOVE AND DISPOSE OF EXISTING CERAMIC OR PORCELAIN FLOOR TILE INCLUDING 2" +/- THICKSET MORTAR BED AND REINFORCING. PATCH AND INFILL SUBFLOOR DEPRESSION AS REQUIRED FOR INSTALLATION OF NEW FLOORING/SHOWER PAN.
- D8 REMOVE AND DISPOSE OF EXISTING GYPSUM WALL BOARD.
- D9 REMOVE AND DISPOSE OF EXISTING CASEWORK AND MILLWORK, TYP. IN ENTIRE ROOM. EXISTING BULKHEAD TO REMAIN. PATCH AND REPAIR FLOOR AND WALLS FOR NEW FINISHES.
- D10 REMOVE AND DISPOSE OF EXISTING SINK. REFER TO SHEET PD201.2 FOR ADDITIONAL DEMOLITION INFORMATION.
- D11 REMOVE AND SALVAGE FOR REUSE EXISTING ACT CEILING TILE. EXISTING GRID TO REMAIN. COORDINATE ALL WORK WITH OTHER TRADES. SUPPORT EXISTING LIGHTING AND MECHANICAL ITEMS AS REQUIRED.
- D12 REMOVE AND DISPOSE OF EXISTING PLUMBING FIXTURES IN ROOM. REFER TO SHEET PD201.2 FOR ADDITIONAL DEMOLITION INFORMATION.
- D13 REMOVE AND DISPOSE OF ALL EXISTING BATHROOM PARTITIONS AND URINAL SCREENS. PATCH AND PREP ADJACENT FINISHES FOR INSTALLATION OF NEW WORK.
- D14 REMOVE EXISTING WALL FINISHES, WALL PROTECTION & ALL ITEMS ATTCHED TO THE WALLS; INCLUDING, BUT NOT LIMITED TO; HAND SANITIZER, SIGNAGE, ARTWORK ETC. RETURN ARTWORK TO COR. STORE ITEMS FOR REINSTALLATION. PATCH & REPAIR EXPOSED SURFACES TO REMAIN AS REQUIRED FOR NEW CONSTRUCTION.
- D15 REMOVE EXISTING ROOM SIGNAGE. PATCH AND REPAIR EXISTING WALL AS NECESSARY. FINISH WALL TO MATCH ADJACENT FINISH.
- D16 REMOVE AND DISPOSE OF EXISTING WINDOW SILL. PREP TO RECEIVE NEW SOLID SURFACE SILL. REFER TO INTERIOR FINISH KEY AND FINISH PLANS.
- D17 REMOVE AND SALVAGE EXISTING X-RAY EQUIPMENT AND ASSOCIATED TRACK AND UTILITY CONNECTIONS. REINSTALL EQUIPMENT IN EXISTING LOCATIONS FOLLOWING INSTALLATION OF NEW WALL BOARD AND CEILING GRID ASSEMBLY.
- D18 REMOVE AND SALVAGE ALL EXISTING EQUIPMENT AND WALL MOUNTED ACCESSORIES. TURN OVER TO OWNER. CONTRACTOR SHALL NOT MODIFY EXISTING WALL MOUNTED MEDICAL GAS OUTLETS UNLESS NOTED OTHERWISE.
- D19 REMOVE AND DISPOSE OF EXISTING HEADWALL SYSTEM IN IT'S ENTIRETY AND PREPARE FOR INSTALLATION OF NEW HEADWALL SYSTEM.
- D20 REMOVE AND DISPOSE OF EXISTING ALUMINUM STOREFRONT SYSTEM, GLAZING PANEL, AND ALL ASSOCIATED APPURTENANCES. PATCH AND REPAIR ADJACENT FINISHES FOR INSTALLATION OF NEW WORK.
- D21 REMOVE AND DISPOSE OF EXISTING GYPSUM BOARD CEILING, PATCH AND REPAIR ADJACENT SURFACES TO MATCH AS REQUIRED FOR NEW CONSTRUCTION.
- D49 REMOVE, SALVAGE, AND STORE EXISTING FIRE EXTINGUSHER FOR REINSTALLATION.
- D59 REMOVE AND DISPOSE OF EXISTING ALUMINUM STOREFRONT SYSTEM GLAZING PANEL. PREP FOR INSTALLATION OF NEW WORK.
- D64 REMOVE EXISTING BULKHEAD AND DISPOSE OF ALL ASSOCIATED APPURTENANCES. PATCH AND REPAIR ADJACENT SURFACES AS REQUIRED FOR INSTALLATION OF NEW WORK.



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

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Kalamazoo, MI 49007
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CONSULTANT

LICENSED ARCHITECT
KARL KOWALSKE
22156
STATE OF MONTANA
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A/E SEAL

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CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: AD102.2.dwg
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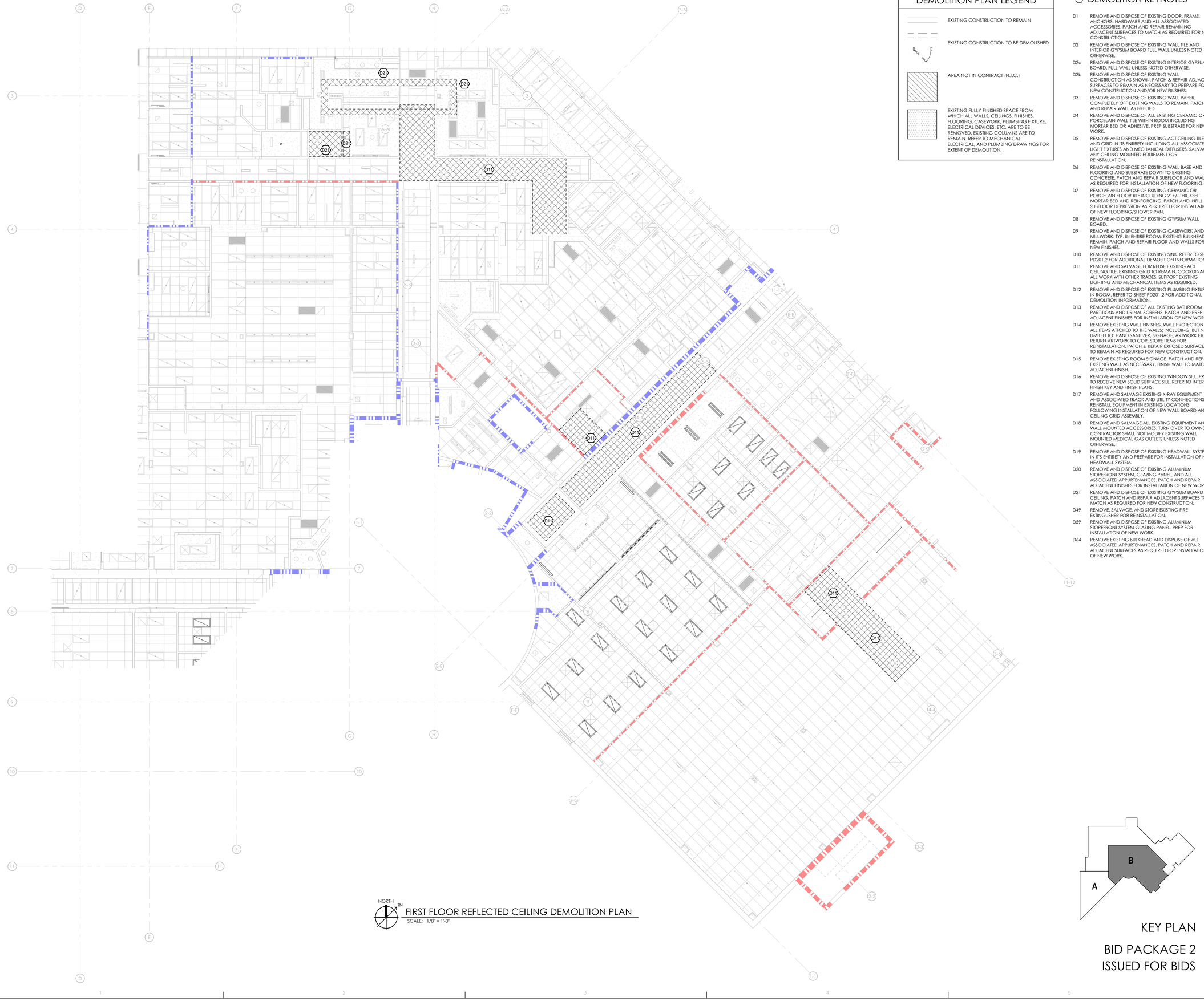
CHECKED BY: Checker

SHEET TITLE:
SECOND FLOOR DEMOLITION PLAN

AD102.2



DEMOLITION PLAN LEGEND

- EXISTING CONSTRUCTION TO REMAIN
- EXISTING CONSTRUCTION TO BE DEMOLISHED
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DEMOLITION KEYNOTES

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- D2a REMOVE AND DISPOSE OF EXISTING INTERIOR GYPSUM BOARD. FULL WALL UNLESS NOTED OTHERWISE.
- D2b REMOVE AND DISPOSE OF EXISTING WALL CONSTRUCTION AS SHOWN. PATCH & REPAIR ADJACENT SURFACES TO REMAIN AS NECESSARY TO PREPARE FOR NEW CONSTRUCTION AND/OR NEW FINISHES.
- D3 REMOVE AND DISPOSE OF EXISTING WALL PAPER, COMPLETELY OFF EXISTING WALLS TO REMAIN. PATCH AND REPAIR WALL AS NEEDED.
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- D5 REMOVE AND DISPOSE OF EXISTING ACT CEILING TILE AND GRID IN ITS ENTIRETY INCLUDING ALL ASSOCIATED LIGHT FIXTURES AND MECHANICAL DIFFUSERS. SALVAGE ANY CEILING MOUNTED EQUIPMENT FOR REINSTALLATION.
- D6 REMOVE AND DISPOSE OF EXISTING WALL BASE AND FLOORING AND SUBSTRATE DOWN TO EXISTING CONCRETE. PATCH AND REPAIR SUBFLOOR AND WALLS AS REQUIRED FOR INSTALLATION OF NEW FLOORING.
- D7 REMOVE AND DISPOSE OF EXISTING CERAMIC OR PORCELAIN FLOOR TILE INCLUDING 2" +/- THICKSET MORTAR BED AND REINFORCING. PATCH AND INFILL SUBFLOOR DEPRESSION AS REQUIRED FOR INSTALLATION OF NEW FLOORING/SHOWER PAN.
- D8 REMOVE AND DISPOSE OF EXISTING GYPSUM WALL BOARD.
- D9 REMOVE AND DISPOSE OF EXISTING CASEWORK AND MILLWORK, TYP. IN ENTIRE ROOM. EXISTING BULKHEAD TO REMAIN. PATCH AND REPAIR FLOOR AND WALLS FOR NEW FINISHES.
- D10 REMOVE AND DISPOSE OF EXISTING SINK. REFER TO SHEET PD201.2 FOR ADDITIONAL DEMOLITION INFORMATION.
- D11 REMOVE AND SALVAGE FOR REUSE EXISTING ACT CEILING TILE, EXISTING GRID TO REMAIN. COORDINATE ALL WORK WITH OTHER TRADES. SUPPORT EXISTING LIGHTING AND MECHANICAL ITEMS AS REQUIRED.
- D12 REMOVE AND DISPOSE OF EXISTING PLUMBING FIXTURES IN ROOM. REFER TO SHEET PD201.2 FOR ADDITIONAL DEMOLITION INFORMATION.
- D13 REMOVE AND DISPOSE OF ALL EXISTING BATHROOM PARTITIONS AND URINAL SCREENS. PATCH AND PREP ADJACENT FINISHES FOR INSTALLATION OF NEW WORK.
- D14 REMOVE EXISTING WALL FINISHES, WALL PROTECTION & ALL ITEMS ATTCHED TO THE WALLS; INCLUDING, BUT NOT LIMITED TO: HAND SANITIZER, SIGNAGE, ARTWORK ETC. RETURN ARTWORK TO COR. STORE ITEMS FOR REINSTALLATION. PATCH & REPAIR EXPOSED SURFACES TO REMAIN AS REQUIRED FOR NEW CONSTRUCTION.
- D15 REMOVE EXISTING ROOM SIGNAGE. PATCH AND REPAIR EXISTING WALL AS NECESSARY. FINISH WALL TO MATCH ADJACENT FINISH.
- D16 REMOVE AND DISPOSE OF EXISTING WINDOW SILL. PREP TO RECEIVE NEW SOLID SURFACE SILL. REFER TO INTERIOR FINISH KEY AND FINISH PLANS.
- D17 REMOVE AND SALVAGE EXISTING X-RAY EQUIPMENT AND ASSOCIATED TRACK AND UTILITY CONNECTIONS. REINSTALL EQUIPMENT IN EXISTING LOCATIONS FOLLOWING INSTALLATION OF NEW WALL BOARD AND CEILING GRID ASSEMBLY.
- D18 REMOVE AND SALVAGE ALL EXISTING EQUIPMENT AND WALL MOUNTED ACCESSORIES. TURN OVER TO OWNER. CONTRACTOR SHALL NOT MODIFY EXISTING WALL MOUNTED MEDICAL GAS OUTLETS UNLESS NOTED OTHERWISE.
- D19 REMOVE AND DISPOSE OF EXISTING HEADWALL SYSTEM IN ITS ENTIRETY AND PREPARE FOR INSTALLATION OF NEW HEADWALL SYSTEM.
- D20 REMOVE AND DISPOSE OF EXISTING ALUMINUM STOREFRONT SYSTEM, GLAZING PANEL, AND ALL ASSOCIATED APPURTENANCES. PATCH AND REPAIR ADJACENT FINISHES FOR INSTALLATION OF NEW WORK.
- D21 REMOVE AND DISPOSE OF EXISTING GYPSUM BOARD CEILING. PATCH AND REPAIR ADJACENT SURFACES TO MATCH AS REQUIRED FOR NEW CONSTRUCTION.
- D49 REMOVE, SALVAGE, AND STORE EXISTING FIRE EXTINGUSHER FOR REINSTALLATION.
- D59 REMOVE AND DISPOSE OF EXISTING ALUMINUM STOREFRONT SYSTEM GLAZING PANEL. PREP FOR INSTALLATION OF NEW WORK.
- D64 REMOVE EXISTING BULKHEAD AND DISPOSE OF ALL ASSOCIATED APPURTENANCES. PATCH AND REPAIR ADJACENT SURFACES AS REQUIRED FOR INSTALLATION OF NEW WORK.

NORTH IN

FIRST FLOOR REFLECTED CEILING DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
Part of Bodwé Group
259 E Michigan Ave, Suite 407
Kalamazoo, MI 49007
www.SteelheadMEP.com

CONSULTANT

LICENSED ARCHITECT
KARL KOVALSKE 22159
STATE OF MONTANA
07-23-26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:

ES ARCHITECT / ENGINEER — DATE

APPROVED:

ES PROJECT MANAGER — DATE

ES BRANCH CHIEF — DATE

CONCURRENCE

AGENCY REPRESENTATIVE — DATE

TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026

CONTRACT NO: 75H70124D00014 / 75H70125F30005

PROJECT NO: 241532

CAD DWG FILE: AD221.2.dwg

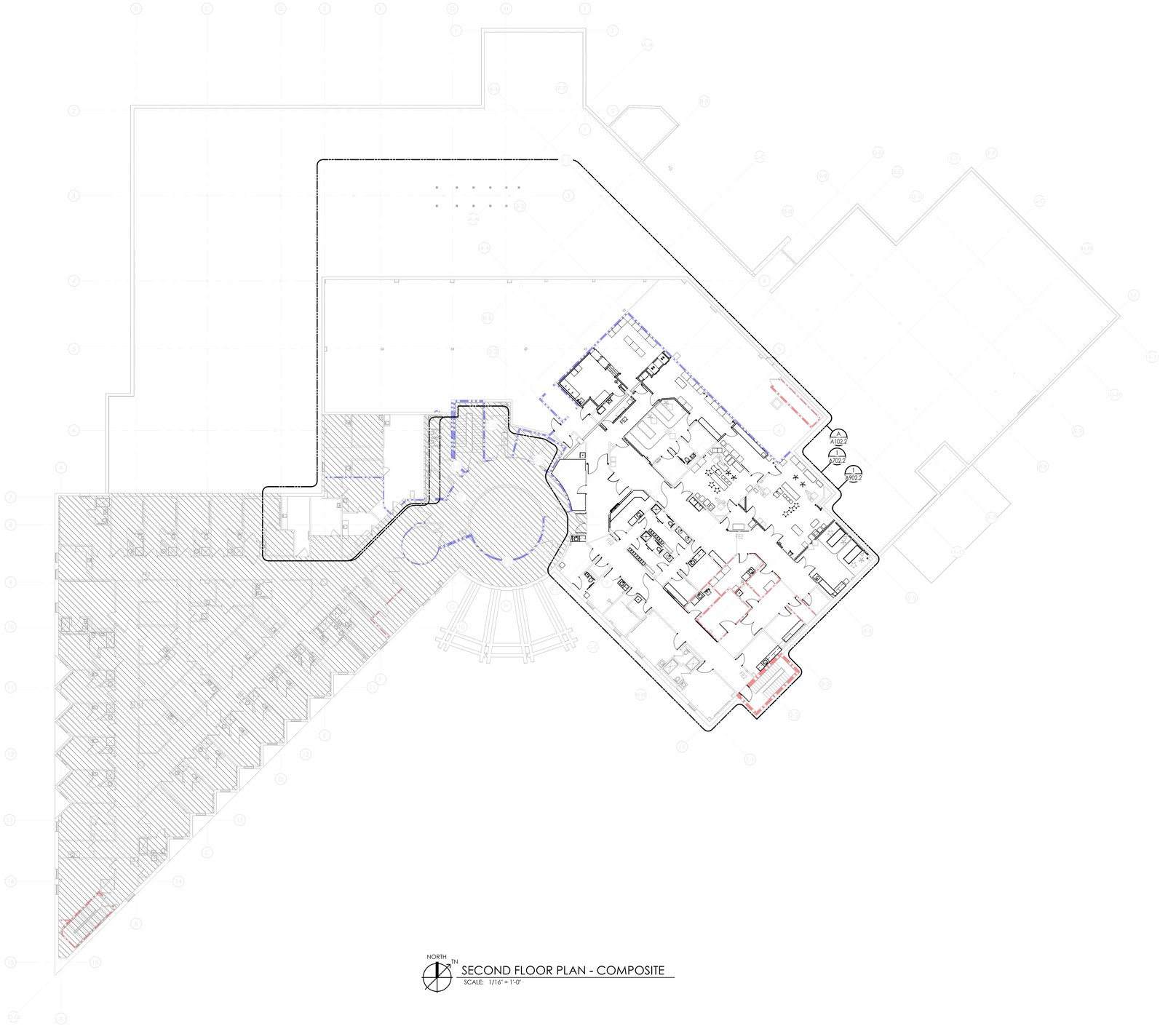
DRAWN BY: Author

CHECKED BY: Checker

SHEET TITLE:

FIRST FLOOR REFLECTED CEILING DEMOLITION PLAN

AD221.2



NORTH TN

SECOND FLOOR PLAN - COMPOSITE

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

BID PACKAGE 2
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INDIAN HEALTH SERVICE
CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
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APPROVED:
ES PROJECT MANAGER DATE
ES BRANCH CHIEF DATE
CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: A002.2.dwg
DRAWN BY: PC
CHECKED BY: JK

SHEET TITLE:
SECOND FLOOR COMPOSITE PLAN

A002.2

DOOR & FRAME SCHEDULE - BP2

DOOR NUMBER	SIZE (WIDTH x HEIGHT)	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	DOOR GLASS	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	FRAME GLASS	FIRE RATING (MIN.)	HARDWARE SET	REMARKS
LEVEL 02												
B227	3'-0" x 7'-0"	N	WD	VF	GL-1	1	HM	PTD	-	-	18.0	PASSAGE
B229	3'-0" x 7'-0"	N	WD	VF	GL-1	1	HM	PTD	-	-	9.0	SECURED ACCESS
B230	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	9.0	SECURED ACCESS
B231	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	13.0	STORAGE
B233A	(2) 3'-6" x 7'-0"	N	WD	VF	GL-1	2	HM	PTD	-	20 MIN	2.0	SECURED ACCESS
B233B	3'-0" x 7'-0"	F	WD	FF	-	1	HM	PTD	-	-	12.0	STORAGE
B234	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	13.0	STORAGE
B235	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	15.0	PASSAGE
B236	(2) 3'-6" x 7'-0"	N	WD	VF	GL-1	2	HM	PTD	-	20 MIN	1.0	SECURED ACCESS
B237A	4'-0" x 7'-0"	F	WD	VF	-	3	HM	PTD	-	20 MIN	1.0	* SECONDARY PANEL TYPE 'F' WIDTH 3'-0"
B237B	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	10.0	SECURED ACCESS
B238	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	16.0	PRIVACY
B239	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	16.0	PRIVACY
B240	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	14.0	OFFICE
B242A	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	17.0	PASSAGE
B242B	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	17.0	PASSAGE
B242C	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	45 MIN	19.0	PASSAGE
B243	3'-0" x 7'-0"	SL2	WD	VF	-	1	HM	PTD	-		20.0	PASSAGE
B244	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	10.0	SECURED ACCESS
B245A	2'-8" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	45 MIN	11.0	SECURED ACCESS
B245B	2'-8" x 7'-0"	SL2	WD	VF	-	1	HM	PTD	-		21.0	PRIVACY
B245C	2'-8" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	11.0	SECURED ACCESS
B246A	2'-8" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	45 MIN	11.0	SECURED ACCESS
B246B	2'-8" x 7'-0"	SL2	WD	VF	-	1	HM	PTD	-		21.0	PRIVACY
B246C	2'-8" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	10.0	SECURED ACCESS
B247A	(2) 3'-6" x 7'-0"	N	WD	VF	GL-1	2	HM	PTD	-	45 MIN	2.0	SECURED ACCESS
B247B	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	6.0	SECURED ACCESS
B248A	(2) 3'-0" x 7'-0"	F	WD	VF	-	2	HM	PTD	-		4.0	DOOR OPERATOR
B248B	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	17.0	PASSAGE
B249	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	19.0	PASSAGE
B251A	(2) 3'-0" x 7'-0"	F	WD	VF	-	2	HM	PTD	-		5.0	DOOR OPERATOR
B251B	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	19.0	PASSAGE
B252A	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	17.0	PASSAGE
B252B	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	19.0	PASSAGE
B255	(2) 3'-0" x 7'-0"	F	WD	VF	-	2	HM	PTD	-		5.0	DOOR OPERATOR
B258	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	13.0	STORAGE
B259	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	45 MIN	12.0	STORAGE
B260	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	6.0	SECURED ACCESS
B261	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	16.0	PRIVACY
B262	4'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-		14.0	OFFICE
B263	(2) 3'-6" x 7'-0"	N	WD	VF	GL-1	2	HM	PTD	-	20 MIN	3.0	SECURED ACCESS
B264	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	45 MIN	24.0	PASSAGE
B265	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	45 MIN	13.0	STORAGE
B266	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	45 MIN	17.0	PASSAGE
B267	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	45 MIN	10.0	SECURED ACCESS
B268	2'-8" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	14.0	OFFICE
B269	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	10.0	SECURED ACCESS
B271	(2) 3'-6" x 7'-0"	N	WD	VF	GL-1	2	HM	PTD	-	45 MIN	2.0	SECURED ACCESS
B272	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	6.0	SECURED ACCESS
B273	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	-	16.0	PRIVACY
B274	2'-8" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	13.0	STORAGE
B275	4'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	6.0	SECURED ACCESS
B276	2'-8" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	14.0	OFFICE
B277	4'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	23.0	CLASSROOM
B278	3'-8" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	45 MIN	25.0	-
B281	4'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	23.0	CLASSROOM
B283	3'-0" x 7'-0"	F	WD	VF	-	1	HM	PTD	-	20 MIN	13.0	STORAGE

DOOR SCHEDULE ABBREVIATIONS AND NOTES

(REFER TO SPECIFICATIONS FOR ADDTIONAL DOOR INFORMATION)

DOOR SCHEDULE ABBREVIATIONS

EX	EXISTING
FF	FACTORY FINISH
FRAF	FIRE RATED ALUMINUM FRAMING
HM	HOLLOW METAL
PTD	PAINTED
STL	STEEL
WD	SOLID CORE HARDWOOD
VF	VINYL FINISH

GLASS TYPE ABBREVIATIONS

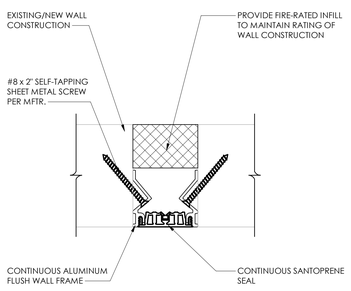
GL-1	FULLY TEMPERED SAFETY GLASS

DOOR SCHEDULE GENERAL NOTES

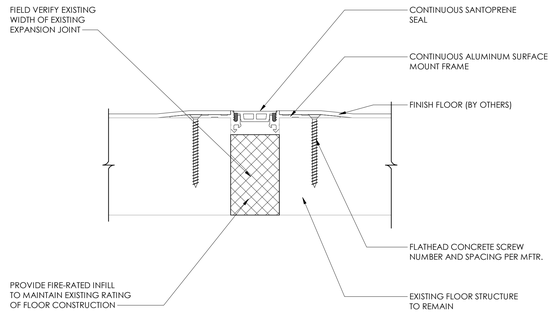
1. GALVANIZED METAL TO BE PROVIDED FOR HOLLOW METAL DOOR AND/ OR FRAME AT EXTERIOR LOCATIONS.
2. HOLLOW METAL FRAMES SET IN MASONRY WALLS ARE 5-3/4" WIDE.
3. HOLLOW METAL FRAMES SET IN GYPSUM BOARD/ METAL STUD PARTITIONS SHALL BE "DOUBLE BACK-BEND" FRAMES WITH A THROAT DIMENSION EQUAL TO THE PARTITION THICKNESS PLUS 9/16" RETURNS ON EACH SIDE OF THE PARTITION. PROVIDE EQUAL RABBETS.
4. AN ASTERISK (*) CALLS ATTENTION TO THE REMARKS COLUMN OF THE SCHEDULE.

U.L. DOOR LABEL DESIGNATIONS

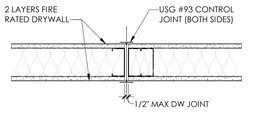
U.L. LABEL	MIN. DOOR RATING
180	3 HR. RATING
90	1-1/2 HR. RATING
60	1 HR. RATING
45	3/4 HR. RATING
20	1/3 HR. RATING



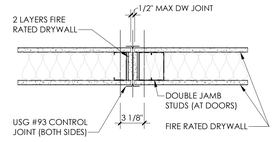
7 WALL/CEILING EXPANSION JOINT
SCALE: 1/4" = 1'-0"



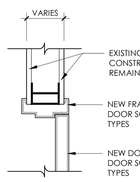
6 FLOOR EXPANSION JOINT
SCALE: 1/4" = 1'-0"



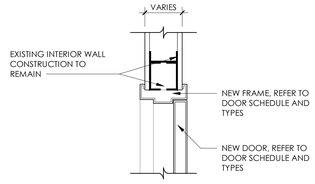
5 Typ. Control Joint @ Non-Rated Wall
SCALE: 1 1/2" = 1'-0"



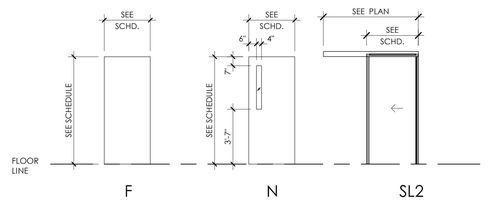
4 Typ. Control Joint @ 1-hr Rated Wall
SCALE: 1 1/2" = 1'-0"



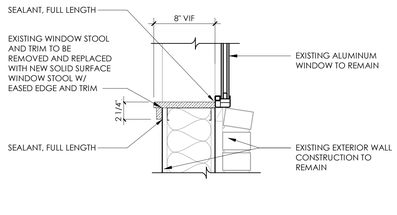
3 TYP. HM. JAMB - STUD-MTL
SCALE: 1 1/2" = 1'-0"



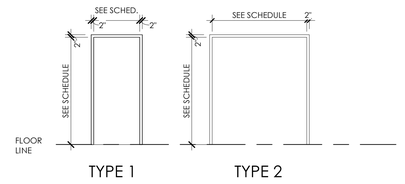
2 TYP. HM. HEAD - STUD-MTL
SCALE: 1 1/2" = 1'-0"



DOOR PANEL TYPES
SCALE: 1/4" = 1'-0"



1 WINDOW SILL DETAIL
SCALE: 1 1/2" = 1'-0"



DOOR FRAME TYPES
SCALE: 1/4" = 1'-0"

BID PACKAGE 2
ISSUED FOR BIDS

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INDIAN HEALTH SERVICE

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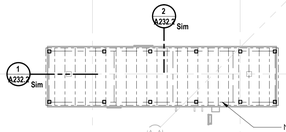
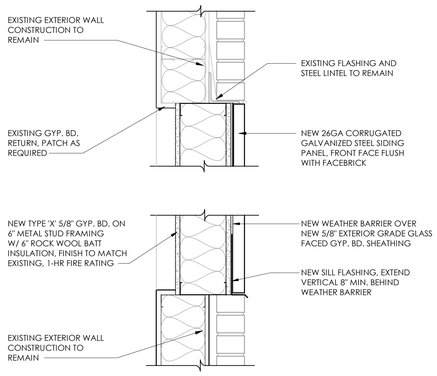
DRAWN BY: PC
CHECKED BY: JK

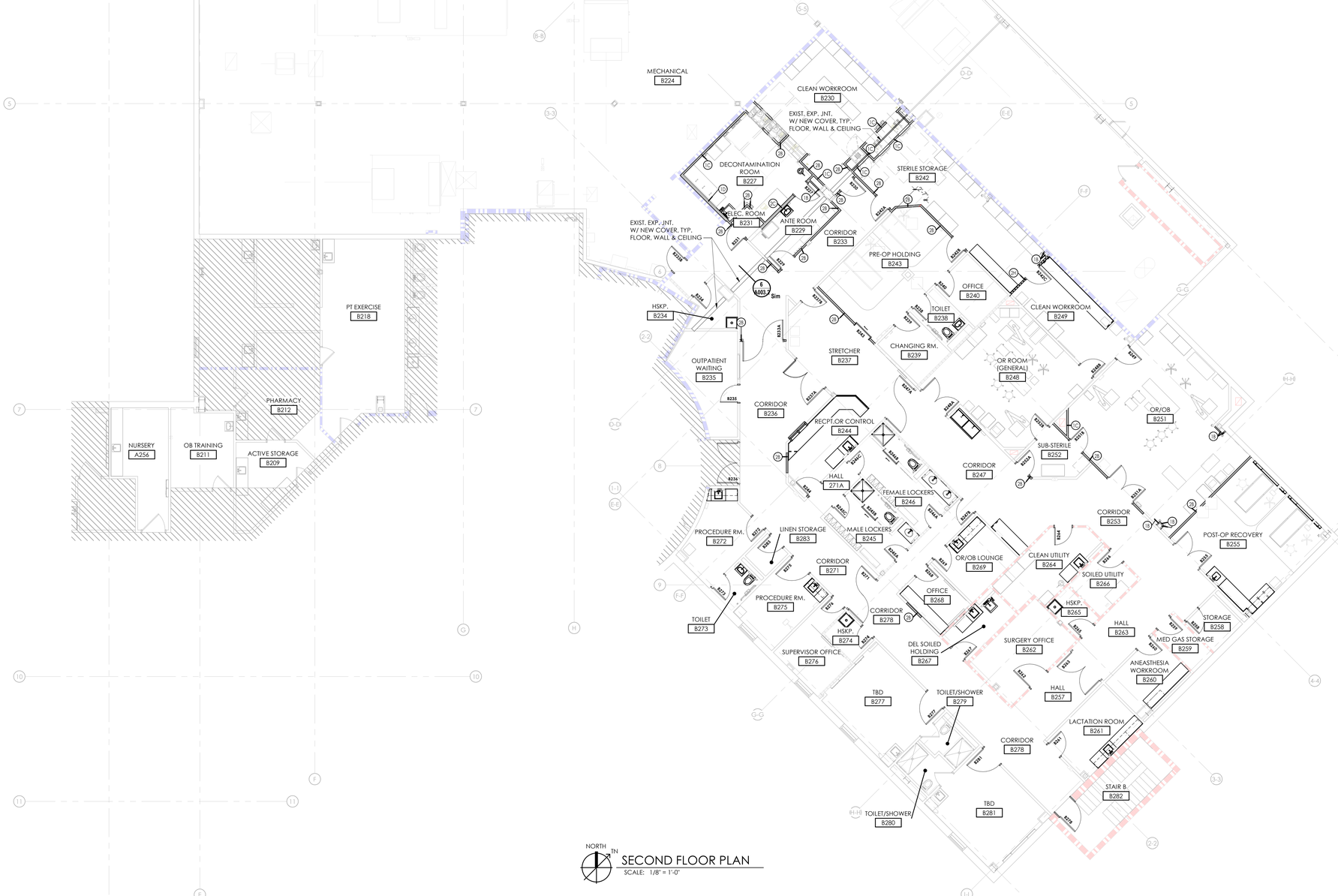
SHEET TITLE:
DOOR & FRAME SCHEDULE AND DETAILS

A003.2





1 EXTERIOR WALL INFILL
SCALE: 1 1/2" = 1'-0"



NORTH TN
SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

LIFE SAFETY LEGEND

- 1-HOUR FIRE RATED PARTITION
- 2-HOUR FIRE RATED PARTITION
- 1-HOUR SMOKE BARRIER
- AREA NOT IN CONTRACT
- PATH OF TRAVEL
- OCCUPANT LOAD TAG (ROOM NAME / ROOM NUMBER / SQ. FOOTAGE / OCCUPANCY)

FLOOR PLAN LEGEND

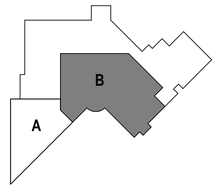
- EXISTING WALL
- XXXX — PLUMBING FIXTURE TAG; REFER TO SHEET P600 FOR PLUMBING FIXTURE SCHEDULE
- AREA NOT IN CONTRACT (N.I.C.)

FLOOR PLAN GENERAL NOTES

1. ALL COUNTERTOP OUTSIDE CORNERS TO BE 2" RADIUS UNLESS NOTED OTHERWISE.
2. ALL WALL-BOARD CARRYING CERAMIC TILE SHALL BE CEMENT BOARD, TYP. ALL SHOWER WALLS - REFER TO INTERIOR FINISH KEY.
3. REFER TO SHEET A003.1 FOR DOOR AND EQUIPMENT SCHEDULES.

WALL / PARTITION LEGEND

1B	2 1/2" METAL STUDS AT 16" O.C. (MAX.) WITH 5/8" GYPSUM BOARD ONE SIDE. HEIGHT: FROM FLOOR TO 4" ABOVE CEILING. BRACE TO ADJACENT WALL AS REQUIRED. TYPICAL AT COLUMN ENCLOSURES
1C	3 5/8" METAL STUDS AT 16" O.C. (MAX.) WITH 5/8" GYPSUM BOARD ONE SIDE. HEIGHT: FROM FLOOR TO 4" ABOVE CEILING. BRACE TO ADJACENT WALL AS REQUIRED
1D	6" METAL STUDS AT 16" O.C. (MAX.) WITH 5/8" GYPSUM BOARD ONE SIDE. HEIGHT: FROM FLOOR TO 4" ABOVE CEILING. BRACE TO ADJACENT WALL AS REQUIRED
2A	2 1/2" METAL STUDS AT 16" O.C. (MAX.) WITH 1 LAYER 5/8" GYPSUM BOARD EACH SIDE. 3" ACOUSTICAL BATT INSULATION FULL HEIGHT. HEIGHT: FROM FLOOR TO 4" ABOVE CEILING. BRACE TO ADJACENT WALLS AS REQUIRED.
2B	3 5/8" METAL STUDS AT 16" O.C. (MAX.) WITH 1 LAYER 5/8" SOUNDBREAK XP GYPSUM BOARD EACH SIDE. 3 1/2" ACOUSTICAL BATT INSULATION FULL HEIGHT. BRACE TO ADJACENT WALLS AS REQUIRED, STC-50.
2C	6" METAL STUDS AT 16" O.C. (MAX.) WITH 1 LAYER 5/8" GYPSUM BOARD EACH SIDE. 3 1/2" ACOUSTICAL BATT INSULATION FULL HEIGHT. BRACE TO ADJACENT WALLS AS REQUIRED.
2F	3 5/8" METAL STUDS AT 16" O.C. (MAX.) WITH 2 LAYERS 5/8" GYPSUM BOARD EACH SIDE. 3" ACOUSTICAL BATT INSULATION FULL HEIGHT. BRACE TO ADJACENT WALLS AS REQUIRED.
2D	3 5/8" METAL STUDS AT 16" O.C. (MAX.) WITH 1 LAYER 5/8" GYPSUM BOARD EACH SIDE. 3" ACOUSTICAL BATT INSULATION FULL HEIGHT. COPE AROUND STRUCTURE. SEAL ALL GAPS AND PENETRATIONS. 1 HOUR RATED UL DESIGN NO. U465



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

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INDIAN HEALTH SERVICE
CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER — DATE
APPROVED:
ES PROJECT MANAGER — DATE
ES BRANCH CHIEF — DATE
CONCURRENCE
AGENCY REPRESENTATIVE — DATE
TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: A102.2.dwg
DRAWN BY: PC
CHECKED BY: JK

SHEET TITLE:
SECOND FLOOR PLAN

A102.2

REFLECTED CEILING PLAN LEGEND

- AREA OF CEILING REWORK
- AREA NOT IN CONTRACT
- AREAS TO BE SUSPENDED ACOUSTIC TILE
- AREAS TO BE FINISHED GYPSUM BOARD CEILING
- EXISTING AREAS TO REMAIN FINISHED GYPSUM BOARD CEILING. PATCH AS NECESSARY FOR NEW CONSTRUCTION.
- RECESSED LIGHT FIXTURE - SEE ELECTRICAL DRAWINGS
- CEILING ACCESS PANEL. COORDINATE WITH MECHANICAL EQUIPMENT
- SURFACE LIGHT FIXTURE - SEE ELECTRICAL DRAWINGS
- XX'-XX" CEILING HEIGHT ABOVE FINISHED FLOOR

GENERAL NOTES - CEILING PLAN

1. ACOUSTICAL CEILING GRIDS IN ROOMS ARE TO BE CENTERED UNLESS NOTED OTHERWISE.
2. ELECTRICAL AND MECHANICAL FIXTURES AND DUCTWORK ARE SHOWN FOR REFERENCE ONLY. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS.
3. REFER TO SHEET A500.2 FOR CEILING FINISHES.
4. EXISTING GYP. BD. CEILINGS AND BULKHEADS TO REMAIN, UNLESS NOTED OTHERWISE.

NORTH TN

SECOND FLOOR REFLECTED CEILING PLAN

SCALE: 1/8" = 1'-0"

KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
Part of Bodwé Group
259 E Michigan Ave, Suite 407
Kalamazoo, MI 49007
www.SteelheadMEP.com

CONSULTANT

LICENSED ARCHITECT
KARL KOWALSKE
22159
STATE OF MONTANA
07-23-26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR
CROW SERVICE UNIT
INDIAN HEALTH SERVICE
CROW AGENCY, MONTANA 59022

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PROJECT NO: 241532
CAD DWG FILE: A222.2.dwg
DRAWN BY: PC
CHECKED BY: JK

SHEET TITLE:
SECOND FLOOR REFLECTED CEILING PLAN

A222.2

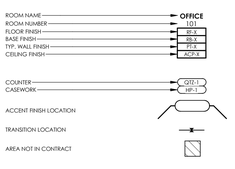
EQUIPMENT SCHEDULE

Type Mark	Description	SPECIFIED BY	SUPPLIED BY	INSTALLED BY	ELEC.	DATA	CABLE	BLOCKING	WATER	DRAIN	Comments
10 28 00 TOILET AND BATH ACCESSORIES											
GB1	18" VERTICAL GRAB BAR, SAFETY GRIP	A	C	C				X			
GB2	42" GRAB BAR - SAFETY GRIP	A	C	C				X			
GB3	24" GRAB BAR - SAFETY GRIP	A	C	C				X			
HS1	HAND SANITIZER	A	C	C							
MIR1	MIRROR, 24"x36"	A	C	C				X			
PT1	PAPER TOWEL DISPENSER, SURFACE MOUNTED, C-FOLD STYLE	A	C	C				X			
RH1	ROBE HOOK	A	C	C				X			
SCR1	SHOWER CURTAIN & ROD	A	C	C							
SD1	SOAP DISPENSER, SURFACE-MOUNTED	A	C	C							
SNR1	SANITARY NAPKIN RECEPTACLE, SURFACE MOUNTED	A	C	C				X			
TPD1	TOILET PAPER DISPENSER, DOUBLE ROLL	A	C	C				X			
10 51 29 PHENOLIC LOCKERS											
BCH	PHENOLIC PEDESTAL BENCH, 12" x 48" x 17"	A	C	C							
LK	TWO TIER LOCKER, 15" x 15" x 72"	A	C	C							

EQUIPMENT LEGEND

A - ARCHITECT
O - OWNER
C - CONTRACTOR

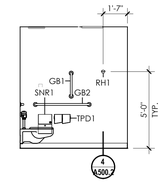
FINISH PLAN LEGEND



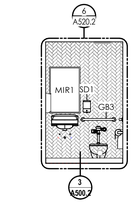
*NOTE: REFER TO FINISH KEY ON SHEET A500.2

SPECIFIC PLAN NOTES

1 SHOWER TO BE SPN-1 AND SWP-1; REFER TO FINISH KEY
5 INSTALL SHOWER CURTAIN (SCH-1); REFER TO FINISH KEY



21 TOILET - B273
SCALE: 1/4" = 1'-0"



20 TOILET - B273
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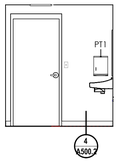

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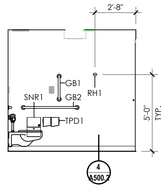

18 TOILET - B238
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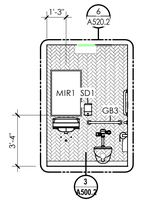

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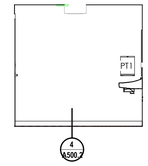

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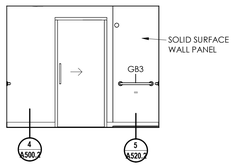
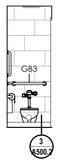
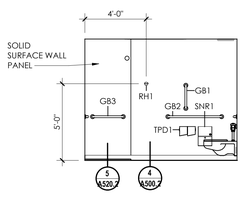


15 FEMALE LOCKERS - B246
SCALE: 1/4" = 1'-0"



14 FEMALE LOCKERS - B246
SCALE: 1/4" = 1'-0"



13 FEMALE LOCKERS - B246
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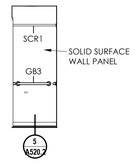

12 FEMALE LOCKERS - B246
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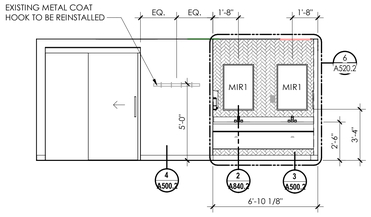

11 FEMALE LOCKERS - B246
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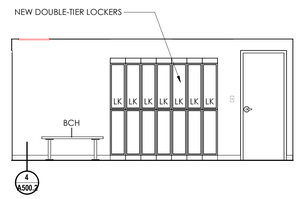
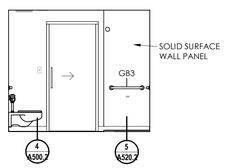
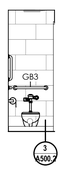


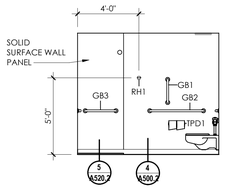
10 FEMALE LOCKERS - B246
SCALE: 1/4" = 1'-0"



9 MALE LOCKERS - B245
SCALE: 1/4" = 1'-0"



8 MALE LOCKERS - B245
SCALE: 1/4" = 1'-0"



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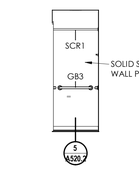

6 MALE LOCKERS - B245
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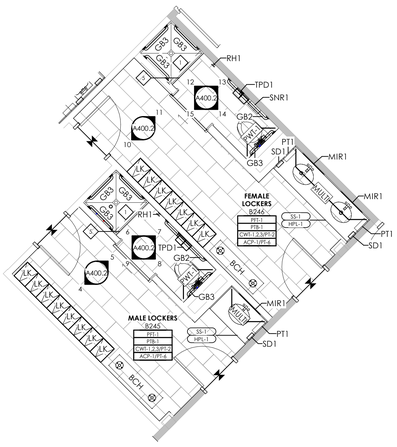
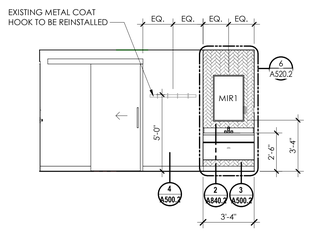


1 LOCKER ROOMS B245/B246
SCALE: 1/4" = 1'-0"



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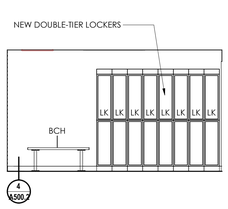
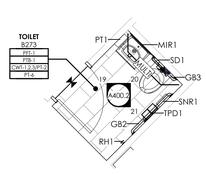
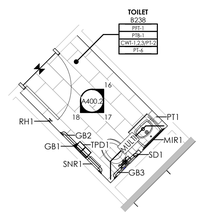
SCALE: 1/4" = 1'-0"



4 MALE LOCKERS - B245
SCALE: 1/4" = 1'-0"



3 TOILET - B273
SCALE: 1/4" = 1'-0"



2 TOILET - B238
SCALE: 1/4" = 1'-0"

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
Part of Bodwé Group
259 E Michigan Ave, Suite 407
Kalamazoo, MI 49007
www.SteelheadMEP.com

CONSULTANT

LICENSED ARCHITECT
KARL KOWALSKE
22159
STATE OF MONTANA
07-23-26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

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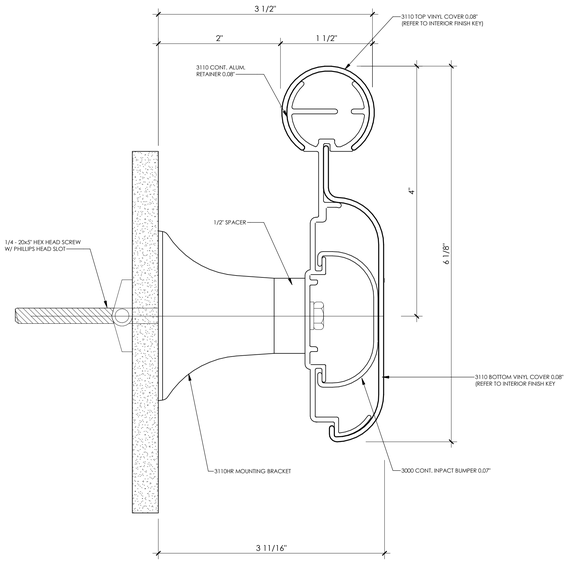
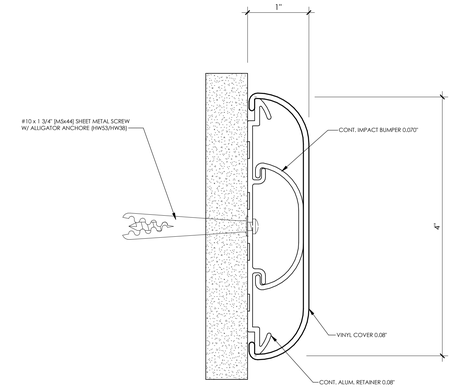
ENLARGED RESTROOM PLANS & INTERIOR ELEVATIONS

A400.2



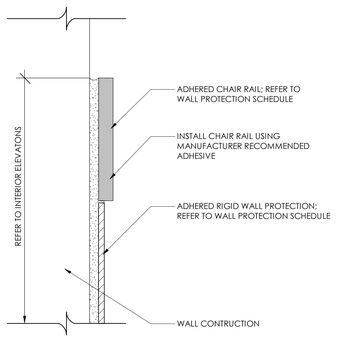
11 HANDRAIL - 3110
SCALE: 12" = 1'-0"



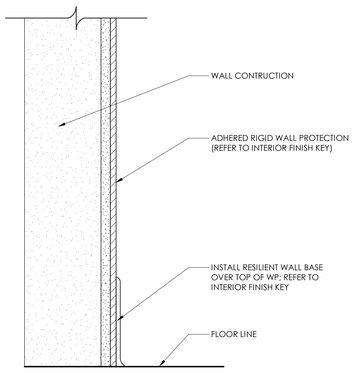
10 BUMPER GUARD - 1400
SCALE: 12" = 1'-0"

INTERIOR FINISH KEY

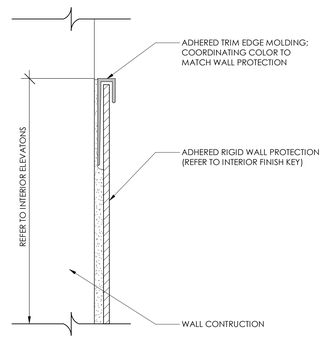
KEY	MATERIAL TYPE	MANUFACTURER	STYLE	COLOR	REMARKS
06 41 00 ARCHITECTURAL WOOD CASEWORK					
HPL-1	HIGH PRESSURE LAMINATE	FORMICA	-	MACCHIATO WALNUT	-
06 61 00 SOLID SURFACE SHOWER SYSTEMS					
SPN-1	SOLID SURFACE SHOWER PAN	INPRO CORPORATION	PRISM SOLID SURFACE 36" x 36" ADA TRANSFER SHOWER BASE	QUARRY P9705	-
SWP-1	SOLID SURFACE WALL PANEL	INPRO CORPORATION	PRISM SOLID SURFACE WALL PANEL	QUARRY P9705	-
09 30 00 TILING					
CWT-1	CERAMIC WALL TILE	WOW USA	COLOUR NOTES	OAT	2" x 5"
CWT-2	CERAMIC WALL TILE	WOW USA	COLOUR NOTES	KIWI	2" x 5"
CWT-3	CERAMIC WALL TILE	WOW USA	COLOUR NOTES	ROSEMIST	2" x 5"
GR-1	GROUT	LATICRETE	SPECTRALOCK PRO EPOXY	27 HEMP	USE W, PFT-1
GR-2	GROUT	LATICRETE	SPECTRALOCK PRO EPOXY	93 FOSSIL	USE W, ALL WALL TILE
MTS-1	METAL TRANSITION STRIP	SCHLUTER SYSTEMS	RENO-U	SATIN ANODIZED ALUMINUM	USE W, PFT-1
MTS-2	METAL TRANSITION STRIP	SCHLUTER SYSTEMS	DILEX-AHK	SATIN ANODIZED ALUMINUM	USE W, PFT-1, CWT-1, CWT-2, CWT-3
MTS-3	METAL TRANSITION STRIP	SCHLUTER SYSTEMS	SCHIENE	SATIN ANODIZED ALUMINUM	USE W, PTB-1
PFT-1	PORCELAIN FLOOR TILE	CROSSVILLE	ACCESS POINT CONCRETE	CONCRETE SAND WBC04	12" x 24"
PTB-1	PORCELAIN TILE BASE	CROSSVILLE	ACCESS POINT CONCRETE	CONCRETE SAND WBC04	4" x 24" BULLNOSE
PWT-1	PORCELAIN WALL TILE	CROSSVILLE	ACCESS POINT CONCRETE	TRAVERTINE SAND WBT04	12" x 24"
09 51 00 ACOUSTICAL CEILINGS					
ACP-1	ACOUSTIC CEILING PANEL	ARMSTRONG CEILINGS	ULTIMA 1895 - BEVELED TEGULAR 9/16"	WHITE	FIREGUARD - 24" x 24"
09 65 00 RESILIENT FLOORING					
RB-1	RESILIENT WALL BASE	ROPPE	PINNACLE 4" STANDARD TOE	676 CARIBOU	-
RB-2	RESILIENT WALL BASE	MANNINGTON COMMERCIAL	IDEALBASE	GRAY BEIGE 209	-
RSF-1	RESILIENT SHEET FLOORING	MANNINGTON COMMERCIAL	REALITIES III	ENGLISH WALNUT BLEACHED	-
RTF-1	RESILIENT TILE FLOORING	MANNINGTON COMMERCIAL	AMTICO ABSTRACT	STITCH COCOON - 18"x36"	ASHLAR INSTALL
09 67 00 FLUID-APPLIED FLOORING					
RES-1	RESINOUS SEAMLESS FLOORING	SHERWIN WILLIAMS	SOFTOP RXC	DECO FLAKE - HUSKY GRAY	INSTALL WITH 4"H INTEGRAL BASE
09 91 23 INTERIOR PAINTING					
PT-1	INTERIOR PAINT	SHERWIN WILLIAMS	ZERO V.O.C. INTERIOR LATEX	SW 7042 SHOJI WHITE	EGGSHELL FINISH - FIELD
PT-2	INTERIOR PAINT	SHERWIN WILLIAMS	PRO INDUSTRIAL PRECATALYZED EPOXY	SW 7042 SHOJI WHITE	EGGSHELL FINISH - RESTROOMS
PT-3	INTERIOR PAINT	SHERWIN WILLIAMS	PRO INDUSTRIAL PRECATALYZED EPOXY	SW 7666 FLEUR DE DEL	EGGSHELL FINISH - OR/CENTRAL STERILE
PT-4	INTERIOR PAINT	SHERWIN WILLIAMS	ZERO V.O.C. INTERIOR LATEX	SW 6213 HALCYON GREEN	EGGSHELL FINISH - ACCENT
PT-5	CEILING PAINT	SHERWIN WILLIAMS	ZERO V.O.C. INTERIOR LATEX	SW 7007 CEILING BRIGHT WHITE	EGGSHELL FINISH - CEILINGS
PT-6	CEILING PAINT	SHERWIN WILLIAMS	PRO INDUSTRIAL PRECATALYZED EPOXY	SW 7007 CEILING BRIGHT WHITE	EGGSHELL FINISH - OR CEILINGS
PT-7	DOOR FRAME PAINT	SHERWIN WILLIAMS	PRO INDUSTRIAL WATERBASED ALKYD URETHANE	SW 6104 KAFFEE	SEMI-GLOSS FINISH - DOOR FRAMES
10 25 13 PATIENT BED SERVICE WALLS					
TFL-1	THERMOFOIL 3D LAMINATE	RIKEN USA	-	ECLIPSE (30)W-K	HEADWALL SYSTEM
10 26 00 WALL AND DOOR PROTECTION					
HWP-1	HYGIENIC WALL PANELING	ALTRO USA	PURESSENTIALS	MODAL W110/8341	SURGERY
WP-1	WALL PROTECTION	INPRO CORPORATION	PALLADIUM RIGID SHEET	WHITE SAND 0103	-
WP-2	WALL PROTECTION	INPRO CORPORATION	PALLADIUM RIGID SHEET	GALA 0380	OR/CENTRAL STERILE
10 28 00 TOILET AND BATH ACCESSORIES					
SHC-1	SHOWER CURTAIN	MOMENTUM TEXTILES	ALOFT	PLAINS	-
10 51 29 PHENOLIC LOCKERS					
LK-1	LOCKER	BRADLEY CORPORATION	PHENOLIC LOCKER - DOUBLE TIER	8229 FRISTON ASH	-
12 24 00 WINDOW SHADES					
RWS-1	ROLLER WINDOW SHADES	DRAPER	MANUAL CLUTCH-OPERATED FLEXSHADE	E SCREEN DECO - BIRCH	3% OPENNESS FACTOR
12 36 00 COUNTERTOPS					
SS-1	SOLID SURFACE	FORMICA	EVERFORM	BLANCO TERRAZZO 742	-
SS-2	SOLID SURFACE	FORMICA	EVERFORM	LUNA PEWTER 416	OR/CENTRAL STERILE



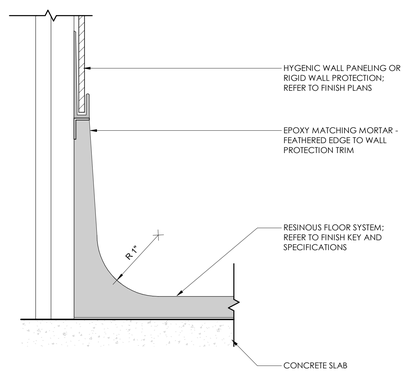
9 CHAIR RAIL
SCALE: 12" = 1'-0"



8 WALL PROTECTION BOTTOM
SCALE: 12" = 1'-0"

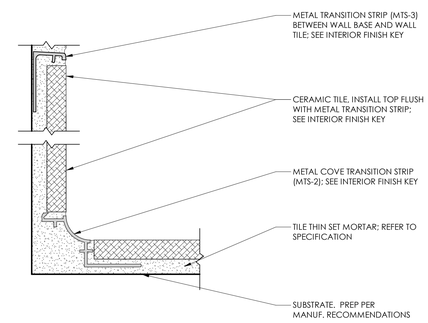


7 WALL PROTECTION TOP
SCALE: 12" = 1'-0"

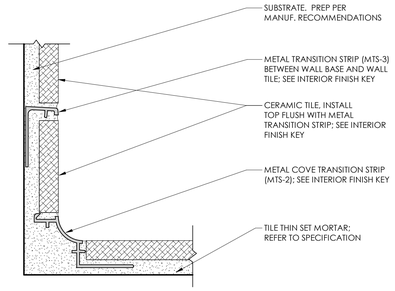


6 RESINOUS INTEGRAL COVE
SCALE: 12" = 1'-0"

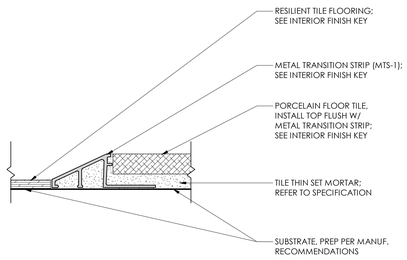
5 RESINOUS TO RESILIENT TRANSITION
SCALE: 12" = 1'-0"



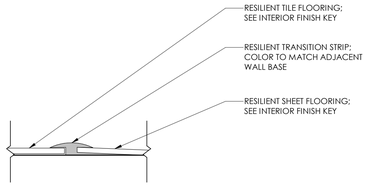
4 PFT COVE
SCALE: 12" = 1'-0"



3 PFT TO PWT
SCALE: 12" = 1'-0"



2 RTF/RSF TO PFT
SCALE: 12" = 1'-0"



1 RTF TO RSF
SCALE: 12" = 1'-0"

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
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259 E Michigan Ave, Suite 407
Kalamazoo, MI 49007
www.SteelheadMEP.com

CONSULTANT

LICENSED ARCHITECT
KARL KOWALSKE
22159
STATE OF MONTANA
07-23-26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

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APPROVED:
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ES BRANCH CHIEF DATE

CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

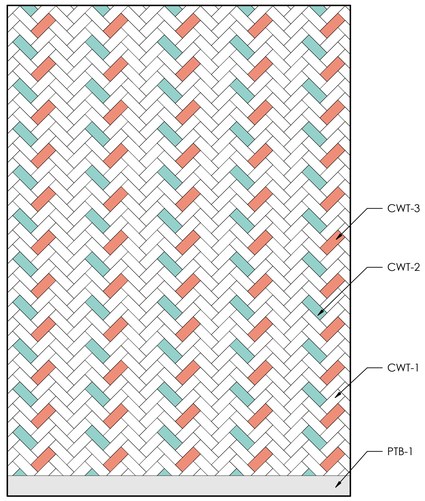
REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: A500.2.dwg
DRAWN BY: MV
CHECKED BY: SS

SHEET TITLE:
INTERIOR FINISH KEY AND DETAILS

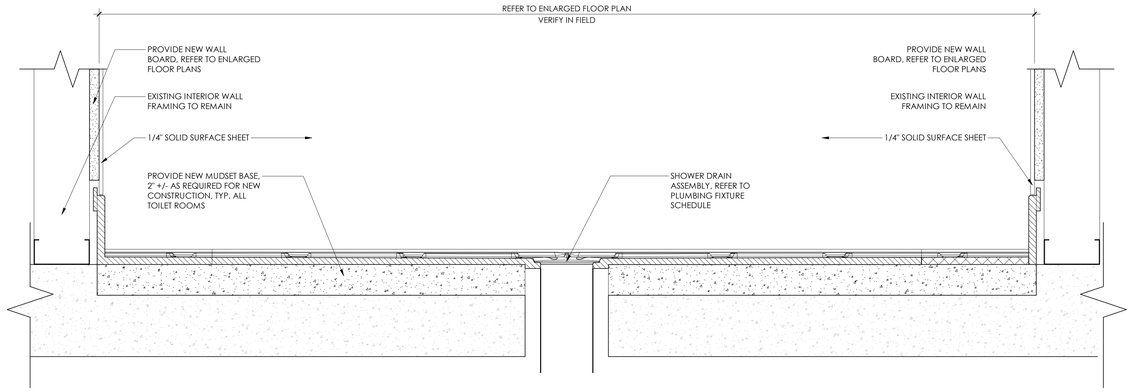
A500.2

NOTE: THIS SHEET REQUIRES COLOR PRINTING

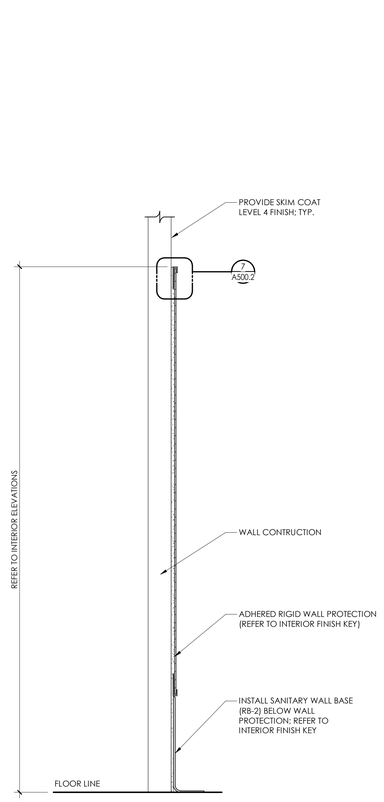


NOTE: REFER TO FINISH KEY ON SHEET A500.2

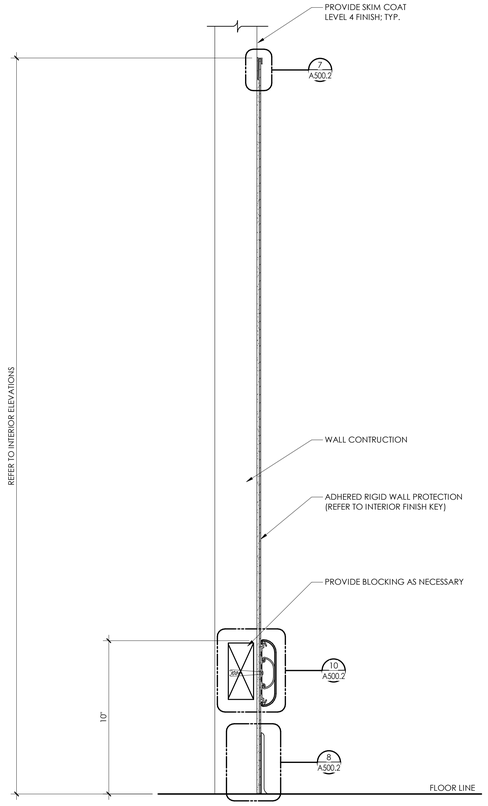
6 ACCENT WALL TILE PATTERN
SCALE: 1" = 1'-0"



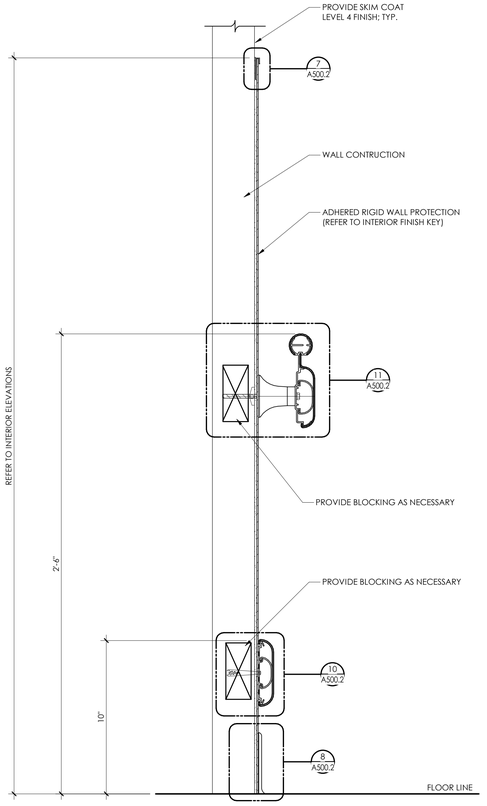
5 SOLID SURFACE SHOWER PAN
SCALE: 3" = 1'-0"



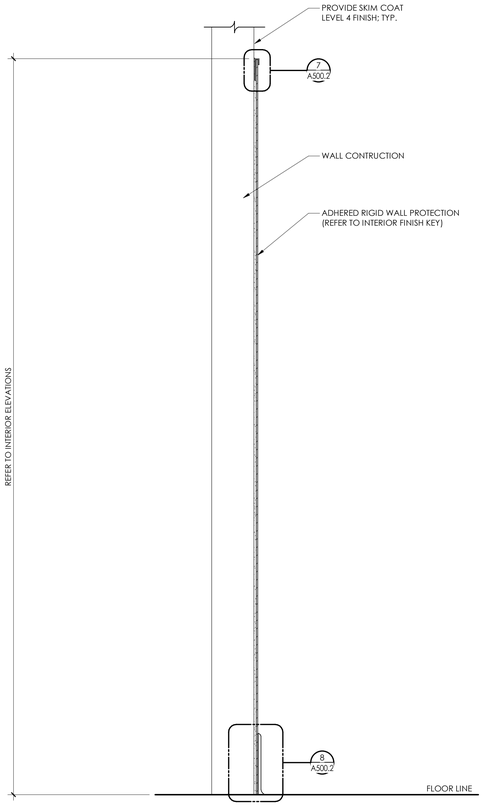
4 WALL PROTECTION - SANITARY BASE
SCALE: 3" = 1'-0"



3 WALL PROTECTION W/ BUMPER GUARDS
SCALE: 3" = 1'-0"



2 WALL PROTECTION W/ HANDRAIL AND BUMPER GUARD
SCALE: 3" = 1'-0"



1 WALL PROTECTION
SCALE: 3" = 1'-0"

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
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259 E Michigan Ave, Suite 407
Kalamazoo, MI 49007
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CONSULTANT

LICENSED ARCHITECT
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A/E SEAL

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INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
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TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026
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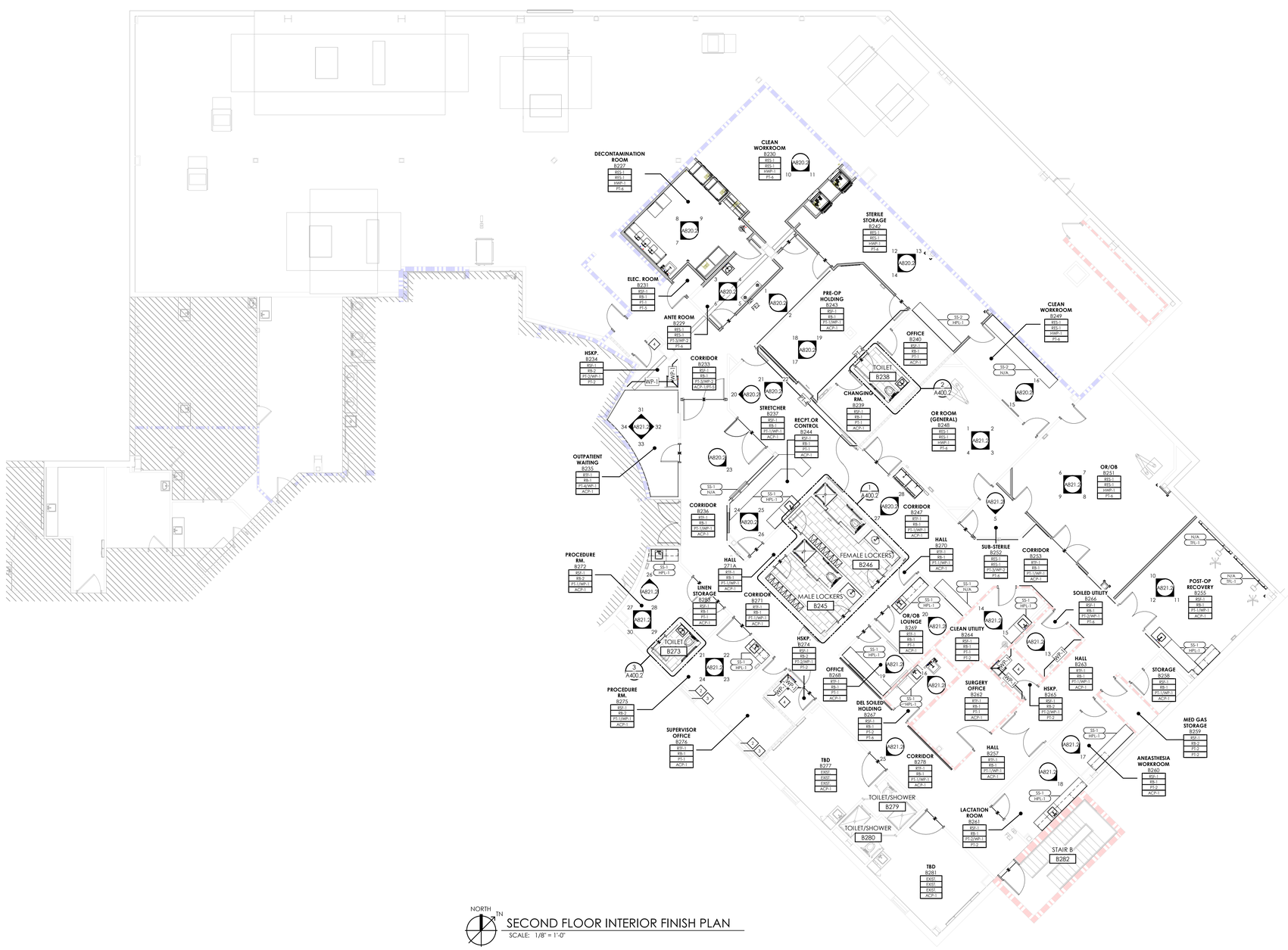
PROJECT NO: 241532
CAD DWG FILE: A520.2.dwg
DRAWN BY: MV
CHECKED BY: SS

SHEET TITLE:
INTERIOR FINISH DETAILS

A520.2



NORTH

SECOND FLOOR INTERIOR FINISH PLAN

SCALE: 1/8" = 1'-0"

FINISH PLAN GENERAL NOTES

1. REFER TO SHEET A500.2 FOR FINISH SPECIFICATION INFORMATION.
2. REFERENCE FLOOR PLANS AND INTERIOR ELEVATIONS FOR INTERIOR SPECIALTY ELEVATIONS.
3. REFERENCE FINISH PLAN FOR ACCENT PAINT LOCATIONS, AND ROOM FINISH TAGS FOR TYPE AND PLACEMENT OF INTERIOR FINISHES.
4. REFER TO REFLECTED CEILING PLANS FOR ADDITIONAL CEILING FINISHES.
5. PATTERN NAME, COLOR, AND NUMBER FOR EACH MATERIAL ARE GIVEN WHEREVER POSSIBLE ON THE FINISH PLAN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ***INTERIOR DESIGNER*** SO THAT THE CORRECT MATERIAL IS INSTALLED.
6. ALL FLOORING TRANSITIONS SHALL BE CENTERED UNDER THE DOOR IN ITS CLOSED POSITION.
7. REFER TO SHEET A500.2 AND A520.2 FOR FLOOR TRANSITION AND WALL BASE DETAILS.
8. THERE SHALL NOT BE PAINT CONDITIONS THAT OCCUR CAUSING FINISH OR COLOR TO CHANGE ON AN OUTSIDE CORNER UNLESS SPECIFICALLY NOTED OTHERWISE. IF THIS CONDITION OCCURS, BRING IT TO THE DESIGNER'S ATTENTION IMMEDIATELY.
9. WIREWAYS, ACCESS PANELS, GRILLES, ELECTRICAL PANELS, MECHANICAL DEVICES, ETC. SHALL BE FINISHED TO MATCH THE ADJACENT SURFACE.
10. PORCELAIN/CERAMIC TILE LARGER THAN 12"x12" SHALL NOT BE INSTALLED AT STAGGERED OFFSET OF GREATER THAN 1/3 OR 33%.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADA-COMPLIANT TRANSITIONS AT ALL CHANGES IN FLOOR FINISH U.N.O.
12. PROVIDE METAL TRIM PROFILES ON ALL PORCELAIN/ CERAMIC TILE EDGES AS INDICATED ON FINISH DETAILS.
13. RTF SHALL BE INSTALLED ALONG LENGTH OF ROOMS U.N.O.
14. ALL HM DOORS & FRAMES SHALL BE PAINTED ***PT-7*** U.N.O.
15. WHEN "MULTI" APPEARS ON FINISH ACCENT BRACKET, REFER TO CORRESPONDING INTERIOR ELEVATION FOR MORE INFORMATION.

FINISH PLAN LEGEND

ROOM NAME — OFFICE
ROOM NUMBER — 101
FLOOR FINISH — FB-3
BASE FINISH — RB-3
TYP. WALL FINISH — PT-8
CEILING FINISH — ACP-X

COUNTER — QTZ-1
CASEWORK — LP-1

ACCENT FINISH LOCATION

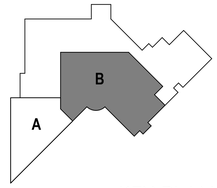
TRANSITION LOCATION

AREA NOT IN CONTRACT

*NOTE: REFER TO FINISH KEY ON SHEET A500.2

SPECIFIC PLAN NOTES

2 PROVIDE SOLID SURFACE WINDOW SILLS (SS-2); REFER TO FINISH KEY AND DETAIL 5/A003.2
3 PROVIDE ROLLER WINDOW SHADES (RWS); REFER TO FINISH KEY
4 INSTALL WALL PROTECTION (WP-1) AT 4'-0" A.F.F. REFER TO SHEET A520.2 FOR INSTALLATION DETAILS



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

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CONSULTANT

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STATE OF MONTANA
07-23-26

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INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

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TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: A602.2.dwg
DRAWN BY: MV
CHECKED BY: SS

SHEET TITLE:
SECOND FLOOR INTERIOR FINISH PLAN

A602.2

EQUIPMENT SCHEDULE

Type Mark	Description	SPECIFIED BY	SUPPLIED BY	INSTALLED BY	ELEC.	DATA	CABLE	BLOCKING	WATER	DRAIN	Comments
10 21 23 CUBICLE CURTAINS AND TRACKS											
CT	CURTAIN TRACK	A	C	C							
10 28 00 TOILET AND BATH ACCESSORIES											
GB1	18" VERTICAL GRAB BAR, SAFETY GRIP	A	C	C				X			
GB2	42" GRAB BAR - SAFETY GRIP	A	C	C				X			
GB3	24" GRAB BAR - SAFETY GRIP	A	C	C				X			
HS1	HAND SANITIZER	A	C	C							
MIR1	MIRROR, 24"x36"	A	C	C				X			
MOP	MOP-BROOM HOLDER W/5 HOLDERS, WALL MOUNTED 48"W	A	C	C							
PT1	PAPER TOWEL DISPENSER, SURFACE MOUNTED, C-FOLD STYLE	A	C	C				X			
RH1	ROBE HOOK	A	C	C				X			
SCR1	SHOWER CURTAIN & ROD	A	C	C							
SD1	SOAP DISPENSER, SURFACE-MOUNTED	A	C	C							
SNR1	SANITARY NAPKIN RECEPTACLE, SURFACE MOUNTED	A	C	C				X			
TPD1	TOILET PAPER DISPENSER, DOUBLE ROLL	A	C	C				X			
10 44 13 FIRE EXTINGUISHER CABINETS											
FE2	FIRE EXTINGUISHER CABINET, SEMI-RECESSED	A	C	C							
10 51 29 PHENOLIC LOCKERS											
BCH	PHENOLIC PEDESTAL BENCH, 12" x 48" x 17"	A	C	C							
LK	TWO TIER LOCKER, 15" x 15" x 72"	A	C	C							

WALL PROTECTION SCHEDULE

ABBREV.	DESCRIPTION	MANUFACTURER	STYLE	COLOR	BLOCKING
BG-1	BUMPER GUARD	INPRO CORPORATION	1400 WALL GUARD	AMERICAN TEAK 0553	X
CH-1	CHAIR RAIL	INPRO CORPORATION	PALLADIUM 3D TRIM SYSTEM 3"W	AMERICAN TEAK 0553	
HR-1	HANDRAIL	INPRO CORPORATION	3110FVFV	AMERICAN TEAK 0553 (TOP), WHITE SAND 0103 (BOTTOM)	X
CG-1	CORNER GUARD, 90 DEGREE, FULL HEIGHT	<varies>	<varies>	<varies>	<varies>
CG-2	CORNER GUARD, 135 DEGREE, FULL HEIGHT	INPRO CORPORATION	130 HIGH IMPACT CORNER GUARD	WHITE SAND 0103	X
CG-3	CORNER GUARD, 90 DEGREE, FULL HEIGHT	INPRO CORPORATION	SURFACE MOUNT STAINLESS STEEL CORNER GUARD	STAINLESS STEEL	X

EQUIPMENT LEGEND

A - ARCHITECT
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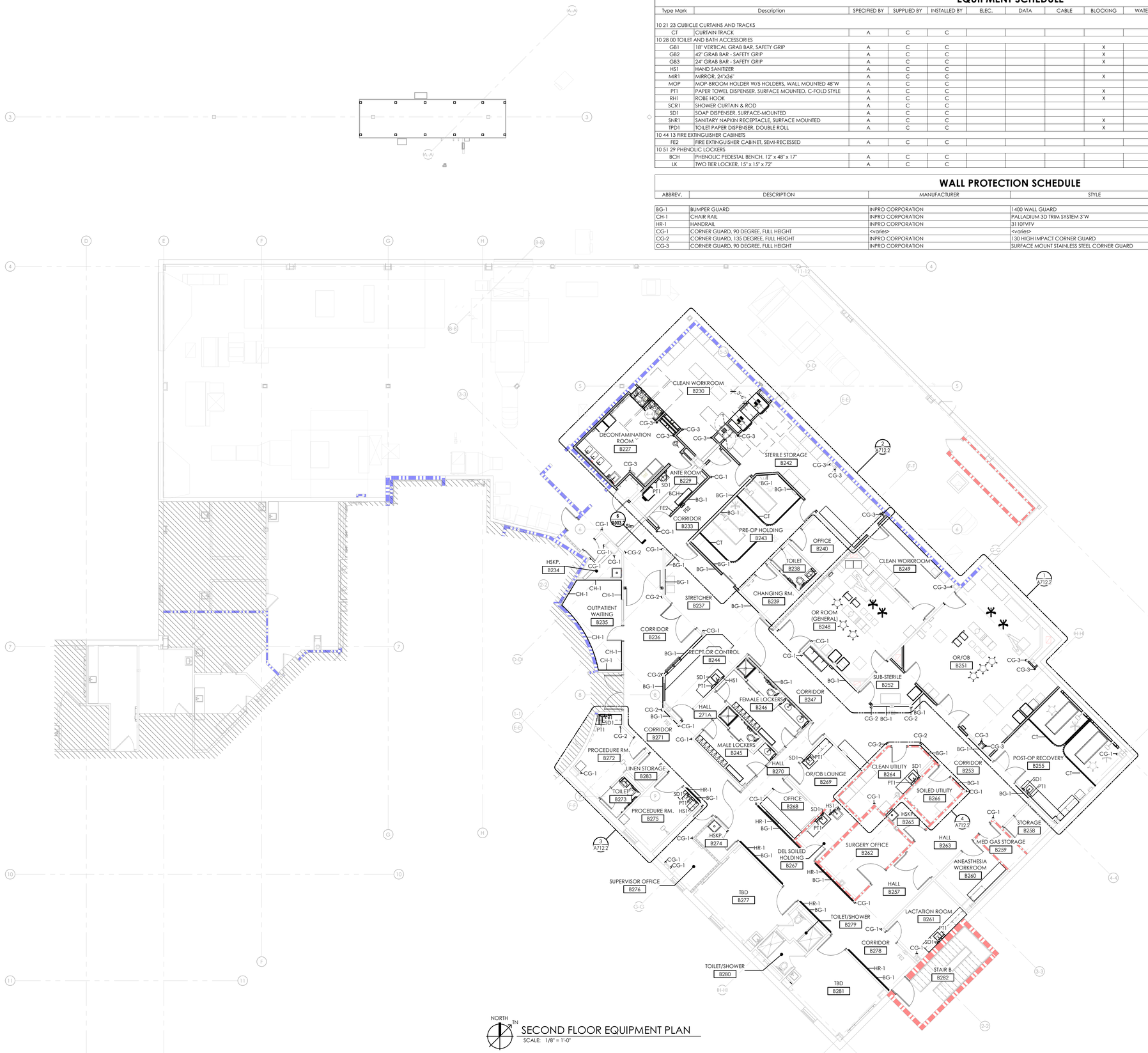
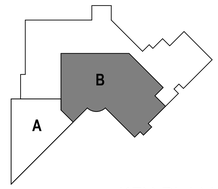
C - CONTRACTOR



NORTH TN

SECOND FLOOR EQUIPMENT PLAN
SCALE: 1/8" = 1'-0"



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
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Kalamazoo, MI 49007
www.SteelheadMEP.com

CONSULTANT

LICENSED ARCHITECT
KARL KOWALSKE
22156
STATE OF MONTANA
07-23-26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE
CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
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ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: A702.2.dwg
DRAWN BY: MV
CHECKED BY: JK

SHEET TITLE:
SECOND FLOOR EQUIPMENT PLAN

A702.2

MEDICAL EQUIPMENT SCHEDULE

HS	EQUIPMENT DESCRIPTION	SPECIFIED BY	SUPPLIED BY	INSTALLED BY	ELEC.	DATA	CABLE TV.	BLOCKING	WATER	DRAIN	COMMENTS
BK	KICK BUCKET, PEDIGO, STAINLESS STEEL	O	O	C							P1020-SS, PEDIGO
CAB1	SUPPLY CAB FREESTANDING, 2 GLS DOOR	O	O	C							FSSC369224, SKYTRON
CAB2	SUPPLY CAB FREESTANDING, 2 GLS DOOR	O	O	C							FSSC489224, SKYTRON
CAB3	FREESTANDING DRAWER CABINET, FOUR DRAWERS, TWO SHELVES, GLASS DOORS	O	O	C							FSSC369224, SKYTRON
CAB4	FREESTANDING DRAWER CABINET, FOUR DRAWERS, TWO SHELVES, GLASS DOORS	O	O	C							FSGC249224, SKYTRON
CC	STRYKER CORE 2 CONSOLE	O	O	C							5400-052-000US, STRYKER
CRT1	BACK TABLE, STAINLESS STEEL	O	O	C							SG-80-A-SS, PEDIGO
CRT2	MOBILE CART, SINGLE WIDE, THREE QUARTER HIGH CARD, LARGE CHAMBER, GLASS DOORS	O	O	C							ST26517HG, SKYTRON
CRT4	GENERAL STORAGE CART	O	C	C							
CRT5	GENERAL STORAGE CART	O	C	C							
DC	AMSCO DRYING CABINET - 29" DOUBLE DOOR PASS THRU	A	C	C	X						
DCW	DENTAL CASSETTE WASHER	A	C	C	X				X		
ECL	CEILING-MOUNTED EXAM LIGHT.	O	O	C	X						
GN	ETHICON, GEN11 HARMONIC/ENSEAL GENERATOR	O	O	C							GEN11, EHTICON
HW	AMICO NULOOK SERENITY SURFACE MOUNTED HEADWALL SYSTEM	A	C	C	X			X			
INS	LEXION	O	O	C							4100, LEXION
LH	MOBILE LINEN HAMPER	O	O	C							
LYT	OLYMPUS TOWER	O	O	C							AZBGL-000
MEDV	MEDIVATOR ADAVNTAGE PLUS PASS-THRU ENDOSCOPE REPROCESSING SYSTEM	A	C	C	X				X		
ND	DOCKING STATION	O	O	C							0702-100-000, SYRYKER
NPT	ANALYZER, BLOOD GLUCOSE, POC	O	O	C							AZBGL-000
OPT	OPERATING TABLE	O	O	C							TS700dv Surgical Table
PB	PEG BOARD	O	O	C							
SB	SINGLE BASIN, STAND, SHELF	O	O	C							P-1078-W/S-SS
SC	SHARPS DISPOSAL	O	C	C							
SCL	DUAL HEAD SURGICAL CEILING MOUNTED LIGHT	O	O	C	X						
STL	ELECTRONIC SPHYGMOMANOMETER, LCD DISPLAYS NON-INVASIVE BLOOD PRESSURE, PULSE RATE AND TEMPERATURE, USED IN HOSPITALS AND CLINICS. INCLUDES AN OPTIONAL MOBILE STAND.	O	O	C							MON1
STL1	PHYSICIAN STOOL, HEIGHT ADJUSTABLE, EASY-GLIDE CASTERS	O	O	C							
STL2	OFS CAROLINA PHYSICIAN STOOL, HEIGHT ADJUSTABLE, EASY-GLIDE CASTERS	O	O	C							
STN	ADJUSTABLE INSTRUMENT TABLE	O	C	C							
STS	AMSCO 400 SMALL STEAM STERILIZER - 20X20X38" (508X508X965MM)/SINGLE DOOR/CABINET/ELECTRIC HEAT	A	C	C	X				X		
TBL1	INSTRUMENT, UTILITY, TABLE, 1 SHELF, STAINLESS STEEL	O	O	C							SG-92-SS
TBL2	TABLE, 1 SHELF, STAINLESS STEEL	O	O	C							SG-88-SS
TBL3	TABLE, 1 SHELF, STAINLESS STEEL	O	O	C							SG-86-SS
TBL4	TABLE, 1 SHELF, STAINLESS STEEL	O	O	C							SG-84-SS
TBL5	TABLE, 1 SHELF, STAINLESS STEEL	O	O	C							SG-94-SS
UCC	DOUBLE CHAMBER ULTRASONIC CONSOLE CLEANER	A	C	C	X				X		
WD	AMSCO 5052 SINGLE-CHAMBER WASHER/DISINFECTOR - DOUBLE DOOR/ELECTRIC HEAT	A	C	C	X				X		
WMM	WALL MOUNTED BEDSIDE MONITOR	O	C	C							
WRM	BLANKET, FLUID WARMER	O	O	C	X						
WRS	WIRE SHELVING RACK, RED BIN STORAGE	O	O	O							

EQUIPMENT LEGEND

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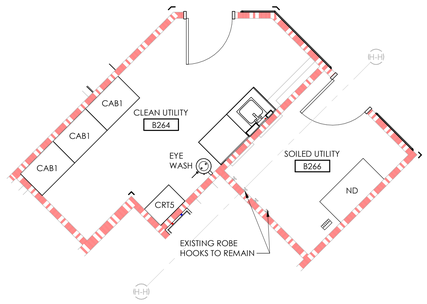
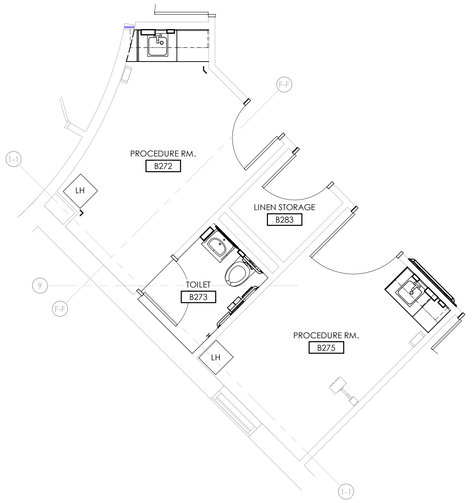
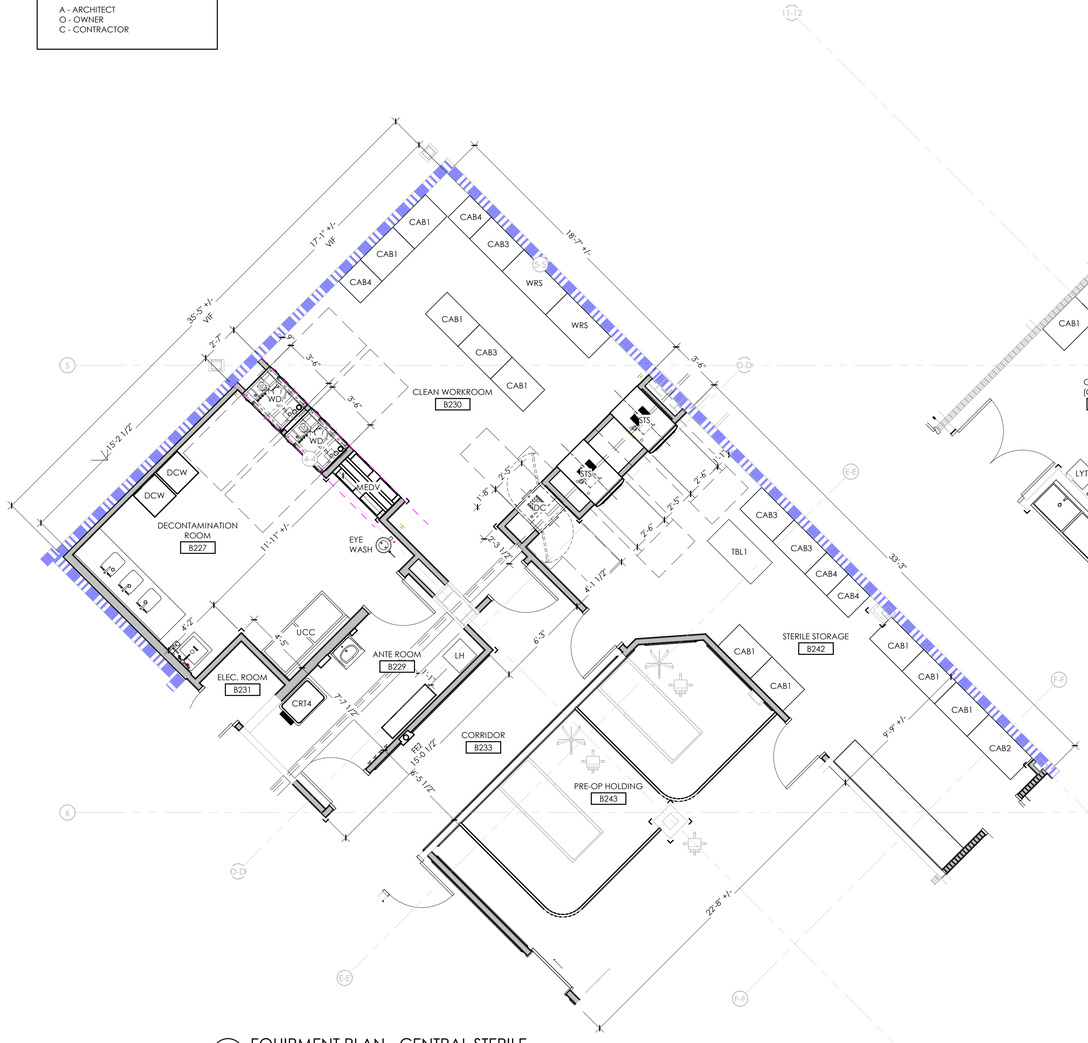


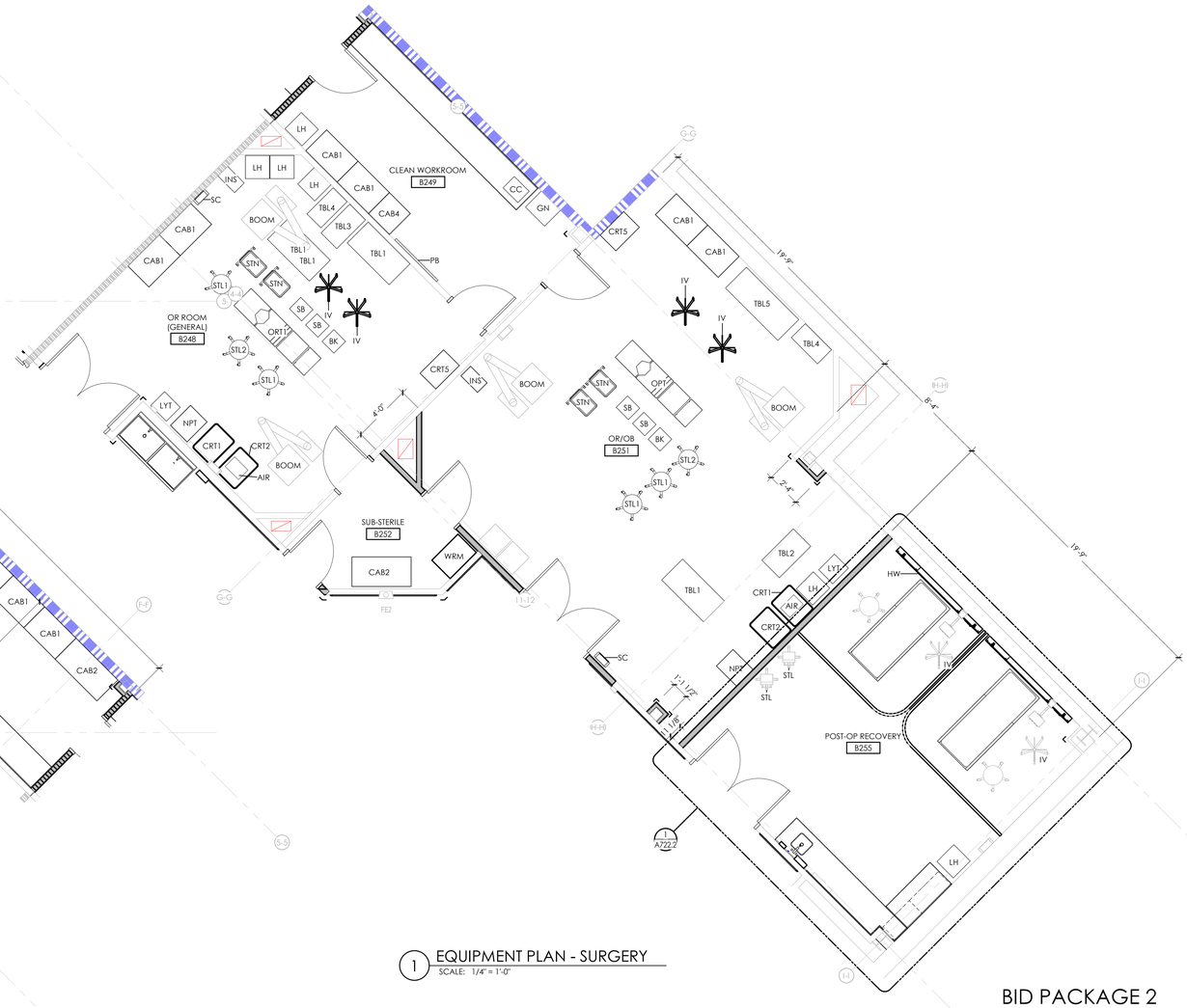
4 EQUIPMENT PLAN - CLEAN & SOLIED UTILITY
SCALE: 1/4" = 1'-0"



3 EQUIPMENT PLAN - PROCEDURE ROOMS
SCALE: 1/4" = 1'-0"



2 EQUIPMENT PLAN - CENTRAL STERILE
SCALE: 1/4" = 1'-0"



1 EQUIPMENT PLAN - SURGERY
SCALE: 1/4" = 1'-0"

BID PACKAGE 2
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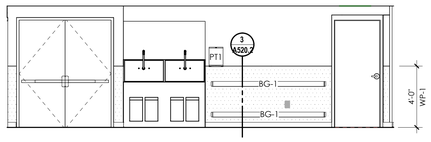
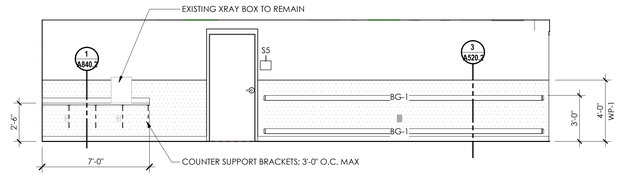
CHECKED BY: JK

SHEET TITLE:
ENLARGED MEDICAL EQUIPMENT PLANS & SCHEDULE

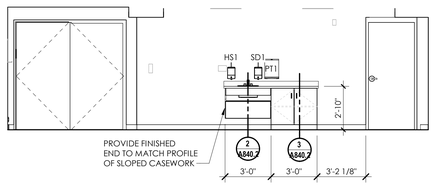
A712.2



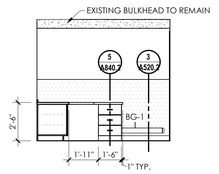
28 TYP. SURG. CORRIDOR
SCALE: 1/4" = 1'-0"



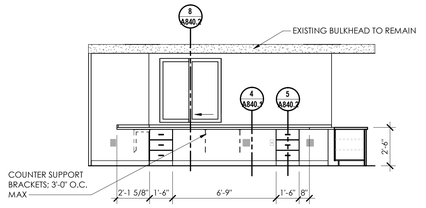
27 TYP. SURG. CORRIDOR
SCALE: 1/4" = 1'-0"



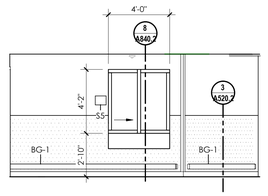
26 RECPT. OR CONTROL - B244
SCALE: 1/4" = 1'-0"



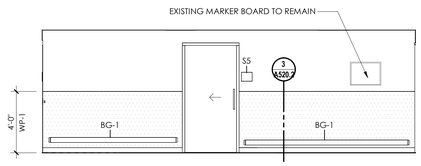
25 RECPT. OR CONTROL - B244
SCALE: 1/4" = 1'-0"



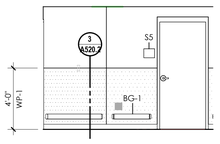
24 RECPT. OR CONTROL - B244
SCALE: 1/4" = 1'-0"



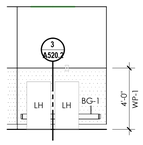
23 CORRIDOR - B236
SCALE: 1/4" = 1'-0"



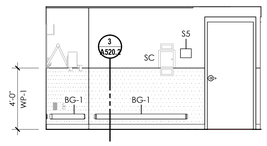
22 STRETCHER - B237
SCALE: 1/4" = 1'-0"



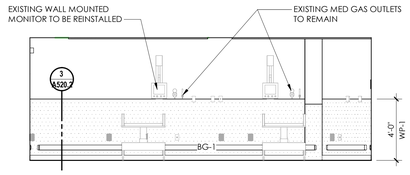
21 STRETCHER - B237
SCALE: 1/4" = 1'-0"



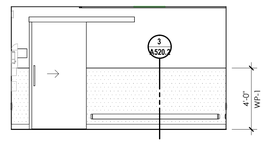
20 STRETCHER - B237
SCALE: 1/4" = 1'-0"



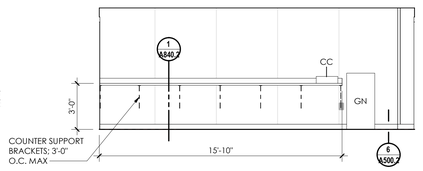
19 PRE-OP HOLDING - B243
SCALE: 1/4" = 1'-0"



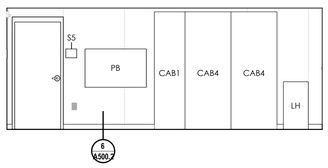
18 PRE-OP HOLDING - B243
SCALE: 1/4" = 1'-0"



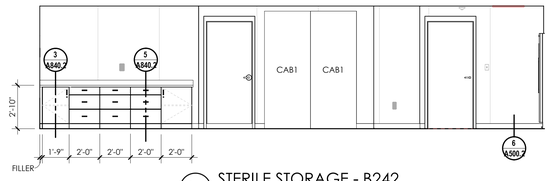
17 PRE-OP HOLDING - B243
SCALE: 1/4" = 1'-0"



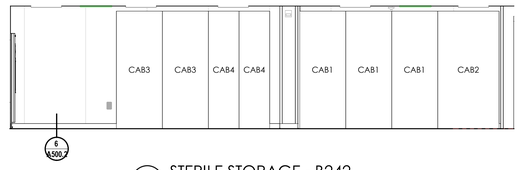
16 CLEAN WORKROOM - B249
SCALE: 1/4" = 1'-0"



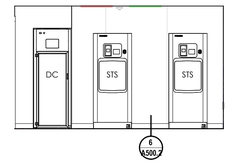
15 CLEAN WORKROOM - B249
SCALE: 1/4" = 1'-0"



14 STERILE STORAGE - B242
SCALE: 1/4" = 1'-0"



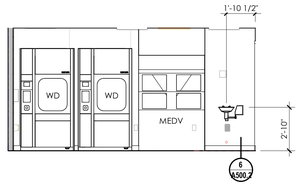
13 STERILE STORAGE - B242
SCALE: 1/4" = 1'-0"



12 STERILE STORAGE - B242
SCALE: 1/4" = 1'-0"

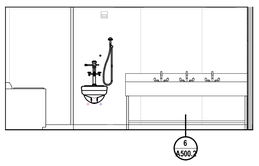
11 CLEAN WORKROOM - B230
SCALE: 1/4" = 1'-0"

10 CLEAN WORKROOM - B230
SCALE: 1/4" = 1'-0"

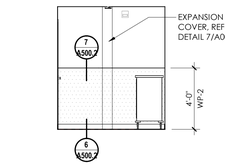


9 DECONTAMINATION ROOM - B227
SCALE: 1/4" = 1'-0"

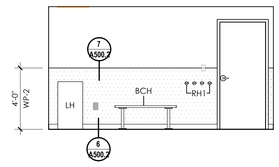
8 DECONTAMINATION ROOM - B227
SCALE: 1/4" = 1'-0"



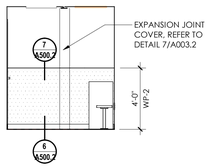
7 DECONTAMINATION ROOM - B227
SCALE: 1/4" = 1'-0"



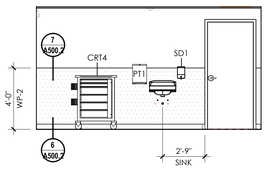
6 ANTE ROOM - B229
SCALE: 1/4" = 1'-0"



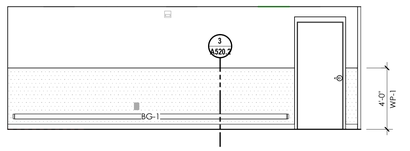
5 ANTE ROOM - B229
SCALE: 1/4" = 1'-0"



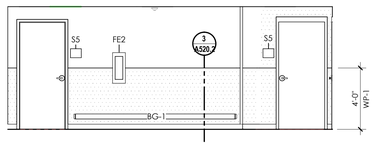
4 ANTE ROOM - B229
SCALE: 1/4" = 1'-0"



3 ANTE ROOM - B229
SCALE: 1/4" = 1'-0"



2 TYP. CENTRAL STERILE CORRIDOR
SCALE: 1/4" = 1'-0"



1 TYP. CENTRAL STERILE CORRIDOR
SCALE: 1/4" = 1'-0"

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
Part of Bodwé Group
259 E Michigan Ave, Suite 407
Kalamazoo, MI 49007
www.SteelheadMEP.com

CONSULTANT

LICENSED ARCHITECT
KARL KOWALSKE
22159
STATE OF MONTANA
07-23-26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE
CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

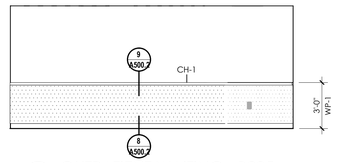
REVIEWED:
ES ARCHITECT / ENGINEER DATE
APPROVED:
ES PROJECT MANAGER DATE
ES BRANCH CHIEF DATE
CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION

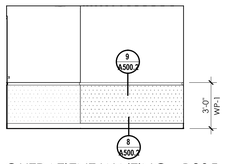
ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: A820.2.dwg
DRAWN BY: MV
CHECKED BY: SS

SHEET TITLE:
INTERIOR ELEVATIONS

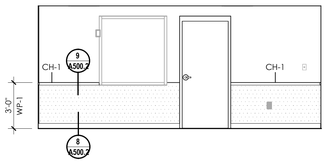
A820.2



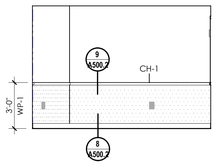
34 OUTPATIENT WAITING - B235
SCALE: 1/4" = 1'-0"



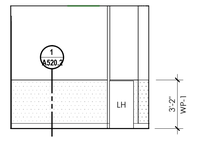
33 OUTPATIENT WAITING - B235
SCALE: 1/4" = 1'-0"



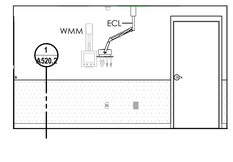
32 OUTPATIENT WAITING - B235
SCALE: 1/4" = 1'-0"



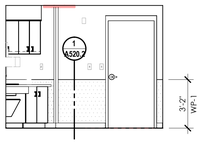
31 OUTPATIENT WAITING - B235
SCALE: 1/4" = 1'-0"



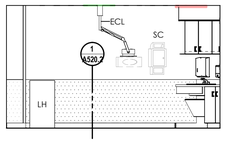
30 OB ADMITTING - B272
SCALE: 1/4" = 1'-0"



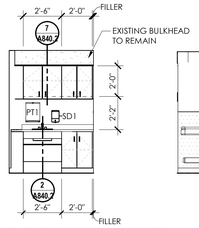
29 PROCEDURE RM. - B272
SCALE: 1/4" = 1'-0"



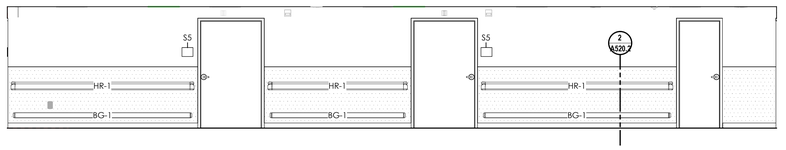
28 PROCEDURE RM. - B272
SCALE: 1/4" = 1'-0"



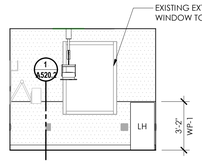
27 PROCEDURE RM. - B272
SCALE: 1/4" = 1'-0"



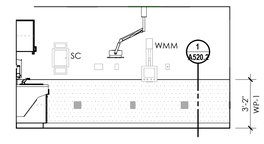
26 PROCEDURE RM. - B272
SCALE: 1/4" = 1'-0"



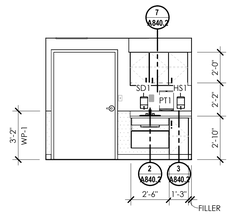
25 TYP. OB PATIENT CORRIDOR
SCALE: 1/4" = 1'-0"



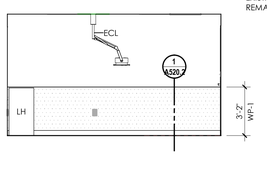
24 PROCEDURE RM. - B275
SCALE: 1/4" = 1'-0"



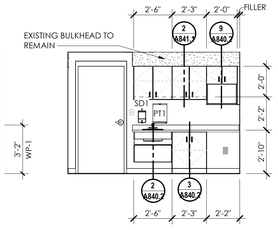
23 PROCEDURE RM. - B275
SCALE: 1/4" = 1'-0"



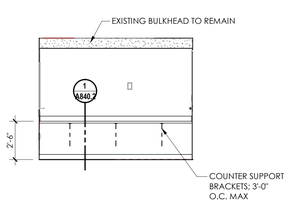
22 PROCEDURE RM. - B275
SCALE: 1/4" = 1'-0"



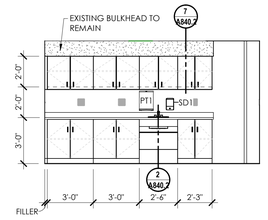
21 PROCEDURE RM. - B275
SCALE: 1/4" = 1'-0"



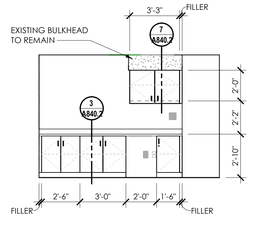
20 OB/OR LOUNGE - B269
SCALE: 1/4" = 1'-0"



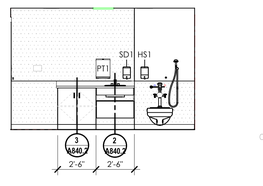
19 OB CONTROL - B268
SCALE: 1/4" = 1'-0"



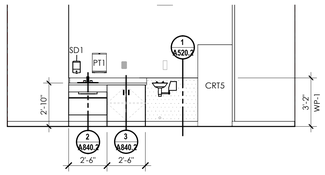
18 LACTATION ROOM - B282
SCALE: 1/4" = 1'-0"



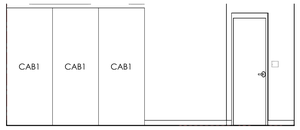
17 ANEASTHESIA WORKROOM - B260
SCALE: 1/4" = 1'-0"



16 SOILED HOLDING - B267
SCALE: 1/4" = 1'-0"



15 CLEAN UTILITY - B264
SCALE: 1/4" = 1'-0"



14 CLEAN UTILITY - B264
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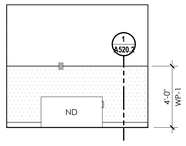
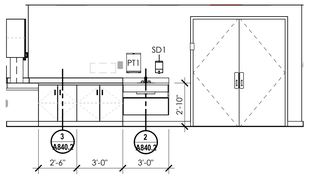
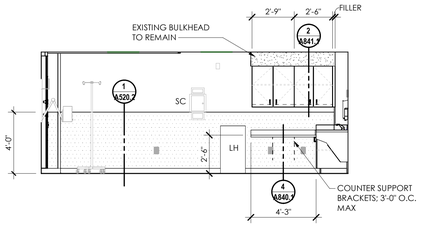


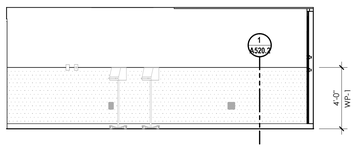
13 SOILED UTILITY - B266
SCALE: 1/4" = 1'-0"



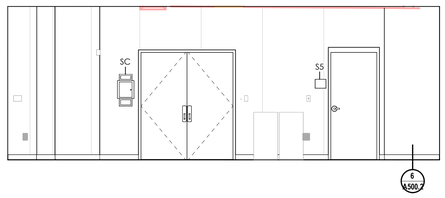
12 POST-OP RECOVERY - B255
SCALE: 1/4" = 1'-0"



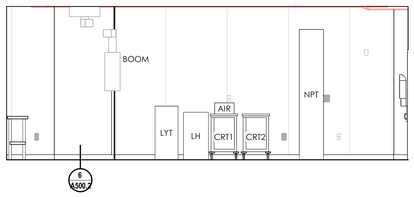
11 POST-OP RECOVERY - B255
SCALE: 1/4" = 1'-0"



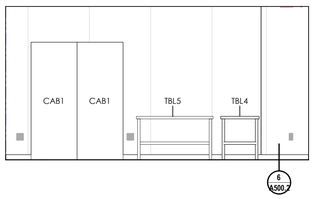
10 POST-OP RECOVERY - B255
SCALE: 1/4" = 1'-0"



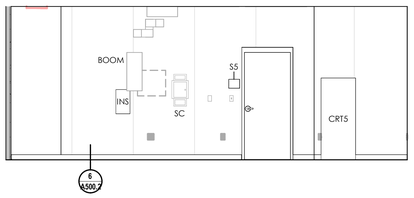
9 OR/OB - B251
SCALE: 1/4" = 1'-0"



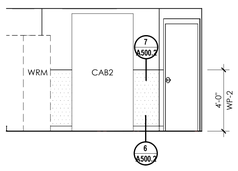
8 OR/OB - B251
SCALE: 1/4" = 1'-0"



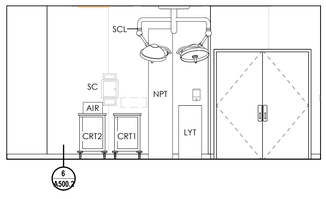
7 OR/OB - B251
SCALE: 1/4" = 1'-0"



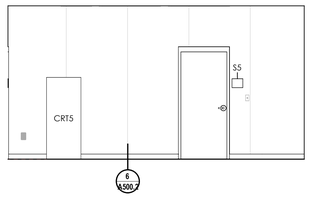
6 OR/OB - B251
SCALE: 1/4" = 1'-0"



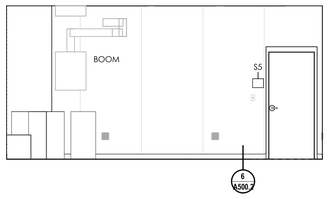
5 SUB-STERILE - B252
SCALE: 1/4" = 1'-0"



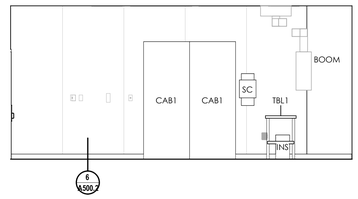
4 OR ROOM GENERAL - B248
SCALE: 1/4" = 1'-0"



3 OR ROOM GENERAL - B248
SCALE: 1/4" = 1'-0"



2 OR ROOM GENERAL - B248
SCALE: 1/4" = 1'-0"



1 OR ROOM GENERAL - B248
SCALE: 1/4" = 1'-0"

BID PACKAGE 2
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259 E Michigan Ave, Suite 407
Kalamazoo, MI 49007
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CONSULTANT

LICENSED ARCHITECT
KARL KOWALSKE
22159
STATE OF MONTANA
07.29.26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE
CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

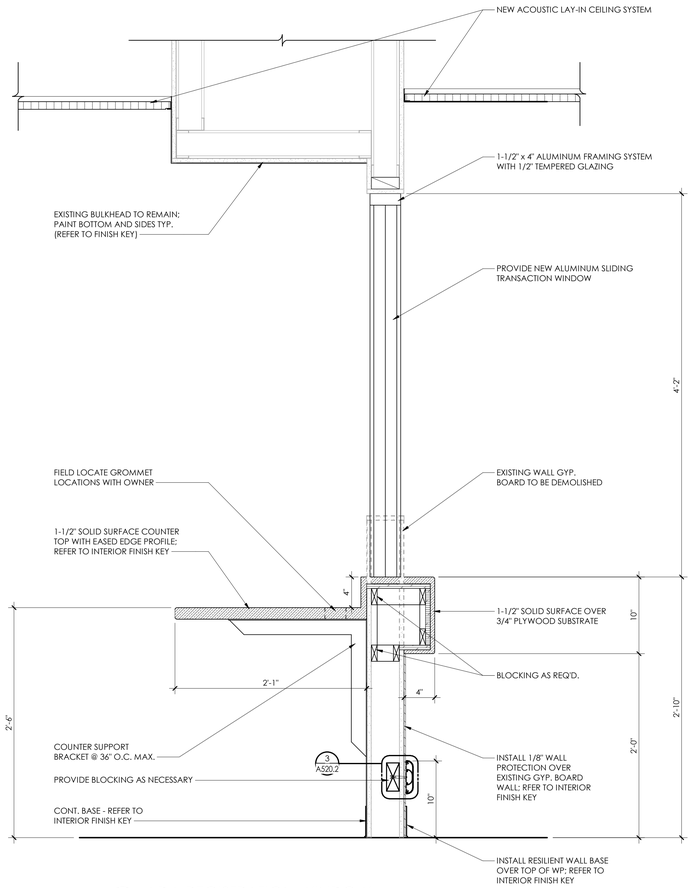
REVIEWED:
ES ARCHITECT / ENGINEER DATE
APPROVED:
ES PROJECT MANAGER DATE
ES BRANCH CHIEF DATE
CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION

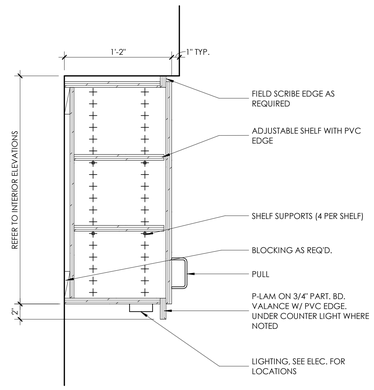
ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: A821.2.dwg
DRAWN BY: MV
CHECKED BY: SS

SHEET TITLE:
INTERIOR ELEVATIONS

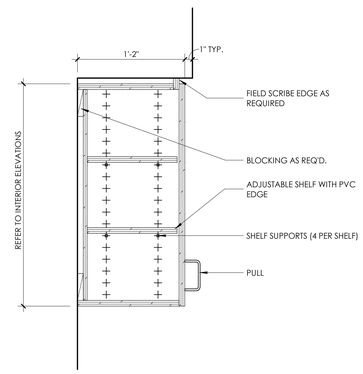
A821.2



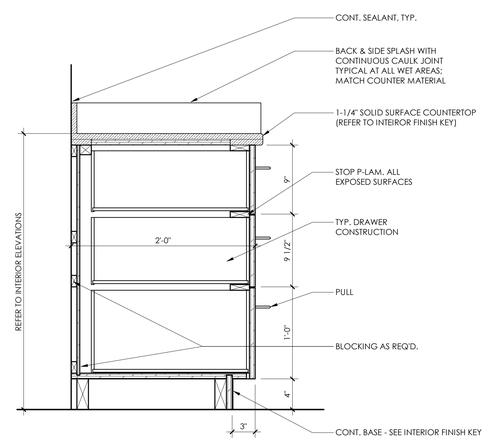
8 ADA REGISTRATION WINDOW
SCALE: 1 1/2" = 1'-0"



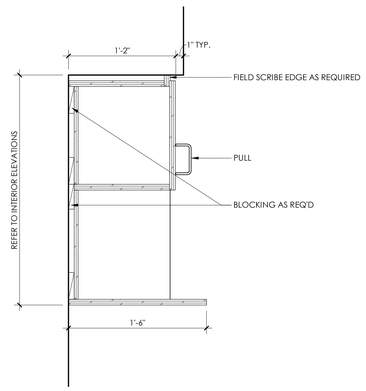
7 UPPER UNIT W/ VALENCE
SCALE: 1 1/2" = 1'-0"



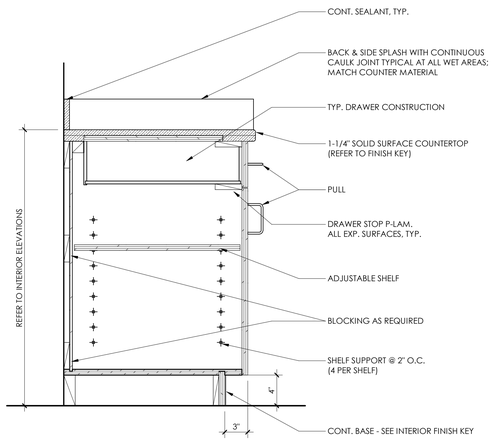
6 UPPER UNIT
SCALE: 1 1/2" = 1'-0"



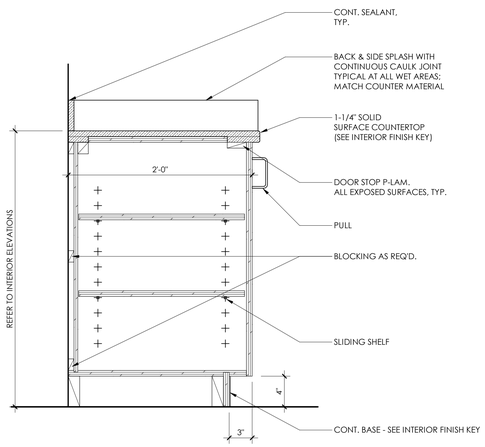
5 THREE DRAWER BASE UNIT
SCALE: 1 1/2" = 1'-0"



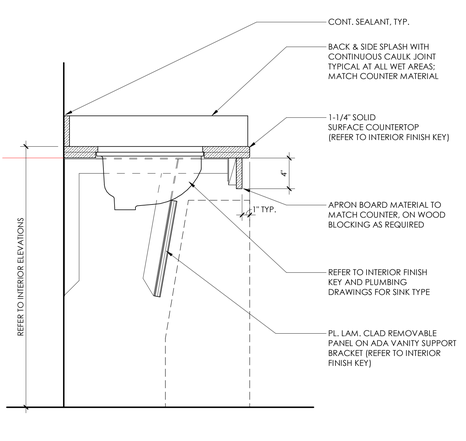
9 UPPER UNIT W/ MICROWAVE SHELF
SCALE: 1 1/2" = 1'-0"



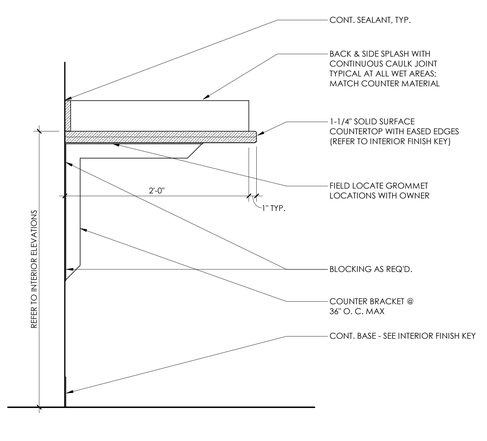
4 BASE UNIT W/ DRAWER
SCALE: 1 1/2" = 1'-0"



3 BASE UNIT W/ DOORS
SCALE: 1 1/2" = 1'-0"



2 ADA SINK BASE UNIT
SCALE: 1 1/2" = 1'-0"



1 COUNTERTOP W/ SUPPORT BRACKETS
SCALE: 1 1/2" = 1'-0"

BID PACKAGE 2
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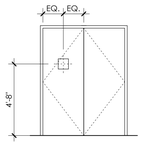
CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: A840.2.dwg
DRAWN BY: MV
CHECKED BY: SS

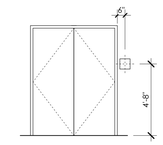
SHEET TITLE:
CASEWORK DETAILS

A840.2



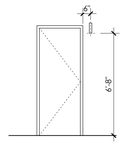
NOTE: SIGN MUST BE MOUNTED TO THE INACTIVE LEAF

E



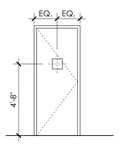
NOTE: SIGN MUST BE MOUNTED TO THE RIGHT OF THE RIGHT HAND DOOR MOUNT SIGN TO THE LEFT OF THE LEFT HAND DOOR WHEN RIGHT SIDE IS NOT POSSIBLE.

D



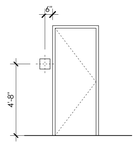
NOTE: FLAG MOUNT CONFIGURATION TYPICAL AT ALL LOCATIONS

C



NOTE: SIGN MOUNTING TYPICAL FOR OPPOSITE DOOR CONFIGURATION

B



NOTE: SIGN MOUNTING TYPICAL FOR OPPOSITE DOOR CONFIGURATION

A

MOUNTING TYPES

INTERIOR SIGNAGE SCHEDULE

SIGN TYPE	ROOM #	ROOM NAME	SIGN MOUNTING TYPE	BACKER PLATE (Y/N)
S5	B237	STRETCHER	D	No
S5	B243	PRE-OP HOLDING	D	No
S5	B249	CLEAN WORKROOM	A	No
S5	B251	OR/OB	A	No
LEVEL 02				
S5	B227	DECONTAMINATION ROOM	A	No
S5	B229	ANTE ROOM	A	No
S5	B230	CLEAN WORKROOM	A	No
S5	B233	CORRIDOR	E	No
S5	B233	CORRIDOR	A	No
S5	B234	HSKP.	A	No
S5	B235	OUTPATIENT WAITING	B	No
S5	B236	CORRIDOR	E	No
S5	B237	STRETCHER	D	No
S5	B237	STRETCHER	A	No
S5	B237	STRETCHER	E	No
S1	B238	TOILET	A	No
S4	B238	TOILET	C	No
S5	B239	CHANGING RM.	A	No
S5	B240	OFFICE	A	No
S5	B242	STERILE STORAGE	A	No
S5	B242	STERILE STORAGE	A	No
S5	B242	STERILE STORAGE	A	No
S5	B243	PRE-OP HOLDING	A	No
S5	B244	RECPT.OR CONTROL	A	No
S5	B244	RECPT.OR CONTROL	-	No
S3	B245	MALE LOCKERS	A	No
S3	B245	MALE LOCKERS	A	No
S2	B246	FEMALE LOCKERS	A	No
S2	B246	FEMALE LOCKERS	B	No
S5	B247	CORRIDOR	E	No
S5	B248	OR ROOM (GENERAL)	A	No
S5	B248	OR ROOM (GENERAL)	E	No
S5	B248	OR ROOM (GENERAL)	A	No
S5	B249	CLEAN WORKROOM	A	No
S5	B249	CLEAN WORKROOM	A	No
S5	B251	OR/OB	D	No
S5	B251	OR/OB	A	No
S5	B252	SUB-STERILE	B	No
S5	B252	SUB-STERILE	A	No
S5	B252	SUB-STERILE	A	No
S5	B255	POST-OP RECOVERY	D	No
S5	B257	HALL	E	No
S5	B258	STORAGE	A	No
S5	B259	MED GAS STORAGE	A	No
S5	B260	ANEASTHESIA WORKROOM	A	No
S5	B261	LACTATION ROOM	A	No
S5	B262	SURGERY OFFICE	A	No
S5	B264	CLEAN UTILITY	A	No
S5	B265	HSKP.	A	No
S5	B266	SOILED UTILITY	A	No
S5	B267	DEL SOILED HOLDING	A	No
S5	B268	OFFICE	A	No
S5	B269	OR/OB LOUNGE	A	No
S5	B270	HALL	A	No
S5	B272	PROCEDURE RM.	A	No
S5	B274	HSKP.	A	No
S5	B275	PROCEDURE RM.	A	No
S5	B276	SUPERVISOR OFFICE	B	No
S5	B277	TBD	A	No
S5	B278	CORRIDOR	E	No
S5	B281	TBD	A	No
S5	B282	STAIR B	A	No
S5	B283	LINEN STORAGE	A	No

SIGNAGE TAG KEY

S1	SIGN TYPE TAG
-	SIGNAGE

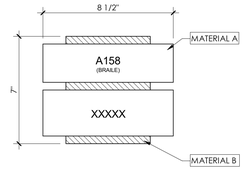
SIGNAGE TYPE LEGEND

MATERIAL A	MATCH TAKEFORM STANDARD WOODS / SAVANNAH
MATERIAL B	MATCH TAKEFORM PRINTED PATTERN / PAT 104-8

RAISED TEXT:
FONT TYPE: ADA META
COLOR: BRONZE
HEIGHT & SIZE IN COMPLIANCE W. ADA MIN. REQUIREMENT; INCLUD BRAILLE

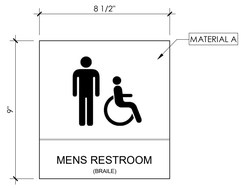
SIGNAGE GENERAL NOTES

1. ALL SIGN COPIES, IF LISTED, TO BE VERIFIED WITH OWNER FOR ACCURATE ASSIGNMENTS FOR PROCURMENT PER BUILDING STANDARD.
2. ROOM IDENTIFICATION SIGNS TO BE LOCATED ON THE ENTRY SIDE OF ROOM
3. REFER TO SHEET A900.2 FOR CODE REQUIRED AND WAYFINDING SIGN SCHEDULE.
4. REFER TO SHEET A900.2 FOR SIGN TYPE DETAILS.
5. ALL SIGNAGE TO COMPLY WITH ICC/ANSI A117.1 - 2009 REQUIREMENTS

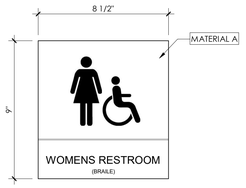


5 SIGN TYPE S5
SCALE: 3" = 1'-0"

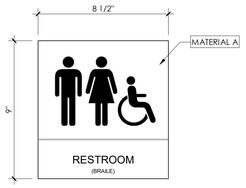
4 SIGN TYPE S4
SCALE: 3" = 1'-0"



3 SIGN TYPE S3
SCALE: 3" = 1'-0"



2 SIGN TYPE S2
SCALE: 3" = 1'-0"



1 SIGN TYPE S1
SCALE: 3" = 1'-0"

BID PACKAGE 2
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Kalamazoo, MI 49007
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CONSULTANT

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STATE OF MONTANA
07-23-26

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ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: A900.2.dwg
DRAWN BY: MV
CHECKED BY: SS

SHEET TITLE:
INTERIOR SIGNAGE TYPES & SCHEDULE

A900.2

SIGNAGE TAG KEY

S1	SIGN TYPE TAG
-	SIGNAGE

SIGNAGE TYPE LEGEND

MATERIAL A → MATCH TAKEFORM STANDARD WOODS / SAVANNAH

MATERIAL B → MATCH TAKEFORM PRINTED PATTERN / PAT 104-8

RAISED TEXT:
FONT TYPE: ADA META
COLOR: BRONZE
HEIGHT & SIZE IN COMPLIANCE W. ADA MIN.
REQUIREMENT: INCLUD BRAILLE

SIGNAGE GENERAL NOTES

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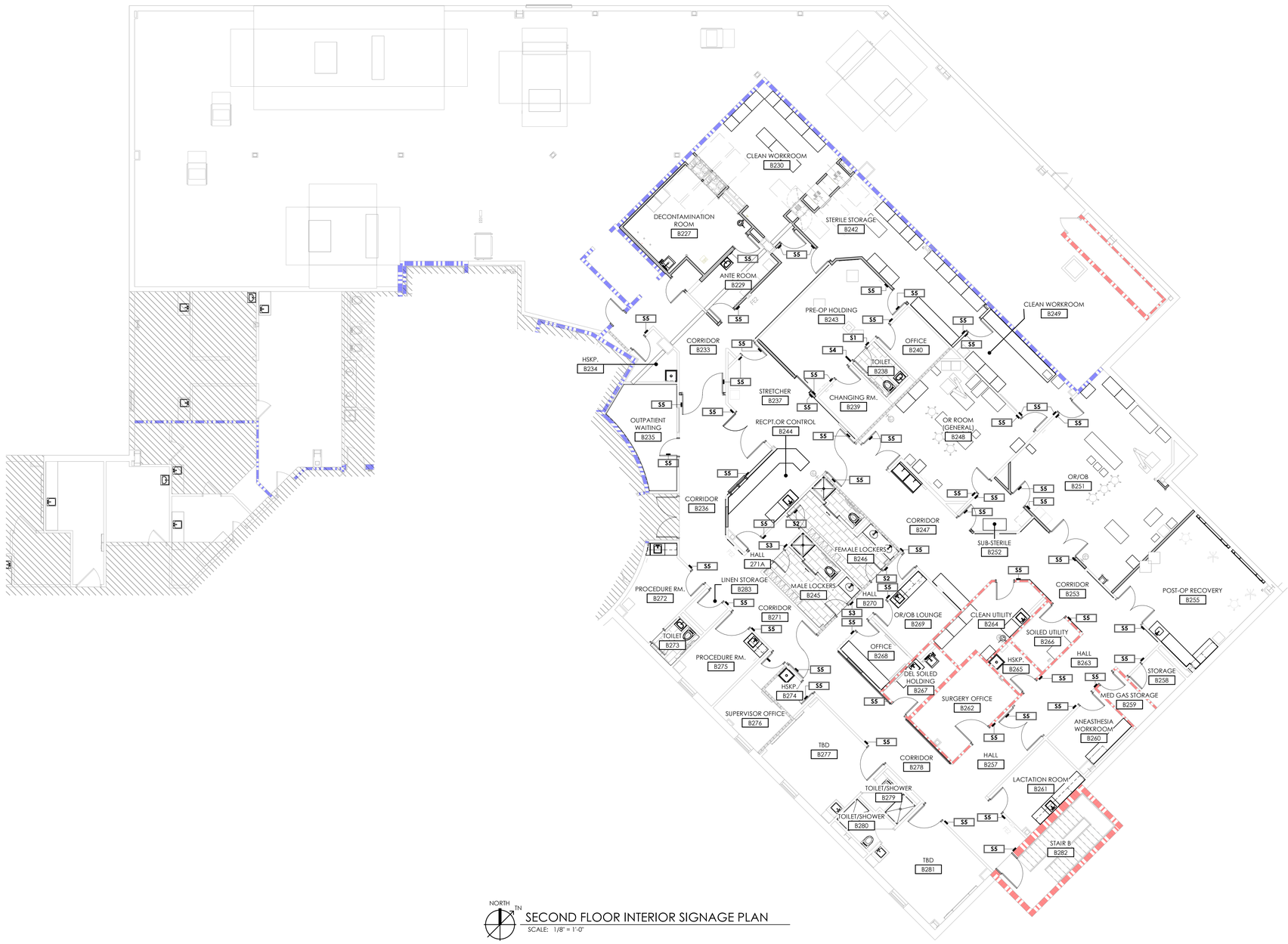
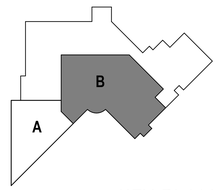


NORTH TN

SECOND FLOOR INTERIOR SIGNAGE PLAN
SCALE: 1/8" = 1'-0"



KEY PLAN

BID PACKAGE 2
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Kalamazoo, MI 49007
www.SteelheadMEP.com

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER — DATE

APPROVED:
ES PROJECT MANAGER — DATE
ES BRANCH CHIEF — DATE

CONCURRENCE
AGENCY REPRESENTATIVE — DATE
TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: July 29, 2026
CONTRACT NO: 75H70124D00014 / 75H70125F30005
PROJECT NO: 241532
CAD DWG FILE: A902.2.dwg
DRAWN BY: MV
CHECKED BY: SS

SHEET TITLE:
SECOND FLOOR INTERIOR SIGNAGE PLAN

A902.2

GENERAL SYMBOLS

- REVISION NUMBER - SHOWN ON PLANS
- POINT WHERE DISCONNECT/DEMOLITION OCCURS AT EXISTING
- POINT WHERE NEW CONNECTS TO EXISTING
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- KEYNOTE
- CONTINUATION SYMBOL
- Room 4 — ROOM NAME AND NUMBER
- DEMOLISHED ITEM
- AREA NOT IN CONTRACT
- 2" — PIPE SIZE TAG (DIAMETER)
- ABOVE GROUND PIPING
- 1/8" / 12" SLOPE — PIPE SLOPE TAG
- BELOW GROUND PIPING
- INVERT: -105' - 1" — PIPE INVERT ELEVATION TAG
- (E) — EXISTING PIPE TAG
- (D) — DEMOLISHED PIPING

ABBREVIATIONS

Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	M/A	MIXED AIR
AD	AREA DRAIN	MAX	MAXIMUM
ADD	ADDENDUM	MBH	ONE THOUSAND BTU PER HOUR
AFF	ABOVE FINISHED FLOOR	MCF	ONE THOUSAND CUBIC FEET
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MU/A	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CW	COLD WATER	O	OXYGEN
D	DEGREE	O/A	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
DW	DISTILLED WATER	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWC	ELECTRIC WATER COOLER	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R	DUCT RISER
E/A	EXHAUST AIR	R/A	RETURN AIR
EXIST	EXISTING	RCP	RADIANT CEILING PANEL
F	DEGREES FAHRENHEIT	RD	ROOF DRAIN
FCO	FLOOR CLEAN OUT	REC	RECESSED
FD	FLOOR DRAIN	RED	REDUCER
FDC	FIRE DEPARTMENT CONNECTION	RH	RELATIVE HUMIDITY
FL	FLOOR	RL/A	RELIEF AIR
FO	FUEL OIL	RM	ROOM
FOV	FUEL OIL VENT	RPM	REVOLUTIONS PER MINUTE
FOR	FUEL OIL RETURN	RW	RAIN WATER
FOS	FUEL OIL SUPPLY	SF	SQUARE FOOT
FPM	FEET PER MINUTE	S/A	SUPPLY AIR
FS	FLOOR SINK	SAN	SANITARY
FT	FOOT/FEET	SF	SQUARE FOOT
FTR	FIN TUBE RADIATION	SD	SMOKE DAMPER
GAL	GALLON	SM	SURFACE MOUNT
GF	GAS-FIRED	SP	STANDPIPE
GC	GENERAL CONTRACTOR	SP	STATIC PRESSURE
GPM	GALLONS PER MINUTE	STM	STEAM
GW	GREASE WASTE	T	THERMOSTAT
HB	HOSE BIB	TD	TEMPERATURE DROP
HP	HORSE POWER	TDR	TRENCH DRAIN
HTG	HEATING	TEMP	TEMPERATURE
HTR	HEATER	TYP	TYPICAL
HW	HOT WATER	UG	UNDERGROUND
HYD	HYDRANT	VAC	VACUUM
ID	INDIRECT	V	VENT
IN	INCH	VAV	VARIABLE AIR VOLUME
INV	INVERT	VENT	VENTILATION
LB	POUND	VTR	VENT THROUGH ROOF
LB/HR	POUNDS PER HOUR	W	WASTE
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE	WCO	WALL CLEAN OUT
LPG	LIQUEFIED PETROLEUM GAS	WH	WALL HYDRANT

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	ET	EXPANSION TANK
ACCU	AIR COOLING CONDENSING UNIT	EWH	ELECTRIC WATER HEATER
		FCU	FAN COIL UNIT
AHU	AIR HANDLING UNIT	FP	FIRE PUMP
AS	AIR SEPARATOR	GI	GREASE INTERCEPTOR
B	BOILER	GRV	GRAVITY ROOF VENTILATOR
CH	CHILLER		
CT	COOLING TOWER	HWP	HEATING WATER PUMP
CUH	CABINET UNIT HEATER	HRU	HEAT RECOVERY UNIT
CHWP	CHILLED WATER PUMP	PRV	POWER ROOF VENTILATOR
DBP	DOMESTIC WATER BOOSTER PUMP	RE	RETURN/EXHAUST FAN
DC	DUCT MOUNTED COIL	RTU	ROOFTOP UNIT
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
		UH	UNIT HEATER
EF	EXHAUST FAN	WH	WATER HEATER
EDC	ELECTRIC DUCT COIL		

* NOTE *

ALL GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

PLUMBING AND PIPING SYMBOLS

CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CD	CONDENSATE DRAINAGE
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
GWR	GEOTHERMAL WATER RETURN
GWS	GEOTHERMAL WATER SUPPLY
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
G	NATURAL GAS
PG	PROPANE GAS
REF-L	REFRIGERANT-LIQUID
REF-S	REFRIGERANT-SUCTION
REF-HG	REFRIGERANT-HOT GAS
STM	STEAM
CDR	CONDENSATE RETURN
CWV	COMBINATION WASTE & VENT
CA	COMPRESSED AIR
CW	DOMESTIC COLD WATER
H-CW	HARD COLD WATER
S-CW	SOFT COLD WATER
F-CW	FILTERED COLD WATER
RO	REVERSE OSMOSIS WATER
HW	HOT WATER
HW 140°	HOT WATER 140°
HW-R	HOT WATER RECIRCULATION
HW-R 140°	HOT WATER RECIRCULATION 140°
GV	GREASE VENT
GW	GREASE WASTE
IW	INDIRECT WASTE
OV	OIL VENT
OW	OIL WASTE
PD	PUMP DISCHARGE
V	SANITARY VENT
SS	SANITARY SEWER
SHWR	SOLAR HOT WATER RETURN
SHWS	SOLAR HOT WATER SUPPLY
SD	STORM DRAINAGE
OSD	OVERFLOW STORM DRAINAGE

PIPE DROP, PIPE RISE, PIPE TEE, CAP

4" 2" 2" PLUG, 45 DEGREE TEE, REDUCING 45 DEGREE TEE

PIPE ACCESSORY TAGS

- WM — 2" DOM. WM DOMESTIC WATER METER
- BV — 2" BALANCING BALANCING VALVE
- SV — 2" SHUTOFF 1/4 TURN BALL VALVE
- CV — 2" CHECK CHECK VALVE
- MV — 2" TMV 3-WAY MIXING VALVE
- GV — GATE VALVE
- AM — 3-WAY AIRMOTOR CONTROLLER
- GLV — ANGLE GLOBE VALVE
- AV — ANGLE HOSE VALVE
- DV — DIAPHRAGM VALVE
- GLV — GLOBE VALVE
- HV — HOSE GLOBE VALVE
- M — 2" M-CONTROL MOTORIZED CONTROL VALVE
- M — 2" 3-WAY CONTROL 3 WAY MOTORIZED CONTROL VALVE
- PRV — 2" PRV PRESSURE REDUCING VALVE
- SOL — 3/8" SOLENOID REFRIGERANT VALVE
- BV — 2" BUTTERFLY BUTTERFLY VALVE
- LV — LOCK SHIELD VALVE
- NV — NEEDLE VALVE
- PV — PLUG VALVE
- QV — QUICK OPENING VALVE
- SC — SPRING CHECK VALVE
- SC — SWING GATE CHECK VALVE
- PRV — TEMP PRESSURE RELIEF VALVE

DRAIN TAGS

DRAIN SIZE — TYPE (SEE SCHEDULE)

- FLOOR DRAIN ● 4" FD-1
- FLOOR DRAIN ■ 4" FD-3P — "P" - INDICATES PRIMER CONNECTION
- FLOOR SINK 4" FS-4
- HUB DRAIN ● 4" FD-13, 6 DFU — FIXTURE UNITS
- 4" AD-6 — AREA DRAIN
- 4" SD-29 — DECK DRAIN
- 4" SD-12 — FLOW CONTROL DRAIN
- 4" SD-15 — STORM DRAIN
- 6" SD-1, 0 SF — ROOF AREA SERVED BY DRAIN — COMBINATION DRAINS

PLUMBING FIXTURE TAGS

WATER CLOSET - ADA - WALL HUNG - SENSOR FLUSH VALVE

TYPE (SEE SCHEDULE) — LVWA

FIXTURE UNITS, IF SHOWN — 0.75 CWFU, 0.75 HWFU

WCWAS — LVWA — WCWS — 1 DFU — URNS

WCO4

GENERAL FIRE PROTECTION NOTES

1. PROVIDE ALTERATIONS TO THE EXISTING FIRE PROTECTION SYSTEM AS REQUIRED TO ACCOMMODATE THE NEW FLOOR PLAN AND NEW CEILING TYPES. PROVIDE A COMPLETE WET TYPE SYSTEM INCLUDING NEW MAINS, BRANCHES, HEADS, VALVES, AND ACCESSORIES AS REQUIRED. REUSE EXISTING SYSTEM EQUIPMENT WHERE APPLICABLE. THE SYSTEM SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS AND AS PER REQUIREMENTS OF THE STATE BUILDING CODE, LOCAL FIRE DEPARTMENT, AND ALL FEDERAL, STATE, AND LOCAL AUTHORITIES, NFPA, AND FACTORY MUTUAL.
2. THE BUILDINGS COMPLETE OPERATIONAL FIRE PROTECTION SYSTEMS SHALL REMAIN IN PLACE. THIS CONTRACTOR SHALL REPAIR ANY DAMAGE TO THIS SYSTEM CREATED BY THE REMOVAL OF ANY OTHER MECHANICAL SYSTEMS OR COMPONENTS.
3. THIS CONTRACTOR SHALL COORDINATE PHASING OF SPRINKLER WORK WITH THE GENERAL CONTRACTOR PRIOR TO STARTING WORK.
5. THE SPRINKLER SYSTEM SHALL BE DESIGNED BASED UPON ACTUAL WATER FLOW TEST DATA OBTAINED AT OR NEAR THE JOB SITE.
6. REFER TO REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION REGARDING SPRINKLER HEAD LOCATION AND PIPE, UNLESS NOTED OTHERWISE.
7. DIVISION 21 CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR PROPER INSTALLATION OF THE FIRE PROTECTION SYSTEMS ALARM DEVICES INVOLVED WITH FIRE SPRINKLER SYSTEM.
8. ALL SPRINKLER SYSTEM PIPING SHALL BE CONCEALED ABOVE THE SUSPENDED CEILING SYSTEM, UNLESS NOTED OTHERWISE. WRITTEN AUTHORIZATION SHALL BE OBTAINED FROM THE ARCHITECT PRIOR TO EXPOSING ANY PIPING IN ANY ROOM WHICH HAS A SUSPENDED CEILING.
9. THIS CONTRACTOR SHALL PROVIDE ALL SPRINKLER HEADS AS REQUIRED TO ENSURE AN APPROVED FIRE PROTECTION SYSTEM AT NO ADDITIONAL COST TO THE OWNER.
10. AUXILIARY DRAINS SHALL BE EXPOSED WITH 1" DRAIN VALVES, WHEN 5 OR MORE GALLONS ARE TRAPPED. THIS CONTRACTOR SHALL PROVIDE FIXED PIPING TO AN ADEQUATELY SIZED RECEPTOR WHICH IS CAPABLE OF ACCEPTING THE FULL FLOW OF THE DRAIN. WHEN LESS THAN 5 GALLONS ARE TRAPPED, A HOSE BIB SHALL BE PROVIDED AT THE DRAIN VALVE.
11. AUXILIARY DRAINS SHALL NOT BE LOCATED ABOVE PLASTER OR GYPSUM BOARD CEILING SYSTEMS, ONLY BY A SPECIFIC WRITTEN INSTRUCTION FROM THE ENGINEER WILL A VARIANCE BE PROVIDED.
12. AN INSPECTOR'S TEST CONNECTION SHALL BE PROVIDED FOR EACH FIRE SPRINKLER ZONE. THIS CONTRACTOR SHALL PROVIDE FIXED PIPING FROM THE TEST CONNECTION TO AN ADEQUATELY SIZED RECEPTOR WHICH IS CAPABLE OF ACCEPTING THE FULL FLOW OF THE TEST. EXTERIOR DISCHARGE OF THE TEST CONNECTION SHALL BE PERMITTED ONLY BY SPECIFIC WRITTEN INSTRUCTION FROM THE ENGINEER.
13. SHOW ALL ROOM NUMBERS ON SHOP DRAWING PLANS.
14. FLOW TEST DATA FROM #/##/# INDICATES THE FOLLOWING: STATIC PRESSURE # PSI. RESIDUAL PRESSURE: # PSI AT ## GPM. THE HYDRANTS TESTED ARE APPROXIMATELY ### FEET AWAY FROM THE CENTER OF THE SITE LOCATED OFF THE ##' WATER MAIN IN ## STREET AT AN ELEVATION OF ### FEET ABOVE SEA LEVEL. SEE CIVIL PLANS FOR HYDRANT LOCATION. THE CONTRACTOR SHALL PERFORM A FIRE FLOW TEST IN ACCORDANCE WITH NFPA 291 TO VERIFY THE FLOW TEST DATA GIVEN ABOVE. THE DATA GIVEN ABOVE SHALL BE THE BASIS OF DESIGN UNLESS THE AVAILABLE PRESSURE OR FLOW HAS DECREASED, NOTIFY OWNERS REPRESENTATIVE IF FLOW TEST DATA DIFFERS FROM THE DATA ABOVE. A FIRE PROTECTION ENGINEER OR AN ENGINEER EXPERIENCED IN WATER FLOW TESTING SHALL PERFORM OR WITNESS THE REQUIRED FLOW TESTING AND SIGN THE REPORT PRIOR TO THE FIRST SPRINKLER SYSTEM SUBMITTAL.
15. ROUTE SPRINKLER PIPING SUCH THAT IT DOES NOT RUN ABOVE ELECTRICAL PANELS, SWITCHGEAR, OR SIMILAR EQUIPMENT. SPRINKLER MAINS SHALL NOT RUN THROUGH ELECTRICAL OR COMMUNICATION ROOMS. SPRINKLER HEADS IN THESE ROOMS SHALL BE SERVED BY A DEDICATED BRANCH LINE FOR EACH ROOM.
16. THIS DRAWING INDICATES A GENERAL PIPING ARRANGEMENT ONLY. THIS CONTRACTOR SHALL DETERMINE THE ACTUAL PIPE SIZING REQUIRED AND COORDINATE WORK WITH ALL OTHER TRADES TO AVOID CONFLICTS.
17. THIS CONTRACTOR SHALL PREPARE HYDRAULIC CALCULATIONS BASED UPON THE CONFIGURATION OF THE ACTUAL SYSTEM DESIGN AS SHOWN ON THIS CONTRACTOR'S CONSTRUCTION DOCUMENTS. THE CALCULATIONS AND CONSTRUCTION DOCUMENTS SHALL BE SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER.

GENERAL PLUMBING NOTES

1. FIELD VERIFY ALL NEW WATER, WASTE, AND VENT PIPING CONNECTIONS AND PROVIDE NEW CONNECTIONS AS REQUIRED FOR PROPERLY OPERATING SYSTEMS.

GENERAL PROJECT NOTES

1. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING, PRIOR TO FINAL BID, ALL EXISTING CONDITIONS FOR PLUMBING AND MECHANICAL SYSTEMS WITHIN TENANT SPACE AND WITHIN CLOSE PROXIMITY OF SPACE.
2. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL THE CONDITIONS BOTH EXISTING AND THOSE ILLUSTRATED BY THESE DOCUMENTS AS WELL AS THOSE WHICH CAN BE REASONABLY ANTICIPATED INCLUDING, BUT NOT LIMITED TO ARCHITECTURAL, ELECTRICAL, VENTILATION, PLUMBING, AND OTHER SYSTEMS INVOLVED ON THIS PROJECT.
3. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
4. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AT A LEVEL OF QUALITY AND WORKMANSHIP CONSISTENT WITH THE SPECIFICATIONS.
5. LOCATIONS OF PIPING, DUCTWORK AND EQUIPMENT AS INDICATED ON THE PLANS, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID INTERFERENCE IN THE FIELD.
6. THE CONTRACTOR'S WORK SCHEDULE SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER.
7. PRIOR TO STARTING WORK, SUBMIT SHOP DRAWINGS FOR ALL MECHANICAL EQUIPMENT, PLUMBING FIXTURES, AND DIFFUSERS.
8. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND SHALL ARRANGE FOR ALL INSPECTIONS AS REQUIRED.
9. FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING, BUT NOT LIMITED TO THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.
10. REMOVE ALL UNUSED PIPING, DUCTWORK AND ACCESSORIES.
11. WHERE FLOOR DRAINS OCCUR WITHIN THE LIMITS OF CONSTRUCTION, PREVENT CONSTRUCTION DEBRIS FROM ENTERING DRAIN BODY BY SEALING DRAIN OPENING PRIOR TO START OF WORK. UNSEAL DRAINS AT COMPLETION OF CONSTRUCTION.
12. COORDINATE INSTALLATION OF PIPING, DUCTWORK, CONDUIT, LIGHTS, CABLE TRAY, STRUCTURE, AND EQUIPMENT TO PREVENT CONFLICTS.
13. LOCATE EQUIPMENT REQUIRING ACCESS 2'-0" MAXIMUM ABOVE CEILING.
14. ALL ROOF MOUNTED EQUIPMENT SHALL BE A MINIMUM 10'-0" FROM EDGE OF ROOF.
15. LOCATE DUCTWORK, PIPING AND MECHANICAL EQUIPMENT AWAY FROM THE SPACE ABOVE ELECTRICAL PANELS, TRANSFORMERS AND OTHER ELECTRICAL EQUIPMENT.
16. PENETRATIONS OF RATED ASSEMBLIES SHALL BE FIRE STOPPED. FIRE STOPPING SHALL BE AN APPROVED MATERIAL AS PRESCRIBED IN CSFM STANDARD 43-1 AND SHALL BE U.L. LISTED.
17. PROVIDE SLEEVES AND/OR OPENINGS TO RUN PIPES AND DUCTS THROUGH FOUNDATIONS, FLOORS, WALLS, AND ROOF.
18. MAINTAIN CLEAR ACCESS TO SERVICE EQUIPMENT AND OTHER ACCESSORIES REQUIRING SERVICE. VISUAL INSPECTION OR HAND OPERATION, WHERE INDICATED OR REQUIRED, PROVIDE ACCESS PANELS OF THE TYPE SELECTED TO SUIT MATERIALS IN WHICH INSTALLED.
19. ADJUST PIPING AND DUCTWORK SIZES TO PROPERLY CONNECT TO MECHANICAL EQUIPMENT.
20. PIPE SIZES SHOWN SHALL BE CONTINUED IN THE DIRECTION OF FLOW UNTIL ANOTHER SIZE IS SHOWN.
21. FOR EQUIPMENT CONNECTIONS, AND PIPE SIZES NOT SHOWN ON THE PLANS, REFER TO DETAILS, SCHEDULES, AND SPECIFICATIONS.
22. INSTALL EXPOSED PIPING AND DUCTWORK AS HIGH AS PRACTICAL IN ROOMS WITHOUT CEILINGS.
23. PROVIDE ONE YEAR WARRANTY FOR ALL WORKMANSHIP AND MATERIALS AFTER THE DATE OF FINAL ACCEPTANCE.
24. EACH DETAIL INCLUDED IN THIS SET OF DOCUMENTS APPLIES TO THIS PROJECT REGARDLESS IF EACH DETAIL HAS BEEN REFERENCED ON THE PLANS OR NOT.
25. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.
26. PROVIDE A COMPLETE OPERATION & MAINTENANCE MANUAL INCLUDING APPROVED SUBMITTAL DRAWINGS, WARRANTY INFORMATION FOR PRODUCT(S) SUPPLIED, AND MANUFACTURER'S OPERATION AND MAINTENANCE INSTRUCTIONS.

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
Part of Bodwē Group
259 E Michigan Ave, Suite 407
Kalamazoo, MI 49007
www.SteelheadMEP.com

CONSULTANT

MONTANA — BRADEN S. COX — No. 90191PE — LICENSED PROFESSIONAL ENGINEER — 7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER — DATE

APPROVED:
ES PROJECT MANAGER — DATE
ES BRANCH CHIEF — DATE

CONCURRENCE
AGENCY REPRESENTATIVE — DATE
TITLE

REV	DATE	DESCRIPTION
	06/16/2026	100% CD'S

ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: P001.2.dwg
DRAWN BY: Author
CHECKED BY: BSC

SHEET TITLE:
PLUMBING AND FIRE PROTECTON INFORMATION & SYMBOL LEGEND

P001.2

PLUMBING DEMOLITION NOTES

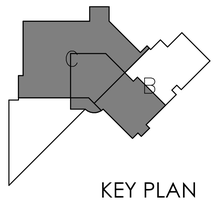
1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATORY AGENCIES, CODES AND REGULATIONS FOR NEW WORK.
2. VERIFY ALL CONDITIONS IN FIELD BEFORE START OF CONSTRUCTION. NOTIFY ARCHITECT/ENGINEER OF DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS.
3. COORDINATE ANY REQUIRED SHUTDOWN OF SERVICES OR EQUIPMENT WITH OWNER'S REPRESENTATIVE. MINIMIZE INTERRUPTION OF EXISTING SERVICES. VERIFY ALL SYSTEMS BEFORE STARTING DEMOLITION TO ASSURE OTHER AREAS WILL NOT LOSE SERVICE.
4. NO ITEMS ABANDONED IN PLACE.
5. ALL ITEMS DEMOLISHED SHALL BE REMOVED AND REMAINING OPEN SYSTEMS SHALL BE PATCHED, CAPPED AND SEALED TO PROVIDE A FINISHED SYSTEM.
6. DEMOLISHED PLUMBING LINE SHALL NOT BE ALLOWED TO REMAIN OPEN. CAP AND PROTECT TO AVOID CONTAMINATION TO AND FROM THE SURROUNDING AREAS.
7. ALL SYSTEMS OPENED DURING DEMOLITION SHALL BE CLOSED AND RETURNED TO OPERATION BY END OF SHIFT. NO SYSTEMS ALLOWED TO BE LEFT OPEN WHEN NOT BEING SUPERVISED BY CONTRACTOR RESPONSIBLE FOR THAT WORK TRADE.

KEYNOTES

1. DEMOLISH 3" VENT THROUGH THE ROOF AND PATCH.
2. EXISTING PLUMBING FIXTURE AND ASSOCIATED SUPPLY AND WASTE PIPING SHALL REMAIN. VENT PIPING SHALL REMAIN. VENT THRU THE ROOF TERMINATION SHALL BE DEMOLISHED.
3. DEMOLISH EXISITNG SANITARY SEWER PIPING FROM THE LEVEL ABOVE BACK TO THE MAIN, CORE DRILL AND PATCH.
4. LIGHTING PLAN

NORTH TN

FIRST FLOOR SANITARY AND VENT DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
Part of Bodwé Group
259 E Michigan Ave, Suite 407
Kalamazoo, MI 49007
www.SteelheadMEP.com

CONSULTANT

MONTANA
BRADEN S. COX
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7/29/26

A/E SEAL

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CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: PD101.2.dwg
DRAWN BY:
CHECKED BY: BSC

SHEET TITLE:

FIRST FLOOR SANITARY AND VENT DEMOLITION PLAN

PD101.2

PLUMBING DEMOLITION NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATORY AGENCIES, CODES AND REGULATIONS FOR NEW WORK.
2. VERIFY ALL CONDITIONS IN FIELD BEFORE START OF CONSTRUCTION. NOTIFY ARCHITECT/ENGINEER OF DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS.
3. COORDINATE ANY REQUIRED SHUTDOWN OF SERVICES OR EQUIPMENT WITH OWNER'S REPRESENTATIVE. MINIMIZE INTERRUPTION OF EXISTING SERVICES. VERIFY ALL SYSTEMS BEFORE STARTING DEMOLITION TO ASSURE OTHER AREAS WILL NOT LOSE SERVICE.
4. NO ITEMS ABANDONED IN PLACE.
5. ALL ITEMS DEMOLISHED SHALL BE REMOVED AND REMAINING OPEN SYSTEMS SHALL BE PATCHED, CAPPED AND SEALED TO PROVIDE A FINISHED SYSTEM.
6. DEMOLISHED PLUMBING LINE SHALL NOT BE ALLOWED TO REMAIN OPEN, CAP AND PROTECT TO AVOID CONTAMINATION TO AND FROM THE SURROUNDING AREAS.
7. ALL SYSTEMS OPENED DURING DEMOLITION SHALL BE CLOSED AND RETURNED TO OPERATION BY END OF SHIFT. NO SYSTEMS ALLOWED TO BE LEFT OPEN WHEN NOT BEING SUPERVISED BY CONTRACTOR RESPONSIBLE FOR THAT WORK TRADE.

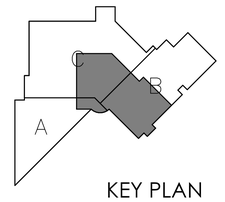
KEYNOTES

1. DEMOLISHED FIXTURE, EXISTING SUPPLIES, WASTE, AND VENT PIPING SHALL REMAIN FOR CONNECTION TO A NEW FIXTURE.
2. DEMOLISH THE FLOOR DRAIN AND ASSOCIATED UNUSED BRANCH PIPING BACK TO THE MAIN AND CAP.
3. DEMOLISH THE SINK AND ASSOCIATED UNUSED BRANCH PIPING BACK TO THE MAIN AND CAP.
4. DEMOLISH EXISTING SANITRAY WASTE PIPING ALL THE WAY TO MAIN. EXISTING PIPING ON FIRST FLOOR CEILING. CONTRACTOR TO VERIFY EXISTING CONDITION.
5. EXISTING SANITARY WASTE PIPING IN FIRST FLOOR CEILING.
6. DEMOLISH EXISTING FIXTURE AND ALL ASSOCIATED PIPING BACK TO THE MAIN.
7. DEMOLISH AND REMOVE EXISTING FIRE PROTECTION BRANCH PIPING, SPRINKLER HEADS, AND RELATED COMPONENTS AS REQUIRED TO ACCOMMODATE REVISED ROOM LAYOUTS AND NEW ROOM ADDITIONS. COORDINATE LIMITS OF REMOVAL WITH ARCHITECTURAL PLANS AND FIELD CONDITIONS. PROTECT ACTIVE SYSTEMS TO MAINTAIN LIFE SAFETY COVERAGE THROUGHOUT CONSTRUCTION. PREPARE EXISTING FIRE PROTECTION NETWORK FOR RECONFIGURATION TO SERVE AREAS OF CHANGED SIZE OR FUNCTION PER APPLICABLE CODE AND HOSPITAL REQUIREMENTS.
8. DEMOLISH AND RELOCATE EXISTING BRANCH FIRE SPRINKLER PIPING AND SPRINKLER HEAD TO MEET THE FIRE PROTECTION REQUIREMENTS.
9. EXISTING PLUMBING FIXTURE AND ASSOCIATED SUPPLY, WASTE, AND VENT PIPING SHALL REMAIN.
10. DEMOLISH EXISTING REVERSE OSMOSIS PIPING AND LOOP ABOVE CEILING. PREPARE FOR NEW PIPING CONNECTIONS.

NORTH TN

SECOND FLOOR PLUMBING DEMOLITION PLAN

SCALE: 1/8" = 1'-0"



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
Part of Bodwé Group
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CONSULTANT

MONTANA
BRADEN S. COX
No. 90191PE
LICENSED PROFESSIONAL ENGINEER
7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:

ES ARCHITECT / ENGINEER — DATE

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ES BRANCH CHIEF — DATE

CONCURRENCE

AGENCY REPRESENTATIVE — DATE

TITLE

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CONTRACT NO:

PROJECT NO: 241532

CAD DWG FILE: PD102.2.dwg

DRAWN BY:

CHECKED BY: BSC

SHEET TITLE:

SECOND FLOOR PLUMBING DEMOLITION PLAN

PD102.2

NORTH
TN

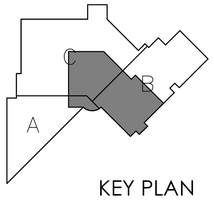
SECOND FLOOR MEDICAL GAS DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

PLUMBING DEMOLITION NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATORY AGENCIES, CODES AND REGULATIONS FOR NEW WORK.
2. VERIFY ALL CONDITIONS IN FIELD BEFORE START OF CONSTRUCTION. NOTIFY ARCHITECT/ENGINEER OF DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS.
3. COORDINATE ANY REQUIRED SHUTDOWN OF SERVICES OR EQUIPMENT WITH OWNER'S REPRESENTATIVE. MINIMIZE INTERRUPTION OF EXISTING SERVICES. VERIFY ALL SYSTEMS BEFORE STARTING DEMOLITION TO ASSURE OTHER AREAS WILL NOT LOSE SERVICE.
4. NO ITEMS ABANDONED IN PLACE.
5. ALL ITEMS DEMOLISHED SHALL BE REMOVED AND REMAINING OPEN SYSTEMS SHALL BE PATCHED, CAPPED AND SEALED TO PROVIDE A FINISHED SYSTEM.
6. DEMOLISHED PLUMBING LINE SHALL NOT BE ALLOWED TO REMAIN OPEN, CAP AND PROTECT TO AVOID CONTAMINATION TO AND FROM THE SURROUNDING AREAS.
7. ALL SYSTEMS OPENED DURING DEMOLITION SHALL BE CLOSED AND RETURNED TO OPERATION BY END OF SHIFT. NO SYSTEMS ALLOWED TO BE LEFT OPEN WHEN NOT BEING SUPERVISED BY CONTRACTOR RESPONSIBLE FOR THAT WORK TRADE.

KEYNOTES

1. DEMOLISH EXISTING MEDICAL GAS OUTLETS, ASSOCIATED VALVES, AND PIPING AS INDICATED.
2. DEMOLISH EXISTING ZONE VALVE BOX AND ALL PIPING AND CONNECTIONS DOWNSTREAM SERVING THE OPERATING ROOM.
3. DEMOLISH EXISTING MEDICAL GAS OUTLETS SERVING THE EXISTING DECONTAMINATION ROOM.
4. DEMOLISH EXISTING MEDICAL GAS OUTLETS SERVING THE EXISTING CENTRAL SERVICES ROOM.



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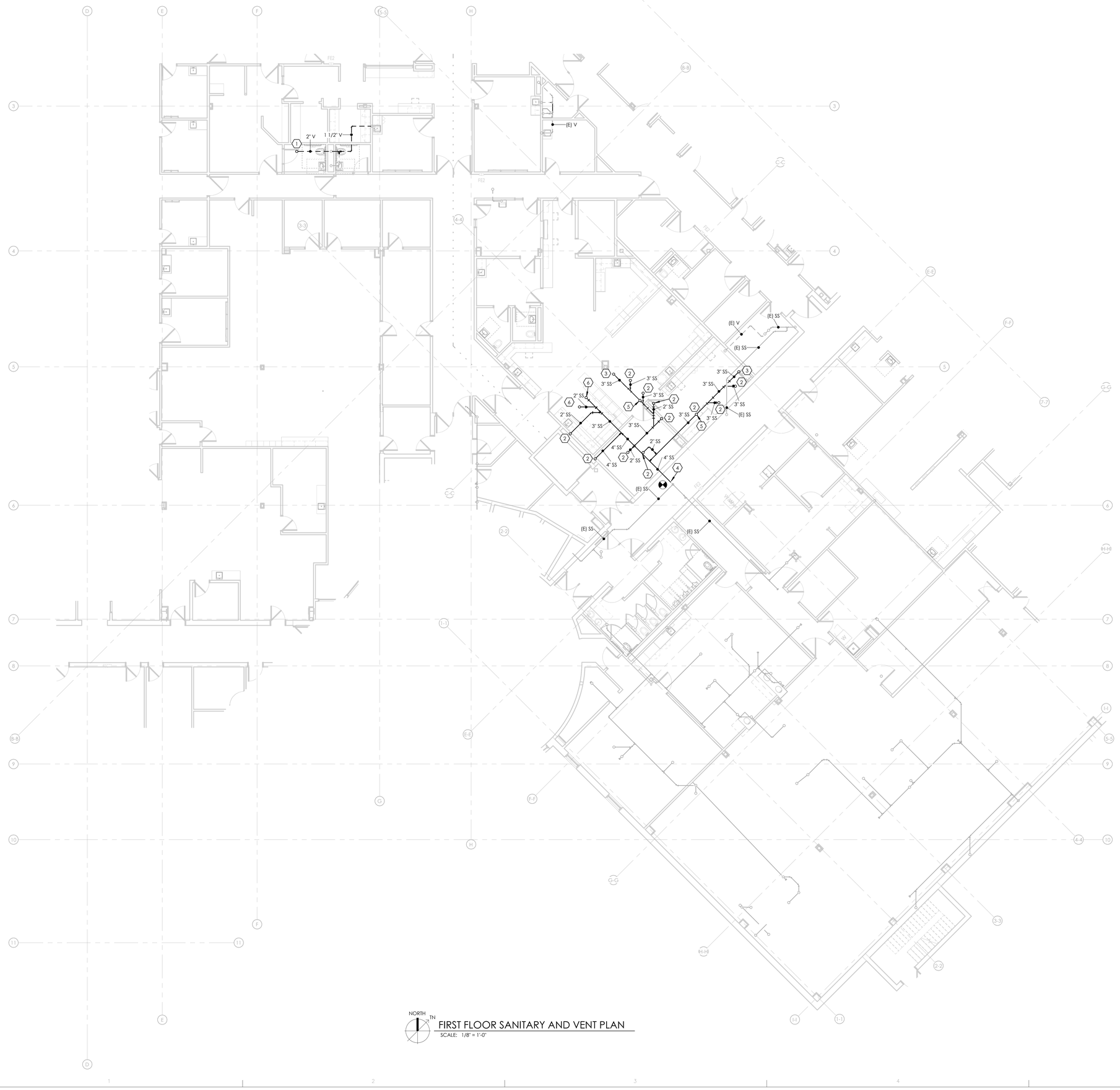
SECOND FLOOR MEDICAL GAS DEMOLITION PLAN

PD202.2



PLUMBING NOTES

1. THIS PLAN IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED TO DETERMINE THE LOCATION OR DIMENSION OF THE WORK. CONTRACTOR SHALL VERIFY EXACT LOCATION OF PIPING AND PENETRATIONS.
2. COORDINATE WORK WITH OTHER TRADES AND WITH THE CONSTRUCTION MANAGER.
3. REFER TO THE RISER DIAGRAMS FOR ADDITIONAL PIPE SIZES.
4. DIELECTRIC FITTINGS ARE RECOMMENDED FOR DISSIMILAR METAL CONNECTIONS.

SANITARY & VENT NOTES

1. ALL SANITARY DRAINAGE (SS) PIPING IS LOCATED BELOW SLAB, UNLESS OTHERWISE NOTED.
2. COORDINATE WITH ARCHITECT TO MAINTAIN THE WATERTIGHT INTEGRITY OF THE BUILDING ENVELOPE AND FLOOR SLABS.
3. PROVIDE WATERTIGHT INSTALLATIONS OF ALL FLOOR EMBEDDED DEVICES INCLUDING BUT NOT LIMITED TO: FLOOR DRAINS, FLOOR SINKS, SHOWER DRAINS, HUB DRAINS, FLOOR RECESSED CLEANOUTS AND, FLUSH TO FLOOR ACCESS HOUSINGS.
4. PROVIDE ALL FLOOR DRAINS, FLOOR SINKS, TRENCH DRAINS AND SHOWER DRAINS WITH IN-LINE TRAP SEAL PROTECTION DEVICES, AS MANUFACTURED BY "SURE SEAL MANUFACTURING", OR APPROVED EQUAL. DEVICES SHALL MEET OR EXCEED ASSE - 1072.
5. PROVIDE WALL CLEAN OUTS IN ALL VENT RISERS ON BRANCHES LONGER THAN 5'-0" AND ON BRANCHES SERVING SINKS OR URINALS.
6. MAINTAIN A MINIMUM 10-0" SEPARATION BETWEEN FLUE AND PLUMBING VENT OUTLETS AND ANY FRESH AIR INTAKE(S). COORDINATE THE REQUIREMENTS WITH THE HVAC CONTRACTOR.
7. VERIFY THE LOCATION OF EXISTING BELOW GRADE WASTE PIPING AND REFLECT ANY DEVIATION GREATER THAN 1'-0" FROM THIS PLAN ON THE AS-BUILT DRAWINGS.

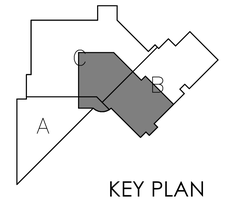
KEYNOTES

1. 2" VENT UP TO A 3" VENT THROUGH THE ROOF. MAINTAIN PROPER CLEARANCE FROM ALL MECHANICAL EQUIPMENT AIR INTAKES.
2. PROVIDE WITH TRAPPED WASTE UP TO FIXTURE ABOVE.
3. 3" WASTE UP TO CLEANOUT ABOVE.
4. 4" WASTE PIPING CONNECTED TO THE EXISTING WASTE PIPING (4" MINIMUM SIZE). FIELD VERIFY THE SIZE, ROUTE, INVERT ELEVATION AND CONNECTION REQUIREMENTS.
5. 2" VENT UP.
6. 2" WASTE UP TO SERVE THE FIXTURE ABOVE.

NORTH TN

FIRST FLOOR SANITARY AND VENT PLAN

SCALE: 1/8" = 1'-0"



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FIRST FLOOR SANITARY AND VENT PLAN

P101.2

PLUMBING NOTES

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2. COORDINATE WORK WITH OTHER TRADES AND WITH THE CONSTRUCTION MANAGER.
3. REFER TO THE RISER DIAGRAMS FOR ADDITIONAL PIPE SIZES.
4. DIELECTRIC FITTINGS ARE RECOMMENDED FOR DISSIMILAR METAL CONNECTIONS.

DOMESTIC WATER NOTES

1. PROVIDE BALL VALVE FOR ISOLATION OF ALL DOMESTIC WATER BRANCH LINES. TYPICAL UNLESS OTHERWISE NOTED TO BE OMITTED.

KEYNOTES

1. 1/2" COLD WATER, 1/2" HOT WATER, AND 1/2" REVERSE OSMOSIS WATER DOWN TO STERIS AMSCO 5052 WASHER. PROVIDE BACKFLOW PREVENTER AT POINT OF CONNECTION AND INDIRECTLY DRAIN TO FLOOR SINK. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION AND CONNECTION REQUIREMENTS.
2. 1" COLD WATER AND 1/2" REVERSE OSMOSIS WATER DOWN TO AMSCO 400 SMALL STERILIZER. PROVIDE BACKFLOW PREVENTER AT POINT OF CONNECTION AND INDIRECTLY DRAIN TO FLOOR SINK. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION AND CONNECTION REQUIREMENTS.
3. CONNECT 2" COLD WATER WITH SHUT-OFF VALVE TO EXISTING 2" MINIMUM LINE. FIELD VERIFY ROUTE AND CONNECTION REQUIREMENTS.
4. CONNECT 1-1/2" HOT WATER WITH SHUT-OFF VALVE TO EXISTING 1-1/2" MINIMUM LINE. FIELD VERIFY ROUTE AND CONNECTION REQUIREMENTS.
5. CANTEL ADV PLUS - ENDOSCOPE REPROCESSING SYSTEM. 1/2" COLD AND 1/2" HOT WATER DOWN IN WALL AND OUT TO SHUT-OFF VALVES AND MIXING VALVE EQUAL TO WATTS LFMMV-M1 TO SERVE THE EQUIPMENT. FIELD VERIFY AND INSTALL PER MANUFACTURER'S INSTRUCTIONS.
6. PROVIDE NEW FIRE PROTECTION PIPING, FITTINGS, AND SPRINKLER HEADS TO ACHIEVE REQUIRED COVERAGE FOR REVISED AND NEW ROOM LAYOUTS. SPRINKLER HEAD LOCATIONS AND ORIENTATION SHALL BE COORDINATED WITH REFLECTED CEILING PLANS AND OBSTRUCTION CLEARANCES. ALL NEW WORK SHALL MEET NFPA REQUIREMENTS AND BE INSTALLED BY A LICENSED FIRE PROTECTION CONTRACTOR. CONTRACTOR SHALL PERFORM HYDRAULIC CALCULATIONS AND PROVIDE A COMPLETE NICET I CERTIFIED SUBMITTAL PACKAGE PRIOR TO INSTALLATION.
7. 1/2" COLD WATER AND 1/2" HOT WATER DOWN TO OUTLET BOX TO SERVE EQUIPMENT.
8. PROVIDE WITH NEW REVERSE OSMOSIS PIPING AND LOOP ABOVE CEILING AS REQUIRED. FIELD VERIFY CONNECTIONS AND SYSTEM REQUIREMENTS. TIE INTO AND UTILIZE THE EXISTING SYSTEM IN THE MECHANICAL ROOM AS APPLICABLE FOR A FULLY OPERATING AND COMPLIANT SYSTEM.
9. 1/2" COLD WATER, 1/2" HOT WATER, AND 1/2" REVERSE OSMOSIS WATER DOWN TO THE ULTRASONIC CLEANER. PROVIDE BACKFLOW PREVENTER AT POINT OF CONNECTION AND INDIRECTLY DRAIN TO FLOOR SINK. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION AND CONNECTION REQUIREMENTS.
10. PROVIDE CONNECTION TO DOCKING STATION FROM EXISTING COLD WATER SUPPLY. REFER TO THE MANUFACTURER'S INSTALLATION AND CONNECTION REQUIREMENTS.

NORTH TN

SECOND FLOOR DOMESTIC WATER PLAN

SCALE: 1/8" = 1'-0"

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CHECKED BY: BSC

SHEET TITLE:
SECOND FLOOR DOMESTIC WATER PLAN

P202.2

PLUMBING NOTES

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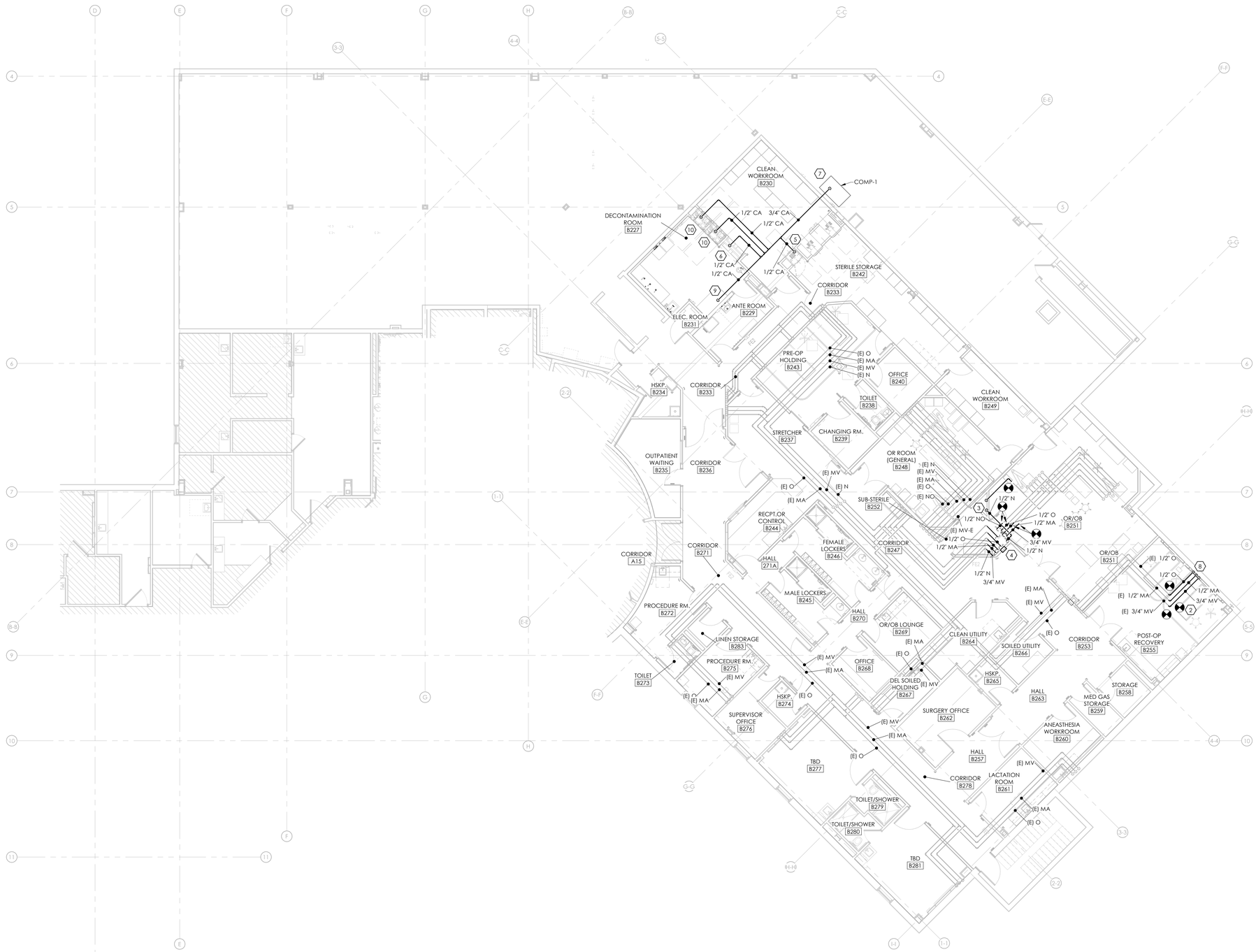
2. COORDINATE WORK WITH OTHER TRADES AND WITH THE CONSTRUCTION MANAGER.
3. REFER TO THE RISER DIAGRAMS FOR ADDITIONAL PIPE SIZES.
4. DIELECTRIC FITTINGS ARE RECOMMENDED FOR DISSIMILAR METAL CONNECTIONS.

KEYNOTES

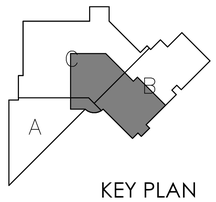
2. PROVIDE WITH NEW MEDICAL GAS PIPING AND CONNECTIONS. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION. SYSTEM TO BE RECERTIFIED PER NFPA REQUIREMENTS.
3. PROVIDE WITH NEW NITROGEN GAS OUTLETS AND NITROGEN CONTROL CABINET. REFER TO ARCHITECTURAL FOR ADDITIONAL INFORMATION.
4. PROVIDE WITH NEW MEDICAL GAS PIPING AND CONNECTIONS TO THE ZONE VALVE BOX. SYSTEM TO BE RECERTIFIED PER NFPA.
5. 1/2" COMPRESSED AIR WITH SHUT OFF VALVE DOWN TO CANTEL DRYING CABINET.
6. 1/2" COMPRESSED AIR WITH SHUT OFF VALVE DOWN TO CANTEL ADVANTAGE PLUS PASS THRU.
7. NEW AIR COMPRESSOR COMP-1 IN THE MECHANICAL ROOM. REFER TO PLUMBING SCHEDULES FOR ADDITIONAL INFORATION. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR PIPE CONNECTION SIZE AND PRESSURE REQUIREMENTS. PROVIDE PRESSURE REGULATING VALVE AND ASSOCIATED ACCESSORIES AS REQUIRED.
8. PROVIDE WITH NEW MEDICAL GAS PIPING CONNECTIONS TO THE HEADWALL SYSTEM. REFER TO ARCHITECTURAL FOR ADDITIONAL INFORMATION.
9. 1/2" COMPRESSED AIR DOWN TO THE ULTRASONIC CLEANER. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION AND CONNECTION REQUIREMENTS.
10. 1/2" COMPRESSED AIR DOWN TO THE WASHER/DISINFECTOR. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION AND CONNECTION REQUIREMENTS.



NORTH TN

SECOND FLOOR MEDICAL GAS PLAN

SCALE: 1/8" = 1'-0"



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DRAWN BY: Author
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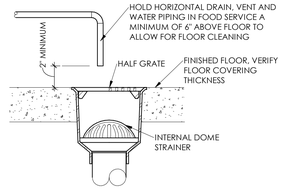
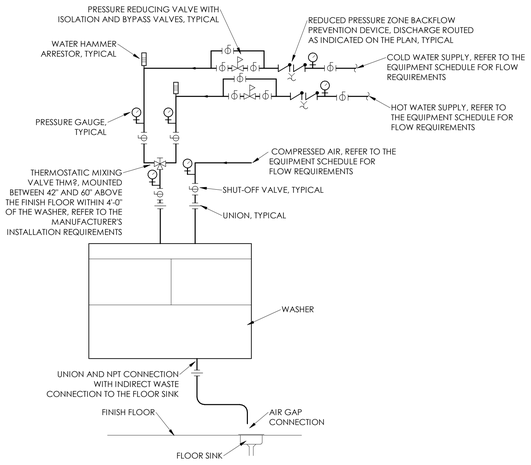
SHEET TITLE:
SECOND FLOOR MEDICAL GAS PLAN

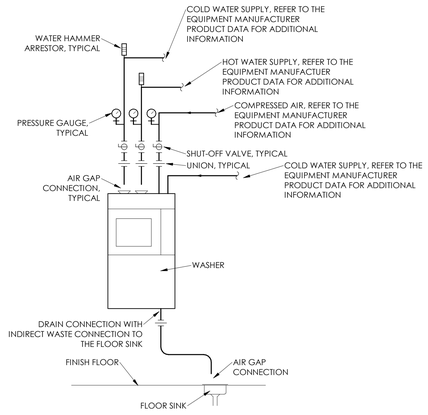
P302.2



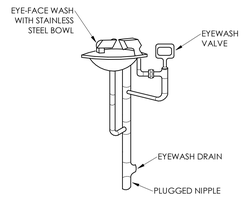
10 P500.2 FLOOR SINK
SCALE: NTS



9 P500.2 ENDOSCOPE REPROCESSING UNIT DETAIL
SCALE: NTS

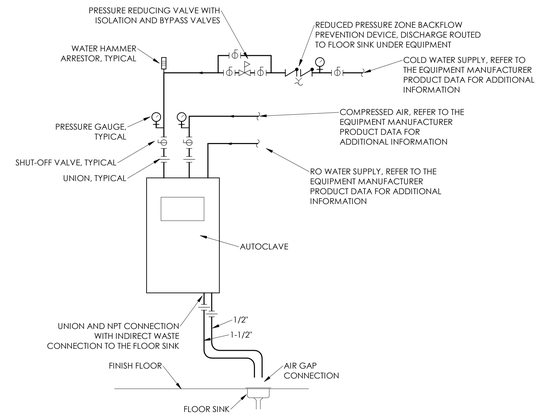


8 P500.2 WASHER/DISINFECTOR DETAIL
SCALE: NTS

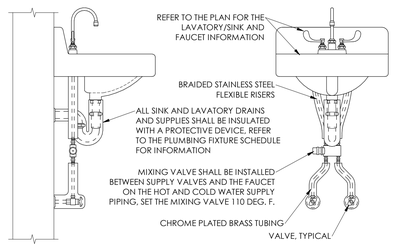


NOTES:
1. PROVIDE A LOOSE-KEY LOCKSHIELD TYPE SHUT-OFF VALVE IN DOMESTIC WATER SUPPLY TROP TO EYEWASH STATION. LABEL VALVE TO PREVENT UNAUTHORIZED SHUT-OFF.
2. PROVIDE WITH MANUFACTURER'S WALL MOUNTING BRACKET.

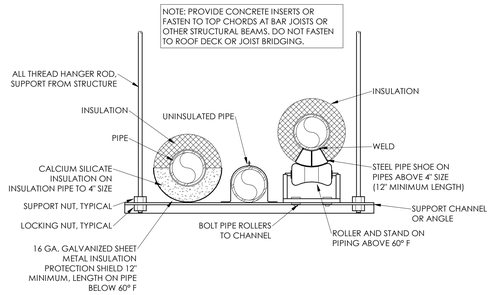
7 P500.2 EMERGENCY EYEWASH PIPING DETAIL
SCALE: NTS



6 P500.2 SMALL STERILIZER CONNECTION DETAIL
SCALE: NTS



5 P500.2 LAVATORY INSTALLATION DETAIL
SCALE: NTS



4 P500.2 TRAPEZE PIPE HANGER DETAIL
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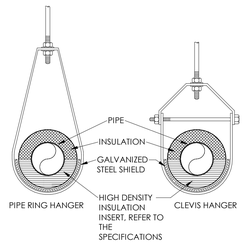
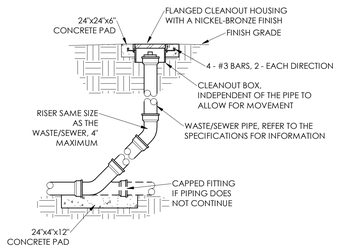
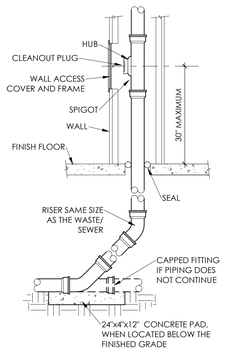


3 P500.2 INSULATED PIPE AT HANGER DETAIL
SCALE: NTS



2 P500.2 CLEAN OUT AND PLUGGED RISER
SCALE: NTS



1 P500.2 WALL CLEAN OUT DETAIL
SCALE: NTS

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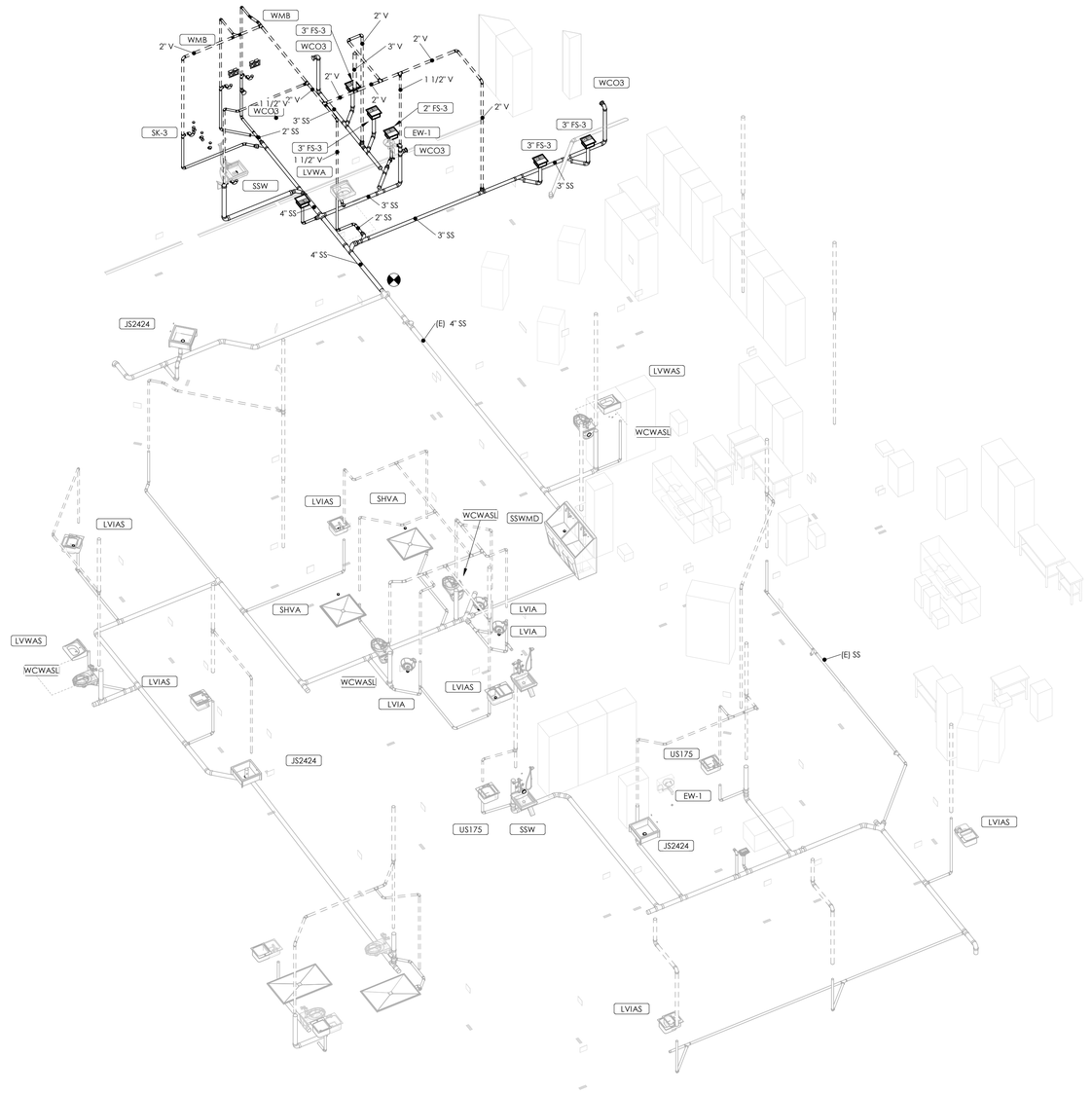
P500.2



1 P520.2 WASTE & VENT RISER DIAGRAM
SCALE: NTS

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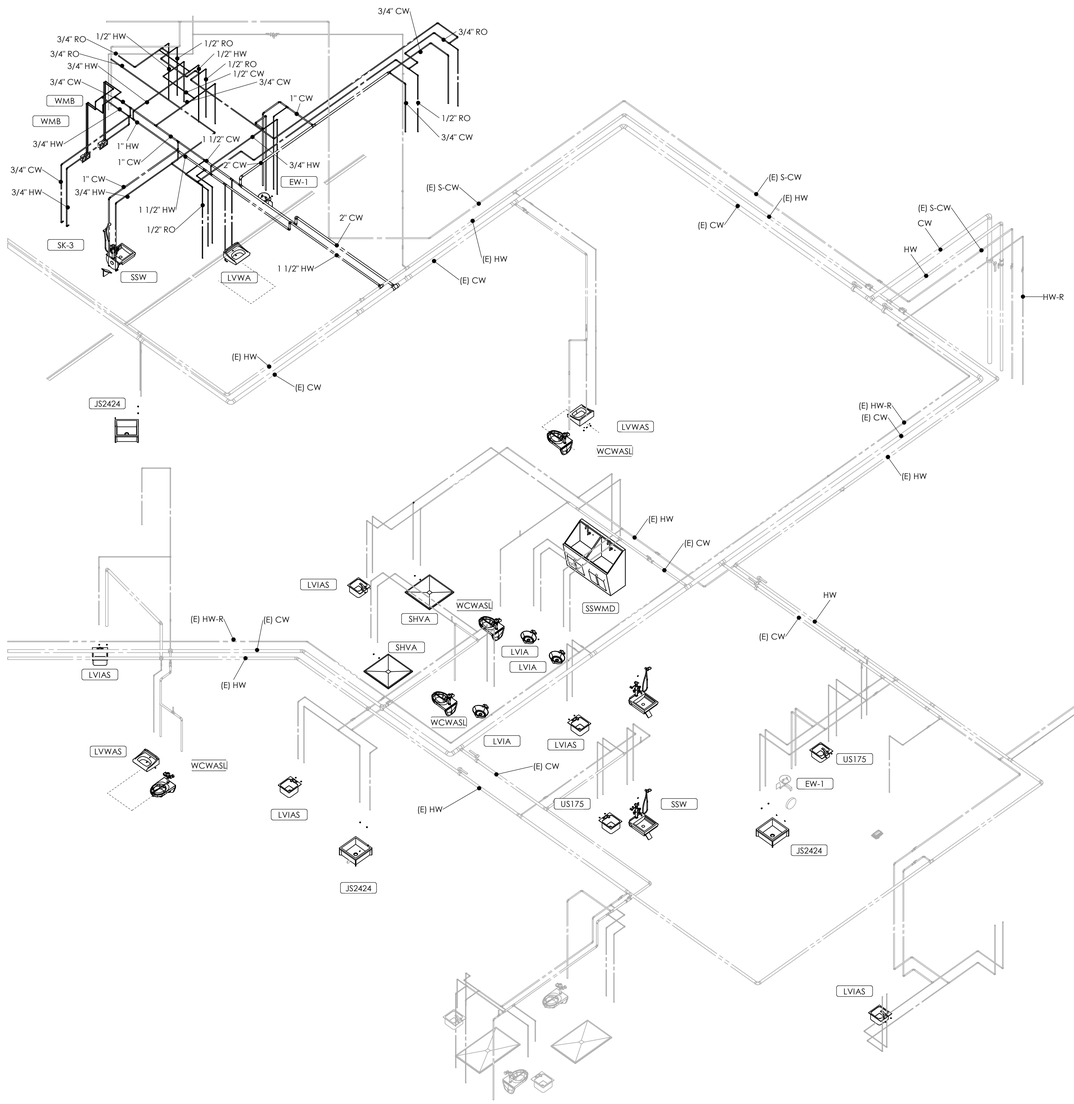
SANITARY & VENT RISER DIAGRAMS

P520.2



2 P521.2 DOMESTIC WATER RISER DIAGRAM
SCALE: NTS

BID PACKAGE 2
ISSUED FOR BIDS

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER DATE

APPROVED:
ES PROJECT MANAGER DATE
ES BRANCH CHIEF DATE

CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION
A1	07/29/2026	ADDENDUM #1

ISSUE DATE: JULY 29, 2026

CONTRACT NO:
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SHEET TITLE:
DOMESTIC WATER AND GAS RISER DIAGRAMS

P521.2

STERILIZER EQUIPMENT - AIR COMPRESSOR SCHEDULE

MARK	LOCATION	MANUFACTURER	MODEL	CAPACITY (SCFM)	WORKING PRESSURE PSIG	ELECTRICAL DATA						WEIGHT WITH ENCLOSURE	AIR RECEIVER CAPACITY	NOTES
						HP	MCA	MOCP	VOLTS	PH	HZ			
COMP-1	MECH ROOM	BEACON MEDAES	LES03-145T-RD-310	7.2	145	3	6	15	480	3	60	353 LBS	7.925 GAL	1

GENERAL NOTES:
1. PACKAGE SYSTEM WITH A COMPRESSOR, INTEGRATED REFRIGERATOR DRYER, INTEGRATED RECEIVER TANK, 1 MICROMETER PARTICULATE FILTER.

FLOOR DRAIN SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL NO.	MATERIAL DESCRIPTION		PRIMER CONNECTION	WASTE	VENT	PRIMER	DESCRIPTION	NOTES
				DRAIN BODY	STRAINER		PIPE SIZE	PIPE SIZE	PIPE SIZE		
FS-3	FLOOR SINK	WATTS	FS-730	EPOXY COATED CAST IRON	ALUMINUM		2"	2"		12" SQUARE X 6" DEEP SANITARY FLOOR SINK WITH WHITE PORCELAIN ENAMEL COATED INTERIOR, LOOSE SET PORCELAIN ENAMEL COATED CAST IRON GRATE, ALUMINUM DOME BOTTOM STRAINER, AND NO HUB OUTLET.	
FS-3	FLOOR SINK	WATTS	FS-730	EPOXY COATED CAST IRON	ALUMINUM		3"	2"		12" SQUARE X 6" DEEP SANITARY FLOOR SINK WITH WHITE PORCELAIN ENAMEL COATED INTERIOR, LOOSE SET PORCELAIN ENAMEL COATED CAST IRON GRATE, ALUMINUM DOME BOTTOM STRAINER, AND NO HUB OUTLET.	

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL NO.	MATERIAL DESCRIPTION	FINISH	TRIM				FLOW FIXTURE		FLUSH FIXTURE		WASTE ROUGH-IN PIPE SIZE	INDIRECT WASTE PIPE SIZE	VENT PIPE SIZE	COLD WATER ROUGH-IN PIPE SIZE	HOT WATER ROUGH-IN PIPE SIZE	DESCRIPTION	NOTES
						MANUFACTURER	MODEL NO.	TYPE	MOTION SENSOR CONTROL	WATER FLOW	MAX. MWT	VOL. PER FLUSH	MIN. VOL. PER FLUSH							
WCO3	WALL CLEANOUT	WATTS	CO-453-RD																LINE CLEANOUT WITH STAINLESS STEEL COVER	2
EW-1	EYEWASH - PEDESTAL	HAWS	7261-7271	ABS PLASTIC	GREEN	--	--		No	3.7 GPM	85 °F				1 1/4"			1/2"	PEDESTAL EYE/FACE WASH STATION. PROVIDE THERMOSTATIC MIXING VALVE MODEL 9201EW AXION EMERGENCY TEMPERING VALVE.	-
JS2424	JANITOR SINK	ACORN	TSH-24	TERRAZZO		CHICAGO FAUCET CO	897-CP	MANUAL	No	2.5 GPM	140 °F			3"		1 1/2"	3/4"	3/4"	SERVICE BASIN WITH A STAINLESS STEEL CAP ON TWO SIDES, WITH CHROME PLATED 3" DRAIN AND CAST IRON TRAP, FAUCET SHALL INCLUDE PAIL HOOK AND ATMOSPHERIC VACUUM BREAKER SPOUT, FURNISH 5'-0" OF 5-PLY HOSE, FITTINGS, A STAINLESS STEEL WALL MOUNTED HOSE HOLDER AND A STAINLESS STEEL WALL MOUNTED MOP HANGER.	3
LVIA	LAVATORY - INTEGRAL TO THE COUNTER - ADA - MANUAL FAUCET	-	-	SAME AS COUNTER	WHITE	ZURN	Z7440-XL-FC	MANUAL	No	0.5 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	ADA LAVATORY INTEGRAL TO THE COUNTERTOP MATERIAL, FAUCET HOLES ON 4" CENTERS. DECK-MOUNTED MANUAL FAUCET, WITH VANDAL RESISTANT SPRAY, EXTERNAL ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE. GRID DRAIN, LOOSE KEY ANGLE STOPS AND SUPPLIES. ADA COMPLIANT OFFSET TAILPIEICE. INSULATE WATER AND WASTE WITH ADA INSULATION KIT.	2, 4
LVIAS	LAVATORY - INTEGRAL TO THE COUNTER - ADA - SENSOR FAUCET	-	-	SAME AS COUNTER	WHITE	CHICAGO FAUCET CO	116.976.AB.1	ELECTRONIC	Yes	0.5 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	ADA LAVATORY INTEGRAL TO THE COUNTERTOP MATERIAL, FAUCET HOLES ON 4" CENTERS. DECK-MOUNTED BATTERY POWERED SENSOR FAUCET, VANDAL RESISTANT SPRAY, EXTERNAL ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE, GRID DRAIN, LOOSE KEY ANGLE STOPS AND SUPPLIES, ADA COMPLIANT OFFSET TAILPIEICE, INSULATE WATER AND WASTE WITH ADA INSULATION KIT.	2, 4
LVWA	LAVATORY - WALL HUNG – ADA – MANUAL FAUCET	AMERICAN STANDARD	LUCERNE	WHITE VITREOUS CHINA	WHITE	ZURN	Z7440-XL-FC	MANUAL	No	0.5 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	VITREOUS CHINA WALL HUNG ADA LAVATORY WITH BACKSPLASH, FAUCET HOLES ON 4" CENTERS. DECK-MOUNTED MANUAL FAUCET WITH VANDAL RESISTANT SPRAY, EXTERNAL ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE, GRID DRAIN, LOOSE KEY ANGLE STOPS AND SUPPLIES, ADA COMPLIANT OFFSET TAILPIECE, INSULATE WATER AND WASTE WITH ADA INSULATION KIT. REFER TO THE ARCHITECTURAL PLANS FOR THE MOUNTING HEIGHT.	2, 4, 6
LVWAS	LAVATORY - WALL HUNG – ADA – SENSOR FAUCET	AMERICAN STANDARD	LUCERNE	WHITE VITREOUS CHINA	WHITE	CHICAGO FAUCET CO	116.976.AB.1	ELECTRONIC	Yes	0.5 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	VITREOUS CHINA WALL HUNG ADA LAVATORY WITH BACKSPLASH, FAUCET HOLES ON 4" CENTERS. DECK-MOUNTED FAUCET WITH BATTERY POWERED SENSOR, VANDAL RESISTANT SPRAY, EXTERNAL ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE, GRID DRAIN, LOOSE KEY ANGLE STOPS AND SUPPLIES, ADA COMPLIANT OFFSET TAILPIECE, INSULATE WATER AND WASTE WITH ADA INSULATION KIT. REFER TO THE ARCHITECTURAL PLANS FOR THE MOUNTING HEIGHT.	2, 4, 6
SHVA	SHOWER VALVE - ADA	SEE ARCHITECTURAL PLANS	SEE ARCHITECTURAL PLANS			SYMMONS	C-96-500-B30-V	MANUAL	No	1.0 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	THE INDIVIDUAL SHOWER STALL IS SPECIFIED IN ANOTHER DIVISION. PROVIDE A BRASS BODY SHOWER DRAIN EQUAL TO SIOUX CHIEF SERIES 825 WITH A SCREW-ON STAINLESS STEEL STRAINER. SHOWER SYSTEM WITH ASSE 1016 COMPLIANT TYPE "T/P" THERMOSTATIC/PRESSURE BALANCING COMBINATION VALVE WITH ADJUSTABLE STOP SCREW TO LIMIT HANDLE TURN. CONCEALED 3-PORT DIVERTER VALVE WITH LEVER HANDLE WITH ARM AND FLANGE, INTEGRAL STOPS, AND IN-LINE VACUUM BREAKER, HAND SHOWER SYSTEM WITH STANDARD HAND SHOWER, 60" FLEXIBLE METAL HOSE, AND 48" SLIDE BAR FOR HAND SHOWER MOUNTING. PROVIDE MANUFACTURER'S FLOW RATE RESTRICTOR ON SHOWERHEAD.	1, 5, 6
SK-3	3-COMPARTMENT SINK	ELKAY	14-3C18X24-2-18X	STAINLESS STEEL	STAINLESS STEEL	T&S	B-0133-18DJ-C RB	MANUAL	Yes	5.9 GPM	140 °F				2"		1/2"	1/2"	THREE COMPARTMENT, 16 GAUGE, DUAL LEVER SWIVEL FAUCET WITH 18" SWING SPOUT WITH SPRAY VALVE AND ADD ON FAUCET, THREE AERO MODEL NO. S-20 TWIST TYPE LEVERWASTE, AERO MODEL NO. S-22 3 COMPARTMENT CONTINUOUS WASTE, SUPPLIES AND STOPS.	8
SSW	WALL MOUNTED BLOWOUT SERVICE SINK WITH FLUSHING RIM, BEDPAN WASHER AND A SERVICE SINK FAUCET	ZURN	Z5410	VITREOUS CHINA	WHITE	ZURN	Z60842AV-BWN	MANUAL	No	2.2 GPM	140 °F	6.5 gal	6.5 gal	4"		2"	1"	1"	27"x20" VITREOUS CHIINA, WALL MOUNTED, BLOWOUT SERVICE SINK WITH THREE STAINLESS STEEL RIM PROTECTORS, A TOP SPUD, FLUSH VALVE WITH A BEDPAN WASHER AND A WALL MOUNTED SERVICE SINK FAUCET.	-
SSWMD	SINK - WALL-HUNG - MANUAL	ELKAY	EWSF26026KWS C	STAINLESS STEEL	STAINLESS STEEL	INCLUDED	INCLUDED	MANUAL	No	0.5 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	WALL-HUNG DOUBLE STATION STAINLESS STEEL SCRUB SINK, 16 GAUGE, MANUAL KNEE ACTIVATION GOOSENECK FAUCET, DECK-MOUNTED MANUAL FAUCET LK394A, TEMERATURE HADLE, LK18B DRAIN, LOOSE KEY ANGLE STOPS AND SUPPLIES.	-
US17S	17 X 15 UNDERMOUNT STAINLESS STEEL SINGLE BOWL SINK	ELKAY	ELUHAD111650	STAINLESS STEEL	STAINLESS STEEL	CHICAGO FAUCET CO	786-245ABCP	MANUAL	No	1.0 GPM	105 °F						1/2"	1/2"	UNDER MOUNT SINGLE COMPARTMENT, 16 GAUGE STAINLESS STEEL SINK WITH A FAUCET WITH AN EXTERNAL ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE, BASKET STRAINER EQUAL TO AN AREO MODEL NO S-17, P-TRAP, TAILPIECES, SUPPLIES AND STOPS.	4
WCWASL	WATER CLOSET – ADA - WALL HUNG – SENSOR FLUSH VALVE - LOW FLOW	AMERICAN STANDARD	AFWALL	WHITE VITREOUS CHINA	WHITE	SLOAN	8111-1.28	ELECTRONIC	Yes		40 °F	1.28 gal	1.28 gal	4"		2"	1"		ELONGATED WALL HUNG ADA COMPLIANT WATER CLOSET, 1-1/2" TOP SPUD, WITH ZURN MODEL Z1202, FOR HORIZONTAL APPLICATIONS, FLOOR MOUNTED WALL-HUNG FIXTURE CARRIER, CHURCH 295CT ELONGATED OPEN WHITE FRONT COVERLESS SEAT, AND A BATTERY POWERED SENSOR ACTIVATED 1.3 GPF LOW FLOW FLUSH VALVE. REFER TO THE ARCHITECTURAL PLANS FOR THE MOUNTING HEIGHT.	1, 6
WMB	METAL WASHING MACHINE OUTLET BOX	GUY-GRAY	82026	GALVANIZED METAL	GALVANIZED		-		No	0.5 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	FULLY RECESSED FIRE RATED 20 GAUGE GALVANIZED METAL WASHING MACHINE SUPPLY BOX WITH COVER. PROVIDE 1/4 TURN BALL VALVES. PROVIDE A 2" TRAPPED STANDPIPE IN CONCEALED WALL SPACE.	2, 7

SCHEDULE NOTES:
1. HANDLE ON THE WIDE SIDE OF THE STALL.
2. REFER TO THE ARCHITECTURAL PLANS FOR THE MOUNTING HEIGHT.
3. FAUCET SHALL HAVE A VACUUM BREAKER.
4. INSULATE THE SUPPLY AND DRAIN PIPING WITH A WHITE INSULATION DEVICE EQUAL TO McGUIRE MODEL NO. PW-2150-WC AND PROVIDE A THERMOSTATIC MIXING VALVE ON THE SUPPLIES EQUAL TO WATTS MODEL NO. USG-B.
5. REFER TO THE PLANS FOR THE SEAT ORIENTATION.
6. FIELD VERIFY THE CARRIER CONFIGURATION REQUIRED, COORDINATE WITH THE PIPE ACCESSORY SCHEDULE FOR CARRIER CONFIGURATIONS.
7. SUPPLY FED FROM ABOVE.
8. INDIRECT WASTE TO FLOOR SINK BY PLUMBING CONTRACTOR

BID PACKAGE 2
ISSUED FOR BIDS

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AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION
A1	07/29/2026	ADDENDUM #1

ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: P600.2.dwg
DRAWN BY:
CHECKED BY: BSC

SHEET TITLE:
PLUMBING SCHEDULES

P600.2

GENERAL SYMBOLS

- REVISION NUMBER - SHOWN ON PLANS
- POINT WHERE DISCONNECT/DEMOLITION OCCURS AT EXISTING
- POINT WHERE NEW CONNECTS TO EXISTING
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- KEYNOTE
- CONTINUATION SYMBOL
- Room 5 — ROOM NAME AND NUMBER
- DEMOLISHED ITEM
- AREA NOT IN CONTRACT
- 2" — PIPE SIZE TAG (DIAMETER)
- ABOVE GROUND PIPING
- 1/8" / 12" SLOPE — PIPE SLOPE TAG
- INVERT: -105' - 1" — BELOW GROUND PIPING / PIPE INVERT ELEVATION TAG
- (E) — EXISTING PIPE TAG
- (D) — PIPING BEING DEMOLISHED

ABBREVIATIONS

Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING		
AD	AREA DRAIN	M/A	MIXED AIR
ADD	ADDENDUM	MAX	MAXIMUM
AFF	ABOVE FINISHED FLOOR	MBH	ONE THOUSAND BTU PER HOUR
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MCF	ONE THOUSAND CUBIC FEET
ALT	ALTERNATE	MD	MOTORIZED DAMPER
AP	ACCESS PANEL	MECH	MECHANICAL
ARCH	ARCHITECT/ARCHITECTURAL	MFR	MANUFACTURER
BFF	BELOW FINISHED FLOOR	MIN	MINIMUM
BLW	BELOW	MISC	MISCELLANEOUS
BTU	BRITISH THERMAL UNITS	MTR	MOTOR
BTUH	BRITISH THERMAL UNITS PER HOUR	MU/A	MAKE-UP/AIR
		NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CW	COLD WATER	O	OXYGEN
D	DEGREE	O/A	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
DW	DISTILLED WATER	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWC	ELECTRIC WATER COOLER		
EWT	ENTERING WATER TEMPERATURE	PWR	POWER
E/A	EXHAUST AIR	R	DUCT RISER
EXIST	EXISTING	R/A	RETURN AIR
F	DEGREES FAHRENHEIT	RCP	RADIANT CEILING PANEL
FCO	FLOOR CLEAN OUT	RD	ROOF DRAIN
FD	FLOOR DRAIN	REC	RECESSED
FDC	FIRE DEPARTMENT CONNECTION	RED	REDUCER
FL	FLOOR	RH	RELATIVE HUMIDITY
FO	FUEL OIL	RL/A	RELIEF AIR
FOV	FUEL OIL VENT	RM	ROOM
FOR	FUEL OIL RETURN	RPM	REVOLUTIONS PER MINUTE
FOS	FUEL OIL SUPPLY	RW	RAIN WATER
FPM	FEET PER MINUTE	SF	SQUARE FOOT
FS	FLOOR SINK	S/A	SUPPLY AIR
FT	FOOT/FEET	SAN	SANITARY
FTR	FIN TUBE RADIATION	SF	SQUARE FOOT
GAL	GALLON	SD	SMOKE DAMPER
GF	GAS-FIRED	SM	SURFACE MOUNT
GC	GENERAL CONTRACTOR	SP	STANDPIPE
GPM	GALLONS PER MINUTE	SP	STATIC PRESSURE
GW	GREASE WASTE	STM	STEAM
HB	HOSE BIB	T	THERMOSTAT
HP	HORSE POWER	TD	TEMPERATURE DROP
HTG	HEATING	TDR	TRENCH DRAIN
HTR	HEATER	TEMP	TEMPERATURE
HW	HOT WATER	TYP	TYPICAL
HYD	HYDRANT	UG	UNDERGROUND
ID	INDIRECT	VAC	VACUUM
IN	INCH	V	VENT
INV	INVERT	VAV	VARIABLE AIR VOLUME
LB	POUND	VENT	VENTILATION
LB/HR	POUNDS PER HOUR	VTR	VENT THROUGH ROOF
LAT	LEAVING AIR TEMPERATURE	W	WASTE
LP	LOW PRESSURE	WB	WET BULB
LPG	LIQUEFIED PETROLEUM GAS	WCO	WALL CLEAN OUT
		WH	WALL HYDRANT

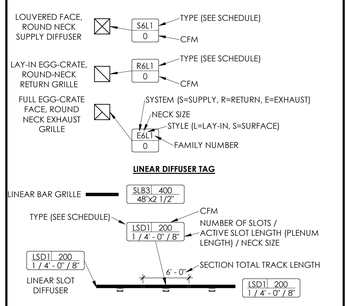
EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	ET	EXPANSION TANK
ACCU	AIR COOLING CONDENSING UNIT	EWH	ELECTRIC WATER HEATER
AHU	AIR HANDLING UNIT	FCU	FAN COIL UNIT
AS	AIR SEPARATOR	FP	FIRE PUMP
B	BOILER	GI	GREASE INTERCEPTOR
CH	CHILLER	GRV	GRAVITY ROOF VENTILATOR
CT	COOLING TOWER		
CUH	CABINET UNIT HEATER	HWP	HEATING WATER PUMP
CHWP	CHILLED WATER PUMP	HRU	HEAT RECOVERY UNIT
DBP	DOMESTIC WATER BOOSTER PUMP	PRV	POWER ROOF VENTILATOR
DC	DUCT MOUNTED COIL	RE	RETURN/EXHAUST FAN
DCP	DOMESTIC WATER CIRCULATING PUMP	RTU	ROOFTOP UNIT
		SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	WH	WATER HEATER

HVAC SYMBOLS

- 18"x12" — SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
- 18"/12" — OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
- 18"Ø — ROUND DUCT SIZE TAG (DIAMETER)
- (E) — EXISTING DUCT TAG
- (D) — DUCT BEING DEMOLISHED
- 18"x18" S/A — SUPPLY AIR
- 18"x18" S-O/A — CONDITIONED OUTSIDE AIR
- 18"x18" O/A — OUTSIDE AIR
- 18"x18" R/A — RETURN AIR
- 18"x18" T/A — TRANSFER AIR
- 18"x18" E/A — EXHAUST AIR
- 18"x18" L/A — RELIEF AIR
- 18"x18" GE/A — GREASE EXHAUST AIR
- 18"x18" CE/A — CONDENSATE EXHAUST AIR
- 18"x18" SE/A — SMOKE EXHAUST AIR
- 6"Ø FLUE — EXHAUST GAS FLUE
- 6"Ø C/A — COMBUSTION AIR
- DROP — RECTANGULAR SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — ROUND SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — RECTANGULAR RETURN/TRANSFER AIR DUCT RISE
- DROP — ROUND RETURN/TRANSFER AIR DUCT RISE
- DROP — RECTANGULAR EXHAUST/RELIEF AIR DUCT RISE
- DROP — ROUND EXHAUST/RELIEF AIR DUCT RISE

GRILLES, REGISTERS & DIFFUSERS TAG



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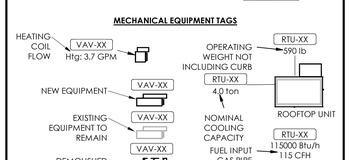

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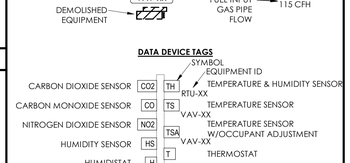
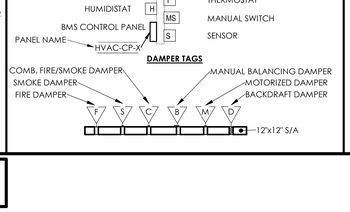


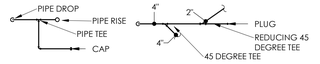
DATA DEVICE TAGS



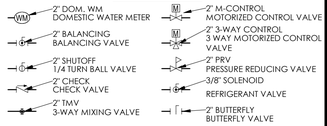
DAMPER TAGS

PIPING SYMBOLS

- CHWR — CHILLED WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- CD — CONDENSATE DRAINAGE
- CWR — CONDENSER WATER RETURN
- CWS — CONDENSER WATER SUPPLY
- GWR — GEOTHERMAL WATER RETURN
- GWS — GEOTHERMAL WATER SUPPLY
- HWR — HEATING WATER RETURN
- HWS — HEATING WATER SUPPLY
- G — NATURAL GAS
- PG — PROPANE GAS
- REF-L — REFRIGERANT-LIQUID
- REF-S — REFRIGERANT-SUCTION
- REF-HG — REFRIGERANT-HOT GAS
- STM — STEAM
- CDR — CONDENSATE RETURN



PIPE ACCESSORY TAGS



* NOTE *
ALL GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

GENERAL PROJECT NOTES

1. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING, PRIOR TO FINAL BID, ALL EXISTING CONDITIONS FOR PLUMBING AND MECHANICAL SYSTEMS WITHIN TENANT SPACE AND WITHIN CLOSE PROXIMITY OF SPACE.
2. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL THE CONDITIONS BOTH EXISTING AND THOSE ILLUSTRATED BY THESE DOCUMENTS AS WELL AS THOSE WHICH CAN BE REASONABLY ANTICIPATED INCLUDING, BUT NOT LIMITED TO ARCHITECTURAL, ELECTRICAL, VENTILATION, PLUMBING, AND OTHER SYSTEMS INVOLVED ON THIS PROJECT.
3. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
4. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AT A LEVEL OF QUALITY AND WORKMANSHIP CONSISTENT WITH THE SPECIFICATIONS.
5. LOCATIONS OF PIPING, DUCTWORK AND EQUIPMENT AS INDICATED ON THE PLANS, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID INTERFERENCE IN THE FIELD.
6. THE CONTRACTOR'S WORK SCHEDULE SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER.
7. PRIOR TO STARTING WORK, SUBMIT SHOP DRAWINGS FOR ALL MECHANICAL EQUIPMENT, PLUMBING FIXTURES, AND DIFFUSERS.
8. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND SHALL ARRANGE FOR ALL INSPECTIONS AS REQUIRED.
9. FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING BUT NOT LIMITED TO THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.
10. REMOVE ALL UNUSED PIPING, DUCTWORK AND ACCESSORIES.
11. WHERE FLOOR DRAINS OCCUR WITHIN THE LIMITS OF CONSTRUCTION, PREVENT CONSTRUCTION DEBRIS FROM ENTERING DRAIN BODY BY SEALING DRAIN OPENING PRIOR TO START OF WORK. UNSEAL DRAINS AT COMPLETION OF CONSTRUCTION.
12. COORDINATE INSTALLATION OF PIPING, DUCTWORK, CONDUIT, LIGHTS, CABLE TRAY, STRUCTURE, AND EQUIPMENT TO PREVENT CONFLICTS.
13. LOCATE EQUIPMENT REQUIRING ACCESS 2'-0" MAXIMUM ABOVE CEILING.
14. ALL ROOF MOUNTED EQUIPMENT SHALL BE A MINIMUM 10'-0" FROM EDGE OF ROOF.
15. LOCATE DUCTWORK, PIPING AND MECHANICAL EQUIPMENT AWAY FROM THE SPACE ABOVE ELECTRICAL PANELS, TRANSFORMERS AND OTHER ELECTRICAL EQUIPMENT.
16. PENETRATIONS OF RATED ASSEMBLIES SHALL BE FIRE-STOPPED. FIRE-STOPPING SHALL BE AN APPROVED MATERIAL AS PRESCRIBED IN CSFM STANDARD 43-1 AND SHALL BE U.L. LISTED.
17. PROVIDE SLEEVES AND/OR OPENINGS TO RUN PIPES AND DUCTS THROUGH FOUNDATIONS, FLOORS, WALLS, AND ROOF.
18. MAINTAIN CLEAR ACCESS TO SERVICE EQUIPMENT AND OTHER ACCESSORIES REQUIRING SERVICE, VISUAL INSPECTION OR HAND OPERATION. WHERE INDICATED OR REQUIRED, PROVIDE ACCESS PANELS OF THE TYPE SELECTED TO SUIT MATERIALS IN WHICH INSTALLED.
19. ADJUST PIPING AND DUCTWORK SIZES TO PROPERLY CONNECT TO MECHANICAL EQUIPMENT.
20. PIPE SIZES SHOWN SHALL BE CONTINUED IN THE DIRECTION OF FLOW UNTIL ANOTHER SIZE IS SHOWN.
21. FOR EQUIPMENT CONNECTIONS, AND PIPE SIZES NOT SHOWN ON THE PLANS, REFER TO DETAILS, SCHEDULES, AND SPECIFICATIONS.
22. INSTALL EXPOSED PIPING AND DUCTWORK AS HIGH AS PRACTICAL IN ROOMS WITHOUT CEILINGS.
23. PROVIDE ONE YEAR WARRANTY FOR ALL WORKMANSHIP AND MATERIALS AFTER THE DATE OF FINAL ACCEPTANCE.
24. EACH DETAIL INCLUDED IN THIS SET OF DOCUMENTS APPLIES TO THIS PROJECT REGARDLESS IF EACH DETAIL HAS BEEN REFERENCED ON THE PLANS OR NOT.
25. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.
26. PROVIDE A COMPLETE OPERATION & MAINTENANCE MANUAL INCLUDING APPROVED SUBMITTAL DRAWINGS, WARRANTY INFORMATION FOR PRODUCT(S) SUPPLIED, AND MANUFACTURER'S OPERATION AND MAINTENANCE INSTRUCTIONS.

GENERAL HVAC NOTES

1. ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK SHALL BE RATED FOR PRESSURE CLASS OF 2" W.G. UNLESS NOTED OTHERWISE.
2. COORDINATE THE EXACT LOCATION OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES WITH NEW AND EXISTING LIGHTING.
3. PROVIDE DIFFUSERS AND REGISTERS WITH 4-WAY BLOW PATTERN UNLESS OTHERWISE NOTED.

BID PACKAGE 2
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MONTANA
7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER — DATE

APPROVED:
ES PROJECT MANAGER — DATE
ES BRANCH CHIEF — DATE

CONCURRENCE
AGENCY REPRESENTATIVE — DATE
TITLE

REV	DATE	DESCRIPTION
	06/16/2026	100% CD'S

ISSUE DATE: JULY 29, 2026
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MECHANICAL GENERAL INFO & SYMBOL LEGEND

M001.2

MECHANICAL DEMOLITION NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE AND/OR REGULATORY AGENCIES, CODES AND REGULATIONS FOR NEW WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THEIR WORK WITH OTHER TRADES AND WITH THE CONSTRUCTION MANAGER.
2. WORK IDENTIFIED WITH MECHANICAL AND ELECTRICAL NOTES AND KEY NOTES SHALL BE PERFORMED BY QUALIFIED MECHANICAL AND ELECTRICAL CONTRACTORS RESPECTIVELY UNDER DIRECTION OF THE CONSTRUCTION MANAGER. COORDINATE WITH OWNER'S REPRESENTATIVE.
3. VERIFY ALL CONDITIONS IN FIELD BEFORE START OF CONSTRUCTION. NOTIFY ARCHITECT/ENGINEER OF DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS.
4. COORDINATE ALL WORK WITH APPROPRIATE TRADES.
5. COORDINATE ANY REQUIRED SHUTDOWN OF SERVICES OR EQUIPMENT WITH OWNER'S REPRESENTATIVE, MINIMIZE INTERRUPTION OF EXISTING SERVICES.
6. HOLES AND PENETRATIONS IN RATED WALLS SHALL BE PATCHED WITH APPROPRIATE FIRESTOP MATERIALS FOR RATING REQUIRED.

KEYNOTES

1. DEMOLISH EXISTING AHU-5 AND ALL ASSOCIATED DUCTWORK, PIPING, AND CONNECTIONS.
2. DEMOLISH EXISTING OUTSIDE AIR LOUVER AND SEAL PENETRATION TO PREPARE FOR NEW DUCTWORK ROUTING AND NEW WALL SYSTEM, REFER TO ARCHITECTURAL FOR ADDITIONAL INFORMATION.
3. DEMOLISH EXISTING RETURN AIR FAN AND ALL ASSOCIATED DUCTWORK AND CONNECTIONS.
4. DEMOLISH EXISTING RELIEF AIR DUCTWORK AND ALL ASSOCIATED COMPONENETS INCLUDING THE RELIEF HOOD ON THE ROOF AND PATCH.
5. REMOVE VAV BOX AND CONNECTIONS, PREPARE FOR NEW VAV BOX AND CONNECTIONS.
6. DEMOLISH EXISTING AIR TERMINAL, DUCTWORK TO REMAIN AND BE REUSED WITH NEW AIR TERMINAL.
7. DEMOLISH EXISTING FIRE DAMPER AND SEAL PENETRATION TO MEET THE FIRE RATING OF THE WALL, REFER TO ARCHITECTURAL FOR ADDITIONAL INFORMATION.
8. DEMOLISH AND REMOVE EXISTING HEATING HOT WATER SUPPLY AND RETURN PIPING, CHILLED WATER SUPPLY AND RETURN PIPING, AND ALL ASSOCIATED PUMPS, VALVES, INSULATION, CONTROLS, AND ACCESSORIES SERVING THE AIR - HANDLING UNIT. REMOVE PIPING AND COMPONENTS BACK TO THE NEAREST ACTIVE MAIN. COORDINATE SHUTDOWN, DRAINING, AND ISOLATION OF SYSTEMS WITH OWNER PRIOR TO START OF WORK. CAP ALL REMAINING ACTIVE LINES AS REQUIRED AND LEAVE IN SAFE, CODE - COMPLIANT CONDITION.
9. DEMOLISH AND REMOVE THE EXISTING HEATING WATER COIL LOCATED WITHIN THE DUCTWORK, INCLUDING ALL ASSOCIATED PIPING AND CONTROL COMPONENTS, BACK TO THE MAIN CONNECTION.
10. LOW-PRESSURE STEAM GENERATOR AND ASSOCIATED PIPING TO REMAIN WHERE APPLICABLE. PREPARE UNIT FOR INSTALLATION OF NEW LOW-PRESSURE STEAM DISPERSION TUBES AND DUCTWORK.
11. REMOVE AND DISPOSE OF EXISTING LOW-PRESSURE STEAM DISPERSION TUBES AND ASSOCIATED PIPING. PREPARE AREA FOR INSTALLATION OF NEW DUCTWORK AND STEAM DISPERSION TUBES.
12. DEMOLISH AND REMOVE THE EXISTING GRILLE AND ASSOCIATED BRANCH DUCTWORK BACK TO THE MAIN DUCT AND PATCH.
13. DEMOLISH EXISTING EXHAUST DUCTWORK BACK TO THE EXHAUST FAN ON THE ROOF. EXHAUST FAN TO REMAIN AND BE REUSED.

NORTH TN

SECOND FLOOR MECHANICAL DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

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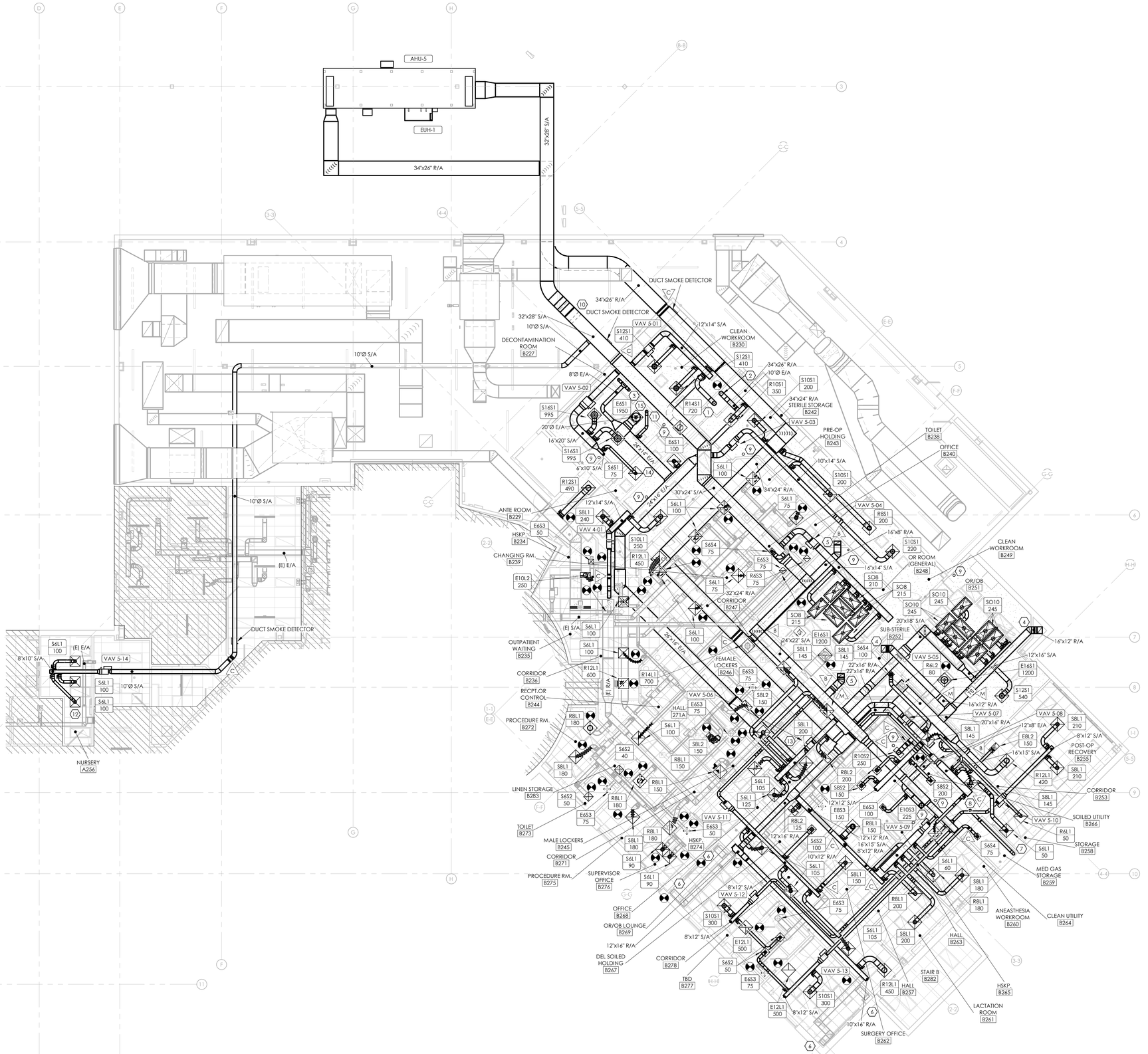
SHEET TITLE:

SECOND FLOOR MECHANICAL DEMOLITION PLANS

MD102.2



NORTH

SECOND FLOOR MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

MECHANICAL NOTES

1. THIS DRAWING IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED.
2. COORDINATE ALL EXTERIOR PENETRATIONS INCLUDING ROOF PENETRATIONS WITH OTHER TRADES TO PROVIDE A COMPLETE AND FULLY WEATHER-PROOF INSTALLATION.
3. THIS DRAWING IS BASED ON VISUALLY OBSERVABLE EXISTING CONDITIONS AS OF THE TIME OF DESIGN. CONTRACTOR SHALL BE RESPONSIBLE TO FULLY VERIFY ALL EXISTING CONDITIONS, COMPONENTS, ETC. PRIOR TO THE START OF THE WORK. ANY DEVIATION FROM THIS DRAWING IN KIND, OR IN LOCATION EXCEEDING 1'-0", SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

MECHANICAL SHEET METAL NOTES

1. THE INSTALLATION OF ALL DUCTWORK SHALL BE CLOSELY COORDINATED WITH NEW PLUMBING, ELECTRICAL, AND STRUCTURAL CONDITIONS, NOT ALL REQUIRED OFFSETS AND FITTINGS ARE INDICATED ON DRAWINGS, BUT SHALL BE PROVIDED. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR CLEARANCES. ALTERNATE DUCT ROUTING SHALL BE APPROVED BY ARCHITECT/ENGINEER BEFORE PROCEEDING IN ORDER TO ENSURE THAT THE AVAILABLE STATIC PRESSURE REMAINS ADEQUATE. DUCTWORK LOCATION SHALL TAKE PRECEDENCE OVER HVAC AND FIRE PROTECTION PIPING AND ELECTRICAL CONDUIT AND CABLE TRAY.
2. DUCTWORK, EQUIPMENT AND ACCESSORIES SUPPORTED AND BRACED PER SMACNA GUIDELINES.
3. UNLESS OTHERWISE NOTED, ALL DUCTWORK ABOVE CEILING OR EXPOSED IS OVERHEAD AND AS HIGH AS POSSIBLE TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION WHERE REQUIRED.
4. DUCTS CONNECTED TO EQUIPMENT SHALL EQUAL EQUIPMENT CONNECTION SIZE UNLESS NOTED OTHERWISE.
5. PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS CONNECTED TO MECHANICAL EQUIPMENT THAT REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE NOTED.
6. REFER TO DUCT DETAILS. SPIN-IN TYPE WITH SCOOPS SHALL NOT BE ACCEPTED. A MINIMUM OF 2 FEET SHALL BE PROVIDED BETWEEN RUNOUT TAKEOFFS FROM TRUNK DUCTS.
7. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 5'-0".
8. BRANCH DUCT BALANCING DAMPERS, WHEN NOT INCLUDED IN THE MAIN TAP SHALL BE MOUNTED AS CLOSE TO MAIN DUCT AS POSSIBLE.
9. ROUND DUCT ELBOWS SHALL BE LONG RADIUS ELBOWS, UNLESS SHOWN OTHERWISE.
10. TERMINAL UNITS SHALL BE MOUNTED TO NOT IMPAIR ACCESS TO FILTERS, COILS AND CONTROLS.
11. TRANSFER DUCTWORK SHALL BE INTERNALLY LINED WITH A MINIMUM 1/2" ACOUSTIC LINING.

KEYNOTES

1. DUCT TURN DOWN AND TERMINATE WITH 1/4" WIRE MESH WITH 330 CFM OF SUPPLY AIR TO THE STERILIZER CAVITY.
2. DUCT TURN DOWN AND TERMINATE WITH 1/4" WIRE MESH WITH 330 CFM OF EXHAUST AIR FROM THE STERILIZER CAVITY.
3. 6" EXHAUST DUCT CONNECTIONS DOWN TO EACH STERILIZER AND BALANCED TO 150 CFM EACH. SEE EQUIPMENT CUTSHEET FOR ROUGH IN AND FINAL CONNECTION.
4. LOW WALL RETURN GRILLE (30X12) TITUS MODEL 350RS-SS STAINLESS STEEL CONSTRUCTION 3/4" BLADE SPACING, 45 DEGREE DEFLECTION AND QUICK RELEASE FASTENERS. MOUNT GRILLE AT 12" A.F.F. BALANCE TO 1150 CFM OR CFM VALUE NEEDED TO ACHIEVE POSITIVE PRESSURE INDICATED IN ROOM REQUIRMENTS TABLE.
5. LOW WALL RETURN GRILLE (18X12) TITUS MODEL 350RS-SS STAINLESS STEEL CONSTRUCTION 3/4" BLADE SPACING, 45 DEGREE DEFLECTION AND QUICK RELEASE FASTENERS. MOUNT GRILLE AT 12" A.F.F. BALANCE TO 650 CFM OR CFM VALUE NEEDED TO ACHIEVE POSITIVE PRESSURE INDICATED IN ROOM REQUIRMENTS TABLE.
6. LOW WALL RETURN GRILLE (18X8) TITUS MODEL 350RS-SS STAINLESS STEEL CONSTRUCTION 3/4" BLADE SPACING, 45 DEGREE DEFLECTION AND QUICK RELEASE FASTENERS. MOUNT GRILLE AT 12" A.F.F. BALANCE TO 140 CFM OR CFM VALUE NEEDED TO ACHIEVE POSITIVE PRESSURE INDICATED IN ROOM REQUIRMENTS TABLE.
7. HIGH AND LOW WALL RETURN GRILLE (12X6) TITUS MODEL 350RS-SS STAINLESS STEEL CONSTRUCTION 3/4" BLADE SPACING, 45 DEGREE DEFLECTION AND QUICK RELEASE FASTENERS. MOUNT GRILLE AT 12" BELOW CEILING AND 12" A.F.F. AND BALANCE TO 50 CFM OR CFM VALUE NEEDED TO ACHIEVE NEGATIVE PRESSURE INDICATED IN ROOM REQUIRMENTS TABLE.
8. 12X12 EXHAUST DUCT UP THROUGH THE ROOF TO THE EXHAUST FAN.
9. REMOTE DAMPER OPERATORS FOR ALL DAMPERS ABOVE HARD CEILINGS.
10. PROVIDE WITH DISPERSION TUBES EQUAL TO DRISTEEM ULTRA-SORB MODEL LV. PROVIDE WITH CONDENSATE RETURN PIPING BACK TO THE STEAM HUMIDIFIER. FIELD VERIFY ROUTING AND INSTALL PER MANUFACTURER'S RECCOMENTDATIONS.
11. 6" EXHAUST DUCT ROUTED DOWN TO THE PASS-THRU EQUIPMENT BELOW AND BALANCED TO 50 CFM. SEE EQUIPMENT CUTSHEET FOR ROUGH IN AND FINAL CONNECTION.
12. REBALANCE THE EXISTING EXHAUST SYSTEM TO MAINTAIN THE PRESSURIZATION LEVELS SPECIFIED IN THE SCHEDULES.
13. 28X16" EXHAUST DUCT UP TO THE EXISTING EXHAUST FAN ON THE ROOF SET TO NEW RATE OF 4005 CFM.
14. STAINLESS STEEL BRANCH EXHAUST DUCTWORK FROM MAIN SERVING THE DECONTAMINATION SPACES AND EQUIPMENT.
15. EXHAUST GRILLE AND ALL ASSOCIATED CONNECTIONS SHALL BE STAINLESS STEEL.

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CONSULTANT

A/E SEAL

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INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

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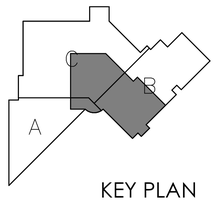
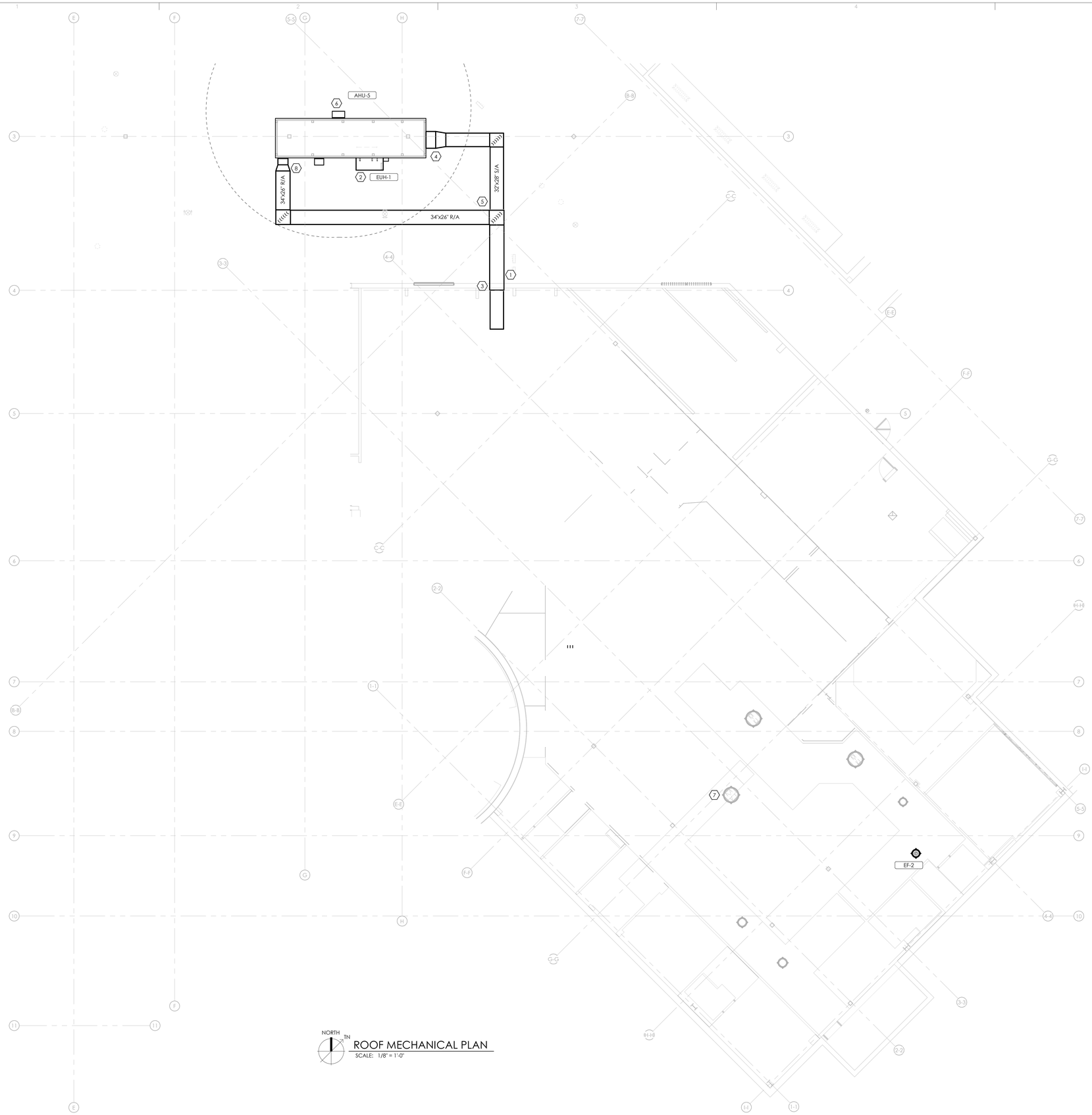
SECOND FLOOR MECHANICAL PLAN



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

M102.2



NORTH TN

ROOF MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

MECHANICAL NOTES

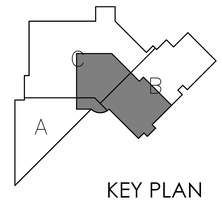
1. THIS DRAWING IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED.
2. COORDINATE ALL EXTERIOR PENETRATIONS INCLUDING ROOF PENETRATIONS WITH OTHER TRADES TO PROVIDE A COMPLETE AND FULLY WEATHER-PROOF INSTALLATION.
3. THIS DRAWING IS BASED ON VISUALLY OBSERVABLE EXISTING CONDITIONS AS OF THE TIME OF DESIGN. CONTRACTOR SHALL BE RESPONSIBLE TO FULLY VERIFY ALL EXISTING CONDITIONS, COMPONENTS, ETC. PRIOR TO THE START OF THE WORK. ANY DEVIATION FROM THIS DRAWING IN KIND, OR IN LOCATION EXCEEDING 1'-0", SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

MECHANICAL SHEET METAL NOTES

1. THE INSTALLATION OF ALL DUCTWORK SHALL BE CLOSELY COORDINATED WITH NEW PLUMBING, ELECTRICAL, AND STRUCTURAL CONDITIONS. NOT ALL REQUIRED OFFSETS AND FITTINGS ARE INDICATED ON DRAWINGS, BUT SHALL BE PROVIDED. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR CLEARANCES. ALTERNATE DUCT ROUTING SHALL BE APPROVED BY ARCHITECT/ENGINEER BEFORE PROCEEDING IN ORDER TO ENSURE THAT THE AVAILABLE STATIC PRESSURE REMAINS ADEQUATE. DUCTWORK LOCATION SHALL TAKE PRECEDENCE OVER HVAC AND FIRE PROTECTION PIPING AND ELECTRICAL CONDUIT AND CABLE TRAY.
2. DUCTWORK, EQUIPMENT AND ACCESSORIES SUPPORTED AND BRACED PER SMACNA GUIDELINES.
3. UNLESS OTHERWISE NOTED, ALL DUCTWORK ABOVE CEILING OR EXPOSED IS OVERHEAD AND AS HIGH AS POSSIBLE TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION WHERE REQUIRED.
4. DUCTS CONNECTED TO EQUIPMENT SHALL EQUAL EQUIPMENT CONNECTION SIZE UNLESS NOTED OTHERWISE.
5. PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS CONNECTED TO MECHANICAL EQUIPMENT THAT REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE NOTED.
6. REFER TO DUCT DETAILS. SPIN-IN TYPE WITH SCOOPS SHALL NOT BE ACCEPTED. A MINIMUM OF 2 FEET SHALL BE PROVIDED BETWEEN RUN-OUT TAKEOFFS FROM TRUNK DUCTS.
7. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 5'-0".
8. BRANCH DUCT BALANCING DAMPERS, WHEN NOT INCLUDED IN THE MAIN TAP SHALL BE MOUNTED AS CLOSE TO MAIN DUCT AS POSSIBLE.
9. ROUND DUCT ELBOWS SHALL BE LONG RADIUS ELBOWS, UNLESS SHOWN OTHERWISE.
10. TERMINAL UNITS SHALL BE MOUNTED TO NOT IMPAIR ACCESS TO FILTERS, COILS AND CONTROLS.
11. TRANSFER DUCTWORK SHALL BE INTERNALLY LINED WITH A MINIMUM 1/2" ACOUSTIC LINING.

KEYNOTES

1. PROVIDE WITH EXTERIOR DUCTWORK EQUAL TO THERMADUCT R-12 EXTERIOR DUCTWORK. MOUNT AND INSTALL PER THE MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE WITH SPACE TEMPERATURE SENSOR SET TO ALARM WHEN THE SPACE TEMPERATURES FALL BELOW 40F.
3. SUPPLY AND RETURN DUCT ROUTED THROUGH THE NEW WALL PANEL SYSTEM. REFER TO ARCHITECTURAL FOR ADDITIONAL INFORMATION. FIELD VERIFY INSTALLATION AND CLEARANCE REQUIREMENTS.
4. 32" X 28" SUPPLY DUCT TRANSITION TO A 40" X 48" DUCT CONNECTION TO THE ROOFTOP AIR HANDLING UNIT.
5. PROVIDE EXTERIOR DUCTWORK WITH ROOFTOP SUPPORTS IN ACCORDANCE WITH THE DUCT MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS. FIELD VERIFY ALL ROUTING AND REQUIREMENTS.
6. MAINTAIN A MINIMUM CLEARANCE OF 25 FEET BETWEEN THE OUTSIDE AIR INTAKE AND ANY EXHAUST OR VENT TERMINATION.
7. REPLACE THE EXISTING EXHAUST FAN BELTS AND PULLEYS AS NEEDED TO MEET THE NEW SPECIFIED VOLUMETRIC FLOW RATE. FIELD VERIFY CONDITIONS AND DETERMINE ANY REQUIRED MODIFICATIONS.
8. 34" X 26" RETURN DUCT TRANSITION TO A 24" X 38" DUCT CONNECTION TO THE ROOFTOP AIR HANDLING UNIT.



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

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CONCURRENCE

AGENCY REPRESENTATIVE DATE

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CHECKED BY: BSC

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ROOF MECHANICAL PLAN

M103.2

NORTH

FIRST FLOOR HVAC CEILING PLAN

SCALE: 1/8" = 1'-0"

MECHANICAL NOTES

1. THIS DRAWING IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED.
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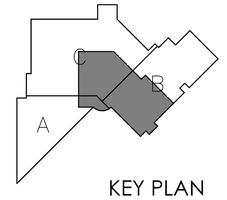
3. THIS DRAWING IS BASED ON VISUALLY OBSERVABLE EXISTING CONDITIONS AS OF THE TIME OF DESIGN. CONTRACTOR SHALL BE RESPONSIBLE TO FULLY VERIFY ALL EXISTING CONDITIONS, COMPONENTS, ETC. PRIOR TO THE START OF THE WORK. ANY DEVIATION FROM THIS DRAWING IN KIND, OR IN LOCATION EXCEEDING 1'-0", SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

KEYNOTES

1. 1-1/2" HEATING WATER SUPPLY AND 1-1/2" HEATING WATER RETURN DOWN FROM MECHANICAL ROOM ABOVE.
2. 3" CHILLED WATER SUPPLY AND 3" CHILLED WATER RETURN DOWN FROM MECHANICAL ROOM ABOVE.
3. 1-1/2" HEATING WATER SUPPLY AND 1-1/2" HEATING WATER RETURN ROUTED UP TO ROOFTOP UNIT ABOVE.
4. 3" CHILLED WATER SUPPLY AND 3" CHILLED WATER RETURN ROUTED UP TO ROOFTOP UNIT ABOVE.



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FIRST FLOOR MECHANICAL PIPING PLAN

M201.2

NORTH TN

SECOND FLOOR MECHANICAL PIPING PLAN

SCALE: 1/8" = 1'-0"

MECHANICAL NOTES

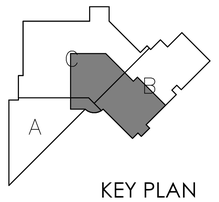
1. THIS DRAWING IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED.
2. COORDINATE ALL EXTERIOR PENETRATIONS INCLUDING ROOF PENETRATIONS WITH OTHER TRADES TO PROVIDE A COMPLETE AND FULLY WEATHER-PROOF INSTALLATION.
3. THIS DRAWING IS BASED ON VISUALLY OBSERVABLE EXISTING CONDITIONS AS OF THE TIME OF DESIGN. CONTRACTOR SHALL BE RESPONSIBLE TO FULLY VERIFY ALL EXISTING CONDITIONS, COMPONENTS, ETC. PRIOR TO THE START OF THE WORK. ANY DEVIATION FROM THIS DRAWING IN KIND, OR IN LOCATION EXCEEDING 1'-0", SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

MECHANICAL PIPING NOTES

1. THE INSTALLATION OF ALL PIPING SHALL BE CLOSELY COORDINATED WITH SHEET METAL, ELECTRICAL, AND STRUCTURAL CONDITIONS. NOT ALL REQUIRED OFFSETS AND FITTINGS ARE INDICATED ON DRAWINGS, BUT SHALL BE PROVIDED. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR CLEARANCES.
2. ALL PIPING SHALL BE INSTALLED TO FACILITATE COIL REMOVAL, FILTER REPLACEMENT AND OPENING OF ACCESS PANELS.
3. INSTALL MAINS AS HIGH AS POSSIBLE. MANUAL AIR VENTS SHALL BE PROVIDED AT ALL PIPING HIGH POINTS AND END OF PIPING LOOPS. PROVIDE REMOVABLE INSULATION PLUG.
4. PIPE ANCHORS, EXPANSION LOOPS, AND GUIDES SHALL BE PROVIDED AS REQUIRED. REFER TO SPECIFICATIONS.
5. SLEEVE AND SEAL EXTERIOR WALL AND ROOF PENETRATIONS TO A WEATHER TIGHT CONDITION. SLEEVE AND SEAL INTERIOR FLOOR PENETRATIONS TO A WATER TIGHT CONDITION.
6. PROVIDE MINIMUM OF 3/4" PIPE FOR ALL PIPING UNLESS SHOWN OTHERWISE.
7. ALL VALVES ARE TO BE FULL LINE SIZE EXCEPT CONTROL AND BALANCING VALVES.
8. PROVIDE 1/2" DRAIN VALVES WITH HOSE-END CAPS AT ALL LOW POINTS IN PIPING. PROVIDE MINIMUM PITCH SUFFICIENT TO INSURE ADEQUATE DRAINING. PROVIDE REMOVABLE INSULATION PLUG.
9. ELEVATIONS AS SHOWN ON THE DRAWINGS ARE TO THE BOTTOM OF ALL PRESSURE PIPING AND TO THE INVERT OF ALL GRAVITY PIPING UNLESS OTHERWISE NOTED.
10. UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD AND AS HIGH AS POSSIBLE TO THE UNDERSIDE OF THE STRUCTURE OR SLAB, WITH SPACE FOR INSULATION WHERE REQUIRED.
11. INSTALL PIPING WITHOUT FORCING OR SPRINGING.
12. ALL PIPING WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. PROVIDE OFFSETS IN PIPING AROUND OBSTRUCTIONS ENCOUNTERED IN FIELD.
13. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO, AND WITHIN 50 FEET OF ISOLATED EQUIPMENT (EXCEPT AT BASE ELBOW SUPPORTS AND ANCHOR POINTS) THROUGHOUT MECHANICAL EQUIPMENT ROOMS.
14. AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH UNITS DRAIN PAN SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET WITH "P" TRAP. CONDENSATE WATER PIPING SHALL BE A MINIMUM OF 3/4". SEE THE DETAILS SHOWN IN THE DRAWINGS OR MANUFACTURER'S LITERATURE FOR THE DEPTH OF THE AIR CONDITIONING CONDENSATE TRAP. PITCH DOWN IN DIRECTION OF FLOW, MINIMUM 1 INCH PER 10 FEET.
15. INSTALL PIPING SO ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE. PROVIDE PRESSURE/TEMPERATURE (P/T) PLUGS, WITH CAPS UP AND DOWNSTREAM OF ALL EQUIPMENT, AT THE SUPPLY AND RETURN TAPS OF ALL PIPING BRANCHES AND/OR WHERE INDICATED. PROVIDE EXTENDED PLUGS AND LABELS WHERE PIPING IS INSULATED.
16. WHERE SPACE PERMITS PROVIDE AUXILIARY DRAIN PANS UNDER COOLING EQUIPMENT LOCATED ABOVE CEILINGS. WHERE SPACE DOES NOT PERMIT THE USE OF AN AUXILIARY DRAIN PAN PROVIDE WATER LEVEL DETECTION DEVICE (FLOAT SWITCH) CONFORMING TO UL 508 THAT WILL SHUT OFF THE EQUIPMENT SERVED IN THE EVENT THAT THE PRIMARY DRAIN IS BLOCKED.
17. PROVIDE FLUSHING VALVES AND TEES AT BOTH ENDS OF ALL EQUIPMENT. TAPS SHALL MATCH EQUIPMENT PIPING UP TO 1". FOR LARGER EQUIPMENT AND PIPE LOOPS, PROVIDE 1-1/2" TAPS AND VALVES.
18. ALL HYDRONIC PIPING BRANCH TAKEOFFS FROM MAINS SHALL BE MADE WITH SWING JOINTS.
19. THE CONTRACTOR SHALL DEVELOP AND PRODUCE COORDINATION DRAWINGS PRIOR TO STARTING THE INSTALLATION OF ANY HYDRONIC SYSTEM.

KEYNOTES

1. REUSE EXISTING HEATING WATER SUPPLY AND RETURN BRANCH AND TIE INTO NEW VAV BOX.
2. 1-1/2" HEATING WATER SUPPLY AND 1-1/2" HEATING WATER RETURN DOWN TIGHT TO WALL THROUGH FLOOR. PROVIDE WITH SHUT-OFF VALVE.
3. 3" CHILLED WATER SUPPLY AND 3" CHILLED WATER RETURN DOWN TIGHT TO WALL THROUGH FLOOR. PROVIDE WITH SHUT-OFF VALVE.
4. 1-1/2" HEATING WATER SUPPLY AND 1-1/2" HEATING WATER RETURN ROUTED UP FROM BELOW THROUGH THE ROOF CURB. REFER TO THE ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION. PROVIDE REQUIRED VALVES, ACCESSORIES, AND INSTALLATION AT THE ROOFTOP UNIT PER MECHANICAL DETAILS.
5. 3" CHILLED WATER SUPPLY AND 3" CHILLED WATER RETURN ROUTED UP FROM BELOW THROUGH THE ROOF CURB. REFER TO THE ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION. PROVIDE REQUIRED VALVES, ACCESSORIES, AND INSTALLATION AT THE ROOFTOP UNIT PER MECHANICAL DETAILS.
6. PROVIDE WITH HEAT TRACE WIRE FOR THE CHILLED WATER SUPPLY AND RETURN PIPING. WIRE TO HEAT UP UPON TEMPERATURE FALLING BELOW 38F.
7. PROVIDE WITH FLOW CONTROL SENSOR TO ALARM AND SIGNAL THE BUILDING AUTOMATION SYSTEM UPON PIPE BURST OR OPEN FLOW CONDITION WHEN OUTSIDE AIR IS BELOW BELOW 45F.
8. CONDENSATE DRAIN ROUTED TO THE NEAREST ROOF DRAIN.
9. TIE NEW STEAM DISPERSION DEVICE AND PIPING INTO THE EXISTING STEAM GENERATOR SYSTEM. FIELD VERIFY ROUTING AND CONNECTION REQUIREMENT. PROVIDE WITH ALL NECESSARY PIPING AND COMPONENTS FOR A COMPLETE AND OPERATIONAL SYSTEM. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS FOR SIZING AND CONNECTION INFORMATION.
10. PRESSURE MONITOR TSI PRESSURA RPC30 TO MONITOR AND CONTROL THE PRESSURE OF THE OPERATING ROOM. TIE THE MONITOR INTO THE BUILDING AUTOMATION SYSTEM AND MOTORIZED DAMPER CONTROLS FOR MODULATION, MAINTAIN PRESSURE RELATIONSHIP PER ASHRAE 170.
11. PRESSURE MONITOR TSI PRESSURA RPM20 TO MONITOR THE PRESSURE OF THE DECONTAMINATION ROOM. TIE THE MONITOR INTO THE BUILDING AUTOMATION SYSTEM, MAINTAIN PRESSURE RELATIONSHIP PER ASHRAE 170.
12. PRESSURE MONITOR TSI PRESSURA RPM20 TO MONITOR THE PRESSURE OF THE STERILE WORKROOM. TIE THE MONITOR INTO THE BUILDING AUTOMATION SYSTEM. MAINTAIN PRESSURE RELATIONSHIP PER ASHRAE 170.
13. FIELD VERIFY AND COORDINATE THE EXISTING STEAM AND CONDENSATE PIPING, AND MODIFY AS NECESSARY TO ENSURE THE PIPING DOES NOT EXTEND ABOVE THE NEW ELECTRICAL ROOM.



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

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CONSULTANT

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LICENSED PROFESSIONAL ENGINEER
7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
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AGENCY REPRESENTATIVE DATE

TITLE

REV	DATE	DESCRIPTION
A1	07/29/2026	ADDENDUM #1

ISSUE DATE: JULY 29, 2026

CONTRACT NO:
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CAD DWG FILE: M202.2.dwg
DRAWN BY: Author
CHECKED BY: BSC

SHEET TITLE:

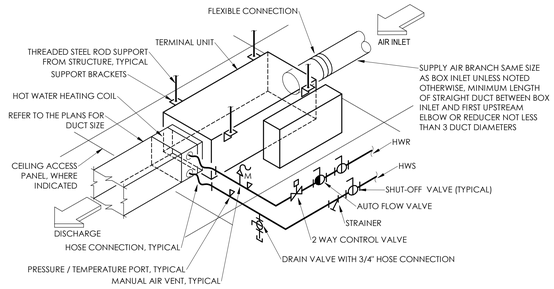
SECOND FLOOR MECHANICAL PIPING PLAN

M202.2

NOTE:

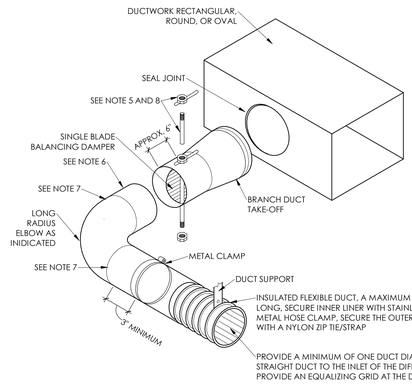
1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET
2. A FLEXIBLE AIR DUCT CONNECTOR IS NOT MANDATORY FOR INLET TO THIS BOX, BUT ALLOWED TO ACCOMMODATE MINOR OFFSETS. MAXIMUM LENGTH 1'-0".
3. A BRANCH DUCT SERVING AN INDIVIDUAL BOX MAY BE THE SAME SIZE AS THE BOX INLET, PROVIDED THE EQUIVALENT LENGTH OF THE BRANCH DUCT, AS SHOWN, DOES NOT EXCEED 10 FEET. FOR LONGER LENGTHS, INCREASE THE DUCT SIZE AND PROVIDE A DUCT TRANSITION TO MAINTAIN THE DUCT STATIC PRESSURE DROP AT OR BELOW 0.2"/100'.
4. FLEXIBLE AIR DUCT CONNECTORS, WHEN USED FROM TERMINAL UNIT SUPPLY AIR DUCT TO DIFFUSER, SHALL NOT EXCEED 5'-0". USE RIGID ELBOWS FOR CHANGE OF DIRECTION GREATER THAN 45°.
5. COMPONENT ARRANGEMENT MAY VARY BY MANUFACTURER. PROVIDE INSULATION WITH VAPOR BARRIER FOR CONNECTING DUCT SECTIONS.
6. USE OF FLEXIBLE AIR DUCT CONNECTORS ARE NOT PERMITTED FOR THE DEDICATED AHU SERVING THE SURGICAL SUITE.

DESIGNER'S NOTE: 1. INDICATE SOUND ATTENUATOR AS REQUIRED BY ACOUSTICAL ANALYSIS.



3 TERMINAL UNIT WITH HW HEATING DETAIL

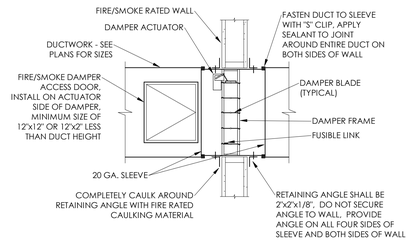
SCALE: NOT TO SCALE



NOTES:
1. SUPPORT DUCTWORK AS REQUIRED.
2. BAND FLEX TO COLLAR 1/2" MINIMUM FROM OUTBOARD END OF COLLAR.
3. INSTALL SPIN COLLAR DAMPER IN OPEN POSITION; FINAL ADJUSTMENT BY TAB CONTRACTOR.
4. PULL FLEXIBLE DUCT INSULATION UP TO END OF SPIN COLLAR AT EDGE OF RECTANGULAR DUCTWORK; SEAL VAPOR BARRIER WITH TAPE TO PREVENT MOISTURE MIGRATION.
5. PROVIDE EXTENSION RODS TO ACCOMMODATE INSULATION. PULL TO EDGE OF DUCTWORK AS REQUIRED AND SEAL VAPOR BARRIER.
6. SHEET METAL SCREWS, MINIMUM 3 EACH AT 120 DEGREE INTERVALS, CONNECTING TO COLLAR. ENSURE SCREWS DO NOT INTERFERE WITH DAMPER.
7. TAPE AND SEAL ALL JOINTS TO PREVENT LEAKAGE.
8. INSTALL LOCKING QUADRANT AND HANDLE ON BOTTOM OF DUCT FOR EASY SERVICE (SHOWN ON TOP FOR CLARITY ONLY).

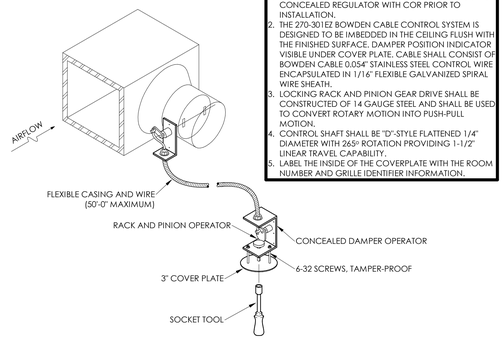
2 SPIN COLLAR FLEXIBLE DUCT CONNECTOR WITH DAMPER AND WITH LONG RADIUS ELBOW

SCALE: NOT TO SCALE



7 COMBINATION FIRE/SMOKE DAMPER INSTALLATION DETAIL

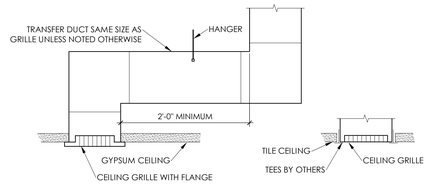
SCALE: NOT TO SCALE



NOTES:
1. COORDINATE EXACT LOCATION OF CEILING MOUNTED CONCEALED REGULATOR WITH COR PRIOR TO INSTALLATION.
2. THE 270-301EZ BOWDEN CABLE CONTROL SYSTEM IS DESIGNED TO BE IMBEDDED IN THE CEILING FLUSH WITH THE FINISHED SURFACE. DAMPER POSITION INDICATOR VISIBLE UNDER COVER PLATE. CABLE SHALL CONSIST OF BOWDEN CABLE 0.054" STAINLESS STEEL CONTROL WIRE ENCAPSULATED IN 1/16" FLEXIBLE GALVANIZED SPIRAL WIRE SHEATH.
3. LOCKING RACK AND PINION GEAR DRIVE SHALL BE CONSTRUCTED OF 14 GAUGE STEEL AND SHALL BE USED TO CONVERT ROTARY MOTION INTO PUSH-PULL MOTION.
4. CONTROL SHAFT SHALL BE "D"-STYLE FLATTENED 1/4" DIAMETER WITH 265° ROTATION PROVIDING 1-1/2" LINEAR TRAVEL CAPABILITY.
5. LABEL THE INSIDE OF THE COVERPLATE WITH THE ROOM NUMBER AND GRILLE IDENTIFIER INFORMATION.

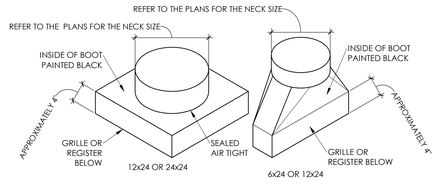
5 REMOTE DAMPER DETAIL

SCALE: NOT TO SCALE



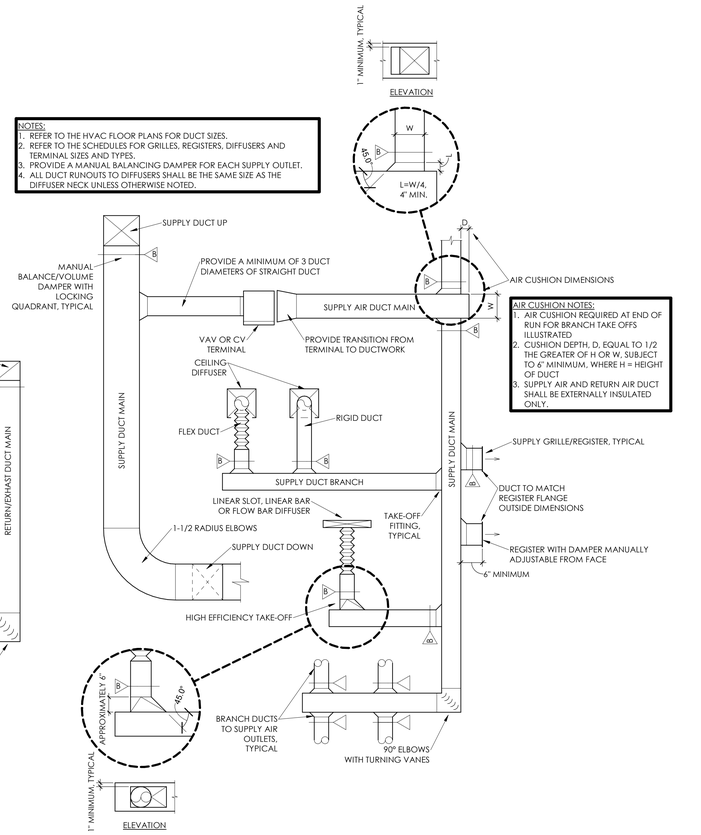
6 TRANSFER DUCT DETAIL

SCALE: NOT TO SCALE



4 RETURN AIR GRILLE & REGISTER BOOT DETAIL

SCALE: NOT TO SCALE



1 DUCTWORK INSTALLATION DIAGRAM

SCALE: NOT TO SCALE

BID PACKAGE 2
ISSUED FOR BIDS

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CONSULTANT

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7/29/26

A/E SEAL

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INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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APPROVED:

ES PROJECT MANAGER — DATE

ES BRANCH CHIEF — DATE

CONCURRENCE

AGENCY REPRESENTATIVE — DATE

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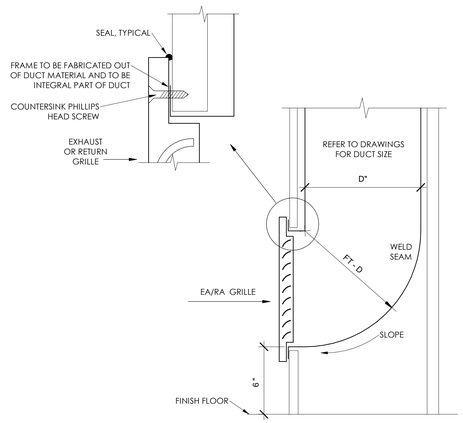
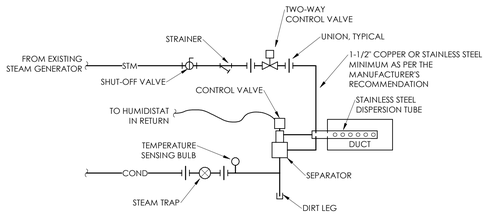
MECHANICAL DETAILS

M500.2



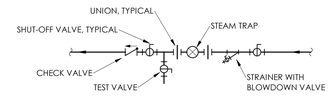
7 SIDEWALL EXHAUST/RETURN AIR GRILLE

SCALE: NOT TO SCALE



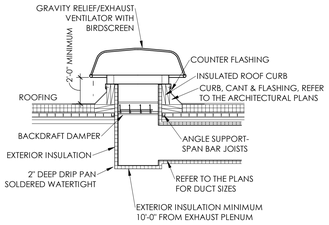
9 HUMIDIFIER PIPING DETAIL - STEAM

SCALE: NOT TO SCALE



8 STEAM TRAP PIPING DETAIL

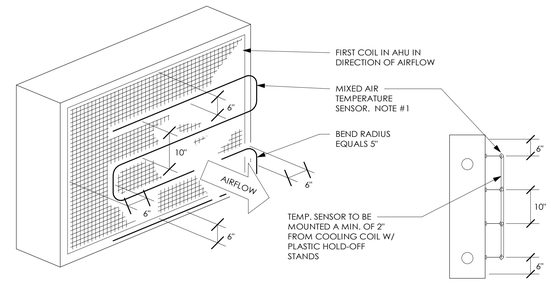
SCALE: NOT TO SCALE



NOTES:
1. ROOF CURB PROVIDED BY MECHANICAL CONTRACTOR. COORDINATE INSTALLATION AND FLASHING WITH THE GENERAL CONTRACTOR.
2. MECHANICAL CONTRACTOR SHALL COORDINATE ROOF OPENING AND CURB SIZE REQUIRED FOR DUCT PENETRATION.
3. PROVIDE EXTENDED THROAT FOR ALL INTAKE ROOF VENTILATORS.

6 GRAVITY ROOF VENTILATOR DETAIL - RELIEF/EXHAUST

SCALE: NOT TO SCALE

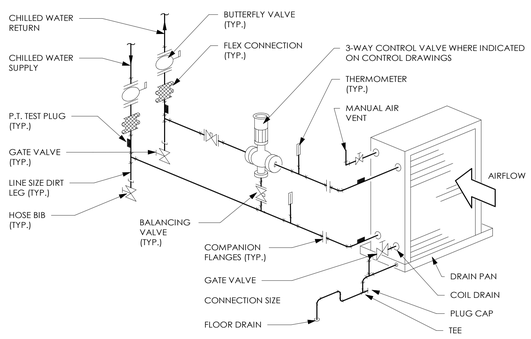


NOTES

1. PROVIDE MIN. 1 LINEAR FOOT OF TEMPERATURE SENSOR PER SQUARE FOOT OF COIL.
2. PROVIDE ON THE ENTERING SIDE OF COIL FOR MIXED AIR AND FREEZESTAT READINGS.
3. PROVIDE ON THE LEAVING SIDE OF COIL FOR PREHEAT COIL TEMP READING.

3 TEMPERATURE SENSOR MOUNTING DETAIL

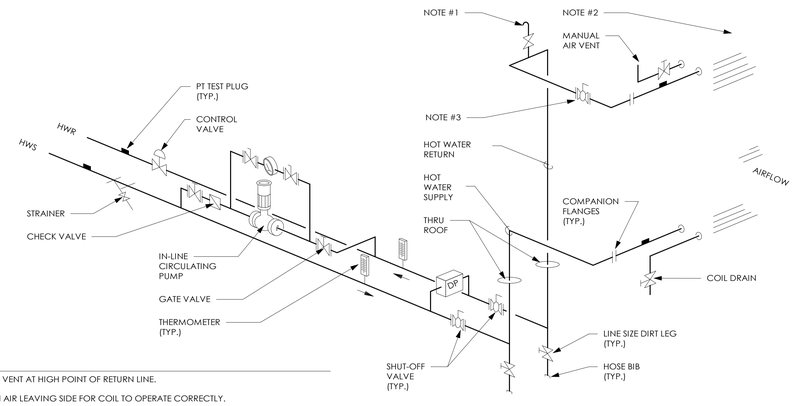
SCALE: NOT TO SCALE



NOTES:
1. PROVIDE MANUAL AIR VENT AT HIGH POINT OF RETURN LINE.
2. WATER TO ENTER THE COIL ON THE AIR LEAVING SIDE FOR COIL TO OPERATE CORRECTLY.
3. PROVIDE STAINLESS STEEL DRAIN PAN SLOPED FOR POSITIVE DRAINAGE.
4. PROVIDE WITH HEAT TRACE WIRE FOR BOTH SUPPLY AND RETURN FROM THE ROOF PENETRATION TO THE COIL.
5. PROVIDE WITH FLOW SENSOR TO INDICATE OPEN PIPE CONDITION AND ALARM WHEN OUTSIDE AIR IS BELOW 50F.

2 PIPING AT COOLING COIL (3-WAY VALVE)

SCALE: NOT TO SCALE



NOTES

1. PROVIDE AUTOMATIC AIR VENT AT HIGH POINT OF RETURN LINE.
2. WATER TO ENTER COIL ON AIR LEAVING SIDE FOR COIL TO OPERATE CORRECTLY.
3. BALANCING AND SHUT-OFF VALVE. PROVIDE 3-PIPE DIAMETERS STRAIGHT LENGTH OF PIPE BEFORE AND AFTER VALVES.
4. MOUNT IN-LINE PUMP SO THAT IT IS ACCESSIBLE AND REMOVABLE.

1 PIPING AT ROOFTOP UNIT PREHEAT COIL

SCALE: NOT TO SCALE

BID PACKAGE 2
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TITLE

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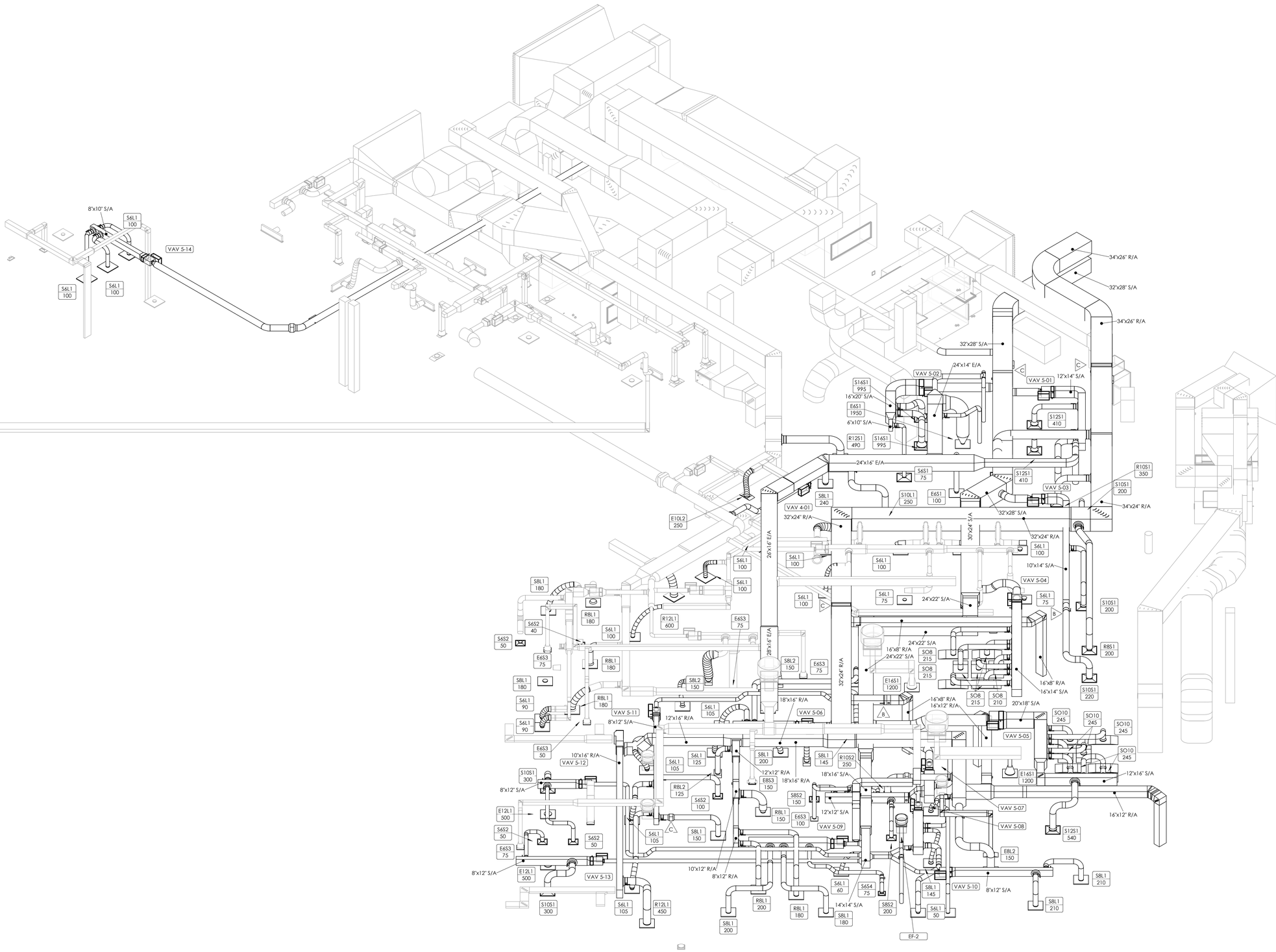
MECHANICAL DETAILS

M501.2



1 M520.2 DUCTWORK RISER DIAGRAM
SCALE: NTS

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CHECKED BY: BSC

SHEET TITLE:
DUCTWORK RISER DIAGRAM

M520.2

HYDRONIC CIRCULATING PUMP SCHEDULE

MARK	SYSTEM	MANUFACTURER	MODEL NO.	TYPE	PUMP				MOTOR		UNIT WEIGHT	MCA	MOCP	VOLT	PH	ACCESSORIES	NOTES
					DESIGN FLOW	HEAD	SPEED (RPM)	DRIVE TYPE	POWER	ECM							
HWP-1	PRE-HEAT	TACO	DELTA-1001	INLINE	13.7 GPM	20.0 FT	3250	DIRECT	93 W	Yes	13 lb	2 A	15 A	120 V	1	ED, SG	1

ACCESSORIES:
ED - ELECTRICAL DISCONNECT
SG - SUCTION GUIDE

SCHEDULE NOTES:
1. EMERGENCY POWER

ELECTRIC HEATER SCHEDULE

MARK	MANUFACTURER	MODEL NO.	TYPE	FAN						HEATING COIL		HEATING ELEMENT			SOUND PRESS LEVEL	UNIT DIMENSIONS		UNIT WEIGHT	MCA	MOCP	VOLT	PH	ACCESSORIES	NOTES
				AIRFLOW		DRIVE	MOTOR			AIRSIDE						TOP MOUNT HEIGHT	AFF ELEVATION							
				DESIGN	MIN	TYPE	QTY	POWER	RPM	ECM	EAT(db)	LAT(db)	QTY	POWER	SCR									
EUH-1	BERKO	SRA1512DSF	WALL MOUNTED	65 CFM	0 CFM	DIRECT	1	0.05 hp	1550	No	55.0 °F	90.0 °F	1	0.75 kW	No	40		4' - 0"	10 lb	6 A	15 A	120 V	1	DS, IT, SM	1, 2, 3

ACCESSORIES:
DS - DISCONNECT SWITCH
IT - INTEGRAL THERMOSTAT
SM - SURFACE MOUNT KIT

SCHEDULE NOTES:
1. UNIT TO ENERGIZE ABOVE SPACE VESTIBULE TEMPERATURES FALLING BELOW 50F.
2. UNIT HEIGHT MOUNTED IN RELATION TO BOTTOM OF THE PIPING VESTIBULE.
3. ON EMERGENCY POWER.

GRILLES, REGISTERS AND DIFFUSERS SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL	FACE SIZE	INSTALLATION/ FRAME TYPE	MATERIAL	FINISH	MAX AIRFLOW CFM	TOTAL PRESSURE	NECK			THROW DISTANCE (A)	NC (B)	NOTES
										DIAMETER	WIDTH	HEIGHT			
LAY-IN															
E8L2	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	12x24	LAY-IN	ALUMINUM	WHITE ENAMEL	200 CFM	0.08 in-wg	8"			0"	0	2
E8S3	SURFACE-MOUNTED EGG-CRATE FACE, LOUVERED FACE, ROUND-NECK EXHAUST GRILLE	TITUS	50F	12x12	LAY-IN	ALUMINUM	WHITE ENAMEL	200 CFM	0.08 in-wg	8"			0"	0	2
E10L2	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	12x24	LAY-IN	ALUMINUM	WHITE ENAMEL	370 CFM	0.09 in-wg	10"			0"	0	2
E12L1	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	600 CFM	0.09 in-wg	12"			0"	0	1
R6L1	LAY-IN EGG-CRATE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	100 CFM	0.08 in-wg	6"			0"	0	1
R8L1	LAY-IN EGG-CRATE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	200 CFM	0.08 in-wg	8"			0"	0	<varies>
R8L2	LAY-IN EGG-CRATE FACE, ROUND EXHAUST GRILLE	TITUS	50F	12x24	LAY-IN	ALUMINUM	WHITE ENAMEL	200 CFM	0.08 in-wg	8"			0"	0	2
R12L1	LAY-IN EGG-CRATE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	600 CFM	0.09 in-wg	12"			0"	0	1
R14L1	LAY-IN EGG-CRATE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	900 CFM	0.06 in-wg	14"			0"	0	1
S6L1	LAY-IN LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	135 CFM	0.08 in-wg	6"			4' - 0"	18	
S8L1	LAY-IN LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	240 CFM	0.08 in-wg	8"			6' - 0"	21	
S8L2	LAY-IN LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA	12x24	LAY-IN	ALUMINUM	WHITE ENAMEL	240 CFM	0.08 in-wg	8"			6' - 0"	21	
S10L1	LAY-IN LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	325 CFM	0.09 in-wg	10"			7' - 0"	21	
S08	LAY-IN CRITICAL ENVIRONMENT LAMINAR FLOW STEEL DIFFUSER	TITUS	TLF	48x24	LAY-IN	STAINLESS STEEL	WHITE ENAMEL	220 CFM	0.09 in-wg	8"			9' - 0"	18	2
SO10	LAY-IN CRITICAL ENVIRONMENT LAMINAR FLOW STEEL DIFFUSER	TITUS	TLF	48x24	LAY-IN	STAINLESS STEEL	WHITE ENAMEL	320 CFM	0.09 in-wg	10"			9' - 0"	18	2
SURFACE MOUNTED															
E6S1	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	24x24	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	100 CFM	0.08 in-wg	6"			0"	0	1
E6S3	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	12x12	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	100 CFM	0.08 in-wg	6"			0"	0	2
E10S3	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	12x12	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	370 CFM	0.09 in-wg	10"			0"	0	2
E16S1	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	18x18	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	1300 CFM	0.09 in-wg	16"			0"	0	1
R6S3	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	12x12	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	100 CFM	0.08 in-wg	6"			0"	0	2
R8S1	SURFACE-MOUNTED EGG-CRATE FACE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	200 CFM	0.08 in-wg	8"			0"	0	1
R10S1	SURFACE-MOUNTED EGG-CRATE FACE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	370 CFM	0.09 in-wg	10"			0"	0	1
R10S2	SURFACE-MOUNTED EGG-CRATE FACE, LOUVERED FACE, ROUND-NECK EXHAUST GRILLE	TITUS	50F	12x24	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	370 CFM	0.09 in-wg	10"			0"	0	2
R12S1	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	16x16	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	600 CFM	0.09 in-wg	12"			0"	0	1
R14S1	SURFACE-MOUNTED EGG-CRATE FACE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	900 CFM	0.09 in-wg	14"			0"	0	1
S6S1	SURFACE-MOUNTED, LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	12x12	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	135 CFM	0.08 in-wg	6"			9' - 0"	18	3
S6S2	LOUVERED FACE, ROUND NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	12x12	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	135 CFM	0.08 in-wg	6"			9' - 0"	18	3
S6S4	LOUVERED FACE, ROUND NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	12x12	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	135 CFM	0.08 in-wg	6"			9' - 0"	18	3
S8S2	LOUVERED FACE, ROUND NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	14x14	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	240 CFM	0.08 in-wg	8"			13' - 0"	20	3
S10S1	SURFACE-MOUNTED, LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	16x16	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	325 CFM	0.09 in-wg	10"			15' - 0"	21	3
S12S1	SURFACE-MOUNTED, LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	18x18	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	390 CFM	0.09 in-wg	12"			15' - 0"	22	3
S16S1	SURFACE-MOUNTED, LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	20x20	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	390 CFM	0.09 in-wg	16"			15' - 0"	24	3

GENERAL NOTES:
A. THROW AT 50 FEET PER MINUTE VELOCITY.
B. "-" NC RATING IS LOW ENOUGH TO NOT REGISTER IN THE MANUFACTURER'S DATA.

SCHEDULE NOTES:
1. FULL 24"x24" EGG CRATE FACE.
2. EGG CRATE FULL SIZE OF SCHEDULED FACE SIZE.
3. NEW DIFFUSER/GRILLE CONNECTED TO THE EXISTING BRANCH DUCT, FIELD VERIFY THE CONNECTION REQUIREMENTS.
4. DROPPED FACE DIFFUSER.

ASHRAE 170 VENTILATION AIRFLOW SUMMARY

ROOM NAME & NO.	FUNCTION OF SPACE	VOLUME	MINIMUM OUTDOOR ACH	MINIMUM TOTAL ACH	REQUIRED OUTDOOR AIR	MINIMUM REQUIRED SUPPLY AIR
B251 OR/OB	OPERATING ROOM +	6720 CU. FT.	4	20	448 CFM	1792 CFM
B248 OR	OPERATING ROOM +	4100 CU. FT.	4	20	273.33 CFM	1093.3 CFM
B227 DECON	DECONTAMINATION -	1848 CU. FT.	2	6	61.6 CFM	246.4 CFM
B230 CLEAN WORKROOM	STERILE PROCESSING +	2744 CU. FT.	2	4	91.5 CFM	365.9 CFM
B242 STERILE STORAGE	STERILE STORAGE +	2800 CU. FT.	2	4	93.3 CFM	373.3 CFM
B229 ANTEROOM	ANTEROOM -	816 CU. FT.	-	-	- CFM	- CFM
B242 PRE-OP	PRE-OP HOLDING	3288 CU. FT.	2	2	109.6 CFM	438.4 CFM
B249 CLEAN WORKROOM	CLEAN WORKROOM +	1528 CU. FT.	2	4	50.9 CFM	203.7 CFM
B252 SUB-STERILE	SUB STERILE	552 CU. FT.	4	20	18.4 CFM	73.6 CFM
B255 POST-OP RECOVERY	POST-OP RECOVERY	3072 CU. FT.	2	6	102.4 CFM	409.6 CFM
B261 CLEAN UTILITY	CLEAN UTILITY +	1136 CU. FT.	2	4	37.9 CFM	151.5 CFM
B266 SOILED UTILITY	SOILED UTILITY -	568 CU. FT.	2	6	18.9 CFM	75.7 CFM
B259 MED GAS STORAGE	MEDICAL GAS STORAGE -	396 CU. FT.	2	6	13.2 CFM	52.8 CFM
B282 LACTATION ROOM	LACTATION ROOM	1072 CU. FT.	2	4	35.7 CFM	142.9 CFM
B275 PROCDURE RM.	PROCEDURE ROOM +	1056 CU. FT.	3	15	52.8 CFM	211.2 CFM
B272 PROCDURE RM.	PROCEDURE ROOM +	1096 CU. FT.	3	15	54.8 CFM	219.2 CFM
B267 SOILED HOLDING	SOILED HOLDING -	552 CU. FT.	2	6	18.4 CFM	73.6 CFM
B260 ANEASTHESIA WRK.	ANEASTHESIA WORKROOM	800 CU. FT.	2	6	26.7 CFM	106.7 CFM
STERILIZER ROOM	STERILIZER EQUIPMENT ROOM -	24 CU. FT.	-	10	- CFM	330 CFM

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL NO.	TYPE	FAN					MOTOR			SOUND PRESS LEVEL (dBA)	UNIT WEIGHT	MCA	MOCP	VOLT	PH	ACCESSORIES	NOTES
				AIRFLOW	EXTERNAL STATIC PRESSURE	WHEEL			DRIVE TYPE	POWER	RPM	ECM							
						RPM	TYPE	DIA											
EF-2	GREENHECK	G-060-G	DOWNBLAST	70 CFM	0.20 in-wg	1300	BI	8"	DIRECT	0.10 hp	1300	No	40	18 lb	3 A	15 A	120 V	1	BS, DS, RC	1, 2

ACCESSORIES:
BS - BIRD SCREEN
DS - INTEGRAL ELECTRICAL DISCONNECT
RC - ROOF CURB TO MATCH THE ROOF

SCHEDULE NOTES:
1. FAN TO RUN CONTINOUSLY.
2. FAN ON EMERGENCY POWER.

HOT WATER VARIABLE AIR VOLUME TERMINAL UNIT SCHEDULE

MARK	MANUFACTURER	MODEL NO.	NECK SIZE	TYPE	PRIMARY AIRFLOW		EXTERIOR ZONE	HEATING COIL										HEATING PLANT		NC	UNIT WEIGHT	ACCESSORIES	NOTES
								AIRSIDE						WATERSIDE				GLYCOL					
					MAX	MIN		DESCRIPTION	CAPACITY	DESIGN FLOW	EAT(db)	LAT(db)	PRESSURE DROP	ROWS	FPI	FLOW	EWT	LWT	PRESSURE DROP	TYPE	%				
VAV 4-01	TITUS	DESV	8"	SINGLE DUCT	490 CFM	150 CFM	Yes	HEATING WATER COIL	14000 Btu/h	490 CFM	55.0 °F	95.0 °F	0.18 in-wg	2	10	0.8 GPM	200 °F	161 °F	0.2 ftH2O	PG	25	25	46 lb	DS, T	1, 2
VAV 5-01	TITUS	DESV	10"	SINGLE DUCT	1150 CFM	1150 CFM	No	HEATING WATER COIL	46500 Btu/h	1150 CFM	55.0 °F	95.0 °F	0.35 in-wg	2	10	2.5 GPM	200 °F	165 °F	0.4 ftH2O	PG	25	24	55 lb	DS, T	1, 2
VAV 5-02	TITUS	DESV	14"	SINGLE DUCT	2065 CFM	2065 CFM	No	HEATING WATER COIL	94000 Btu/h	2065 CFM	55.0 °F	95.0 °F	0.23 in-wg	2	10	5.5 GPM	200 °F	164 °F	0.5 ftH2O	PG	25	18	69 lb	DS, T	1, 2
VAV 5-03	TITUS	DESV	8"	SINGLE DUCT	620 CFM	620 CFM	No	HEATING WATER COIL	26700 Btu/h	620 CFM	55.0 °F	95.0 °F	0.25 in-wg	2	10	1.5 GPM	200 °F	165 °F	0.4 ftH2O	PG	25	27	46 lb	DS, T	1, 2
VAV 5-04	TITUS	DESV	12"	SINGLE DUCT	1500 CFM	450 CFM	No	HEATING WATER COIL	34700 Btu/h	450 CFM	55.0 °F	95.0 °F	0.28 in-wg	2	10	1.4 GPM	200 °F	150 °F	0.2 ftH2O	PG	25	15	65 lb	DS, T	1, 2
VAV 5-05	TITUS	DESV	16"	SINGLE DUCT	2500 CFM	750 CFM	Yes	HEATING WATER COIL	59100 Btu/h	2500 CFM	55.0 °F	95.0 °F	0.31 in-wg	2	10	2.7 GPM	200 °F	154 °F	0.2 ftH2O	PG	25	20	85 lb	DS, T	1, 2
VAV 5-06	TITUS	DESV	8"	SINGLE DUCT	725 CFM	220 CFM	No	HEATING WATER COIL	15800 Btu/h	220 CFM	55.0 °F	95.0 °F	0.31 in-wg	2	10	0.8 GPM	200 °F	160 °F	0.2 ftH2O	PG	25	24	46 lb	DS, T	1, 2
VAV 5-07	TITUS	DESV	8"	SINGLE DUCT	600 CFM	180 CFM	No	HEATING WATER COIL	14100 Btu/h	180 CFM	55.0 °F	95.0 °F	0.23 in-wg	2	10	0.8 GPM	200 °F	159 °F	0.2 ftH2O	PG	25	27	46 lb	DS, T	1, 2
VAV 5-08	TITUS	DESV	8"	SINGLE DUCT	400 CFM	120 CFM	No	HEATING WATER COIL	13000 Btu/h	120 CFM	55.0 °F	95.0 °F	0.13 in-wg	2	10	0.8 GPM	200 °F	162 °F	0.2 ftH2O	PG	25	25	46 lb	DS, T	1, 2
VAV 5-09	TITUS	DESV	8"	SINGLE DUCT	455 CFM	140 CFM	Yes	HEATING WATER COIL	13500 Btu/h	455 CFM	55.0 °F	95.0 °F	0.15 in-wg	2	10	0.8 GPM	200 °F	160 °F	0.2 ftH2O	PG	25	25	46 lb	DS, T	1, 2
VAV 5-10	TITUS	DESV	8"	SINGLE DUCT	420 CFM	130 CFM	Yes	HEATING WATER COIL	13200 Btu/h	420 CFM	55.0 °F	95.0 °F	0.14 in-wg	2	10	0.8 GPM	200 °F	159 °F	0.2 ftH2O	PG	25	22	46 lb	DS, T	1, 2
VAV 5-11	TITUS	DESV	8"	SINGLE DUCT	565 CFM	170 CFM	No	HEATING WATER COIL	14300 Btu/h	170 CFM	55.0 °F	95.0 °F	0.17 in-wg	2	10	0.8 GPM	200 °F	160 °F	0.2 ftH2O	PG	25	22	46 lb	DS, T	1, 2
VAV 5-12	TITUS	DESV	6"	SINGLE DUCT	350 CFM	105 CFM	Yes	HEATING WATER COIL	10300 Btu/h	350 CFM	55.0 °F	95.0 °F	0.15 in-wg	2	10	0.8 GPM	200 °F	170 °F	0.2 ftH2O	PG	25	22	43 lb	DS, T	1, 2
VAV 5-13	TITUS	DESV	6"	SINGLE DUCT	350 CFM	105 CFM	Yes	HEATING WATER COIL	10300 Btu/h	350 CFM	55.0 °F	95.0 °F	0.15 in-wg	2	10	0.8 GPM	200 °F	170 °F	0.2 ftH2O	PG	25	22	43 lb	DS, T	1, 2
VAV 5-14	TITUS	DESV	6"	SINGLE DUCT	300 CFM	90 CFM	No	HEATING WATER COIL	10100 Btu/h	90 CFM	55.0 °F	95.0 °F	0.12 in-wg	2	10	0.8 GPM	200 °F	172 °F	0.1 ftH2O	PG	25	22	43 lb	DS, T	1, 2

GENERAL NOTES:
A. HEATING WATER FOR VAV BOXES CONTAINS 25% PROPYLENE GLYCOL.
B. ON EMERGENCY POWER.
C. INLET DUCT DIAMETER TO MATCH THE NECK SIZE. UNLESS OTHERWISE NOTED.
D. PROVIDE WITH UNOCCUPIED SETBACK FOR SPACES PERMITTED TO OPERATE IN UNOCCUPIED MODE, MAINTAIN CONTINOUS PRESSURE RELATIONSHIP AND MINIMUM AIR CHANGE RATES AS REQUIRED.
E. PROGRAM VAV 5-06, 5-08, 5-09, 5-10, 5-12, AND 5-13 FOR UNOCCUPIED SETBACK TO 30% OF FULL FLOW. PROGRAM SHALL UTILIZE THE LIGHTING CONTROL OCCUPANCY SENSOR TO RELAY UNOCCUPIED STATUS TO THE BAS. PROVIDE A 20-MINUTE TIME DELAY BEFORE PLACING THE BOX INTO UNOCCUPIED MODE.
F. PROGRAM VAV 5-04 AND 5-05 FOR UNOCCUPIED SETBACK TO 30% OF FULL FLOW. PROGRAM SHALL UTILIZE THE LIGHTING CONTROL OCCUPANCY SENSOR TO RELAY UNOCCUPIED STATUS TO THE BAS. PROVIDE A 20-MINUTE TIME DELAY BEFORE PLACING THE BOX INTO UNOCCUPIED MODE. PROVIDE PRESSURE MONITORING AND INTERLOCK WITH MOTORIZED DAMPERS ON RETURN BRANCHES. PROGRAM ONE DAMPER TO CLOSE AND MODULATE THE OTHER TO 50% OPEN TO MAINTAIN REQUIRED PRESSURIZATION. TIE INTO BAS AND PRESSURE MONITOR.

ACCESSORIES:
DS - DISCONNECT SWITCH
T - 7-DAY PROGRAMMABLE THERMOSTAT

SCHEDULE NOTES:
1. DOUBLE WALL CONSTRUCTION.
2. DDC CONTROLS.

ROOFTOP UNIT SCHEDULE

MARK	MANUFACTURER	MODEL NO.	OUTSIDE AIR	SUPPLY FAN								RETURN FAN								COOLING COIL												HEATING COIL									HEATING PLANT		SUMMER AMBIENT	WINTER AMBIENT	PRE-FILTER	FILTER	UNIT WEIGHT	MCA	MOCP	VOLT	PH	ACCESSORIES	NOTES
				AIRFLOW	PRESS		WHEEL		DRIVE	MOTOR				PRESS		WHEEL		DRIVE	MOTOR				CAP		AIRSIDE					WATERSIDE					HEATING COIL	AIRSIDE				WATERSIDE				GLYCOL											
			FLOW	DESIGN	ESP	TSP	TYPE	DIA	TYPE	QTY	POWER	RPM	ECM	ESP	TP	TYPE	DIA	TYPE	QTY	POWER	RPM	ECM	TOTAL	SENSIBLE	EAT(db)	EAT(wb)	LAT(db)	LAT(wb)	PD	FPI	FLOW	EWT	LWT	PD	CAP	EAT(db)	LAT(db)	PD	FPI	FLOW	EWT	LWT	PD	TYPE	%									
AHU-5	DAIKIN	OAH025GDCM	3800 CFM	12000 CFM	2.50 in-wg	5.96 in-wg	AF	1' - 2"	DIRECT	1	4.40 hp	3300	Yes	2.00 in-wg	2.54 in-wg	AF	1' - 2"	DIRECT	1	4.40 hp	3300	Yes	439700 Btu/h	387240 Btu/h	80.0 °F	63.0 °F	50.5 °F	50.0 °F	1.01 in-wg	8	85.0 GPM	44 °F	55 °F	7.5 ftH2O	269129 Btu/h	40.0 °F	60.5 °F	0.13 in-wg	11	13.7 GPM	200 °F	159 °F	0.4 ftH2O	PG	25	95.0 °F	-9.0 °F	MERV-8	MERV-17	8342 lb	50 A	60 A	480 V	3	BO, DS, EC, UC, RC, ML, PV	1, 2

GENERAL NOTES:
A. ROOFTOP UNIT INCLUDES THE FOLLOWING SECTIONS: RETURN INLET PLENUM, RETURN FAN WALL WITH CIRCUIT, MIXING/ACCESS SECTION (OUTSIDE AIR INTAKE/ECONOMIZER AND RELIEF AIR), PRE-FILTER, PRE-HEAT COIL, ACCCESS SECTION, CHILLED WATER COOLING COIL, SUPPLY FAN WALL WITH CIRCUIT, ACCESS SECTION, FINAL FILTER, AND DISCHARGE PLENUM
B. SUPPLY FAN MCA: 29.4 MOCP: 30
C. RETURN FAN MCA: 20 MOCP: 20

ACCESSORIES:
BO - BLANK OFFPLATE FOR FAN WALL
DS - INTEGRAL ELECTRICAL DISCONNECTS
EC - ECONOMIZER
UC - UNIT CASING WITH DOUBLE WALL 2" FOAM INSULATION
RC - FULL PERIMETER FRAME
ML - MARINE LIGHT KIT
PV - PIPING VESTIBULE (OPEN WITH NO PANELS)

SCHEDULE NOTES:
1. FANS TO BE ON SEPERATE CIRCUITS AND BOTH ON EMERGENCY POWER.
2. DUCT MOUNTED SMOKE DETECTORS PROVIDED AND WIRED BY ELECTRICAL, INSTALLED BY MECHANICAL DIVISION.

BID PACKAGE 2
ISSUED FOR BIDS

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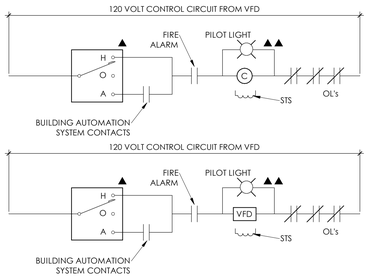
REVIEWED:
ES ARCHITECT / ENGINEER DATE
APPROVED:
ES PROJECT MANAGER DATE
ES BRANCH CHIEF DATE
CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION
A1	07/29/2026	ADDENDUM #1

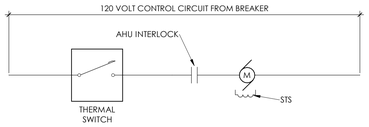
ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: M600.2.dwg
DRAWN BY: Author
CHECKED BY: BSC

SHEET TITLE:
MECHANICAL SCHEDULES

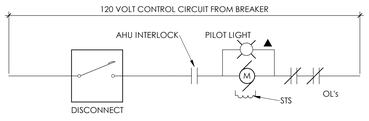
M600.2



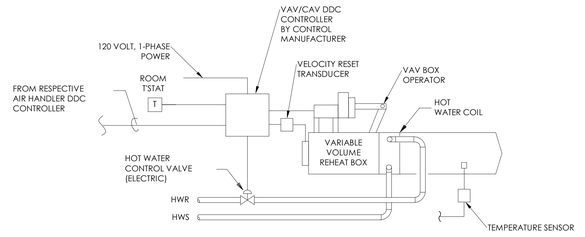
TYPICAL THREE PHASE EXHAUST FAN CONTROL



TYPICAL SINGLE PHASE EXHAUST FAN CONTROL



TYPICAL SINGLE PHASE EXHAUST FAN CONTROL



TYPICAL VARIABLE VOLUME BOX CONTROL WITH HHW REHEAT COIL

DUAL PID VAV SEQUENCE OF OPERATION:

1. PROVIDE A 2 DEG F MINIMUM DEADBAND BETWEEN THE HEATING AND COOLING SPACE TEMPERATURE SETPOINTS. WHEN THE SPACE TEMPERATURE IS IN THE DEAD BAND, THE VAV SHALL PROVIDE MINIMUM COOLING AIR FLOW AND THE REHEAT COIL VALVE SHALL BE CLOSED.

OCCUPIED MODE:

1. ON A RISE IN ROOM TEMPERATURE ABOVE THE COOLING SETPOINT, THE LOCAL CONTROLLER WILL INCREASE THE COOLING AIRFLOW FROM THE MINIMUM COOLING FLOW TO THE MAXIMUM COOLING FLOW POSITIONS. ON A DECREASE IN THE ROOM TEMPERATURE BELOW THE COOLING SETPOINT, THE INVERSE CONTROL WILL OCCUR AND REDUCE THE COOLING AIRFLOW FROM MAXIMUM COOLING FLOW TO MINIMUM COOLING FLOW.

2. ON A FURTHER REDUCTION IN ZONE TEMPERATURE BELOW THE ZONE HEATING SETPOINT THE LOCAL CONTROLLER WILL LOCK AIRFLOW AT THE HEATING AIRFLOW AND ENABLE THE HEATING HOT WATER VALVE. THE VALVE WILL MONDULATE AS REQUIRED TO MAINTAIN THE SPACE HEATING SETPOINT.

UNOCCUPIED MODE/OCCUPANCY OVERRIDE:

1. THE SEQUENCES ABOVE DESCRIBE THE OCCUPIED COOLING AND HEATING OPERATION MODES. VAV BOX CONTROLS SHALL INCLUDE THE ABILITY TO RESET SPACE TEMPERATURE SET POINTS BASED ON A PRESET SCHEDULE TO A USER ADJUSTABLE UNOCCUPIED COOLING AND HEATING SET POINT.

2. WHEN ACTIVATED BY BAS TIME SCHEDULE, THE VAV BOX SHALL OPERATE WITH COOLING AND HEATING MODES AS DESCRIBED ABOVE WITH ROOM TEMPERATURE SETPOINT EQUAL TO UNOCCUPIED COOLING AND UNOCCUPIED HEATING SETPOINTS INITIALLY SET AT 80 DEG F COOLING (ADJ.) AND 65 DEG F HEATING (ADJ.).

NOTES:

1. HOT WATER CONTROL VALVE TO BE 2-WAY TYPE UNLESS INDICATED TO BE 3-WAY TYPE
2. REFER TO SCHEDULED INFORMATION FOR AIRFLOW AND OCCUPANCY INFORMATION.

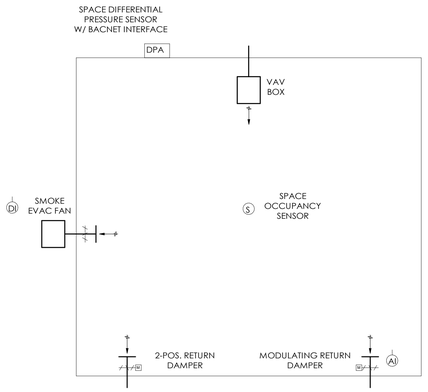
CONTROL SYMBOL LEGEND

SYMBOL	DESCRIPTION
TS	SPACE TEMPERATURE SENSOR
CO2	DUCT MOUNTED CO SENSOR
TS	AVERAGING TEMPERATURE SENSOR
HS	DUCT MOUNTED HUMIDITY SENSOR
AO	ANALOG OUTPUT
AI	ANALOG INPUT
DO	DIGITAL OUTPUT
DI	DIGITAL INPUT
	SMOKE DETECTOR, FURNISHED BY ELECTRICAL AND INSTALLED BY HVAC
HOA	HAND-OFF-AUTO MAGNETIC STARTER
SP	DUCT STATIC PRESSURE SENSOR
DP	DIFFERENTIAL PRESSURE SENSOR
	INTERLOCK WITH FIRE ALARM SYSTEM
M	FAN/PUMP MOTOR
VFD	VARIABLE FREQUENCY DRIVE
CT	CURRENT TRANSDUCER
FS	FLOW SWITCH
	DIRECTION OF FLOW
TS	PIPE MOUNTED TEMPERATURE SENSOR
	2-WAY AUTOMATIC VALVE
	3-WAY AUTOMATIC VALVE
HOA	HAND-OFF-AUTO SWITCH

AI	-	ANALOG INPUT
AM	-	AIRFLOW MEASURMENT STATION
AO	-	ANALOG OUTPUT
BAS	-	BUILDING AUTOMATION SYSTEM
C	-	COIL
D	-	DAMPER CONTROL
DI	-	DIGITAL INPUT
DO	-	DIGITAL OUTPUT
DPS	-	DIFFERENTIAL PRESSURE SWITCH
FS	-	FREEZE STAT
FSD	-	FIRE SMOKE DAMPER
HT	-	HUMIDITY TRANSMITTER
MOD.	-	MODULATING DEVICE
N.C.	-	NORMALLY CLOSED
N.O.	-	NORMALLY OPEN
OL's	-	OVERLOAD(S)
PL	-	PILOT LIGHT
SD	-	SMOKE DETECTOR
SPS	-	STATIC PRESSURE SWITCH
SPT	-	STATIC PRESSURE TRANSMITTER
SS	-	START/STOP COMMAND
STS	-	STATUS (CURRENT SENSOR)
TS	-	TEMPERATURE SENSOR
TT	-	TEMPERATURE TRANSMITTER
2-POS	-	2-POSITION DEVICE

▲ LOCATE AT VFD COVER

▲▲ LOCATE IN LOCAL CONTROL PANEL



TYPICAL NEW OPERATING ROOM SPACE PRESSURE CONTROL

TYPICAL NEW OPERATING ROOM SPACE PRESSURE CONTROL SEQUENCE OF OPERATION:

OCCUPIED MODE:

1. DURING NORMAL OPERATION THE SPACE SHALL BE INDEXED INTO THE OCCUPIED MODE BASED ON THE SPACE OCCUPANCY SENSOR SENSING MOTION.

2. WHEN IN THE OCCUPIED MODE, THE VAV BOX SHALL BE SET TO THE FULL COOLING MODE AIRFLOW SETPOINT. THE 2-POSITION RETURN DAMPER SHALL BE FULLY OPEN AND THE MODULATING RETURN DAMPER SHALL BE MODULATED AS REQUIRED TO MAINTAIN A SPACE PRESSURE SETPOINT OF POSITIVE 0.01" W.C. AS SENSED BY THE ASSOCIATED ROOM SHALL DIFFERENTIAL PRESSURE MONITOR.

3. IF THE SPACE PRESSURE DROPS BELOW POSITIVE 0.01" W.C. FOR LONGER THAN 2 MINUTES (ADJUSTABLE) THE SPACE DIFFERENTIAL PRESSURE MONITOR SHALL INITIATE AN ALARM AT THE DEVICE.

UNOCCUPIED MODE:

1. THE SPACE SHALL BE INDEXED INTO THE UNOCCUPIED MODE BASED ON THE SPACE OCCUPANCY SENSOR NOT SENSING MOTION FOR A MINIMUM TIME PERIOD OF 30 MINUTES (ADJUSTABLE).

2. WHEN IN THE UNOCCUPIED MODE, THE VAV BOX SHALL BE SET TO THE 50% OF FULL COOLING MODE AIRFLOW SETPOINT, OR THE MINIMUM AIRFLOW SETPOINT, THE 2-POSITION RETURN DAMPER SHALL BE FULLY CLOSED AND THE MODULATING RETURN DAMPER SHALL BE MODULATED AS REQUIRED TO MAINTAIN A SPACE PRESSURE SETPOINT OF POSITIVE 0.01" W.C. AS SENSED BY THE ASSOCIATED ROOM SHALL DIFFERENTIAL PRESSURE MONITOR.

3. IF THE SPACE PRESSURE DROPS BELOW POSITIVE 0.01" W.C. FOR LONGER THAN 2 MINUTES (ADJUSTABLE) THE SPACE DIFFERENTIAL PRESSURE MONITOR SHALL INITIATE AN ALARM AT THE DEVICE.

FIRE ALARM:

1. WHEN SMOKE IS SENSED BY THE FIRE ALARM SYSTEM INSIDE THE OPERATING ROOM THE FIRE ALARM SHALL SIGNAL THE BAS SYSTEM AND THE ASSOCAITED ROOM SHALL BE INDEXED INTO A SMOKE PURGE MODE.

2. DURING SMOKE PURGE MODE THE RETURN DAMPERS SHALL BE FULLY CLOSED, THE ASSOCIATED SMOKE EVAC FAN SHALL BE ENABLED, THE ASSOCIATED ROOM VAV BOX WILL BE SET TO THE 50% OF FULL COOLING MODE AIRFLOW SETPOINT OR THE MINIMUM AIRFLOW SETPOINT, AND THE BAS SHALL INITIATE AN ALARM INDICATING SMOKE PURGE SEQUENCE HAS BEEN ENABLED.

EMS POINT SUMMARY

TYPICAL REHEAT BOX

POINT DESCRIPTION	HARDWARE: OUTPUT (O) DIGITAL: Control Relay	Solenoid	Contactor	OUTPUT (O) ANALOG: Space Temp Control	DCC Control Signal	4-20MA Signal	INPUT (T,D,V,C) DIGITAL: Differential Press Switch	Flow Switch	Switch Closure	Auxiliary Contact	Current Relay	Alarm Condition	INPUT (T,D,V,C) ANALOG: Temperature	Relative Humidity in "wg	Position	SOFTWARE: ALARMS DIGITAL: Flow	Amperes	Equipment Status	Maintenance	High Limit	Low Limit	Run Time	Log Data	ALARMS ANALOG: Scheduled Start/Stop	FUNCTIONS: Optimum Start/Stop	VAV Calibration	Trend Differential Flow	Day/Night Setback	Economizer	Ventilation/Recirculation	Temperature Control	Enthalpy	Sup Air CFM	Reheat Coil Reset	Volume control	Damper Position	Valve Position	Chiller Optimization	Chilled Water Reset	Condenser Water Reset	Chiller Demand Limit	VFD Control	Alarm Condition
REHEAT VAV BOX AND SUPPLY TRACKING VALVES:																																									
SPACE TEMPERATURE SETPOINT (ADJ)				●									●																													
ACTUAL BOX CFM																			●																							
BOX CFM MINIMUM																															●			●								
BOX CFM MAXIMUM																															●			●								
DAMPER POSITION															●																					●							
COMMANDED DAMPER POSITION						●																																				
SUPPLY AIR TEMPERATURE TO SPACE													●												●		●															
HOT WATER CONTROL VALVE				●																													●								
HOT WATER CONTROL VALVE POSITION																																						●				●
COMMANDED HOT WATER CONTROL VALVE POSITION						●																																				
VAV BOX CALIBRATION																													●													

CONTROLS CONTRACTOR SHALL PROVIDE OPTION TO CALIBRATE ALL REHEAT BOXES ASSOCIATED WITH OR'S, ISOLATION ROOMS, ICU PATIENT ROOMS, RECOVERY ROOMS, NURSERIES AND CATH LAB WITHOUT CLOSING BOX DAMPERS.\

ALL REHEAT BOXES TO BE CONTROLLED AS INDICATED ABOVE.
CONTRACTOR TO VERIFY NUMBER OF BOXES BEING PROVIDED ON PROJECT

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
Part of Bodwé Group
259 E Michigan Ave, Suite 407
Kalamazoo, MI 49007
www.SteelheadMEP.com

CONSULTANT

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:

ES ARCHITECT / ENGINEER DATE

APPROVED:

ES PROJECT MANAGER DATE

ES BRANCH CHIEF DATE

CONCURRENCE

AGENCY REPRESENTATIVE DATE

TITLE

REV	DATE	DESCRIPTION
A1	07/29/2026	ADDENDUM #1

ISSUE DATE: JULY 29, 2026

CONTRACT NO:

PROJECT NO: 241532

CAD DWG FILE: M800.2.dwg

DRAWN BY: Author

CHECKED BY: Checker

SHEET TITLE:

HVAC CONTROLS

M800.2

TYPICAL SEQUENCE OF OPERATION

VARIABLE VOLUME AIR HANDLER UNIT
ECONOMIZER WITH PREHEAT COIL
(ALL SETPONTS SHALL BE ADJUSTABLE)

1. SUPPLY AIR AND RETURN AIR FAN

A. SUPPLY AIR AND RETURN AIR FANS SHALL BE ENERGIZED/DE-ENERGIZED FROM THE CONTROL INTERFACE PANEL (CIP) IN HAND POSITION OR THE DDC SYSTEM WHEN IN AUTO MODE. THE DDC CONTROL SYSTEM SHALL SENSE WHEN THE FAN IS IN HAND POSITION BY THE FAN STATUS VERIFICATION AND INITIATE THE AHU CONTROL SEQUENCE.

B. IN AUTO MODE THE OUTSIDE AIR DAMPER SHALL OPEN. ONCE THE DAMPER IS OPEN, THE SUPPLY FAN SHALL START, AND THE DDC SYSTEM SHALL SIGNAL THE ASSOCIATED RETURN AND EXHAUST FANS AND DAMPERS TO START. DDC SHALL UTILIZE A 15 SECOND TIME DELAY TO ALLOW SMOKE DAMPER OPENING PRIOR TO START OF FAN. IF THE FAN IS STARTED IN HAND THE TWO POSITION MINIMUM OUTSIDE AIR DAMPER SHALL OPEN IMMEDIATELY UPON SENSING THE FAN STATUS AS ON.

C. FANS SHALL SHUT DOWN FROM A SIGNAL FROM:

1) THE FIRE ALARM PANEL THRU THE F/A RELAY
2) THE SUPPLY AIR SMOKE DETECTOR(S) (SD-SA)
3) THE RETURN AIR SMOKE DETECTOR(S) (SD-RA)
4) FREEZESTAT (TS-FRZ)
5) THE HIGH/LOW LIMIT STATIC PRESSURE SWITCHES (SPS-SHI & RLO)
6) PREHEAT LOW LIMIT

D. WHEN THE SUPPLY FAN SHUTS DOWN THE FOLLOWING SHALL OCCUR:

1) THE ECONOMIZER OUTSIDE AIR DAMPER (D-EOA) SHALL CLOSE
2) THE RELIEF DAMPER (D-REL) SHALL CLOSE
3) THE RETURN DAMPER (D-RET) SHALL OPEN
4) THE CHILLED WATER VALVE (V-CHW) SHALL CLOSE
5) THE RETURN FAN AND THE ASSOCIATED EXHAUST FANS SHALL SHUTDOWN
6) THE PREHEAT COIL (V-HTG) SHALL REMAIN UNDER CONTROL OF THE PREHEAT DISCHARGE AIR TEMPERATURE SENSOR
7) ASSOCIATED SMOKE DAMPERS SHALL CLOSE

2. SUPPLY FAN SPEED CONTROL

A. THE SUPPLY FANS CONTROL INTERFACE PANEL (CIP) SHALL BE CONTROLLED BY A DUCT MOUNTED DIFFERENTIAL STATIC PRESSURE TRANSMITTER (SPT-SA) MODULATING THE EC MOTORS TO MAINTAIN A SUPPLY DUCT STATIC PRESSURE AT THE LOWEST SETPOINT POSSIBLE AS DETERMINED BY THE TAB CONTRACTOR. FOR MULTIPLE STATIC PRESSURE TRANSMITTERS, THE DDC SYSTEM SHALL PROVIDE A SEPARATE SET POINT FOR EACH STATIC PRESSURE TRANSMITTER, AND SELECT THE STATIC PRESSURE TRANSMITTER THAT IS FARTHEST BELOW ITS SET POINT TO CONTROL THE SPEED OF THE VFD. THE VFD SHALL OUTPUT THE % FULL SPEED TO THE DDC SYSTEM THROUGH THE NETWORK INTERFACE.

B. ON A FALL IN DIFFERENTIAL PRESSURE SENSED BY SPT-SA, THE DDC SYSTEM SHALL SPEED UP THE SUPPLY FAN EC MOTORS TO MAINTAIN SPT-SA AT SET POINT. ON A RISE IN DIFFERENTIAL PRESSURE SENSED BY SPT-SA, THE DDC SYSTEM SHALL SLOW DOWN THE SUPPLY FAN EC MOTORS TO MAINTAIN SPT-SA AT SETPOINT. SPT-SA SHALL ALARM THE DDC SYSTEM IF ITS MEASURED PRESSURE IS EITHER 50% HIGHER OR 50% LOWER THAN SET POINT.

C. SPS-SHI SHALL SHUTDOWN THE FANS WHENEVER IT SENSES A HIGH STATIC PRESSURE, ALARM THE DDC SYSTEM, AND REQUIRE A LOCAL MANUAL RESET TO RESTART THE FAN. SPS-RLO SHALL SHUTDOWN THE FANS WHENEVER IT SENSES A LOW STATIC PRESSURE AND ALARM THE DDC SYSTEM AND REQUIRE A LOCAL MANUAL RESET TO RESTART THE FAN.

3. VOLUMETRIC TRACKING

A. THE RETURN AIR FAN CIP SHALL BE CONTROLLED FROM AN OUTSIDE AIR QUANTITY SOFTWARE SETPOINT (SCHEDULED OUTSIDE AIR QUANTITY, ADJUSTABLE) USING AIRFLOW MEASURING DEVICES AND TRANSMITTERS AM-SA AND AM-RA INSTALLED AT THE INLET OF THE SUPPLY AND RETURN FANS. AM-SA SHALL MEASURE THE TOTAL AIRFLOW OF THE SUPPLY FAN AND AM-RA SHALL MEASURE THE TOTAL AIRFLOW OF THE RETURN FAN. THE AIRFLOW MEASURING TRANSMITTERS SHALL OUTPUT THE TOTAL CFM READING TO THE DDC SYSTEM. THE DDC SYSTEM SHALL CALCULATE THE DIFFERENCE OF THE TOTAL SUPPLY AIR AND THE TOTAL RETURN AIR TO MAKE AN OUTSIDE AIR QUANTITY SOFTWARE POINT. THE DDC SYSTEM SHALL MODULATE THE SPEED OF THE RETURN AIR FAN VFD TO MAINTAIN THE CALCULATED OUTSIDE AIR QUANTITY WITHIN 2% OF THE OUTSIDE AIR QUANTITY SET POINT.

4. FULL COOLING MODE

A. THE COOLING COIL CONTROL VALVE, V-CHW, SHALL BE CONTROLLED BY A CONTROL LOOP WITH THE DISCHARGE TEMP. TRANSMITTER, TT-DAT, AS THE INPUT, AND A SETPOINT EQUAL TO THE DISCHARGE AIR SET POINT OF (50 DEGREES F, ADJ.). ON A RISE IN TEMP. ABOVE TT-DAT SET POINT, THE VALVE SHALL MODULATE OPEN. ON A FALL IN TEMP. BELOW TT-DAT SETPOINT, THE VALVE SHALL MODULATE CLOSED. TT-DAT SHALL ALARM THE DDC SYSTEM WHENEVER THE DISCHARGE TEMP. IS TOO HIGH OR LOW (+/- 2 DEGREES F, ADJ.). THE COOLING COIL CONTROL LOOP SHALL CONTROL THE LEAVING AIR TEMP. WITHIN +/- 0.5 DEGREES F.

5. ECONOMIZER MODE:

A. THERE SHALL BE AN ADJUSTABLE OUTSIDE AIR ECONOMIZER ENABLE TEMP. (55 DEGREES F) AND AN ADJUSTABLE DEAD BAND (+/-2 DEGREES F). THE UNIT SHALL TRANSITION TO THE ECONOMIZER MODE WHENEVER THE OUTSIDE AIR TEMP. IS BELOW THE ECONOMIZER ENABLE TEMP. LESS THE DEAD BAND (55 DEG. F - 2 DEG. F = 53 DEG. F) FOR AN ADJUSTABLE TRANSITION TIME (5 MINUTES).

B. IN THE ECONOMIZER MODE, THE COOLING COIL VALVE SHALL REMAIN CLOSED AND THE ECONOMIZER AIR DAMPER (D-EOA), RELIEF AIR DAMPER (D-REL), AND THE RETURN AIR DAMPER (D-RET) SHALL MODULATE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT THE DISCHARGE AIR TEMPERATURE SETPOINT.

C. THE DISCHARGE AIR TEMPERATURE CONTROL LOOP SHALL HAVE THE UNIT DISCHARGE AIR TEMP. TRANSMITTER (TT-DAT) AS THE INPUT AND A SETPOINT EQUAL TO THE COOLING COIL SET POINT (50 DEGREES F). ON A RISE IN DISCHARGE AIR TEMP. THE ECONOMIZER OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL MODULATE OPEN AND THE RETURN AIR DAMPER SHALL MODULATE CLOSED. ON A FALL IN DISCHARGE AIR TEMP. THE ECONOMIZER OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER SHALL MODULATE CLOSED AND THE RETURN AIR DAMPER SHALL MODULATE OPEN. DAMPERS SHALL MAINTAIN DAT TO WITHIN +/- 0.5 DEGREES F OF SETPOINT.

D. THE UNIT SHALL TRANSITION FROM ECONOMIZER MODE TO FULL COOLING MODE WHENEVER THE ENTHALPY OF THE OUTSIDE AIR IS GREATER THAN THAT OF THE RETURN AIR FOR AN ADJUSTABLE TRANSITION TIME (5 MINUTES).

6. STATE 2 – ECONOMIZER MODE WITH COOLING COIL:

A. WHEN THE UNIT IS IN ECONOMIZER MODE AND THE ECONOMIZER DAMPER CONTROL LOOP HAS AN OUTPUT OF 100% OPEN FOR AN ADJUSTABLE TIME OF 10 MINUTES, THE ECONOMIZER MODE WITH COOLING COIL SHALL BE ENABLED.

B. DURING THIS MODE THE ECONOMIZER OUTSIDE AIR DAMPERS SHALL BE FULLY OPEN. THE COOLING COIL CONTROL VALVE, V-CHW, SHALL BE ENABLED AND CONTROLLED BY A CONTROL LOOP WITH THE DISCHARGE TEMP. TRANSMITTER, TT-DAT, AS THE INPUT, AND A SETPOINT EQUAL TO THE DISCHARGE AIR SETPOINT OF (50 DEGREES F, ADJ).

C. THE UNIT SHALL DISABLE THE ECONOMIZER MODE WITH COOLING COIL WHENEVER THE COOLING COIL CONTROL LOOP HAS A COOLING VALUE OUTPUT OF 0% OPEN FOR AN ADJUSTABLE TIME OF 5 MINUTES.

7. PREHEAT COIL MODE:

A. THE UNIT SHALL TRANSITION FROM THE ECONOMIZER MODE TO THE PREHEAT COIL MODE WHENEVER THE ECONOMIZER DAMPER CONTROL LOOP HAS AN OUTPUT OF 0% OPEN FOR AN ADJUSTABLE TIME OF 5 MINUTES.

B. DURING THE PREHEAT COIL MODE, COOLING COIL VALVE SHALL BE LOCKED OUT, THE ECONOMIZER AND RELIEF DAMPER SHALL BE FULLY CLOSED, AND THE PREHEAT HOT WATER VALVE, V-HTG, SHALL BE ENABLED AND SHALL BE CONTROLLED BY A CONTROL LOOP WITH THE DISCHARGE TEMP. TRANSMITTER, TT-DAT, AS THE INPUT, AND A SETPOINT EQUAL TO THE DISCHARGE AIR SETPOINT OF (50 DEGREES F, ADJ).

C. THE UNIT SHALL TRANSITION FROM THE PREHEAT COIL MODE TO THE ECONOMIZER MODE WHENEVER THE PREHEAT COIL CONTROL LOOP HAS AN OUTPUT OF 0% OPEN FOR AN ADJUSTABLE TIME OF 5 MINUTES.

8. PREHEAT COIL LOW LIMIT CONTROL MODE:

A. THE PREHEAT COIL LOW LIMIT CONTROL MODE SHALL BE OPERATIVE AT ALL TIMES, INCLUDING WHEN THE UNIT IS DE-ENERGIZED, AND SHALL BE CONTROLLED TO MAINTAIN A MINIMUM PREHEAT COIL DISCHARGE AIR TEMPERATURE. THE PREHEAT LOW LIMIT CONTROL LOOP SHALL HAVE THE PREHEAT COIL LEAVING AIR TEMPERATURE TRANSMITTER (TT-PHT) AS THE INPUT AND THE SETPOINT SHALL BE 42 DEGREES F (ADJUSTABLE). THE PREHEAT LOW LIMIT CONTROL MODE SHALL AUTOMATICALLY ENABLE THE PREHEAT COIL HOT WATER VALVE, V-HTG, AND MODULATE THE VALVE TO MAINTAIN THE SETPOINT WHENEVER THE PREHEAT COIL LEAVING AIR TEMPERATURE IS SENSED BELOW THE SETPOINT. THE BAS SHALL ISSUE A 'PREHEAT COIL LOW LIMIT ALARM' IS THE PRHEAT COIL LEAVING AIR TEMPERATURE FALLS BELOW THE SETPOINT BY – 1 DEGREE F. THE ALARM SHALL AUTOMATICALLY RESET WHEN THE PREHEAT COIL LEAVING AIR TEMPERATURE RISES +1 DEGREE F ABOVE THE SETPOINT.

B. IF THE PREHEAT COIL LEAVING AIR TEMPERATURE FALLS TO 38 DEGREES F (ADJUSTABLE), THE BAS SHALL SHUT DOWN SUPPLY FAN, AND ASSOCIATED AIR HANDLER UNIT COMPONENTS. A 'PREHEAT TEMPERATURE SHUTDOWN ALARM' SHALL BE GENERATED AT THE BAS FRONT END. A SOFTWARE RESET SHALL BE REQUIRED TO RESTART THE AIR HANDLER.

9. PREHEAT COIL CIRCULATING PUMP

A. THE PRHEAT COIL CIRCULATING PUMP SHALL BE ENERGIZED WHENEVER THE OUTSIDE AIR TEMPERATURE FALLS BE 35 DEGREES F (AJUSTABLE) WITHOUT REGARD TO WHETHER THE AHU SUPPLY FAN IS ENABLED. THE PUMP SHALL BE DE-ENERGIZED WHENEVER THE OUTSIDE AIR TEMPERATURE IS ABOVE 42 DEGREES F (ADJUSTABLE). A DIFFERENTIAL PRESSURE SWITCH ACROSS THE CIRCULATING PUMP, PHP-STS, SHALL BE EMPLOYED TO SENSE THE PRESENCE OF FLOW THROUGH THE PREHEAT COIL. IF THE LOSS OF FLOW IS SENSED AND THE OUTSIDE AIR TEMPERATURE IS BELOW 40 DEGREES F (ADJUSTABLE), THE PREHEAT HOT WATER CONTROL VAVLE SHALL BE FULLY OPENED AND THE BAS SHALL GENERATE A 'PREHEAT COIL CIRCLATING PUMP ALARM' AT THE BAS FRONT END.

10. FREEZESTAT

A. WHENEVER FREEZESTAT, TS-FZ, SENSES A TEMP. BELOW 36 DEGREES F (ADJ.), IT SHALL PERFORM THE FOLLOWING:

1) THE SUPPLY FAN SHALL SHUTDOWN
2) THE RETURN FAN AND THE ASSOCIATED EXHAUST FANS SHALL SHUTDOWN
3) THE ECONOMIZER OUTSIDE AIR DAMPER (D-EOA) SHALL CLOSE
4) THE RELIEF DAMPER (D-REL) SHALL CLOSE
5) THE RETURN DAMPER (D-RET) SHALL OPEN
6) FULLY OPEN THE CHILLED WATER VALVE (V-CHW)
7) OPEN THE LEAD CHILLER CHILLED WATER ISOLATION VALVE, IF APPLICABLE
8) COMMAND "ON" THE VARIABLE PRIMARY OR SECONDARY CHILLED WATER PUMP AND CONTROL SPEED TO MAINTAIN THE DIFFERENTIAL PRESSURE SET POINT
9) THE PREHEAT COIL (V-HTG) SHALL REMAIN UNDER CONTROL OF THE PREHEAT DISCHARGE AIR TEMPERATURE SENSOR
10) ISSUE A UNIQUE ALARM

B. A MANUAL RESET AT THE AHU SHALL BE REQUIRED TO RESTART AN AHU THAT HAS AUTOMATICALLY SHUT DOWN FROM A FREEZE STAT TRIP.

11. FILTERS

A. ALL FILTERS SHALL HAVE A DIFFERENTIAL PRESSURE SWITCH (DPS-FF & DPS-PF) MEASURING THE PRESSURE DROP ACROSS THE FILTER BANKS. EACH SHALL ALARM THE DDC SYSTEM WHENEVER THE PRESSURE DROP ACROSS THE FILTER IS EXCESSIVE (DIRTY FILTER) (ADJ.).

12. HUMIDIFIER

A. THE HUMIDIFIER CONTROLS SHALL BE ACTIVE ANY TIME THE SUPPLY FAN IS RUNNING.

B. AS THE SPACE HUMIDITY RISES TO ITS ADJUSTABLE SET POINT 40% RH (ADJ), AS DETERMINED BY THE HUMIDITY SENSOR IN RETURN DUCTWORK. THE HUMIDIFIER VALVE, V-HUM, SHALL MODULATE CLOSED. AS THE SPACE HUMIDITY DECREASES BELOW ITS SET POINT AS SENSED BY THE RETURN DUCTWORK SENSOR, THE HUMIDIFIER VALVE, V-HUM, SHALL MODULATE OPEN.

C. WHENEVER THE DISCHARGE AIR HUMIDITY IS ABOVE THE CONTROLLING LIMIT SET POINT (70% ADJ.) AS SENSED BY THE HUMIDISTAT, HT-SAH, THE HUMIDIFIER VALVE SHALL BE MODULATED CLOSED TO MAINTAIN THE CONTROLLING LIMIT SET POINT.

D. WHENEVER THE DISCHARGE AIR HUMIDITY IS ABOVE THE HIGH LIMIT SET POINT, 90% ADJUSTABLE, AS SENSED BY THE HT-SHL, THE DDC SYSTEM SHALL DISABLE THE HUMIDIFIER, CLOSE THE STEAM VALVE, AND AN ALARM SHALL BE SENT TO THE OPERATOR WHICH MUST BE ACKNOWLEDGED AND RESET IN ORDER TO RE-ENABLE THE HUMIDIFIER.

13. FIRE ALARM SEQUENCE

A. WHENEVER THE FIRE ALARM SYSTEM SENSES SMOKE/FIRE IN THE ASSOCIATED SMOKE ZONE SERVED BY THE AIR HANDLER, THE FIRE ALARM SYSTEM SHALL DIRECTLY SIGNAL THE AIR HANDLER SUPPLY FAN, THROUGH THE FAN VFD, TO DISABLE THE SUPPLY FAN. THE DDC SYSTEM SHALL THEN SENSE THE FAN BEING DISABLED THROUGH THE VFD AND PERFORM THE FOLLOWING:

1) THE RETURN FAN
2) THE ASSOCIATED EXHAUST FANS SHALL SHUTDOWN
3) THE MINIMUM OUTSIDE AIR DAMPER (D-MIN) SHALL CLOSE
4) THE ECONOMIZER OUTSIDE AIR DAMPER (D-EOA) SHALL CLOSE
5) THE RELIEF DAMPER (D-REL) SHALL CLOSE
6) THE RETURN DAMPER (D-RET) SHALL OPEN
7) FULLY OPEN THE CHILLED WATER VALVE (V-CHW)
8) THE PREHEAT COIL (V-HTG) SHALL REMAIN UNDER CONTROL OF THE PREHEAT DISCHARGE AIR TEMPERATURE SENSOR

INPUT/OUTPUT SUMMARY

AIR HANDLING UNITS

TYPICAL AHU

	TAG	INPUTS: ANALOG: MEASURED: TEMP.	PRESSURE	HUMIDITY (RH)	AIR FLOW	AIR QUALITY	KW	DDC GATEWAY	VALVE POSITION	INPUTS: ANALOG: CALC.: KWH	ENTHALPY	RUN TIME	EFFICIENCY	AIR FLOW (CFM)	INPUTS: DIGITAL: STATUS (DIFF. PRESS.)	STATUS (CURRENT SWITCH)	SMOKE	LOW TEMP.	AIR FLOW	END SWITCH	FIRE ALARM	PRESSURE	OUTPUTS: DIGITAL: ON-OFF	OFF-AUTO-ON	OFF-HIGH-LOW	OPEN-CLOSE	OUTPUTS: ANALOG: DAMPER POSI.	VALVE POSI.	SET POINT ADJ.	4-20 mA	SYSTEM FEATURES: ALARMS: HI ANALOG	LOW ANALOG	HI BINARY	LOW BINARY	PROOF	MANUAL RESET	AUTO RESET	SYSTEM FEATURES: PROGRAMS: TIME SCHEDULING	DEMAND LIMITING	START/STOP OPTIM.	ENTHALPY OPTIM.	SMOKE CONTROL	TREND	ALARM INSTRUCTION	GENERAL
O.A. TEMP.	TT-OAT	●																																										
LOW STATIC	SPS-RLO																																●	●		●						●	●	
RETURN HUMIDITY	HT-RAH			●																																						●		
RETURN AIR TEMP.	TT-RAT	●																																									●		
RETURN FAN EC CONTROLLER	EC-RAF							●																●						●												●	●	
RETURN FAN STATUS	STS-RAF															●																				●						●	●	
RETURN AIR FLOW	AM-RA				●			●																																		●		
RELIEF DAMPER	D-REL																			●										●					●	●						●	●	
RETURN DAMPER	D-RET																			●										●					●	●						●	●	
ECONOMIZER DAMPER	D-EOA																			●										●					●	●						●	●	
PRE-FILTER STATUS	DPS-PF														●																			●		●					●	●	
MIXED AIR TEMP.	TT-MAT	●																																		●					●	●	
PREHEAT DSICHARGE AIR TEMP.	TT-PHT	●																																		●					●	●	
RELIEF AIR FLOW	AM-REL				●			●																																		●		
CHW VALVE	V-CHW						●																	●						●					●	●						●	●	
PREHEAT HW VALVE	V-PHT						●																	●						●					●	●						●	●	
PREHEAT CIRC. PUMP START/STOP	SS-PHP																								●																	●		
PREHEAT CIRC. PUMP STATUS	STS-PHP															●																				●						●	●	
PREHEAT CIRC. PUMP FLOW	DPS-PHP														●																			●								●		
FREEZESTAT	TS-FZ																							◐												●		●				●	●	
SUPPLY FAN EC CONTROLLER	EC-SAF							●																●						●					●	●						●	●	
SUPPLY FAN STATUS	STS-SAF															●																				●						●	●	
SUPPLY AIR FLOW	AM-SA				●			●																																		●		
O.A. FLOW	---													●																												●		
FINAL FILTER STATUS	DPS-FF														●																					●						●	●	
HI STATIC	SPS-SHI																					●														●						●	●	
DISCHARGE TEMP.	TT-DAT	●																																	●	●						●	●	
SUPPLY STATIC	SPT-SA		●																																							●		
RETURN SMOKE DETECTOR	SD-RA																					●																●					●	●	
SUPPLY SMOKE DETECTOR	SD-SA																					●																●					●	●	
FIRE ALARM	---																					●																●					●	●	
SMOKE DAMPER (TYP.)	D-SM																								●																		●		
VAV BOX (TYP.)	---	●			●			●																																			●		
EXHAUST FAN START/STOP (TYP.)	SS-EF																									●																	●		
EXHAUST FAN STATUS (TYP.)	STS-EF															●																				●						●	●	
ISOLATION DPA	DPA		●					●																												●						●	●	
SUPPLY AIR HUMIDITY	HT-SAH			●																																						●		
SUPPLY AIR HUMIDITY HIGH LIMIT	HT-SHL			●																																●						●	●	

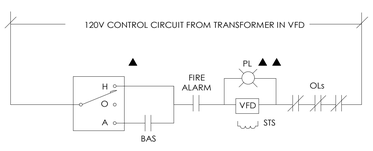
SYMBOL LEGEND

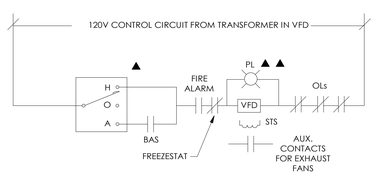
▲ LOCATE AT VFD COVER
▲▲ LOCATE IN LOCAL CONTROL PANEL

AI --- ANALOG INPUT
AO --- ANALOG OUTPUT
DI --- DIGITAL INPUT
DO --- DIGITAL OUTPUT
N.C. --- NORMALLY CLOSED
N.O. --- NORMALLY OPEN
MOD. --- MODULATING DEVICE
2-POS --- TWO POSITION DEVICE

DEVICE/SENSOR LEGEND

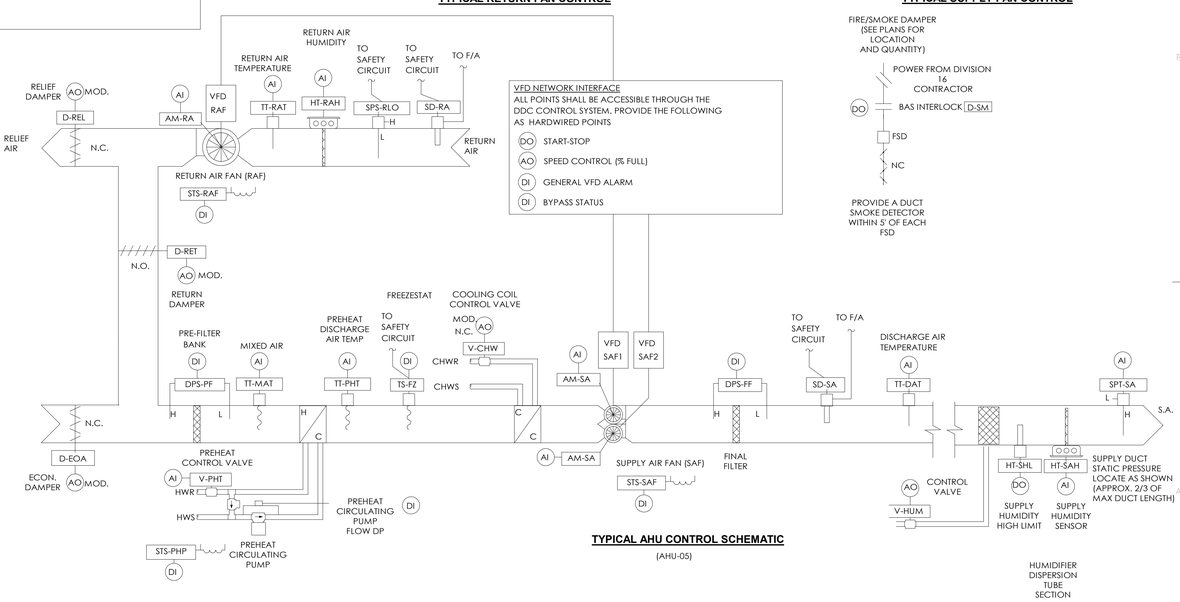
AM --- AIRFLOW MEASURMENT STATION
D --- DAMPER CONTROL
DPS --- DIFFERENTIAL PRESSURE SWITCH
HT --- HUMIDITY TRANSMITTER
SD --- SMOKE DETECTOR
SPS --- STATIC PRESSURE SWITCH
SPT --- STATIC PRESSURE TRANSMITTER
SS --- START/STOP COMMAAND
STS --- STATUS (CURRENT SENSOR)
TS --- TEMPERATURE SENSOR
TT --- TEMPERATURE TRANSMITTER





TYPICAL RETURN FAN CONTROL

TYPICAL SUPPLY FAN CONTROL



TYPICAL AHU CONTROL SCHEMATIC

(AHU-05)

BID PACKAGE 2
ISSUED FOR BIDS

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER DATE
APPROVED:
ES PROJECT MANAGER DATE
ES BRANCH CHIEF DATE
CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: M801.2.dwg
DRAWN BY: Author
CHECKED BY: Checker

SHEET TITLE:
HVAC CONTROLS

M801.2

ELECTRICAL ABBREVIATIONS LIST

1P	1 POLE (2P, 3P, 4P, ETC.)	GA	GAUGE	PRI	PRIMARY
A	AMPERE	GAL	GALLON	PROJ	PROJECTION
AC	ABOVE COUNTER, FIELD VERIFY THE DIMENSION	GALV	GALVANIZED	PRV	POWER ROOF VENTILATOR
		GC	GENERAL CONTRACTOR	PT	POTENTIAL TRANSFORMER
ACLG	ABOVE CEILING	GEN	GENERATOR	PVC	POLYVINYL CHLORIDE (CONDUIT)
ADO	AUTOMATIC DOOR OPENER	GFI	GROUND FAULT CIRCUIT INTERRUPTER	PWR	POWER
AF	AMP FRAME			QUAN	QUANTITY
AFF	ABOVE FINISHED FLOOR	GFP	GROUND FAULT PROTECTOR	RCPT	RECEPTACLE
AFG	ABOVE FINISHED GRADE	GND	GROUND	REQD	REQUIRED
AFI	ARC FAULT CIRCUIT INTERRUPTER	GRS	GALVANIZED RIGID STEEL (CONDUIT)	RM	ROOM
				RSC	RIGID STEEL CONDUIT
AHU	AIR HANDLING UNIT	GYP BD	GYPSUM BOARD	RTU	ROOF TOP UNIT
AL	ALUMINUM	HOA	HANDS-OFF-AUTOMATIC SWITCH	SC	SURFACE CONDUIT
ALT	ALTERNATE	HORIZ	HORIZONTAL	SEC	SECONDARY
AMP	AMPERE	HP	HORSEPOWER	SHT	SHEET
AMPL	AMPLIFIER	HPF	HIGH POWER FACTOR	SIM	SIMILAR
ANNUN	ANNUNCIATOR	HT	HEIGHT	S/N	SOLID NEUTRAL
APPROX	APPROXIMATELY	HTG	HEATING	SPEC	SPECIFICATION
AQ-STAT	AQUASTAT	HTR	HEATER	SPKR	SPEAKER
ARCH	ARCHITECT, ARCHITECTURAL	HV	HIGH VOLTAGE	SP	SPARE
AS	AMP SWITCH	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	SR	SURFACE RACEWAY
AT	AMP TRIP			SS	STAINLESS STEEL
ATS	AUTOMATIC TRANSFER SWITCH	G	ISOLATED GROUND	SSW	SELECTOR SWITCH
AUTO	AUTOMATIC	IMC	INTERMEDIATE METAL CONDUIT	S/S	STOP/START PUSHBUTTONS
AUX	AUXILIARY	INCAND	INCANDESCENT	STA	STATION
AV	AUDIO VISUAL	IR	INFRARED	STD	STANDARD
AWG	AMERICAN WIRE GAUGE	IW	INTERLOCK WITH	SURF	SURFACE MOUNTED
BATT	BATTERY	J-BOX	JUNCTION BOX	SW	SWITCH
BD	BOARD	KV	KILOVOLT	SWBD	SWITCHBOARD
BLDG	BUILDING	KVA	KILOVOLT-AMPERE	SYM	SYMMETRICAL
BMS	BUILDING MANAGEMENT SYSTEM	KVAR	KILOVOLT-AMPERE REACTIVE	SYS	SYSTEM
BKR	CIRCUIT BREAKER	KW	KILOWATT	TEL	TELEPHONE
C	CONDUIT	KWH	KILOWATT HOUR	TEL/DAT	TELEPHONE/DATA
CAB	CABINET	LOC	LOCATE OR LOCATION	TERM	TERMINAL
CAT	CATALOG	LT	LIGHT	TL	TWIST LOCK
CATV	CABLE TELEVISION	LTG	LIGHTING	TP	TAMPER-PROOF
CB	CIRCUIT BREAKER	LTNG	LIGHTNING	TR	TAMPER RESISTANT
CCTV	CLOSED CIRCUIT TELEVISION	LV	LOW VOLTAGE	T-STAT	THERMOSTAT
CKT	CIRCUIT	MAX	MAXIMUM	TTC	TELEPHONE TERMINAL CABINET
CLG	CEILING	MAG.S	MAGNETIC STARTER		
COMB	COMBINATION	M/C	MOMENTARY CONTACT	TV	TELEVISION
CMPR	COMPRESSOR	MC	MECHANICAL CONTRACTOR	TVTC	TELEVISION TERMINAL CABINET
CONN	CONNECTION	MCB	MAIN CIRCUIT BREAKER		
CONST	CONSTRUCTION	MCC	MOTOR CONTROL CENTER		
CONT	CONTINUATION OR CONTINUOUS	MDC	MAIN DISTRIBUTION CENTER	TYP	TYPICAL
		MDP	MAIN DISTRIBUTION PANEL	UC	UNDER COUNTER
CONTR	CONTRACTOR	MFR	MANUFACTURER	UE	UNDERGROUND ELECTRICAL
CONV	CONVECTOR	MFS	MAIN FUSED DISCONNECT SW	UG	UNDERGROUND
CP	CIRCULATING PUMP			UH	UNIT HEATER
CRT	CATHODE-RAY TUBE	MH	MANHOLE	UT	UNDERGROUND TELEPHONE
CT	CURRENT TRANSFORMER	MIC	MICROPHONE	UTIL	UTILITY
CTR	CENTER	MIN	MINIMUM	UV	ULTRAVIOLET
CU	COPPER	MISC	MISCELLANEOUS	V	VOLT
DCP	DOMESTIC WATER CIRCULATING PUMP	MLO	MAIN LUGS ONLY	VA	VOLT-AMPERES
		MMS	MANUAL MOTOR STARTER	VDT	VIDEO DISPLAY TERMINAL
DEPT	DEPARTMENT	MOA	MULTIOUTLET ASSEMBLY	VERT	VERTICAL
DET	DETAIL	MSP	MOTOR STARTER PANELBOARD	VFD	VARIABLE FREQUENCY DRIVE
DIA	DIAMETER			VOL	VOLUME
DISC	DISCONNECT	MSBD	MAIN SWITCHBOARD	W	WATT
DIST	DISTRIBUTION	MT	MOUNT	W/	WITH
DN	DOWN	MT.C	EMPTY CONDUIT	WG	WIRE GUARD
DPR	DAMPER	MTS	MANUAL TRANSFER SWITCH	WH	WATER HEATER
DS	SAFETY DISCONNECT SWITCH	MTR	MOTOR, MOTORIZED	W/O	WITHOUT
DT	DOUBLE THROW	N.C.	NORMALLY CLOSED	WP	WEATHERPROOF
DWG	DRAWING	NEC	NATIONAL ELECTRICAL CODE	XFMR	TRANSFORMER
EC	ELECTRICAL CONTRACTOR	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION	XFR	TRANSFER
ELEC	ELECTRIC, ELECTRICAL				
ELEV	ELEVATOR				
ELU	EMERGENCY LIGHTING UNIT	NFDS	NON-FUSED SAFETY DISCONNECT SWITCH	<	ANGLE
EM	EMERGENCY			@	AT
EMS	ENERGY MANAGEMENT SYSTEM	NIC	NOT IN CONTRACT	▲	DELTA
EMT	ELECTRICAL METALLIC TUBING	NL	NIGHT LIGHT	'	FEET
EP	ELECTRIC PNEUMATIC	N.O.	NORMALLY OPEN	"	INCHES
EQUIP	EQUIPMENT	NPF	NORMAL POWER FACTOR	#	NUMBER
EWC	ELECTRIC WATER COOLER	NTS	NOT TO SCALE	Ø	PHASE
EXIST	EXISTING	OH	OVERHEAD	C	CENTER LINE
EXH	EXHAUST	OL	OVERLOADS	P	PLATE
EXP	EXPLOSION PROOF	PA	PUBLIC ADDRESS		
FA	FIRE ALARM	PB	PULL BOX OR PUSHBUTTON		
FABP	FIRE ALARM BOOSTER POWER SUPPLY PANEL	PE	PNEUMATIC ELECTRIC		
		PED	PEDESTAL		
FACP	FIRE ALARM CONTROL PANEL	PF	POWER FACTOR		
FCU	FAN COIL UNIT	PH	PHASE		
FIXT	FIXTURE	PIV	POST INDICATING VALVE		
FLR	FLOOR	PNL	PANEL		
FLUOR	FLUORESCENT	PP	POWER POLE		
FU	FUSE	PR	PAIR		
FUDS	FUSED SAFETY DISCONNECT SWITCH				

* NOTE *
ALL GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

ELECTRICAL SYMBOL LEGEND

SYMBOL — DESCRIPTION

- LIGHTING FIXTURES, TYPICAL. RECTANGULAR FILLED CIRCLES INDICATE RECESSED, OPEN CIRCLES INDICATE SURFACE. DIAGONAL LINE INDICATES LENSED. OUTER DOTS INDICATE SUSPENDED
- LIGHTING FIXTURES, TYPICAL, ROUND CENTER DOT INDICATES PENDANT. DIAGONAL LINE INDICATES LENSED. CHEVRON INDICATES WALL WASH
- WALL-MOUNTED FIXTURES, TYPICAL
- STRIP FIXTURE
- DIRECTIONAL LIGHT, TRACK, FLOOD
- LINEAR LIGHT, TAPE LIGHT
- EMERGENCY LIGHTING UNIT, CEILING-MOUNTED, INTEGRAL BATTERY
- EMERGENCY LIGHTING UNIT, CEILING-MOUNTED, REMOTE BATTERY
- EMERGENCY LIGHTING UNIT, WALL-MOUNTED, INTEGRAL BATTERY
- EMERGENCY LIGHTING UNIT, WALL-MOUNTED, REMOTE BATTERY
- EXIT LIGHT, CEILING-MOUNTED, SHADING AND ARROWS INDICATE FACES AND DIRECTION
- EXIT LIGHT, WALL-MOUNTED, SHADING AND ARROWS INDICATE FACES AND DIRECTION
- EXIT/ELU COMBO
- POLE/AREA LIGHTS
- POST-TOP AREA LIGHT
- BOLLARD LIGHT
- DIAGONAL HATCH INDICATES LIGHT ON A CRITICAL CIRCUIT
- SOLID HATCH INDICATES LIGHT ON AN EMERGENCY OR LIFE SAFETY CIRCUIT
- SINGLE POLE SWITCH
- 3-WAY SWITCH
- 4-WAY SWITCH
- KEYED SWITCH
- SWITCH W/PILOT
- DIMMER SWITCH
- OCCUPANCY SENSOR
- TIMER SWITCH
- TIME DELAY SWITCH
- ELECTRONIC TIMER
- FIRE ALARM PULL STATION
- FIRE ALARM BELL
- FIRE ALARM HORN W/STROBE
- FIRE ALARM SPEAKER W/STROBE
- FIRE ALARM BELL W/STROBE
- FIRE ALARM CHIME W/STROBE
- FIRE ALARM STROBE
- FIRE ALARM DOOR HOLDER
- FIRE ALARM DOOR CLOSER
- FIRE ALARM SHUT DOWN RELAY
- SPRINKLER FLOW SWITCH
- SPRINKLER VALVE TAMPER SWITCH
- THERMAL DETECTOR
- DUCT SMOKE DETECTOR
- CEILING SMOKE DETECTOR
- CEILING FIRE ALARM STROBE

SYMBOL — DESCRIPTION

- SINGLE RECEPT.
- DUPLEX RECEPTACLE
- GFI DUPLEX RECEPTACLE (FEED THROUGH) (MOUNTING HEIGHT)
- GFI DUPLEX RECEPT. (FEED THROUGH)
- GFI WEATHERPROOF RECEPT.
- SPLIT DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- SINGLE RECEPT. GFI — COORDINATE THE LOCATION WITH THE EQUIPMENT SUPPLIER
- DUPLEX ISOLATED GROUND RECEPT.
- DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT
- TAMPER-PROOF DUPLEX RECEPTACLE
- FLOOR DUPLEX RECEPT.
- CEILING DUPLEX RECEPT.
- FOURPLEX RECEPTACLE
- FOURPLEX RECEPTACLE ON EMERGENCY CIRCUIT
- RECEPTACLE ON CORD REEL
- SPECIAL RECEPTACLE — NEMA CONFIGURATION
- JUNCTION BOX
- FLOOR JUNCTION BOX
- CEILING JUNCTION BOX
- MULTIOUTLET ASSEMBLY — PS - D2
- COMB. MOTOR STARTER (FUSED)
- SAFETY DISC. SWITCH (NON-FUSED)
- SAFETY DISC. SWITCH (FUSED)
- RELAY
- PUSH BUTTON
- THERMOSTAT
- HUMIDISTAT
- POWER POLE (OPEN OFFICE STYLE)
- SURGERY SERVICE COLUMN
- STATIC GROUND RECEPTACLE
- UTILITY SERVICE POWER POLE
- XX-1 MOTOR
- XX-1 → IDENTITY (SEE SCHEDULE)

EXISTING TO REMAIN: XX-1 / XX-1 — RELOCATED: XX-1 / XX-1 — DEMOLISHED: XX-1 / XX-1

- T1 TRANSFORMER
- BUS DUCT W/ PLUG IN DISCONNECT CABLE TAP BOX

SYMBOL — DESCRIPTION

- TELEPHONE OUTLET
- FLOOR TELEPHONE OUTLET
- VOICE/DATA OUTLET — # OF VOICE AND # OF DATA PORTS EXAMPLE 1V2D = 1 VOICE, 2 DATA
- FLOOR DATA OUTLET
- CEILING DATA OUTLET
- MICROPHONE OUTLET
- CATV OUTLET
- TV OUTLET
- VOLUME CONTROL
- DOOR BELL
- DOOR BUZZER
- DOOR CHIME
- DOOR SIGNAL
- AUTO DOOR PUSH PAD
- ELECTRIC STRIKE
- MAGNETIC LOCK
- COMBINATION LOCK
- DOOR CONTACT
- CARD READER
- SECURITY KEYPAD
- MOTION DETECTOR
- NURSE CALL EMERG. STATION
- NURSE CALL CODE BLUE STATION
- NURSE CALL DUTY STATION
- NURSE CALL STAFF STATION
- NURSE CALL PATIENT STATION
- NURSE CALL DOME LIGHT (1-COLOR)
- NURSE CALL DOME LIGHT (2-COLORS)
- NURSE CALL DOME LIGHT (4-COLORS)
- # OF COLORS.

ELECTRICAL SYMBOL NOTES

- S3 / 1d — LIGHTING FIXTURE TAG DESCRIPTORS: TOP VALUE: FIXTURE TYPE ID. BOTTOM VALUE, NUMBER: CIRCUIT NUMBER, REFER TO DRAWINGS FOR PANEL. BOTTOM VALUE, LOWERCASE LETTER: SWITCH DESIGNATION. ABSENCE OF A SWITCH ID INDICATES FIXTURE IS CONTROLLED BY THE ONLY SWITCH IN THE SPACE. "x" IN PLACE OF THE SWITCH ID INDICATES NIGHT LIGHT, UNSWITCHED.
- EXW1 / 1 — EXIT LIGHTS. STEM INDICATES WALL MOUNTING. NO STEM INDICATES CEILING MOUNTING. SHADED AREA INDICATES ILLUMINATED FACE(S). ARROW INDICATES DIRECTIONAL ARROW ON ILLUMINATED FACE(S). THE CIRCUIT DESIGNATION IS INDICATED BY A NUMBER. EXAMPLE: THE WALL MOUNTED EXIT LIGHT TYPE "E1" WITH SINGLE FACE AND DIRECTIONAL ARROW IS CONNECTED TO CIRCUIT 1.
- <unnamed> — DEVICES. THE CIRCUIT DESIGNATION IS INDICATED BY A NUMBER. THE SWITCH DESIGNATION IS INDICATED BY A LOWER CASE LETTER. EXAMPLE: SPLIT DUPLEX RECEPTACLE IS CONNECTED TO CIRCUIT 1 AND ONE RECEPTACLE OUTLET IS CONTROLLED BY SWITCH "d".
- S d — THE CONTROL DEVICE DESIGNATION IS INDICATED BY A LOWER CASE LETTER. EXAMPLE: SINGLE POLE SWITCH "d" TO CONTROL LIGHTING FIXTURES INDICATED BY "d".
- WB e — WALL BOX DIMMER WITH SIZE AS INDICATED AT DEVICE. EXAMPLE: 600 WATT WALL BOX DIMMER TO CONTROL LIGHTING FIXTURES INDICATED BY "e". SEE SPECIFICATIONS FOR WATTAGE IF NOT INDICATED.
- ELEC-1 — SPECIAL CONNECTIONS. THE EQUIPMENT IS INDICATED BY A NUMBER IN A CIRCLE. SEE THE MOTOR AND EQUIPMENT SCHEDULE FOR THE LOAD DESCRIPTION AND TYPE OF CONNECTION. THE CIRCUIT DESIGNATION IS INDICATED BY NUMBER(S) ADJACENT TO THE SYMBOL. EXAMPLE: EQUIPMENT NO. ELEC-1; 1 PHASE CONNECTION TO CIRCUITS 2, 4.
- PANELBOARDS. PANELBOARD DOORS MAY BE SHOWN TO INDICATE OPENING SIDE OF RECESSED PANELBOARDS. SEE PANELBOARD IDENTIFICATION FOR DESIGNATION CODES.
- FLOOR CLEARANCE AREA
- XX-1 — MOTOR CONNECTIONS. THE MOTOR IS INDICATED BY A NUMBER WITHIN OR CHARACTERS ADJACENT TO THE MOTOR SYMBOL. SEE THE MOTOR AND EQUIPMENT SCHEDULE FOR THE MOTOR DESCRIPTION AND ELECTRICAL REQUIREMENTS.
- T1 — TRANSFORMERS. THE TRANSFORMER TYPE IS INDICATED BY A NUMBER FOLLOWING THE UPPER CASE LETTER "T". SEE THE TRANSFORMER SCHEDULE OR THE SINGLE LINE DIAGRAM FOR THE TRANSFORMER DESCRIPTION AND REQUIREMENTS. EXAMPLE: TRANSFORMER TYPE "T1".
- CONDUIT IN CEILING, FLOOR OR WALL AS REQUIRED BY FIELD CONDITIONS
- CONDUIT IN FLOOR
- #12 — CONDUIT SHOWN WITHOUT SLASH MARKS SHALL CONTAIN 1 # 12 CONDUCTOR PER PHASE, NEUTRAL, AND GROUND IN CONDUIT. CONDUIT MINIMUM SIZE PROVIDED IN THE SPECIFICATIONS.
- #10 — CONDUIT SHOWN SHALL CONTAIN 1 # 10 CONDUCTOR PER PHASE IN ELECTRICAL CODE SIZED MINIMUM CONDUIT UNLESS A CONDUCTOR AND CONDUIT SIZE IS SHOWN ADJACENT.
- P4N1-1,3,5 — HOME RUN TO BRANCH CIRCUIT PANELBOARD. THE PANELBOARD DESIGNATION IS SHOWN ADJACENT TO THE HOME RUN ARROW BEFORE THE DASH AND THE CIRCUIT DESIGNATION IS SHOWN AFTER THE DASH. CIRCUIT BREAKER SIZES (AMPS/NUMBER OF POLES) ARE SHOWN IN THE PANELBOARD SCHEDULE WITH THE CORRESPONDING PANELBOARD AND CIRCUIT DESIGNATION. EXAMPLE: HOME RUN TO PANELBOARD P4N1; CIRCUITS 1, 3, 5.

GRAPHICAL REPRESENTATION OF PHASING, TYPICAL FOR ALL SYMBOLS.

- EXISTING TO REMAIN
- EXISTING TO BE REMOVED
- NEW
- DEMOLISHED ITEM
- AREA NOT IN CONTRACT

- REVISION NUMBER - SHOWN ON PLANS
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- 1 — KEYED NOTE (SEE SCHEDULE)
- Room 6 — ROOM NAME AND NUMBER

GENERAL ELECTRICAL REMODEL NOTES

1. DEVICE LOCATIONS INDICATED ON PLANS IS BASED UPON EXISTING PLANS AND SITE OBSERVATION. CONTRACTOR SHALL FIELD VERIFY THE EXISTING CONDITIONS.
2. PROVIDE NECESSARY DEMOLITION TO FACILITATE NEW CONSTRUCTION WORK ASSOCIATED WITH THIS PROJECT. COORDINATE OUTAGES WITH OWNER MINIMUM 72 HOURS IN ADVANCE. THE OWNER RETAINS THE FIRST RIGHT OF REFUSAL FOR SALVAGE OF DEMOLISHED MATERIALS. PROVIDE DISPOSAL OF REMOVED MATERIAL. MAINTAIN CIRCUIT CONTINUITY AS REQUIRED.
3. IT IS THE INTENT OF THESE DIAGRAMMATIC DRAWINGS TO PROVIDE THE PROJECT SCOPE INCLUDING, BUT NOT LIMITED TO PHASED DEMOLITION AND NEW CONSTRUCTION. EXISTING INFORMATION INDICATED ON THESE PLANS DOES NOT REPRESENT ALL EXISTING CONDITIONS. THIS CONTRACTOR SHALL BECOME FAMILIAR WITH EXISTING CONDITIONS, SCOPE OF PHASING, AND PROJECT INTENT PRIOR TO BID SUBMISSION. NO EXTRA WILL BE ALLOWED DUE TO THE LACK OF KNOWLEDGE OF EXISTING CONDITIONS TO COORDINATE RELOCATION OF ELECTRICAL SYSTEMS AS REQUIRED.
4. PROVIDE CUTTING, PATCHING, AND RESTORATION OF FINISHES NECESSARY FOR WORK SURFACES DAMAGED BY THIS WORK AND SPACES AROUND EXISTING CONDUITS PASSING THROUGH FLOORS AND WALLS SHALL BE NEATLY PATCHED AND FINISHED TO MATCH NEW/EXISTING. STRUCTURAL MEMBERS SHALL NOT BE CUT OR PENETRATED IN ANY MANNER. THE SPACES AROUND THE CONDUITS SHALL BE SEALED TO PREVENT ENTRANCE OF MOISTURE. PROVIDE FIRE STOPPING PER UL APPROVED METHODS.
5. REMOVE ABANDONED WIRING COMPLETE. AT CONTRACTORS OPTION, UTILIZE EXISTING ABANDONED RACEWAY TO EXTENT AVAILABLE. ABANDONED RACEWAY SHALL BE REMOVED.
6. COORDINATE WORK IN PHASES WITH GENERAL CONTRACTOR AND OWNER TO FACILITATE DEMOLITION AND NEW CONSTRUCTION.
7. REMOVE ELECTRICAL RELATED EQUIPMENT (I.E JUNCTION BOXES, RECEPTACLES, SWITCHES, DEVICES, ETC...) AFFECTED/ABANDONED AS A RESULT OF DEMOLITION AND NEW CONSTRUCTION.

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INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER — DATE

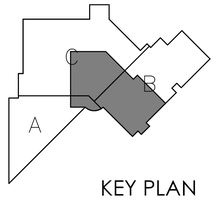
APPROVED:
ES PROJECT MANAGER — DATE
ES BRANCH CHIEF — DATE

CONCURRENCE
AGENCY REPRESENTATIVE — DATE
TITLE

REV	DATE	DESCRIPTION
	05/18/2026	100% CD'S

ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: E001.2.dwg
DRAWN BY:
CHECKED BY: BSC

SHEET TITLE:
ELECTRICAL GENERAL INFO & SYMBOL LEGEND



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

E001.2

GENERAL ELEC REMODEL NOTES

A SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR PHASES OF DEMOLITION AND CONSTRUCTION. COORDINATE WITH GENERAL CONSTRUCTION.

B DISCONNECT AND REMOVE ELECTRICAL DEVICES IN RENOVATION AREAS. BACK BOXES AND BRANCH CIRCUITRY SHALL REMAIN IN EXISTING WALLS, UNLESS NOTED OTHERWISE.

C CONNECT ALL NEW DEVICES IN EXISTING LOCATIONS TO EXISTING CIRCUITRY.

D FURNISH AND INSTALL BLANK COVER PLATES OVER ALL EXISTING UNUSED OPENINGS.

KEYNOTES

1 REMOVE ALL FIXTURES, DEVICES, EQUIPMENT FROM WALLS & CEILINGS BEING DEMOLISHED IN THIS AREA. REMOVE ALL CIRCUITRY INCLUDING CONDUIT, BOXES, AND ASSOCIATED COMPONENTS BACK TO NEAREST ACTIVE JUNCTION BOX OUTSIDE OF AREA INDICATED AND CAP FOR REUSE.

2 DEMOLISHED HVAC EQUIPMENT AND ASSOCIATED CIRCUITRY.

3 EXISTING PANEL AND FEEDERS TO REMAIN.

4 DEMOLISH EXISTING RECEPTACLES. JUNCTION BOXES CIRCUITRY SHALL REMAIN FOR CONNECTION TO NEW DEVICES.

5 EXISTING SPECIAL SYSTEMS DEVICES, INCLUDING NURSE CALL, COMMUNICATION SPEAKERS, CLOCKS, DATA DROPS, AND FIRE ALARM DEVICES REMOVED AND RE-INSTALLED IN PLACE. PROVIDE NEW FACEPLATES FOR DATA DROPS.

6 DEMOLISH EXISTING LIGHT FIXTURES, CIRCUITRY TO REMAIN FOR CONNECTION TO NEW FIXTURES.

7 DEMOLISH EXISTING LIGHT SWITCHES AND FACEPLATES, CIRCUITRY TO REMAIN FOR CONNECTION TO NEW DEVICES.

8 SWITCH IS EXISTING TO REMAIN.

UNLESS NOTED OTHERWISE, ALL LIGHTING FIXTURES & CONTROLS, RECEPTACLES, HVAC EQUIPMENT, AND SPECIAL SYSTEMS DEVICES SHOWN IN THIS AREA ARE EXISTING TO REMAIN.

ALL RECEPTACLES & SPECIAL SYSTEM DEVICES IN THIS AREA ARE EXISTING TO REMAIN.

(D)AHU-5

(D)SF-XX

2E1H
(E)
2E1L
(E)XFMR
2N2H
2C1DP
2N1DP
(E)XFMR
2C1H
2N4L
2C2L
2C3L

CORRIDOR B233
HSKP. B234
OUTPATIENT WAITING B235
CORRIDOR B236
STRETCHER B237
PRE-OP HOLDING B243
TOILET B238
CHANGING RM. B239
OFFICE B240
OR ROOM (GENERAL) B248
OR/OB B251
RECPT.OR CONTROL B244
CORRIDOR B247
SUB-STERILE B252
HALL B271A
FEMALE LOCKERS B246
CORRIDOR B271
MALE LOCKERS B245
LINEN STORAGE B283
HALL B270
OR/OB LOUNGE B269
CLEAN UTILITY B264
SOILED UTILITY B266
CORRIDOR B253
POST-OP RECOVERY B255
PROCEDURE RM. B272
TOILET B273
OFFICE B268
HSKP. B265
STORAGE B258
MED GAS STORAGE B259
CORRIDOR B278
HALL B263
PROCEDURE RM. B275
SURGERY OFFICE B262
ANEASTHESIA WORKROOM B260
SUPERVISOR OFFICE B276
HALL B257
LACTATION ROOM B261

UNLESS NOTED OTHERWISE, ALL LIGHTING FIXTURES & CONTROLS, RECEPTACLES, HVAC EQUIPMENT, AND SPECIAL SYSTEMS DEVICES SHOWN IN THIS AREA ARE EXISTING TO REMAIN.

1 SECOND FLOOR DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

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CROW AGENCY, MONTANA 59022

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CONCURRENCE
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REV	DATE	DESCRIPTION

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SECOND FLOOR DEMOLITION PLAN

ED102.2

GENERAL ELEC REMODEL NOTES

A	SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR PHASES OF DEMOLITION AND CONSTRUCTION. COORDINATE WITH GENERAL CONSTRUCTION.
B	DISCONNECT AND REMOVE ELECTRICAL DEVICES IN RENOVATION AREAS. BACK BOXES AND BRANCH CIRCUITRY SHALL REMAIN IN EXISTING WALLS, UNLESS NOTED OTHERWISE.
C	CONNECT ALL NEW DEVICES IN EXISTING LOCATIONS TO EXISTING CIRCUITRY.
D	FURNISH AND INSTALL BLANK COVER PLATES OVER ALL EXISTING UNUSED OPENINGS.

KEYNOTES

1	APPROXIMATE LOCATION OF JUNCTION BOX FOR THE POWER CONNECTION FOR THE OWNER PROVIDED SURGICAL LIGHT. FIELD VERIFY THE REQUIREMENTS WITH THE EQUIPMENT SUPPLIER PRIOR TO ROUGHING IN.
2	NEW LIGHT FIXTURE(S) CONNECTED TO THE EXISTING CIRCUITRY. NEW SWITCH(ES), WITH A NEW FACEPLATE, CONNECTED TO THE EXISTING CIRCUITRY.
3	EXISTING LIGHT FIXTURE AND ASSOCIATED CIRCUITRY SHALL REMAIN.
4	NEW LIGHT FIXTURE CONNECTED TO THE EXISTING CIRCUITRY FROM THE DEMOLISHED FIXTURE. FIELD VERIFY THE REQUIREMENTS.
5	SWITCH IS EXISTING TO REMAIN.
6	EXISTING ELECTRICAL PANEL TO REMAIN.

DECONTAMINATION ROOM B227
CLEAN WORKROOM B230
STERILE STORAGE B242
CORRIDOR B233
ANTE ROOM B229
PRE-OP HOLDING B243
OFFICE B240
CLEAN WORKROOM B249
HSKP B234
STRETCHER B237
CHANGING RM. B239
TOILET B238
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STORAGE B258
CORRIDOR B278
MED GAS STORAGE B259
SUPERVISOR OFFICE B276
LACTATION ROOM B261
ANESTHESIA WORKROOM B260
TBD B277
TBD B281

NORTH

SECOND FLOOR LIGHTING PLAN
SCALE: 1/8" = 1'-0"

KEY PLAN

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SECOND FLOOR LIGHTING PLAN

E102.2

GENERAL POWER NOTES

1. WHERE CONNECTED TO A 20 AMP BRANCH CIRCUIT SUPPLYING AN INDIVIDUAL (SIMPLEX OR DUPLEX), THE RECEPTACLE SHALL BE RATED AT 20 AMPS.
2. PROVIDE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED AND GRADE MOUNTED ELECTRICAL EQUIPMENT. MINIMUM REQUIREMENTS: 4" HIGH, 4% AIR ENTRAINED, POLYFIBER REINFORCED CONCRETE, A MINIMUM OF 4" WIDER AND 4" LONGER THAN EQUIPMENT TO BE PLACED ON IT. REFER TO ELECTRICAL DETAILS FOR TRANSFORMER, GENERATOR, OR SWITCHGEAR PADS THAT MAY EXCEED THESE REQUIREMENTS.
3. REFER TO SECTION 24.05.19 FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.
4. WIRE COUNTS FOR CIRCUIT CONDUCTORS ARE NOT SHOWN. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUIT AND SWITCHING CONNECTIONS SHOWN.
5. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS (SEE PANELBOARD SCHEDULE). BRANCH CIRCUITS SHALL BE SIZED ACCORDING TO THE CIRCUIT BREAKER RATING, UNLESS INDICATED OTHERWISE ON THE ELECTRICAL EQUIPMENT SCHEDULE.
6. SINGLE PHASE BRANCH CIRCUITS SHALL NOT SHARE NEUTRALS.
7. THE CONTRACTOR SHALL PROVIDE THE DATA CONDUITS AND BOXES AS SHOWN. THE DATA CABLING SHALL BE FURNISHED AND INSTALLED BY THE OWNER, UNLESS NOTED OTHERWISE.
8. PROVIDE THE REQUIRED POWER FOR ALL MECHANICAL OR PLUMBING EQUIPMENT SPECIFIED IN THE CONTRACT DOCUMENTS, EVEN IF NOT SHOWN ON THE POWER PLANS.
9. THE CONTRACTOR SHALL FIELD VERIFY THE POWER REQUIREMENTS OF ALL MECHANICAL AND PLUMBING EQUIPMENT, WITH THE EQUIPMENT SUPPLIERS, PRIOR TO PREPARING SUBMITTALS OR ORDERING ANY SWITCHGEAR OR EQUIPMENT, SUPPLIED PLUMBING AND/OR MECHANICAL EQUIPMENT MAY VARY FROM EQUIPMENT SPECIFIED IN THE PLANS.

KEYNOTES

1. POWER FOR NEW STEAM STERILIZERS; FIELD VERIFY THE REQUIREMENTS WITH THE EQUIPMENT SUPPLIER.
2. POWER FOR STEAM STERILIZER CONTROLLERS. PROVIDE 20A 1 POLE DISCONNECT SWITCH AND 20A 1 POLE BREAKER IN PANEL INDICATED.
3. NEMA 5-15R RECEPTACLE FOR MEDIVATOR POWER. COORDINATE EXACT LOCATION & REQUIREMENTS WITH EQUIPMENT VENDOR.
4. POWER FOR DRYING CABINET. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT VENDOR.
5. NEW RECEPTACLE, IN THE EXISTING BOX, CONNECTED TO THE EXISTING CIRCUITRY FROM THE DEMOLISHED DEVICE.
6. EXISTING HVAC EQUIPMENT AND ASSOCIATED CIRCUITRY SHALL REMAIN.
7. EXISTING RECEPTACLE AND ASSOCIATED CIRCUITRY SHALL REMAIN.
8. NEW RECEPTACLE HOMERUN CIRCUITRY CONNECTED TO THE EXISTING RECEPTACLE'S HOMERUN CIRCUITRY. FIELD VERIFY THE AMPACITY AND CONNECTION REQUIREMENTS.
9. EXISTING ELECTRICAL PANEL TO REMAIN.
10. JUNCTION BOX FOR NEW AIR COMPRESSOR POWER CONNECTION. FIELD VERIFY THE CONNECTION REQUIREMENTS WITH THE EQUIPMENT SUPPLIER.
11. JUNCTION BOX FOR POWER CONNECTION OF THE HEADWALL RECEPTACLES. THE EXISTING HOME RUN CIRCUITS FROM THE DEMOLISHED RECEPTACLES SHALL BE RE-ROUTED TO THE JUNCTION BOX. FIELD VERIFY THE CONNECTION REQUIREMENTS.
12. JUNCTION BOX FOR POWER CONNECTION OF THE DOOR OPERATOR. FIELD VERIFY CONNECTION REQUIREMENTS WITH OPERATOR CONTROL VENDOR.
13. JUNCTION BOX FOR LOCATION OF THE DOOR OPERATOR PUSHBUTTON. PROVIDE 3/4" CONDUIT ROUTED TO DOOR OPERATOR. FIELD VERIFY ROUTE AND CONNECTION REQUIREMENTS.
14. CONDUIT ROUTED TO DISCONNECT NEEDS TO BE RECESSED.
15. JUNCTION BOX FOR UPS POWER CONNECTION OF WASHER CONTROL PANEL. FIELD VERIFY CONNECTION REQUIREMENTS WITH VENDOR.
16. JUNCTION BOX FOR UPS POWER CONNECTION OF MEDIVATOR CONTROL PANEL. FIELD VERIFY CONNECTION REQUIREMENTS WITH VENDOR.
17. NEW RECEPTACLE'S HOME RUN CIRCUITRY CONNECTED TO THE EXISTING RECEPTACLE'S HOMERUN CIRCUITRY. FIELD VERIFY THE CONNECTION REQUIREMENTS AND AVAILABLE CIRCUIT AMPACITY.

ALL DEVICES AND CIRCUITRY IN THIS AREA SHALL REMAIN

ALL DEVICES & CIRCUITS IN THIS AREA ARE EXISTING TO REMAIN

1 SECOND FLOOR POWER PLAN
SCALE: 1/8" = 1'-0"

KEY PLAN

BID PACKAGE 2
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CROW AGENCY, MONTANA 59022

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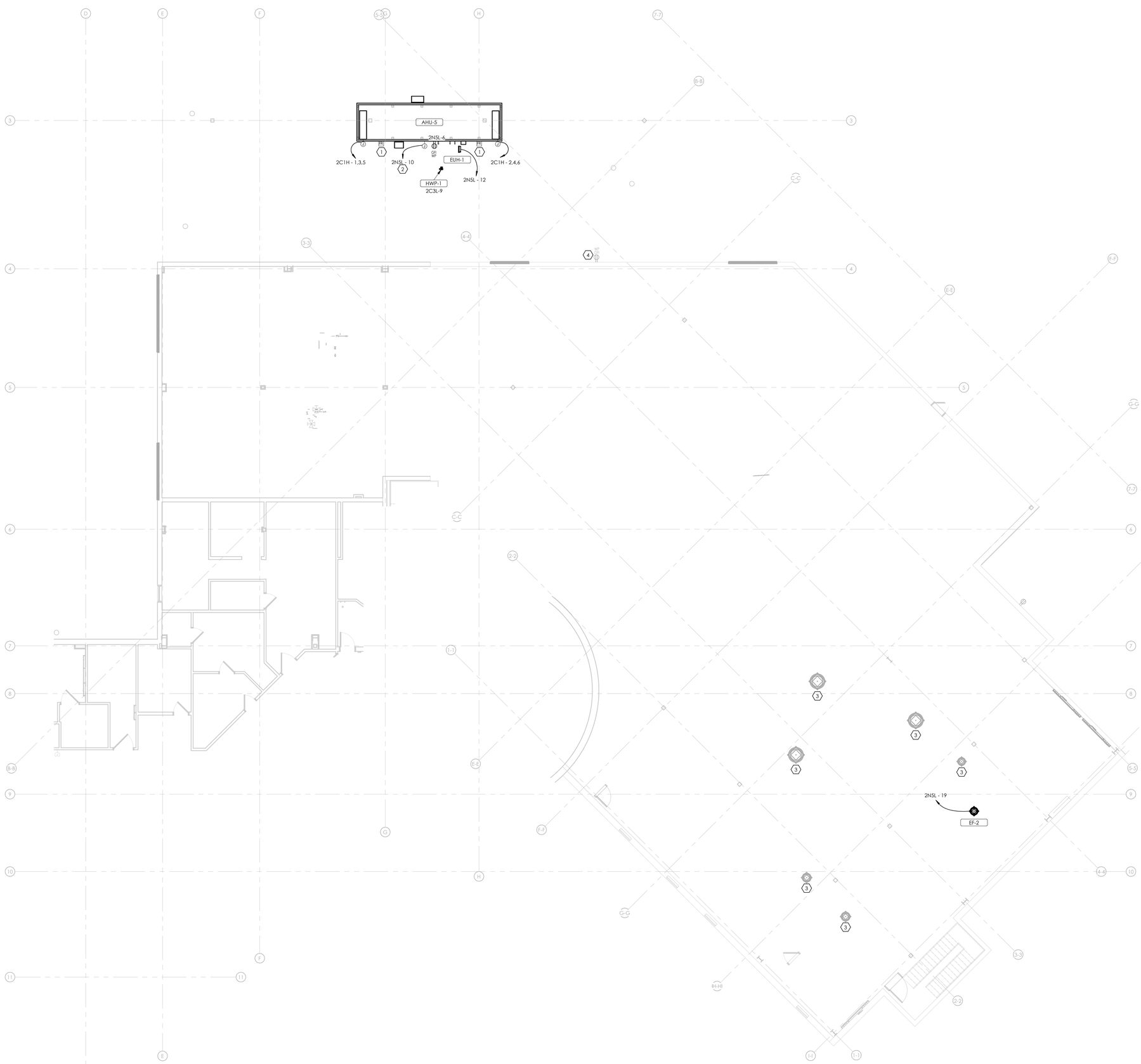
SECOND FLOOR POWER PLAN

E202.2



GENERAL POWER NOTES

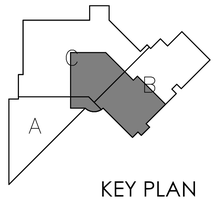
1. WHERE CONNECTED TO A 20 AMP BRANCH CIRCUIT SUPPLYING AN INDIVIDUAL (SIMPLEX OR DUPLEX), THE RECEPTACLE SHALL BE RATED AT 20 AMPS.
2. PROVIDE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED AND GRADE MOUNTED ELECTRICAL EQUIPMENT. MINIMUM REQUIREMENTS: 4" HIGH, 4% AIR ENTRAINED, POLYFIBER REINFORCED CONCRETE. A MINIMUM OF 4" WIDER AND 4" LONGER THAN EQUIPMENT TO BE PLACED ON IT. REFER TO ELECTRICAL DETAILS FOR TRANSFORMER, GENERATOR, OR SWITCHGEAR PADS THAT MAY EXCEED THESE REQUIREMENTS.
3. REFER TO SECTION 26 0519 FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.
4. WIRE COUNTS FOR CIRCUIT CONDUCTORS ARE NOT SHOWN. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUIT AND SWITCHING CONNECTIONS SHOWN.
5. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS (SEE PANELBOARD SCHEDULE). BRANCH CIRCUITS SHALL BE SIZED ACCORDING TO THE CIRCUIT BREAKER RATING, UNLESS INDICATED OTHERWISE ON THE ELECTRICAL EQUIPMENT SCHEDULE.
6. SINGLE PHASE BRANCH CIRCUITS SHALL NOT SHARE NEUTRALS.
7. THE CONTRACTOR SHALL PROVIDE THE DATA CONDUITS AND BOXES AS SHOWN, THE DATA CABLING SHALL BE FURNISHED AND INSTALLED BY THE OWNER, UNLESS NOTED OTHERWISE.
8. PROVIDE THE REQUIRED POWER FOR ALL MECHANICAL OR PLUMBING EQUIPMENT SPECIFIED IN THE CONTRACT DOCUMENTS, EVEN IF NOT SHOWN ON THE POWER PLANS.
9. THE CONTRACTOR SHALL FIELD VERIFY THE POWER REQUIREMENTS OF ALL MECHANICAL AND PLUMBING EQUIPMENT, WITH THE EQUIPMENT SUPPLIERS, PRIOR TO PREPARING SUBMITTALS OR ORDERING ANY SWITCHGEAR OR EQUIPMENT. SUPPLIED PLUMBING AND/OR MECHANICAL EQUIPMENT MAY VARY FROM EQUIPMENT SPECIFIED IN THE PLANS.

KEYNOTES

1. ADDRESSABLE FIRE ALARM CONTROL RELAY FOR SHUTDOWN OF ROOFTOP UNIT UPON ACTIVATION OF FIRE ALARM SYSTEM ALARM CONDITION.
2. CIRCUITRY FOR LIGHTING INCLUDED WITH ROOFTOP UNIT, FIELD VERIFY THE CONNECTION REQUIREMENTS.
3. EXISTING EXHAUST FAN AND ASSOCIATED CIRCUITRY SHALL REMAIN.
4. EXISTING RECEPTACLE AND ASSOCIATED CIRCUITRY SHALL REMAIN.

NORTH

ELECTRICAL ROOF PLAN
SCALE: 1/8" = 1'-0"



KEY PLAN

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CHECKED BY: Checker

SHEET TITLE:
ELECTRICAL ROOF PLAN

E203.2

GENERAL SYSTEMS NOTES

1. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR WIRING ALL ELECTRICAL ITEMS SHOWN ON THE DRAWINGS.
2. MAXIMUM OF 4 INFORMATION OUTLET LOCATIONS PER CONDUIT, CONDUIT SHALL BE SIZED AS FOLLOWS:
   1 INFORMATION OUTLET LOCATION: 1"
   2 INFORMATION OUTLET LOCATIONS: 1 1/4"
   3 INFORMATION OUTLET LOCATIONS: 1 1/2"
   4 INFORMATION OUTLET LOCATIONS: 2"
3. ALL COMMUNICATIONS CABLES SHALL BE INSTALLED IN CONDUIT. PROVIDE BUSHINGS AT THE ENDS OF ALL CONDUIT WHERE STUBBED ABOVE ACCESSIBLE CEILING.
4. FOR EACH THERMOSTAT, TEMPERATURE SENSOR, OR WALL MOUNTED HVAC CONTROL DEVICE PROVIDE A JUNCTION BOX, WITH A SINGLE GANG MUD RING, AT 48" ABOVE THE FINISH FLOOR WITH A 3/4" CONDUIT (WITH A PULL STRING) TO ABOVE THE CEILING FOR THE HVAC CONTROLS. HVAC CONTROLS WIRING AND DEVICES INSTALLED BY MECHANICAL CONTROLS CONTRACTOR.

KEYNOTES

1. ADDRESSABLE FIRE ALARM MONITOR MODULE TO SEND TROUBLE SIGNAL IN THE EVENT OF ACTIVATION OF EMERGENCY EYEWASH STATION.
2. REINSTALL ALL SPECIAL SYSTEMS COMPONENTS.
3. REINSTALL DATA DEVICES, PROVIDE NEW DATA DEVICE FACEPLATES.
4. DUCT SMOKE DETECTOR IN RTU-1 SUPPLY & RETURN DUCTS FOR NEW ROOFTOP UNIT RTU-1 WITH A REMOTE TEST SWITCH FOR DETECTOR. COORDINATE EXACT LOCATIONS WITH EQUIPMENT PROVIDER. DETECTOR CONNECTED TO THE EXISTING FIRE ALARM SYSTEM. VERIFY THE PROGRAMMING AND CONNECTION REQUIREMENTS WITH THE EXISTING EQUIPMENT MANUFACTURER.

STERILE STORAGE B242
PRE-OP HOLDING B243
OFFICE B240
TOILET B238
CHANGING RM. B239
STRETCHER B237
HSKP. B234
OUTPATIENT WAITING B235
CORRIDOR B236
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HALL B263
CORRIDOR B278
ANEASTHESIA WORKROOM B260
SUPERVISOR OFFICE B276
TBD B277
LACTATION ROOM B261
TBD B281
STAIR B B282

1 SECOND FLOOR SYSTEMS PLAN
SCALE: 1/8" = 1'-0"

KEY PLAN

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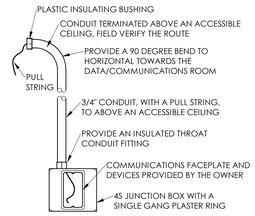
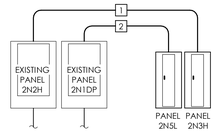
SECOND FLOOR SPECIAL SYSTEMS

E302.2

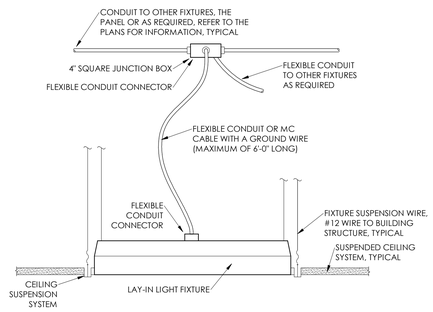
FEEDER SCHEDULE	
[1]	3" CONDUIT WITH 4-250 MCM AND 1 - #4 GROUND
[2]	1-1/4" CONDUIT WITH 4 - #3 AND 1 - #8 GROUND



4 E500.2 COMMUNICATIONS BOX DETAIL
SCALE: NTS

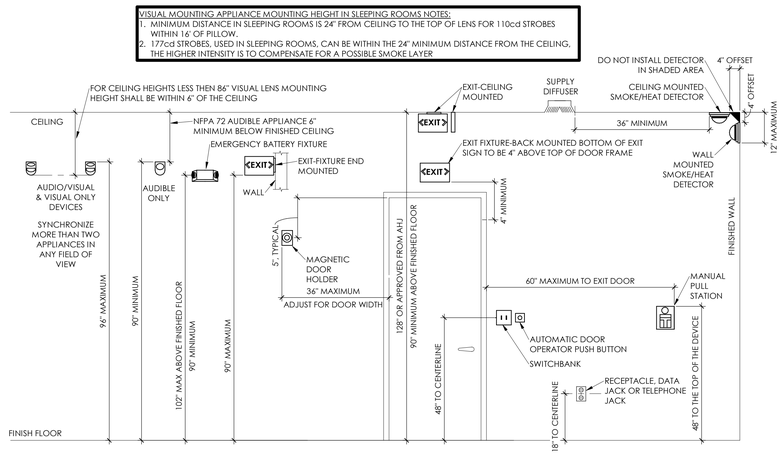


3 E500.2 PARTIAL ELECTRICAL RISER DIAGRAM
SCALE: NTS



2 E500.2 LAY-IN LIGHT FIXTURE MOUNTING DETAIL
SCALE: NTS

VISUAL MOUNTING APPLIANCE MOUNTING HEIGHT IN SLEEPING ROOMS NOTES:
1. MINIMUM DISTANCE IN SLEEPING ROOMS IS 24" FROM CEILING TO THE TOP OF LENS FOR 110cd STROBES WITHIN 16' OF PILLOW.
2. 177cd STROBES, USED IN SLEEPING ROOMS, CAN BE WITHIN THE 24" MINIMUM DISTANCE FROM THE CEILING, THE HIGHER INTENSITY IS TO COMPENSATE FOR A POSSIBLE SMOKE LAYER



1 E500.2 TYPICAL MOUNTING HEIGHTS DETAIL
SCALE: NTS

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CHECKED BY: BSC

SHEET TITLE:
ELECTRICAL DETAILS

E500.2

PANEL: 2N3H

LOCATION: ELEC. ROOM B231 | **VOLTS:** 480Y/277 | **A.I.C. RATING:** 14,000 AMPS SYMMETRICAL
SUPPLY FROM: 2N2H | **PHASES:** 3 | **MAINS TYPE:** MAIN CB
MOUNTING: SURFACE | **WIRES:** 4 | **MAIN C.B. RATING:** 250 A
ENCLOSURE: NEMA 1 | **GROUND BUS MAT'L.:** | **BUS RATING:** 250 AMPS
GFP:

NOTES:

CKT	CIRCUIT DESCRIPTION	LOAD TYPE	RATING	PHASE A ODD CIRCUIT # LOAD	PHASE B ODD CIRCUIT # LOAD	PHASE C ODD CIRCUIT # LOAD	PHASE A EVEN CIRCUIT # LOAD	PHASE B EVEN CIRCUIT # LOAD	PHASE C EVEN CIRCUIT # LOAD	RATING	LOAD TYPE	CIRCUIT DESCRIPTION	CKT
1				10067 VA			6640 VA						2
3	STEAM STERILIZER	EQUIP	50 A		10067 VA			6640 VA		30 A	EQUIP	AMSCO 5052	4
5						10067 VA			6640 VA				6
7				10067 VA			6640 VA						8
9	STEAM STERILIZER	EQUIP	50 A		10067 VA			6640 VA		30 A	EQUIP	AMSCO 5052	10
11						10067 VA			6640 VA				12
13				1456 VA			1193 VA			20 A	LITE...	LTG SANITATION SUITE	14
15	ULTRASONIC CLEANER	EQUIP	50 A		1456 VA			1220 VA					16
17						1456 VA			1220 VA	20 A	EQUIP	COMPRESSOR COMP-1	18
19	SPARE	--	20 A	0 VA			1220 VA						20
21	SPARE	--	20 A		0 VA			0 VA		20 A	--	SPARE	22
23	SPARE	--	20 A			0 VA			0 VA	20 A	--	SPARE	24
25	SPARE	--	20 A	0 VA			0 VA			20 A	--	SPARE	26
27	SPARE	--	20 A		0 VA			0 VA		20 A	--	SPARE	28
29	SPARE	--	20 A			0 VA			0 VA	20 A	--	SPARE	30
				PHASE A		PHASE B			PHASE C				
			TOTAL LOAD:	37283 VA		36089 VA			36089 VA				
			TOTAL AMPS:	135 A		130 A			130 A				

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
EQUIP	108268 VA	100.00%	108268 VA		
L	0 VA	0.00%	0 VA	TOTAL CONNECTED LOAD:	109461 VA
LITES	1193 VA	125.00%	1492 VA	TOTAL ESTIMATED DEMAND:	109760 VA
				TOTAL CONNECTED LOAD:	132 A
				TOTAL ESTIMATED LOAD:	132 A

NOTES:
Motor = LARGEST MOTOR
MN = MOTOR (NON-SEASONAL)
LITES = LIGHTING (CONTINUOUS)
HEAT = HEATING
R = RECEPTACLE
C = CONTINUOUS
PN = POWER NON-SEASONAL (NON-CONTINUOUS)...

PANEL: 2C1H

LOCATION: RCVG/DECONTAM-2 B232-2 | **VOLTS:** 480Y/277 | **A.I.C. RATING:** 14,000 AMPS SYMMETRICAL
SUPPLY FROM: | **PHASES:** 3 | **MAINS TYPE:** MLO
MOUNTING: RECESSED | **WIRES:** 4 | **MAIN C.B. RATING:** 225 A
ENCLOSURE: NEMA1 | **GROUND BUS MAT'L.:** | **BUS RATING:** 225 AMPS
GFP:

NOTES: EXISTING PANEL TO REMAIN. RECONNECT ALL EXISTING LIGHTING CIRCUITS TO NEW LIGHTING IN SPACES INDICATED.

CKT	CIRCUIT DESCRIPTION	LOAD TYPE	RATING	PHASE A ODD CIRCUIT # LOAD	PHASE B ODD CIRCUIT # LOAD	PHASE C ODD CIRCUIT # LOAD	PHASE A EVEN CIRCUIT # LOAD	PHASE B EVEN CIRCUIT # LOAD	PHASE C EVEN CIRCUIT # LOAD	RATING	LOAD TYPE	CIRCUIT DESCRIPTION	CKT
1				4800 VA			2133 VA						2
3	ROOFTOP UNIT RTU-1 SUPPLY FAN	HVAC	30 A		4800 VA			2133 VA		20 A	HVAC	ROOFTOP UNIT RTU-1 RETURN FAN	4
5						4800 VA			2133 VA				6
7	LTG B254, B255, B256	--	20 A	1404 VA			161 VA			20 A	LITES	LITES POST-OP RECOVERY B255	8
9	LITES OR ROOM (GENERAL) B248	LITES	20 A		322 VA			2136 VA		20 A	--	LTG B281	10
11	LITES OR/OB B251	LITES	20 A			387 VA			1728 VA	20 A	--	SPARE	12
13	LTG A257, A258	--	20 A	818 VA			818 VA			20 A	--	LTG A256	14
15	LTG A256	--	20 A		1392 VA			0 VA		20 A	--	SPARE	16
17	LTG B277	--	20 A			0 VA			0 VA	20 A	--	SPARE	18
19	2CT1-2C1DP	--	20 A	0 VA			0 VA			20 A	--	SPARE	20
21	2CT1-2C1DP	--	20 A		0 VA			0 VA		20 A	--	SPARE	22
23	2CT1-2C1DP	--	20 A			0 VA			0 VA	20 A	--	SPARE	24
				PHASE A		PHASE B			PHASE C				
			TOTAL LOAD:	10134 VA		10784 VA			9048 VA				
			TOTAL AMPS:	37 A		40 A			33 A				

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
HVAC	20800 VA	100.00%	20800 VA		
Spare	8296 VA	100.00%	8296 VA	TOTAL CONNECTED LOAD:	29966 VA
LITES	870 VA	125.00%	1088 VA	TOTAL ESTIMATED DEMAND:	30184 VA
				TOTAL CONNECTED LOAD:	36 A
				TOTAL ESTIMATED LOAD:	36 A

NOTES:
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MN = MOTOR (NON-SEASONAL)
LITES = LIGHTING (CONTINUOUS)
HEAT = HEATING
R = RECEPTACLE
C = CONTINUOUS
PN = POWER NON-SEASONAL (NON-CONTINUOUS)...

PANEL: 2N5L

LOCATION: ELEC. ROOM B231 | **VOLTS:** 208Y/120 | **A.I.C. RATING:** 10,000 AMPS SYMMETRICAL
SUPPLY FROM: 2N1DP | **PHASES:** 3 | **MAINS TYPE:** MLO
MOUNTING: SURFACE | **WIRES:** 4 | **MAIN C.B. RATING:** 100 A
ENCLOSURE: NEMA1 | **GROUND BUS MAT'L.:** | **BUS RATING:** 100 AMPS
GFP:

NOTES:

CKT	CIRCUIT DESCRIPTION	LOAD TYPE	RATING	PHASE A ODD CIRCUIT # LOAD	PHASE B ODD CIRCUIT # LOAD	PHASE C ODD CIRCUIT # LOAD	PHASE A EVEN CIRCUIT # LOAD	PHASE B EVEN CIRCUIT # LOAD	PHASE C EVEN CIRCUIT # LOAD	RATING	LOAD TYPE	CIRCUIT DESCRIPTION	CKT
1				1248 VA			1000 VA			20 A	RCPT	RCPT	2
3	DENTAL CASSETTE WASHER	EQUIP	20 A		1248 VA			540 VA		20 A	RCPT	RCPT B231-2, A21	4
5						1248 VA			360 VA	20 A	RCPT	RCPT	6
7	DENTAL CASSETTE WASHER	EQUIP	20 A	1248 VA			180 VA			20 A	RCPT	RCPT	8
9	MEDIVATOR	RCPT	20 A		180 VA			180 VA		20 A	LITES	ROOFTOP UNIT RTU-1 INTEGRAL LTG	10
11	MEDIVATOR	RCPT	20 A			180 VA			942 VA	15 A	EQUIP	UNIT HEATER EUH-1	12
13	STEAM STERILIZER CONTROLS	EQUIP	20 A	1200 VA			1500 VA			20 A	MN	SECOND FLOOR VAV BOXES	14
15	STEAM STERILIZER CONTROLS	EQUIP	20 A		1200 VA			1000 VA		20 A	MN	SECOND FLOOR VAV BOXES	16
17	RCPT B229	RCPT	20 A			540 VA			1000 VA	20 A	MN	SECOND FLOOR VAV BOXES	18
19	EXHAUST FAN EF-2	MN	15 A	300 VA			400 VA			20 A	RCPT	WASHER B230	20
21	RCPT	RCPT	20 A		180 VA			0 VA		20 A	--	SPARE	22
23	SPARE	--	20 A			0 VA			0 VA	20 A	--	SPARE	24
25	SPARE	--	20 A	0 VA			0 VA			20 A	--	SPARE	26
27	SPARE	--	20 A		0 VA			0 VA		20 A	--	SPARE	28
29	SPARE	--	20 A			0 VA			0 VA	20 A	--	SPARE	30
				PHASE A		PHASE B			PHASE C				
			TOTAL LOAD:	7076 VA		4528 VA			4270 VA				
			TOTAL AMPS:	59 A		38 A			36 A				

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
EQUIP	8334 VA	100.00%	8334 VA		
RCPT	3560 VA	100.00%	3560 VA	TOTAL CONNECTED LOAD:	15874 VA
MN	3800 VA	100.00%	3800 VA	TOTAL ESTIMATED DEMAND:	15919 VA
LITES	180 VA	125.00%	225 VA	TOTAL CONNECTED LOAD:	44 A
				TOTAL ESTIMATED LOAD:	44 A

NOTES:
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LITES = LIGHTING (CONTINUOUS)
HEAT = HEATING
R = RECEPTACLE
C = CONTINUOUS
PN = POWER NON-SEASONAL (NON-CONTINUOUS)...

PANEL: 2C2L

LOCATION: RECPT/OR CONTROL-3 B244-3 | **VOLTS:** 208Y/120 | **A.I.C. RATING:** 10,000 AMPS SYMMETRICAL
SUPPLY FROM: | **PHASES:** 3 | **MAINS TYPE:** MCB
MOUNTING: RECESSED | **WIRES:** 4 | **MAIN C.B. RATING:** 1 A
ENCLOSURE: NEMA1 | **GROUND BUS MAT'L.:** | **BUS RATING:** 100 AMPS
GFP:

NOTES: EXISTING PANEL SHOWN FOR REFERENCE BASED ON RECORD DRAWINGS. VERIFY ALL CIRCUITS IN THE FIELD.

CKT	CIRCUIT DESCRIPTION	LOAD TYPE	RATING	PHASE A ODD CIRCUIT # LOAD	PHASE B ODD CIRCUIT # LOAD	PHASE C ODD CIRCUIT # LOAD	PHASE A EVEN CIRCUIT # LOAD	PHASE B EVEN CIRCUIT # LOAD	PHASE C EVEN CIRCUIT # LOAD	RATING	LOAD TYPE	CIRCUIT DESCRIPTION	CKT
1	SPARE	--	20 A	0 VA			1200 VA			20 A	EQUIP	DOOR OPERATOR B248-2	2
3	SPARE	--	20 A		0 VA			1200 VA		20 A	EQUIP	DOOR OPERATOR B251-2	4
5	L PROCEDURE ROOM-2 B272-2	LITES	20 A			250 VA			1200 VA	20 A	EQUIP	DOOR OPERATOR B255-2	6
7	L OR ROOM (GENERAL)-2 B248-2	LITES	20 A	250 VA			0 VA			20 A	--	RCPT B212	8
9	L OR/OB-2 B251-2	LITES	20 A		250 VA			0 VA		20 A	--	RCPT B212, 218	10
11	RCPT OR/OB-2 B251-2	RCPT	20 A			1080 VA			0 VA	20 A	--	RCPT B212	12
13	RCPT B231-120	RCPT	20 A	1440 VA			720 VA			20 A	RCPT	RCPT OR ROOM (GENERAL)-2 B248-2	14
15	RCPT B251-2	RCPT	20 A		900 VA			900 VA		20 A	RCPT	RCPT OR ROOM (GENERAL)-2 B248-2	16
17	RCPT B243	--	20 A			0 VA			720 VA	20 A	RCPT	RCPT OR ROOM (GENERAL)-2 B248-2	18
19	RCPT B237	--	20 A	0 VA			0 VA			20 A	--	NURSE CALL SYSTEM	20
21	RCPT B244	--	20 A		0 VA			0 VA		20 A	--	SPARE	22
23	RCPT B244	--	20 A			0 VA			0 VA	20 A	--	SPARE	24
				PHASE A		PHASE B			PHASE C				
			TOTAL LOAD:	3610 VA		3250 VA			3250 VA				
			TOTAL AMPS:	30 A		27 A			27 A				

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
EQUIP	3600 VA	100.00%	3600 VA		
RCPT	5760 VA	100.00%	5760 VA	TOTAL CONNECTED LOAD:	10109 VA
LITES	749 VA	125.00%	936 VA	TOTAL ESTIMATED DEMAND:	10296 VA
				TOTAL CONNECTED LOAD:	28 A
				TOTAL ESTIMATED LOAD:	29 A

NOTES:
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LITES = LIGHTING (CONTINUOUS)
HEAT = HEATING
R = RECEPTACLE
C = CONTINUOUS
PN = POWER NON-SEASONAL (NON-CONTINUOUS)...

PANEL: 2C3L

LOCATION: DEL SOILED HOLDING-3... | **VOLTS:** 208Y/120 | **A.I.C. RATING:** 10,000 AMPS SYMMETRICAL
SUPPLY FROM: | **PHASES:** 3 | **MAINS TYPE:** MCB
MOUNTING: RECESSED | **WIRES:** 4 | **MAIN C.B. RATING:** 1 A
ENCLOSURE: NEMA1 | **GROUND BUS MAT'L.:** | **BUS RATING:** 100 AMPS
GFP:

NOTES: EXISTING PANEL SHOWN FOR REFERENCE BASED ON RECORD DRAWINGS. VERIFY ALL CIRCUITS IN THE FIELD.

CKT	CIRCUIT DESCRIPTION	LOAD TYPE	RATING	PHASE A ODD CIRCUIT # LOAD	PHASE B ODD CIRCUIT # LOAD	PHASE C ODD CIRCUIT # LOAD	PHASE A EVEN CIRCUIT # LOAD	PHASE B EVEN CIRCUIT # LOAD	PHASE C EVEN CIRCUIT # LOAD	RATING	LOAD TYPE	CIRCUIT DESCRIPTION	CKT
1	SPARE	--	20 A	0 VA			0 VA			20 A	--	SPARE	2
3	SPARE	--	20 A		0 VA			0 VA		20 A	--	SPARE	4
5	LTG B277	--	20 A			0 VA			0 VA	20 A	--	SPARE	6
7	LTG B281	--	20 A	0 VA			0 VA			20 A	--	MODULAR WALL B277	8
9	HWP-1 INLINE PUMP	MN	20 A		169 VA			0 VA		20 A	--	BED B277	10
11	MODULAR WALL B256	--	20 A			0 VA			0 VA	20 A	--	RCPT B277	12
13	RCPT ISOLATION RECOVERY-2 B255-2	RCPT	20 A	720 VA			0 VA			20 A	--	BED B281	14
15	MODULAR WALL B 255	--	20 A		0 VA			0 VA		20 A	--	MODULAR WALL B 281	16
17	RCPT ISOLATION RECOVERY B255	RCPT	20 A			180 VA			0 VA	20 A	--	RCPT B281	18
19	RCPT ISOLATION RECOVERY-2 B255-2	RCPT	20 A	720 VA			0 VA			20 A	--	SPARE	20
21	RCPT ISOLATION RECOVERY B255	RCPT	20 A		540 VA			0 VA		20 A	--	SPARE	22
23	RCPT ISOLATION RECOVERY B255	RCPT	20 A			1080 VA			0 VA	20 A	--	SPARE	24
				PHASE A		PHASE B			PHASE C				
			TOTAL LOAD:	1440 VA		709 VA			1260 VA				
			TOTAL AMPS:	13 A		6 A			11 A				

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
RCPT	3240 VA	100.00%	3240 VA		
MN	169 VA	100.00%	169 VA	TOTAL CONNECTED LOAD:	3409 VA
				TOTAL ESTIMATED DEMAND:	3409 VA
				TOTAL CONNECTED LOAD:	9 A
				TOTAL ESTIMATED LOAD:	9 A

NOTES:
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HEAT = HEATING
R = RECEPTACLE
C = CONTINUOUS
PN = POWER NON-SEASONAL (NON-CONTINUOUS)...

DISCONNECT SCHEDULE

MARK	MANUFACTURER	SWITCH DUTY	AMP RATING	VOLTAGE	PHASE	POLES	FUSE INFO. AMP	FUSE INFO. TYPE	ENCLOSURE	NOTES
DSH6R	SQUARE D	HEAVY	30 A	480 V	3	3	30 A	LPN-RK_SP	NEMA 3R	1
DSH6S	SQUARE D	HEAVY	60 A	480 V	3	3	50 A	LPN-RK_SP	NEMA 3R	1
DSL31R	SQUARE D	HEAVY	30 A	208 V	1	2	30 A	LPN-RK_SP	NEMA 3R	1

SCHEDULE NOTES:
1. COORDINATE THE LOCATION WITH THE EQUIPMENT PROVIDER.

LIGHT FIXTURE SCHEDULE

MARK	CONSTRUCTION DESCRIPTION	PRODUCT MANUFACTURER	PRODUCT MODEL NO.	CONSTRUCTION LENS/LOUVER	CONSTRUCTION MOUNTING	LIGHT SOURCE LAMP	LUMENS DOWN	LUMENS UP	LIGHT SOURCE CCT	LIGHT SOURCE CRI	ELECTRICAL BALLAST/ DRIVER	ELECTRICAL VOLTAGE	ELECTRICAL PHASE	ELECTRICAL WATTS	EMERGENCY COMPONENT	NOTES
76R3	ROUND LENS LED STRIP	WILLIAMS	76R-4-L35/840-DRV-UNV	FROSTED SMOOTH ACRYLIC	SURFACE/ SUSPENDED	LED	3000 lm	0 lm	3500 K	80	LED NON-DIMMING DRIVER	277 V	1	25 W	--	--
CS22	2x2 SURFACE	KENALL	CSESO22-45LD-35K8-DIM1-DV-XFXH-SYM-HJ	SYMMETRIC DIFFUSED ACRYLIC	LAY-IN	LED	5500 lm	0 lm	3500 K	82	LED DRIVER, 0-10V DIMMING, 1%	277 V	1	45 W	--	--
EXC1	EXIT SIGN, EDGE-LIT, 1-SIDED	LITHONIA	EDGR 1 R EL	--	CEILING	LED	0 lm	0 lm	0 K	0	--	277 V	1	5 W	BATTERY	--
L24	2x4 HIGH PERFORMANCE ARCHITECTURAL RECESSED LED	LITHONIA LIGHTING	2ALL4-40L-MVOLT-EZ1-LP83 5	TRANSMITTANCE DIFFUSER	LAY-IN	LED	4000 lm	0 lm	3500 K	80	LED DRIVER, 0-10V DIMMING, 1%	277 V	1	29 W	--	--
R1	6" DOWNLIGHT	INDY	L6 13LM 35K MVOLT 80CRI EZ1 w/ HM CS PF	--	RECESSED	LED	1404 lm	0 lm	3500 K	80	LED DRIVER, 0-10V DIMMING, 1%	277 V	1	12 W	--	--
S1	1x4 RECESSED	LITHONIA	BLT4 20L ADP EZ1 LP835	CURVED RIBBED	GRID	LED	1907 lm	0 lm	3500 K	82	LED DRIVER, 0-10V DIMMING, 1%	277 V	1	3 W	--	--

NOTES:
1. COORDINATE PENDANT LENGTH AND MOUNTING HEIGHT WITH ARCHITECTURAL ELEVATIONS.

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
Part of Bodwé Group
259 E Michigan Ave, Suite 407
Kalamazoo, MI 49007
www.SteelheadMEP.com

CONSULTANT

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER DATE
APPROVED:
ES PROJECT MANAGER DATE
ES BRANCH CHIEF DATE
CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: E600.2.dwg
DRAWN BY: RM
CHECKED BY: BSC

SHEET TITLE:
ELECTRICAL SCHEDULES

E600.2

GENERAL SYMBOLS

- REVISION NUMBER - SHOWN ON PLANS
- POINT WHERE DISCONNECT/DEMOLITION OCCURS AT EXISTING
- POINT WHERE NEW CONNECTS TO EXISTING
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- KEYNOTE
- CONTINUATION SYMBOL
- Room 4 — ROOM NAME AND NUMBER
- DEMOLISHED ITEM
- AREA NOT IN CONTRACT
- 2" — PIPE SIZE TAG (DIAMETER)
- ABOVE GROUND PIPING
- 1/8" / 12" SLOPE — PIPE SLOPE TAG
- BELOW GROUND PIPING
- INVERT: -105' - 1" — PIPE INVERT ELEVATION TAG
- (E) — EXISTING PIPE TAG
- (D) — DEMOLISHED PIPING

ABBREVIATIONS

Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	M/A	MIXED AIR
AD	AREA DRAIN	MAX	MAXIMUM
ADD	ADDENDUM	MBH	ONE THOUSAND BTU PER HOUR
AFF	ABOVE FINISHED FLOOR	MCF	ONE THOUSAND CUBIC FEET
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MU/A	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CW	COLD WATER	O	OXYGEN
D	DEGREE	O/A	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
DW	DISTILLED WATER	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWC	ELECTRIC WATER COOLER	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R	DUCT RISER
E/A	EXHAUST AIR	R/A	RETURN AIR
EXIST	EXISTING	RCP	RADIANT CEILING PANEL
F	DEGREES FAHRENHEIT	RD	ROOF DRAIN
FCO	FLOOR CLEAN OUT	REC	RECESSED
FD	FLOOR DRAIN	RED	REDUCER
FDC	FIRE DEPARTMENT CONNECTION	RH	RELATIVE HUMIDITY
FL	FLOOR	RL/A	RELIEF AIR
FO	FUEL OIL	RM	ROOM
FOV	FUEL OIL VENT	RPM	REVOLUTIONS PER MINUTE
FOR	FUEL OIL RETURN	RW	RAIN WATER
FOS	FUEL OIL SUPPLY	SF	SQUARE FOOT
FPM	FEET PER MINUTE	S/A	SUPPLY AIR
FS	FLOOR SINK	SAN	SANITARY
FT	FOOT/FEET	SF	SQUARE FOOT
FTR	FIN TUBE RADIATION	SD	SMOKE DAMPER
GAL	GALLON	SM	SURFACE MOUNT
GF	GAS-FIRED	SP	STANDPIPE
GC	GENERAL CONTRACTOR	SP	STATIC PRESSURE
GPM	GALLONS PER MINUTE	STM	STEAM
GW	GREASE WASTE	T	THERMOSTAT
HB	HOSE BIB	TD	TEMPERATURE DROP
HP	HORSE POWER	TDR	TRENCH DRAIN
HTG	HEATING	TEMP	TEMPERATURE
HTR	HEATER	TYP	TYPICAL
HW	HOT WATER	UG	UNDERGROUND
HYD	HYDRANT	VAC	VACUUM
ID	INDIRECT	V	VENT
IN	INCH	VAV	VARIABLE AIR VOLUME
INV	INVERT	VENT	VENTILATION
LB	POUND	VTR	VENT THROUGH ROOF
LB/HR	POUNDS PER HOUR	W	WASTE
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE	WCO	WALL CLEAN OUT
LPG	LIQUEFIED PETROLEUM GAS	WH	WALL HYDRANT

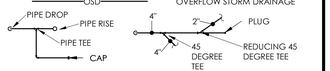
EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	ET	EXPANSION TANK
ACCU	AIR COOLING CONDENSING UNIT	EWH	ELECTRIC WATER HEATER
		FCU	FAN COIL UNIT
AHU	AIR HANDLING UNIT	FP	FIRE PUMP
AS	AIR SEPARATOR	GI	GREASE INTERCEPTOR
B	BOILER	GRV	GRAVITY ROOF VENTILATOR
CH	CHILLER	HWP	HEATING WATER PUMP
CT	COOLING TOWER	HRU	HEAT RECOVERY UNIT
CUH	CABINET UNIT HEATER	PRV	POWER ROOF VENTILATOR
CHWP	CHILLED WATER PUMP	RE	RETURN/EXHAUST FAN
DBP	DOMESTIC WATER BOOSTER PUMP	RTU	ROOFTOP UNIT
DC	DUCT MOUNTED COIL	SP	SUMP PUMP
DCP	DOMESTIC WATER CIRCULATING PUMP	UH	UNIT HEATER
		WH	WATER HEATER
EF	EXHAUST FAN		
EDC	ELECTRIC DUCT COIL		

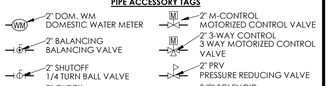
* NOTE *
ALL GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

PLUMBING AND PIPING SYMBOLS

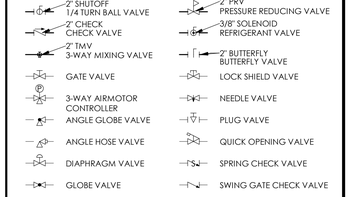
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CD	CONDENSATE DRAINAGE
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
GWR	GEOTHERMAL WATER RETURN
GWS	GEOTHERMAL WATER SUPPLY
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
G	NATURAL GAS
PG	PROPANE GAS
REF-L	REFRIGERANT-LIQUID
REF-S	REFRIGERANT-SUCTION
REF-HG	REFRIGERANT-HOT GAS
STM	STEAM
CDR	CONDENSATE RETURN
CWV	COMBINATION WASTE & VENT
CA	COMPRESSED AIR
CW	DOMESTIC COLD WATER
H-CW	HARD COLD WATER
S-CW	SOFT COLD WATER
F-CW	FILTERED COLD WATER
RO	REVERSE OSMOSIS WATER
HW	HOT WATER
HW 140°	HOT WATER 140°
HW-R	HOT WATER RECIRCULATION
HW-R 140°	HOT WATER RECIRCULATION 140°
GV	GREASE VENT
GW	GREASE WASTE
IW	INDIRECT WASTE
OV	OIL VENT
OW	OIL WASTE
PD	PUMP DISCHARGE
V	SANITARY VENT
SS	SANITARY SEWER
SHWR	SOLAR HOT WATER RETURN
SHWS	SOLAR HOT WATER SUPPLY
SD	STORM DRAINAGE
OSD	OVERFLOW STORM DRAINAGE



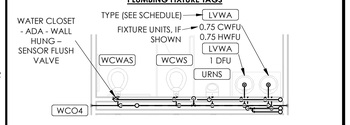
PIPE ACCESSORY TAGS



DRAIN TAGS



PLUMBING FIXTURE TAGS



GENERAL FIRE PROTECTION NOTES

1. PROVIDE ALTERATIONS TO THE EXISTING FIRE PROTECTION SYSTEM AS REQUIRED TO ACCOMMODATE THE NEW FLOOR PLAN AND NEW CEILING TYPES. PROVIDE A COMPLETE WET TYPE SYSTEM INCLUDING NEW MAINS, BRANCHES, HEADS, VALVES, AND ACCESSORIES AS REQUIRED. REUSE EXISTING SYSTEM EQUIPMENT WHERE APPLICABLE. THE SYSTEM SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS AND AS PER REQUIREMENTS OF THE STATE BUILDING CODE, LOCAL FIRE DEPARTMENT, AND ALL FEDERAL, STATE, AND LOCAL AUTHORITIES, NFPA, AND FACTORY MUTUAL.
2. THE BUILDINGS COMPLETE OPERATIONAL FIRE PROTECTION SYSTEMS SHALL REMAIN IN PLACE. THIS CONTRACTOR SHALL REPAIR ANY DAMAGE TO THIS SYSTEM CREATED BY THE REMOVAL OF ANY OTHER MECHANICAL SYSTEMS OR COMPONENTS.
3. THIS CONTRACTOR SHALL COORDINATE PHASING OF SPRINKLER WORK WITH THE GENERAL CONTRACTOR PRIOR TO STARTING WORK.
5. THE SPRINKLER SYSTEM SHALL BE DESIGNED BASED UPON ACTUAL WATER FLOW TEST DATA OBTAINED AT OR NEAR THE JOB SITE.
6. REFER TO REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION REGARDING SPRINKLER HEAD LOCATION AND PIPE, UNLESS NOTED OTHERWISE.
7. DIVISION 21 CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR PROPER INSTALLATION OF THE FIRE PROTECTION SYSTEMS ALARM DEVICES INVOLVED WITH FIRE SPRINKLER SYSTEM.
8. ALL SPRINKLER SYSTEM PIPING SHALL BE CONCEALED ABOVE THE SUSPENDED CEILING SYSTEM, UNLESS NOTED OTHERWISE. WRITTEN AUTHORIZATION SHALL BE OBTAINED FROM THE ARCHITECT PRIOR TO EXPOSING ANY PIPING IN ANY ROOM WHICH HAS A SUSPENDED CEILING.
9. THIS CONTRACTOR SHALL PROVIDE ALL SPRINKLER HEADS AS REQUIRED TO ENSURE AN APPROVED FIRE PROTECTION SYSTEM AT NO ADDITIONAL COST TO THE OWNER.
10. AUXILIARY DRAINS SHALL BE EXPOSED WITH 1" DRAIN VALVES. WHEN 5 OR MORE GALLONS ARE TRAPPED, THIS CONTRACTOR SHALL PROVIDE FIXED PIPING TO AN ADEQUATELY SIZED RECEPTOR WHICH IS CAPABLE OF ACCEPTING THE FULL FLOW OF THE DRAIN. WHEN LESS THAN 5 GALLONS ARE TRAPPED, A HOSE BIB SHALL BE PROVIDED AT THE DRAIN VALVE.
11. AUXILIARY DRAINS SHALL NOT BE LOCATED ABOVE PLASTER OR GYPSUM BOARD CEILING SYSTEMS, ONLY BY A SPECIFIC WRITTEN INSTRUCTION FROM THE ENGINEER WILL A VARIANCE BE PROVIDED.
12. AN INSPECTOR'S TEST CONNECTION SHALL BE PROVIDED FOR EACH FIRE SPRINKLER ZONE. THIS CONTRACTOR SHALL PROVIDE FIXED PIPING FROM THE TEST CONNECTION TO AN ADEQUATELY SIZED RECEPTOR WHICH IS CAPABLE OF ACCEPTING THE FULL FLOW OF THE TEST. EXTERIOR DISCHARGE OF THE TEST CONNECTION SHALL BE PERMITTED ONLY BY SPECIFIC WRITTEN INSTRUCTION FROM THE ENGINEER.
13. SHOW ALL ROOM NUMBERS ON SHOP DRAWING PLANS.
14. FLOW TEST DATA FROM #/##/# INDICATES THE FOLLOWING: STATIC PRESSURE # PSI. RESIDUAL PRESSURE: # PSI AT ## GPM. THE HYDRANTS TESTED ARE APPROXIMATELY ### FEET AWAY FROM THE CENTER OF THE SITE LOCATED OFF THE ##' WATER MAIN IN ## STREET AT AN ELEVATION OF ### FEET ABOVE SEA LEVEL. SEE CIVIL PLANS FOR HYDRANT LOCATION. THE CONTRACTOR SHALL PERFORM A FIRE FLOW TEST IN ACCORDANCE WITH NFPA 291 TO VERIFY THE FLOW TEST DATA GIVEN ABOVE. THE DATA GIVEN ABOVE SHALL BE THE BASIS OF DESIGN UNLESS THE AVAILABLE PRESSURE OR FLOW HAS DECREASED, NOTIFY OWNERS REPRESENTATIVE IF FLOW TEST DATA DIFFERS FROM THE DATA ABOVE. A FIRE PROTECTION ENGINEER OR AN ENGINEER EXPERIENCED IN WATER FLOW TESTING SHALL PERFORM OR WITNESS THE REQUIRED FLOW TESTING AND SIGN THE REPORT PRIOR TO THE FIRST SPRINKLER SYSTEM SUBMITTAL.
15. ROUTE SPRINKLER PIPING SUCH THAT IT DOES NOT RUN ABOVE ELECTRICAL PANELS, SWITCHGEAR, OR SIMILAR EQUIPMENT. SPRINKLER MAINS SHALL NOT RUN THROUGH ELECTRICAL OR COMMUNICATION ROOMS. SPRINKLER HEADS IN THESE ROOMS SHALL BE SERVED BY A DEDICATED BRANCH LINE FOR EACH ROOM.
16. THIS DRAWING INDICATES A GENERAL PIPING ARRANGEMENT ONLY. THIS CONTRACTOR SHALL DETERMINE THE ACTUAL PIPE SIZING REQUIRED AND COORDINATE WORK WITH ALL OTHER TRADES TO AVOID CONFLICTS.
17. THIS CONTRACTOR SHALL PREPARE HYDRAULIC CALCULATIONS BASED UPON THE CONFIGURATION OF THE ACTUAL SYSTEM DESIGN AS SHOWN ON THIS CONTRACTOR'S CONSTRUCTION DOCUMENTS. THE CALCULATIONS AND CONSTRUCTION DOCUMENTS SHALL BE SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER.

GENERAL PLUMBING NOTES

1. FIELD VERIFY ALL NEW WATER, WASTE, AND VENT PIPING CONNECTIONS AND PROVIDE NEW CONNECTIONS AS REQUIRED FOR PROPERLY OPERATING SYSTEMS.

GENERAL PROJECT NOTES

1. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING, PRIOR TO FINAL BID, ALL EXISTING CONDITIONS FOR PLUMBING AND MECHANICAL SYSTEMS WITHIN TENANT SPACE AND WITHIN CLOSE PROXIMITY OF SPACE.
2. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL THE CONDITIONS BOTH EXISTING AND THOSE ILLUSTRATED BY THESE DOCUMENTS AS WELL AS THOSE WHICH CAN BE REASONABLY ANTICIPATED INCLUDING, BUT NOT LIMITED TO ARCHITECTURAL, ELECTRICAL, VENTILATION, PLUMBING, AND OTHER SYSTEMS INVOLVED ON THIS PROJECT.
3. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
4. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AT A LEVEL OF QUALITY AND WORKMANSHIP CONSISTENT WITH THE SPECIFICATIONS.
5. LOCATIONS OF PIPING, DUCTWORK AND EQUIPMENT AS INDICATED ON THE PLANS, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID INTERFERENCE IN THE FIELD.
6. THE CONTRACTOR'S WORK SCHEDULE SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER.
7. PRIOR TO STARTING WORK, SUBMIT SHOP DRAWINGS FOR ALL MECHANICAL EQUIPMENT, PLUMBING FIXTURES, AND DIFFUSERS.
8. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND SHALL ARRANGE FOR ALL INSPECTIONS AS REQUIRED.
9. FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING, BUT NOT LIMITED TO THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.
10. REMOVE ALL UNUSED PIPING, DUCTWORK AND ACCESSORIES.
11. WHERE FLOOR DRAINS OCCUR WITHIN THE LIMITS OF CONSTRUCTION, PREVENT CONSTRUCTION DEBRIS FROM ENTERING DRAIN BODY BY SEALING DRAIN OPENING PRIOR TO START OF WORK. UNSEAL DRAINS AT COMPLETION OF CONSTRUCTION.
12. COORDINATE INSTALLATION OF PIPING, DUCTWORK, CONDUIT, LIGHTS, CABLE TRAY, STRUCTURE, AND EQUIPMENT TO PREVENT CONFLICTS.
13. LOCATE EQUIPMENT REQUIRING ACCESS 2'-0" MAXIMUM ABOVE CEILING.
14. ALL ROOF MOUNTED EQUIPMENT SHALL BE A MINIMUM 10'-0" FROM EDGE OF ROOF.
15. LOCATE DUCTWORK, PIPING AND MECHANICAL EQUIPMENT AWAY FROM THE SPACE ABOVE ELECTRICAL PANELS, TRANSFORMERS AND OTHER ELECTRICAL EQUIPMENT.
16. PENETRATIONS OF RATED ASSEMBLIES SHALL BE FIRE STOPPED. FIRE STOPPING SHALL BE AN APPROVED MATERIAL AS PRESCRIBED IN CSFM STANDARD 43-1 AND SHALL BE U.L. LISTED.
17. PROVIDE SLEEVES AND/OR OPENINGS TO RUN PIPES AND DUCTS THROUGH FOUNDATIONS, FLOORS, WALLS, AND ROOF.
18. MAINTAIN CLEAR ACCESS TO SERVICE EQUIPMENT AND OTHER ACCESSORIES REQUIRING SERVICE. VISUAL INSPECTION OR HAND OPERATION, WHERE INDICATED OR REQUIRED, PROVIDE ACCESS PANELS OF THE TYPE SELECTED TO SUIT MATERIALS IN WHICH INSTALLED.
19. ADJUST PIPING AND DUCTWORK SIZES TO PROPERLY CONNECT TO MECHANICAL EQUIPMENT.
20. PIPE SIZES SHOWN SHALL BE CONTINUED IN THE DIRECTION OF FLOW UNTIL ANOTHER SIZE IS SHOWN.
21. FOR EQUIPMENT CONNECTIONS, AND PIPE SIZES NOT SHOWN ON THE PLANS, REFER TO DETAILS, SCHEDULES, AND SPECIFICATIONS.
22. INSTALL EXPOSED PIPING AND DUCTWORK AS HIGH AS PRACTICAL IN ROOMS WITHOUT CEILINGS.
23. PROVIDE ONE YEAR WARRANTY FOR ALL WORKMANSHIP AND MATERIALS AFTER THE DATE OF FINAL ACCEPTANCE.
24. EACH DETAIL INCLUDED IN THIS SET OF DOCUMENTS APPLIES TO THIS PROJECT REGARDLESS IF EACH DETAIL HAS BEEN REFERENCED ON THE PLANS OR NOT.
25. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.
26. PROVIDE A COMPLETE OPERATION & MAINTENANCE MANUAL INCLUDING APPROVED SUBMITTAL DRAWINGS, WARRANTY INFORMATION FOR PRODUCT(S) SUPPLIED, AND MANUFACTURER'S OPERATION AND MAINTENANCE INSTRUCTIONS.

BID PACKAGE 2
ISSUED FOR BIDS

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7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER — DATE
APPROVED:
ES PROJECT MANAGER — DATE
ES BRANCH CHIEF — DATE
CONCURRENCE
AGENCY REPRESENTATIVE — DATE
TITLE

REV	DATE	DESCRIPTION
	06/16/2026	100% CD'S

ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: P001.2.dwg
DRAWN BY: Author
CHECKED BY: BSC

SHEET TITLE:
PLUMBING AND FIRE PROTECTON INFORMATION & SYMBOL LEGEND

P001.2

PLUMBING DEMOLITION NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATORY AGENCIES, CODES AND REGULATIONS FOR NEW WORK.
2. VERIFY ALL CONDITIONS IN FIELD BEFORE START OF CONSTRUCTION. NOTIFY ARCHITECT/ENGINEER OF DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS.
3. COORDINATE ANY REQUIRED SHUTDOWN OF SERVICES OR EQUIPMENT WITH OWNER'S REPRESENTATIVE. MINIMIZE INTERRUPTION OF EXISTING SERVICES. VERIFY ALL SYSTEMS BEFORE STARTING DEMOLITION TO ASSURE OTHER AREAS WILL NOT LOSE SERVICE.
4. NO ITEMS ABANDONED IN PLACE.
5. ALL ITEMS DEMOLISHED SHALL BE REMOVED AND REMAINING OPEN SYSTEMS SHALL BE PATCHED, CAPPED AND SEALED TO PROVIDE A FINISHED SYSTEM.
6. DEMOLISHED PLUMBING LINE SHALL NOT BE ALLOWED TO REMAIN OPEN. CAP AND PROTECT TO AVOID CONTAMINATION TO AND FROM THE SURROUNDING AREAS.
7. ALL SYSTEMS OPENED DURING DEMOLITION SHALL BE CLOSED AND RETURNED TO OPERATION BY END OF SHIFT. NO SYSTEMS ALLOWED TO BE LEFT OPEN WHEN NOT BEING SUPERVISED BY CONTRACTOR RESPONSIBLE FOR THAT WORK TRADE.

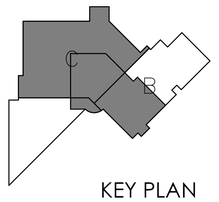
KEYNOTES

1. DEMOLISH 3" VENT THROUGH THE ROOF AND PATCH.
2. EXISTING PLUMBING FIXTURE AND ASSOCIATED SUPPLY AND WASTE PIPING SHALL REMAIN. VENT PIPING SHALL REMAIN. VENT THRU THE ROOF TERMINATION SHALL BE DEMOLISHED.
3. DEMOLISH EXISITNG SANITARY SEWER PIPING FROM THE LEVEL ABOVE BACK TO THE MAIN, CORE DRILL AND PATCH.
4. LIGHTING PLAN

NORTH TN

FIRST FLOOR SANITARY AND VENT DEMOLITION PLAN

SCALE: 1/8" = 1'-0"



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

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INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
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ES BRANCH CHIEF DATE

CONCURRENCE

AGENCY REPRESENTATIVE DATE

TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: JULY 29, 2026

CONTRACT NO:

PROJECT NO: 241532

CAD DWG FILE: PD101.2.dwg

DRAWN BY:

CHECKED BY: BSC

SHEET TITLE:

FIRST FLOOR SANITARY AND VENT DEMOLITION PLAN

PD101.2

PLUMBING DEMOLITION NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATORY AGENCIES, CODES AND REGULATIONS FOR NEW WORK.
2. VERIFY ALL CONDITIONS IN FIELD BEFORE START OF CONSTRUCTION. NOTIFY ARCHITECT/ENGINEER OF DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS.
3. COORDINATE ANY REQUIRED SHUTDOWN OF SERVICES OR EQUIPMENT WITH OWNER'S REPRESENTATIVE. MINIMIZE INTERRUPTION OF EXISTING SERVICES. VERIFY ALL SYSTEMS BEFORE STARTING DEMOLITION TO ASSURE OTHER AREAS WILL NOT LOSE SERVICE.
4. NO ITEMS ABANDONED IN PLACE.
5. ALL ITEMS DEMOLISHED SHALL BE REMOVED AND REMAINING OPEN SYSTEMS SHALL BE PATCHED, CAPPED AND SEALED TO PROVIDE A FINISHED SYSTEM.
6. DEMOLISHED PLUMBING LINE SHALL NOT BE ALLOWED TO REMAIN OPEN, CAP AND PROTECT TO AVOID CONTAMINATION TO AND FROM THE SURROUNDING AREAS.
7. ALL SYSTEMS OPENED DURING DEMOLITION SHALL BE CLOSED AND RETURNED TO OPERATION BY END OF SHIFT. NO SYSTEMS ALLOWED TO BE LEFT OPEN WHEN NOT BEING SUPERVISED BY CONTRACTOR RESPONSIBLE FOR THAT WORK TRADE.

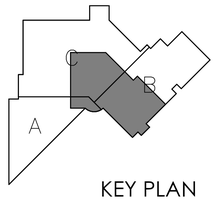
KEYNOTES

1. DEMOLISHED FIXTURE, EXISTING SUPPLIES, WASTE, AND VENT PIPING SHALL REMAIN FOR CONNECTION TO A NEW FIXTURE.
2. DEMOLISH THE FLOOR DRAIN AND ASSOCIATED UNUSED BRANCH PIPING BACK TO THE MAIN AND CAP.
3. DEMOLISH THE SINK AND ASSOCIATED UNUSED BRANCH PIPING BACK TO THE MAIN AND CAP.
4. DEMOLISH EXISTING SANITRAY WASTE PIPING ALL THE WAY TO MAIN. EXISTING PIPING ON FIRST FLOOR CEILING. CONTRACTOR TO VERIFY EXISTING CONDITION.
5. EXISTING SANITARY WASTE PIPING IN FIRST FLOOR CEILING.
6. DEMOLISH EXISTING FIXTURE AND ALL ASSOCIATED PIPING BACK TO THE MAIN.
7. DEMOLISH AND REMOVE EXISTING FIRE PROTECTION BRANCH PIPING, SPRINKLER HEADS, AND RELATED COMPONENTS AS REQUIRED TO ACCOMMODATE REVISED ROOM LAYOUTS AND NEW ROOM ADDITIONS. COORDINATE LIMITS OF REMOVAL WITH ARCHITECTURAL PLANS AND FIELD CONDITIONS. PROTECT ACTIVE SYSTEMS TO MAINTAIN LIFE SAFETY COVERAGE THROUGHOUT CONSTRUCTION. PREPARE EXISTING FIRE PROTECTION NETWORK FOR RECONFIGURATION TO SERVE AREAS OF CHANGED SIZE OR FUNCTION PER APPLICABLE CODE AND HOSPITAL REQUIREMENTS.
8. DEMOLISH AND RELOCATE EXISTING BRANCH FIRE SPRINKLER PIPING AND SPRINKLER HEAD TO MEET THE FIRE PROTECTION REQUIREMENTS.
9. EXISTING PLUMBING FIXTURE AND ASSOCIATED SUPPLY, WASTE, AND VENT PIPING SHALL REMAIN.
10. DEMOLISH EXISTING REVERSE OSMOSIS PIPING AND LOOP ABOVE CEILING. PREPARE FOR NEW PIPING CONNECTIONS.

NORTH TN

SECOND FLOOR PLUMBING DEMOLITION PLAN

SCALE: 1/8" = 1'-0"



KEY PLAN

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INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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ES BRANCH CHIEF — DATE

CONCURRENCE

AGENCY REPRESENTATIVE — DATE

TITLE

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ISSUE DATE: JULY 29, 2026

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PROJECT NO: 241532
CAD DWG FILE: PD102.2.dwg
DRAWN BY:
CHECKED BY: BSC

SHEET TITLE:

SECOND FLOOR PLUMBING DEMOLITION PLAN

PD102.2

PLUMBING DEMOLITION NOTES

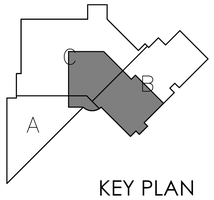
1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATORY AGENCIES, CODES AND REGULATIONS FOR NEW WORK.
2. VERIFY ALL CONDITIONS IN FIELD BEFORE START OF CONSTRUCTION. NOTIFY ARCHITECT/ENGINEER OF DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS.
3. COORDINATE ANY REQUIRED SHUTDOWN OF SERVICES OR EQUIPMENT WITH OWNER'S REPRESENTATIVE. MINIMIZE INTERRUPTION OF EXISTING SERVICES. VERIFY ALL SYSTEMS BEFORE STARTING DEMOLITION TO ASSURE OTHER AREAS WILL NOT LOSE SERVICE.
4. NO ITEMS ABANDONED IN PLACE.
5. ALL ITEMS DEMOLISHED SHALL BE REMOVED AND REMAINING OPEN SYSTEMS SHALL BE PATCHED, CAPPED AND SEALED TO PROVIDE A FINISHED SYSTEM.
6. DEMOLISHED PLUMBING LINE SHALL NOT BE ALLOWED TO REMAIN OPEN, CAP AND PROTECT TO AVOID CONTAMINATION TO AND FROM THE SURROUNDING AREAS.
7. ALL SYSTEMS OPENED DURING DEMOLITION SHALL BE CLOSED AND RETURNED TO OPERATION BY END OF SHIFT. NO SYSTEMS ALLOWED TO BE LEFT OPEN WHEN NOT BEING SUPERVISED BY CONTRACTOR RESPONSIBLE FOR THAT WORK TRADE.

KEYNOTES

1. DEMOLISH EXISTING MEDICAL GAS OUTLETS, ASSOCIATED VALVES, AND PIPING AS INDICATED.
2. DEMOLISH EXISTING ZONE VALVE BOX AND ALL PIPING AND CONNECTIONS DOWNSTREAM SERVING THE OPERATING ROOM.
3. DEMOLISH EXISTING MEDICAL GAS OUTLETS SERVING THE EXISTING DECONTAMINATION ROOM.
4. DEMOLISH EXISTING MEDICAL GAS OUTLETS SERVING THE EXISTING CENTRAL SERVICES ROOM.

NORTH
TN

SECOND FLOOR MEDICAL GAS DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



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AGENCY REPRESENTATIVE DATE

TITLE

REV	DATE	DESCRIPTION
A1	07/29/2026	ADDENDUM #1

ISSUE DATE: JULY 29, 2026

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PROJECT NO: 241532

CAD DWG FILE: PD202.2.dwg

DRAWN BY:

CHECKED BY: BSC

SHEET TITLE:

SECOND FLOOR MEDICAL GAS DEMOLITION PLAN

PD202.2

PLUMBING NOTES

1. THIS PLAN IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED TO DETERMINE THE LOCATION OR DIMENSION OF THE WORK. CONTRACTOR SHALL VERIFY EXACT LOCATION OF PIPING AND PENETRATIONS.
2. COORDINATE WORK WITH OTHER TRADES AND WITH THE CONSTRUCTION MANAGER.
3. REFER TO THE RISER DIAGRAMS FOR ADDITIONAL PIPE SIZES.
4. DIELECTRIC FITTINGS ARE RECOMMENDED FOR DISSIMILAR METAL CONNECTIONS.

SANITARY & VENT NOTES

1. ALL SANITARY DRAINAGE (SS) PIPING IS LOCATED BELOW SLAB, UNLESS OTHERWISE NOTED.
2. COORDINATE WITH ARCHITECT TO MAINTAIN THE WATERTIGHT INTEGRITY OF THE BUILDING ENVELOPE AND FLOOR SLABS.
3. PROVIDE WATERTIGHT INSTALLATIONS OF ALL FLOOR EMBEDDED DEVICES INCLUDING BUT NOT LIMITED TO: FLOOR DRAINS, FLOOR SINKS, SHOWER DRAINS, HUB DRAINS, FLOOR RECESSED CLEANOUTS AND, FLUSH TO FLOOR ACCESS HOUSINGS.
4. PROVIDE ALL FLOOR DRAINS, FLOOR SINKS, TRENCH DRAINS AND SHOWER DRAINS WITH IN-LINE TRAP SEAL PROTECTION DEVICES, AS MANUFACTURED BY "SURE SEAL MANUFACTURING", OR APPROVED EQUAL. DEVICES SHALL MEET OR EXCEED ASSE - 1072.
5. PROVIDE WALL CLEAN OUTS IN ALL VENT RISERS ON BRANCHES LONGER THAN 5'-0" AND ON BRANCHES SERVING SINKS OR URINALS.
6. MAINTAIN A MINIMUM 10-0" SEPARATION BETWEEN FLUE AND PLUMBING VENT OUTLETS AND ANY FRESH AIR INTAKE(S). COORDINATE THE REQUIREMENTS WITH THE HVAC CONTRACTOR.
7. VERIFY THE LOCATION OF EXISTING BELOW GRADE WASTE PIPING AND REFLECT ANY DEVIATION GREATER THAN 1'-0" FROM THIS PLAN ON THE AS-BUILT DRAWINGS.

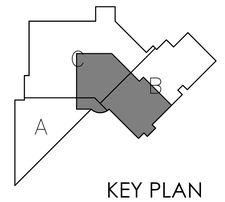
KEYNOTES

1. 2" VENT UP TO A 3" VENT THROUGH THE ROOF. MAINTAIN PROPER CLEARANCE FROM ALL MECHANICAL EQUIPMENT AIR INTAKES.
2. PROVIDE WITH TRAPPED WASTE UP TO FIXTURE ABOVE.
3. 3" WASTE UP TO CLEANOUT ABOVE.
4. 4" WASTE PIPING CONNECTED TO THE EXISTING WASTE PIPING (4" MINIMUM SIZE). FIELD VERIFY THE SIZE, ROUTE, INVERT ELEVATION AND CONNECTION REQUIREMENTS.
5. 2" VENT UP.
6. 2" WASTE UP TO SERVE THE FIXTURE ABOVE.

NORTH TN

FIRST FLOOR SANITARY AND VENT PLAN

SCALE: 1/8" = 1'-0"



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APPROVED:

ES PROJECT MANAGER — DATE

ES BRANCH CHIEF — DATE

CONCURRENCE

AGENCY REPRESENTATIVE — DATE

TITLE

REV	DATE	DESCRIPTION
A1	07/20/2026	ADDENDUM #1

ISSUE DATE: JULY 29, 2026

CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: P101.2.dwg
DRAWN BY:
CHECKED BY: BSC

SHEET TITLE:

FIRST FLOOR SANITARY AND VENT PLAN

P101.2

PLUMBING NOTES

1. THIS PLAN IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED TO DETERMINE THE LOCATION OR DIMENSION OF THE WORK. CONTRACTOR SHALL VERIFY EXACT LOCATION OF PIPING AND PENETRATIONS.
2. COORDINATE WORK WITH OTHER TRADES AND WITH THE CONSTRUCTION MANAGER.
3. REFER TO THE RISER DIAGRAMS FOR ADDITIONAL PIPE SIZES.
4. DIELECTRIC FITTINGS ARE RECOMMENDED FOR DISSIMILAR METAL CONNECTIONS.

DOMESTIC WATER NOTES

1. PROVIDE BALL VALVE FOR ISOLATION OF ALL DOMESTIC WATER BRANCH LINES. TYPICAL UNLESS OTHERWISE NOTED TO BE OMITTED.

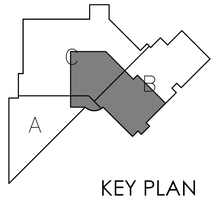
KEYNOTES

1. 1/2" COLD WATER, 1/2" HOT WATER, AND 1/2" REVERSE OSMOSIS WATER DOWN TO STERIS AMSCO 5052 WASHER. PROVIDE BACKFLOW PREVENTER AT POINT OF CONNECTION AND INDIRECTLY DRAIN TO FLOOR SINK. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION AND CONNECTION REQUIREMENTS.
2. 1" COLD WATER AND 1/2" REVERSE OSMOSIS WATER DOWN TO AMSCO 400 SMALL STERILIZER. PROVIDE BACKFLOW PREVENTER AT POINT OF CONNECTION AND INDIRECTLY DRAIN TO FLOOR SINK. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION AND CONNECTION REQUIREMENTS.
3. CONNECT 2" COLD WATER WITH SHUT-OFF VALVE TO EXISTING 2" MINIMUM LINE. FIELD VERIFY ROUTE AND CONNECTION REQUIREMENTS.
4. CONNECT 1-1/2" HOT WATER WITH SHUT-OFF VALVE TO EXISTING 1-1/2" MINIMUM LINE. FIELD VERIFY ROUTE AND CONNECTION REQUIREMENTS.
5. CANTEL ADV PLUS - ENDOSCOPE REPROCESSING SYSTEM. 1/2" COLD AND 1/2" HOT WATER DOWN IN WALL AND OUT TO SHUT-OFF VALVES AND MIXING VALVE EQUAL TO WATTS LFMMV-M1 TO SERVE THE EQUIPMENT. FIELD VERIFY AND INSTALL PER MANUFACTURER'S INSTRUCTIONS.
6. PROVIDE NEW FIRE PROTECTION PIPING, FITTINGS, AND SPRINKLER HEADS TO ACHIEVE REQUIRED COVERAGE FOR REVISED AND NEW ROOM LAYOUTS. SPRINKLER HEAD LOCATIONS AND ORIENTATION SHALL BE COORDINATED WITH REFLECTED CEILING PLANS AND OBSTRUCTION CLEARANCES. ALL NEW WORK SHALL MEET NFPA REQUIREMENTS AND BE INSTALLED BY A LICENSED FIRE PROTECTION CONTRACTOR. CONTRACTOR SHALL PERFORM HYDRAULIC CALCULATIONS AND PROVIDE A COMPLETE NICET I CERTIFIED SUBMITTAL PACKAGE PRIOR TO INSTALLATION.
7. 1/2" COLD WATER AND 1/2" HOT WATER DOWN TO OUTLET BOX TO SERVE EQUIPMENT.
8. PROVIDE WITH NEW REVERSE OSMOSIS PIPING AND LOOP ABOVE CEILING AS REQUIRED. FIELD VERIFY CONNECTIONS AND SYSTEM REQUIREMENTS. TIE INTO AND UTILIZE THE EXISTING SYSTEM IN THE MECHANICAL ROOM AS APPLICABLE FOR A FULLY OPERATING AND COMPLIANT SYSTEM.
9. 1/2" COLD WATER, 1/2" HOT WATER, AND 1/2" REVERSE OSMOSIS WATER DOWN TO THE ULTRASONIC CLEANER. PROVIDE BACKFLOW PREVENTER AT POINT OF CONNECTION AND INDIRECTLY DRAIN TO FLOOR SINK. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION AND CONNECTION REQUIREMENTS.
10. PROVIDE CONNECTION TO DOCKING STATION FROM EXISTING COLD WATER SUPPLY. REFER TO THE MANUFACTURER'S INSTALLATION AND CONNECTION REQUIREMENTS.

NORTH TN

SECOND FLOOR DOMESTIC WATER PLAN

SCALE: 1/8" = 1'-0"



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

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CONSULTANT

MONTANA
BRADEN S. COX
No. 90191PE
LICENSED PROFESSIONAL ENGINEER
7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

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ISSUE DATE: JULY 29, 2026
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CHECKED BY: BSC

SHEET TITLE:
SECOND FLOOR DOMESTIC WATER PLAN

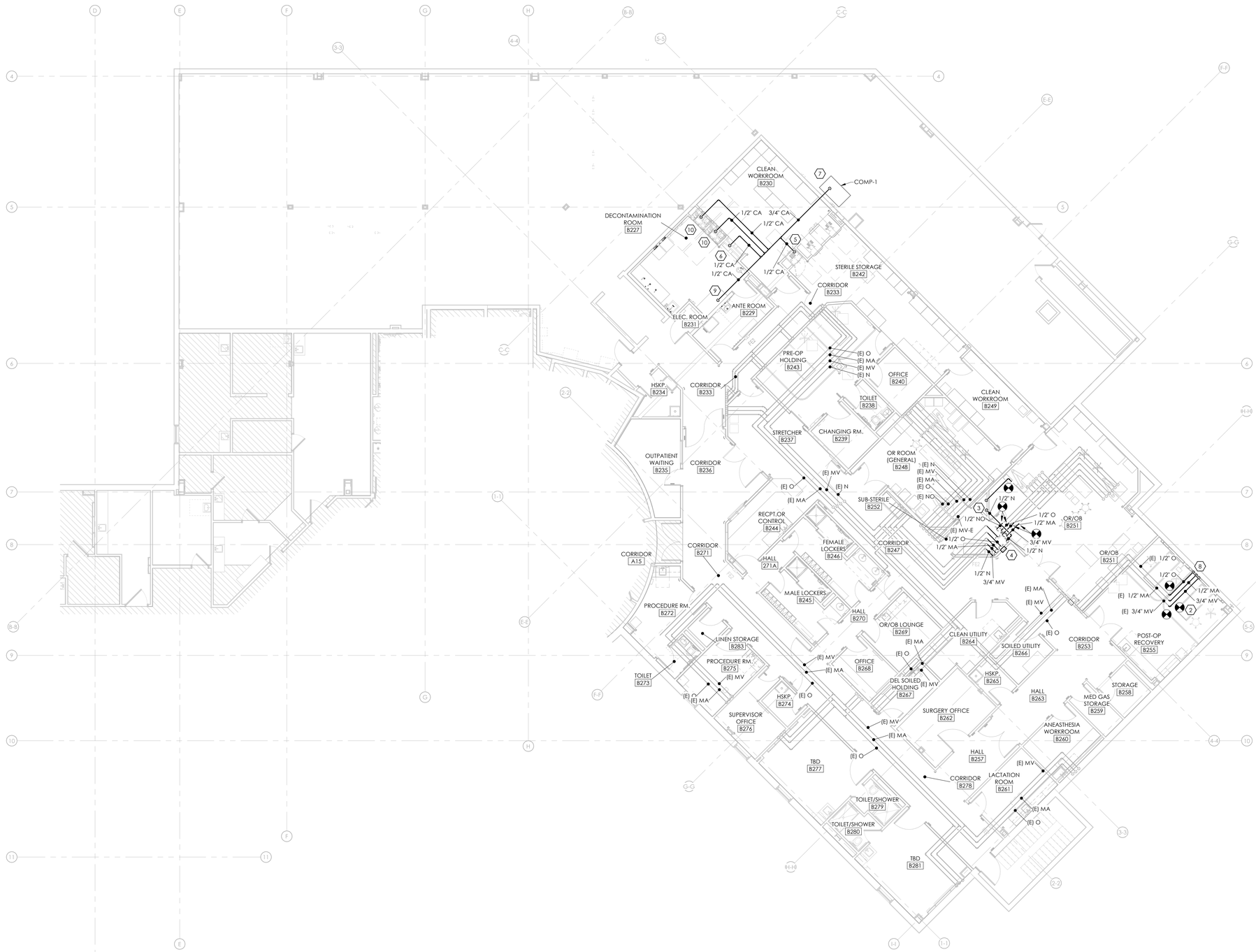
P202.2

PLUMBING NOTES

1. THIS PLAN IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED TO DETERMINE THE LOCATION OR DIMENSION OF THE WORK. CONTRACTOR SHALL VERIFY EXACT LOCATION OF PIPING AND PENETRATIONS.
2. COORDINATE WORK WITH OTHER TRADES AND WITH THE CONSTRUCTION MANAGER.
3. REFER TO THE RISER DIAGRAMS FOR ADDITIONAL PIPE SIZES.
4. DIELECTRIC FITTINGS ARE RECOMMENDED FOR DISSIMILAR METAL CONNECTIONS.

KEYNOTES

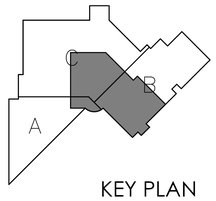
2. PROVIDE WITH NEW MEDICAL GAS PIPING AND CONNECTIONS. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION. SYSTEM TO BE RECERTIFIED PER NFPA REQUIREMENTS.
3. PROVIDE WITH NEW NITROGEN GAS OUTLETS AND NITROGEN CONTROL CABINET. REFER TO ARCHITECTURAL FOR ADDITIONAL INFORMATION.
4. PROVIDE WITH NEW MEDICAL GAS PIPING AND CONNECTIONS TO THE ZONE VALVE BOX. SYSTEM TO BE RECERTIFIED PER NFPA.
5. 1/2" COMPRESSED AIR WITH SHUT OFF VALVE DOWN TO CANTEL DRYING CABINET.
6. 1/2" COMPRESSED AIR WITH SHUT OFF VALVE DOWN TO CANTEL ADVANTAGE PLUS PASS THRU.
7. NEW AIR COMPRESSOR COMP-1 IN THE MECHANICAL ROOM. REFER TO PLUMBING SCHEDULES FOR ADDITIONAL INFORATION. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR PIPE CONNECTION SIZE AND PRESSURE REQUIREMENTS. PROVIDE PRESSURE REGULATING VALVE AND ASSOCIATED ACCESSORIES AS REQUIRED.
8. PROVIDE WITH NEW MEDICAL GAS PIPING CONNECTIONS TO THE HEADWALL SYSTEM. REFER TO ARCHITECTURAL FOR ADDITIONAL INFORMATION.
9. 1/2" COMPRESSED AIR DOWN TO THE ULTRASONIC CLEANER. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION AND CONNECTION REQUIREMENTS.
10. 1/2" COMPRESSED AIR DOWN TO THE WASHER/DISINFECTOR. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION AND CONNECTION REQUIREMENTS.



NORTH TN

SECOND FLOOR MEDICAL GAS PLAN

SCALE: 1/8" = 1'-0"



KEY PLAN

BID PACKAGE 2
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CROW AGENCY, MONTANA 59022

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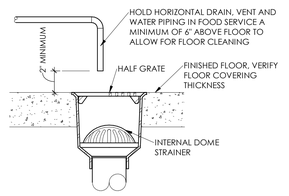
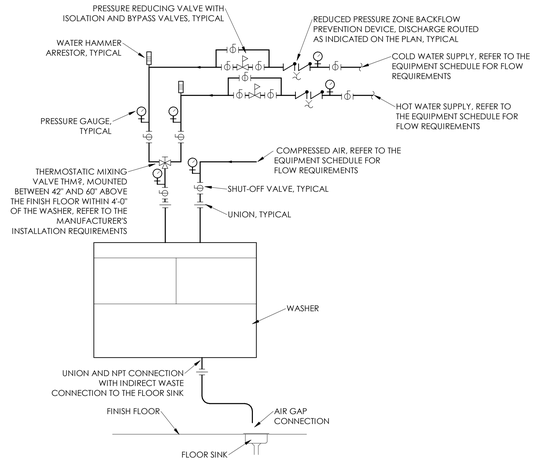
SECOND FLOOR MEDICAL GAS PLAN

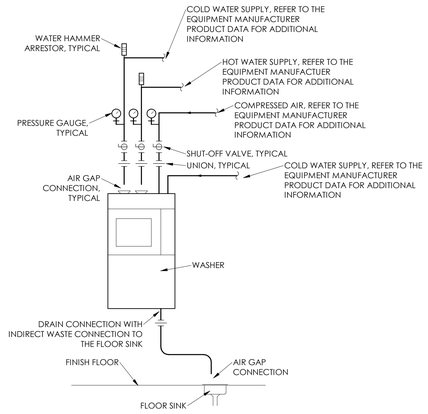
P302.2



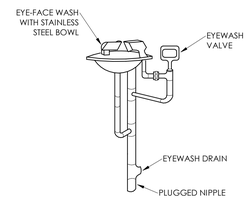
10 P500.2 **FLOOR SINK**
SCALE: NTS



9 P500.2 **ENDOSCOPE REPROCESSING UNIT DETAIL**
SCALE: NTS

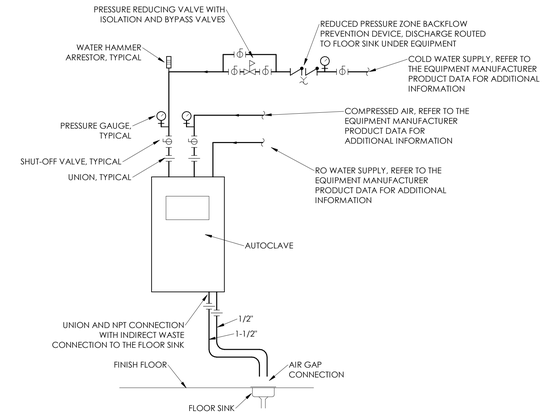


8 P500.2 **WASHER/DISINFECTOR DETAIL**
SCALE: NTS

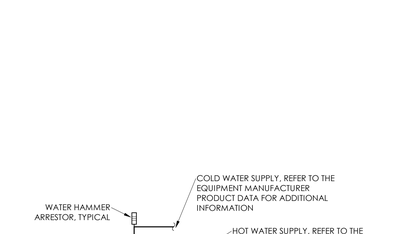


NOTES:
1. PROVIDE A LOOSE-KEY LOCKSHIELD TYPE SHUT-OFF VALVE IN DOMESTIC WATER SUPPLY TROP TO EYEWASH STATION. LABEL VALVE TO PREVENT UNAUTHORIZED SHUT-OFF.
2. PROVIDE WITH MANUFACTURER'S WALL MOUNTING BRACKET.

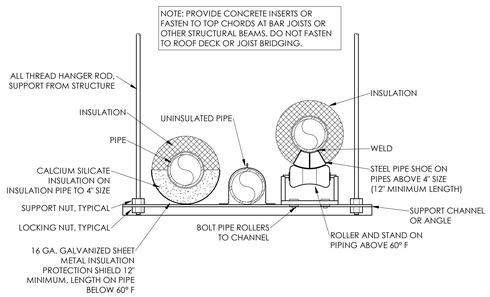
7 P500.2 **EMERGENCY EYEWASH PIPING DETAIL**
SCALE: NTS



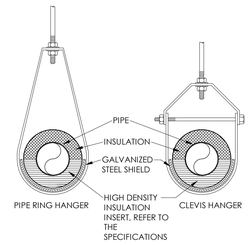
6 P500.2 **SMALL STERILIZER CONNECTION DETAIL**
SCALE: NTS



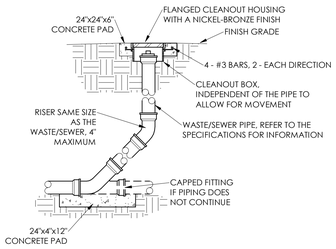
5 P500.2 **LAVATORY INSTALLATION DETAIL**
SCALE: NTS



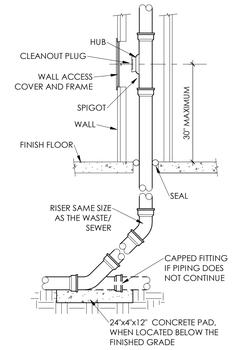
4 P500.2 **TRAPEZE PIPE HANGER DETAIL**
SCALE: NTS



3 P500.2 **INSULATED PIPE AT HANGER DETAIL**
SCALE: NTS



2 P500.2 **CLEAN OUT AND PLUGGED RISER**
SCALE: NTS



1 P500.2 **WALL CLEAN OUT DETAIL**
SCALE: NTS

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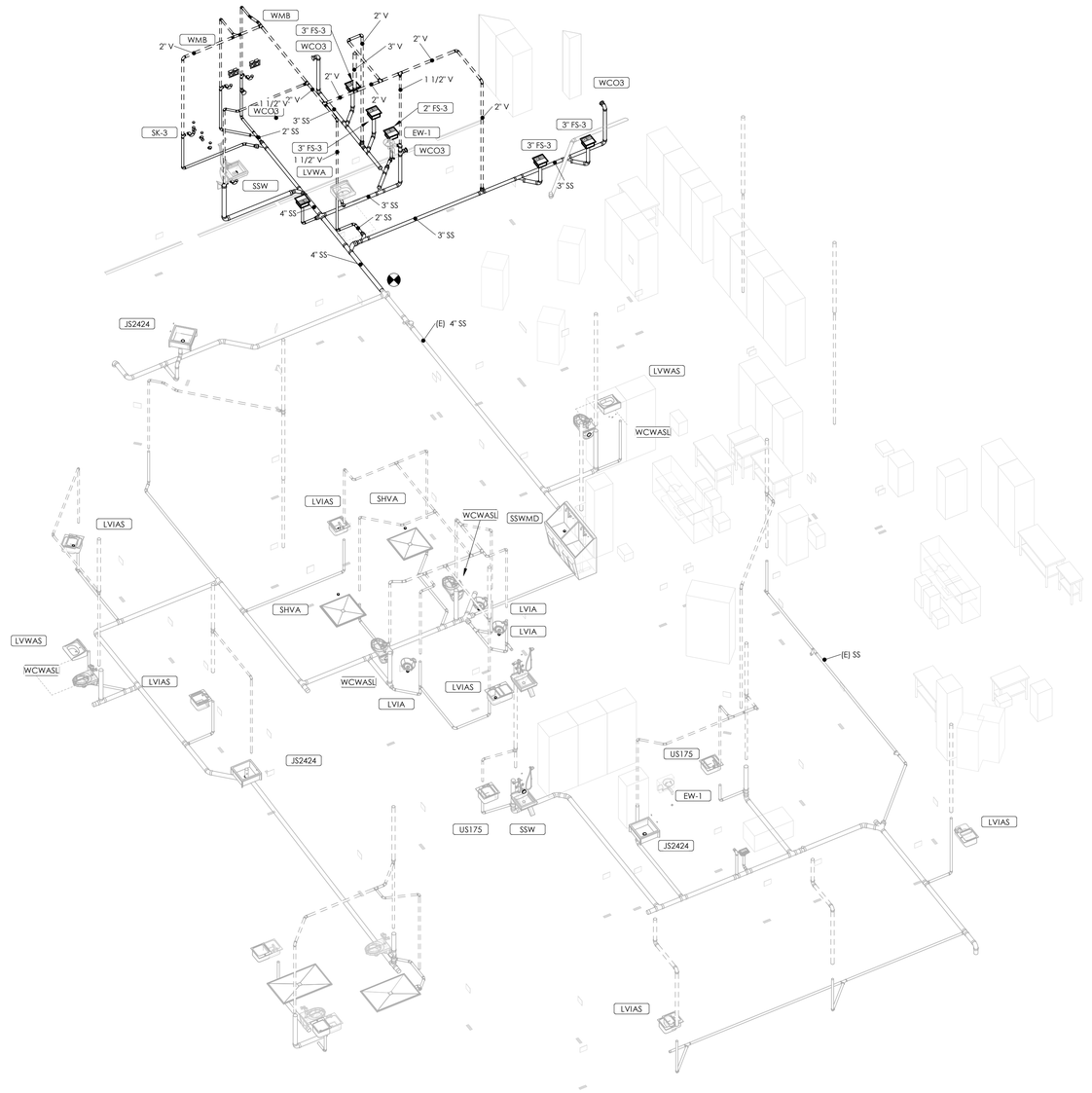
PLUMBING DETAILS

P500.2



1 P520.2 WASTE & VENT RISER DIAGRAM
SCALE: NTS

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TITLE

REV	DATE	DESCRIPTION

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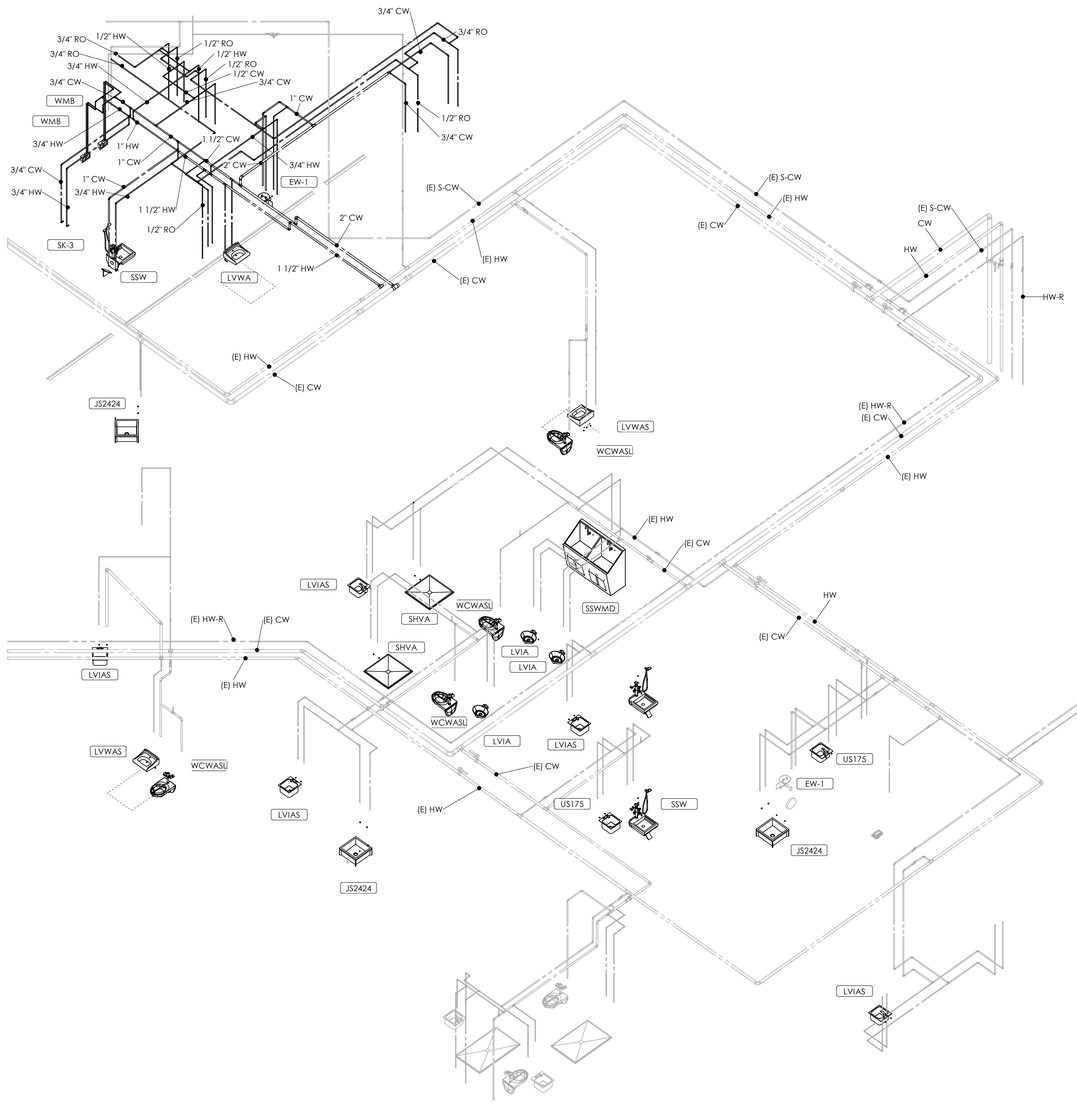
CHECKED BY: BSC

SHEET TITLE:
SANITARY & VENT RISER DIAGRAMS

P520.2



2 P521.2 DOMESTIC WATER RISER DIAGRAM
SCALE: NTS

BID PACKAGE 2
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CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE
CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
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DOMESTIC WATER AND GAS RISER DIAGRAMS

P521.2

STERILIZER EQUIPMENT - AIR COMPRESSOR SCHEDULE

MARK	LOCATION	MANUFACTURER	MODEL	CAPACITY (SCFM)	WORKING PRESSURE PSIG	ELECTRICAL DATA						WEIGHT WITH ENCLOSURE	AIR RECEIVER CAPACITY	NOTES
						HP	MCA	MOCP	VOLTS	PH	HZ			
COMP-1	MECH ROOM	BEACON MEDAES	LES03-145T-RD-310	7.2	145	3	6	15	480	3	60	353 LBS	7.925 GAL	1

GENERAL NOTES:
1. PACKAGE SYSTEM WITH A COMPRESSOR, INTEGRATED REFRIGERATOR DRYER, INTEGRATED RECEIVER TANK, 1 MICROMETER PARTICULATE FILTER.

FLOOR DRAIN SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL NO.	MATERIAL DESCRIPTION		PRIMER CONNECTION	WASTE	VENT	PRIMER	DESCRIPTION	NOTES
				DRAIN BODY	STRAINER		PIPE SIZE	PIPE SIZE	PIPE SIZE		
FS-3	FLOOR SINK	WATTS	FS-730	EPOXY COATED CAST IRON	ALUMINUM		2"	2"		12" SQUARE X 6" DEEP SANITARY FLOOR SINK WITH WHITE PORCELAIN ENAMEL COATED INTERIOR, LOOSE SET PORCELAIN ENAMEL COATED CAST IRON GRATE, ALUMINUM DOME BOTTOM STRAINER, AND NO HUB OUTLET.	
FS-3	FLOOR SINK	WATTS	FS-730	EPOXY COATED CAST IRON	ALUMINUM		3"	2"		12" SQUARE X 6" DEEP SANITARY FLOOR SINK WITH WHITE PORCELAIN ENAMEL COATED INTERIOR, LOOSE SET PORCELAIN ENAMEL COATED CAST IRON GRATE, ALUMINUM DOME BOTTOM STRAINER, AND NO HUB OUTLET.	

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL NO.	MATERIAL DESCRIPTION	FINISH	TRIM				FLOW FIXTURE		FLUSH FIXTURE		WASTE ROUGH-IN PIPE SIZE	INDIRECT WASTE PIPE SIZE	VENT PIPE SIZE	COLD WATER ROUGH-IN PIPE SIZE	HOT WATER ROUGH-IN PIPE SIZE	DESCRIPTION	NOTES
						MANUFACTURER	MODEL NO.	TYPE	MOTION SENSOR CONTROL	WATER FLOW	MAX. MWT	VOL. PER FLUSH	MIN. VOL. PER FLUSH							
WCO3	WALL CLEANOUT	WATTS	CO-453-RD																LINE CLEANOUT WITH STAINLESS STEEL COVER	2
EW-1	EYEWASH - PEDESTAL	HAWS	7261-7271	ABS PLASTIC	GREEN	--	--		No	3.7 GPM	85 °F				1 1/4"			1/2"	PEDESTAL EYE/FACE WASH STATION. PROVIDE THERMOSTATIC MIXING VALVE MODEL 9201EW AXION EMERGENCY TEMPERING VALVE.	-
JS2424	JANITOR SINK	ACORN	TSH-24	TERRAZZO		CHICAGO FAUCET CO	897-CP	MANUAL	No	2.5 GPM	140 °F			3"		1 1/2"	3/4"	3/4"	SERVICE BASIN WITH A STAINLESS STEEL CAP ON TWO SIDES, WITH CHROME PLATED 3" DRAIN AND CAST IRON TRAP, FAUCET SHALL INCLUDE PAIL HOOK AND ATMOSPHERIC VACUUM BREAKER SPOUT, FURNISH 5'-0" OF 5-PLY HOSE, FITTINGS, A STAINLESS STEEL WALL MOUNTED HOSE HOLDER AND A STAINLESS STEEL WALL MOUNTED MOP HANGER.	3
LV1A	LAVATORY - INTEGRAL TO THE COUNTER - ADA - MANUAL FAUCET	-	-	SAME AS COUNTER	WHITE	ZURN	Z7440-XL-FC	MANUAL	No	0.5 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	ADA LAVATORY INTEGRAL TO THE COUNTERTOP MATERIAL, FAUCET HOLES ON 4" CENTERS. DECK-MOUNTED MANUAL FAUCET, WITH VANDAL RESISTANT SPRAY, EXTERNAL ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE. GRID DRAIN, LOOSE KEY ANGLE STOPS AND SUPPLIES. ADA COMPLIANT OFFSET TAILPIEICE. INSULATE WATER AND WASTE WITH ADA INSULATION KIT.	2, 4
LV1AS	LAVATORY - INTEGRAL TO THE COUNTER - ADA - SENSOR FAUCET	-	-	SAME AS COUNTER	WHITE	CHICAGO FAUCET CO	116.976.AB.1	ELECTRONIC	Yes	0.5 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	ADA LAVATORY INTEGRAL TO THE COUNTERTOP MATERIAL, FAUCET HOLES ON 4" CENTERS. DECK-MOUNTED BATTERY POWERED SENSOR FAUCET, VANDAL RESISTANT SPRAY, EXTERNAL ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE, GRID DRAIN, LOOSE KEY ANGLE STOPS AND SUPPLIES, ADA COMPLIANT OFFSET TAILPIEICE, INSULATE WATER AND WASTE WITH ADA INSULATION KIT.	2, 4
LVWA	LAVATORY - WALL HUNG – ADA – MANUAL FAUCET	AMERICAN STANDARD	LUCERNE	WHITE VITREOUS CHINA	WHITE	ZURN	Z7440-XL-FC	MANUAL	No	0.5 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	VITREOUS CHINA WALL HUNG ADA LAVATORY WITH BACKSPLASH, FAUCET HOLES ON 4" CENTERS. DECK-MOUNTED MANUAL FAUCET WITH VANDAL RESISTANT SPRAY, EXTERNAL ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE, GRID DRAIN, LOOSE KEY ANGLE STOPS AND SUPPLIES, ADA COMPLIANT OFFSET TAILPIECE, INSULATE WATER AND WASTE WITH ADA INSULATION KIT. REFER TO THE ARCHITECTURAL PLANS FOR THE MOUNTING HEIGHT.	2, 4, 6
LVWAS	LAVATORY - WALL HUNG – ADA – SENSOR FAUCET	AMERICAN STANDARD	LUCERNE	WHITE VITREOUS CHINA	WHITE	CHICAGO FAUCET CO	116.976.AB.1	ELECTRONIC	Yes	0.5 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	VITREOUS CHINA WALL HUNG ADA LAVATORY WITH BACKSPLASH, FAUCET HOLES ON 4" CENTERS. DECK-MOUNTED FAUCET WITH BATTERY POWERED SENSOR, VANDAL RESISTANT SPRAY, EXTERNAL ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE, GRID DRAIN, LOOSE KEY ANGLE STOPS AND SUPPLIES, ADA COMPLIANT OFFSET TAILPIECE, INSULATE WATER AND WASTE WITH ADA INSULATION KIT. REFER TO THE ARCHITECTURAL PLANS FOR THE MOUNTING HEIGHT.	2, 4, 6
SHVA	SHOWER VALVE - ADA	SEE ARCHITECTURAL PLANS	SEE ARCHITECTURAL PLANS			SYMMONS	C-96-500-B30-V	MANUAL	No	1.0 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	THE INDIVIDUAL SHOWER STALL IS SPECIFIED IN ANOTHER DIVISION. PROVIDE A BRASS BODY SHOWER DRAIN EQUAL TO SIOUX CHIEF SERIES 825 WITH A SCREW-ON STAINLESS STEEL STRAINER. SHOWER SYSTEM WITH ASSE 1016 COMPLIANT TYPE "T/P" THERMOSTATIC/PRESSURE BALANCING COMBINATION VALVE WITH ADJUSTABLE STOP SCREW TO LIMIT HANDLE TURN. CONCEALED 3-PORT DIVERTER VALVE WITH LEVER HANDLE WITH ARM AND FLANGE, INTEGRAL STOPS, AND IN-LINE VACUUM BREAKER, HAND SHOWER SYSTEM WITH STANDARD HAND SHOWER, 60" FLEXIBLE METAL HOSE, AND 48" SLIDE BAR FOR HAND SHOWER MOUNTING. PROVIDE MANUFACTURER'S FLOW RATE RESTRICTOR ON SHOWERHEAD.	1, 5, 6
SK-3	3-COMPARTMENT SINK	ELKAY	14-3C18X24-2-18X	STAINLESS STEEL	STAINLESS STEEL	T&S	B-0133-18DJ-C RB	MANUAL	Yes	5.9 GPM	140 °F				2"		1/2"	1/2"	THREE COMPARTMENT, 16 GAUGE, DUAL LEVER SWIVEL FAUCET WITH 18" SWING SPOUT WITH SPRAY VALVE AND ADD ON FAUCET, THREE AERO MODEL NO. S-20 TWIST TYPE LEVERWASTE, AERO MODEL NO. S-22 3 COMPARTMENT CONTINUOUS WASTE, SUPPLIES AND STOPS.	8
SSW	WALL MOUNTED BLOWOUT SERVICE SINK WITH FLUSHING RIM, BEDPAN WASHER AND A SERVICE SINK FAUCET	ZURN	Z5410	VITREOUS CHINA	WHITE	ZURN	Z60842AV-BWN	MANUAL	No	2.2 GPM	140 °F	6.5 gal	6.5 gal	4"		2"	1"	1"	27"x20" VITREOUS CHIINA, WALL MOUNTED, BLOWOUT SERVICE SINK WITH THREE STAINLESS STEEL RIM PROTECTORS, A TOP SPUD, FLUSH VALVE WITH A BEDPAN WASHER AND A WALL MOUNTED SERVICE SINK FAUCET.	-
SSWMD	SINK - WALL-HUNG - MANUAL	ELKAY	EWSF26026KWS C	STAINLESS STEEL	STAINLESS STEEL	INCLUDED	INCLUDED	MANUAL	No	0.5 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	WALL-HUNG DOUBLE STATION STAINLESS STEEL SCRUB SINK, 16 GAUGE, MANUAL KNEE ACTIVATION GOOSENECK FAUCET, DECK-MOUNTED MANUAL FAUCET LK394A, TEMERATURE HADLE, LK18B DRAIN, LOOSE KEY ANGLE STOPS AND SUPPLIES.	-
US175	17 X 15 UNDERMOUNT STAINLESS STEEL SINGLE BOWL SINK	ELKAY	ELUHAD111650	STAINLESS STEEL	STAINLESS STEEL	CHICAGO FAUCET CO	786-245ABCP	MANUAL	No	1.0 GPM	105 °F						1/2"	1/2"	UNDER MOUNT SINGLE COMPARTMENT, 16 GAUGE STAINLESS STEEL SINK WITH A FAUCET WITH AN EXTERNAL ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE, BASKET STRAINER EQUAL TO AN AREO MODEL NO S-17, P-TRAP, TAILPIECES, SUPPLIES AND STOPS.	4
WCWASL	WATER CLOSET – ADA - WALL HUNG – SENSOR FLUSH VALVE - LOW FLOW	AMERICAN STANDARD	AFWALL	WHITE VITREOUS CHINA	WHITE	SLOAN	8111-1.28	ELECTRONIC	Yes		40 °F	1.28 gal	1.28 gal	4"		2"	1"		ELONGATED WALL HUNG ADA COMPLIANT WATER CLOSET, 1-1/2" TOP SPUD, WITH ZURN MODEL Z1202, FOR HORIZONTAL APPLICATIONS, FLOOR MOUNTED WALL-HUNG FIXTURE CARRIER, CHURCH 295CT ELONGATED OPEN WHITE FRONT COVERLESS SEAT, AND A BATTERY POWERED SENSOR ACTIVATED 1.3 GPF LOW FLOW FLUSH VALVE. REFER TO THE ARCHITECTURAL PLANS FOR THE MOUNTING HEIGHT.	1, 6
WMB	METAL WASHING MACHINE OUTLET BOX	GUY-GRAY	82026	GALVANIZED METAL	GALVANIZED		-		No	0.5 GPM	105 °F			2"		1 1/2"	1/2"	1/2"	FULLY RECESSED FIRE RATED 20 GAUGE GALVANIZED METAL WASHING MACHINE SUPPLY BOX WITH COVER. PROVIDE 1/4 TURN BALL VALVES. PROVIDE A 2" TRAPPED STANDPIPE IN CONCEALED WALL SPACE.	2, 7

SCHEDULE NOTES:
1. HANDLE ON THE WIDE SIDE OF THE STALL.
2. REFER TO THE ARCHITECTURAL PLANS FOR THE MOUNTING HEIGHT.
3. FAUCET SHALL HAVE A VACUUM BREAKER.
4. INSULATE THE SUPPLY AND DRAIN PIPING WITH A WHITE INSULATION DEVICE EQUAL TO McGUIRE MODEL NO. PW-2150-WC AND PROVIDE A THERMOSTATIC MIXING VALVE ON THE SUPPLIES EQUAL TO WATTS MODEL NO. USG-B.
5. REFER TO THE PLANS FOR THE SEAT ORIENTATION.
6. FIELD VERIFY THE CARRIER CONFIGURATION REQUIRED, COORDINATE WITH THE PIPE ACCESSORY SCHEDULE FOR CARRIER CONFIGURATIONS.
7. SUPPLY FED FROM ABOVE.
8. INDIRECT WASTE TO FLOOR SINK BY PLUMBING CONTRACTOR

BID PACKAGE 2
ISSUED FOR BIDS

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CONSULTANT

7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER DATE

APPROVED:
ES PROJECT MANAGER DATE
ES BRANCH CHIEF DATE

CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION
A1	07/29/2026	ADDENDUM #1

ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: P600.2.dwg
DRAWN BY:
CHECKED BY: BSC

SHEET TITLE:
PLUMBING SCHEDULES

P600.2

GENERAL SYMBOLS

- REVISION NUMBER - SHOWN ON PLANS
- POINT WHERE DISCONNECT/DEMOLITION OCCURS AT EXISTING
- POINT WHERE NEW CONNECTS TO EXISTING
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- KEYNOTE
- CONTINUATION SYMBOL
- ROOM NAME AND NUMBER (Room 5)
- DEMOLISHED ITEM
- AREA NOT IN CONTRACT
- 2" — PIPE SIZE TAG (DIAMETER)
- ABOVE GROUND PIPING
- 1/8" / 12" SLOPE — PIPE SLOPE TAG
- INVERT: -105' - 1" — PIPE INVERT ELEVATION TAG
- BELOW GROUND PIPING
- (E) — EXISTING PIPE TAG
- (D) — PIPING BEING DEMOLISHED

ABBREVIATIONS

Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING		
AD	AREA DRAIN	M/A	MIXED AIR
ADD	ADDENDUM	MAX	MAXIMUM
AFF	ABOVE FINISHED FLOOR	MBH	ONE THOUSAND BTU PER HOUR
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MCF	ONE THOUSAND CUBIC FEET
ALT	ALTERNATE	MD	MOTORIZED DAMPER
AP	ACCESS PANEL	MECH	MECHANICAL
ARCH	ARCHITECT/ARCHITECTURAL	MFR	MANUFACTURER
BFF	BELOW FINISHED FLOOR	MIN	MINIMUM
BLW	BELOW	MISC	MISCELLANEOUS
BTU	BRITISH THERMAL UNITS	MTR	MOTOR
BTUH	BRITISH THERMAL UNITS PER HOUR	MU/A	MAKE-UP/AIR
		NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CW	COLD WATER	O	OXYGEN
D	DEGREE	O/A	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
DW	DISTILLED WATER	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWC	ELECTRIC WATER COOLER		
EWT	ENTERING WATER TEMPERATURE	PWR	POWER
E/A	EXHAUST AIR	R	DUCT RISER
EXIST	EXISTING	R/A	RETURN AIR
F	DEGREES FAHRENHEIT	RCP	RADIANT CEILING PANEL
FCO	FLOOR CLEAN OUT	RD	ROOF DRAIN
FD	FLOOR DRAIN	REC	RECESSED
FDC	FIRE DEPARTMENT CONNECTION	RED	REDUCER
FL	FLOOR	RH	RELATIVE HUMIDITY
FO	FUEL OIL	RL/A	RELIEF AIR
FOV	FUEL OIL VENT	RM	ROOM
FOR	FUEL OIL RETURN	RPM	REVOLUTIONS PER MINUTE
FOS	FUEL OIL SUPPLY	RW	RAIN WATER
FPM	FEET PER MINUTE	SF	SQUARE FOOT
FS	FLOOR SINK	S/A	SUPPLY AIR
FT	FOOT/FEET	SAN	SANITARY
FTR	FIN TUBE RADIATION	SF	SQUARE FOOT
GAL	GALLON	SD	SMOKE DAMPER
GF	GAS-FIRED	SM	SURFACE MOUNT
GC	GENERAL CONTRACTOR	SP	STANDPIPE
GPM	GALLONS PER MINUTE	SP	STATIC PRESSURE
GW	GREASE WASTE	STM	STEAM
HB	HOSE BIB	T	THERMOSTAT
HP	HORSE POWER	TD	TEMPERATURE DROP
HTG	HEATING	TDR	TRENCH DRAIN
HTR	HEATER	TEMP	TEMPERATURE
HW	HOT WATER	TYP	TYPICAL
HYD	HYDRANT	UG	UNDERGROUND
ID	INDIRECT	VAC	VACUUM
IN	INCH	V	VENT
INV	INVERT	VAV	VARIABLE AIR VOLUME
LB	POUND	VENT	VENTILATION
LB/HR	POUNDS PER HOUR	VTR	VENT THROUGH ROOF
LAT	LEAVING AIR TEMPERATURE	W	WASTE
LP	LOW PRESSURE	WB	WET BULB
LPG	LIQUEFIED PETROLEUM GAS	WCO	WALL CLEAN OUT
		WH	WALL HYDRANT

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	ET	EXPANSION TANK
ACCU	AIR COOLING CONDENSING UNIT	EWH	ELECTRIC WATER HEATER
AHU	AIR HANDLING UNIT	FCU	FAN COIL UNIT
AS	AIR SEPARATOR	FP	FIRE PUMP
B	BOILER	GI	GREASE INTERCEPTOR
CH	CHILLER	GRV	GRAVITY ROOF VENTILATOR
CT	COOLING TOWER		
CUH	CABINET UNIT HEATER	HWP	HEATING WATER PUMP
CHWP	CHILLED WATER PUMP	HRU	HEAT RECOVERY UNIT
DBP	DOMESTIC WATER BOOSTER PUMP	PRV	POWER ROOF VENTILATOR
DC	DUCT MOUNTED COIL	RE	RETURN/EXHAUST FAN
DCP	DOMESTIC WATER CIRCULATING PUMP	RTU	ROOFTOP UNIT
		SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	WH	WATER HEATER

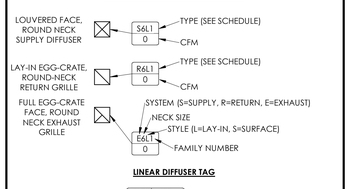
* NOTE *

ALL GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

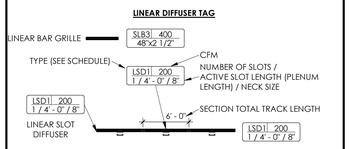
HVAC SYMBOLS

- 18"x12" — SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
- 18"/12" — OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
- 18"Ø — ROUND DUCT SIZE TAG (DIAMETER)
- (E) — EXISTING DUCT TAG
- (D) — DUCT BEING DEMOLISHED
- 18"x18" S/A — SUPPLY AIR
- 18"x18" S-O/A — CONDITIONED OUTSIDE AIR
- 18"x18" O/A — OUTSIDE AIR
- 18"x18" R/A — RETURN AIR
- 18"x18" T/A — TRANSFER AIR
- 18"x18" E/A — EXHAUST AIR
- 18"x18" L/A — RELIEF AIR
- 18"x18" GE/A — GREASE EXHAUST AIR
- 18"x18" CE/A — CONDENSATE EXHAUST AIR
- 18"x18" SE/A — SMOKE EXHAUST AIR
- 6"Ø FLUE — EXHAUST GAS FLUE
- 6"Ø C/A — COMBUSTION AIR
- DROP — RECTANGULAR SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — ROUND SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — RECTANGULAR RETURN/TRANSFER AIR DUCT RISE
- DROP — ROUND RETURN/TRANSFER AIR DUCT RISE
- DROP — RECTANGULAR EXHAUST/RELIEF AIR DUCT RISE
- DROP — ROUND EXHAUST/RELIEF AIR DUCT RISE

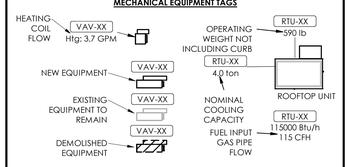
GRILLES, REGISTERS & DIFFUSERS TAG



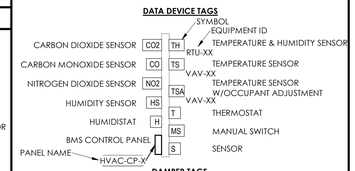
LINEAR DIFFUSER TAG



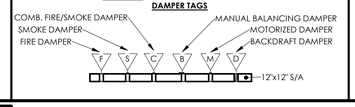
MECHANICAL EQUIPMENT TAGS



DATA DEVICE TAGS

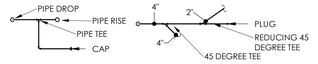


DAMPER TAGS

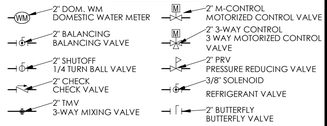


PIPING SYMBOLS

CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CD	CONDENSATE DRAINAGE
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
GWR	GEOTHERMAL WATER RETURN
GWS	GEOTHERMAL WATER SUPPLY
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
G	NATURAL GAS
PG	PROPANE GAS
REF-L	REFRIGERANT-LIQUID
REF-S	REFRIGERANT-SUCTION
REF-HG	REFRIGERANT-HOT GAS
STM	STEAM
CDR	CONDENSATE RETURN



PIPE ACCESSORY TAGS



GENERAL PROJECT NOTES

1. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING, PRIOR TO FINAL BID, ALL EXISTING CONDITIONS FOR PLUMBING AND MECHANICAL SYSTEMS WITHIN TENANT SPACE AND WITHIN CLOSE PROXIMITY OF SPACE.
2. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL THE CONDITIONS BOTH EXISTING AND THOSE ILLUSTRATED BY THESE DOCUMENTS AS WELL AS THOSE WHICH CAN BE REASONABLY ANTICIPATED INCLUDING, BUT NOT LIMITED TO ARCHITECTURAL, ELECTRICAL, VENTILATION, PLUMBING, AND OTHER SYSTEMS INVOLVED ON THIS PROJECT.
3. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
4. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AT A LEVEL OF QUALITY AND WORKMANSHIP CONSISTENT WITH THE SPECIFICATIONS.
5. LOCATIONS OF PIPING, DUCTWORK AND EQUIPMENT AS INDICATED ON THE PLANS, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID INTERFERENCE IN THE FIELD.
6. THE CONTRACTOR'S WORK SCHEDULE SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER.
7. PRIOR TO STARTING WORK, SUBMIT SHOP DRAWINGS FOR ALL MECHANICAL EQUIPMENT, PLUMBING FIXTURES, AND DIFFUSERS.
8. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND SHALL ARRANGE FOR ALL INSPECTIONS AS REQUIRED.
9. FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING BUT NOT LIMITED TO THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.
10. REMOVE ALL UNUSED PIPING, DUCTWORK AND ACCESSORIES.
11. WHERE FLOOR DRAINS OCCUR WITHIN THE LIMITS OF CONSTRUCTION, PREVENT CONSTRUCTION DEBRIS FROM ENTERING DRAIN BODY BY SEALING DRAIN OPENING PRIOR TO START OF WORK. UNSEAL DRAINS AT COMPLETION OF CONSTRUCTION.
12. COORDINATE INSTALLATION OF PIPING, DUCTWORK, CONDUIT, LIGHTS, CABLE TRAY, STRUCTURE, AND EQUIPMENT TO PREVENT CONFLICTS.
13. LOCATE EQUIPMENT REQUIRING ACCESS 2'-0" MAXIMUM ABOVE CEILING.
14. ALL ROOF MOUNTED EQUIPMENT SHALL BE A MINIMUM 10'-0" FROM EDGE OF ROOF.
15. LOCATE DUCTWORK, PIPING AND MECHANICAL EQUIPMENT AWAY FROM THE SPACE ABOVE ELECTRICAL PANELS, TRANSFORMERS AND OTHER ELECTRICAL EQUIPMENT.
16. PENETRATIONS OF RATED ASSEMBLIES SHALL BE FIRE-STOPPED. FIRE-STOPPING SHALL BE AN APPROVED MATERIAL AS PRESCRIBED IN CSFM STANDARD 43-1 AND SHALL BE U.L. LISTED.
17. PROVIDE SLEEVES AND/OR OPENINGS TO RUN PIPES AND DUCTS THROUGH FOUNDATIONS, FLOORS, WALLS, AND ROOF.
18. MAINTAIN CLEAR ACCESS TO SERVICE EQUIPMENT AND OTHER ACCESSORIES REQUIRING SERVICE, VISUAL INSPECTION OR HAND OPERATION. WHERE INDICATED OR REQUIRED, PROVIDE ACCESS PANELS OF THE TYPE SELECTED TO SUIT MATERIALS IN WHICH INSTALLED.
19. ADJUST PIPING AND DUCTWORK SIZES TO PROPERLY CONNECT TO MECHANICAL EQUIPMENT.
20. PIPE SIZES SHOWN SHALL BE CONTINUED IN THE DIRECTION OF FLOW UNTIL ANOTHER SIZE IS SHOWN.
21. FOR EQUIPMENT CONNECTIONS, AND PIPE SIZES NOT SHOWN ON THE PLANS, REFER TO DETAILS, SCHEDULES, AND SPECIFICATIONS.
22. INSTALL EXPOSED PIPING AND DUCTWORK AS HIGH AS PRACTICAL IN ROOMS WITHOUT CEILINGS.
23. PROVIDE ONE YEAR WARRANTY FOR ALL WORKMANSHIP AND MATERIALS AFTER THE DATE OF FINAL ACCEPTANCE.
24. EACH DETAIL INCLUDED IN THIS SET OF DOCUMENTS APPLIES TO THIS PROJECT REGARDLESS IF EACH DETAIL HAS BEEN REFERENCED ON THE PLANS OR NOT.
25. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.
26. PROVIDE A COMPLETE OPERATION & MAINTENANCE MANUAL INCLUDING APPROVED SUBMITTAL DRAWINGS, WARRANTY INFORMATION FOR PRODUCT(S) SUPPLIED, AND MANUFACTURER'S OPERATION AND MAINTENANCE INSTRUCTIONS.

GENERAL HVAC NOTES

1. ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK SHALL BE RATED FOR PRESSURE CLASS OF 2" W.G. UNLESS NOTED OTHERWISE.
2. COORDINATE THE EXACT LOCATION OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES WITH NEW AND EXISTING LIGHTING.
3. PROVIDE DIFFUSERS AND REGISTERS WITH 4-WAY BLOW PATTERN UNLESS OTHERWISE NOTED.

BID PACKAGE 2
ISSUED FOR BIDS

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CONSULTANT

BRADEN S. COX
No. 90191PE
LICENSED PROFESSIONAL ENGINEER
MONTANA
7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER — DATE
APPROVED:
ES PROJECT MANAGER — DATE
ES BRANCH CHIEF — DATE
CONCURRENCE
AGENCY REPRESENTATIVE — DATE
TITLE

REV	DATE	DESCRIPTION
	06/16/2026	100% CD'S

ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: M001.2.dwg
DRAWN BY:
CHECKED BY: BSC

SHEET TITLE:
MECHANICAL GENERAL INFO & SYMBOL LEGEND

M001.2

MECHANICAL DEMOLITION NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE AND/OR REGULATORY AGENCIES, CODES AND REGULATIONS FOR NEW WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THEIR WORK WITH OTHER TRADES AND WITH THE CONSTRUCTION MANAGER.
2. WORK IDENTIFIED WITH MECHANICAL AND ELECTRICAL NOTES AND KEY NOTES SHALL BE PERFORMED BY QUALIFIED MECHANICAL AND ELECTRICAL CONTRACTORS RESPECTIVELY UNDER DIRECTION OF THE CONSTRUCTION MANAGER. COORDINATE WITH OWNER'S REPRESENTATIVE.
3. VERIFY ALL CONDITIONS IN FIELD BEFORE START OF CONSTRUCTION. NOTIFY ARCHITECT/ENGINEER OF DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS.
4. COORDINATE ALL WORK WITH APPROPRIATE TRADES.
5. COORDINATE ANY REQUIRED SHUTDOWN OF SERVICES OR EQUIPMENT WITH OWNER'S REPRESENTATIVE, MINIMIZE INTERRUPTION OF EXISTING SERVICES.
6. HOLES AND PENETRATIONS IN RATED WALLS SHALL BE PATCHED WITH APPROPRIATE FIRESTOP MATERIALS FOR RATING REQUIRED.

KEYNOTES

1. DEMOLISH EXISTING AHU-5 AND ALL ASSOCIATED DUCTWORK, PIPING, AND CONNECTIONS.
2. DEMOLISH EXISTING OUTSIDE AIR LOUVER AND SEAL PENETRATION TO PREPARE FOR NEW DUCTWORK ROUTING AND NEW WALL SYSTEM, REFER TO ARCHITECTURAL FOR ADDITIONAL INFORMATION.
3. DEMOLISH EXISTING RETURN AIR FAN AND ALL ASSOCIATED DUCTWORK AND CONNECTIONS.
4. DEMOLISH EXISTING RELIEF AIR DUCTWORK AND ALL ASSOCIATED COMPONENETS INCLUDING THE RELIEF HOOD ON THE ROOF AND PATCH.
5. REMOVE VAV BOX AND CONNECTIONS, PREPARE FOR NEW VAV BOX AND CONNECTIONS.
6. DEMOLISH EXISTING AIR TERMINAL, DUCTWORK TO REMAIN AND BE REUSED WITH NEW AIR TERMINAL.
7. DEMOLISH EXISTING FIRE DAMPER AND SEAL PENETRATION TO MEET THE FIRE RATING OF THE WALL, REFER TO ARCHITECTURAL FOR ADDITIONAL INFORMATION.
8. DEMOLISH AND REMOVE EXISTING HEATING HOT WATER SUPPLY AND RETURN PIPING, CHILLED WATER SUPPLY AND RETURN PIPING, AND ALL ASSOCIATED PUMPS, VALVES, INSULATION, CONTROLS, AND ACCESSORIES SERVING THE AIR - HANDLING UNIT. REMOVE PIPING AND COMPONENTS BACK TO THE NEAREST ACTIVE MAIN. COORDINATE SHUTDOWN, DRAINING, AND ISOLATION OF SYSTEMS WITH OWNER PRIOR TO START OF WORK. CAP ALL REMAINING ACTIVE LINES AS REQUIRED AND LEAVE IN SAFE, CODE - COMPLIANT CONDITION.
9. DEMOLISH AND REMOVE THE EXISTING HEATING WATER COIL LOCATED WITHIN THE DUCTWORK, INCLUDING ALL ASSOCIATED PIPING AND CONTROL COMPONENTS, BACK TO THE MAIN CONNECTION.
10. LOW-PRESSURE STEAM GENERATOR AND ASSOCIATED PIPING TO REMAIN WHERE APPLICABLE. PREPARE UNIT FOR INSTALLATION OF NEW LOW-PRESSURE STEAM DISPERSION TUBES AND DUCTWORK.
11. REMOVE AND DISPOSE OF EXISTING LOW-PRESSURE STEAM DISPERSION TUBES AND ASSOCIATED PIPING. PREPARE AREA FOR INSTALLATION OF NEW DUCTWORK AND STEAM DISPERSION TUBES.
12. DEMOLISH AND REMOVE THE EXISTING GRILLE AND ASSOCIATED BRANCH DUCTWORK BACK TO THE MAIN DUCT AND PATCH.
13. DEMOLISH EXISTING EXHAUST DUCTWORK BACK TO THE EXHAUST FAN ON THE ROOF. EXHAUST FAN TO REMAIN AND BE REUSED.

NORTH TN

SECOND FLOOR MECHANICAL DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
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7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:

ES ARCHITECT / ENGINEER DATE

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ES PROJECT MANAGER DATE

ES BRANCH CHIEF DATE

CONCURRENCE

AGENCY REPRESENTATIVE DATE

TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: JULY 29, 2026

CONTRACT NO:

PROJECT NO: 241532

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DRAWN BY: Author

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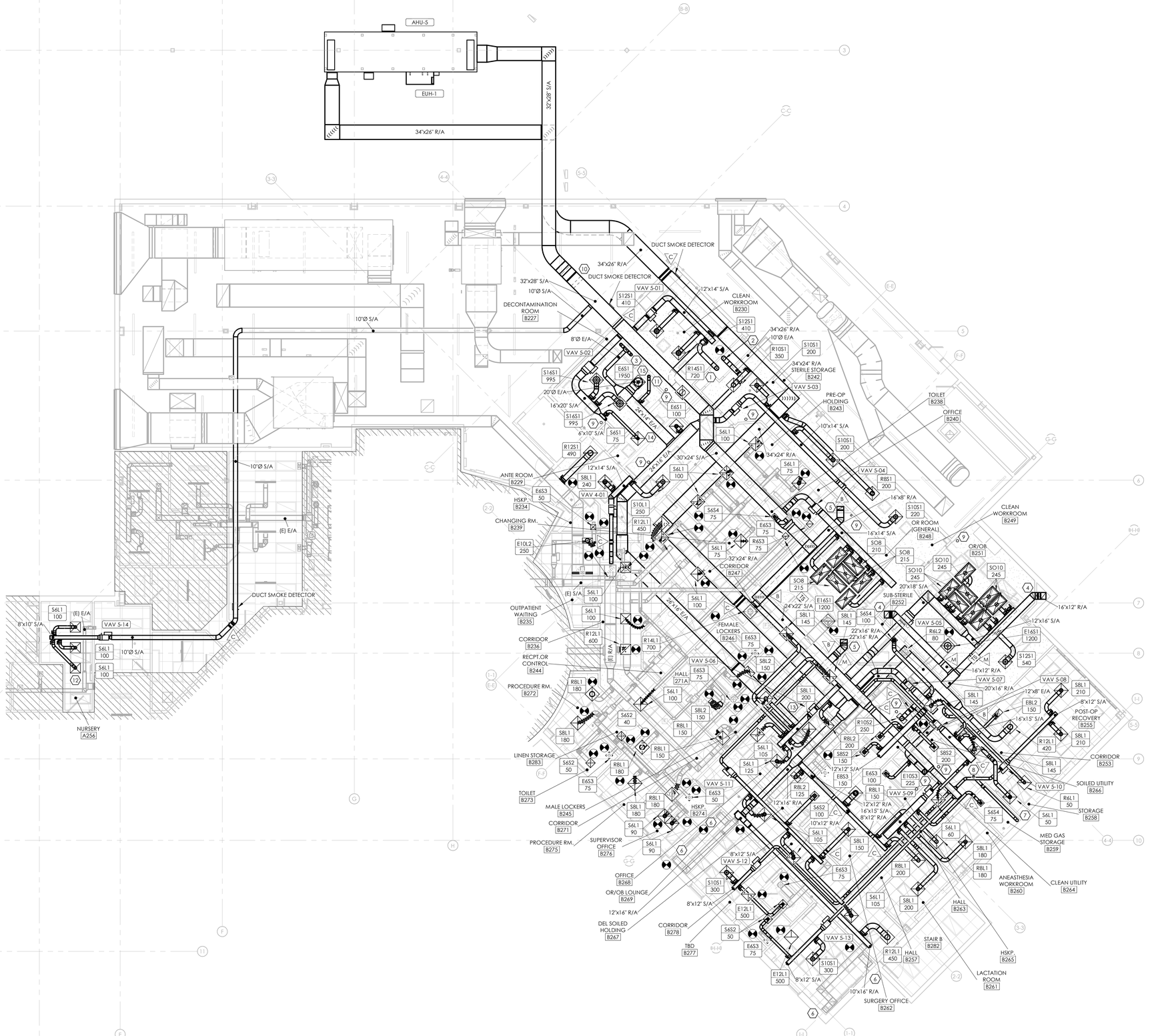
SECOND FLOOR MECHANICAL DEMOLITION PLANS

MD102.2



NORTH

SECOND FLOOR MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

MECHANICAL NOTES

1. THIS DRAWING IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED.
2. COORDINATE ALL EXTERIOR PENETRATIONS INCLUDING ROOF PENETRATIONS WITH OTHER TRADES TO PROVIDE A COMPLETE AND FULLY WEATHER-PROOF INSTALLATION.
3. THIS DRAWING IS BASED ON VISUALLY OBSERVABLE EXISTING CONDITIONS AS OF THE TIME OF DESIGN. CONTRACTOR SHALL BE RESPONSIBLE TO FULLY VERIFY ALL EXISTING CONDITIONS, COMPONENTS, ETC., PRIOR TO THE START OF THE WORK. ANY DEVIATION FROM THIS DRAWING IN KIND, OR IN LOCATION EXCEEDING 1'-0", SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

MECHANICAL SHEET METAL NOTES

1. THE INSTALLATION OF ALL DUCTWORK SHALL BE CLOSELY COORDINATED WITH NEW PLUMBING, ELECTRICAL, AND STRUCTURAL CONDITIONS, NOT ALL REQUIRED OFFSETS AND FITTINGS ARE INDICATED ON DRAWINGS, BUT SHALL BE PROVIDED. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR CLEARANCES. ALTERNATE DUCT ROUTING SHALL BE APPROVED BY ARCHITECT/ENGINEER BEFORE PROCEEDING IN ORDER TO ENSURE THAT THE AVAILABLE STATIC PRESSURE REMAINS ADEQUATE. DUCTWORK LOCATION SHALL TAKE PRECEDENCE OVER HVAC AND FIRE PROTECTION PIPING AND ELECTRICAL CONDUIT AND CABLE TRAY.
2. DUCTWORK, EQUIPMENT AND ACCESSORIES SUPPORTED AND BRACED PER SMACNA GUIDELINES.
3. UNLESS OTHERWISE NOTED, ALL DUCTWORK ABOVE CEILING OR EXPOSED IS OVERHEAD AND AS HIGH AS POSSIBLE TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION WHERE REQUIRED.
4. DUCTS CONNECTED TO EQUIPMENT SHALL EQUAL EQUIPMENT CONNECTION SIZE UNLESS NOTED OTHERWISE.
5. PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS CONNECTED TO MECHANICAL EQUIPMENT THAT REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE NOTED.
6. REFER TO DUCT DETAILS. SPIN-IN TYPE WITH SCOOPS SHALL NOT BE ACCEPTED. A MINIMUM OF 2 FEET SHALL BE PROVIDED BETWEEN RUNOUT TAKEOFFS FROM TRUNK DUCTS.
7. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 5'-0".
8. BRANCH DUCT BALANCING DAMPERS, WHEN NOT INCLUDED IN THE MAIN TAP SHALL BE MOUNTED AS CLOSE TO MAIN DUCT AS POSSIBLE.
9. ROUND DUCT ELBOWS SHALL BE LONG RADIUS ELBOWS, UNLESS SHOWN OTHERWISE.
10. TERMINAL UNITS SHALL BE MOUNTED TO NOT IMPAIR ACCESS TO FILTERS, COILS AND CONTROLS.
11. TRANSFER DUCTWORK SHALL BE INTERNALLY LINED WITH A MINIMUM 1/2" ACOUSTIC LINING.

KEYNOTES

1. DUCT TURN DOWN AND TERMINATE WITH 1/4" WIRE MESH WITH 330 CFM OF SUPPLY AIR TO THE STERILIZER CAVITY.
2. DUCT TURN DOWN AND TERMINATE WITH 1/4" WIRE MESH WITH 330 CFM OF EXHAUST AIR FROM THE STERILIZER CAVITY.
3. 6" EXHAUST DUCT CONNECTIONS DOWN TO EACH STERILIZER AND BALANCED TO 150 CFM EACH. SEE EQUIPMENT CUTSHEET FOR ROUGH IN AND FINAL CONNECTION.
4. LOW WALL RETURN GRILLE (30X12) TITUS MODEL 350RS-SS STAINLESS STEEL CONSTRUCTION 3/4" BLADE SPACING, 45 DEGREE DEFLECTION AND QUICK RELEASE FASTENERS. MOUNT GRILLE AT 12" A.F.F. BALANCE TO 1150 CFM OR CFM VALUE NEEDED TO ACHIEVE POSITIVE PRESSURE INDICATED IN ROOM REQUIRMENTS TABLE.
5. LOW WALL RETURN GRILLE (18X12) TITUS MODEL 350RS-SS STAINLESS STEEL CONSTRUCTION 3/4" BLADE SPACING, 45 DEGREE DEFLECTION AND QUICK RELEASE FASTENERS. MOUNT GRILLE AT 12" A.F.F. BALANCE TO 650 CFM OR CFM VALUE NEEDED TO ACHIEVE POSITIVE PRESSURE INDICATED IN ROOM REQUIRMENTS TABLE.
6. LOW WALL RETURN GRILLE (18X8) TITUS MODEL 350RS-SS STAINLESS STEEL CONSTRUCTION 3/4" BLADE SPACING, 45 DEGREE DEFLECTION AND QUICK RELEASE FASTENERS. MOUNT GRILLE AT 12" A.F.F. BALANCE TO 140 CFM OR CFM VALUE NEEDED TO ACHIEVE POSITIVE PRESSURE INDICATED IN ROOM REQUIRMENTS TABLE.
7. HIGH AND LOW WALL RETURN GRILLE (12X6) TITUS MODEL 350RS-SS STAINLESS STEEL CONSTRUCTION 3/4" BLADE SPACING, 45 DEGREE DEFLECTION AND QUICK RELEASE FASTENERS. MOUNT GRILLE AT 12" BELOW CEILING AND 12" A.F.F. AND BALANCE TO 50 CFM OR CFM VALUE NEEDED TO ACHEIVE NEGATIVE PRESSURE INDICATED IN ROOM REQUIRMENTS TABLE.
8. 12X12 EXHAUST DUCT UP THROUGH THE ROOF TO THE EXHAUST FAN.
9. REMOTE DAMPER OPERATORS FOR ALL DAMPERS ABOVE HARD CEILINGS.
10. PROVIDE WITH DISPERSION TUBES EQUAL TO DRISTEEM ULTRA-SORB MODEL LV. PROVIDE WITH CONDENSATE RETURN PIPING BACK TO THE STEAM HUMIDIFIER. FIELD VERIFY ROUTING AND INSTALL PER MANUFACTURER'S RECCOMENTDATIONS.
11. 6" EXHAUST DUCT ROUTED DOWN TO THE PASS-THRU EQUIPMENT BELOW AND BALANCED TO 50 CFM. SEE EQUIPMENT CUTSHEET FOR ROUGH IN AND FINAL CONNECTION.
12. REBALANCE THE EXISTING EXHAUST SYSTEM TO MAINTAIN THE PRESSURIZATION LEVELS SPECIFIED IN THE SCHEDULES.
13. 28X16" EXHAUST DUCT UP TO THE EXISTING EXHAUST FAN ON THE ROOF SET TO NEW RATE OF 4005 CFM.
14. STAINLESS STEEL BRANCH EXHAUST DUCTWORK FROM MAIN SERVING THE DECONTAMINATION SPACES AND EQUIPMENT.
15. EXHAUST GRILLE AND ALL ASSOCIATED CONNECTIONS SHALL BE STAINLESS STEEL.

KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
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CONSULTANT

MONTANA
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7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
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TITLE

REV	DATE	DESCRIPTION
A1	07/29/2026	ADDENDUM #1

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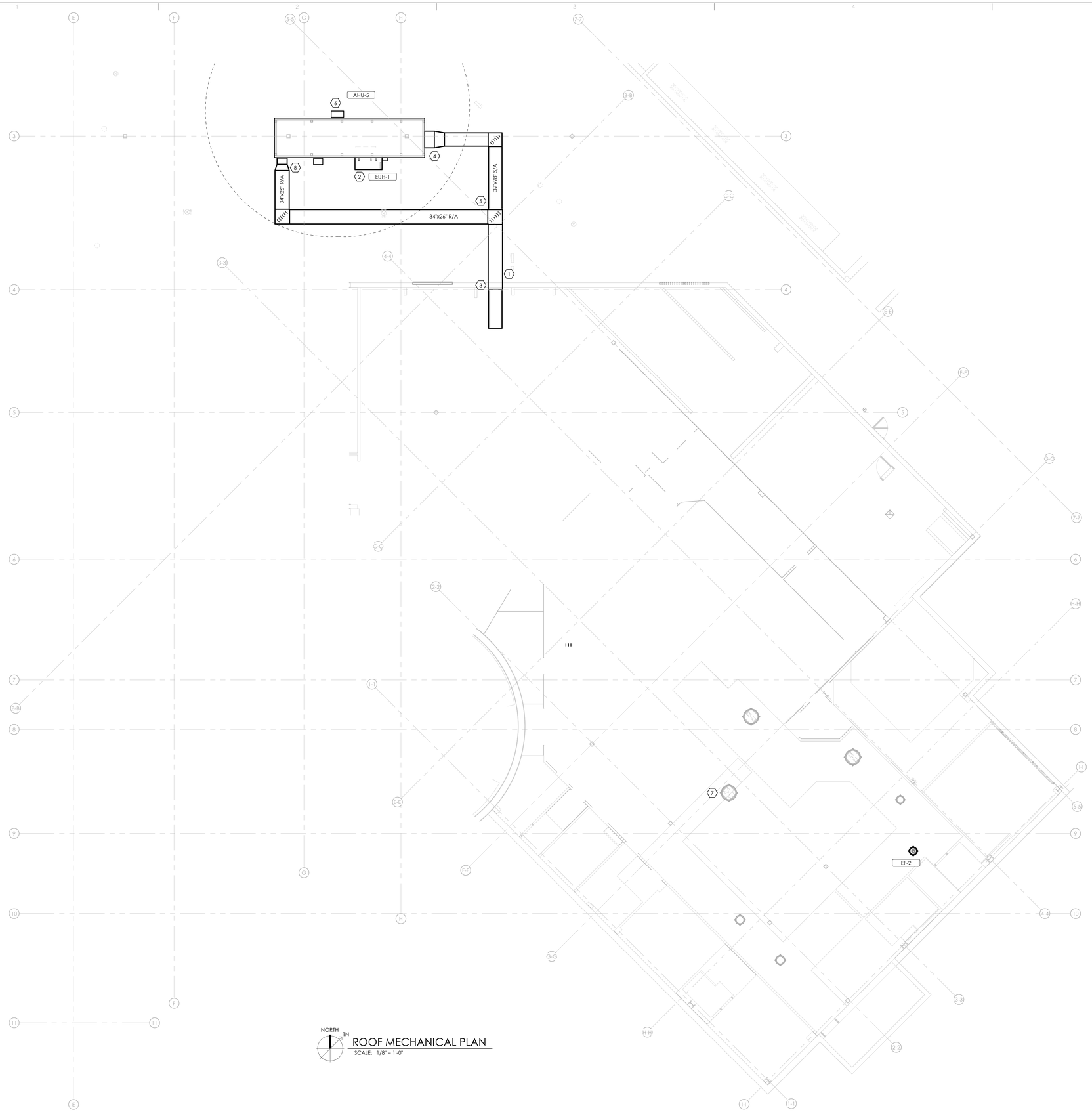
SECOND FLOOR MECHANICAL PLAN

M102.2



NORTH TN

ROOF MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

MECHANICAL NOTES

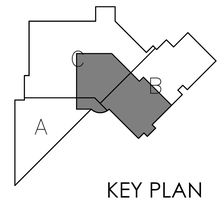
1. THIS DRAWING IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED.
2. COORDINATE ALL EXTERIOR PENETRATIONS INCLUDING ROOF PENETRATIONS WITH OTHER TRADES TO PROVIDE A COMPLETE AND FULLY WEATHER-PROOF INSTALLATION.
3. THIS DRAWING IS BASED ON VISUALLY OBSERVABLE EXISTING CONDITIONS AS OF THE TIME OF DESIGN. CONTRACTOR SHALL BE RESPONSIBLE TO FULLY VERIFY ALL EXISTING CONDITIONS, COMPONENTS, ETC. PRIOR TO THE START OF THE WORK. ANY DEVIATION FROM THIS DRAWING IN KIND, OR IN LOCATION EXCEEDING 1'-0", SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

MECHANICAL SHEET METAL NOTES

1. THE INSTALLATION OF ALL DUCTWORK SHALL BE CLOSELY COORDINATED WITH NEW PLUMBING, ELECTRICAL, AND STRUCTURAL CONDITIONS. NOT ALL REQUIRED OFFSETS AND FITTINGS ARE INDICATED ON DRAWINGS, BUT SHALL BE PROVIDED. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR CLEARANCES. ALTERNATE DUCT ROUTING SHALL BE APPROVED BY ARCHITECT/ENGINEER BEFORE PROCEEDING IN ORDER TO ENSURE THAT THE AVAILABLE STATIC PRESSURE REMAINS ADEQUATE. DUCTWORK LOCATION SHALL TAKE PRECEDENCE OVER HVAC AND FIRE PROTECTION PIPING AND ELECTRICAL CONDUIT AND CABLE TRAY.
2. DUCTWORK, EQUIPMENT AND ACCESSORIES SUPPORTED AND BRACED PER SMACNA GUIDELINES.
3. UNLESS OTHERWISE NOTED, ALL DUCTWORK ABOVE CEILING OR EXPOSED IS OVERHEAD AND AS HIGH AS POSSIBLE TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION WHERE REQUIRED.
4. DUCTS CONNECTED TO EQUIPMENT SHALL EQUAL EQUIPMENT CONNECTION SIZE UNLESS NOTED OTHERWISE.
5. PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS CONNECTED TO MECHANICAL EQUIPMENT THAT REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE NOTED.
6. REFER TO DUCT DETAILS. SPIN-IN TYPE WITH SCOOPS SHALL NOT BE ACCEPTED. A MINIMUM OF 2 FEET SHALL BE PROVIDED BETWEEN RUN-OUT TAKEOFFS FROM TRUNK DUCTS.
7. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 5'-0".
8. BRANCH DUCT BALANCING DAMPERS, WHEN NOT INCLUDED IN THE MAIN TAP SHALL BE MOUNTED AS CLOSE TO MAIN DUCT AS POSSIBLE.
9. ROUND DUCT ELBOWS SHALL BE LONG RADIUS ELBOWS, UNLESS SHOWN OTHERWISE.
10. TERMINAL UNITS SHALL BE MOUNTED TO NOT IMPAIR ACCESS TO FILTERS, COILS AND CONTROLS.
11. TRANSFER DUCTWORK SHALL BE INTERNALLY LINED WITH A MINIMUM 1/2" ACOUSTIC LINING.

KEYNOTES

1. PROVIDE WITH EXTERIOR DUCTWORK EQUAL TO THERMADUCT R-12 EXTERIOR DUCTWORK. MOUNT AND INSTALL PER THE MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE WITH SPACE TEMPERATURE SENSOR SET TO ALARM WHEN THE SPACE TEMPERATURES FALL BELOW 40F.
3. SUPPLY AND RETURN DUCT ROUTED THROUGH THE NEW WALL PANEL SYSTEM. REFER TO ARCHITECTURAL FOR ADDITIONAL INFORMATION. FIELD VERIFY INSTALLATION AND CLEARANCE REQUIREMENTS.
4. 32" X 28" SUPPLY DUCT TRANSITION TO A 40" X 48" DUCT CONNECTION TO THE ROOFTOP AIR HANDLING UNIT.
5. PROVIDE EXTERIOR DUCTWORK WITH ROOFTOP SUPPORTS IN ACCORDANCE WITH THE DUCT MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS. FIELD VERIFY ALL ROUTING AND REQUIREMENTS.
6. MAINTAIN A MINIMUM CLEARANCE OF 25 FEET BETWEEN THE OUTSIDE AIR INTAKE AND ANY EXHAUST OR VENT TERMINATION.
7. REPLACE THE EXISTING EXHAUST FAN BELTS AND PULLEYS AS NEEDED TO MEET THE NEW SPECIFIED VOLUMETRIC FLOW RATE. FIELD: : VERIFY CONDITIONS AND DETERMINE ANY REQUIRED MODIFICATIONS.
8. 34" X 26" RETURN DUCT TRANSITION TO A 24" X 38" DUCT CONNECTION TO THE ROOFTOP AIR HANDLING UNIT.



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
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Kalamazoo, MI 49007
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No. 90191PE
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7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE

CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:

ES ARCHITECT / ENGINEER DATE

APPROVED:

ES PROJECT MANAGER DATE

ES BRANCH CHIEF DATE

CONCURRENCE

AGENCY REPRESENTATIVE DATE

TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: JULY 29, 2026

CONTRACT NO:
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CAD DWG FILE: M103.2.dwg
DRAWN BY: Author
CHECKED BY: BSC

SHEET TITLE:

ROOF MECHANICAL PLAN

M103.2

NORTH

FIRST FLOOR HVAC CEILING PLAN

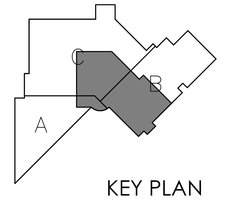
SCALE: 1/8" = 1'-0"

MECHANICAL NOTES

1. THIS DRAWING IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED.
2. COORDINATE ALL EXTERIOR PENETRATIONS INCLUDING ROOF PENETRATIONS WITH OTHER TRADES TO PROVIDE A COMPLETE AND FULLY WEATHER-PROOF INSTALLATION.
3. THIS DRAWING IS BASED ON VISUALLY OBSERVABLE EXISTING CONDITIONS AS OF THE TIME OF DESIGN. CONTRACTOR SHALL BE RESPONSIBLE TO FULLY VERIFY ALL EXISTING CONDITIONS, COMPONENTS, ETC. PRIOR TO THE START OF THE WORK. ANY DEVIATION FROM THIS DRAWING IN KIND, OR IN LOCATION EXCEEDING 1'-0", SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

KEYNOTES

1	1-1/2" HEATING WATER SUPPLY AND 1-1/2" HEATING WATER RETURN DOWN FROM MECHANICAL ROOM ABOVE.
2	3" CHILLED WATER SUPPLY AND 3" CHILLED WATER RETURN DOWN FROM MECHANICAL ROOM ABOVE.
3	1-1/2" HEATING WATER SUPPLY AND 1-1/2" HEATING WATER RETURN ROUTED UP TO ROOFTOP UNIT ABOVE.
4	3" CHILLED WATER SUPPLY AND 3" CHILLED WATER RETURN ROUTED UP TO ROOFTOP UNIT ABOVE.



KEY PLAN

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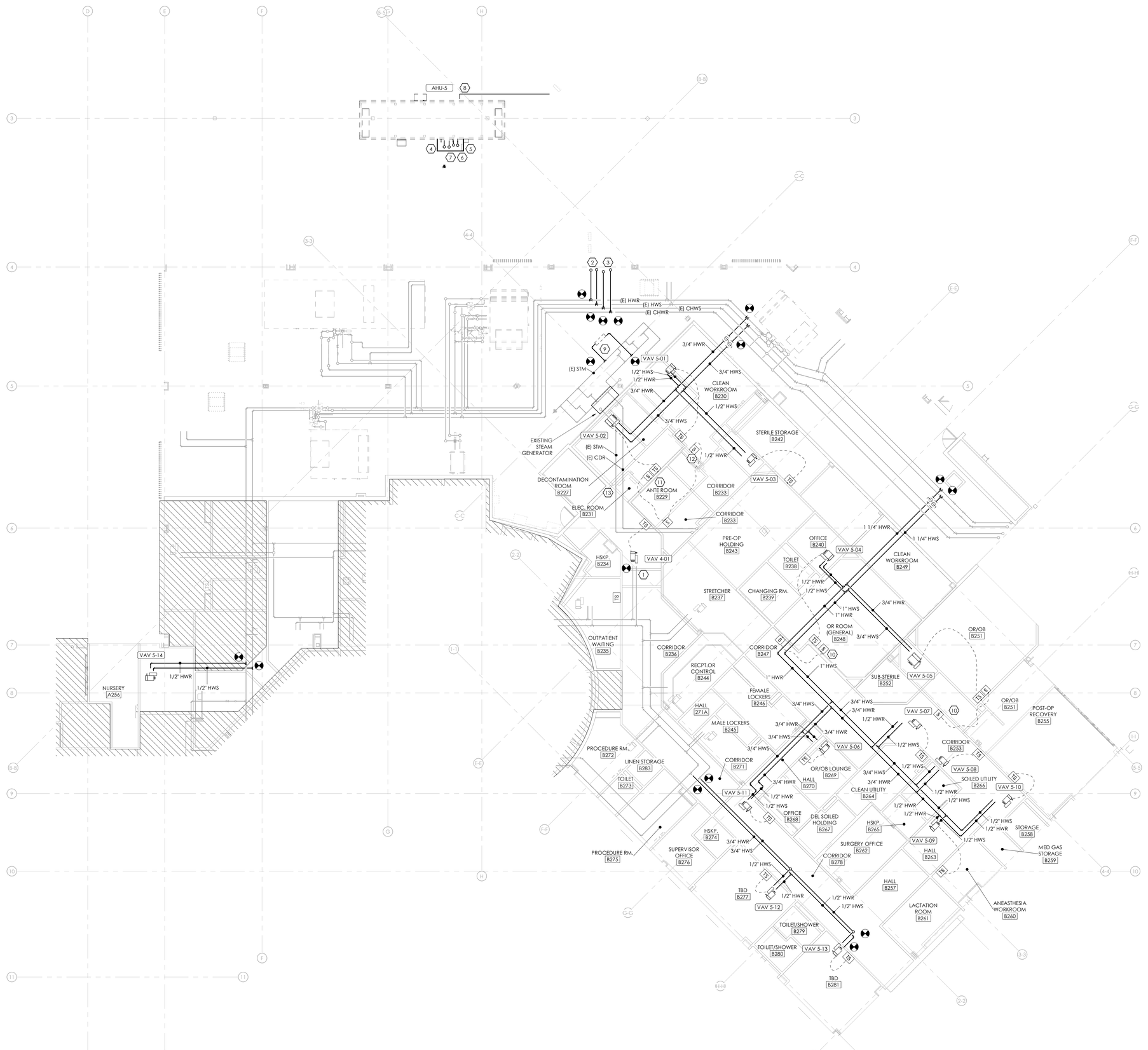
FIRST FLOOR MECHANICAL PIPING PLAN

M201.2



NORTH TN

SECOND FLOOR MECHANICAL PIPING PLAN

SCALE: 1/8" = 1'-0"

MECHANICAL NOTES

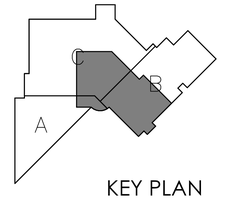
1. THIS DRAWING IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED.
2. COORDINATE ALL EXTERIOR PENETRATIONS INCLUDING ROOF PENETRATIONS WITH OTHER TRADES TO PROVIDE A COMPLETE AND FULLY WEATHER-PROOF INSTALLATION.
3. THIS DRAWING IS BASED ON VISUALLY OBSERVABLE EXISTING CONDITIONS AS OF THE TIME OF DESIGN. CONTRACTOR SHALL BE RESPONSIBLE TO FULLY VERIFY ALL EXISTING CONDITIONS, COMPONENTS, ETC. PRIOR TO THE START OF THE WORK. ANY DEVIATION FROM THIS DRAWING IN KIND, OR IN LOCATION EXCEEDING 1'-0", SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

MECHANICAL PIPING NOTES

1. THE INSTALLATION OF ALL PIPING SHALL BE CLOSELY COORDINATED WITH SHEET METAL, ELECTRICAL, AND STRUCTURAL CONDITIONS. NOT ALL REQUIRED OFFSETS AND FITTINGS ARE INDICATED ON DRAWINGS, BUT SHALL BE PROVIDED. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR CLEARANCES.
2. ALL PIPING SHALL BE INSTALLED TO FACILITATE COIL REMOVAL, FILTER REPLACEMENT AND OPENING OF ACCESS PANELS.
3. INSTALL MAINS AS HIGH AS POSSIBLE. MANUAL AIR VENTS SHALL BE PROVIDED AT ALL PIPING HIGH POINTS AND END OF PIPING LOOPS. PROVIDE REMOVABLE INSULATION PLUG.
4. PIPE ANCHORS, EXPANSION LOOPS, AND GUIDES SHALL BE PROVIDED AS REQUIRED. REFER TO SPECIFICATIONS.
5. SLEEVE AND SEAL EXTERIOR WALL AND ROOF PENETRATIONS TO A WEATHER TIGHT CONDITION. SLEEVE AND SEAL INTERIOR FLOOR PENETRATIONS TO A WATER TIGHT CONDITION.
6. PROVIDE MINIMUM OF 3/4" PIPE FOR ALL PIPING UNLESS SHOWN OTHERWISE.
7. ALL VALVES ARE TO BE FULL LINE SIZE EXCEPT CONTROL AND BALANCING VALVES.
8. PROVIDE 1/2" DRAIN VALVES WITH HOSE-END CAPS AT ALL LOW POINTS IN PIPING. PROVIDE MINIMUM PITCH SUFFICIENT TO INSURE ADEQUATE DRAINING. PROVIDE REMOVABLE INSULATION PLUG.
9. ELEVATIONS AS SHOWN ON THE DRAWINGS ARE TO THE BOTTOM OF ALL PRESSURE PIPING AND TO THE INVERT OF ALL GRAVITY PIPING UNLESS OTHERWISE NOTED.
10. UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD AND AS HIGH AS POSSIBLE TO THE UNDERSIDE OF THE STRUCTURE OR SLAB, WITH SPACE FOR INSULATION WHERE REQUIRED.
11. INSTALL PIPING WITHOUT FORCING OR SPRINGING.
12. ALL PIPING WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. PROVIDE OFFSETS IN PIPING AROUND OBSTRUCTIONS ENCOUNTERED IN FIELD.
13. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO, AND WITHIN 50 FEET OF ISOLATED EQUIPMENT (EXCEPT AT BASE ELBOW SUPPORTS AND ANCHOR POINTS) THROUGHOUT MECHANICAL EQUIPMENT ROOMS.
14. AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH UNITS DRAIN PAN SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET WITH "P" TRAP. CONDENSATE WATER PIPING SHALL BE A MINIMUM OF 3/4". SEE THE DETAILS SHOWN IN THE DRAWINGS OR MANUFACTURER'S LITERATURE FOR THE DEPTH OF THE AIR CONDITIONING CONDENSATE TRAP. PITCH DOWN IN DIRECTION OF FLOW, MINIMUM 1 INCH PER 10 FEET.
15. INSTALL PIPING SO ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE. PROVIDE PRESSURE/TEMPERATURE (P/T) PLUGS, WITH CAPS UP AND DOWNSTREAM OF ALL EQUIPMENT, AT THE SUPPLY AND RETURN TAPS OF ALL PIPING BRANCHES AND/OR WHERE INDICATED. PROVIDE EXTENDED PLUGS AND LABELS WHERE PIPING IS INSULATED.
16. WHERE SPACE PERMITS PROVIDE AUXILIARY DRAIN PANS UNDER COOLING EQUIPMENT LOCATED ABOVE CEILINGS. WHERE SPACE DOES NOT PERMIT THE USE OF AN AUXILIARY DRAIN PAN PROVIDE WATER LEVEL DETECTION DEVICE (FLOAT SWITCH) CONFORMING TO UL 508 THAT WILL SHUT OFF THE EQUIPMENT SERVED IN THE EVENT THAT THE PRIMARY DRAIN IS BLOCKED.
17. PROVIDE FLUSHING VALVES AND TEES AT BOTH ENDS OF ALL EQUIPMENT. TAPS SHALL MATCH EQUIPMENT PIPING UP TO 1". FOR LARGER EQUIPMENT AND PIPE LOOPS, PROVIDE 1-1/2" TAPS AND VALVES.
18. ALL HYDRONIC PIPING BRANCH TAKEOFFS FROM MAINS SHALL BE MADE WITH SWING JOINTS.
19. THE CONTRACTOR SHALL DEVELOP AND PRODUCE COORDINATION DRAWINGS PRIOR TO STARTING THE INSTALLATION OF ANY HYDRONIC SYSTEM.

KEYNOTES

1. REUSE EXISTING HEATING WATER SUPPLY AND RETURN BRANCH AND TIE INTO NEW VAV BOX.
2. 1-1/2" HEATING WATER SUPPLY AND 1-1/2" HEATING WATER RETURN DOWN TIGHT TO WALL THROUGH FLOOR. PROVIDE WITH SHUT-OFF VALVE.
3. 3" CHILLED WATER SUPPLY AND 3" CHILLED WATER RETURN DOWN TIGHT TO WALL THROUGH FLOOR. PROVIDE WITH SHUT-OFF VALVE.
4. 1-1/2" HEATING WATER SUPPLY AND 1-1/2" HEATING WATER RETURN ROUTED UP FROM BELOW THROUGH THE ROOF CURB. REFER TO THE ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION. PROVIDE REQUIRED VALVES, ACCESSORIES, AND INSTALLATION AT THE ROOFTOP UNIT PER MECHANICAL DETAILS.
5. 3" CHILLED WATER SUPPLY AND 3" CHILLED WATER RETURN ROUTED UP FROM BELOW THROUGH THE ROOF CURB, REFER TO THE ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION. PROVIDE REQUIRED VALVES, ACCESSORIES, AND INSTALLATION AT THE ROOFTOP UNIT PER MECHANICAL DETAILS.
6. PROVIDE WITH HEAT TRACE WIRE FOR THE CHILLED WATER SUPPLY AND RETURN PIPING, WIRE TO HEAT UP UPON TEMPERATURE FALLING BELOW 38F.
7. PROVIDE WITH FLOW CONTROL SENSOR TO ALARM AND SIGNAL THE BUILDING AUTOMATION SYSTEM UPON PIPE BURST OR OPEN FLOW CONDITION WHEN OUTSIDE AIR IS BELOW BELOW 45F.
8. CONDENSATE DRAIN ROUTED TO THE NEAREST ROOF DRAIN.
9. TIE NEW STEAM DISPERSION DEVICE AND PIPING INTO THE EXISTING STEAM GENERATOR SYSTEM. FIELD VERIFY ROUTING AND CONNECTION REQUIREMENT. PROVIDE WITH ALL NECESSARY PIPING AND COMPONENTS FOR A COMPLETE AND OPERATIONAL SYSTEM. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS FOR SIZING AND CONNECTION INFORMATION.
10. PRESSURE MONITOR TSI PRESSURA RPC30 TO MONITOR AND CONTROL THE PRESSURE OF THE OPERATING ROOM. TIE THE MONITOR INTO THE BUILDING AUTOMATION SYSTEM AND MOTORIZED DAMPER CONTROLS FOR MODULATION, MAINTAIN PRESSURE RELATIONSHIP PER ASHRAE 170.
11. PRESSURE MONITOR TSI PRESSURA RPM20 TO MONITOR THE PRESSURE OF THE DECONTAMINATION ROOM. TIE THE MONITOR INTO THE BUILDING AUTOMATION SYSTEM. MAINTAIN PRESSURE RELATIONSHIP PER ASHRAE 170.
12. PRESSURE MONITOR TSI PRESSURA RPM20 TO MONITOR THE PRESSURE OF THE STERILE WORKROOM. TIE THE MONITOR INTO THE BUILDING AUTOMATION SYSTEM. MAINTAIN PRESSURE RELATIONSHIP PER ASHRAE 170.
13. FIELD VERIFY AND COORDINATE THE EXISTING STEAM AND CONDENSATE PIPING, AND MODIFY AS NECESSARY TO ENSURE THE PIPING DOES NOT EXTEND ABOVE THE NEW ELECTRICAL ROOM.



KEY PLAN

BID PACKAGE 2
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7/29/26

A/E SEAL

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REV	DATE	DESCRIPTION
A1	07/29/2026	ADDENDUM #1

ISSUE DATE: JULY 29, 2026

CONTRACT NO:
PROJECT NO: 241532
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CHECKED BY: BSC

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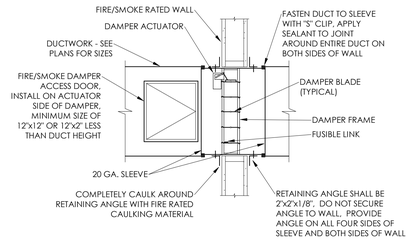
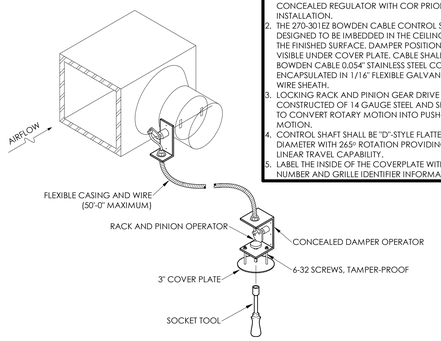
SECOND FLOOR MECHANICAL PIPING PLAN

M202.2

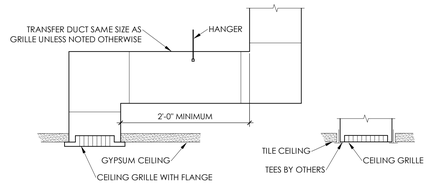


7 COMBINATION FIRE/SMOKE DAMPER INSTALLATION DETAIL
SCALE: NOT TO SCALE

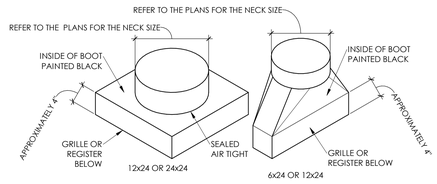


NOTES:
1. COORDINATE EXACT LOCATION OF CEILING MOUNTED CONCEALED REGULATOR WITH COR PRIOR TO INSTALLATION.
2. THE 270-301EZ BOWDEN CABLE CONTROL SYSTEM IS DESIGNED TO BE IMBEDDED IN THE CEILING FLUSH WITH THE FINISHED SURFACE. DAMPER POSITION INDICATOR VISIBLE UNDER COVER PLATE. CABLE SHALL CONSIST OF BOWDEN CABLE 0.054" STAINLESS STEEL CONTROL WIRE ENCAPSULATED IN 1/16" FLEXIBLE GALVANIZED SPIRAL WIRE SHEATH.
3. LOCKING RACK AND PINION GEAR DRIVE SHALL BE CONSTRUCTED OF 14 GAUGE STEEL AND SHALL BE USED TO CONVERT ROTARY MOTION INTO PUSH-PULL MOTION.
4. CONTROL SHAFT SHALL BE "D"-STYLE FLATTENED 1/4" DIAMETER WITH 265° ROTATION PROVIDING 1-1/2" LINEAR TRAVEL CAPABILITY.
5. LABEL THE INSIDE OF THE COVERPLATE WITH THE ROOM NUMBER AND GRILLE IDENTIFIER INFORMATION.

5 REMOTE DAMPER DETAIL
SCALE: NOT TO SCALE



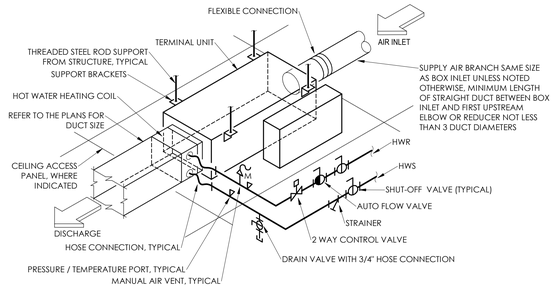
6 TRANSFER DUCT DETAIL
SCALE: NOT TO SCALE



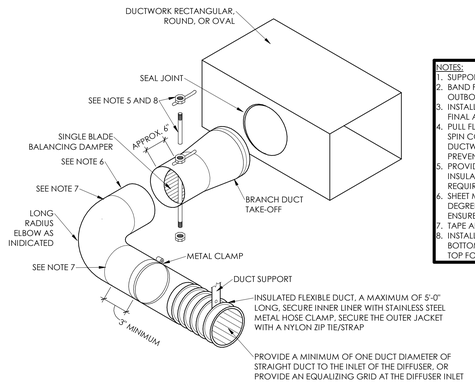
4 RETURN AIR GRILLE & REGISTER BOOT DETAIL
SCALE: NOT TO SCALE

NOTE:
1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET
2. A FLEXIBLE AIR DUCT CONNECTOR IS NOT MANDATORY FOR INLET TO THIS BOX, BUT ALLOWED TO ACCOMMODATE MINOR OFFSETS. MAXIMUM LENGTH 1'-0".
3. A BRANCH DUCT SERVING AN INDIVIDUAL BOX MAY BE THE SAME SIZE AS THE BOX INLET, PROVIDED THE EQUIVALENT LENGTH OF THE BRANCH DUCT, AS SHOWN, DOES NOT EXCEED 10 FEET. FOR LONGER LENGTHS, INCREASE THE DUCT SIZE AND PROVIDE A DUCT TRANSITION TO MAINTAIN THE DUCT STATIC PRESSURE DROP AT OR BELOW 0.2"/100'.
4. FLEXIBLE AIR DUCT CONNECTORS, WHEN USED FROM TERMINAL UNIT SUPPLY AIR DUCT TO DIFFUSER, SHALL NOT EXCEED 5'-0". USE RIGID ELBOWS FOR CHANGE OF DIRECTION GREATER THAN 45°.
5. COMPONENT ARRANGEMENT MAY VARY BY MANUFACTURER. PROVIDE INSULATION WITH VAPOR BARRIER FOR CONNECTING DUCT SECTIONS.
6. USE OF FLEXIBLE AIR DUCT CONNECTORS ARE NOT PERMITTED FOR THE DEDICATED AHU SERVING THE SURGICAL SUITE.

DESIGNER'S NOTE: 1. INDICATE SOUND ATTENUATOR AS REQUIRED BY ACOUSTICAL ANALYSIS.

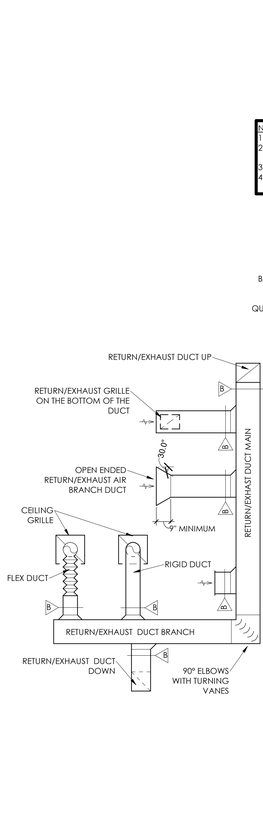


3 TERMINAL UNIT WITH HW HEATING DETAIL
SCALE: NOT TO SCALE



NOTES:
1. SUPPORT DUCTWORK AS REQUIRED.
2. BAND FLEX TO COLLAR 1/2" MINIMUM FROM OUTBOARD END OF COLLAR.
3. INSTALL SPIN COLLAR DAMPER IN OPEN POSITION; FINAL ADJUSTMENT BY TAB CONTRACTOR.
4. PULL FLEXIBLE DUCT INSULATION UP TO END OF SPIN COLLAR AT EDGE OF RECTANGULAR DUCTWORK; SEAL VAPOR BARRIER WITH TAPE TO PREVENT MOISTURE MIGRATION.
5. PROVIDE EXTENSION RODS TO ACCOMMODATE INSULATION. PULL TO EDGE OF DUCTWORK AS REQUIRED AND SEAL VAPOR BARRIER.
6. SHEET METAL SCREWS, MINIMUM 3 EACH AT 120 DEGREE INTERVALS, CONNECTING TO COLLAR. ENSURE SCREWS DO NOT INTERFERE WITH DAMPER.
7. TAPE AND SEAL ALL JOINTS TO PREVENT LEAKAGE.
8. INSTALL LOCKING QUADRANT AND HANDLE ON BOTTOM OF DUCT FOR EASY SERVICE (SHOWN ON TOP FOR CLARITY ONLY).

2 SPIN COLLAR FLEXIBLE DUCT CONNECTOR WITH DAMPER AND WITH LONG RADIUS ELBOW
SCALE: NOT TO SCALE



AIR CUSHION NOTES:
1. AIR CUSHION REQUIRED AT END OF RUN FOR BRANCH TAKE OFFS ILLUSTRATED
2. CUSHION DEPTH, D, EQUAL TO 1/2 THE GREATER OF H OR W, SUBJECT TO 6" MINIMUM, WHERE H = HEIGHT OF DUCT
3. SUPPLY AIR AND RETURN AIR DUCT SHALL BE EXTERNALLY INSULATED ONLY.

NOTES:
1. REFER TO THE HVAC FLOOR PLANS FOR DUCT SIZES.
2. REFER TO THE SCHEDULES FOR GRILLES, REGISTERS, DIFFUSERS AND TERMINAL SIZES AND TYPES.
3. PROVIDE A MANUAL BALANCING DAMPER FOR EACH SUPPLY OUTLET.
4. ALL DUCT RUNOUTS TO DIFFUSERS SHALL BE THE SAME SIZE AS THE DIFFUSER NECK UNLESS OTHERWISE NOTED.

1 DUCTWORK INSTALLATION DIAGRAM
SCALE: NOT TO SCALE

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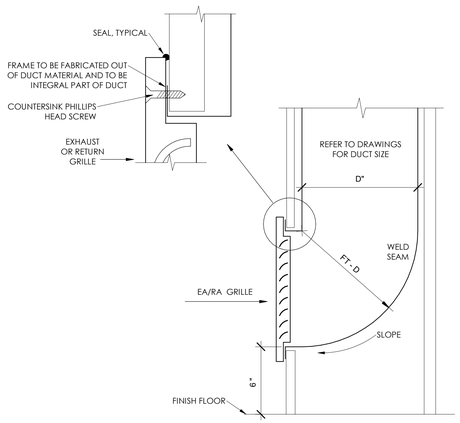
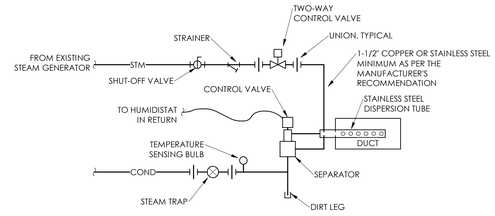
MECHANICAL DETAILS

M500.2



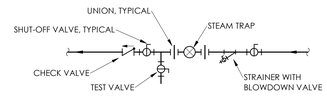
7 SIDEWALL EXHAUST/RETURN AIR GRILLE

SCALE: NOT TO SCALE



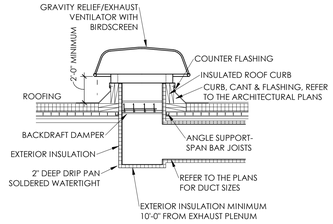
9 HUMIDIFIER PIPING DETAIL - STEAM

SCALE: NOT TO SCALE



8 STEAM TRAP PIPING DETAIL

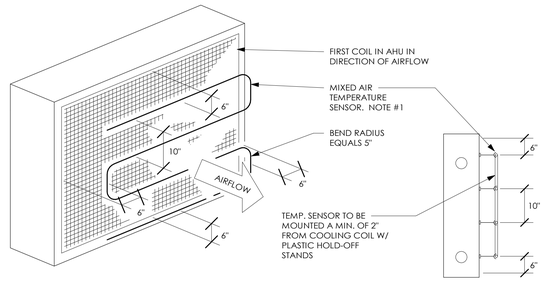
SCALE: NOT TO SCALE



NOTES:
1. ROOF CURB PROVIDED BY MECHANICAL CONTRACTOR. COORDINATE INSTALLATION AND FLASHING WITH THE GENERAL CONTRACTOR.
2. MECHANICAL CONTRACTOR SHALL COORDINATE ROOF OPENING AND CURB SIZE REQUIRED FOR DUCT PENETRATION.
3. PROVIDE EXTENDED THROAT FOR ALL INTAKE ROOF VENTILATORS.

6 GRAVITY ROOF VENTILATOR DETAIL - RELIEF/EXHAUST

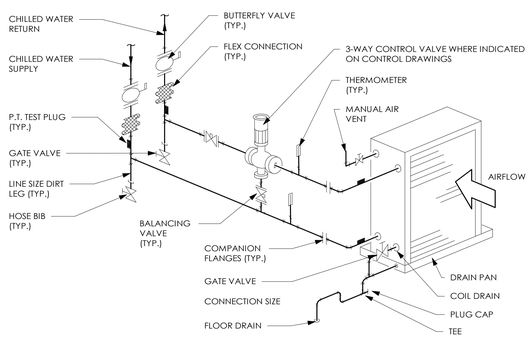
SCALE: NOT TO SCALE



NOTES
1. PROVIDE MIN. 1 LINEAR FOOT OF TEMPERATURE SENSOR PER SQUARE FOOT OF COIL.
2. PROVIDE ON THE ENTERING SIDE OF COIL FOR MIXED AIR AND FREEZESTAT READINGS.
3. PROVIDE ON THE LEAVING SIDE OF COIL FOR PREHEAT COIL TEMP READING.

3 TEMPERATURE SENSOR MOUNTING DETAIL

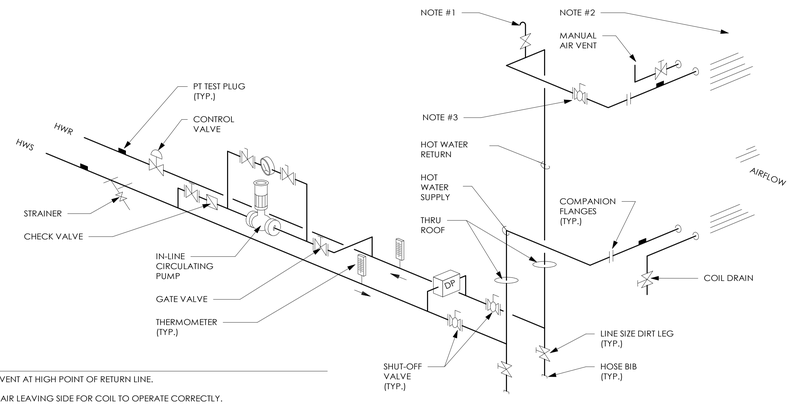
SCALE: NOT TO SCALE



NOTES:
1. PROVIDE MANUAL AIR VENT AT HIGH POINT OF RETURN LINE.
2. WATER TO ENTER THE COIL ON THE AIR LEAVING SIDE FOR COIL TO OPERATE CORRECTLY.
3. PROVIDE STAINLESS STEEL DRAIN PAN SLOPED FOR POSITIVE DRAINAGE.
4. PROVIDE WITH HEAT TRACE WIRE FOR BOTH SUPPLY AND RETURN FROM THE ROOF PENETRATION TO THE COIL.
5. PROVIDE WITH FLOW SENSOR TO INDICATE OPEN PIPE CONDITION AND ALARM WHEN OUTSIDE AIR IS BELOW 50F.

2 PIPING AT COOLING COIL (3-WAY VALVE)

SCALE: NOT TO SCALE



NOTES
1. PROVIDE AUTOMATIC AIR VENT AT HIGH POINT OF RETURN LINE.
2. WATER TO ENTER COIL ON AIR LEAVING SIDE FOR COIL TO OPERATE CORRECTLY.
3. BALANCING AND SHUT-OFF VALVE. PROVIDE 3-PIPE DIAMETERS STRAIGHT LENGTH OF PIPE BEFORE AND AFTER VALVES.
4. MOUNT IN-LINE PUMP SO THAT IT IS ACCESSIBLE AND REMOVABLE.

1 PIPING AT ROOFTOP UNIT PREHEAT COIL

SCALE: NOT TO SCALE

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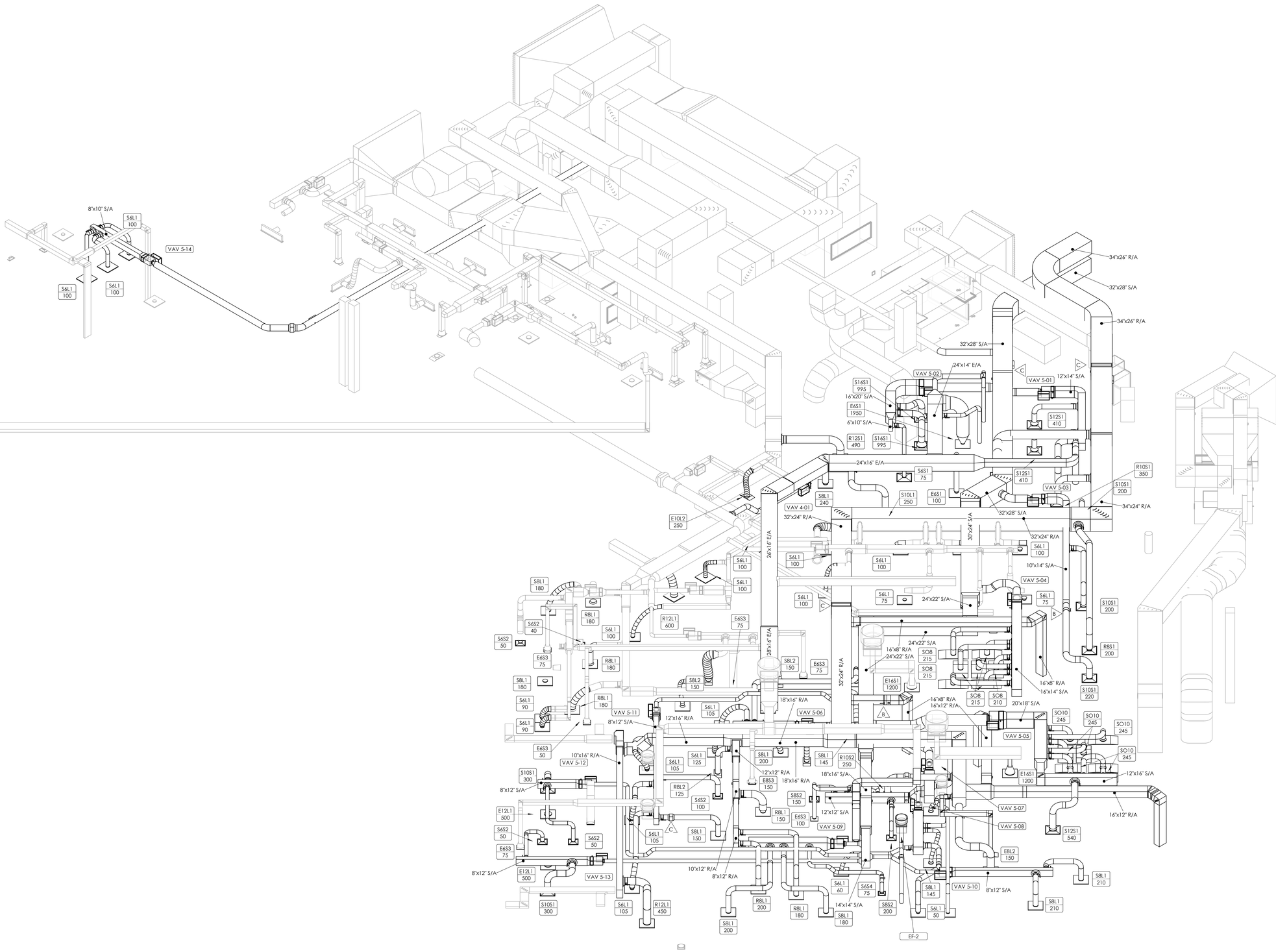

1 M520.2 DUCTWORK RISER DIAGRAM
SCALE: NTS

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SHEET TITLE:
DUCTWORK RISER DIAGRAM

M520.2

HYDRONIC CIRCULATING PUMP SCHEDULE

MARK	SYSTEM	MANUFACTURER	MODEL NO.	TYPE	PUMP DESIGN FLOW	PUMP HEAD	PUMP SPEED (RPM)	PUMP DRIVE TYPE	MOTOR POWER	MOTOR ECM	UNIT WEIGHT	MCA	MOCP	VOLT	PH	ACCESSORIES	NOTES
HWP-1	PRE-HEAT	TACO	DELTA-T0011	INLINE	13.7 GPM	20.0 FT	3250	DIRECT	93 W	Yes	13 lb	2 A	15 A	120 V	1	ED, SG	1

ACCESSORIES:
ED - ELECTRICAL DISCONNECT
SG - SUCTION GUIDE

SCHEDULE NOTES:
1. EMERGENCY POWER

ELECTRIC HEATER SCHEDULE

MARK	MANUFACTURER	MODEL NO.	TYPE	FAN AIRFLOW DESIGN	FAN AIRFLOW MIN	FAN DRIVE TYPE	FAN MOTOR QTY	FAN MOTOR POWER	FAN MOTOR RPM	FAN MOTOR ECM	HEATING COIL AIRSIDE EAT(db)	HEATING COIL AIRSIDE LAT(db)	HEATING ELEMENT QTY	HEATING ELEMENT POWER	HEATING ELEMENT SCR	SOUND PRESS LEVEL	UNIT DIMENSIONS TOP MOUNT HEIGHT	UNIT DIMENSIONS AFF ELEVATION	UNIT WEIGHT	MCA	MOCP	VOLT	PH	ACCESSORIES	NOTES
EUH-1	BERKO	SRA1512DSF	WALL MOUNTED	65 CFM	0 CFM	DIRECT	1	0.05 hp	1550	No	55.0 °F	90.0 °F	1	0.75 kW	No	40		4' - 0"	10 lb	6 A	15 A	120 V	1	DS, IT, SM	1, 2, 3

ACCESSORIES:
DS - DISCONNECT SWITCH
IT - INTEGRAL THERMOSTAT
SM - SURFACE MOUNT KIT

SCHEDULE NOTES:
1. UNIT TO ENERGIZE ABOVE SPACE VESTIBULE TEMPERATURES FALLING BELOW 50F.
2. UNIT HEIGHT MOUNTED IN RELATION TO BOTTOM OF THE PIPING VESTIBULE.
3. ON EMERGENCY POWER.

GRILLES, REGISTERS AND DIFFUSERS SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL	FACE SIZE	INSTALLATION/ FRAME TYPE	MATERIAL	FINISH	MAX AIRFLOW CFM	TOTAL PRESSURE	NECK DIAMETER	NECK WIDTH	NECK HEIGHT	THROW DISTANCE (A)	NC (B)	NOTES
LAY-IN															
E8L2	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	12x24	LAY-IN	ALUMINUM	WHITE ENAMEL	200 CFM	0.08 in-wg	8"			0"	0	2
E8S3	SURFACE-MOUNTED EGG-CRATE FACE, LOUVERED FACE, ROUND-NECK EXHAUST GRILLE	TITUS	50F	12x12	LAY-IN	ALUMINUM	WHITE ENAMEL	200 CFM	0.08 in-wg	8"			0"	0	2
E10L2	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	12x24	LAY-IN	ALUMINUM	WHITE ENAMEL	370 CFM	0.09 in-wg	10"			0"	0	2
E12L1	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	600 CFM	0.09 in-wg	12"			0"	0	1
R6L1	LAY-IN EGG-CRATE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	100 CFM	0.08 in-wg	6"			0"	0	1
R8L1	LAY-IN EGG-CRATE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	200 CFM	0.08 in-wg	8"			0"	0	<varies>
R8L2	LAY-IN EGG-CRATE FACE, ROUND EXHAUST GRILLE	TITUS	50F	12x24	LAY-IN	ALUMINUM	WHITE ENAMEL	200 CFM	0.08 in-wg	8"			0"	0	2
R12L1	LAY-IN EGG-CRATE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	600 CFM	0.09 in-wg	12"			0"	0	1
R14L1	LAY-IN EGG-CRATE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	900 CFM	0.06 in-wg	14"			0"	0	1
S6L1	LAY-IN LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	135 CFM	0.08 in-wg	6"			4' - 0"	18	
S8L1	LAY-IN LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	240 CFM	0.08 in-wg	8"			6' - 0"	21	
S8L2	LAY-IN LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA	12x24	LAY-IN	ALUMINUM	WHITE ENAMEL	240 CFM	0.08 in-wg	8"			6' - 0"	21	
S10L1	LAY-IN LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA	24x24	LAY-IN	ALUMINUM	WHITE ENAMEL	325 CFM	0.09 in-wg	10"			7' - 0"	21	
SO8	LAY-IN CRITICAL ENVIRONMENT LAMINAR FLOW STEEL DIFFUSER	TITUS	TLF	48x24	LAY-IN	STAINLESS STEEL	WHITE ENAMEL	220 CFM	0.09 in-wg	8"			9' - 0"	18	2
SO10	LAY-IN CRITICAL ENVIRONMENT LAMINAR FLOW STEEL DIFFUSER	TITUS	TLF	48x24	LAY-IN	STAINLESS STEEL	WHITE ENAMEL	320 CFM	0.09 in-wg	10"			9' - 0"	18	2
SURFACE MOUNTED															
E6S1	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	24x24	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	100 CFM	0.08 in-wg	6"			0"	0	1
E6S3	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	12x12	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	100 CFM	0.08 in-wg	6"			0"	0	2
E10S3	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	12x12	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	370 CFM	0.09 in-wg	10"			0"	0	2
E16S1	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	18x18	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	1300 CFM	0.09 in-wg	16"			0"	0	1
R6S3	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	12x12	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	100 CFM	0.08 in-wg	6"			0"	0	2
R8S1	SURFACE-MOUNTED EGG-CRATE FACE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	200 CFM	0.08 in-wg	8"			0"	0	1
R10S1	SURFACE-MOUNTED EGG-CRATE FACE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	370 CFM	0.09 in-wg	10"			0"	0	1
R10S2	SURFACE-MOUNTED EGG-CRATE FACE, LOUVERED FACE, ROUND-NECK EXHAUST GRILLE	TITUS	50F	12x24	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	370 CFM	0.09 in-wg	10"			0"	0	2
R12S1	FULL EGG-CRATE FACE, ROUND NECK EXHAUST GRILLE	TITUS	50F	16x16	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	600 CFM	0.09 in-wg	12"			0"	0	1
R14S1	SURFACE-MOUNTED EGG-CRATE FACE, ROUND-NECK RETURN GRILLE	TITUS	50F	24x24	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	900 CFM	0.09 in-wg	14"			0"	0	1
S6S1	SURFACE-MOUNTED, LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	12x12	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	135 CFM	0.08 in-wg	6"			9' - 0"	18	3
S6S2	LOUVERED FACE, ROUND NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	12x12	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	135 CFM	0.08 in-wg	6"			9' - 0"	18	3
S6S4	LOUVERED FACE, ROUND NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	12x12	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	135 CFM	0.08 in-wg	6"			9' - 0"	18	3
S8S2	LOUVERED FACE, ROUND NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	14x14	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	240 CFM	0.08 in-wg	8"			13' - 0"	20	3
S10S1	SURFACE-MOUNTED, LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	16x16	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	325 CFM	0.09 in-wg	10"			15' - 0"	21	3
S12S1	SURFACE-MOUNTED, LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	18x18	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	390 CFM	0.09 in-wg	12"			15' - 0"	22	3
S16S1	SURFACE-MOUNTED, LOUVERED FACE, ROUND-NECK SUPPLY DIFFUSER	TITUS	TDC-AA-1	20x20	SURFACE MOUNTED	ALUMINUM	WHITE ENAMEL	390 CFM	0.09 in-wg	16"			15' - 0"	24	3

GENERAL NOTES:
A. THROW AT 50 FEET PER MINUTE VELOCITY.
B. "-" NC RATING IS LOW ENOUGH TO NOT REGISTER IN THE MANUFACTURER'S DATA.

SCHEDULE NOTES:
1. FULL 24"x24" EGG CRATE FACE.
2. EGG CRATE FULL SIZE OF SCHEDULED FACE SIZE.
3. NEW DIFFUSER/GRILLE CONNECTED TO THE EXISTING BRANCH DUCT, FIELD VERIFY THE CONNECTION REQUIREMENTS.
4. DROPPED FACE DIFFUSER.

ASHRAE 170 VENTILATION AIRFLOW SUMMARY

ROOM NAME & NO.	FUNCTION OF SPACE	VOLUME	MINIMUM OUTDOOR ACH	MINIMUM TOTAL ACH	REQUIRED OUTDOOR AIR	MINIMUM REQUIRED SUPPLY AIR
B251 OR/OB	OPERATING ROOM +	6720 CU. FT.	4	20	448 CFM	1792 CFM
B248 OR	OPERATING ROOM +	4100 CU. FT.	4	20	273.33 CFM	1093.3 CFM
B227 DECON	DECONTAMINATION -	1848 CU. FT.	2	6	61.6 CFM	246.4 CFM
B230 CLEAN WORKROOM	STERILE PROCESSING +	2744 CU. FT.	2	4	91.5 CFM	365.9 CFM
B242 STERILE STORAGE	STERILE STORAGE +	2800 CU. FT.	2	4	93.3 CFM	373.3 CFM
B229 ANTEROOM	ANTEROOM -	816 CU. FT.	-	-	- CFM	- CFM
B242 PRE-OP	PRE-OP HOLDING	3288 CU. FT.	2	2	109.6 CFM	438.4 CFM
B249 CLEAN WORKROOM	CLEAN WORKROOM +	1528 CU. FT.	2	4	50.9 CFM	203.7 CFM
B252 SUB-STERILE	SUB STERILE	552 CU. FT.	4	20	18.4 CFM	73.6 CFM
B255 POST-OP RECOVERY	POST-OP RECOVERY	3072 CU. FT.	2	6	102.4 CFM	409.6 CFM
B261 CLEAN UTILITY	CLEAN UTILITY +	1136 CU. FT.	2	4	37.9 CFM	151.5 CFM
B266 SOILED UTILITY	SOILED UTILITY -	568 CU. FT.	2	6	18.9 CFM	75.7 CFM
B259 MED GAS STORAGE	MEDICAL GAS STORAGE -	396 CU. FT.	2	6	13.2 CFM	52.8 CFM
B282 LACTATION ROOM	LACTATION ROOM	1072 CU. FT.	2	4	35.7 CFM	142.9 CFM
B275 PROCDURE RM.	PROCEDURE ROOM +	1056 CU. FT.	3	15	52.8 CFM	211.2 CFM
B272 PROCDURE RM.	PROCEDURE ROOM +	1096 CU. FT.	3	15	54.8 CFM	219.2 CFM
B267 SOILED HOLDING	SOILED HOLDING -	552 CU. FT.	2	6	18.4 CFM	73.6 CFM
B260 ANEASTHESIA WRK.	ANEASTHESIA WORKROOM	800 CU. FT.	2	6	26.7 CFM	106.7 CFM
STERILIZER ROOM	STERILIZER EQUIPMENT ROOM -	24 CU. FT.	-	10	- CFM	330 CFM

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL NO.	TYPE	FAN AIRFLOW	FAN EXTERNAL STATIC PRESSURE	FAN RPM	FAN WHEEL TYPE	FAN WHEEL DIA	FAN DRIVE TYPE	FAN MOTOR POWER	FAN MOTOR RPM	FAN MOTOR ECM	SOUND PRESS LEVEL (dBA)	UNIT WEIGHT	MCA	MOCP	VOLT	PH	ACCESSORIES	NOTES
EF-2	GREENHECK	G-060-G	DOWNBLAST	70 CFM	0.20 in-wg	1300	BI	8"	DIRECT	0.10 hp	1300	No	40	18 lb	3 A	15 A	120 V	1	BS, DS, RC	1, 2

ACCESSORIES:
BS - BIRD SCREEN
DS - INTEGRAL ELECTRICAL DISCONNECT
RC - ROOF CURB TO MATCH THE ROOF

SCHEDULE NOTES:
1. FAN TO RUN CONTINOUSLY.
2. FAN ON EMERGENCY POWER.

HOT WATER VARIABLE AIR VOLUME TERMINAL UNIT SCHEDULE

MARK	MANUFACTURER	MODEL NO.	NECK SIZE	TYPE	PRIMARY AIRFLOW MAX	PRIMARY AIRFLOW MIN	EXTERIOR ZONE	HEATING COIL DESCRIPTION	HEATING COIL CAPACITY	AIRSIDE DESIGN FLOW	AIRSIDE EAT(db)	AIRSIDE LAT(db)	AIRSIDE PRESSURE DROP	ROWS	FPI	WATERSIDE FLOW	WATERSIDE EWT	WATERSIDE LWT	WATERSIDE PRESSURE DROP	HEATING PLANT GLYCOL TYPE	HEATING PLANT GLYCOL %	NC	UNIT WEIGHT	ACCESSORIES	NOTES
VAV 4-01	TITUS	DESV	8"	SINGLE DUCT	490 CFM	150 CFM	Yes	HEATING WATER COIL	14000 Btu/h	490 CFM	55.0 °F	95.0 °F	0.18 in-wg	2	10	0.8 GPM	200 °F	161 °F	0.2 ftH2O	PG	25	25	46 lb	DS, T	1, 2
VAV 5-01	TITUS	DESV	10"	SINGLE DUCT	1150 CFM	1150 CFM	No	HEATING WATER COIL	46500 Btu/h	1150 CFM	55.0 °F	95.0 °F	0.35 in-wg	2	10	2.5 GPM	200 °F	165 °F	0.4 ftH2O	PG	25	24	55 lb	DS, T	1, 2
VAV 5-02	TITUS	DESV	14"	SINGLE DUCT	2065 CFM	2065 CFM	No	HEATING WATER COIL	94000 Btu/h	2065 CFM	55.0 °F	95.0 °F	0.23 in-wg	2	10	5.5 GPM	200 °F	164 °F	0.5 ftH2O	PG	25	18	69 lb	DS, T	1, 2
VAV 5-03	TITUS	DESV	8"	SINGLE DUCT	620 CFM	620 CFM	No	HEATING WATER COIL	26700 Btu/h	620 CFM	55.0 °F	95.0 °F	0.25 in-wg	2	10	1.5 GPM	200 °F	165 °F	0.4 ftH2O	PG	25	27	46 lb	DS, T	1, 2
VAV 5-04	TITUS	DESV	12"	SINGLE DUCT	1500 CFM	450 CFM	No	HEATING WATER COIL	34700 Btu/h	450 CFM	55.0 °F	95.0 °F	0.28 in-wg	2	10	1.4 GPM	200 °F	150 °F	0.2 ftH2O	PG	25	15	65 lb	DS, T	1, 2
VAV 5-05	TITUS	DESV	16"	SINGLE DUCT	2500 CFM	750 CFM	Yes	HEATING WATER COIL	59100 Btu/h	2500 CFM	55.0 °F	95.0 °F	0.31 in-wg	2	10	2.7 GPM	200 °F	154 °F	0.2 ftH2O	PG	25	20	85 lb	DS, T	1, 2
VAV 5-06	TITUS	DESV	8"	SINGLE DUCT	725 CFM	220 CFM	No	HEATING WATER COIL	15800 Btu/h	220 CFM	55.0 °F	95.0 °F	0.31 in-wg	2	10	0.8 GPM	200 °F	160 °F	0.2 ftH2O	PG	25	24	46 lb	DS, T	1, 2
VAV 5-07	TITUS	DESV	8"	SINGLE DUCT	600 CFM	180 CFM	No	HEATING WATER COIL	14100 Btu/h	180 CFM	55.0 °F	95.0 °F	0.23 in-wg	2	10	0.8 GPM	200 °F	159 °F	0.2 ftH2O	PG	25	27	46 lb	DS, T	1, 2
VAV 5-08	TITUS	DESV	8"	SINGLE DUCT	400 CFM	120 CFM	No	HEATING WATER COIL	13000 Btu/h	120 CFM	55.0 °F	95.0 °F	0.13 in-wg	2	10	0.8 GPM	200 °F	162 °F	0.2 ftH2O	PG	25	25	46 lb	DS, T	1, 2
VAV 5-09	TITUS	DESV	8"	SINGLE DUCT	455 CFM	140 CFM	Yes	HEATING WATER COIL	13500 Btu/h	455 CFM	55.0 °F	95.0 °F	0.15 in-wg	2	10	0.8 GPM	200 °F	160 °F	0.2 ftH2O	PG	25	25	46 lb	DS, T	1, 2
VAV 5-10	TITUS	DESV	8"	SINGLE DUCT	420 CFM	130 CFM	Yes	HEATING WATER COIL	13200 Btu/h	420 CFM	55.0 °F	95.0 °F	0.14 in-wg	2	10	0.8 GPM	200 °F	159 °F	0.2 ftH2O	PG	25	22	46 lb	DS, T	1, 2
VAV 5-11	TITUS	DESV	8"	SINGLE DUCT	565 CFM	170 CFM	No	HEATING WATER COIL	14300 Btu/h	170 CFM	55.0 °F	95.0 °F	0.17 in-wg	2	10	0.8 GPM	200 °F	160 °F	0.2 ftH2O	PG	25	22	46 lb	DS, T	1, 2
VAV 5-12	TITUS	DESV	6"	SINGLE DUCT	350 CFM	105 CFM	Yes	HEATING WATER COIL	10300 Btu/h	350 CFM	55.0 °F	95.0 °F	0.15 in-wg	2	10	0.8 GPM	200 °F	170 °F	0.2 ftH2O	PG	25	22	43 lb	DS, T	1, 2
VAV 5-13	TITUS	DESV	6"	SINGLE DUCT	350 CFM	105 CFM	Yes	HEATING WATER COIL	10300 Btu/h	350 CFM	55.0 °F	95.0 °F	0.15 in-wg	2	10	0.8 GPM	200 °F	170 °F	0.2 ftH2O	PG	25	22	43 lb	DS, T	1, 2
VAV 5-14	TITUS	DESV	6"	SINGLE DUCT	300 CFM	90 CFM	No	HEATING WATER COIL	10100 Btu/h	90 CFM	55.0 °F	95.0 °F	0.12 in-wg	2	10	0.8 GPM	200 °F	172 °F	0.1 ftH2O	PG	25	22	43 lb	DS, T	1, 2

GENERAL NOTES:
A. HEATING WATER FOR VAV BOXES CONTAINS 25% PROPYLENE GLYCOL.
B. ON EMERGENCY POWER.
C. INLET DUCT DIAMETER TO MATCH THE NECK SIZE, UNLESS OTHERWISE NOTED.
D. PROVIDE WITH UNOCCUPIED SETBACK FOR SPACES PERMITTED TO OPERATE IN UNOCCUPIED MODE, MAINTAIN CONTINOUS PRESSURE RELATIONSHIP AND MINIMUM AIR CHANGE RATES AS REQUIRED.
E. PROGRAM VAV 5-06, 5-08, 5-09, 5-10, 5-12, AND 5-13 FOR UNOCCUPIED SETBACK TO 30% OF FULL FLOW. PROGRAM SHALL UTILIZE THE LIGHTING CONTROL OCCUPANCY SENSOR TO RELAY UNOCCUPIED STATUS TO THE BAS. PROVIDE A 20-MINUTE TIME DELAY BEFORE PLACING THE BOX INTO UNOCCUPIED MODE.
F. PROGRAM VAV 5-04 AND 5-05 FOR UNOCCUPIED SETBACK TO 30% OF FULL FLOW. PROGRAM SHALL UTILIZE THE LIGHTING CONTROL OCCUPANCY SENSOR TO RELAY UNOCCUPIED STATUS TO THE BAS. PROVIDE A 20-MINUTE TIME DELAY BEFORE PLACING THE BOX INTO UNOCCUPIED MODE. PROVIDE PRESSURE MONITORING AND INTERLOCK WITH MOTORIZED DAMPERS ON RETURN BRANCHES. PROGRAM ONE DAMPER TO CLOSE AND MODULATE THE OTHER TO 50% OPEN TO MAINTAIN REQUIRED PRESSURIZATION. TIE INTO BAS AND PRESSURE MONITOR.

ACCESSORIES:
DS - DISCONNECT SWITCH
T - 7-DAY PROGRAMMABLE THERMOSTAT

SCHEDULE NOTES:
1. DOUBLE WALL CONSTRUCTION.
2. DDC CONTROLS.

ROOFTOP UNIT SCHEDULE

MARK	MANUFACTURER	MODEL NO.	OUTSIDE AIR FLOW	SUPPLY FAN AIRFLOW DESIGN	SUPPLY FAN PRESS ESP	SUPPLY FAN PRESS TSP	SUPPLY FAN WHEEL TYPE	SUPPLY FAN WHEEL DIA	SUPPLY FAN DRIVE TYPE	SUPPLY FAN MOTOR QTY	SUPPLY FAN MOTOR POWER	SUPPLY FAN MOTOR RPM	SUPPLY FAN MOTOR ECM
AHU-5	DAIKIN	OAH025GDCM	3800 CFM	12000 CFM	2.50 in-wg	5.96 in-wg	AF	1' - 2"	DIRECT	1	4.40 hp	3300	Yes

MARK	RETURN FAN PRESS ESP	RETURN FAN PRESS TP	RETURN FAN WHEEL TYPE	RETURN FAN WHEEL DIA	RETURN FAN DRIVE TYPE	RETURN FAN MOTOR QTY	RETURN FAN MOTOR POWER	RETURN FAN MOTOR RPM	RETURN FAN MOTOR ECM
AHU-5	2.00 in-wg	2.54 in-wg	AF	1' - 2"	DIRECT	1	4.40 hp	3300	Yes

MARK	COOLING COIL CAP TOTAL	COOLING COIL CAP SENSIBLE	AIRSIDE EAT(db)	AIRSIDE EAT(wb)	AIRSIDE LAT(db)	AIRSIDE LAT(wb)	AIRSIDE PD	AIRSIDE FPI	WATERSIDE FLOW	WATERSIDE EWT	WATERSIDE LWT	WATERSIDE PD
AHU-5	439700 Btu/h	387240 Btu/h	80.0 °F	63.0 °F	50.5 °F	50.0 °F	1.01 in-wg	8	85.0 GPM	44 °F	55 °F	7.5 ftH2O

MARK	HEATING COIL CAP	AIRSIDE EAT(db)	AIRSIDE LAT(db)	AIRSIDE PD	AIRSIDE FPI	WATERSIDE FLOW	WATERSIDE EWT	WATERSIDE LWT	WATERSIDE PD	HEATING PLANT GLYCOL TYPE	HEATING PLANT GLYCOL %
AHU-5	269129 Btu/h	40.0 °F	60.5 °F	0.13 in-wg	11	13.7 GPM	200 °F	159 °F	0.4 ftH2O	PG	25

MARK	SUMMER AMBIENT DBT	WINTER AMBIENT DBT	PRE-FILTER EFF	FILTER EFF	UNIT WEIGHT	MCA	MOCP	VOLT	PH	ACCESSORIES	NOTES
AHU-5	95.0 °F	-9.0 °F	MERV-8	MERV-17	8342 lb	50 A	60 A	480 V	3	BO, DS, EC, UC, RC, ML, PV	1, 2

GENERAL NOTES:
A. ROOFTOP UNIT INCLUDES THE FOLLOWING SECTIONS: RETURN INLET PLENUM, RETURN FAN WALL WITH CIRCUIT, MIXING/ACCESS SECTION (OUTSIDE AIR INTAKE/ECONOMIZER AND RELIEF AIR), PRE-FILTER, PRE-HEAT COIL, ACCCESS SECTION, CHILLED WATER COOLING COIL, SUPPLY FAN WALL WITH CIRCUIT, ACCESS SECTION, FINAL FILTER, AND DISCHARGE PLENUM
B. SUPPLY FAN MCA: 29.4 MOCP: 30
C. RETURN FAN MCA: 20 MOCP: 20

ACCESSORIES:
BO - BLANK OFFPLATE FOR FAN WALL
DS - INTEGRAL ELECTRICAL DISCONNECTS
EC - ECONOMIZER
UC - UNIT CASING WITH DOUBLE WALL 2" FOAM INSULATION
RC - FULL PERIMETER FRAME
ML - MARINE LIGHT KIT
PV - PIPING VESTIBULE (OPEN WITH NO PANELS)

SCHEDULE NOTES:
1. FANS TO BE ON SEPERATE CIRCUITS AND BOTH ON EMERGENCY POWER.
2. DUCT MOUNTED SMOKE DETECTORS PROVIDED AND WIRED BY ELECTRICAL, INSTALLED BY MECHANICAL DIVISION.

BID PACKAGE 2
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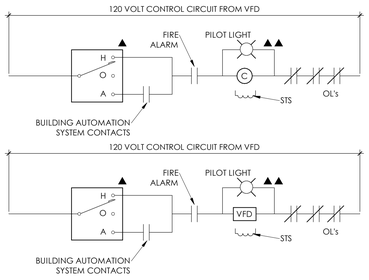
REVIEWED:
ES ARCHITECT / ENGINEER DATE
APPROVED:
ES PROJECT MANAGER DATE
ES BRANCH CHIEF DATE
CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION
A1	07/29/2026	ADDENDUM #1

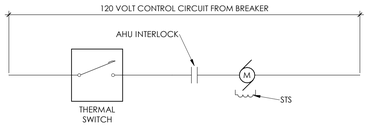
ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: M600.2.dwg
DRAWN BY: Author
CHECKED BY: BSC

SHEET TITLE:
MECHANICAL SCHEDULES

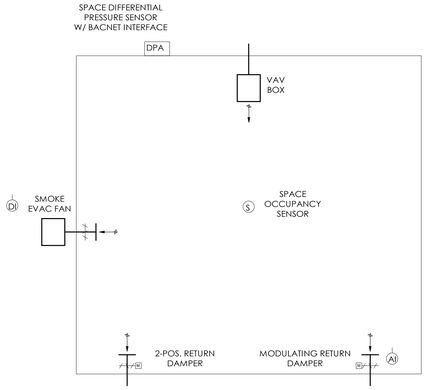
M600.2



TYPICAL THREE PHASE EXHAUST FAN CONTROL



TYPICAL SINGLE PHASE EXHAUST FAN CONTROL



TYPICAL NEW OPERATING ROOM SPACE PRESSURE CONTROL

TYPICAL NEW OPERATING ROOM SPACE PRESSURE CONTROL SEQUENCE OF OPERATION:

OCCUPIED MODE:

1. DURING NORMAL OPERATION THE SPACE SHALL BE INDEXED INTO THE OCCUPIED MODE BASED ON THE SPACE OCCUPANCY SENSOR SENSING MOTION.

2. WHEN IN THE OCCUPIED MODE, THE VAV BOX SHALL BE SET TO THE FULL COOLING MODE AIRFLOW SETPOINT. THE 2-POSITION RETURN DAMPER SHALL BE FULLY OPEN AND THE MODULATING RETURN DAMPER SHALL BE MODULATED AS REQUIRED TO MAINTAIN A SPACE PRESSURE SETPOINT OF POSITIVE 0.01" W.C. AS SENSED BY THE ASSOCIATED ROOM SHALL DIFFERENTIAL PRESSURE MONITOR.

3. IF THE SPACE PRESSURE DROPS BELOW POSITIVE 0.01" W.C. FOR LONGER THAN 2 MINUTES (ADJUSTABLE) THE SPACE DIFFERENTIAL PRESSURE MONITOR SHALL INITIATE AN ALARM AT THE DEVICE.

UNOCCUPIED MODE:

1. THE SPACE SHALL BE INDEXED INTO THE UNOCCUPIED MODE BASED ON THE SPACE OCCUPANCY SENSOR NOT SENSING MOTION FOR A MINIMUM TIME PERIOD OF 30 MINUTES (ADJUSTABLE).

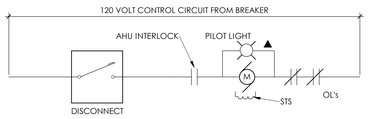
2. WHEN IN THE UNOCCUPIED MODE, THE VAV BOX SHALL BE SET TO THE 50% OF FULL COOLING MODE AIRFLOW SETPOINT, OR THE MINIMUM AIRFLOW SETPOINT. THE 2-POSITION RETURN DAMPER SHALL BE FULLY CLOSED AND THE MODULATING RETURN DAMPER SHALL BE MODULATED AS REQUIRED TO MAINTAIN A SPACE PRESSURE SETPOINT OF POSITIVE 0.01" W.C. AS SENSED BY THE ASSOCIATED ROOM SHALL DIFFERENTIAL PRESSURE MONITOR.

3. IF THE SPACE PRESSURE DROPS BELOW POSITIVE 0.01" W.C. FOR LONGER THAN 2 MINUTES (ADJUSTABLE) THE SPACE DIFFERENTIAL PRESSURE MONITOR SHALL INITIATE AN ALARM AT THE DEVICE.

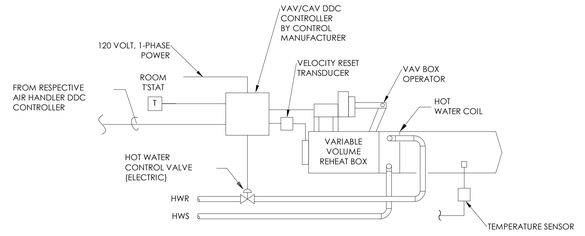
FIRE ALARM:

1. WHEN SMOKE IS SENSED BY THE FIRE ALARM SYSTEM INSIDE THE OPERATING ROOM THE FIRE ALARM SHALL SIGNAL THE BAS SYSTEM AND THE ASSOCAITED ROOM SHALL BE INDEXED INTO A SMOKE PURGE MODE.

2. DURING SMOKE PURGE MODE THE RETURN DAMPERS SHALL BE FULLY CLOSED, THE ASSOCIATED SMOKE EVAC FAN SHALL BE ENABLED, THE ASSOCIATED ROOM VAV BOX WILL BE SET TO THE 50% OF FULL COOLING MODE AIRFLOW SETPOINT OR THE MINIMUM AIRFLOW SETPOINT, AND THE BAS SHALL INITIATE AN ALARM INDICATING SMOKE PURGE SEQUENCE HAS BEEN ENABLED.



TYPICAL SINGLE PHASE EXHAUST FAN CONTROL



TYPICAL VARIABLE VOLUME BOX CONTROL WITH HHW REHEAT COIL

DUAL PID VAV SEQUENCE OF OPERATION:

1. PROVIDE A 2 DEG F MINIMUM DEADBAND BETWEEN THE HEATING AND COOLING SPACE TEMPERATURE SETPOINTS. WHEN THE SPACE TEMPERATURE IS IN THE DEAD BAND, THE VAV SHALL PROVIDE MINIMUM COOLING AIR FLOW AND THE REHEAT COIL VALVE SHALL BE CLOSED.

OCCUPIED MODE:

1. ON A RISE IN ROOM TEMPERATURE ABOVE THE COOLING SETPOINT, THE LOCAL CONTROLLER WILL INCREASE THE COOLING AIRFLOW FROM THE MINIMUM COOLING FLOW TO THE MAXIMUM COOLING FLOW POSITIONS. ON A DECREASE IN THE ROOM TEMPERATURE BELOW THE COOLING SETPOINT, THE INVERSE CONTROL WILL OCCUR AND REDUCE THE COOLING AIRFLOW FROM MAXIMUM COOLING FLOW TO MINIMUM COOLING FLOW.

2. ON A FURTHER REDUCTION IN ZONE TEMPERATURE BELOW THE ZONE HEATING SETPOINT THE LOCAL CONTROLLER WILL LOCK AIRFLOW AT THE HEATING AIRFLOW AND ENABLE THE HEATING HOT WATER VALVE. THE VALVE WILL MONDULATE AS REQUIRED TO MAINTAIN THE SPACE HEATING SETPOINT.

UNOCCUPIED MODE/OCCUPANCY OVERRIDE:

1. THE SEQUENCES ABOVE DESCRIBE THE OCCUPIED COOLING AND HEATING OPERATION MODES. VAV BOX CONTROLS SHALL INCLUDE THE ABILITY TO RESET SPACE TEMPERATURE SET POINTS BASED ON A PRESET SCHEDULE TO A USER ADJUSTABLE UNOCCUPIED COOLING AND HEATING SET POINT.

2. WHEN ACTIVATED BY BAS TIME SCHEDULE, THE VAV BOX SHALL OPERATE WITH COOLING AND HEATING MODES AS DESCRIBED ABOVE WITH ROOM TEMPERATURE SETPOINT EQUAL TO UNOCCUPIED COOLING AND UNOCCUPIED HEATING SETPOINTS INITIALLY SET AT 80 DEG F COOLING (ADJ.) AND 65 DEG F HEATING (ADJ.).

NOTES:

1. HOT WATER CONTROL VALVE TO BE 2-WAY TYPE UNLESS INDICATED TO BE 3-WAY TYPE
2. REFER TO SCHEDULED INFORMATION FOR AIRFLOW AND OCCUPANCY INFORMATION.

EMS POINT SUMMARY

TYPICAL REHEAT BOX

POINT DESCRIPTION	HARDWARE: OUTPUT (O) DIGITAL: Control Relay	Solenoid	Contactor	OUTPUT (O) ANALOG: Space Temp Control	DCC Control Signal	4-20MA Signal	INPUT (T,D,V,C) DIGITAL: Differential Press Switch	Flow Switch	Switch Closure	Auxiliary Contact	Current Relay	Alarm Condition	INPUT (T,D,V,C) ANALOG: Temperature	Relative Humidity	in wg	Position	SOFTWARE ALARMS DIGITAL: Flow	Amperes	Equipment Status	Maintenance	ALARMS ANALOG: High Limit	Low Limit	Run Time	Log Data	FUNCTIONS: Scheduled Start/Stop	Optimum Start/Stop	VAV Calibration	Trend Differential Flow	Day/Night Setback	Economizer	Ventilation/Recirculation	Temperature Control	Enthalpy	Sup Air CFM	Reheat Coil Reset	Volume control	Damper Position	Valve Position	Chiller Optimization	Chilled Water Reset	Condenser Water Reset	Chiller Demand Limit	VFD Control	Alarm Condition
REHEAT VAV BOX AND SUPPLY TRACKING VALVES:																																											
SPACE TEMPERATURE SETPOINT (ADJ)				●									●																														
ACTUAL BOX CFM																				●																								
BOX CFM MINIMUM																																●			●								
BOX CFM MAXIMUM																																●			●								
DAMPER POSITION																●																						●						
COMMANDED DAMPER POSITION					●																																						
SUPPLY AIR TEMPERATURE TO SPACE													●													●			●														
HOT WATER CONTROL VALVE				●																															●								
HOT WATER CONTROL VALVE POSITION																																										●	
COMMANDED HOT WATER CONTROL VALVE POSITION					●																																						
VAV BOX CALIBRATION																															●												

CONTROLS CONTRACTOR SHALL PROVIDE OPTION TO CALIBRATE ALL REHEAT BOXES ASSOCIATED WITH OR'S, ISOLATION ROOMS, ICU PATIENT ROOMS, RECOVERY ROOMS, NURSERIES AND CATH LAB WITHOUT CLOSING BOX DAMPERS.\

ALL REHEAT BOXES TO BE CONTROLLED AS INDICATED ABOVE.
CONTRACTOR TO VERIFY NUMBER OF BOXES BEING PROVIDED ON PROJECT

CONTROL SYMBOL LEGEND

SYMBOL	DESCRIPTION
TS	SPACE TEMPERATURE SENSOR
CO2	DUCT MOUNTED CO SENSOR
TS	AVERAGING TEMPERATURE SENSOR
HS	DUCT MOUNTED HUMIDITY SENSOR
AO	ANALOG OUTPUT
AI	ANALOG INPUT
DO	DIGITAL OUTPUT
DI	DIGITAL INPUT
	SMOKE DETECTOR, FURNISHED BY ELECTRICAL AND INSTALLED BY HVAC
HOA	HAND-OFF-AUTO MAGNETIC STARTER
SP	DUCT STATIC PRESSURE SENSOR
DP	DIFFERENTIAL PRESSURE SENSOR
	INTERLOCK WITH FIRE ALARM SYSTEM
M	FAN/PUMP MOTOR
VFD	VARIABLE FREQUENCY DRIVE
CT	CURRENT TRANSDUCER
FS	FLOW SWITCH
	DIRECTION OF FLOW
TS	PIPE MOUNTED TEMPERATURE SENSOR
	2-WAY AUTOMATIC VALVE
	3-WAY AUTOMATIC VALVE
HOA	HAND-OFF-AUTO SWITCH

AI - ANALOG INPUT
AM - AIRFLOW MEASURMENT STATION
AO - ANALOG OUTPUT
BAS - BUILDING AUTOMATION SYSTEM
C - COIL
D - DAMPER CONTROL
DI - DIGITAL INPUT
DO - DIGITAL OUTPUT
DPS - DIFFERENTIAL PRESSURE SWITCH
FS - FREEZE STAT
FSD - FIRE SMOKE DAMPER
HT - HUMIDITY TRANSMITTER
MOD. - MODULATING DEVICE
N.C. - NORMALLY CLOSED
N.O. - NORMALLY OPEN
OL's - OVERLOAD(S)
PL - PILOT LIGHT
SD - SMOKE DETECTOR
SPS - STATIC PRESSURE SWITCH
SPT - STATIC PRESSURE TRANSMITTER
SS - START/STOP COMMAND
STS - STATUS (CURRENT SENSOR)
TS - TEMPERATURE SENSOR
TT - TEMPERATURE TRANSMITTER
2-POS - 2-POSITION DEVICE

▲ LOCATE AT VFD COVER
▲▲ LOCATE IN LOCAL CONTROL PANEL

BID PACKAGE 2
ISSUED FOR BIDS

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7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE
CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER DATE
APPROVED:
ES PROJECT MANAGER DATE
ES BRANCH CHIEF DATE
CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION
A1	07/29/2026	ADDENDUM #1

ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: M800.2.dwg
DRAWN BY: Author
CHECKED BY: Checker

SHEET TITLE:
HVAC CONTROLS

M800.2

TYPICAL SEQUENCE OF OPERATION

VARIABLE VOLUME AIR HANDLER UNIT
ECONOMIZER WITH PREHEAT COIL
(ALL SETPONTS SHALL BE ADJUSTABLE)

1. SUPPLY AIR AND RETURN AIR FAN

A. SUPPLY AIR AND RETURN AIR FANS SHALL BE ENERGIZED/DE-ENERGIZED FROM THE CONTROL INTERFACE PANEL (CIP) IN HAND POSITION OR THE DDC SYSTEM WHEN IN AUTO MODE. THE DDC CONTROL SYSTEM SHALL SENSE WHEN THE FAN IS IN HAND POSITION BY THE FAN STATUS VERIFICATION AND INITIATE THE AHU CONTROL SEQUENCE.

B. IN AUTO MODE THE OUTSIDE AIR DAMPER SHALL OPEN. ONCE THE DAMPER IS OPEN, THE SUPPLY FAN SHALL START, AND THE DDC SYSTEM SHALL SIGNAL THE ASSOCIATED RETURN AND EXHAUST FANS AND DAMPERS TO START. DDC SHALL UTILIZE A 15 SECOND TIME DELAY TO ALLOW SMOKE DAMPER OPENING PRIOR TO START OF FAN. IF THE FAN IS STARTED IN HAND THE TWO POSITION MINIMUM OUTSIDE AIR DAMPER SHALL OPEN IMMEDIATELY UPON SENSING THE FAN STATUS AS ON.

C. FANS SHALL SHUT DOWN FROM A SIGNAL FROM:

1) THE FIRE ALARM PANEL THRU THE F/A RELAY
2) THE SUPPLY AIR SMOKE DETECTOR(S) (SD-SA)
3) THE RETURN AIR SMOKE DETECTOR(S) (SD-RA)
4) FREEZESTAT (TS-FRZ)
5) THE HIGH/LOW LIMIT STATIC PRESSURE SWITCHES (SPS-SHI & RLO)
6) PREHEAT LOW LIMIT

D. WHEN THE SUPPLY FAN SHUTS DOWN THE FOLLOWING SHALL OCCUR:

1) THE ECONOMIZER OUTSIDE AIR DAMPER (D-EOA) SHALL CLOSE
2) THE RELIEF DAMPER (D-REL) SHALL CLOSE
3) THE RETURN DAMPER (D-RET) SHALL OPEN
4) THE CHILLED WATER VALVE (V-CHW) SHALL CLOSE
5) THE RETURN FAN AND THE ASSOCIATED EXHAUST FANS SHALL SHUTDOWN
6) THE PREHEAT COIL (V-HTG) SHALL REMAIN UNDER CONTROL OF THE PREHEAT DISCHARGE AIR TEMPERATURE SENSOR
7) ASSOCIATED SMOKE DAMPERS SHALL CLOSE

2. SUPPLY FAN SPEED CONTROL

A. THE SUPPLY FANS CONTROL INTERFACE PANEL (CIP) SHALL BE CONTROLLED BY A DUCT MOUNTED DIFFERENTIAL STATIC PRESSURE TRANSMITTER (SPT-SA) MODULATING THE EC MOTORS TO MAINTAIN A SUPPLY DUCT STATIC PRESSURE AT THE LOWEST SETPOINT POSSIBLE AS DETERMINED BY THE TAB CONTRACTOR. FOR MULTIPLE STATIC PRESSURE TRANSMITTERS, THE DDC SYSTEM SHALL PROVIDE A SEPARATE SET POINT FOR EACH STATIC PRESSURE TRANSMITTER, AND SELECT THE STATIC PRESSURE TRANSMITTER THAT IS FARTHEST BELOW ITS SET POINT TO CONTROL THE SPEED OF THE VFD. THE VFD SHALL OUTPUT THE % FULL SPEED TO THE DDC SYSTEM THROUGH THE NETWORK INTERFACE.

B. ON A FALL IN DIFFERENTIAL PRESSURE SENSED BY SPT-SA, THE DDC SYSTEM SHALL SPEED UP THE SUPPLY FAN EC MOTORS TO MAINTAIN SPT-SA AT SET POINT. ON A RISE IN DIFFERENTIAL PRESSURE SENSED BY SPT-SA, THE DDC SYSTEM SHALL SLOW DOWN THE SUPPLY FAN EC MOTORS TO MAINTAIN SPT-SA AT SETPOINT. SPT-SA SHALL ALARM THE DDC SYSTEM IF ITS MEASURED PRESSURE IS EITHER 50% HIGHER OR 50% LOWER THAN SET POINT.

C. SPS-SHI SHALL SHUTDOWN THE FANS WHENEVER IT SENSES A HIGH STATIC PRESSURE, ALARM THE DDC SYSTEM, AND REQUIRE A LOCAL MANUAL RESET TO RESTART THE FAN. SPS-RLO SHALL SHUTDOWN THE FANS WHENEVER IT SENSES A LOW STATIC PRESSURE AND ALARM THE DDC SYSTEM AND REQUIRE A LOCAL MANUAL RESET TO RESTART THE FAN.

3. VOLUMETRIC TRACKING

A. THE RETURN AIR FAN CIP SHALL BE CONTROLLED FROM AN OUTSIDE AIR QUANTITY SOFTWARE SETPOINT (SCHEDULED OUTSIDE AIR QUANTITY, ADJUSTABLE) USING AIRFLOW MEASURING DEVICES AND TRANSMITTERS AM-SA AND AM-RA INSTALLED AT THE INLET OF THE SUPPLY AND RETURN FANS. AM-SA SHALL MEASURE THE TOTAL AIRFLOW OF THE SUPPLY FAN AND AM-RA SHALL MEASURE THE TOTAL AIRFLOW OF THE RETURN FAN. THE AIRFLOW MEASURING TRANSMITTERS SHALL OUTPUT THE TOTAL CFM READING TO THE DDC SYSTEM. THE DDC SYSTEM SHALL CALCULATE THE DIFFERENCE OF THE TOTAL SUPPLY AIR AND THE TOTAL RETURN AIR TO MAKE AN OUTSIDE AIR QUANTITY SOFTWARE POINT. THE DDC SYSTEM SHALL MODULATE THE SPEED OF THE RETURN AIR FAN VFD TO MAINTAIN THE CALCULATED OUTSIDE AIR QUANTITY WITHIN 2% OF THE OUTSIDE AIR QUANTITY SET POINT.

4. FULL COOLING MODE

A. THE COOLING COIL CONTROL VALVE, V-CHW, SHALL BE CONTROLLED BY A CONTROL LOOP WITH THE DISCHARGE TEMP. TRANSMITTER, TT-DAT, AS THE INPUT, AND A SETPOINT EQUAL TO THE DISCHARGE AIR SET POINT OF (50 DEGREES F, ADJ.). ON A RISE IN TEMP. ABOVE TT-DAT SET POINT, THE VALVE SHALL MODULATE OPEN. ON A FALL IN TEMP. BELOW TT-DAT SETPOINT, THE VALVE SHALL MODULATE CLOSED. TT-DAT SHALL ALARM THE DDC SYSTEM WHENEVER THE DISCHARGE TEMP. IS TOO HIGH OR LOW (+/- 2 DEGREES F, ADJ.). THE COOLING COIL CONTROL LOOP SHALL CONTROL THE LEAVING AIR TEMP. WITHIN +/- 0.5 DEGREES F.

5. ECONOMIZER MODE:

A. THERE SHALL BE AN ADJUSTABLE OUTSIDE AIR ECONOMIZER ENABLE TEMP. (55 DEGREES F) AND AN ADJUSTABLE DEAD BAND (+/-2 DEGREES F). THE UNIT SHALL TRANSITION TO THE ECONOMIZER MODE WHENEVER THE OUTSIDE AIR TEMP. IS BELOW THE ECONOMIZER ENABLE TEMP. LESS THE DEAD BAND (55 DEG. F - 2 DEG. F = 53 DEG. F) FOR AN ADJUSTABLE TRANSITION TIME (5 MINUTES).

B. IN THE ECONOMIZER MODE, THE COOLING COIL VALVE SHALL REMAIN CLOSED AND THE ECONOMIZER AIR DAMPER (D-EOA), RELIEF AIR DAMPER (D-REL), AND THE RETURN AIR DAMPER (D-RET) SHALL MODULATE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT THE DISCHARGE AIR TEMPERATURE SETPOINT.

C. THE DISCHARGE AIR TEMPERATURE CONTROL LOOP SHALL HAVE THE UNIT DISCHARGE AIR TEMP. TRANSMITTER (TT-DAT) AS THE INPUT AND A SETPOINT EQUAL TO THE COOLING COIL SET POINT (50 DEGREES F). ON A RISE IN DISCHARGE AIR TEMP. THE ECONOMIZER OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL MODULATE OPEN AND THE RETURN AIR DAMPER SHALL MODULATE CLOSED. ON A FALL IN DISCHARGE AIR TEMP. THE ECONOMIZER OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER SHALL MODULATE CLOSED AND THE RETURN AIR DAMPER SHALL MODULATE OPEN. DAMPERS SHALL MAINTAIN DAT TO WITHIN +/- 0.5 DEGREES F OF SETPOINT.

D. THE UNIT SHALL TRANSITION FROM ECONOMIZER MODE TO FULL COOLING MODE WHENEVER THE ENTHALPY OF THE OUTSIDE AIR IS GREATER THAN THAT OF THE RETURN AIR FOR AN ADJUSTABLE TRANSITION TIME (5 MINUTES).

6. STATE 2 – ECONOMIZER MODE WITH COOLING COIL:

A. WHEN THE UNIT IS IN ECONOMIZER MODE AND THE ECONOMIZER DAMPER CONTROL LOOP HAS AN OUTPUT OF 100% OPEN FOR AN ADJUSTABLE TIME OF 10 MINUTES, THE ECONOMIZER MODE WITH COOLING COIL SHALL BE ENABLED.

B. DURING THIS MODE THE ECONOMIZER OUTSIDE AIR DAMPERS SHALL BE FULLY OPEN. THE COOLING COIL CONTROL VALVE, V-CHW, SHALL BE ENABLED AND CONTROLLED BY A CONTROL LOOP WITH THE DISCHARGE TEMP. TRANSMITTER, TT-DAT, AS THE INPUT, AND A SETPOINT EQUAL TO THE DISCHARGE AIR SETPOINT OF (50 DEGREES F, ADJ.).

C. THE UNIT SHALL DISABLE THE ECONOMIZER MODE WITH COOLING COIL WHENEVER THE COOLING COIL CONTROL LOOP HAS A COOLING VALUE OUTPUT OF 0% OPEN FOR AN ADJUSTABLE TIME OF 5 MINUTES.

7. PREHEAT COIL MODE:

A. THE UNIT SHALL TRANSITION FROM THE ECONOMIZER MODE TO THE PREHEAT COIL MODE WHENEVER THE ECONOMIZER DAMPER CONTROL LOOP HAS AN OUTPUT OF 0% OPEN FOR AN ADJUSTABLE TIME OF 5 MINUTES.

B. DURING THE PREHEAT COIL MODE, COOLING COIL VALVE SHALL BE LOCKED OUT, THE ECONOMIZER AND RELIEF DAMPER SHALL BE FULLY CLOSED, AND THE PREHEAT HOT WATER VALVE, V-HTG, SHALL BE ENABLED AND SHALL BE CONTROLLED BY A CONTROL LOOP WITH THE DISCHARGE TEMP. TRANSMITTER, TT-DAT, AS THE INPUT, AND A SETPOINT EQUAL TO THE DISCHARGE AIR SETPOINT OF (50 DEGREES F, ADJ).

C. THE UNIT SHALL TRANSITION FROM THE PREHEAT COIL MODE TO THE ECONOMIZER MODE WHENEVER THE PREHEAT COIL CONTROL LOOP HAS AN OUTPUT OF 0% OPEN FOR AN ADJUSTABLE TIME OF 5 MINUTES.

8. PREHEAT COIL LOW LIMIT CONTROL MODE:

A. THE PREHEAT COIL LOW LIMIT CONTROL MODE SHALL BE OPERATIVE AT ALL TIMES, INCLUDING WHEN THE UNIT IS DE-ENERGIZED, AND SHALL BE CONTROLLED TO MAINTAIN A MINIMUM PREHEAT COIL DISCHARGE AIR TEMPERATURE. THE PREHEAT LOW LIMIT CONTROL LOOP SHALL HAVE THE PREHEAT COIL LEAVING AIR TEMPERATURE TRANSMITTER (TT-PHT) AS THE INPUT AND THE SETPOINT SHALL BE 42 DEGREES F (ADJUSTABLE). THE PREHEAT LOW LIMIT CONTROL MODE SHALL AUTOMATICALLY ENABLE THE PREHEAT COIL HOT WATER VALVE, V-HTG, AND MODULATE THE VALVE TO MAINTAIN THE SETPOINT WHENEVER THE PREHEAT COIL LEAVING AIR TEMPERATURE IS SENSED BELOW THE SETPOINT. THE BAS SHALL ISSUE A 'PREHEAT COIL LOW LIMIT ALARM' IS THE PRHEAT COIL LEAVING AIR TEMPERATURE FALLS BELOW THE SETPOINT BY – 1 DEGREE F. THE ALARM SHALL AUTOMATICALLY RESET WHEN THE PREHEAT COIL LEAVING AIR TEMPERATURE RISES +1 DEGREE F ABOVE THE SETPOINT.

B. IF THE PREHEAT COIL LEAVING AIR TEMPERATURE FALLS TO 38 DEGREES F (ADJUSTABLE), THE BAS SHALL SHUT DOWN SUPPLY FAN, AND ASSOCIATED AIR HANDLER UNIT COMPONENTS. A 'PREHEAT TEMPERATURE SHUTDOWN ALARM' SHALL BE GENERATED AT THE BAS FRONT END. A SOFTWARE RESET SHALL BE REQUIRED TO RESTART THE AIR HANDLER.

9. PREHEAT COIL CIRCULATING PUMP

A. THE PRHEAT COIL CIRCULATING PUMP SHALL BE ENERGIZED WHENEVER THE OUTSIDE AIR TEMPERATURE FALLS BE 35 DEGREES F (AJUSTABLE) WITHOUT REGARD TO WHETHER THE AHU SUPPLY FAN IS ENABLED. THE PUMP SHALL BE DE-ENERGIZED WHENEVER THE OUTSIDE AIR TEMPERATURE IS ABOVE 42 DEGREES F (ADJUSTABLE). A DIFFERENTIAL PRESSURE SWITCH ACROSS THE CIRCULATING PUMP, PHP-STS, SHALL BE EMPLOYED TO SENSE THE PRESENCE OF FLOW THROUGH THE PREHEAT COIL. IF THE LOSS OF FLOW IS SENSED AND THE OUTSIDE AIR TEMPERATURE IS BELOW 40 DEGREES F (ADJUSTABLE), THE PREHEAT HOT WATER CONTROL VAVLE SHALL BE FULLY OPENED AND THE BAS SHALL GENERATE A 'PREHEAT COIL CIRCLATING PUMP ALARM' AT THE BAS FRONT END.

10. FREEZESTAT

A. WHENEVER FREEZESTAT, TS-FZ, SENSES A TEMP. BELOW 36 DEGREES F (ADJ.), IT SHALL PERFORM THE FOLLOWING:

1) THE SUPPLY FAN SHALL SHUTDOWN
2) THE RETURN FAN AND THE ASSOCIATED EXHAUST FANS SHALL SHUTDOWN
3) THE ECONOMIZER OUTSIDE AIR DAMPER (D-EOA) SHALL CLOSE
4) THE RELIEF DAMPER (D-REL) SHALL CLOSE
5) THE RETURN DAMPER (D-RET) SHALL OPEN
6) FULLY OPEN THE CHILLED WATER VALVE (V-CHW)
7) OPEN THE LEAD CHILLER CHILLED WATER ISOLATION VALVE, IF APPLICABLE
8) COMMAND "ON" THE VARIABLE PRIMARY OR SECONDARY CHILLED WATER PUMP AND CONTROL SPEED TO MAINTAIN THE DIFFERENTIAL PRESSURE SET POINT
9) THE PREHEAT COIL (V-HTG) SHALL REMAIN UNDER CONTROL OF THE PREHEAT DISCHARGE AIR TEMPERATURE SENSOR
10) ISSUE A UNIQUE ALARM

B. A MANUAL RESET AT THE AHU SHALL BE REQUIRED TO RESTART AN AHU THAT HAS AUTOMATICALLY SHUT DOWN FROM A FREEZE STAT TRIP.

11. FILTERS

A. ALL FILTERS SHALL HAVE A DIFFERENTIAL PRESSURE SWITCH (DPS-FF & DPS-PF) MEASURING THE PRESSURE DROP ACROSS THE FILTER BANKS. EACH SHALL ALARM THE DDC SYSTEM WHENEVER THE PRESSURE DROP ACROSS THE FILTER IS EXCESSIVE (DIRTY FILTER) (ADJ.).

12. HUMIDIFIER

A. THE HUMIDIFIER CONTROLS SHALL BE ACTIVE ANY TIME THE SUPPLY FAN IS RUNNING.

B. AS THE SPACE HUMIDITY RISES TO ITS ADJUSTABLE SET POINT 40% RH (ADJ), AS DETERMINED BY THE HUMIDITY SENSOR IN RETURN DUCTWORK. THE HUMIDIFIER VALVE, V-HUM, SHALL MODULATE CLOSED. AS THE SPACE HUMIDITY DECREASES BELOW ITS SET POINT AS SENSED BY THE RETURN DUCTWORK SENSOR, THE HUMIDIFIER VALVE, V-HUM, SHALL MODULATE OPEN.

C. WHENEVER THE DISCHARGE AIR HUMIDITY IS ABOVE THE CONTROLLING LIMIT SET POINT (70% ADJ.) AS SENSED BY THE HUMIDISTAT, HT-SAH, THE HUMIDIFIER VALVE SHALL BE MODULATED CLOSED TO MAINTAIN THE CONTROLLING LIMIT SET POINT.

D. WHENEVER THE DISCHARGE AIR HUMIDITY IS ABOVE THE HIGH LIMIT SET POINT, 90% ADJUSTABLE, AS SENSED BY THE HT-SHL, THE DDC SYSTEM SHALL DISABLE THE HUMIDIFIER, CLOSE THE STEAM VALVE, AND AN ALARM SHALL BE SENT TO THE OPERATOR WHICH MUST BE ACKNOWLEDGED AND RESET IN ORDER TO RE-ENABLE THE HUMIDIFIER.

13. FIRE ALARM SEQUENCE

A. WHENEVER THE FIRE ALARM SYSTEM SENSES SMOKE/FIRE IN THE ASSOCIATED SMOKE ZONE SERVED BY THE AIR HANDLER, THE FIRE ALARM SYSTEM SHALL DIRECTLY SIGNAL THE AIR HANDLER SUPPLY FAN, THROUGH THE FAN VFD, TO DISABLE THE SUPPLY FAN. THE DDC SYSTEM SHALL THEN SENSE THE FAN BEING DISABLED THROUGH THE VFD AND PERFORM THE FOLLOWING:

1) THE RETURN FAN
2) THE ASSOCIATED EXHAUST FANS SHALL SHUTDOWN
3) THE MINIMUM OUTSIDE AIR DAMPER (D-MIN) SHALL CLOSE
4) THE ECONOMIZER OUTSIDE AIR DAMPER (D-EOA) SHALL CLOSE
5) THE RELIEF DAMPER (D-REL) SHALL CLOSE
6) THE RETURN DAMPER (D-RET) SHALL OPEN
7) FULLY OPEN THE CHILLED WATER VALVE (V-CHW)
8) THE PREHEAT COIL (V-HTG) SHALL REMAIN UNDER CONTROL OF THE PREHEAT DISCHARGE AIR TEMPERATURE SENSOR

INPUT/OUTPUT SUMMARY

AIR HANDLING UNITS

TYPICAL AHU

	TAG	INPUTS: ANALOG: MEASURED: TEMP.	PRESSURE	HUMIDITY (RH)	AIR FLOW	AIR QUALITY	KW	DDC GATEWAY	VALVE POSITION	INPUTS: ANALOG: CALC.: KWH	ENTHALPY	RUN TIME	EFFICIENCY	AIR FLOW (CFM)	INPUTS: DIGITAL: STATUS (DIFF. PRESS.)	STATUS (CURRENT SWITCH)	SMOKE	LOW TEMP.	AIR FLOW	END SWITCH	FIRE ALARM	PRESSURE	OUTPUTS: DIGITAL: ON-OFF	OFF-AUTO-ON	OFF-HIGH-LOW	OPEN-CLOSE	OUTPUTS: ANALOG: DAMPER POSI.	VALVE POSI.	SET POINT ADJ.	4-20 mA	SYSTEM FEATURES: ALARMS: HI ANALOG	LOW ANALOG	HI BINARY	LOW BINARY	PROOF	MANUAL RESET	AUTO RESET	SYSTEM FEATURES: PROGRAMS: TIME SCHEDULING	DEMAND LIMITING	START/STOP OPTIM.	ENTHALPY OPTIM.	SMOKE CONTROL	TREND	ALARM INSTRUCTION	GENERAL
O.A. TEMP.	TT-OAT	●																																										
LOW STATIC	SPS-RLO																																●	●		●						●	●	
RETURN HUMIDITY	HT-RAH			●																																						●		
RETURN AIR TEMP.	TT-RAT	●																																									●		
RETURN FAN EC CONTROLLER	EC-RAF							●																●						●												●	●	
RETURN FAN STATUS	STS-RAF															●																											●	●	
RETURN AIR FLOW	AM-RA				●			●																																			●		
RELIEF DAMPER	D-REL																			●										●					●	●						●	●	
RETURN DAMPER	D-RET																			●										●					●	●						●	●	
ECONOMIZER DAMPER	D-EOA																			●										●					●	●						●	●	
PRE-FILTER STATUS	DPS-PF														●																			●								●	●	
MIXED AIR TEMP.	TT-MAT	●																															●									●	●	
PREHEAT DSICHARGE AIR TEMP.	TT-PHT	●																															●									●	●	
RELIEF AIR FLOW	AM-REL				●			●																																			●		
CHW VALVE	V-CHW								●																					●					●							●	●	
PREHEAT HW VALVE	V-PHT								●																					●					●							●	●	
PREHEAT CIRC. PUMP START/STOP	SS-PHP																							●																			●	
PREHEAT CIRC. PUMP STATUS	STS-PHP															●																											●	●	
PREHEAT CIRC. PUMP FLOW	DPS-PHP														●																												●	
FREEZESTAT	TS-FZ																							●																			●	●	
SUPPLY FAN EC CONTROLLER	EC-SAF							●																●						●												●	●	
SUPPLY FAN STATUS	STS-SAF															●																											●	●	
SUPPLY AIR FLOW	AM-SA				●			●																																			●		
O.A. FLOW	---													●																													●		
FINAL FILTER STATUS	DPS-FF														●																				●								●	●	
HI STATIC	SPS-SHI																																	●									●	●	
DISCHARGE TEMP.	TT-DAT	●																				●											●	●								●	●	
SUPPLY STATIC	SPT-SA		●																																								●		
RETURN SMOKE DETECTOR	SD-RA																					●																					●	●	
SUPPLY SMOKE DETECTOR	SD-SA																					●																					●	●	
FIRE ALARM	---																					●																					●	●	
SMOKE DAMPER (TYP.)	D-SM																								●																			●	
VAV BOX (TYP.)	---	●			●			●																																				●	
EXHAUST FAN START/STOP (TYP.)	SS-EF																									●																		●	
EXHAUST FAN STATUS (TYP.)	STS-EF															●																											●	●	
ISOLATION DPA	DPA		●					●																									●									●	●	
SUPPLY AIR HUMIDITY	HT-SAH			●																																							●	
SUPPLY AIR HUMIDITY HIGH LIMIT	HT-SHL			●																													●									●	●	

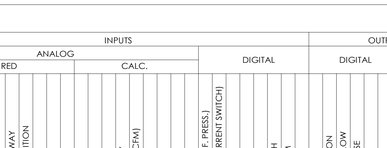
SYMBOL LEGEND

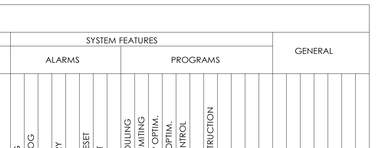
▲ LOCATE AT VFD COVER
▲▲ LOCATE IN LOCAL CONTROL PANEL

AI --- ANALOG INPUT
AO --- ANALOG OUTPUT
DI --- DIGITAL INPUT
DO --- DIGITAL OUTPUT
N.C. --- NORMALLY CLOSED
N.O. --- NORMALLY OPEN
MOD. --- MODULATING DEVICE
2-POS --- TWO POSITION DEVICE

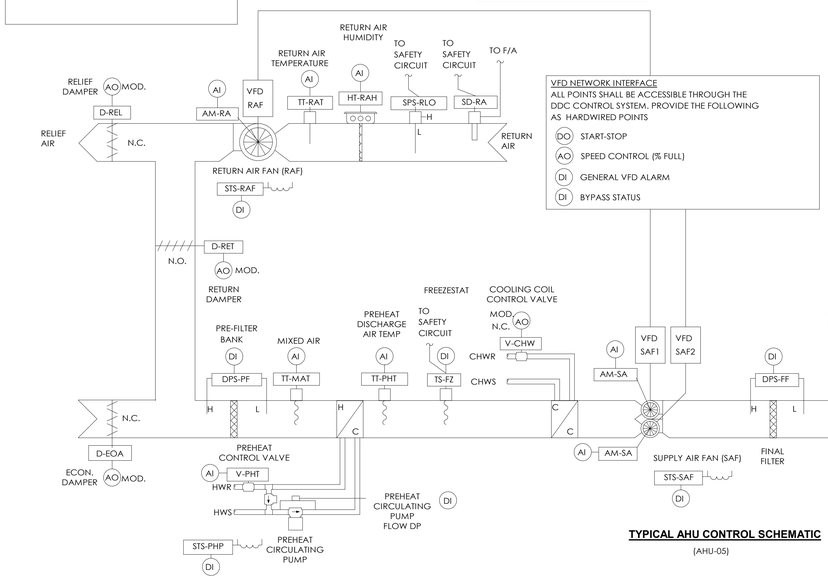
DEVICE/SENSOR LEGEND

AM --- AIRFLOW MEASURMENT STATION
D --- DAMPER CONTROL
DPS --- DIFFERENTIAL PRESSURE SWITCH
HT --- HUMIDITY TRANSMITTER
SD --- SMOKE DETECTOR
SPS --- STATIC PRESSURE SWITCH
SPT --- STATIC PRESSURE TRANSMITTER
SS --- START/STOP COMMAND
STS --- STATUS (CURRENT SENSOR)
TS --- TEMPERATURE SENSOR
TT --- TEMPERATURE TRANSMITTER

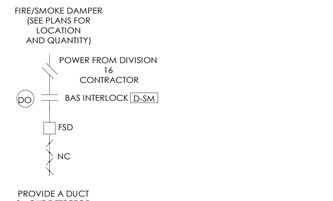




TYPICAL RETURN FAN CONTROL



TYPICAL SUPPLY FAN CONTROL



TYPICAL AHU CONTROL SCHEMATIC

(AHU-05)

BID PACKAGE 2
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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
ES ARCHITECT / ENGINEER — DATE
APPROVED:
ES PROJECT MANAGER — DATE
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AGENCY REPRESENTATIVE — DATE
TITLE

REV	DATE	DESCRIPTION

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HVAC CONTROLS

M801.2

ELECTRICAL ABBREVIATIONS LIST

1P	1 POLE (2P, 3P, 4P, ETC.)	GA	GAUGE	PRI	PRIMARY
A	AMPERE	GAL	GALLON	PROJ	PROJECTION
AC	ABOVE COUNTER, FIELD VERIFY THE DIMENSION	GALV	GALVANIZED	PRV	POWER ROOF VENTILATOR
		GC	GENERAL CONTRACTOR	PT	POTENTIAL TRANSFORMER
ACLG	ABOVE CEILING	GEN	GENERATOR	PVC	POLYVINYL CHLORIDE (CONDUIT)
ADO	AUTOMATIC DOOR OPENER	GFI	GROUND FAULT CIRCUIT INTERRUPTER	PWR	POWER
AF	AMP FRAME			QUAN	QUANTITY
AFF	ABOVE FINISHED FLOOR	GFP	GROUND FAULT PROTECTOR	RCPT	RECEPTACLE
AFG	ABOVE FINISHED GRADE	GND	GROUND	REQD	REQUIRED
AFI	ARC FAULT CIRCUIT INTERRUPTER	GRS	GALVANIZED RIGID STEEL (CONDUIT)	RM	ROOM
				RSC	RIGID STEEL CONDUIT
AHU	AIR HANDLING UNIT	GYP BD	GYPSUM BOARD	RTU	ROOF TOP UNIT
AL	ALUMINUM	HOA	HANDS-OFF-AUTOMATIC SWITCH	SC	SURFACE CONDUIT
ALT	ALTERNATE	HORIZ	HORIZONTAL	SEC	SECONDARY
AMP	AMPERE	HP	HORSEPOWER	SHT	SHEET
AMPL	AMPLIFIER	HPF	HIGH POWER FACTOR	SIM	SIMILAR
ANNUN	ANNUNCIATOR	HT	HEIGHT	S/N	SOLID NEUTRAL
APPROX	APPROXIMATELY	HTG	HEATING	SPEC	SPECIFICATION
AQ-STAT	AQUASTAT	HTR	HEATER	SPKR	SPEAKER
ARCH	ARCHITECT, ARCHITECTURAL	HV	HIGH VOLTAGE	SP	SPARE
AS	AMP SWITCH	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	SR	SURFACE RACEWAY
AT	AMP TRIP			SS	STAINLESS STEEL
ATS	AUTOMATIC TRANSFER SWITCH	G	ISOLATED GROUND	SSW	SELECTOR SWITCH
AUTO	AUTOMATIC	IMC	INTERMEDIATE METAL CONDUIT	STA	STATION
AUX	AUXILIARY	INCAND	INCANDESCENT	STD	STANDARD
AV	AUDIO VISUAL	IR	INFRARED	SURF	SURFACE MOUNTED
AWG	AMERICAN WIRE GAUGE	I/W	INTERLOCK WITH	SW	SWITCH
BATT	BATTERY	J-BOX	JUNCTION BOX	SWBD	SWITCHBOARD
BD	BOARD	KV	KILOVOLT	SYM	SYMMETRICAL
BLDG	BUILDING	KVA	KILOVOLT-AMPERE	SYS	SYSTEM
BMS	BUILDING MANAGEMENT SYSTEM	KVAR	KILOVOLT-AMPERE REACTIVE	TEL	TELEPHONE
BKR	CIRCUIT BREAKER	KW	KILOWATT	TEL/DAT	TELEPHONE/DATA
C	CONDUIT	KWH	KILOWATT HOUR	TERM	TERMINAL
CAB	CABINET	LOC	LOCATE OR LOCATION	TL	TWIST LOCK
CAT	CATALOG	LT	LIGHT	TP	TAMPER-PROOF
CATV	CABLE TELEVISION	LTG	LIGHTING	TR	TAMPER RESISTANT
CB	CIRCUIT BREAKER	LTNG	LIGHTNING	T-STAT	THERMOSTAT
CCTV	CLOSED CIRCUIT TELEVISION	LV	LOW VOLTAGE	TTC	TELEPHONE TERMINAL CABINET
CKT	CIRCUIT	MAX	MAXIMUM	TV	TELEVISION
CLG	CEILING	MAG.S	MAGNETIC STARTER	TVTC	TELEVISION TERMINAL CABINET
COMB	COMBINATION	M/C	MOMENTARY CONTACT		
CMPR	COMPRESSOR	MC	MECHANICAL CONTRACTOR	TYP	TYPICAL
CONN	CONNECTION	MCB	MAIN CIRCUIT BREAKER	UC	UNDER COUNTER
CONST	CONSTRUCTION	MCC	MOTOR CONTROL CENTER	UE	UNDERGROUND ELECTRICAL
CONT	CONTINUATION OR CONTINUOUS	MDC	MAIN DISTRIBUTION CENTER	UG	UNDERGROUND
		MDP	MAIN DISTRIBUTION PANEL	UH	UNIT HEATER
CONTR	CONTRACTOR	MFR	MANUFACTURER	UT	UNDERGROUND TELEPHONE
CONV	CONVECTOR	MFS	MAIN FUSED DISCONNECT SW	UTIL	UTILITY
CP	CIRCULATING PUMP			UV	ULTRAVIOLET
CRT	CATHODE-RAY TUBE	MH	MANHOLE	V	VOLT
CT	CURRENT TRANSFORMER	MIC	MICROPHONE	VA	VOLT-AMPERES
CTR	CENTER	MIN	MINIMUM	VDT	VIDEO DISPLAY TERMINAL
CU	COPPER	MISC	MISCELLANEOUS	VERT	VERTICAL
DCP	DOMESTIC WATER CIRCULATING PUMP	MLO	MAIN LUGS ONLY	VFD	VARIABLE FREQUENCY DRIVE
		MMS	MANUAL MOTOR STARTER	VOL	VOLUME
DEPT	DEPARTMENT	MOA	MULTIOUTLET ASSEMBLY	W	WATT
DET	DETAIL	MSP	MOTOR STARTER PANELBOARD	W/	WITH
DIA	DIAMETER	MSBD	MAIN SWITCHBOARD	WG	WIRE GUARD
DISC	DISCONNECT	MT	MOUNT	WH	WATER HEATER
DIST	DISTRIBUTION	MT.C	EMPTY CONDUIT	W/O	WITHOUT
DN	DOWN	MTS	MANUAL TRANSFER SWITCH	WP	WEATHERPROOF
DPR	DAMPER	MTR	MOTOR, MOTORIZED	XFMR	TRANSFORMER
DS	SAFETY DISCONNECT SWITCH	N.C.	NORMALLY CLOSED	XFR	TRANSFER
DT	DOUBLE THROW	NEC	NATIONAL ELECTRICAL CODE		
DWG	DRAWING	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION		
EC	ELECTRICAL CONTRACTOR				
ELEC	ELECTRIC, ELECTRICAL				
ELEV	ELEVATOR				
ELU	EMERGENCY LIGHTING UNIT	NFDS	NON-FUSED SAFETY DISCONNECT SWITCH		
EM	EMERGENCY				
EMS	ENERGY MANAGEMENT SYSTEM	NIC	NOT IN CONTRACT		
EMT	ELECTRICAL METALLIC TUBING	NL	NIGHT LIGHT		
EP	ELECTRIC PNEUMATIC	N.O.	NORMALLY OPEN		
EQUIP	EQUIPMENT	NPF	NORMAL POWER FACTOR		
EWC	ELECTRIC WATER COOLER	NTS	NOT TO SCALE		
EXIST	EXISTING	OH	OVERHEAD		
EXH	EXHAUST	OL	OVERLOADS		
EXP	EXPLOSION PROOF	PA	PUBLIC ADDRESS		
FA	FIRE ALARM	PB	PULL BOX OR PUSHBUTTON		
FABP	FIRE ALARM BOOSTER POWER SUPPLY PANEL	PE	PNEUMATIC ELECTRIC		
		PED	PEDESTAL		
FACP	FIRE ALARM CONTROL PANEL	PF	POWER FACTOR		
FCU	FAN COIL UNIT	PH	PHASE		
FIXT	FIXTURE	PIV	POST INDICATING VALVE		
FLR	FLOOR	PNL	PANEL		
FLUOR	FLUORESCENT	PP	POWER POLE		
FU	FUSE	PR	PAIR		
FUDS	FUSED SAFETY DISCONNECT SWITCH				

∠	ANGLE
@	AT
▲	DELTA
'	FEET
"	INCHES
#	NUMBER
Ø	PHASE
C	CENTER LINE
P	PLATE

* NOTE *
ALL GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

ELECTRICAL SYMBOL LEGEND

SYMBOL — DESCRIPTION

- LIGHTING FIXTURES, TYPICAL RECTANGULAR FILLED CIRCLES INDICATE RECESSED, OPEN CIRCLES INDICATE SURFACE DIAGONAL LINE INDICATES LENSED OUTER DOTS INDICATE SUSPENDED
- LIGHTING FIXTURES, TYPICAL, ROUND CENTER DOT INDICATES PENDANT DIAGONAL LINE INDICATES LENSED CHEVRON INDICATES WALL WASH
- WALL-MOUNTED FIXTURES, TYPICAL
- STRIP FIXTURE
- DIRECTIONAL LIGHT, TRACK, FLOOD
- LINEAR LIGHT, TAPE LIGHT
- EMERGENCY LIGHTING UNIT, CEILING-MOUNTED, INTEGRAL BATTERY
- EMERGENCY LIGHTING UNIT, CEILING-MOUNTED, REMOTE BATTERY
- EMERGENCY LIGHTING UNIT, WALL-MOUNTED, INTEGRAL BATTERY
- EMERGENCY LIGHTING UNIT, WALL-MOUNTED, REMOTE BATTERY
- EXIT LIGHT, CEILING-MOUNTED, SHADING AND ARROWS INDICATE FACES AND DIRECTION
- EXIT LIGHT, WALL-MOUNTED, SHADING AND ARROWS INDICATE FACES AND DIRECTION
- EXIT/ELU COMBO
- POLE/AREA LIGHTS
- POST-TOP AREA LIGHT
- BOLLARD LIGHT
- DIAGONAL HATCH INDICATES LIGHT ON A CRITICAL CIRCUIT
- SOLID HATCH INDICATES LIGHT ON AN EMERGENCY OR LIFE SAFETY CIRCUIT
- SINGLE POLE SWITCH
- 3-WAY SWITCH
- 4-WAY SWITCH
- KEYED SWITCH
- SWITCH W/PILOT
- DIMMER SWITCH
- OCCUPANCY SENSOR
- TIMER SWITCH
- TIME DELAY SWITCH
- ELECTRONIC TIMER
- FIRE ALARM PULL STATION
- FIRE ALARM BELL
- FIRE ALARM HORN W/STROBE
- FIRE ALARM SPEAKER W/STROBE
- FIRE ALARM BELL W/STROBE
- FIRE ALARM CHIME W/STROBE
- FIRE ALARM STROBE
- FIRE ALARM DOOR HOLDER
- FIRE ALARM DOOR CLOSER
- FIRE ALARM SHUT DOWN RELAY
- SPRINKLER FLOW SWITCH
- SPRINKLER VALVE TAMPER SWITCH
- THERMAL DETECTOR
- DUCT SMOKE DETECTOR
- CEILING SMOKE DETECTOR
- CEILING FIRE ALARM STROBE

SYMBOL — DESCRIPTION

- SINGLE RECEPT.
- DUPLEX RECEPTACLE
- GFI DUPLEX RECEPTACLE (FEED THROUGH) (MOUNTING HEIGHT)
- GFI DUPLEX RECEPT. (FEED THROUGH)
- GFI WEATHERPROOF RECEPT.
- SPLIT DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- SINGLE RECEPT. GFI — COORDINATE THE LOCATION WITH THE EQUIPMENT SUPPLIER
- DUPLEX ISOLATED GROUND RECEPT.
- DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT
- TAMPER-PROOF DUPLEX RECEPTACLE
- FLOOR DUPLEX RECEPT.
- CEILING DUPLEX RECEPT.
- FOURPLEX RECEPTACLE
- FOURPLEX RECEPTACLE ON EMERGENCY CIRCUIT
- RECEPTACLE ON CORD REEL
- SPECIAL RECEPTACLE — NEMA CONFIGURATION
- JUNCTION BOX
- FLOOR JUNCTION BOX
- CEILING JUNCTION BOX
- MULTIOUTLET ASSEMBLY — PS - D2
- COMB. MOTOR STARTER (FUSED)
- SAFETY DISC. SWITCH (NON-FUSED)
- SAFETY DISC. SWITCH (FUSED)
- RELAY
- PUSH BUTTON
- THERMOSTAT
- HUMIDISTAT
- POWER POLE (OPEN OFFICE STYLE)
- SURGERY SERVICE COLUMN
- STATIC GROUND RECEPTACLE
- UTILITY SERVICE POWER POLE
- XX-1 MOTOR
- XX-1 → IDENTITY (SEE SCHEDULE)

EXISTING TO REMAIN: XX-1 — RELOCATED: XX-1 — DEMOLISHED: XX-1

- T1 TRANSFORMER
- BUS DUCT W/ PLUG IN DISCONNECT CABLE TAP BOX

SYMBOL — DESCRIPTION

- TELEPHONE OUTLET
- FLOOR TELEPHONE OUTLET
- VOICE/DATA OUTLET — # OF VOICE AND # OF DATA PORTS EXAMPLE 1V2D = 1 VOICE, 2 DATA
- FLOOR DATA OUTLET
- CEILING DATA OUTLET
- MICROPHONE OUTLET
- CATV OUTLET
- TV OUTLET
- VOLUME CONTROL
- DOOR BELL
- DOOR BUZZER
- DOOR CHIME
- DOOR SIGNAL
- AUTO DOOR PUSH PAD
- ELECTRIC STRIKE
- MAGNETIC LOCK
- COMBINATION LOCK
- DOOR CONTACT
- CARD READER
- SECURITY KEYPAD
- MOTION DETECTOR
- NURSE CALL EMERG. STATION
- NURSE CALL CODE BLUE STATION
- NURSE CALL DUTY STATION
- NURSE CALL STAFF STATION
- NURSE CALL PATIENT STATION
- NURSE CALL DOME LIGHT (1-COLOR)
- NURSE CALL DOME LIGHT (2-COLORS)
- NURSE CALL DOME LIGHT (4-COLORS)
- # OF COLORS.

ELECTRICAL SYMBOL NOTES

- S3 / 1d — LIGHTING FIXTURE TAG DESCRIPTORS: TOP VALUE: FIXTURE TYPE ID. BOTTOM VALUE, NUMBER: CIRCUIT NUMBER, REFER TO DRAWINGS FOR PANEL. BOTTOM VALUE, LOWERCASE LETTER: SWITCH DESIGNATION. ABSENCE OF A SWITCH ID INDICATES FIXTURE IS CONTROLLED BY THE ONLY SWITCH IN THE SPACE. "x" IN PLACE OF THE SWITCH ID INDICATES NIGHT LIGHT, UNSWITCHED.
- EXW1 / 1 — EXIT LIGHTS. STEM INDICATES WALL MOUNTING. NO STEM INDICATES CEILING MOUNTING. SHADED AREA INDICATES ILLUMINATED FACE(S). ARROW INDICATES DIRECTIONAL ARROW ON ILLUMINATED FACE(S). THE CIRCUIT DESIGNATION IS INDICATED BY A NUMBER. EXAMPLE: THE WALL MOUNTED EXIT LIGHT TYPE "E1" WITH SINGLE FACE AND DIRECTIONAL ARROW IS CONNECTED TO CIRCUIT 1.
- <unnamed> — DEVICES. THE CIRCUIT DESIGNATION IS INDICATED BY A NUMBER. THE SWITCH DESIGNATION IS INDICATED BY A LOWER CASE LETTER. EXAMPLE: SPLIT DUPLEX RECEPTACLE IS CONNECTED TO CIRCUIT 1 AND ONE RECEPTACLE OUTLET IS CONTROLLED BY SWITCH "d".
- d — THE CONTROL DEVICE DESIGNATION IS INDICATED BY A LOWER CASE LETTER. EXAMPLE: SINGLE POLE SWITCH "d" TO CONTROL LIGHTING FIXTURES INDICATED BY "d".
- e — WALL BOX DIMMER WITH SIZE AS INDICATED AT DEVICE. EXAMPLE: 600 WATT WALL BOX DIMMER TO CONTROL LIGHTING FIXTURES INDICATED BY "e". SEE SPECIFICATIONS FOR WATTAGE IF NOT INDICATED.
- ELEC-1 — SPECIAL CONNECTIONS. THE EQUIPMENT IS INDICATED BY A NUMBER IN A CIRCLE. SEE THE MOTOR AND EQUIPMENT SCHEDULE FOR THE LOAD DESCRIPTION AND TYPE OF CONNECTION. THE CIRCUIT DESIGNATION IS INDICATED BY NUMBER(S) ADJACENT TO THE SYMBOL. EXAMPLE: EQUIPMENT NO. ELEC-1; 1 PHASE CONNECTION TO CIRCUITS 2, 4.
- PANELBOARDS. PANELBOARD DOORS MAY BE SHOWN TO INDICATE OPENING SIDE OF RECESSED PANELBOARDS. SEE PANELBOARD IDENTIFICATION FOR DESIGNATION CODES.
- FLOOR CLEARANCE AREA
- XX-1 — MOTOR CONNECTIONS. THE MOTOR IS INDICATED BY A NUMBER WITHIN OR CHARACTERS ADJACENT TO THE MOTOR SYMBOL. SEE THE MOTOR AND EQUIPMENT SCHEDULE FOR THE MOTOR DESCRIPTION AND ELECTRICAL REQUIREMENTS.
- T1 — TRANSFORMERS. THE TRANSFORMER TYPE IS INDICATED BY A NUMBER FOLLOWING THE UPPER CASE LETTER "T". SEE THE TRANSFORMER SCHEDULE OR THE SINGLE LINE DIAGRAM FOR THE TRANSFORMER DESCRIPTION AND REQUIREMENTS. EXAMPLE: TRANSFORMER TYPE "T1".
- CONDUIT IN CEILING, FLOOR OR WALL AS REQUIRED BY FIELD CONDITIONS
- CONDUIT IN FLOOR
- #12 — CONDUIT SHOWN WITHOUT SLASH MARKS SHALL CONTAIN 1 # 12 CONDUCTOR PER PHASE, NEUTRAL, AND GROUND IN CONDUIT. CONDUIT MINIMUM SIZE PROVIDED IN THE SPECIFICATIONS.
- #10 — CONDUIT SHOWN SHALL CONTAIN 1 # 10 CONDUCTOR PER PHASE IN ELECTRICAL CODE SIZED MINIMUM CONDUIT UNLESS A CONDUCTOR AND CONDUIT SIZE IS SHOWN ADJACENT.
- P4N1-1,3,5 — HOME RUN TO BRANCH CIRCUIT PANELBOARD. THE PANELBOARD DESIGNATION IS SHOWN ADJACENT TO THE HOME RUN ARROW BEFORE THE DASH AND THE CIRCUIT DESIGNATION IS SHOWN AFTER THE DASH. CIRCUIT BREAKER SIZES (AMPS/NUMBER OF POLES) ARE SHOWN IN THE PANELBOARD SCHEDULE WITH THE CORRESPONDING PANELBOARD AND CIRCUIT DESIGNATION. EXAMPLE: HOME RUN TO PANELBOARD P4N1; CIRCUITS 1, 3, 5.

GRAPHICAL REPRESENTATION OF PHASING, TYPICAL FOR ALL SYMBOLS.

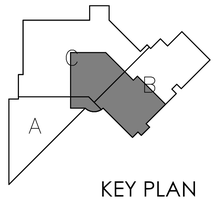
- EXISTING TO REMAIN
- EXISTING TO BE REMOVED
- NEW
- DEMOLISHED ITEM
- AREA NOT IN CONTRACT

- REVISION NUMBER - SHOWN ON PLANS
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- 1 — KEYED NOTE (SEE SCHEDULE)
- Room 6 — ROOM NAME AND NUMBER

GENERAL ELECTRICAL REMODEL NOTES

1. DEVICE LOCATIONS INDICATED ON PLANS IS BASED UPON EXISTING PLANS AND SITE OBSERVATION. CONTRACTOR SHALL FIELD VERIFY THE EXISTING CONDITIONS.
2. PROVIDE NECESSARY DEMOLITION TO FACILITATE NEW CONSTRUCTION WORK ASSOCIATED WITH THIS PROJECT. COORDINATE OUTAGES WITH OWNER MINIMUM 72 HOURS IN ADVANCE. THE OWNER RETAINS THE FIRST RIGHT OF REFUSAL FOR SALVAGE OF DEMOLISHED MATERIALS. PROVIDE DISPOSAL OF REMOVED MATERIAL. MAINTAIN CIRCUIT CONTINUITY AS REQUIRED.
3. IT IS THE INTENT OF THESE DIAGRAMMATIC DRAWINGS TO PROVIDE THE PROJECT SCOPE INCLUDING, BUT NOT LIMITED TO PHASED DEMOLITION AND NEW CONSTRUCTION. EXISTING INFORMATION INDICATED ON THESE PLANS DOES NOT REPRESENT ALL EXISTING CONDITIONS. THIS CONTRACTOR SHALL BECOME FAMILIAR WITH EXISTING CONDITIONS, SCOPE OF PHASING, AND PROJECT INTENT PRIOR TO BID SUBMISSION. NO EXTRA WILL BE ALLOWED DUE TO THE LACK OF KNOWLEDGE OF EXISTING CONDITIONS TO COORDINATE RELOCATION OF ELECTRICAL SYSTEMS AS REQUIRED.
4. PROVIDE CUTTING, PATCHING, AND RESTORATION OF FINISHES NECESSARY FOR WORK SURFACES DAMAGED BY THIS WORK AND SPACES AROUND CONDUITS PASSING THROUGH FLOORS AND WALLS SHALL BE NEATLY PATCHED AND FINISHED TO MATCH NEW/EXISTING. STRUCTURAL MEMBERS SHALL NOT BE CUT OR PENETRATED IN ANY MANNER. THE SPACES AROUND THE CONDUITS SHALL BE SEALED TO PREVENT ENTRANCE OF MOISTURE. PROVIDE FIRE STOPPING PER UL APPROVED METHODS.
5. REMOVE ABANDONED WIRING COMPLETE. AT CONTRACTORS OPTION, UTILIZE EXISTING ABANDONED RACEWAY TO EXTENT AVAILABLE. ABANDONED RACEWAY SHALL BE REMOVED.
6. COORDINATE WORK IN PHASES WITH GENERAL CONTRACTOR AND OWNER TO FACILITATE DEMOLITION AND NEW CONSTRUCTION.
7. REMOVE ELECTRICAL RELATED EQUIPMENT (I.E JUNCTION BOXES, RECEPTACLES, SWITCHES, DEVICES, ETC...) AFFECTED/ABANDONED AS A RESULT OF DEMOLITION AND NEW CONSTRUCTION.

KEY PLAN



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CONCURRENCE
AGENCY REPRESENTATIVE — DATE
TITLE

REV	DATE	DESCRIPTION
	06/16/2026	100% CD'S

ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: E001.2.dwg
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CHECKED BY: BSC

SHEET TITLE:
ELECTRICAL GENERAL INFO & SYMBOL LEGEND

E001.2

GENERAL ELEC REMODEL NOTES

A	SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR PHASES OF DEMOLITION AND CONSTRUCTION. COORDINATE WITH GENERAL CONSTRUCTION.
B	DISCONNECT AND REMOVE ELECTRICAL DEVICES IN RENOVATION AREAS. BACK BOXES AND BRANCH CIRCUITRY SHALL REMAIN IN EXISTING WALLS, UNLESS NOTED OTHERWISE.
C	CONNECT ALL NEW DEVICES IN EXISTING LOCATIONS TO EXISTING CIRCUITRY.
D	FURNISH AND INSTALL BLANK COVER PLATES OVER ALL EXISTING UNUSED OPENINGS.

KEYNOTES

1	REMOVE ALL FIXTURES, DEVICES, EQUIPMENT FROM WALLS & CEILINGS BEING DEMOLISHED IN THIS AREA. REMOVE ALL CIRCUITRY INCLUDING CONDUIT, BOXES, AND ASSOCIATED COMPONENTS BACK TO NEAREST ACTIVE JUNCTION BOX OUTSIDE OF AREA INDICATED AND CAP FOR REUSE.
2	DEMOLISHED HVAC EQUIPMENT AND ASSOCIATED CIRCUITRY.
3	EXISTING PANEL AND FEEDERS TO REMAIN.
4	DEMOLISH EXISTING RECEPTACLES. JUNCTION BOXES CIRCUITRY SHALL REMAIN FOR CONNECTION TO NEW DEVICES.
5	EXISTING SPECIAL SYSTEMS DEVICES, INCLUDING NURSE CALL, COMMUNICATION SPEAKERS, CLOCKS, DATA DROPS, AND FIRE ALARM DEVICES REMOVED AND RE-INSTALLED IN PLACE. PROVIDE NEW FACEPLATES FOR DATA DROPS.
6	DEMOLISH EXISTING LIGHT FIXTURES, CIRCUITRY TO REMAIN FOR CONNECTION TO NEW FIXTURES.
7	DEMOLISH EXISTING LIGHT SWITCHES AND FACEPLATES, CIRCUITRY TO REMAIN FOR CONNECTION TO NEW DEVICES.
8	SWITCH IS EXISTING TO REMAIN.

UNLESS NOTED OTHERWISE, ALL LIGHTING FIXTURES & CONTROLS, RECEPTACLES, HVAC EQUIPMENT, AND SPECIAL SYSTEMS DEVICES SHOWN IN THIS AREA ARE EXISTING TO REMAIN.

ALL RECEPTACLES & SPECIAL SYSTEM DEVICES IN THIS AREA ARE EXISTING TO REMAIN.

(D)AHU-5

2E1H
(E)
2E1L
(E)XFMR
2N1DP
2N2H
2C1DP
(E)XFMR

2C1H

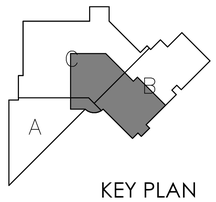
(D)SF-XX

CORRIDOR B233
HSKP. B234
OUTPATIENT WAITING B235
CORRIDOR B236
RECPT/OR CONTROL B244
HALL 271A
CORRIDOR B271
LINEN STORAGE B283
PROCEDURE RM. B272
TOILET B273
PROCEDURE RM. B275
SUPERVISOR OFFICE B276

PRE-OP HOLDING B243
TOILET B238
OFFICE B240
STRETCHER B237
CHANGING RM. B239
OR ROOM (GENERAL) B248
2N4L
2C2L
CORRIDOR B247
FEMALE LOCKERS B246
MALE LOCKERS B245
HALL B270
OR/OB LOUNGE B269
OFFICE B268
CORRIDOR B278
2C3L
SURGERY OFFICE B262
HALL B257
LACTATION ROOM B261
OR/OB B251
SUB-STERILE B252
CLEAN UTILITY B264
SOILED UTILITY B266
HSKP. B265
CORRIDOR B253
POST-OP RECOVERY B255
STORAGE B258
MED GAS STORAGE B259
HALL B263
ANEASTHESIA WORKROOM B260

UNLESS NOTED OTHERWISE, ALL LIGHTING FIXTURES & CONTROLS, RECEPTACLES, HVAC EQUIPMENT, AND SPECIAL SYSTEMS DEVICES SHOWN IN THIS AREA ARE EXISTING TO REMAIN.

1 SECOND FLOOR DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



KEY PLAN

BID PACKAGE 2
ISSUED FOR BIDS

Steelhead ENGINEERING CO
Part of Bodwé Group
259 E Michigan Ave, Suite 407
Kalamazoo, MI 49007
www.SteelheadMEP.com

CONSULTANT

BRADEN S. COX
No. 90191PE
MONTANA
LICENSED PROFESSIONAL ENGINEER
7/29/26

A/E SEAL

CROW HOSPITAL WATER AND MOLD DAMAGE REPAIR

INDIAN HEALTH SERVICE
CROW AGENCY, MONTANA 59022

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
INDIAN HEALTH SERVICE
BILLINGS AREA

REVIEWED:
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CONCURRENCE
AGENCY REPRESENTATIVE — DATE
TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: ED102.2.dwg
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CHECKED BY: BSC

SHEET TITLE:
SECOND FLOOR DEMOLITION PLAN

ED102.2

GENERAL ELEC REMODEL NOTES

A SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR PHASES OF DEMOLITION AND CONSTRUCTION. COORDINATE WITH GENERAL CONSTRUCTION.

B DISCONNECT AND REMOVE ELECTRICAL DEVICES IN RENOVATION AREAS. BACK BOXES AND BRANCH CIRCUITRY SHALL REMAIN IN EXISTING WALLS, UNLESS NOTED OTHERWISE.

C CONNECT ALL NEW DEVICES IN EXISTING LOCATIONS TO EXISTING CIRCUITRY.

D FURNISH AND INSTALL BLANK COVER PLATES OVER ALL EXISTING UNUSED OPENINGS.

KEYNOTES

1 APPROXIMATE LOCATION OF JUNCTION BOX FOR THE POWER CONNECTION FOR THE OWNER PROVIDED SURGICAL LIGHT. FIELD VERIFY THE REQUIREMENTS WITH THE EQUIPMENT SUPPLIER PRIOR TO ROUGHING IN.

2 NEW LIGHT FIXTURE(S) CONNECTED TO THE EXISTING CIRCUITRY. NEW SWITCH(ES), WITH A NEW FACEPLATE, CONNECTED TO THE EXISTING CIRCUITRY.

3 EXISTING LIGHT FIXTURE AND ASSOCIATED CIRCUITRY SHALL REMAIN.

4 NEW LIGHT FIXTURE CONNECTED TO THE EXISTING CIRCUITRY FROM THE DEMOLISHED FIXTURE. FIELD VERIFY THE REQUIREMENTS.

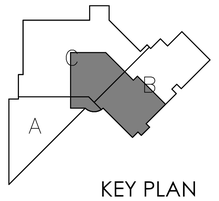
5 SWITCH IS EXISTING TO REMAIN.

6 EXISTING ELECTRICAL PANEL TO REMAIN.

NORTH

SECOND FLOOR LIGHTING PLAN

SCALE: 1/8" = 1'-0"



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CAD DWG FILE: E102.2.dwg

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CHECKED BY: BSC

SHEET TITLE:

SECOND FLOOR LIGHTING PLAN

E102.2

GENERAL POWER NOTES

1. WHERE CONNECTED TO A 20 AMP BRANCH CIRCUIT SUPPLYING AN INDIVIDUAL (SIMPLEX OR DUPLEX), THE RECEPTACLE SHALL BE RATED AT 20 AMPS.
2. PROVIDE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED AND GRADE MOUNTED ELECTRICAL EQUIPMENT. MINIMUM REQUIREMENTS: 4" HIGH, 4% AIR ENTRAINED, POLYFIBER REINFORCED CONCRETE, A MINIMUM OF 4" WIDER AND 4" LONGER THAN EQUIPMENT TO BE PLACED ON IT. REFER TO ELECTRICAL DETAILS FOR TRANSFORMER, GENERATOR, OR SWITCHGEAR PADS THAT MAY EXCEED THESE REQUIREMENTS.
3. REFER TO SECTION 24.05.19 FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.
4. WIRE COUNTS FOR CIRCUIT CONDUCTORS ARE NOT SHOWN. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUIT AND SWITCHING CONNECTIONS SHOWN.
5. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS (SEE PANELBOARD SCHEDULE). BRANCH CIRCUITS SHALL BE SIZED ACCORDING TO THE CIRCUIT BREAKER RATING, UNLESS INDICATED OTHERWISE ON THE ELECTRICAL EQUIPMENT SCHEDULE.
6. SINGLE PHASE BRANCH CIRCUITS SHALL NOT SHARE NEUTRALS.
7. THE CONTRACTOR SHALL PROVIDE THE DATA CONDUITS AND BOXES AS SHOWN. THE DATA CABLING SHALL BE FURNISHED AND INSTALLED BY THE OWNER, UNLESS NOTED OTHERWISE.
8. PROVIDE THE REQUIRED POWER FOR ALL MECHANICAL OR PLUMBING EQUIPMENT SPECIFIED IN THE CONTRACT DOCUMENTS, EVEN IF NOT SHOWN ON THE POWER PLANS.
9. THE CONTRACTOR SHALL FIELD VERIFY THE POWER REQUIREMENTS OF ALL MECHANICAL AND PLUMBING EQUIPMENT, WITH THE EQUIPMENT SUPPLIERS, PRIOR TO PREPARING SUBMITTALS OR ORDERING ANY SWITCHGEAR OR EQUIPMENT, SUPPLIED PLUMBING AND/OR MECHANICAL EQUIPMENT MAY VARY FROM EQUIPMENT SPECIFIED IN THE PLANS.

KEYNOTES

1. POWER FOR NEW STEAM STERILIZERS; FIELD VERIFY THE REQUIREMENTS WITH THE EQUIPMENT SUPPLIER.
2. POWER FOR STEAM STERILIZER CONTROLLERS. PROVIDE 20A 1 POLE DISCONNECT SWITCH AND 20A 1 POLE BREAKER IN PANEL INDICATED.
3. NEMA 5-15R RECEPTACLE FOR MEDIVATOR POWER. COORDINATE EXACT LOCATION & REQUIREMENTS WITH EQUIPMENT VENDOR.
4. POWER FOR DRYING CABINET. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT VENDOR.
5. NEW RECEPTACLE, IN THE EXISTING BOX, CONNECTED TO THE EXISTING CIRCUITRY FROM THE DEMOLISHED DEVICE.
6. EXISTING HVAC EQUIPMENT AND ASSOCIATED CIRCUITRY SHALL REMAIN.
7. EXISTING RECEPTACLE AND ASSOCIATED CIRCUITRY SHALL REMAIN.
8. NEW RECEPTACLE HOMERUN CIRCUITRY CONNECTED TO THE EXISTING RECEPTACLE'S HOMERUN CIRCUITRY. FIELD VERIFY THE AMPACITY AND CONNECTION REQUIREMENTS.
9. EXISTING ELECTRICAL PANEL TO REMAIN.
10. JUNCTION BOX FOR NEW AIR COMPRESSOR POWER CONNECTION. FIELD VERIFY THE CONNECTION REQUIREMENTS WITH THE EQUIPMENT SUPPLIER.
11. JUNCTION BOX FOR POWER CONNECTION OF THE HEADWALL RECEPTACLES. THE EXISTING HOME RUN CIRCUITS FROM THE DEMOLISHED RECEPTACLES SHALL BE RE-ROUTED TO THE JUNCTION BOX. FIELD VERIFY THE CONNECTION REQUIREMENTS.
12. JUNCTION BOX FOR POWER CONNECTION OF THE DOOR OPERATOR. FIELD VERIFY CONNECTION REQUIREMENTS WITH OPERATOR CONTROL VENDOR.
13. JUNCTION BOX FOR LOCATION OF THE DOOR OPERATOR PUSHBUTTON. PROVIDE 3/4" CONDUIT ROUTED TO DOOR OPERATOR. FIELD VERIFY ROUTE AND CONNECTION REQUIREMENTS.
14. CONDUIT ROUTED TO DISCONNECT NEEDS TO BE RECESSED.
15. JUNCTION BOX FOR UPS POWER CONNECTION OF WASHER CONTROL PANEL. FIELD VERIFY CONNECTION REQUIREMENTS WITH VENDOR.
16. JUNCTION BOX FOR UPS POWER CONNECTION OF MEDIVATOR CONTROL PANEL. FIELD VERIFY CONNECTION REQUIREMENTS WITH VENDOR.
17. NEW RECEPTACLE'S HOME RUN CIRCUITRY CONNECTED TO THE EXISTING RECEPTACLE'S HOMERUN CIRCUITRY. FIELD VERIFY THE CONNECTION REQUIREMENTS AND AVAILABLE CIRCUIT AMPACITY.

ALL DEVICES AND CIRCUITRY IN THIS AREA SHALL REMAIN

ALL DEVICES & CIRCUITS IN THIS AREA ARE EXISTING TO REMAIN

1 SECOND FLOOR POWER PLAN
SCALE: 1/8" = 1'-0"

KEY PLAN

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CAD DWG FILE: E202.2.dwg
DRAWN BY: RM
CHECKED BY: BSC

SHEET TITLE:
SECOND FLOOR POWER PLAN

E202.2

GENERAL POWER NOTES

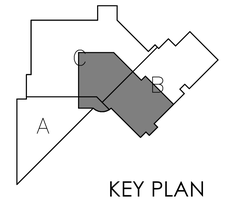
1. WHERE CONNECTED TO A 20 AMP BRANCH CIRCUIT SUPPLYING AN INDIVIDUAL (SIMPLEX OR DUPLEX), THE RECEPTACLE SHALL BE RATED AT 20 AMPS.
2. PROVIDE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED AND GRADE MOUNTED ELECTRICAL EQUIPMENT. MINIMUM REQUIREMENTS: 4" HIGH, 4% AIR ENTRAINED, POLYFIBER REINFORCED CONCRETE. A MINIMUM OF 4" WIDER AND 4" LONGER THAN EQUIPMENT TO BE PLACED ON IT. REFER TO ELECTRICAL DETAILS FOR TRANSFORMER, GENERATOR, OR SWITCHGEAR PADS THAT MAY EXCEED THESE REQUIREMENTS.
3. REFER TO SECTION 26 0519 FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.
4. WIRE COUNTS FOR CIRCUIT CONDUCTORS ARE NOT SHOWN. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUIT AND SWITCHING CONNECTIONS SHOWN.
5. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS (SEE PANELBOARD SCHEDULE). BRANCH CIRCUITS SHALL BE SIZED ACCORDING TO THE CIRCUIT BREAKER RATING, UNLESS INDICATED OTHERWISE ON THE ELECTRICAL EQUIPMENT SCHEDULE.
6. SINGLE PHASE BRANCH CIRCUITS SHALL NOT SHARE NEUTRALS.
7. THE CONTRACTOR SHALL PROVIDE THE DATA CONDUITS AND BOXES AS SHOWN, THE DATA CABLING SHALL BE FURNISHED AND INSTALLED BY THE OWNER, UNLESS NOTED OTHERWISE.
8. PROVIDE THE REQUIRED POWER FOR ALL MECHANICAL OR PLUMBING EQUIPMENT SPECIFIED IN THE CONTRACT DOCUMENTS, EVEN IF NOT SHOWN ON THE POWER PLANS.
9. THE CONTRACTOR SHALL FIELD VERIFY THE POWER REQUIREMENTS OF ALL MECHANICAL AND PLUMBING EQUIPMENT, WITH THE EQUIPMENT SUPPLIERS, PRIOR TO PREPARING SUBMITTALS OR ORDERING ANY SWITCHGEAR OR EQUIPMENT. SUPPLIED PLUMBING AND/OR MECHANICAL EQUIPMENT MAY VARY FROM EQUIPMENT SPECIFIED IN THE PLANS.

KEYNOTES

1. ADDRESSABLE FIRE ALARM CONTROL RELAY FOR SHUTDOWN OF ROOFTOP UNIT UPON ACTIVATION OF FIRE ALARM SYSTEM ALARM CONDITION.
2. CIRCUITRY FOR LIGHTING INCLUDED WITH ROOFTOP UNIT, FIELD VERIFY THE CONNECTION REQUIREMENTS.
3. EXISTING EXHAUST FAN AND ASSOCIATED CIRCUITRY SHALL REMAIN.
4. EXISTING RECEPTACLE AND ASSOCIATED CIRCUITRY SHALL REMAIN.

NORTH

ELECTRICAL ROOF PLAN
SCALE: 1/8" = 1'-0"



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PROJECT NO: 241532
CAD DWG FILE: E203.2.dwg
DRAWN BY: Author
CHECKED BY: Checker

SHEET TITLE:
ELECTRICAL ROOF PLAN

E203.2

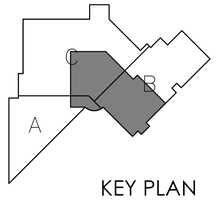
1 SECOND FLOOR SYSTEMS PLAN
SCALE: 1/8" = 1'-0"

GENERAL SYSTEMS NOTES

1. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR WIRING ALL ELECTRICAL ITEMS SHOWN ON THE DRAWINGS.
2. MAXIMUM OF 4 INFORMATION OUTLET LOCATIONS PER CONDUIT, CONDUIT SHALL BE SIZED AS FOLLOWS:
   1 INFORMATION OUTLET LOCATION: 1"
   2 INFORMATION OUTLET LOCATIONS: 1 1/4"
   3 INFORMATION OUTLET LOCATIONS: 1 1/2"
   4 INFORMATION OUTLET LOCATIONS: 2"
3. ALL COMMUNICATIONS CABLES SHALL BE INSTALLED IN CONDUIT. PROVIDE BUSHINGS AT THE ENDS OF ALL CONDUIT WHERE STUBBED ABOVE ACCESSIBLE CEILING.
4. FOR EACH THERMOSTAT, TEMPERATURE SENSOR, OR WALL MOUNTED HVAC CONTROL DEVICE PROVIDE A JUNCTION BOX, WITH A SINGLE GANG MUD RING, AT 48" ABOVE THE FINISH FLOOR WITH A 3/4" CONDUIT (WITH A PULL STRING) TO ABOVE THE CEILING FOR THE HVAC CONTROLS. HVAC CONTROLS WIRING AND DEVICES INSTALLED BY MECHANICAL CONTROLS CONTRACTOR.

KEYNOTES

1. ADDRESSABLE FIRE ALARM MONITOR MODULE TO SEND TROUBLE SIGNAL IN THE EVENT OF ACTIVATION OF EMERGENCY EYEWASH STATION.
2. REINSTALL ALL SPECIAL SYSTEMS COMPONENTS.
3. REINSTALL DATA DEVICES, PROVIDE NEW DATA DEVICE FACEPLATES.
4. DUCT SMOKE DETECTOR IN RTU-1 SUPPLY & RETURN DUCTS FOR NEW ROOFTOP UNIT RTU-1 WITH A REMOTE TEST SWITCH FOR DETECTOR. COORDINATE EXACT LOCATIONS WITH EQUIPMENT PROVIDER. DETECTOR CONNECTED TO THE EXISTING FIRE ALARM SYSTEM. VERIFY THE PROGRAMMING AND CONNECTION REQUIREMENTS WITH THE EXISTING EQUIPMENT MANUFACTURER.



KEY PLAN

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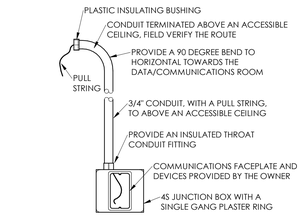
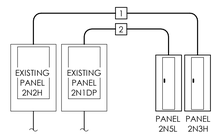
SHEET TITLE:
SECOND FLOOR SPECIAL SYSTEMS

E302.2

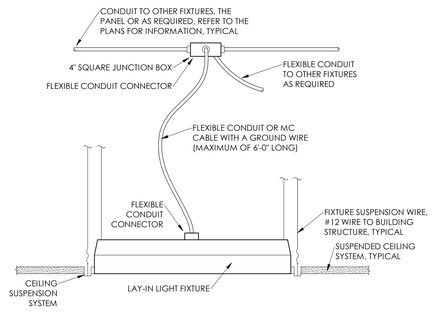
FEEDER SCHEDULE
[1] 3" CONDUIT WITH 4-250 MCM AND 1 - #4 GROUND
[2] 1-1/4" CONDUIT WITH 4 - #3 AND 1 - #8 GROUND



4 E500.2 COMMUNICATIONS BOX DETAIL
SCALE: NTS

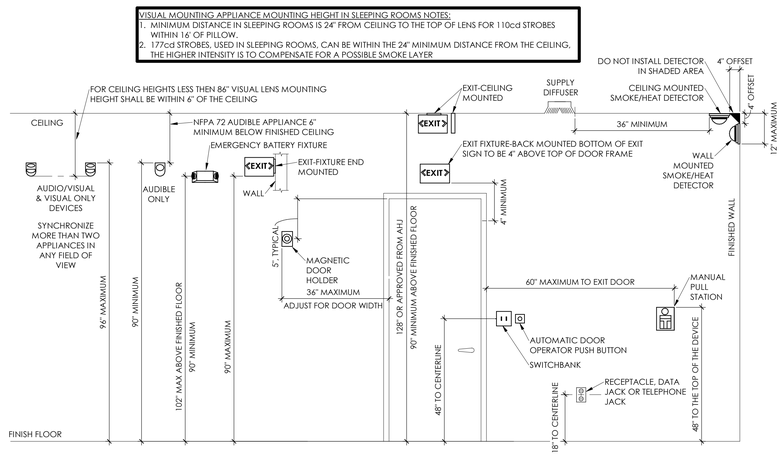


3 E500.2 PARTIAL ELECTRICAL RISER DIAGRAM
SCALE: NTS



2 E500.2 LAY-IN LIGHT FIXTURE MOUNTING DETAIL
SCALE: NTS

VISUAL MOUNTING APPLIANCE MOUNTING HEIGHT IN SLEEPING ROOMS NOTES:
1. MINIMUM DISTANCE IN SLEEPING ROOMS IS 24" FROM CEILING TO THE TOP OF LENS FOR 110cd STROBES WITHIN 16' OF PILLOW.
2. 177cd STROBES, USED IN SLEEPING ROOMS, CAN BE WITHIN THE 24" MINIMUM DISTANCE FROM THE CEILING, THE HIGHER INTENSITY IS TO COMPENSATE FOR A POSSIBLE SMOKE LAYER



1 E500.2 TYPICAL MOUNTING HEIGHTS DETAIL
SCALE: NTS

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ELECTRICAL DETAILS

E500.2

PANEL: 2N3H

LOCATION: ELEC. ROOM B231 | **VOLTS:** 480Y/277 | **A.I.C. RATING:** 14,000 AMPS SYMMETRICAL
SUPPLY FROM: 2N2H | **PHASES:** 3 | **MAINS TYPE:** MAIN CB
MOUNTING: SURFACE | **WIRES:** 4 | **MAIN C.B. RATING:** 250 A
ENCLOSURE: NEMA 1 | **GROUND BUS MAT'L.:** | **BUS RATING:** 250 AMPS
GFP:

NOTES:

CKT	CIRCUIT DESCRIPTION	LOAD TYPE	RATING	PHASE A ODD CIRCUIT # LOAD	PHASE B ODD CIRCUIT # LOAD	PHASE C ODD CIRCUIT # LOAD	PHASE A EVEN CIRCUIT # LOAD	PHASE B EVEN CIRCUIT # LOAD	PHASE C EVEN CIRCUIT # LOAD	RATING	LOAD TYPE	CIRCUIT DESCRIPTION	CKT
1				10067 VA			6640 VA						2
3	STEAM STERILIZER	EQUIP	50 A		10067 VA			6640 VA		30 A	EQUIP	AMSCO 5052	4
5						10067 VA			6640 VA				6
7				10067 VA			6640 VA						8
9	STEAM STERILIZER	EQUIP	50 A		10067 VA			6640 VA		30 A	EQUIP	AMSCO 5052	10
11						10067 VA			6640 VA				12
13				1456 VA			1193 VA			20 A	LITE...	LTG SANITATION SUITE	14
15	ULTRASONIC CLEANER	EQUIP	50 A		1456 VA			1220 VA					16
17						1456 VA			1220 VA	20 A	EQUIP	COMPRESSOR COMP-1	18
19	SPARE	--	20 A	0 VA			1220 VA						20
21	SPARE	--	20 A		0 VA			0 VA		20 A	--	SPARE	22
23	SPARE	--	20 A			0 VA			0 VA	20 A	--	SPARE	24
25	SPARE	--	20 A	0 VA			0 VA			20 A	--	SPARE	26
27	SPARE	--	20 A		0 VA			0 VA		20 A	--	SPARE	28
29	SPARE	--	20 A			0 VA			0 VA	20 A	--	SPARE	30
				PHASE A		PHASE B			PHASE C				
			TOTAL LOAD:	37283 VA		36089 VA			36089 VA				
			TOTAL AMPS:	135 A		130 A			130 A				

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
EQUIP	108268 VA	100.00%	108268 VA		
L	0 VA	0.00%	0 VA	TOTAL CONNECTED LOAD:	109461 VA
LITES	1193 VA	125.00%	1492 VA	TOTAL ESTIMATED DEMAND:	109760 VA
				TOTAL CONNECTED LOAD:	132 A
				TOTAL ESTIMATED LOAD:	132 A

NOTES:
Motor = LARGEST MOTOR
MN = MOTOR (NON-SEASONAL)
LITES = LIGHTING (CONTINUOUS)
HEAT = HEATING
R = RECEPTACLE
C = CONTINUOUS
PN = POWER NON-SEASONAL (NON-CONTINUOUS)...

PANEL: 2C1H

LOCATION: RCVG/DECONTAM-2 B232-2 | **VOLTS:** 480Y/277 | **A.I.C. RATING:** 14,000 AMPS SYMMETRICAL
SUPPLY FROM: | **PHASES:** 3 | **MAINS TYPE:** MLO
MOUNTING: RECESSED | **WIRES:** 4 | **MAIN C.B. RATING:** 225 A
ENCLOSURE: NEMA1 | **GROUND BUS MAT'L.:** | **BUS RATING:** 225 AMPS
GFP:

NOTES: EXISTING PANEL TO REMAIN. RECONNECT ALL EXISTING LIGHTING CIRCUITS TO NEW LIGHTING IN SPACES INDICATED.

CKT	CIRCUIT DESCRIPTION	LOAD TYPE	RATING	PHASE A ODD CIRCUIT # LOAD	PHASE B ODD CIRCUIT # LOAD	PHASE C ODD CIRCUIT # LOAD	PHASE A EVEN CIRCUIT # LOAD	PHASE B EVEN CIRCUIT # LOAD	PHASE C EVEN CIRCUIT # LOAD	RATING	LOAD TYPE	CIRCUIT DESCRIPTION	CKT
1				4800 VA			2133 VA						2
3	ROOFTOP UNIT RTU-1 SUPPLY FAN	HVAC	30 A		4800 VA			2133 VA		20 A	HVAC	ROOFTOP UNIT RTU-1 RETURN FAN	4
5						4800 VA			2133 VA				6
7	LTG B254, B255, B256	--	20 A	1404 VA			161 VA			20 A	LITES	LITES POST-OP RECOVERY B255	8
9	LITES OR ROOM (GENERAL) B248	LITES	20 A		322 VA			2136 VA		20 A	--	LTG B281	10
11	LITES OR/OB B251	LITES	20 A			387 VA			1728 VA	20 A	--	SPARE	12
13	LTG A257, A258	--	20 A	818 VA			818 VA			20 A	--	LTG A256	14
15	LTG A256	--	20 A		1392 VA			0 VA		20 A	--	SPARE	16
17	LTG B277	--	20 A			0 VA			0 VA	20 A	--	SPARE	18
19	2CT1-2C1DP	--	20 A	0 VA			0 VA			20 A	--	SPARE	20
21	2CT1-2C1DP	--	20 A		0 VA			0 VA		20 A	--	SPARE	22
23	2CT1-2C1DP	--	20 A			0 VA			0 VA	20 A	--	SPARE	24
				PHASE A		PHASE B			PHASE C				
			TOTAL LOAD:	10134 VA		10784 VA			9048 VA				
			TOTAL AMPS:	37 A		40 A			33 A				

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
HVAC	20800 VA	100.00%	20800 VA		
Spare	8296 VA	100.00%	8296 VA	TOTAL CONNECTED LOAD:	29966 VA
LITES	870 VA	125.00%	1088 VA	TOTAL ESTIMATED DEMAND:	30184 VA
				TOTAL CONNECTED LOAD:	36 A
				TOTAL ESTIMATED LOAD:	36 A

NOTES:
Motor = LARGEST MOTOR
MN = MOTOR (NON-SEASONAL)
LITES = LIGHTING (CONTINUOUS)
HEAT = HEATING
R = RECEPTACLE
C = CONTINUOUS
PN = POWER NON-SEASONAL (NON-CONTINUOUS)...

DISCONNECT SCHEDULE

MARK	MANUFACTURER	SWITCH DUTY	AMP RATING	VOLTAGE	PHASE	POLES	FUSE INFO. AMP	FUSE INFO. TYPE	ENCLOSURE	NOTES
DSH6R	SQUARE D	HEAVY	30 A	480 V	3	3	30 A	LPN-RK_SP	NEMA 3R	1
DSH65	SQUARE D	HEAVY	60 A	480 V	3	3	50 A	LPN-RK_SP	NEMA 3R	1
DSL31R	SQUARE D	HEAVY	30 A	208 V	1	2	30 A	LPN-RK_SP	NEMA 3R	1

SCHEDULE NOTES:
1. COORDINATE THE LOCATION WITH THE EQUIPMENT PROVIDER.

LIGHT FIXTURE SCHEDULE

MARK	CONSTRUCTION DESCRIPTION	PRODUCT MANUFACTURER	PRODUCT MODEL NO.	CONSTRUCTION LENS/LOUVER	CONSTRUCTION MOUNTING	LIGHT SOURCE LAMP	LUMENS DOWN	LUMENS UP	CCT	CRI	ELECTRICAL BALLAST/ DRIVER	VOLTAGE	PHASE	WATTS	EMERGENCY COMPONENT	NOTES
76R3	ROUND LENS LED STRIP	WILLIAMS	76R-4-L35/840-DRV-UNV	FROSTED SMOOTH ACRYLIC	SURFACE/ SUSPENDED	LED	3000 lm	0 lm	3500 K	80	LED NON-DIMMING DRIVER	277 V	1	25 W	--	--
CS22	2x2 SURFACE	KENALL	CSESQ22-45LD-35K8-DIM1-DV-XFXH-SYM-HJ	DIFFUSED ACRYLIC	LAY-IN	LED	5500 lm	0 lm	3500 K	82	LED DRIVER, 0-10V DIMMING, 1%	277 V	1	45 W	--	--
EXC1	EXIT SIGN, EDGE-LIT, 1-SIDED	LITHONIA	EDGR 1 R EL	--	CEILING	LED	0 lm	0 lm	0 K	0	--	277 V	1	5 W	BATTERY	--
L24	2x4 HIGH PERFORMANCE ARCHITECTURAL RECESSED LED	LITHONIA LIGHTING	2ALL4-40L-MVOLT-EZ1-LP835	TRANSMITTANCE DIFFUSER	LAY-IN	LED	4000 lm	0 lm	3500 K	80	LED DRIVER, 0-10V DIMMING, 1%	277 V	1	29 W	--	--
R1	6" DOWNLIGHT	INDY	L6 13LM 35K MVOLT 80CRI EZ1 w/ HM CS PF	--	RECESSED	LED	1404 lm	0 lm	3500 K	80	LED DRIVER, 0-10V DIMMING, 1%	277 V	1	12 W	--	--
S1	1x4 RECESSED	LITHONIA	BLT4 20L ADP EZ1 LP835	CURVED RIBBED	GRID	LED	1907 lm	0 lm	3500 K	82	LED DRIVER, 0-10V DIMMING, 1%	277 V	1	3 W	--	--

NOTES:
1. COORDINATE PENDANT LENGTH AND MOUNTING HEIGHT WITH ARCHITECTURAL ELEVATIONS.

PANEL: 2N5L

LOCATION: ELEC. ROOM B231 | **VOLTS:** 208Y/120 | **A.I.C. RATING:** 10,000 AMPS SYMMETRICAL
SUPPLY FROM: 2N1DP | **PHASES:** 3 | **MAINS TYPE:** MLO
MOUNTING: SURFACE | **WIRES:** 4 | **MAIN C.B. RATING:** 100 A
ENCLOSURE: NEMA1 | **GROUND BUS MAT'L.:** | **BUS RATING:** 100 AMPS
GFP:

NOTES:

CKT	CIRCUIT DESCRIPTION	LOAD TYPE	RATING	PHASE A ODD CIRCUIT # LOAD	PHASE B ODD CIRCUIT # LOAD	PHASE C ODD CIRCUIT # LOAD	PHASE A EVEN CIRCUIT # LOAD	PHASE B EVEN CIRCUIT # LOAD	PHASE C EVEN CIRCUIT # LOAD	RATING	LOAD TYPE	CIRCUIT DESCRIPTION	CKT
1	DENTAL CASSETTE WASHER	EQUIP	20 A	1248 VA			1000 VA			20 A	RCPT	RCPT	2
3					1248 VA			540 VA		20 A	RCPT	RCPT B231-2, A21	4
5	DENTAL CASSETTE WASHER	EQUIP	20 A			1248 VA			360 VA	20 A	RCPT	RCPT	6
7				1248 VA			180 VA			20 A	RCPT	RCPT	8
9	MEDIVATOR	RCPT	20 A		180 VA			180 VA		20 A	LITES	ROOFTOP UNIT RTU-1 INTEGRAL LTG	10
11	MEDIVATOR	RCPT	20 A			180 VA			942 VA	15 A	EQUIP	UNIT HEATER EUH-1	12
13	STEAM STERILIZER CONTROLS	EQUIP	20 A	1200 VA			1500 VA			20 A	MN	SECOND FLOOR VAV BOXES	14
15	STEAM STERILIZER CONTROLS	EQUIP	20 A		1200 VA			1000 VA		20 A	MN	SECOND FLOOR VAV BOXES	16
17	RCPT B229	RCPT	20 A			540 VA			1000 VA	20 A	MN	SECOND FLOOR VAV BOXES	18
19	EXHAUST FAN EF-2	MN	15 A	300 VA			400 VA			20 A	RCPT	WASHER B230	20
21	RCPT	RCPT	20 A		180 VA			0 VA		20 A	--	SPARE	22
23	SPARE	--	20 A			0 VA			0 VA	20 A	--	SPARE	24
25	SPARE	--	20 A	0 VA			0 VA			20 A	--	SPARE	26
27	SPARE	--	20 A		0 VA			0 VA		20 A	--	SPARE	28
29	SPARE	--	20 A			0 VA			0 VA	20 A	--	SPARE	30
				PHASE A		PHASE B			PHASE C				
			TOTAL LOAD:	7076 VA		4528 VA			4270 VA				
			TOTAL AMPS:	59 A		38 A			36 A				

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
EQUIP	8334 VA	100.00%	8334 VA		
RCPT	3560 VA	100.00%	3560 VA	TOTAL CONNECTED LOAD:	15874 VA
MN	3800 VA	100.00%	3800 VA	TOTAL ESTIMATED DEMAND:	15919 VA
LITES	180 VA	125.00%	225 VA	TOTAL CONNECTED LOAD:	44 A
				TOTAL ESTIMATED LOAD:	44 A

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PANEL: 2C2L

LOCATION: RECPT/OR CONTROL-3 B244-3 | **VOLTS:** 208Y/120 | **A.I.C. RATING:** 10,000 AMPS SYMMETRICAL
SUPPLY FROM: | **PHASES:** 3 | **MAINS TYPE:** MCB
MOUNTING: RECESSED | **WIRES:** 4 | **MAIN C.B. RATING:** 1 A
ENCLOSURE: NEMA1 | **GROUND BUS MAT'L.:** | **BUS RATING:** 100 AMPS
GFP:

NOTES: EXISTING PANEL SHOWN FOR REFERENCE BASED ON RECORD DRAWINGS. VERIFY ALL CIRCUITS IN THE FIELD.

CKT	CIRCUIT DESCRIPTION	LOAD TYPE	RATING	PHASE A ODD CIRCUIT # LOAD	PHASE B ODD CIRCUIT # LOAD	PHASE C ODD CIRCUIT # LOAD	PHASE A EVEN CIRCUIT # LOAD	PHASE B EVEN CIRCUIT # LOAD	PHASE C EVEN CIRCUIT # LOAD	RATING	LOAD TYPE	CIRCUIT DESCRIPTION	CKT
1	SPARE	--	20 A	0 VA			1200 VA			20 A	EQUIP	DOOR OPERATOR B248-2	2
3	SPARE	--	20 A		0 VA			1200 VA		20 A	EQUIP	DOOR OPERATOR B251-2	4
5	L PROCEDURE ROOM-2 B272-2	LITES	20 A			250 VA			1200 VA	20 A	EQUIP	DOOR OPERATOR B255-2	6
7	L OR ROOM (GENERAL)-2 B248-2	LITES	20 A	250 VA			0 VA			20 A	--	RCPT B212	8
9	L OR/OB-2 B251-2	LITES	20 A		250 VA			0 VA		20 A	--	RCPT B212, 218	10
11	RCPT OR/OB-2 B251-2	RCPT	20 A			1080 VA			0 VA	20 A	--	RCPT B212	12
13	RCPT B231-120	RCPT	20 A	1440 VA			720 VA			20 A	RCPT	RCPT OR ROOM (GENERAL)-2 B248-2	14
15	RCPT B251-2	RCPT	20 A		900 VA			900 VA		20 A	RCPT	RCPT OR ROOM (GENERAL)-2 B248-2	16
17	RCPT B243	--	20 A			0 VA			720 VA	20 A	RCPT	RCPT OR ROOM (GENERAL)-2 B248-2	18
19	RCPT B237	--	20 A	0 VA			0 VA			20 A	--	NURSE CALL SYSTEM	20
21	RCPT B244	--	20 A		0 VA			0 VA		20 A	--	SPARE	22
23	RCPT B244	--	20 A			0 VA			0 VA	20 A	--	SPARE	24
				PHASE A		PHASE B			PHASE C				
			TOTAL LOAD:	3610 VA		3250 VA			3250 VA				
			TOTAL AMPS:	30 A		27 A			27 A				

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
EQUIP	3600 VA	100.00%	3600 VA		
RCPT	5760 VA	100.00%	5760 VA	TOTAL CONNECTED LOAD:	10109 VA
LITES	749 VA	125.00%	936 VA	TOTAL ESTIMATED DEMAND:	10296 VA
				TOTAL CONNECTED LOAD:	28 A
				TOTAL ESTIMATED LOAD:	29 A

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PANEL: 2C3L

LOCATION: DEL SOILED HOLDING-3... | **VOLTS:** 208Y/120 | **A.I.C. RATING:** 10,000 AMPS SYMMETRICAL
SUPPLY FROM: | **PHASES:** 3 | **MAINS TYPE:** MCB
MOUNTING: RECESSED | **WIRES:** 4 | **MAIN C.B. RATING:** 1 A
ENCLOSURE: NEMA1 | **GROUND BUS MAT'L.:** | **BUS RATING:** 100 AMPS
GFP:

NOTES: EXISTING PANEL SHOWN FOR REFERENCE BASED ON RECORD DRAWINGS. VERIFY ALL CIRCUITS IN THE FIELD.

CKT	CIRCUIT DESCRIPTION	LOAD TYPE	RATING	PHASE A ODD CIRCUIT # LOAD	PHASE B ODD CIRCUIT # LOAD	PHASE C ODD CIRCUIT # LOAD	PHASE A EVEN CIRCUIT # LOAD	PHASE B EVEN CIRCUIT # LOAD	PHASE C EVEN CIRCUIT # LOAD	RATING	LOAD TYPE	CIRCUIT DESCRIPTION	CKT
1	SPARE	--	20 A	0 VA			0 VA			20 A	--	SPARE	2
3	SPARE	--	20 A		0 VA			0 VA		20 A	--	SPARE	4
5	LTG B277	--	20 A			0 VA			0 VA	20 A	--	SPARE	6
7	LTG B281	--	20 A	0 VA			0 VA			20 A	--	MODULAR WALL B277	8
9	HWP-1 INLINE PUMP	MN	20 A		169 VA			0 VA		20 A	--	BED B277	10
11	MODULAR WALL B256	--	20 A			0 VA			0 VA	20 A	--	RCPT B277	12
13	RCPT ISOLATION RECOVERY-2 B255-2	RCPT	20 A	720 VA			0 VA			20 A	--	BED B281	14
15	MODULAR WALL B 255	--	20 A		0 VA			0 VA		20 A	--	MODULAR WALL B 281	16
17	RCPT ISOLATION RECOVERY B255	RCPT	20 A			180 VA			0 VA	20 A	--	RCPT B281	18
19	RCPT ISOLATION RECOVERY-2 B255-2	RCPT	20 A	720 VA			0 VA			20 A	--	SPARE	20
21	RCPT ISOLATION RECOVERY B255	RCPT	20 A		540 VA			0 VA		20 A	--	SPARE	22
23	RCPT ISOLATION RECOVERY B255	RCPT	20 A			1080 VA			0 VA	20 A	--	SPARE	24
				PHASE A		PHASE B			PHASE C				
			TOTAL LOAD:	1440 VA		709 VA			1260 VA				
			TOTAL AMPS:	13 A		6 A			11 A				

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
RCPT	3240 VA	100.00%	3240 VA		
MN	169 VA	100.00%	169 VA	TOTAL CONNECTED LOAD:	3409 VA
				TOTAL ESTIMATED DEMAND:	3409 VA
				TOTAL CONNECTED LOAD:	9 A
				TOTAL ESTIMATED LOAD:	9 A

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PN = POWER NON-SEASONAL (NON-CONTINUOUS)...

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APPROVED:
ES PROJECT MANAGER DATE
ES BRANCH CHIEF DATE
CONCURRENCE
AGENCY REPRESENTATIVE DATE
TITLE

REV	DATE	DESCRIPTION

ISSUE DATE: JULY 29, 2026
CONTRACT NO:
PROJECT NO: 241532
CAD DWG FILE: E600.2.dwg
DRAWN BY: RM
CHECKED BY: BSC

SHEET TITLE:
ELECTRICAL SCHEDULES

E600.2