Code violations that are found during inspection are required to be corrected. Permit issuance does not grant approval of a code violation.

This plan is reviewed to **IBC** but the existing building is NOT converted to **IBC**. The construction type listed is **UBC.** Occupancy group is **IBC.**

Structural plan review is limited to a general survey for code compliance. No review is implied nor was undertaken to verify structural adequacy.

Field Inspection consultation is available upon request. Call 303-739-7420 to request a consultation

THE MEDICAL CENTER OF AURORA

HYBRID OR 9 & GE DISCOVERY IGS 730 INSTALLATION

1501 S. POTOMAC ST., AURORA, CO 80012

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: John Lichtner
Date: Jan 23, 2020
2015 INTERNATIONAL CODES & 2017 NEC

PROJECT TEAM

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MEDICAL CENTER OF AURORA
1501 S. POTOMAC STREET
AURORA, COLORADO 80012

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STRYKER COMMUNICATIONS

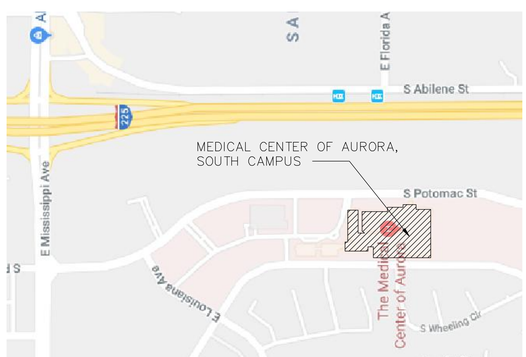
CONTACT:
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PROJECT MANAGER
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CONTRACTOR

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN STRICT CONFORMANCE WITH ALL LOCAL LAWS, ORDINANCES, RULES, REGULATIONS AND CODES OF THE GOVERNMENT AUTHORITIES HAVING JURISDICTION.
2. DIMENSIONS ARE TO FINISHED FACE OF GYPSUM WALL BOARD OR FACE OF EXISTING BASE BUILDING CONSTRUCTION, UNLESS NOTED OTHERWISE.
3. VERIFY ALL ROUGH-IN DIMENSIONS AND ELECTRICAL REQUIREMENTS FOR EQUIPMENT. COORDINATE OUTLET PLACEMENT WITH CASEWORK.
4. CONTRACTOR SHALL NOTIFY OWNER BEFORE COMMENCING WORK ON ANY ITEMS NOT CLEARLY DEFINED.
5. CHANGES OR DEVIATIONS FROM THE PLANS MADE WITHOUT THE CONSENT OF OWNER ARE UNAUTHORIZED.
6. G.C. TO PROVIDE SEALANT AROUND ALL PLUMBING FIXTURES, PIPING AND EQUIPMENT ABUTTING OR PENETRATING A WALL OR PARTITION. COLOR TO MATCH.
7. INSTALL FIRE-SAFING INSULATION, PUTTY OR FIRE-RATED INTUMESCENT-TYPE SEALANT (INCLUDING PIPE-SLEEVES, DAMMING BOARDS AND ACCESSORIES) AROUND ALL PENETRATIONS THROUGH FIRE-RATED PARTITIONS, FLOORS AND WALLS PER MANUFACTURER'S TESTED INSTALLATION FOR APPLICATION AND REQUIRED RATING.
8. ALL ELECTRICAL AND MECHANICAL DEVICES OR APPLIANCES INSTALLED ON THIS PROJECT SHALL BE UL LISTED.
9. CONTRACTOR SHALL PRESENT A WORKABLE PLAN TO MAINTAIN SECURITY AND SAFETY OF THE OWNER'S BUSINESS FOR AREAS AFFECTED BY CONSTRUCTION DURING THE ENTIRE PHASE OF CONSTRUCTION.
10. CONTRACTOR SHALL MINIMIZE DISRUPTION BY CONSTRUCTION WORK TO THE ONGOING BUSINESSES AND TRAFFIC IN THE VICINITY. CONSTRUCTION AREA SHALL BE ENCLOSED TO KEEP OTHER AREAS FREE OF DUST, DEBRIS & NOISE.
11. EMPLOYEES OR SUBCONTRACTORS OF THE GENERAL CONTRACTOR SHALL REFRAIN FROM PROFANE OR OFFENSIVE LANGUAGE WHILE ON THE PROJECT SITE AND SHALL REFRAIN FROM USING LOUD RADIOS OR OTHER MUSIC PLAYERS WHILE OWNERS AND/OR DESIGN TEAM IS ONSITE.
12. GENERAL CONTRACTOR SHALL COORDINATE APPROPRIATE PARKING ACCOMMODATIONS FOR EMPLOYEE AND SUBCONTRACTOR VEHICLES WITH OWNER PRIOR TO COMMENCEMENT OF WORK.
13. G.C. SHALL COORDINATE APPROPRIATE CONSTRUCTION STAGING AREAS AND TRASH REMOVAL. G.C. WILL BE RESPONSIBLE FOR OBTAINING A DUMPSTER AND TRASH PICKUP FROM JOB SITE ON A REGULAR BASIS.
14. SUBSTITUTIONS OF SPECIFIED PRODUCTS MAY NOT OCCUR UNLESS SPECIFICALLY NOTED ON DRAWINGS THAT "OR EQUAL" IS ACCEPTABLE. OWNER APPROVAL IS REQUIRED FOR ALL SUBSTITUTIONS CONSIDERED BY G.C. TO MEET "OR EQUAL" REQUIREMENTS PRIOR TO BID SUBMISSION/INSTALLATION.
15. APPROVAL OF SHOP DRAWINGS DOES NOT IMPLY APPROVAL OF A SUBSTITUTED COLOR, SIZE OR FUNCTION OF AN ITEM SPECIFIED ON THESE CONTRACT DOCUMENTS UNLESS ATTENTION IS SPECIFICALLY CALLED TO THE REVISION AND APPROVAL IS GIVEN.
16. G.C. SHALL KEEP TOILET FACILITIES ON SITE CLEAN AND USABLE.
17. MULTIPLE SWITCHES SHALL BE GANGED IN SINGLE BOXES WITH COVER PLATE COLORS/ DEVICES TO BE WHITE, SWITCH PLATES SHALL ALIGN.
18. GENERAL CONTRACTOR MUST BE FAMILIAR WITH EXISTING CONDITIONS TO PROPERLY ACCOUNT FOR THE NECESSARY COSTS ASSOCIATED WITH CONSTRUCTION.
19. NO CHANGE ORDERS WILL BE PERMITTED UNLESS OWNER INITIATED OR APPROVED PRIOR TO COMMENCEMENT OF THE CHANGE.
20. CONTAIN CONSTRUCTION WASTE BEFORE TRANSPORT IN TIGHTLY COVERED CONTAINERS.
21. ANTE ROOM SHALL BE CLEAN AT ALL TIMES. WIPE DOWN CARTS IN ANTE ROOM PRIOR TO LEAVING CONTAINMENT.
22. MAINTAIN A CLEAN WORK ENVIRONMENT BY VACUUMING WITH HEPA-FILTERED VACUUMS.
23. CONTRACTOR TO MAINTAIN NEGATIVE ROOM PRESSURE OF MINIMUM -0.03 INCHES WATER GAGE RECORDED BY CONTRACTOR PROVIDED MANOMETER & EXHAUSTED BY HEPA-FILTER NEGATIVE AIR MACHINE.
24. UPON COMPLETION, CONTRACTOR TO DO FINAL CLEAN TO INCLUDE REMOVAL OF ALL DUST AND DEBRIS BY VACUUMING, MOPPING & WIPING DOWN ALL VISUAL SURFACES.

City of Aurora Building Division
Project: *HYBRID OR 9 RMODEL*
Address: *1501 S POTOMAC ST*
Occupancy Group: *I-2*
Construction Type: *UBC I FR-SPK*
RSN: *1431550*
Permit: *20-1751559-LT*



VICINITY MAP
NTS

NORTH

POTOMAC ST.



KEY PLAN
NTS

NORTH

VENDOR LIST

LOW VOLTAGE & DATA

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MC2 ELECTRIC

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ALL PRO FIRE

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LEAD LINED GLASS

METROPOLITAN GLASS INC.

JIM LYNCH
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CODE INFORMATION SUMMARY

PROJECT NAME: HYBRID OR 9 & GE DISCOVERY IGS INSTALLATION

PROJECT ADDRESS: 1501 S. POTOMAC STREET
AURORA, COLORADO 80012

CONSTRUCTION TYPE: 1-A

OCCUPANCY CLASSIFICATION: GROUP I-2 HOSPITAL (IBC)

AFFECTED SQUARE FOOTAGE: 1,241 S.F.

OCCUPANT LOAD FACTOR: 240 SF/OCCUPANT (INPATIENT)

OCCUPANT LOAD: 1,241 S.F./240 = 5 OCCUPANTS

FIRE PROTECTION: EXISTING BUILDING IS FULLY SPRINKLERED. AREAS AFFECTED BY THE WORK UNDER THIS CONTRACT SHALL MAINTAIN FIRE PROTECTION SYSTEM AND BE FULLY SPRINKLERED ON COMPLETION.

EXITS: 10 EXITS ON THE LEVEL 1
8'-0" WIDE EXIT ACCESS CORRIDORS

APPLICABLE CODES:
2015 INTERNATIONAL BUILDING CODE (IBC)
2015 INTERNATIONAL MECHANICAL CODE (IMC)
2015 INTERNAMTIONAL FUEL GAS CODE (IFGC)
2015 INTERNATIONAL FIRE CODE (IFC)
2015 INTERNATIONAL PLUMBING CODE (IPC)
2015 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2017 NATIONAL ELECTRICAL CODE (NEC)

2009 ICC/ANSI A117.1

CHAPTER 22 BUILDINGS & REGULATIONS
(AURORA BUILDING & ZONING CODES)
CHAPTER 66 FIRE PREVENTION & PROTECTION
(AURORA BUILDING & ZONING CODES)

2012 NFPA 101 LIFE SAFETY CODES

2009 CDPHE LICENSING REQUIREMENTS

CODE NOTES

A. FIRE RATED WALL ASSEMBLIES WILL BE NOT BE MODIFIED.

DRAWING INDEX

GENERAL

G0	COVER SHEET
G100	CONSTRUCTION NOTES
G101	CODE COMPLIANCE PLAN
G102	LEGENDS, SYMBOLS & ABBREV.
G103	SHIELDING PLAN

STRUCTURAL

S1	PROJECT NOTES
S2	FLOOR SLAB PLAN & DETAILS
S3	CEILING MOUNTED EQUIP SUPPORT PLAN & DETAILS

ARCHITECTURAL

AD101	DEMOLITION / TRENCHING PLANS
AD102	CEILING / EQUIP. DEMOLITION PLANS
A101	FLOOR DIM/TAG & FINISHES PLANS
A102	FLOOR EQUIPMENT PLAN
A103	REFLECTED CEILING/EQUIP PLANS
A401	ELEVATIONS
A402	ELEV., SECTIONS & DETAILS

MECH & ELECT

M000	MECHANICAL SYMBOLS & GEN NOTES
M001	MECHANICAL SPECIFICATIONS
M101	HVAC DEMO PLAN
M201	HVAC FLOOR PLAN
M300	MECHANICAL SCHEDULES & DETAILS
P0.0	PLUMBING SYMBOLS, ABBREV., & CODE INFO
P1.0	PLUMBING DEMO & FLOOR PLAN
E000	ELECTRICAL SYMBOLS & GEN NOTES
E001	ELECTRICAL SPECIFICATIONS
E002	ELECTRICAL RISER DIAGRAM
E003	ELECTRICAL DETAILS
ED101	ELECTRICAL DEMO PLAN
E100	ELECTRICAL FLOOR PLAN
E101	ELECTRICAL ENLARGED PLAN

GE SITE SPECIFIC

C1	COVER SHEET
C2	DISCLAIMER - SITE READINESS
A1	GENERAL NOTES
A2	EQUIPMENT LAYOUT
A3	MOVEMENT LAYOUT
A4	SECTION VIEWS
A5	EQUIPMENT DETAILS (1)
A6	EQUIPMENT DETAILS (2)
A7	DELIVERY
S1	STRUCTURAL NOTES
S2	STRUCTURAL LAYOUT
S3	STRUCTURAL DETAILS (1)
S4	STRUCTURAL DETAILS (2)
S5	STRUCTURAL DETAILS (3)
M1	HVAC
E1	ELECTRICAL NOTES
E2	ELECTRICAL LAYOUT
E3	ELECTRICAL ELEVATIONS
E4	ELECTRICAL DETAILS
E5	POWER REQUIREMENTS
E6	INTERCONNECTIONS

STRYKER COMM UNICATIONS

TITLE	COVER SHEET
R-HY 9	EQUIPMENT LAYOUT
P-1	PRE-INSTALL NOTES
P-2	PRE-INSTALL NOTES

The Medical Center of Aurora
Health ONE

HYBRID OR 9 / DISCOVERY IGS

MEDICAL CENTER OF AURORA

1501 S. POTOMAC ST.
AURORA, CO 80012

SOUTH CAMPUS

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STATE OF COLORADO
TOM THOMPSON
305692
01.14.20
LICENSED ARCHITECT

PROJECT NO.:	190318
DRAWN BY:	TH, BEPS
CHECKED BY:	TT
SCALE:	N/A
DATE:	01.14.2020
ISSUED FOR:	CONSTRUCTION

REVISIONS:

SHEET TITLE:
COVER SHEET

SHEET NO.:
G.0

DWG FILENAME: HYBRID OR 9 SHEET SIZE: 36" x 24"

CONSTRUCTION NOTES

1. GENERAL NOTES:
   A. THROUGH THE USE OF THESE CONSTRUCTION DOCUMENTS, CONTRACTOR ACCEPTS ALL GENERAL CONDITIONS NOTED WITHIN.
   B. CONTRACTOR IS SOLELY RESPONSIBLE FOR REQUESTING ANY NECESSARY CLARIFICATIONS IN THE CONSTRUCTION DOCUMENTS, EXISTING CONDITIONS, AND/OR DESIGN INTENT PRIOR TO PROCEEDING. FAILURE TO DO SO WILL ENSURE THAT ALL COSTS FOR RECTIFICATION SHALL BE INCURRED ON THE PART OF THE CONTRACTOR.
   C. CONTRACTOR SHALL ENSURE THAT ALL WORK AND MATERIALS WITHIN THE PROJECT SCOPE BE IN FULL COMPLIANCE WITH ALL APPLICABLE CODES AND REGULATIONS WITHIN THE GOVERNING JURISDICTION.
   D. CONTRACTOR SHALL WARRANT ALL WORK FOR A PERIOD OF (1) YEAR OR THE CUSTOMARY WARRANTY FOR THE TRADE OR PRODUCT, WHICHEVER IS LONGER.
   E. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE SCOPE AND LIMIT OF ALL REPAIRS AND RECONDITIONING OF EXISTING MATERIALS TO REMAIN IN ORDER TO BLEND WITH NEW MATERIALS AND COMPONENTS. APPROVAL SHALL BE OBTAINED FROM THE OWNER PRIOR TO THE START OF CONSTRUCTION.
   F. CONTRACTOR SHALL SUBMIT ALL REQUESTS FOR SUBSTITUTIONS IN WRITING TO THE OWNER. CONTRACTOR SHALL INCLUDE ANY ADDITIONAL PRODUCT INFORMATION. SUBSTITUTIONS SHALL NOT SACRIFICE QUALITY OR FUNCTION.
   G. REFERENCES:
      1) SEE ALL ENGINEERING AND/OR CONSULTANT DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
   H. DIMENSIONS:
      1) FIELD VERIFY ALL DIMENSIONS AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE DESIGNER. DO NOT SCALE THE DRAWINGS.
      2) ALL WALLS SHOWN TO LOCATED ON A COLUMN CENTERLINE ARE CENTERED ON THE COLUMN CENTERLINE UNLESS NOTED OTHERWISE.
      3) ALL PARTITIONS ENGAGING EXTERIOR AND ATRIUM WINDOW WALLS ARE CENTERED ON THE MULLION.
      4) ALL PARTITIONS THAT EXTEND FROM EXISTING PARTITIONS ARE TO ALIGN WITH EXISTING CONDITIONS.
      5) WHEN UN-DIMENSIONED PARTITIONS OCCUR IN CONJUNCTION WITH DOORS, THE DOOR WIDTH AND DOOR FRAME DETAILS DETERMINE THE LOCATION OF ADJACENT PARTITIONS AND FRAMES.
      6) ALL VERTICAL DIMENSIONS TO BE ABOVE FINISHED FLOOR (AFF), U.N.O.
      7) UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SCALE THE DRAWINGS TO DETERMINE THE DIMENSIONS. DIMENSIONS ARE SHOWN FROM FACE OF DRYWALL OR GYPSUM BOARD CONSTRUCTION, UNLESS OTHERWISE NOTED.
      8) ARCHITECTURAL DIMENSIONS AND DESIGN INTENT TAKE PRECEDENCE OVER MECHANICAL, ELECTRICAL, OR PLUMBING REQUIREMENTS. NOTIFY DESIGNER OF ANY DISCREPANCY BEFORE PROCEEDING WITH CONSTRUCTION.

2. SITE COORDINATION:
   A. THE GENERAL CONTRACTOR AND EACH TRADE IS RESPONSIBLE FOR REVIEWING AND COORDINATING ALL NEW WORK WITH ALL EXISTING CONDITIONS AND WITH ALL OTHER TRADES. NO FIELD WORK ORDERS WILL BE APPROVED FOR ANY CONDITIONS OR CONFLICTS THAT COULD HAVE BEEN ACCOUNTED FOR BY THE BIDDER DURING BID FIELD INSPECTION AND/OR ANY CONDITIONS OR CONFLICTS THAT COULD HAVE BEEN COORDINATED BY THE GENERAL CONTRACTOR AND EACH TRACED AFTER AWARD OF CONTRACT.
   B. THE GENERAL CONTRACTOR SHALL SURVEY ALL LOCATIONS AND CONDITIONS WHERE WORK IS REQUIRED TO BE ACCESSED FROM ADJACENT TENANT OR BASE BUILDING FLOORS OR SPACES (IE., CORING FOR ELECTRICAL DEVISES OR PLUMBING, ETC.) AND COORDINATED/SCHEDULE ALL WORK WITH THE OWNER AND BUILDING MANAGEMENT.
   C. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING HIS WORK WITH ANY CONTRACTORS AND/OR ITEMS/WORK SUPPLIED BY THE OWNER. COORDINATION SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
      1) INCLUDING AND COORDINATING ANY OWNER'S WORK/ISSUES INTO THE PROJECT SCHEDULE.
      2) ESTABLISHING CRITICAL DATES FOR DELIVERY, INSTALLATION, ETC.
      3) PROVIDE/COORDINATE HOISTING, LOADING DOCK, FREIGHT ELEVATOR, AND TEMPORARY SERVICES.
      4) PROVIDE/COORDINATE ANY/ALL BLOCKING, SUPPORT, BRACING, ETC. AS REQUIRED.
   D. WHERE DESIGN INTENT CANNOT BE DETERMINED FROM THE CONSTRUCTION DOCUMENTS, THE GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE DESIGNER PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.

3. FIRE PROTECTION:
   I. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL FIRE PROOFING REQUIRED BY ANY/ALL CODES, LAWS OR ANY OTHER AUTHORITY HAVING JURISDICTION. FIRE PROOFING SHALL INCLUDE, BUT NOT LIMITED TO THE FOLLOWING:
      1) OPENINGS BETWEEN CONNECTING FLOORS.
      2) WALLS AT RAISED FLOORS OR WHERE SHOWN AND/OR REQUIRED BY CODE.
      3) ALL PIPES, DUCTWORK, SUPPORTS, FRAMING, EQUIPMENT, OR CONDUIT PENETRATING A FIRE-RATED WALL OR FLOOR ASSEMBLY.
      4) FIRE RATED/FULL HEIGHT PARTITIONS AT ADJOINING STRUCTURE TO HAVE FIRE STOPPING.
      5) BEHIND ALL APPLIED WALL FINISHES, PANELS, MILLWORK, ETC.
      6) IN/UNDER ALL APPLIED FLOOR FINISHED, BETWEEN WOOD FLOOR SLEEPERS, ETC.
      7) PATCHING AND/OR ADDING FIRE PROOFING INSULATION TO ALL STRUCTURAL MEMBERS AS REQUIRED FOR BOTH NEW AND EXISTING WORK.
      8) PROVIDE FIRE-RATED CAULK AS REQUIRED AT ALL FIRE-RATED PARTITIONS AS PER U.L. ASSEMBLY.
   B. ALL NON-EXPOSED WOOD, PLYWOOD, WOOD BLOCKING, SHIMMING, FRAMING, ETC. IS TO BE FIRE RETARDANT TREATED.

4. DEMOLITION:
   A. SEE DEMOLITION DRAWINGS PREPARED BY MEP ENGINEERS AND/OR CONSULTANT(S) FOR ADDITIONAL INFORMATION AND REQUIREMENTS FOR DEMOLITION OF ELECTRICAL, HEATING, VENTILATING, AIR CONDITIONING PLUMBING VOICE/DATA, ETC., ITEMS AS WELL AS COORDINATION OF DEMOLITION ITEMS.
   B. PRIOR TO DEMOLITION AND BEFORE SUBMISSION OF PROPOSED METHODS AND SEQUENCES OF OPERATIONS, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN FOR REFERENCE ANY EXISTING RECORD DRAWING AND TO CONDUCT ANY APPROPRIATE FIELD TESTING TO DETERMINE THE NATURE OF THE WORK TO BE REMOVED.
   C. DURING DEMOLITION, ALL STRUCTURES, FURNISHINGS, FINISHES, ETC., WHICH ARE NOT TO BE REMOVED OR ARE TO BE SALVAGED, SHOULD BE CAREFULLY PROTECTED FROM DAMAGE. DAMAGE TO THE EXISTING ITEMS OR SURFACES THAT REMAIN SHALL BE REFINISHED, REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER, BUILDING MANAGEMENT AND DESIGNER AT NO ADDITIONAL COST.
   D. DURING REMOVAL OF ITEMS INDICATED TO BE SALVAGED, PROTECTION AND CAUTION SHALL BE USED TO ELIMINATE THE POSSIBILITY OF DAMAGE TO SUCH ITEMS. ALL SALVAGED AND/OR REUSABLE ITEMS SALVAGED DURING DEMOLITION OPERATIONS SHALL BE REMOVED AND RETAINED FOR LATER REINSTALLATION. ITEMS INSPECTED AND REJECTED BY THE OWNER OR DESIGNER SHALL BE DISPOSED BY THE GENERAL CONTRACTOR.
   E. FIELD-VERIFY ALL CONDITIONS AND DIMENSIONS AND NOTIFY DESIGNER OF ANY DEVIATION BEFORE PROCEEDING WITH DEMOLITION.
   F. THE GENERAL CONTRACTOR SHALL PROVIDE AS REQUIRED THE MEANS AND METHODS TO MAINTAIN APPROPRIATE VENTILATION, LIGHTING AND SAFETY, ETC. THROUGHOUT THE DEMOLITION PROCESS. GENERAL CONTRACTOR TO VERIFY/COORDINATE WITH BUILDING MANAGEMENT ALL MEANS AND METHODS.
   G. ANY DEMOLITION OR REMOVAL INDICATED IS SHOWN IN GENERAL TO PROVIDE THE EXTENT OF DEMOLITION AND IS NOT TO BE CONSIDERED A RECORD DRAWING OF EXISTING CONDITIONS.
   H. THE GENERAL CONTRACTOR SHALL SUBMIT A SCHEDULE OF METHODS AND OPERATIONS OF DEMOLITION FOR THE OWNER'S REVIEW FOR ALL DEMOLITION AND REMOVAL WORK. INCLUDE IN THE SCHEDULE THE COORDINATION REQUIRED WITH THE BUILDING MANAGEMENT, ALL TRADES FOR SHUTOFF, CAPPING OR REROUTING OF UTILITIES, THE CONSTRUCTION OF ANY TEMPORARY UTILITY LINES, AND PROTECTIVE MEASURES.
   I. SHOULD GENERAL CONTRACTOR OR ITS SUBCONTRACTORS ENCOUNTER, EXPOSE OR IN ANY WAY BECOME AWARE OF THE PRESENCE OF HAZARDOUS OR QUESTIONABLE MATERIALS ASSOCIATED WITH THIS PROJECT, G.C. SHALL STOP WORK IN THE IMMEDIATE AREA OF DISCOVERY AND NOTIFY OWNER OF ITS FINDINGS. G.C. SHALL NOT DISTURB OR CONTINUE WORK ON OR NEAR MATERIALS IN QUESTION UNTIL RECEIVING FURTHER DIRECTION FROM OWNER.

5. SHOP DRAWINGS
   A. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL CUSTOM FABRICATION AND PHYSICAL SAMPLES OF ALL SPECIFIED FINISH MATERIALS TO THE DESIGNER FOR REVIEW AND APPROVAL BY OWNER AND TENANT.
   B. SUBMITTAL SHALL BE REVIEWED FOR GENERAL COMPLIANCE WITH CONSTRUCTION DOCUMENTS.
   C. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AFFECTING OR AFFECTED BY THIS SUBMITTAL. CONDITIONS TO INCLUDE: DIMENSIONS, CLEARANCES, AND QUANTITIES AND CONDITIONS OF INSTALLATION. CONTRACTOR SHALL INFORM DESIGNER OF ANY CONFLICTS PRIOR TO INITIATING SHOPS. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL WORK AND TRADES REQUIRED FOR THE SUBMITTAL.
   D. DESIGNER SHALL CHECK SHOPS AND SCHEDULES FOR CONFORMANCE TO THE INFORMATION GIVEN WITHIN THE CONSTRUCTION DOCUMENTS. DESIGNER ASSUMES NO RESPONSIBILITY FOR DRAWINGS, SCHEDULES, AND/OR SPECIFICATIONS PREPARED BY OTHERS.
   E. DESIGNER SHALL RETURN SUBMITTALS TO THE CONTRACTOR UPON COMPLETION OF REVIEW.

6. BUILDING STANDARDS
   A. ALL COMPONENTS, MATERIALS, FINISHES AND PRODUCTS NOTED AS BUILDING STANDARD HAVE BEEN PRESELECTED OR REQUIRE OWNER APPROVAL TO INSURE THE UNIFORMITY OF ALL TENANT FINISH PROJECTS WITHIN THE BASE BUILDING. THESE INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO: WALL TYPES, CEILING GRID AND TILE, PAINT, CARPET, VINYL TILE, DOORS AND FRAMES, AND HARDWARE.
   B. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THESE BUILDING STANDARDS AND USE THEM AS A BASIS FOR HIS BID.

7. PARTITIONS:
   A. WHEN ACOUSTICAL INSULATION IS SPECIFIED FOR SOUND ATTENUATING PARTITIONS, ANY EXPOSED INSULATION IN A RETURN AIR PLENUM TO BE FACED WITH NON-COMBUSTIBLE MATERIAL, AS PERMITTED BY CODE.
   B. ALL WALLS EXTENDING TO CEILING BUT NOT TO STRUCTURE SHALL HAVE METAL CROSS-BRACING PROVIDED AND INSTALLED BY CONTRACTOR AT 8'-0" O.C.
   C. FLOOR TO STRUCTURE PARTITIONS:
      1) PROVIDE AND INSTALL DRYWALL SLIP AND CONTROL JOINTS OVER ANY BUILDING EXPANSION JOINTS AS RECOMMENDED BY THE BUILDING STRUCTURAL ENGINEER.
      2) PROVIDE FOR PLENUM RETURN AIR FLOW AT ANY FLOOR TO STRUCTURE PARTITION, AS REQUIRED BY THE PROJECT MECHANICAL ENGINEER.
   D. FLOOR TO CEILING ACOUSTICAL PARTITIONS:
      1) PROVIDE AND INSTALL NON-COMBUSTIBLE, FACED, PLENUM RATED ACOUSTICAL BATT INSULATION FOR ANY ACOUSTICAL PARTITIONS NOTED TO RECEIVE ABOVE CEILING LAY-OVER INSULATION OR ANY OTHERWISE EXPOSED ABOVE-CEILING ACOUSTICAL INSULATION.
   E. WALL MOUNTED ACCESSORIES AND MILLWORK:
      1) ANY BLOCKING REQUIRED FOR MILLWORK OR SUPPORT OF WALL MOUNTED ACCESSORIES SHALL BE NON-COMBUSTIBLE SOLID WOOD BLOCKING.
   F. EXTERIOR WINDOW MULLION, EXTERIOR WALL PARTITION AND CONVECTOR CONNECTIONS:
      1) UNLESS NOTED OTHERWISE, CENTER NEW PARTITIONS ON EXTERIOR WINDOW MULLIONS. ALL INTERIOR PARTITIONS SHALL BE CONNECTED TO EXTERIOR WINDOW MULLIONS, INCLUDING ANY GAPS BETWEEN THE WINDOW MULLION AND INTERIOR STRUCTURAL COLUMNS, WHERE PLANS SHOW AN INTERIOR PARTITION CONNECTED TO A STRUCTURAL COLUMN. ALL CONNECTIONS TO THE EXTERIOR WINDOW MULLION SHALL MATCH BUILDING STANDARD OR EXISTING PARTITION CONNECTION TO EXTERIOR WINDOW MULLIONS; HOWEVER, UNDER NO CIRCUMSTANCE, SHALL MECHANICAL CONNECTORS BE USED ON AN EXTERIOR WINDOW MULLION.
      2) PROVIDE A SLIP JOINT AT ALL INTERIOR DRYWALL PARTITION CONNECTIONS TO EXTERIOR WALLS UNLESS OTHERWISE DIRECTED BY THE OWNER.
      3) THE CONTRACTOR SHALL PROVIDE AN ACOUSTICAL BARRIER AT THE INTERSECTION OF THE DRYWALL PARTITION AND THE BASEBOARD HEATING OR CONVECTOR FOR INTERIOR SPACES WITH EXTERIOR WALL BASEBOARD HEATING OR UNIT CONVECTION INTERRUPTED BY DRYWALL PARTITIONS, AS APPROVED BY THE OWNER.
   G. SLAB-ON-GRADE IMPROVEMENTS:
      1) THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND PROVIDING FOR ANY SPECIAL STRUCTURAL CONDITIONS REQUIRING OR AFFECTING THE PROPOSED DESIGN OR METHODS OF CONSTRUCTION FOR THE PROJECT.
      2) THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATION OF BUILDING ISOLATION, EXPANSION AND CONTROL JOINTS AND FOR PROVIDING SLIP JOINTS, CONTROL AND EXPANSION JOINTS AS MAY BE REQUIRED TO ALLOW FOR FLOOR SLAB OR OTHER DIFFERENTIAL MOVEMENT WITHIN THE BASE BUILDING'S DESIGN ALLOWANCES OR CONDITIONS, AS A MINIMUM.
         a. SLIP JOINTS AT THE INTERSECTION OF ANY INTERIOR PARTITIONS AND EXTERIOR PERIMETER WALLS, STRUCTURE AND OTHER BASE BUILDING ELEMENTS ON FOUNDATIONS AND NOT SUBJECT TO SOILS MOVEMENT.
         b. BASE SLIP JOINTS FOR DRYWALL FURRING SHALL BE PROVIDED IN EXTERIOR PERIMETER WALLS AND OTHER BASE BUILDING ELEMENTS ON FOUNDATIONS NOT SUBJECT TO SOILS MOVEMENT, WHICH ARE ABUTTING FLOOR SLAB CONDITIONS SUBJECT TO STRUCTURAL MOVEMENT. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY REQUIRED PROVISIONS FOR FURRING AT BASE BUILDING DOORS AND WINDOW SUBJECT TO MOVEMENT DUE TO SOILS EXPANSION.
         c. INTERIOR WALL EXPANSION AND/OR CONTROL JOINTS AS REQUIRED OVER SLAB OR STRUCTURAL WALL EXPANSION OR CONTROL JOINTS SUBJECT TO DIFFERENTIAL MOVEMENT.
         d. INDEPENDENTLY SUSPENDED CEILING GRID EDGE ANGLES AT ANY CONDITIONS, WHERE CEILING ABUTS INTERIOR PARTITIONS SUBJECT TO SOILS MOVEMENT. SIMILAR FOR SUSPENDED DRYWALL SOFFITS, FASCIAL AND CEILINGS.
         e. CONTROL OR EXPANSION JOINTS AT ANY INTERSECTIONS OF PARTITIONS AND SUSPENDED FROM STRUCTURE ABOVE. ANY DRYWALL SOFFITS AND FASCIA SHALL BE INDEPENDENTLY SUSPENDED FROM THE STRUCTURE ABOVE AND EXTEND 6" MINIMUM ABOVE ANY ABUTTING SUSPENDED CEILING TREATMENTS.
         f. PROVIDE AND INSTALL CONTROL JOINTS ON BOTH SIDES OF DOOR JAMBS IN ALL INTERIOR PARTITIONS. EXCEPT AS OTHERWISE APPROVED IN WRITING, ALL DOOR FRAMES FOR SLAB ON GRADE CONSTRUCTION SHALL BE RIGID HOLLOW METAL.
   H. DRYWALL CEILING, FASCIAS AND SOFFITS:
      1) EXCEPT AS OTHERWISE NOTED, DRYWALL CEILINGS, FASCIAS AND SOFFITS SHALL BE 5/8" DRYWALL FRAMED OR SUSPENDED AND INSTALLED AS RECOMMENDED BY THE DRYWALL MANUFACTURER FOR SPECIFIC APPLICATION.
   I. DRYWALL PREPARATION AND FINISH:
      1) TAPE ALL DRYWALL JOINTS AND INTERIOR CORNERS, UNLESS OTHERWISE NOTED. TAPE SHALL BE AS RECOMMENDED BY DRYWALL MANUFACTURER AND EMBEDDED IN DRYWALL MANUFACTURER'S RECOMMENDED JOINT COMPOUND AND WIPED WITH A JOINT KNIFE, LEAVING A THIN COAT OF COMPOUND OVER THE TAPE. PROVIDE AND INSTALL BEADED METAL TRIM, AS RECOMMENDED BY THE DRYWALL MANUFACTURER AT ALL CORNERS AND DRYWALL TERMINATIONS.
      2) ALL DRYWALL ACCESSORIES AND/OR FASTENERS SHALL BE COVERED BY THREE (3) SEPARATE COATS OF JOINT COMPOUND. JOINT COMPOUND SHALL BE FINISHED SMOOTH AND FREE OF TOOL MARKS, RIDGES OR OTHER IRREGULARITIES.
      3) PREPARE AND APPLY TO DRYWALL SURFACES WITH AND APPROVED DRYWALL PRIMER PRIOR TO APPLICATION OF THE SPECIFIED FINAL WALL FINISH.

8. DOORS:
   A. DOORS SHALL CONFORM TO AWI CUSTOM GRADE STANDARDS AND BE FREE FROM SCRATCHES OR IRREGULARITIES. DOORS TO BE SOLID CORE FLUSH WOOD FACE MATERIAL CONSTRUCTION WITH SUITE STANDARD FINISH, U.N.O.
   B. FRAMES TO MATCH SUITE STANDARD, U.N.O. FRAMES SHALL BE FREE FROM SCRATCHES OR IRREGULARITIES.
   C. ALL DOORS AND FRAMES SHALL BE INSTALLED PER MANUFACTURER INSTRUCTIONS AND SHALL BE PLUMBED, ALIGNED, AND SECURED PERMANENTLY WITHIN THE OPENING. CONTRACTOR SHALL REPLACE ANY DOORS, FRAMES, OT TRIM DAMAGED BEYOND SATISFACTORY TOUCH UP AT NO COST TO THE OWNER.
   D. ALL ADJACENT RE-USED AND NEW DOORS TO MATCH IN FINISHED APPEARANCE.
   E. PARTITIONS OVER DOORS SHALL BE CONTINUOUS AND THE SAME AS ADJACENT WALLS WHERE DRYWALL CONTINUES TO STRUCTURE ABOVE, OR ABOVE CEILING, TYPICAL UNLESS NOTED OTHERWISE.
   F. UNLESS NOTED OTHERWISE, ALL HINGE SIDES DOOR FRAMES ADJACENT TO A PERPENDICULAR PARTITION AND/OR ANGLED PARTITION ARE TO BE 4" FROM OUTSIDE EDGE OF DOOR FRAME TO FINISH FACE OF THE PARTITION OR TO MATCH EXISTING CONDITIONS.

9. HARDWARE
   A. ADA COMPLIANT LEVER STYLE HARDWARE SETS AND DELAYED ACTION CLOSERS TO BE APPROVED AT ALL DOORS TO OR FROM PUBLIC AREAS.
   B. HARDWARE SCHEDULE SHALL BE PREPARED AND PROVIDED BY HARDWARE SUPPLIER. SCHEDULE TO INCLUDE TEMPLATES FOR ALL DOOR AND FRAME PENETRATIONS. SUBSTITUTION REQUESTS SHALL BE ACCOMPANIED BY CUT SHEETS.
   C. HARDWARE FINISH TO BE BUILDING OR SUITE STANDARD, U.N.O. DOOR CLOSERS TO MATCH EXISTING. WEATHER/SOUND STRIPPING AND/OR SMOKE SEALS SHALL BE FULL HEIGHT OF BOTH JAMBS AND FULL WIDTH OF HEAD.
   D. HARDWARE MANUFACTURER'S REPRESENTATIVE SHALL INSPECT AND ADJUST ALL DOOR CLOSERS, LOCKS, AND ALL ITEMS REQUIRING ADJUSTMENT PRIOR TO FINAL INSPECTION. ALL KEYING TO BE BY OWNER.
   E. GENERAL CONTRACTOR TO COORDINATE ANY/ALL HARDWARE REQUIRING ELECTRICAL POWER (BOTH HIGH AND LOW VOLTAGE) WITH HARDWARE SUPPLIER/MANUFACTURER, INSTALLER, MILLWORKER, ELECTRICAL AND SECURITY CONTRACTORS.

10. GLAZING:
   A. ALL INTERIOR GLASS TO BE 1/4" THICK, CLEAR FLOAT GLASS, CLEAN AND FREE FROM SCRATCHED AND IRREGULARITIES, UNLESS NOTED OTHERWISE, REQUIRED BY CODE, OR RECOMMENDED BY MANUFACTURER FOR THE INDICATED APPLICATION.
   B. CLEAR FLOAT GLASS TO BE TYPE I, CLASS I; FIRE RATED GLASS SHALL BE TYPE II, CLASS I; LAMINATED SAFETY GLASS SHALL BE (2) LAYERS OF GLASS COMPLIANT WITH CURRENT ANSI SPECIFICATIONS.
   C. FIELD MEASURE ALL FRAME OPENINGS PRIOR TO FABRICATION AND SUPPLY GLASS AS REQUIRED FOR OPENINGS PROVIDED. PROVIDE EDGE CLEARANCES AND TOLERANCES AS RECOMMENDED BY MANUFACTURER.
   D. EXPOSED BUTT JOINTS NOT EXCEED 1/8" WITH FLAT GROUND AND POLISHED EXPOSED EDGES. DO NOT INSTALL WITH EDGE DAMAGE OR DEFECTS.
   E. RAZOR TRIM AND ENSURE THAT ALL EXPOSED SEALANT IS CLEAR AND FREE OF ALL BUBBLES AND IRREGULARITIES. ALL ADDITIONAL PRODUCTS INCLUDING SPACERS, SETTING BLOCKS, AND SEALANT SHALL BE COMPATIBLE WITH ALL ADJACENT SURFACES THAT ARE IN CONTACT WITH SEALANT. REJECTION OF WORK AND INSTALLATION SHALL OCCUR DUE TO ANY SCRATCHING OF GLASS THROUGH NON-COMPLIANCE. ALL COMPONENTS TO BE AS RECOMMENDED BY MANUFACTURER FOR THE INDICATED APPLICATION.
   F. ALL FRAMING MEMBERS TO RECEIVE GLASS INCLUDING CHANNELS SHALL BE CLEANED IMMEDIATELY PRIOR TO RECEIVING GLAZING. CONTRACTOR TO PROTECT GLASS FROM CONTACT WITH CONTAMINATING SUBSTANCES DUE TO CONSTRUCTION, REMOVE ANY CONTAMINANTS BY APPROVED METHODS FROM THE GLASS MANUFACTURER, AND VERIFY THAT NEW MATCHES EXISTING.

11. MILLWORK:
   A. MILLWORK SHALL BE AWI CUSTOM GRADE FLUSH CONSTRUCTION, U.N.O.
   B. SOLID BLOCKING SHALL BE PROVIDED IN PARTITIONS BEHIND ALL WALL MOUNTED MILLWORK, SHELVING, CABINETS, AND WALL STOPS WHERE UNABLE TO ATTACH DIRECTLY TO STUDS.
   C. SHOP DRAWINGS SHALL BE PROVIDED BY CONTRACTOR AND SHALL SHOW THE LOCATION AND FIELD VERIFIED DIMENSIONS OF EACH ITEM IN PLAN AND ELEVATION WITH LARGE SCALE SECTIONS AND DETAILS WITH THE LOCATIONS OF INTERNAL AND FIELD JOINTS, ATTACHMENT DEVICES, PLASTIC LAMINATE OR VENEER JOINTS, AND ANY COMPONENTS AND/OR HARDWARE AS REQUESTED BY OWNER. OWNER SHALL REVIEW SHOP DRAWINGS FOR SIZE AND CONFIGURATION OF MILLWORK. DESIGNER SHALL REVIEW SHOPS FOR CONFORMITY WITH CONSTRUCTION DOCUMENTS. CONTRACTOR ASSUMES ALL RISK ASSOCIATED WITH FABRICATION DONE PRIOR TO SHOP DRAWING APPROVAL.
   D. OWNER REQUESTED SAMPLES OF SPECIFIED STAIN, FINISH, HARDWARE, AND TYPICAL DETAIL TREATMENTS SHALL BE PROVIDED BY CONTRACTOR PRIOR TO FABRICATION.
   E. FIELD VERIFICATION AND REVIEW OF CONTRACT DOCUMENTS FOR ALL PROPOSED AND EXISTING CONDITIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. TO INCLUDE APPLICABLE DIMENSIONS AND CLEARANCES ASSOCIATED WITH MILLWORK INSTALLATION. CONTRACTOR SHALL ADVISE THE DESIGNER OF ANY DISCREPANCIES, CONFLICTS, OR OMISSIONS PRIOR TO FABRICATION.
   F. PROVIDE GROMMET HOLES WITH COVER PLATE WHERE INDICATED ON DRAWINGS. EXACT LOCATIONS TO BE SHOWN/NOTED ON MILLWORK SHOP DRAWINGS U.O.N.
   G. GENERAL CONTRACTOR TO COORDINATE LOCATIONS OF ELECTRICAL AND VOICE/DATA DEVICES, PLUMBING, ETC., MOUNTED WITHIN AND/OR ON MILLWORK WITH ELECTRICAL, PLUMBING, AND MILLWORK CONTRACTORS.
   H. PROVIDE FINISHED SCRIBE STRIPS AND FINISHED MILLWORK EDGES TO CREATE A FINISHED REVEAL CONDITION WHERE MILLWORK COUNTERS, CABINETS, ETC/ ABUT ADJACENT CONSTRUCTION, TYPICAL UNLESS NOTED OTHERWISE. ALL EXPOSED REVEAL SURFACES AND EDGES TO HAVE MATCHING COLOR AND FINISH.

12. CEILING:
   A. SEE ENGINEERING AND/OR CONSULTANT(S) DRAWINGS FOR QUANTITY AND LOCATION OF ALL EXIT AND EMERGENCY LIGHTS, THERMOSTATS, SPRINKLER HEADS, LIFE SAFETY SPEAKERS, AND DIFFUSER GRILLES, TYPICAL UNLESS NOTED OTHERWISE.
   B. CONTRACTOR SHALL INSTALL ALL NEW GRID AND TILE PLUMB PER MANUFACTURER'S RECOMMENDATION.
   C. CONTRACTOR SHALL REPLACE OR REPAIR ANY DAMAGED, DISCOLORED, SCUFFED, SOILED, OR UNMATCHING TILES IN CONTIGUOUS AREAS. CONTRACTOR SHALL GROUP EXISTING MATCHING TILES IN ADJACENT AREAS AS DIRECTED BY OWNER. CONTRACTOR SHALL CUT TILES OVER CENTERS OF PARTITIONS AS REQUIRED TO PRODUCE UNIFORMITY WITHIN ROOMS.
   D. CONTRACTOR SHALL REPLACE EXISTING DAMAGED GRID, TO INCLUDE SCREW HOLES AND/OR IRREGULARITIES, WHERE GRID IS TO REMAIN.
   E. ALL MATERIALS ABOVE CEILING MUST BE NON-COMBUSTIBLE. LOOSE OR UN-FACED INSULATION SHALL NOT BE INSTALLED IN THE RETURN AIR PLENUM.
   F. CONTRACTOR SHALL HAVE MECHANICAL AND ELECTRICAL SUBCONTRACTORS SURVEY EXISTING CONDITIONS AND PROVIDE BIDS ON ANY MODIFICATIONS TO EXISTING SYSTEMS WHICH ARE NECESSARY TO ACCOMMODATE PROPOSED WORK.
   G. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL REQUIRED CONDUITS, PULL BOXES, HOME RUNS, WALL JUNCTION BOXES, PLASTER RINGS, ETC. FOR INSTALLATION OF ALL VOICE/DATE DEVICES, CABLES, SECURITY DEVICES, ETC., TYP. UNLESS NOTED OTHERWISE. GENERAL CONTRACTOR TO COORDINATE.
   H. CONTRACTOR SHALL PROVIDE FIRE PROTECTION SPRINKLER PLANS AS REQUIRED. PLANS SHALL BE PREPARED BY A QUALIFIED ENGINEER FOR APPROVAL BY OWNER.
   I. ALL LIGHT FIXTURES, LIFE SAFETY DEVICES AND SPRINKLER HEADS SHALL BE LOCATED IN THE CENTER OF A CEILING TILE IN BOTH DIRECTIONS AND SHALL ALSO ALIGN WITH ADJACENT FIXTURES, DEVICES OR HEADS IN A RUN OR ROW, TYPICAL UNLESS NOTED OTHERWISE.
   J. THERE SHALL BE NO LIGHT FIXTURE SUBSTITUTIONS WITHOUT WRITTEN APPROVAL BY DESIGNER AND/OR ELECTRICAL ENGINEER.
   K. ALL EXIT LIGHTS/SIGNS TO MATCH BASE BUILDING UNLESS NOTED OTHERWISE.
   L. ALL DIMENSIONS INDICATING LIGHT SWITCH AND/OR ANY OTHER DEVICE LOCATIONS ARE TO THE CENTER LINE OF SWITCHES AND/OR DEVICES, UNLESS NOTED OTHERWISE.
   M. IF ALLOWED BY CODE, LAW, ETC., PROVIDE ALL LIFE SAFETY DEVICES, SPRINKLER HEADS, ETC. WITH COLOR AND FINISH TO MATCH ADJACENT CONSTRUCTION COLOR AND FINISH.

ELECTRICAL:
   A. ALL ELECTRICAL LIGHTING, OUTLETS, DEVICES AND OTHER EQUIPMENT ARE SHOWN FOR LOCATION PURPOSES ONLY. REFER TO ENGINEERING DOCUMENTS FOR TECHNICAL SPECIFICATIONS AND/OR FOR SCOPE/PERFORMANCE SPECIFICATIONS.
   B. VERIFY WITH THE DESIGNER THE LOCATION OF REMOTE POWER PANELS, DISCONNECT SWITCHES, SPECIAL PANELS, DISCONNECT SWITCHES, ALARMS OR ANY DEVICE EXPOSED TO VIEW AND NOT SHOWN ON THE ARCHITECTURAL DRAWINGS. INSTALLER TO SUBMIT CATALOGUE CUT OF SAME TO THE DESIGNER FOR DESIGN APPROVAL ONLY.
   C. GENERAL CONTRACTOR TO COORDINATE LOCATIONS OF FLOOR PENETRATIONS WITH LAYOUT OF WALL PARTITIONS. ALL CORING LOCATIONS TO BE APPROVED BY THE OWNER, BUILDING ARCHITECT AND BUILDING STRUCTURAL ENGINEER. ALL PLUMBING, SYSTEMS FURNITURE AND FLOOR MONUMENT CORING LOCATIONS TO BE CHALK MARKED AND REVIEWED WITH THE DESIGNER BEFORE CORING. SHOULD ANY CORE INTERFERE WITH EXISTING BUILDING STRUCTURAL, ELECTRICAL, HVAC OR SPRINKLER LINE LOCATIONS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE DESIGNER IMMEDIATELY SO THAT THE CORE CAN BE APPROPRIATELY RELOCATED.
   D. DEVICES MOUNTED IN WALLS SHALL NOT BE INSTALLED BACK TO BACK BUT INSTEAD SHOULD BE STAGGERED BACK TO BACK. BACK AND SIDES OF ALL OUTLET ROUGH-IN BOXES SHALL BE SEALED WITH ACOUSTICAL SEALANT.
   E. GENERAL CONTRACTOR TO COORDINATE LOCATIONS OF ELECTRICAL AND TELEPHONE OUTLETS MOUNTED ABOVE MILLWORK COUNTERS AND WITHIN MILLWORK CABINETS WITH MILLWORK CONTRACTOR.
   F. GENERAL CONTRACTOR TO COORDINATE LOCATION OF WHIPS AND JUNCTION BOXES FOR ELECTRICAL SERVICE AT MILLWORK FOR TASK LIGHT FIXTURES, EQUIPMENT, DEVICES, ETC. WITH ALL OTHER TRADES, TYPICAL. WHIPS MUST NOT BE EXPOSED TO VIEW OR HANG BELOW MILLWORK, ETC.
   G. ALL DEVICES AND/OR SWITCHES ARE TO BE GANGED WITH A SINGLE DEVICE AND/OR SWITCH COVER PLATE WITH ENGRAVED TEXT AS SELECTED BY DESIGNER, TYPICAL UNLESS NOTED OTHERWISE. GENERAL CONTRACTOR TO SUBMIT SH

1ST FLOOR

AFFECTED SQUARE FOOTAGE: 1,241 S.F.

OCCUPANT LOAD FACTOR: 240 SF/OCCUPANT (INPATIENT)

OCCUPANT LOAD: 1,241 S.F./240 = 5 OCCUPANTS

FIRE PROTECTION: EXISTING BUILDING IS FULLY SPRINKLERED. AREAS AFFECTED BY THE WORK UNDER THIS CONTRACT SHALL MAINTAIN FIRE PROTECTION SYSTEM AND BE FULLY SPRINKLERED ON COMPLETION.

EXITS: 10 EXITS ON THE FIRST LEVEL
8'-0" WIDE EXIT ACCESS CORRIDORS

FIRE RATED WALL ASSEMBLIES WILL BE NOT BE MODIFIED.

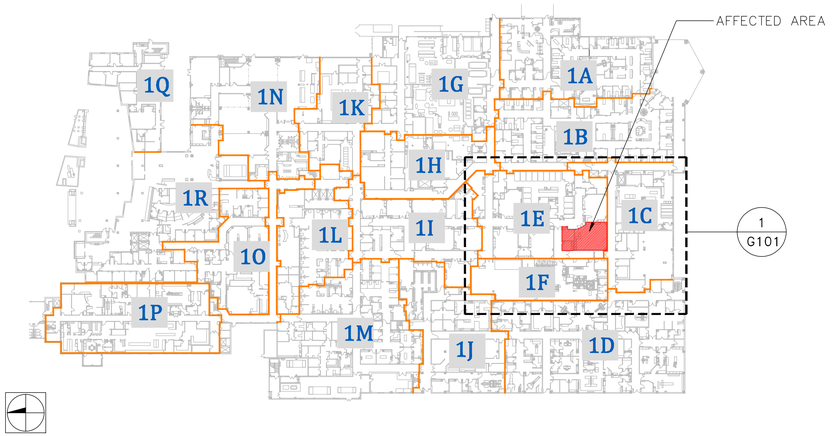
CODE INFORMATION SUMMARY

CONSTRUCTION TYPE: I-A TYPE IBC / I(332) NFPA
STEEL STRUCTURE WITH SPRAY FIRE-PROOFING AND CONCRETE STRUCTURE
FIVE STORY BUILDING

OCCUPANCY CLASSIFICATION: IBC - GROUP I-2 HOSPITAL
NFPA - HEALTHCARE OCCUPANCY

FULLY SPRINKLED

SMOKE COMPARTMENT - KEY PLAN



SMOKE COMPARTMENT - KEY PLAN AREAS

1A	11,964 SQ FT	1G	13,464 SQ FT	1M	17,640 SQ FT
1B	13,178 SQ FT	1H	8,719 SQ FT	1N	13,572 SQ FT
1C	10,250 SQ FT	1I	8,334 SQ FT	1O	8,457 SQ FT
1D	19,537 SQ FT	1J	12,003 SQ FT	1P	12,476 SQ FT
1E	12,575 SQ FT	1K	7,434 SQ FT	1Q	3,933 SQ FT
1F	8,732 SQ FT	1L	8,836 SQ FT	1R	16,810 SQ FT

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: John Lichtner
Date: Jan 23, 2020
2015 INTERNATIONAL CODES & 2017 NEC

SEPARATE FIRE ALARM PERMIT REQUIRED:
Due to the proposed work the general contractor is required to obtain the services of a fire alarm contractor to determine if a separate alarm permit is required. If it is determined that the spacing of the fire alarm devices is not in compliance, then a separate fire alarm permit is required. Approval of the documents is required prior to system installation or any request for inspection. A certificate of occupancy or final approval cannot be issued by the Building Division without this fire protection system. **2015 IFC, Section 105.7.6.**

SEPARATE FIRE SPRINKLER PERMIT REQUIRED:
Due to the proposed work the general contractor is required to obtain the services of a fire sprinkler contractor to determine if a separate sprinkler permit is required. If it is determined that the spacing of the fire sprinkler heads is not in compliance, then a separate fire sprinkler permit is required. Approval of the documents is required prior to system installation or any request for inspection. A certificate of occupancy or final approval cannot be issued by the Building Division without this fire protection system. **2015 IFC, Section 105.7.1.**

LEGEND

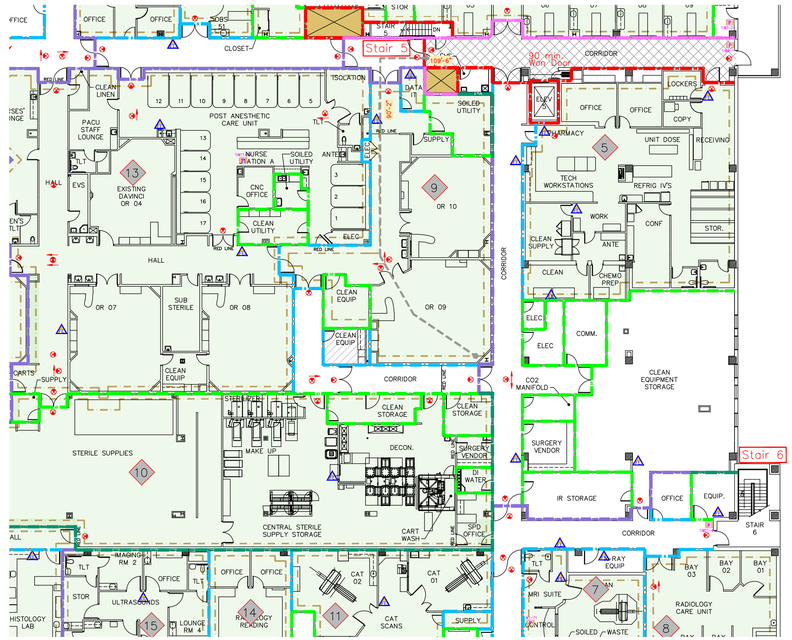
- SMOKE PARTITION
- 1 HOUR SMOKE BARRIER FOR COMPARTMENTATION
- 1 HOUR FIRE BARRIER
- 1 HOUR FIRE/SMOKE BARRIER
- 2 HOUR FIRE BARRIER
- 2 HOUR FIRE/SMOKE BARRIER
- SMOKE COMPARTMENT DESIGNATION
- F - PULL STATION
- EXIT SIGN
- FIRE EXTINGUISHER
- X - NON-SLEEPING SUITE
- SUITE BOUNDARY SEPARATION
- CHUTES & SHAFTS
- EXIT PASSAGEWAY
- UNOBSTRUCTED COURSE & DISTANCE TRAVEL OF THE MOST REMOTE LOCATION TO THE NEAREST AREA OF REFUGE - 90'-2" TO A NEAREST EXIT - 109'-6".

LIFE SAFETY GENERAL NOTES:

A. FIRE ALARM VENDOR TO PROVIDE SMOKE DETECTION WITH TOTAL COVERAGE (COMPLETE) AUTOMATIC SMOKE DETECTION SYSTEM.
B. HVAC SYSTEM WILL BE ISOLATED TO PREVENT CONTAMINATION OF DUCT SYSTEM DURING CONSTRUCTION.
C. NO EGRESS PATHWAY WILL BE OBSTRUCTED DURING CONSTRUCTION.
D. NO ADJACENT TENANT SPACES WILL BE AFFECTED DURING THE COURSE OF CONSTRUCTION.
E. CONTRACTOR TO PERFORM FIRE WATCH THROUGHOUT THE COURSE OF CONSTRUCTION.
F. A CONTRACTOR PROVIDED, CERTIFIED FIRE EXTINGUISHER WILL BE REQUIRED ON SITE, INSIDE CONTAINMENT.
G. EXISTING SHAFTS, STAIRS, AND ELEVATORS ARE TO REMAIN WITHOUT MODIFICATION.
H. FIRE ALARM SYSTEMS WILL INCLUDE NEW PLAN & INSTALLATION FROM LICENSED FIRE ALARM VENDOR.
I. FIRE RATED WALL ASSEMBLIES TO BE UPGRADED AS NEEDED TO MEET CURRENT CODES.

SUITE - AREA KEY NOTES (PARTIAL)

- 5 - 3,446 SQ FT
- 9 - 3,135 SQ FT
- 10 - 5,933 SQ FT
- 13 - 8,682 SQ FT





1 G101 ENLARGED PLAN
SCALE: NTS'

The Medical Center of Aurora
Health ONE

HYBRID OR 9 / DISCOVERY IGS

MEDICAL CENTER OF AURORA
1501 S. POTOMAC ST.
AURORA, CO 80012

SOUTH CAMPUS

TOM THOMPSON ARCHITECT
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STATE OF COLORADO
TOM THOMPSON
305692
01.14.20
LICENSED ARCHITECT

PROJECT NO.: 190318

DRAWN BY: TH, BEPS
CHECKED BY: TT
SCALE: NTS
DATE: 01.14.2020
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
CODE COMPLIANCE PLAN

SHEET NO.:
G101

DWG FILENAME: HYBRID OR 9 SHEET SIZE: 36" x 24"

INTERIOR DESIGN MATERIAL ABBREVIATIONS	
AP	ACRYLIC PANEL
B	WALL BASE
CPT	CARPETING
CST	COLUMN STONE VENEER
CT	CERAMIC TILE
GT	GROUT
GB	GRAB BAR
HD	HARDWARE
LT	LIGHTING
M	MIRROR
MD	MOULDING
OS	ORNAMENTAL SCREEN
PL	PLASTIC LAMINATE
PT	PAINT
QT	QUARRY TILE
RB	RUBBER WALL BASE
S	SOAP DISPENSER (LIQUID)
SC	SEALED CONCRETE
SN	SANITARY NAPKIN
SS	SOLID SURFACING
ST	STONE
SV	VINYL SHEET FLOORING
T	PAPER TOWEL DISPENSER
TP	TOILET PARTITION
TR	TRIM (DOOR)
VCT	VINYL COMPOSITE FLOOR TILE
WC	WALL COVERING
WF	WOOD FLOORING
WST	WOOD STAIN

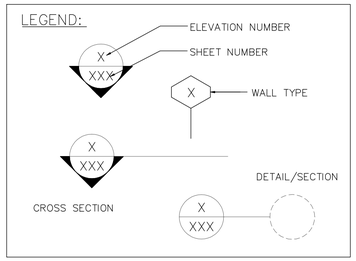
INT. DESIGN MATERIAL DESCRIPTION	
AP-1	ACRYLIC PANEL
B-1	STONE BASE TRIM
B-2	RUBBER BASE TRIM
B-3	WOOD BASE TRIM
CPT-1	CARPET
CPT-4	CARPET BORDER
CT-1	CERAMIC FLOOR TILE
CT-2	CERAMIC WALL TILE
CT-3	CERAMIC WALL TILE ACCENT
CT-5	CERAMIC TILE LINER
DR-1	SOLID CORE WOOD DOOR
DR-2	DOOR
GB-1	GRAB BAR 1.5" X 36"
GB-2	GRAB BAR 1.5" X 42"
GL-1	DECORATIVE GLASS WINDOW
GL-2	CUSTOM ETCHED GLASS WINDOW
GT-1	GROUT
GT-2	GROUT
LT-1	CUSTOM LIGHT SCONCE
LT-2	2 LIGHT BATH BAR
LT-3	ACCENTS LIGHT OVER CENTER TABLES
LT-4	ACCENT PENDANT LIGHTS
LT-5	GOOSENECK LIGHTS
LT-6	EXTERIOR COACH LIGHT
M-1	COUNTER LENGTH MIRROR
M-2	DECORATIVE OVAL MIRROR
MD-1	BASE MOULDING
MD-2	CHAIR RAIL MOULDING
MD-3	CROWN MOULDING
MD-4	DOOR SURROUND TRIM
MD-5	PLINTH MOULDING
MD-6	WOOD TRIM
MD-7	SMALL CROWN MOULDING
OS-1	ORNAMENTAL SCREEN
PL-1	PLASTIC LAMINATE
PL-2	PLASTIC LAMINATE
PT-1	PAINT
PT-2	PAINT
S-1	SOAP DISPENSER
S-2	SOAP DISPENSER
SC	SEALED CONCRETE FLOOR
SF-1	VINYL SHEET FLOORING
SN	SANITARY NAPKIN
SS-1	SOLID SURFACE COUNTERTOP
ST-1	MARBLE
ST-2	MARBLE
ST-3	FAUX CULTURED BRICK
T-1	PAPER TOWEL DISPENSER
W-1	WASTE RECEPTACLE
TP-1	TOILET PARTITIONS
VCT-1	VINYL COMPOSITION FLOOR TILE
VCT-2	VINYL COMPOSITION FLOOR TILE
WC-1	WALL COVERING
WC-2	WALL COVERING
X-1	TOILET PAPER (ROLL) & SEAT COVER DISPENSER
X-2	TOILET PAPER (ROLL) & SEAT COVER DISPENSER

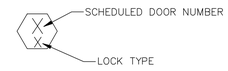
CONSTRUCTION ABBREVIATIONS	
ADA	AMERICANS DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
APPROX	APPROXIMATE
CLG	CEILING
CLR	CLEAR
CONST	CONSTRUCTION
D	DEPTH
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DR	DOOR
DW	DISH WASHER
EQ	EQUAL
EVS	ENVIRONMENTAL SERVICES
FD	FLOOR DRAIN
FA	FIRE ALARM
FEC	FIRE EXTINGUISHER CABINET
FIN	FINISH
GA	GAUGE
GL	GLASS/GLAZING
GYP BD	GYPSUM WALL BOARD
H	HEIGHT
HC	HOLLOW CORE
HM	HOLLOW METAL
HVAC	HEATING, VENTILATION, AIR
IF	INSIDE FACE
IT	INFORMATION TECHNOLOGY
L	LENGTH
MFD	MANUFACTURED
MW	MICROWAVE
MIN	MINIMUM
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OH	OPPOSITE HAND
OCC	OCCUPANT
RO	ROUGH OPENING
REQD	REQUIRED
RM	ROOM
SC	SOLID CORE
STL	STEEL
STS	STAINLESS STEEL SINK
SF	SQUARE FEET
STD	STANDARD
TYP	TYPICAL
UL	UNDERWRITER'S LABORATORY
UNO	UNLESS OTHERWISE NOTED
VIF	VERIFY IN FIELD
W	WIDTH
WS	WORKSTATION
W/	WITH
WF	WATER FOUNTAIN

FLOOR/CEILING DEMOLITION LEGEND	
	REMOVE CASEWORK, EQUIPMENT & FIXTURES AS INDICATED BY DASHED LINE
	REMOVE EXISTING FLOORING AS INDICATED BY HATCH PATTERN
	REMOVE GYP BRD TO 7'-0" A.F.F. FOR INSTALLATION OF NEW LEAD-LINED DRYWALL
	REMOVE EXISTING POWER OUTLET
	REMOVE EXISTING DATA/PHONE
	REMOVE EXISTING VIDEO CABLE OUTLET
	REMOVE EXISTING 2'x4' LIGHT FIXTURE
AP	REMOVE EXISTING ACCESS PANEL
	REMOVE EXISTING SUPPLY AIR DIFFUSER
	REMOVE EXISTING SUPPLY AIR DIFFUSER
	REMOVE EXISTING RETURN AIR DIFFUSER
	REMOVE & DISPOSE OF EXISTING CAN LIGHT
	EXISTING EQUIPMENT MOUNTS TO BE REMOVED
	REMOVE EXISTING CEILING GRID AND TILE
	REMOVE & DISPOSE EXISTING SOFFIT
	REMOVE CEILING MOUNTED POWER CABLE REEL
C	REMOVE CEILING MOUNTED CAMERA
	REMOVE EXISTING SPRINKLER HEAD
S	REMOVE EXISTING SMOKE ALARM HEAD
	REMOVE EXISTING CEILING MOUNTED SPEAKER
$	REMOVE EXISTING LIGHT SWITCH
	OUT OF SCOPE

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: John Lichtner
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2015 INTERNATIONAL CODES & 2017 NEC

FLOOR/CEILING LEGEND	
	EXISTING OR NEW POWER OUTLET
	EXISTING OR NEW DATA/PHONE OUTLET
	EXISTING OR NEW LIGHT FIXTURE
AP	EXISTING OR NEW ACCESS PANEL
	EXISTING OR NEW SUPPLY DIFFUSER
C	EXISTING OR NEW CEILING MOUNTED CAMERA
	EXISTING OR NEW SPRINKLER HEAD
S	EXISTING OR NEW SMOKE ALARM HEAD
F	EXISTING OR NEW FIRE ALARM/STROBE
	CEILING HEIGHT DESIGNATION PER AREA
$	EXISTING OR NEW LIGHT SWITCH
	OUT OF SCOPE





DOOR HARDWARE

DC - DOOR CLOSURE HARDWARE

ST - SMOKE TIGHT
HM - HOLLOW METAL
PL - PUSH PLATE
P - PASSAGE
PH - PULL HANDLE
KP - KEYPAD
CR - CARD READER
AS - AUTO SENSOR
CL - CLASSROOM
OF - OFFICE
PB - PUSH BAR
PR - PRIVACY LOCK

CONSTRUCTION LEGEND			
	NEW WALL CONSTRUCTION TYPE		
	EXISTING WALLS		
	EXISTING WALLS TO BE UPGRADED WITH LEAD-LINED DRYWALL TO 7'-0" A.F.F. BACK NEW & EXISTING WALL OUTLETS & SWITCHES WITH LEAD. SEE PHYSICIST REPORT FOR LEAD REQUIREMENTS		
	WP-1 ACROVYN PANEL LOCATIONS	P-2	WALL ACCENT PAINT SELECTION/LOCATION
XX-1	FLOORING TYPE	XX-1	CASEWORK FINISH
			WP-2 CORNER GUARD LOCATIONS

DWG FILENAME: HYBRID OR 9 SHEET SIZE: 36" x 24"

The Medical Center of Aurora
Health ONE

HYBRID OR 9 / DISCOVERY IGS

MEDICAL CENTER OF AURORA

1501 S. POTOMAC ST.
AURORA, CO 80012

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STATE OF COLORADO
TOM THOMPSON
305692
LICENSED ARCHITECT
01.14.20

PROJECT NO.: 190318

DRAWN BY: TH, BEPS
CHECKED BY: TT
SCALE: N/A
DATE: 01.14.2020
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
LEGEND, SYMBOLS ABBREVIATIONS

SHEET NO.:
G102

X-RAY SHIELDING DESIGN CALCULATIONS

AND RECOMMENDATIONS

PROJECT:

Hybrid OR 9
The Medical Center of Aurora
1501 S Potomac Ave
Aurora, CO 80012

CONTACT:

Thomas Hecker
The Medical Center of Aurora
Thomas.hecker@healthonecares.com

September 9, 2019
Date

Nathan Busse, M.S., DABR, QE #238
Medical Radiation Physicist

All required shielding is identified on attached layout. Calculations and assumptions are outlined in the report. For further information, please call Nathan Busse at (502) 758-1093 or email at n.busse@campphysics.com

RADIOGRAPHIC SHIELDING

PREFACE

These calculations are done according to, and consistent with recommendations contained in the National Council on Radiation Protection and Measurements (NCRP) Report No. 49 entitled, "Structural Shielding Design and Evaluation for Medical Use of X-rays and Gamma Rays of Energies up to 10 MeV" and Report No. 147 "Structural Shielding Design for Medical Imaging Facilities". The calculations herein are based on a design limit of 20 μGy/week to members of the general public and 100 μGy/week to occupationally exposed workers whose dose is monitored. This is consistent with 10 CFR Part 20, State of Colorado Regulations 6 CCR 1007, and with the International Commission on Radiological Protection Publication No. 26 to keep exposures "As Low As Reasonably Achievable" (ALARA).

FACILITY ASSUMPTIONS

1. Walls are assumed to include two 5/8 inch gypsum sheets, with a 3 inch interspace. Doors are assumed to be 2 inch thick and of solid core construction. Windows are assumed to be glass or acrylic. Windows are assumed to have zero lead equivalence.

2. This portion of the building is slab on grade. The area above the OR room is a mechanical penthouse 137' AFF.

3. The occupancy factor (T) is often assumed to be greater than it actually is. This conservative estimate will allow for the occupancy to be upgraded without the need for shielding modifications.

4. Patient workload is assumed to be 20 exams per 40-hour work week.

SHIELDING SPECIFICATIONS

1. Window thickness shall be specified in millimeter lead equivalence (mm Pb e.q.), and for the control area will be at least that of the surrounding wall, 1.19 mm lead (3/64"). Door thicknesses shall be specified in millimeter lead equivalence (mm Pb e.g.). For the double-door entry to the room and the door to the control area, this is 0.79 mm lead (1/32").

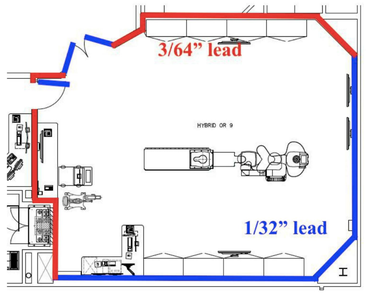
2. The lead shielding shall extend to a height of seven feet. All joints between lead shall be overlapped. All cutouts and openings in the lead will be backed and baffled with lead of at least equivalent thickness.

3. It is important to note that the recommended shielding is the minimum thickness required. However, it may turn out that a thicker lead is less expensive or more easily available. In that case, it is advisable to use the thicker lead as a cost-effective alternative.

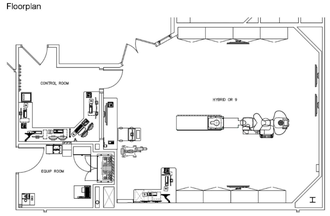
4. See attached color diagram for required lead thicknesses.

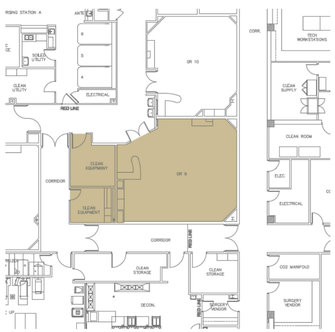
5. No additional shielding is required in the floor or ceiling.

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Floorplan





		Units		
	Location		OR 10	Hallway South
	Design Goal	mGy/wk	0.02	0.02
	Occupancy		1	0.2
	Usage Factor		0	0
Inputs	Primary/Leakage Distance	m	6	5.5
	Secondary Distance	m	6	5.5
	Primary Source		RR(floor or other)	RR(floor or other)
	Secondary Source		Cardiac Angio	Cardiac Angio
	Side or Forward/Backscatter?		Sidescatter	Sidescatter
	Select Preshielding		Grid/cassette only	Grid/cassette only
	Lead Thickness	mm	1.19	0.79
	Concrete Thickness			
	Expected Weekly Dose	mGy/wk	0.007	0.005
	Fraction of Design Goal		0.367	0.266

Number of patients per week 20

Hallway West	Decon West	Control	Doors	OR Hallway NorEas
0.02	0.02	0.02	0.02	0.02
0.2	1	1	0.125	0.2
0	0	0	0	0
4.5	7	3.8	4	4
4.5	7	3.8	4	4
RR(chest bucky)	RR(chest bucky)	RR(floor or other)	RR(floor or other)	RR(floor or other)
Cardiac Angio	Cardiac Angio	Cardiac Angio	Cardiac Angio	Cardiac Angio
Sidescatter	Sidescatter	Sidescatter	Sidescatter	Sidescatter
Grid/cassette only	Grid/cassette only	Grid/cassette only	Grid/cassette only	Grid/cassette only
0.79	0.79	1.19	0.79	0.79
0.008	0.016	0.018	0.006	0.010
0.397	0.821	0.914	0.314	0.503

bove - Mech Penthouse				
0.02				
0.01				
0				
3.66				
3.66				
RR(floor or other)				
Cardiac Angio				
Sidescatter				
Table or wall bucky				
0.06				
0.018	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0.902	#VALUE!	#VALUE!	#VALUE!	#VALUE!

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LICENSED ARCHITECT

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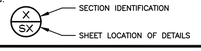
SHEET TITLE:
SHIELDING PLAN

SHEET NO.:
G103

DWG FILENAME: HYBRID OR 9 SHEET SIZE: 36" x 24"

GENERAL NOTES

1. Design Standards:
   - A. International Building Code 2015 Edition + Aurora, Colorado Code Amendments
   - B. ASCE/SEI 7-10 Minimum Design Loads for Buildings and Other Structures
   - C. ACI 318-14 Building Code Requirements for Structural Concrete
   - D. ANSI/AISC 360-10 Specification for Structural Steel Buildings
2. Gravity Loads Used in Design:
   - A. Equipment Loads - Per Equipment Supplier
3. Seismic Load Design Criteria:
   - A. Building Risk Category IV
   - B. Site Class D
   - C. Site Spectral Response Accelerations:
     1. Ss = 0.174
     2. S1 = 0.057
     3. SDs = 0.185
     4. SD1 = 0.091
   - D. Seismic Design Category C
4. Concrete:
   - A. Concrete shall be made with stone aggregate (normal-weight concrete) and shall develop the following 28 day compressive strengths (f'c):
     1. Interior slabs on grade pour-back 4,500 psi
   - B. Proportions of materials in concrete mixtures shall be established to provide workability and consistency to permit concrete to be placed readily into forms and around reinforcement, under conditions of placement to be employed, without segregation or excessive bleeding. Contractor shall select an appropriate slump, and admixtures may be used as needed to obtain acceptable results.
   - C. Type I/II portland cement shall be used, unless noted otherwise.
   - D. For concrete mixtures used for floor slabs, the minimum cementitious content shall be 540 lbs. per cubic yard.
   - E. For concrete placed by pumping, the design mixture shall be proportioned to ensure flowability to facilitate pumping. Entrained air may be used to facilitate pumping, subject to the provisions and limits included herein.
   - F. The addition of entrained air is not permitted in mixtures to be used as floor slabs, unless the Contractor can demonstrate to the Architect that such slab mixtures with entrained air will provide an acceptable finish without blisters.
   - G. Verify alkalinity of concrete slab surface, slab vapor transmission and slab flatness/levelness are compatible with floor systems, equipment and adhesives prior to installing flooring.
   - H. No chloride admixtures shall be added to concrete without the approval of the Structural Engineer.
   - I. All reinforcing bars shall be ASTM A615, Grade 60, unless noted otherwise.
   - J. Provide all accessories necessary to support reinforcing at positions shown.
   - K. Concrete Work shall not have joints in a horizontal plane. All construction joints shall be approved by the Structural Engineer.
   - L. New and existing concrete slabs to be tested for the following properties. Coordinate required specifications and mitigation procedures for non-coformance with the equipment & flooring supplier.
     1. Surface Moisture - ASTM F2659
     2. Relative Humidity - ASTM F2170
     3. Calcium Chloride - ASTM F1869
     4. Schmidt Hammer Test - C805
     5. Tensile Strength - ASTM C1583
5. Steel:
   - A. All structural steel shall conform to ASTM A36, except HSS sections which shall conform to ASTM A500 (Grade B).
   - B. Structural steel shall be detailed, fabricated and erected in accordance with the AISC Steel Construction Manual.
   - C. All welders shall have evidence of passing the AWS standard qualification tests, and have a current certification.
   - D. Minimum weld size shall not be less than 3/16" continuous fillet weld, unless noted otherwise.
6. All dimensions on Structural drawings shall be checked against Architectural and equipment supplier's drawings.
7. Structural drawings are not to be scaled to determine dimensional information, to verify or coordinate any information presented, or for any other purpose.
8. Where discrepancies occur between plans, details, general notes and specifications, the more stringent requirement shall govern.
9. Structural Engineer's approval must be secured for all substitutions.
10. Verify all openings through floor, roof and walls with mechanical and electrical contractors.
11. All existing conditions and dimensions shown on the drawings shall be field verified by the contractor. It is the contractor's responsibility to immediately notify the Structural Engineer should any existing condition not be shown, or if any existing condition differs from those indicated on the drawings.
12. Structural Special Inspections shall be provided as specified and in accordance with Chapter 17 of the International Building Code.
13. General Contractor shall inform and update the Structural Engineer as to the status and schedule of Construction, and shall coordinate with the Structural Engineer to schedule periodic site visits to perform visual Structural Observations of completed and ongoing portions of the Work. The Structural Engineer's periodic Observations or presence on site does not replace or preclude the need for any independent third party Structural Special Inspections specified herein.
14. Significant permanent equipment sizes, weights, and locations indicated on the drawings are as provided to the Structural Engineer during design. Changes in sizes, weights, or locations from that indicated must be submitted in writing for review and approval by the Structural Engineer. Required supports or braces not shown on the drawings are the responsibility of the equipment supplier.
15. Post-Installed Anchors:
   - A. The Contractor shall engage the services of a representative of the anchor/adhesive manufacturer to provide on-site installation training for all relevant specified anchor/adhesive types and installation conditions.
   - B. The Contractor shall submit to the Architect and Structural Engineer documented confirmation that all personnel to implement post-installed anchor installations have passed the manufacturer's training course.
   - C. In addition, personnel who will install horizontal or upwardly inclined adhesive anchors in concrete that support sustained tension loads shall be certified by the ACI/CRSI Adhesive Anchor Installer Certification Program.
   - D. Post-installed anchors shall be installed in accordance with all manufacturer's recommendations, specifications and Printed Installation Instructions (MPII), and shall be installed only into dry base materials.
   - E. For expansion anchors installed into concrete, the concrete base material shall reach the required minimum compressive strength (f'c) specified in the drawings prior to anchor installation.
   - F. For adhesive anchors installed into concrete, the concrete base material at the time of anchor installation shall have a minimum age of 21 days, a minimum concrete temperature of 50 degrees F, and shall reach the required minimum compressive strength (f'c) specified in the drawings prior to anchor installation.
   - G. Modular composite mesh sleeves shall be used when anchoring into open cells of CMU or brick masonry.
   - H. The position of existing reinforcing bars in the base material shall be located prior to installing anchors. Existing reinforcing shall be located using a scanner, GPR, X-Ray or other approved methods.
16. Explanation of section designation used:



STRUCTURAL SPECIAL INSPECTIONS

1. General:
   - A. Special Inspections and Tests shall be provided in accordance with Chapter 17 of the International Building Code.
   - B. The Owner or the Owner's Authorized Agent, other than the Contractor, shall employ one or more Approved Agencies to perform Special Inspections and Tests during construction on the types of work outlined herein.
   - C. Approved Agencies shall provide all information as necessary for the Building Official to determine that the Agency meets or exceeds the applicable code-specified requirements.
   - D. Prior to the start of construction, the Approved Agencies shall provide written documentation to the Building Official, Architect and Structural Engineer, demonstrating the competence and relevant experience or training of the Special Inspectors who will perform the Special Inspections and Tests during construction.
   - E. The construction or work for which Special Inspection or Testing is required shall remain accessible and exposed for Special Inspection or Testing purposes until completion of the required Special Inspections or Tests.
   - F. Approved Agencies shall keep records of Special Inspections and Tests and shall submit reports of Special Inspections and Tests conforming to Chapter 17 of the International Building Code to the Building Official, Architect and Structural Engineer. Discrepancies shall be brought to the immediate attention of the Contractor for correction. If not corrected, the discrepancies shall be brought to the attention of the Building Official, Architect and Structural Engineer prior to completion of the applicable phase of the work.
   - G. Special Inspections shall be provided on a Periodic or Continuous basis, as stated or indicated below.
     [P] Periodic Inspection – Part-time or intermittent observation by the Special Inspector of work being performed. Special Inspector shall be present in the area where the work is being performed. Observation of all work (100% visual) shall be made at the completion of the work.
     [C] Continuous Inspection – Full-time observation by the Special Inspector of work being performed. Special Inspector shall be present in the area where the work is being performed. Observation of all work (100% visual) shall be made at the completion of the work.
2. Special Inspection of Steel Construction:
   - A. Welding inspection and welding inspector qualification for structural steel shall be in accordance with AWS D1.1.
   - B. Welding procedure specifications (WPSs), procedure qualification records (PQRs) for WPSs that are not prequalified, welding personnel performance qualification records (WPQRs) and continuity records, as applicable, shall be submitted to the Approved Agency for review and approval.
   - C. Special Inspection of Steel construction shall be provided to verify the following:
     1. Material verification of structural steel [P]
        - a. For structural steel, identification markings to conform to AISC 360
     2. Material verification of weld filler metals [P]
        - a. Identification markings to conform to AWS specification in the construction documents
     3. Inspection of welding of Structural:
        - a. Fit-up of fillet and groove welds [P]
        - b. Control & handling of weld materials [P]
        - c. No welding over cracked tack welds [P]
        - d. Conformance with WPS and welding techniques [P]
        - e. Verify the following for all specified welds: Size, length and location; visual acceptance criteria; arc strikes; repair activities [P]
        - f. Single-pass fillet welds <= 5/16" [P]
     4. Inspection of steel frame and joint details for compliance:
        - a. Details such as bracing and stiffening [P]
        - b. Member locations [P]
        - c. Application of joint details at each connection [P]
3. Special Inspection of Concrete Construction:
   - A. Special Inspection of Concrete construction shall be provided to verify the following:
     1. Inspection of reinforcing steel and placement [P]
        Verify grade, finish, size, bar quantity, location, spacing, cover, surface conditions and supports.
     2. Verify use of approved design mixture for each truck load [P]
     3. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete [C]
     4. Inspection of concrete placement for proper application techniques per ACI 318 26.5.2 [C]
     5. Verify maintenance of specified curing temperature and techniques per ACI 318 26.5.3 [P]
     6. Inspection of formwork for shape, location and dimensions of the concrete member being formed [P]
4. Testing of Structural Concrete:
   - A. Samples for preparing strength test specimens of each concrete mixture placed each day shall be obtained at the point of placement and shall at a minimum be taken as follows: (a) at least once a day (b) at least once or each 100 cu. yd. of concrete (c) at least once for each 5,000 s.f. of surface area for slabs or walls. Sampling of concrete shall be in accordance with ASTM C172.
   - B. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
   - C. Slump: ASTM C143; One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
   - D. Air Content: ASTM C231; Test each composite sample per ASTM C231 (pressure method) for normal-weight concrete or ASTM C173 (volumetric method) for light-weight concrete.
   - E. Temperature: ASTM C1064; Test each composite sample and at 60-minute intervals. Required when air temperature is 40°F and below or 80°F and above.
   - F. Cold Weather Curing: ASTM C1074; Record maximum and minimum concrete temperature during curing period when a daily average air temperature of 40°F or below is expected for 3 successive days during curing period.
   - G. Compression Test Specimens: ASTM C31;
     Cast and cure four (4) 6x12 cylinder specimens or six (6) 4x8 cylinder specimens for each composite sample.
   - H. Compressive Strength Tests: ASTM C39;
     Test one (1) 6x12 or one (1) 4x8 specimen at 7 days
     Test two (2) 6x12 or three (3) 4x8 specimens at 28 days
     Test one (1) 6x12 or two (2) 4x8 specimens at 56 days if 28-day tests do not achieve the specified strength.
     Test specimen acceptance criteria to be in accordance with ACI 318
5. Special Inspection of Post-Installed Anchors, Rods and Reinforcing Steel:
   - A. Manufacturer's Printed Installation Instructions (MPII) and relevant ICC-ES reports shall be used along with the Construction Documents to determine compliance.
   - B. Continuous Inspection of all post-installed anchors shall be required, regardless of whether periodic inspection is permitted by the relevant ICC-ES reports.
   - C. Prior to anchor installation, review and verify Contractor's installation procedure
   - D. Verify that the full cure time as outlined in the General Notes has elapsed prior to application of torque or load to anchor.
   - E. Special Inspection of post-installed anchors shall be provided to verify the following:
     1. Manufacturer, type, diameter, length and finish of anchor [C]
     2. Maximum specified impact wrench torque rating maintained for screw anchors [C]
     3. Acceptability of base material [C]
     4. Inspection during anchor installation [C]
        Verify drilling method, hole dimensions, hole cleaning, anchor and adhesive placement, anchor embedment, wrench torque, edge distances and spacing.
     5. Inspection after installation of attached assembly [C]
        Verify anchor locations, spacing, edge distances, and anchor flush with and perpendicular to the receiving surface. Verify anchor heads have not been cut off and that manufacturer's stamp mark is readable and has not been damaged or obscured.

Structural plan review is limited to a general survey for code compliance. No review is implied nor was undertaken to verify structural adequacy.

NOTE TO CONTRACTOR

- READ ALL STRUCTURAL NOTES AND COORDINATE WITH THE STRUCTURAL ENGINEER TO RESOLVE ANY QUESTIONS, DISCREPANCIES OR CONFLICTS PRIOR TO COMMENCING WITH CONSTRUCTION OPERATIONS.
- STRUCTURAL ENGINEER'S APPROVAL OF ALL REQUIRED SUBMITTALS INDICATED IN THE GENERAL NOTES SHALL BE PROCURED PRIOR TO FABRICATION OR CONSTRUCTION OF EACH APPLICABLE PORTION OF THE WORK.
- COORDINATE ALL REQUIRED STRUCTURAL SPECIAL INSPECTIONS AND TESTS WITH THE INSPECTION AGENCY ENGAGED BY THE OWNER, AND ENSURE THAT THE STRUCTURAL ENGINEER IS COPIED DIRECTLY AND PROMPTLY ON ALL INSPECTION AND TEST REPORTS.

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: John Lichtner
Date: Jan 23, 2020
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The Medical Center of Aurora
HealthONE

HYBRID OR 9 / DISCOVERY IGS

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COLORADO LICENSED
MATTHEW W. NICHOLS
36279
01-14-20
PROFESSIONAL ENGINEER

PROJECT NO.: NLI #19-087

DRAWN BY: SAW
CHECKED BY: MWN
SCALE: N/A
DATE: 01.14.2020
ISSUED FOR: CONSTRUCTION
REVISIONS:

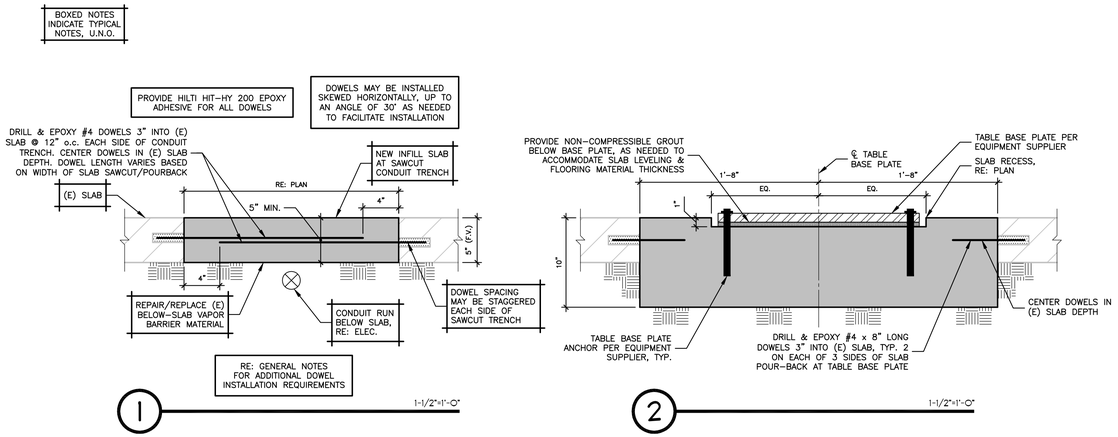
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PROJECT NOTES

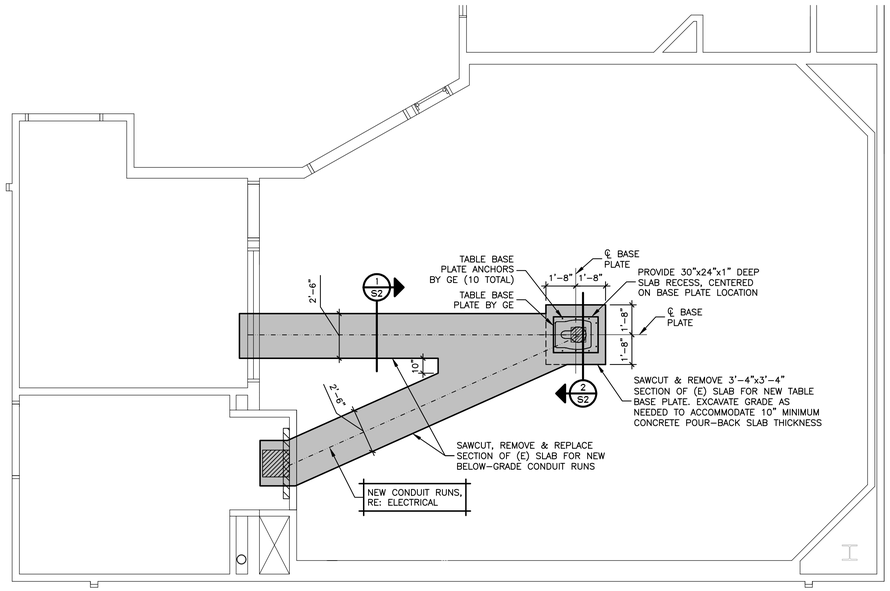
SHEET NO.:
S1

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FLOOR SLAB PLAN

1/4"=1'-0"

NOTES:

1. BOXED ⊏⊐ NOTES INDICATE TYPICAL NOTES, UNLESS NOTED OTHERWISE.
2. (E) INDICATES EXISTING ITEM OR DIMENSION TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO BEGINNING WORK.
3. TABLE BASE PLATE ANCHOR INSTALLATION SHALL BE AS INDICATED IN THE EQUIPMENT SUPPLIER'S INSTALLATION MANUAL.
4. THE NEW CONCRETE POUR–BACK SHALL ACHIEVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 psi PRIOR TO INSTALLATION OF THE TABLE BASE PLATE ANCHORS, TO BE VERIFIED BY LABORATORY TESTS OF CURED CYLINDER SAMPLES.
5. EXISTING AND NEWLY PLACED CONCRETE SLAB LEVELNESS AND FLATNESS SHALL BE VERIFIED TO MEET THE MINIMUM REQUIREMENTS SPECIFIED IN THE EQUIPMENT SUPPLIER'S INSTALLATION MANUAL.
6. RE: ARCHITECTURAL, ELECTRICAL AND EQUIPMENT SUPPLIER'S DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS AND INSTALLATION REQUIREMENTS.

DWG FILENAME: HYBRID OR 9 SHEET SIZE: 36" x 24"

The Medical Center of Aurora
Health ONE

HYBRID OR 9 / DISCOVERY IGS

MEDICAL CENTER OF AURORA

1501 S. POTOMAC ST.
AURORA, CO 80012

SOUTH CAMPUS

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COLORADO LICENSED
MATTHEW W. NICHOLS
36279
01-14-20
PROFESSIONAL ENGINEER

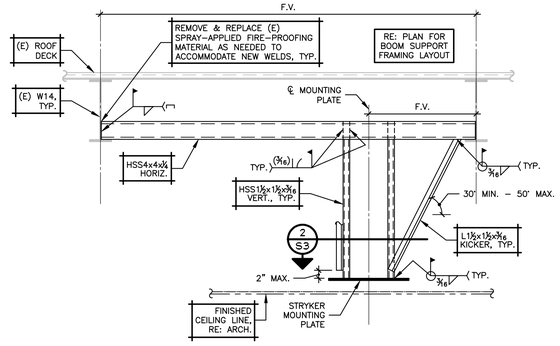
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DRAWN BY: SAW
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SCALE: N/A
DATE: 01.14.2020
ISSUED FOR: CONSTRUCTION
REVISIONS:

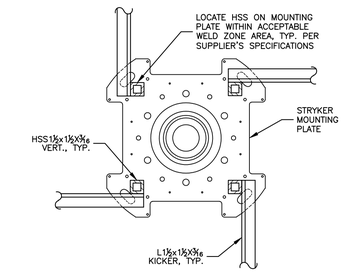
SHEET TITLE:
FLOOR SLAB PLAN & DETAILS

SHEET NO.:
S2

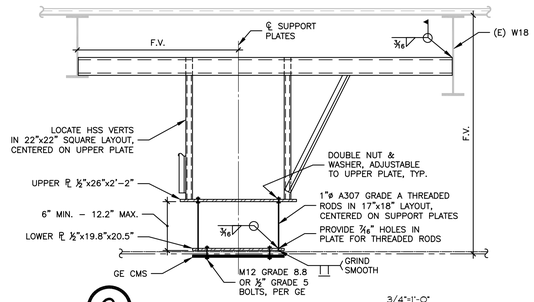
BOXED NOTES INDICATE TYPICAL NOTES, U.N.O.



1 3/4"=1'-0"



2 PLAN DETAIL 1-1/2"=1'-0"

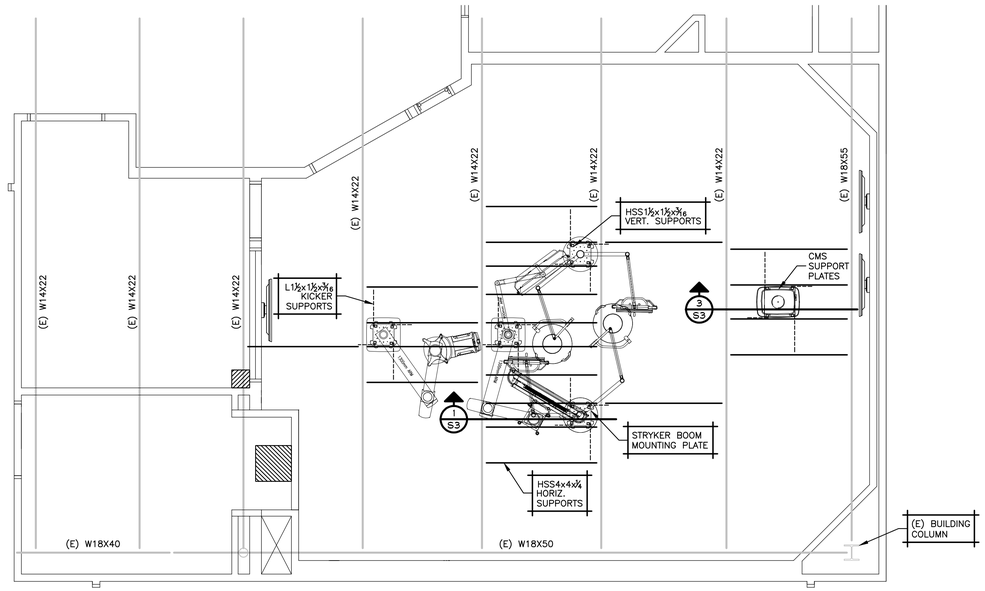


3 3/4"=1'-0"

Structural plan review is limited to a general survey for code compliance. No review is implied nor was undertaken to verify structural adequacy.

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: John Lichtner
Date: Jan 23, 2020
2015 INTERNATIONAL CODES & 2017 NEC

SEE STRUCTURAL CALCS FOR ADDITIONAL INFO



CEILING EQUIPMENT SUPPORT PLAN

1/4"=1'-0"

NOTES:

1. BOXED ⟦ NOTES INDICATE TYPICAL NOTES, UNLESS NOTED OTHERWISE.
2. (E) INDICATES EXISTING ITEM OR DIMENSION TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO BEGINNING WORK.
3. ALL EQUIPMENT INSTALLATIONS SHALL BE AS INDICATED IN THE SUPPLIER'S INSTALLATION MANUAL.
4. RE: ARCHITECTURAL, ELECTRICAL AND EQUIPMENT SUPPLIER'S DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS AND INSTALLATION REQUIREMENTS.

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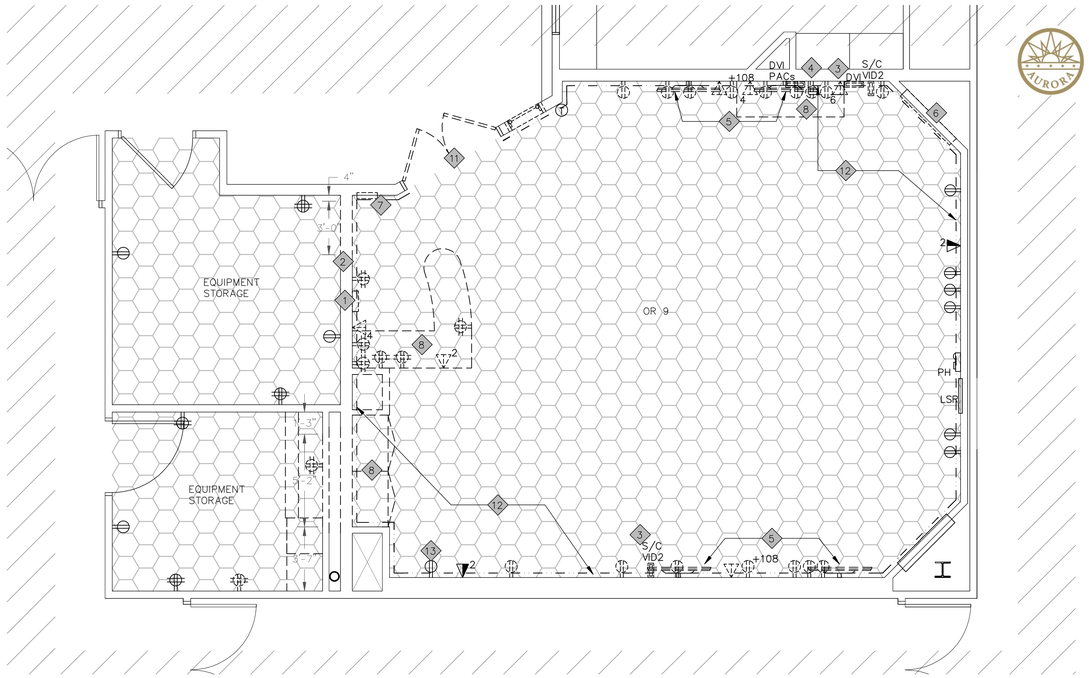
COLORADO LICENSED
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01-14-20
PROFESSIONAL ENGINEER

PROJECT NO.: NLI #19-087

DRAWN BY: SAW
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SCALE: N/A
DATE: 01.14.2020
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REVISIONS:

SHEET TITLE:
CEILING EQUIPMENT SUPPORT PLAN & DETAILS

SHEET NO.:
S3



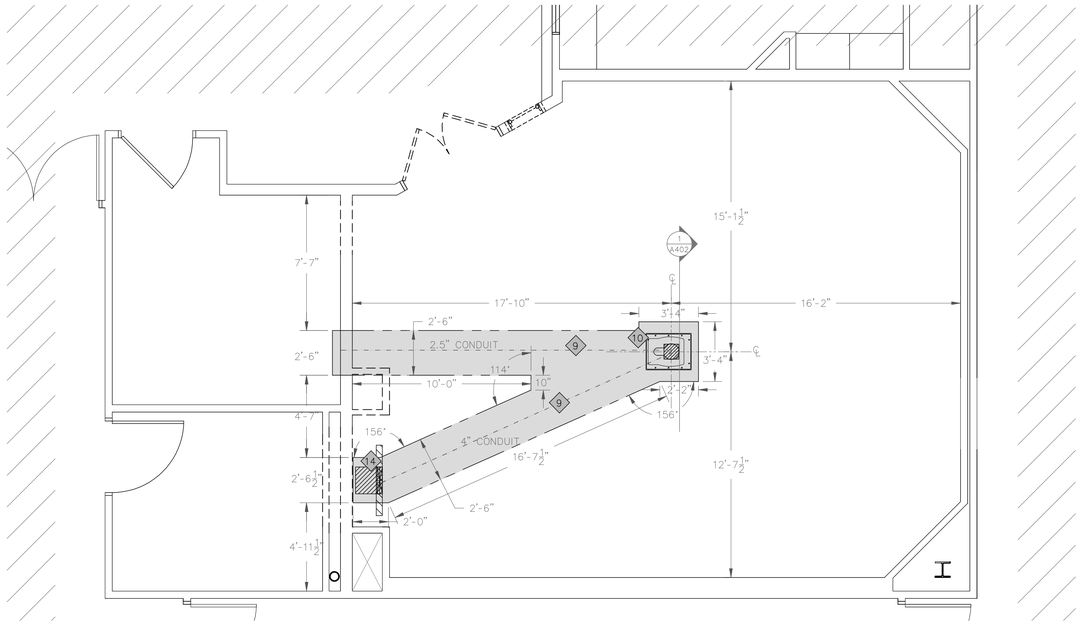
NORTH

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

City of Aurora Building Division
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DEMOLITION LEGEND	
	REMOVE CASEWORK, EQUIPMENT & FIXTURES AS INDICATED BY DASHED LINE
	EXISTING ELEMENT TO REMAIN
	REMOVE EXISTING FLOORING AS INDICATED BY HATCH PATTERN, PREP SURFACE FOR NEW FLOORING
	REMOVE EXISTING GYP BRD ALONG ROOM PERIMETER TO 7'-0" A.F.F. FOR INSTALLATION OF NEW LEAD-LINED DRYWALL
	EXISTING POWER OUTLET LOCATION TO REMAIN
	REMOVE EXISTING POWER OUTLET; SAFE-OFF AND/OR PREP FOR NEW LOCATION
	EXISTING DATA/PHONE OUTLET TO REMAIN
	REMOVE EXISTING DATA/PHONE; TERMINATE, SAFE-OFF AND/OR PREP FOR NEW LOCATION
	REMOVE EXISTING VIDEO CABLE OUTLET PRESERVE CONNECTIONS TO BE RELOCATED IN NEW PLAN
	OUT OF SCOPE

GENERAL NOTES	
A.	CONTRACTOR TO PREPARE FOR LEVEL IV INFECTION CONTROL & CONTAINMENT WITH ALL REQUIREMENTS DESCRIBED IN THE INFECTION CONTROL RISK ASSESSMENT.
B.	ELECTRICAL DEMOLITION IS FOR REFERENCE ONLY. REFER TO ENGINEERED ELECTRICAL FOR DEMOLITION PLANS.
C.	CONTRACTOR TO FIELD VERIFY ALL ASPECTS OF THE SITE & DIMENSIONS BEFORE CONSTRUCTION COMMENCES.
D.	REPLACE OR REPAIR ANY EXISTING SURFACES WHICH ARE DAMAGED DURING DEMOLITION (I.E. - CEILING GRID, CEILING TILE, WALL COVERING, FLOOR COVERINGS, ETC.).
E.	REMOVE EXISTING FLOORING, ADHESIVE AND MASTIC AT ALL LOCATIONS WHERE INDICATED BY HATCH PATTERN. PATCH & PREP SUBFLOOR TO MEET MANUFACTURER'S REQUIREMENTS FOR NEW FLOORING MATERIALS. FLOAT SUBFLOOR AS NECESSARY TO ALIGN FINISHED SURFACE BETWEEN NEW FLOORING AND EXISTING TO REMAIN.
F.	NOTIFY PROJECT MANAGER IMMEDIATELY IF THE REMOVAL OF MECHANICAL, ELECTRICAL, PLUMBING SYSTEMS OR COMPONENTS WILL ADVERSELY AFFECT THE OPERATION OF MEP SYSTEMS OUTSIDE THE LIMIT OF DEMOLITION.
G.	WHERE WALL OUTLETS ARE SHOWN TO BE REMOVED, SAFE-OFF CONNECTION AS REQUIRED BY CODE. PATCH & PREP WALL FOR PAINT.
H.	EXISTING ACROVYN WALL PANELS TO REMAIN WHERE UNAFFECTED BY CONSTRUCTION. REMOVE PANELS WHERE NEEDED & FOR INSTALLATION OF NEW CABINETS/CASEWORK.
I.	ALL EXISTING EQUIPMENT TO BE REMOVED BY HOSPITAL SUPPLIED VENDOR. CONTRACTOR TO PROVIDE SUPPORT AS NEEDED & INCLUDE ALL ELECTRICAL DEMOLITION IN SCOPE OF WORK.
J.	REFER TO STRUCTURAL DRAWINGS FOR REMOVAL & REPLACEMENT OF CONC. FLOOR SLAB.
K.	TRENCH LOCATIONS & DIMENSIONS SHOWN DOWN BELOW CONCRETE TO DEPTH REQUIRED FOR CONDUIT BEND RADIUS DETERMINED BY ELECTRICIAN. RE: STRUCTURAL FOR DETAILS.



NORTH

CONDUIT/TRENCH PLAN
SCALE: 1/4"=1'-0"

KEY NOTES	
1	REMOVE & SALVAGE EXISTING WALL MOUNTED STRYKER LIGHT & CAMERA CONTROL PANEL FOR RELOCATION. RE: FLOOR PLAN, ELECT.
2	REMOVE & SALVAGE EXISTING SURGICAL LIGHT CONTROL PANEL FOR RELOCATION, RE: ELECT LIGHTING PLAN
3	REMOVE & SALVAGE EXISTING S-VID/COMP SINGLE GANG WALL PLATE FOR RELOCATION, RE: ELECT
4	REMOVE & SALVAGE EXISTING COPPER DVI SINGLE GANG WALL PLATE FOR RELOCATION, RE: ELECT
5	REMOVE WALL MOUNTED MONITORS, SALVAGE FOR RELOCATION IN NEW PLAN, RE: ELEVATIONS
6	REMOVE & DISPOSE OF WALL MOUNTED BACK-LIT VIEW BOX. INFILL WALL OPENING W/ LEAD-LINED GYP. BRD. & PREP FOR PAINT.
7	REMOVE & SALVAGE ALL EXISTING NURSE CALL, CONTROLS AND INTERCOM FOR RELOCATION IN NEW PLAN.
8	REMOVE AND DISPOSE OF EXISTING MILLWORK.
9	BELOW FLOOR CONDUIT RUN. COORDINATE W/ ELECTRICIAN FOR PROPER BEND RADIUS ON CONDUITS TO CONFIRM CABLE LENGTHS ARE SUITABLE. INFILL W/ CONCRETE TO SMOOTH, LEVEL FINISH FOR NEW FLOORING.
10	TABLE ANCHORING & BASE PLATE. CONFIRM W/ GE SITE SPECIFIC DRAWINGS FOR MOUNTING LOCATION. BASE PLATE TO BE MOUNTED DIRECTLY TO CONCRETE W/ T.O. PLATE INSTALLED 7mm ABOVE LEVEL CONCRETE FLOOR TO ALLOW FOR THICKNESS OF RPM FLOORING.
11	SALVAGE ALL EXISTING DOOR HARDWARE & OPERATORS TO BE INSTALLED ON NEW LEAD-LINED DOORS. PROVIDE NEW CONTINUOUS HINGES SPECIFIC TO THE WEIGHT OF NEW DOORS.
12	REMOVE EXISTING GYP BRD ALONG ROOM PERIMETER TO 7'-0" A.F.F. FOR INSTALLATION OF NEW LEAD-LINED DRYWALL AS NOTED BY LEGEND'S LINE TYPE.
13	RELOCATE EXISTING OUTLET LOWER IF IT CONFLICTS W/ NEW OPTI-FLEX CABINET. OUTLET WILL SERVE THE CABINET.
14	LOCATION FOR NEW WALL & C-FRT CABINETS.

DWG FILENAME: HYBRID OR 9 SHEET SIZE: 36" x 24"

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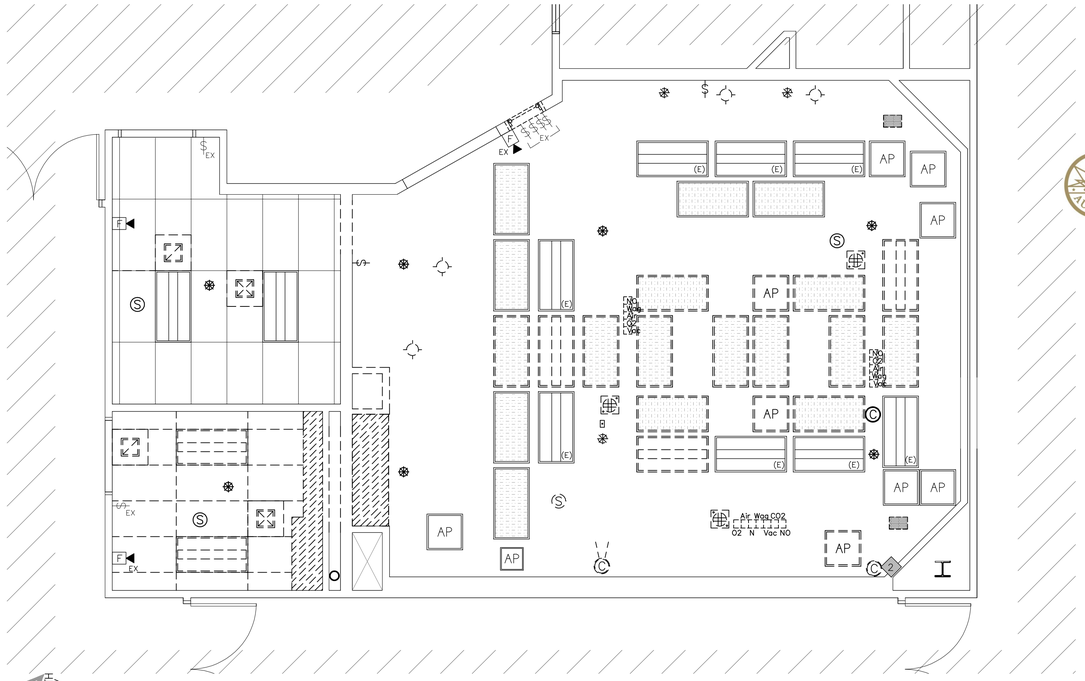
STATE OF COLORADO
TOM THOMPSON
305692
01.14.20
LICENSED ARCHITECT

PROJECT NO.: 190318

DRAWN BY: TH, BEPS
CHECKED BY: TT
SCALE: 1/4" = 1'
DATE: 01.14.2020
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
DEMOLITION PLAN
CONDUIT TRENCH PLAN

SHEET NO.:
AD101

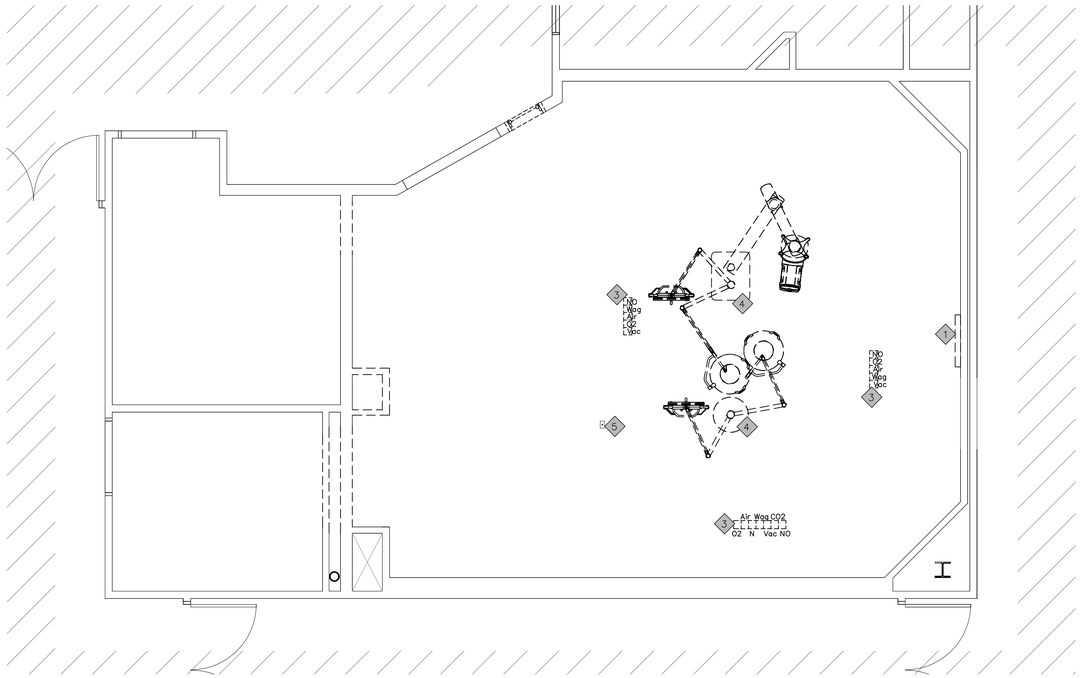


NORTH

CEILING DEMOLITION PLAN
SCALE: 1/4"=1'-0"

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: John Lichtner
Date: Jan 23, 2020
2015 INTERNATIONAL CODES & 2017 NEC

CEILING DEMOLITION LEGEND	
	REMOVE EXISTING 2'x4' LIGHT FIXTURE, SALVAGE FOR RELOCATION
(E)	EXISTING LIGHT FIXTURE TO REMAIN
AP	REMOVE EXISTING ACCESS PANEL, SALVAGE FOR RELOCATION
AP	EXISTING ACCESS PANEL TO REMAIN
	REMOVE EXISTING SUPPLY AIR DIFFUSER, SALVAGE FOR RELOCATION
	EXISTING SUPPLY DIFFUSER TO REMAIN
	REMOVE EXISTING SUPPLY AIR DIFFUSER, SALVAGE FOR RELOCATION
	REMOVE EXISTING RETURN AIR DIFFUSER, SALVAGE FOR RELOCATION
	REMOVE & DISPOSE OF EXISTING CAN LIGHT
	EXISTING EQUIPMENT MOUNTS TO BE REMOVED. RELOCATE OR ABANDON PER STRYKER DIRECTION.
	REMOVE & DISPOSE OF EXISTING CEILING GRID AND TILE
	REMOVE & DISPOSE EXISTING SOFFIT
	REMOVE CEILING MOUNTED POWER CABLE REEL, SALVAGE FOR RELOCATION. RE: ELECTRICAL
C	REMOVE CEILING MOUNTED CAMERA, SALVAGE FOR RELOCATION. RE: ELECTRICAL
C	EXISTING CEILING MOUNTED CAMERA TO REMAIN
	REMOVE EXISTING SPRINKLER HEAD FOR RELOCATION IN NEW CEILING PLAN
	EXISTING SPRINKLER HEAD TO REMAIN
S	REMOVE EXISTING SMOKE ALARM HEAD FOR RELOCATION IN NEW CEILING PLAN
S	EXISTING SMOKE ALARM HEAD TO REMAIN
	REMOVE EXISTING CEILING MOUNTED SPEAKER, SALVAGE FOR RELOCATION
F	EXISTING FIRE ALARM/STROBE TO REMAIN
	CEILING HEIGHT DESIGNATION PER AREA
$	EXISTING LIGHT SWITCH LOCATION TO REMAIN
$	REMOVE EXISTING LIGHT SWITCH, TERMINATE & SAFE-OFF CONNECTION.
	OUT OF SCOPE



NORTH

CEILING EQUIP DEMO
SCALE: 1/4"=1'-0"

DEMOLITION GENERAL NOTES	
A.	REMOVE EXISTING GYP. BRD. CEILING AREAS AS NEEDED FOR NEW CONDUIT, POWER AND STRUCTURAL ELEMENTS.
B.	EXISTING CEILING HEIGHTS IN OR & CONTROL TO REMAIN.
C.	DISCONNECT EXISTING CEILING MOUNTED EQUIPMENT ELECTRICAL FOR REMOVAL BY VENDOR.
D.	SALVAGE ALL EQUIPMENT & FIXTURES FOR EITHER RELOCATION OR FOR FACILITIES.
E.	REFER TO ENGINEERED MEP PLANS FOR DEMOLITION OF UTILITIES.

KEY NOTES	
1	REMOVE EXISTING FLUSH WALL MOUNTED CLOCK & TIMER W/ BACK BOX, SALVAGE FOR OWNER. PATCH & PAINT WALL.
2	SECURITY VENDOR TO REMOVE & SALVAGE EXISTING ROOM STATUS CAMERA TO NEW LOCATION IN CEILING PLAN, RE: RCP
3	REMOVE EXISTING CEILING MOUNTED MED GAS OUTLETS, SALVAGE MATERIALS & PRESERVE LINES FOR RELOCATION. RE: MED GAS PLAN
4	REMOVE CEILING MOUNTED BOOMS & ARMS WITH MOUNTING PLATES AND ASSOCIATED POWER. SALVAGE FOR OWNER OR RELOCATION IN NEW CEILING, RE: STRYKER & STRUCTURAL PLANS
5	RELOCATE EXISTING DVI OUTLET BOX TO LOCATION SHOWN IN NEW CEILING PLAN. RE: RCP & STRYKER PLANS

DWG FILENAME: HYBRID OR 9 SHEET SIZE: 36" x 24"

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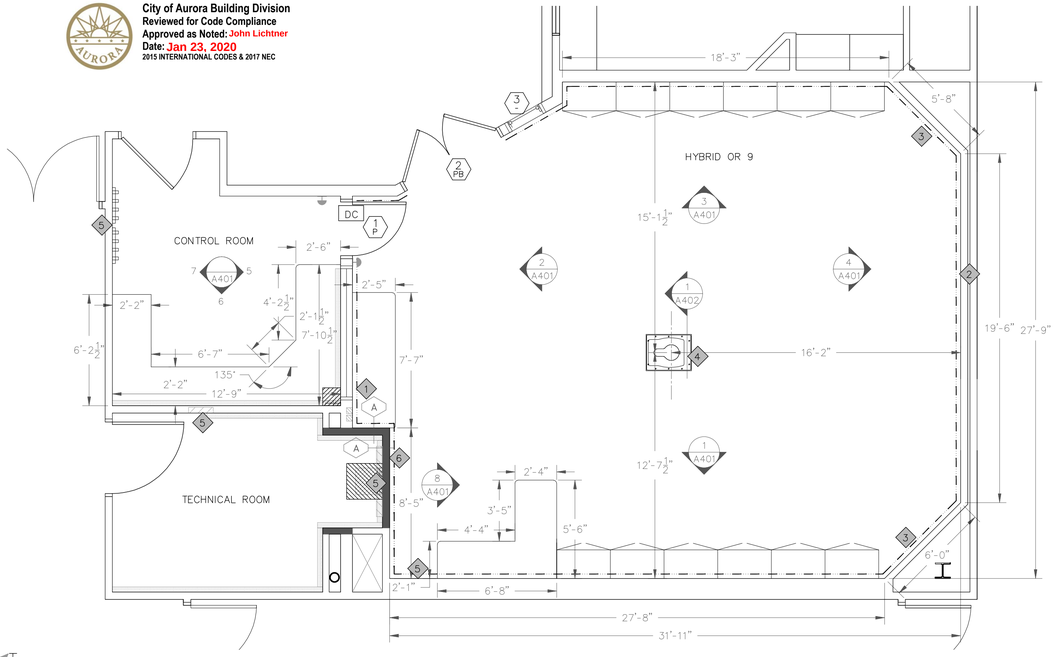
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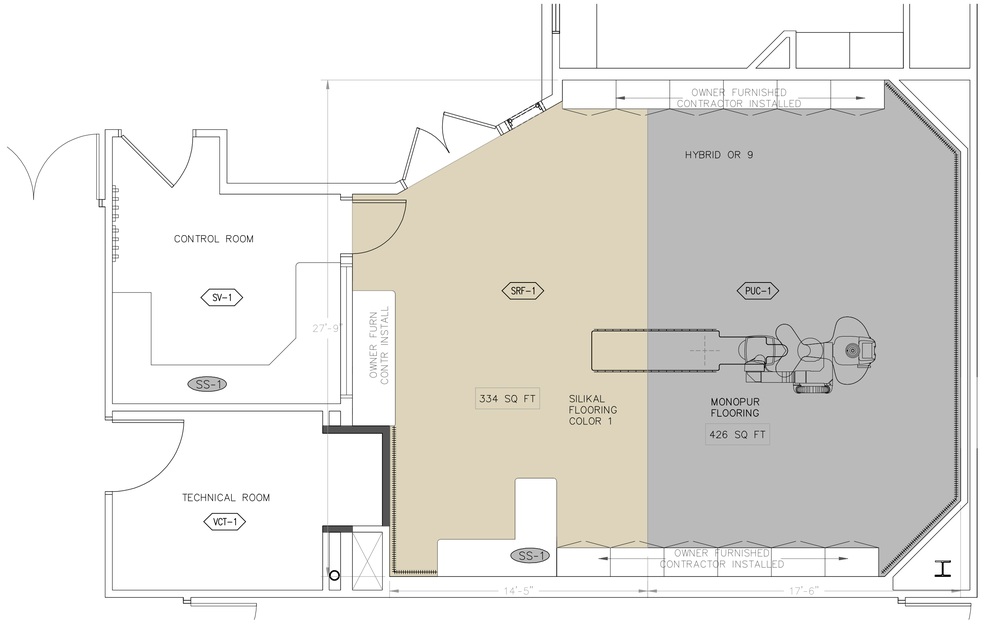
SHEET NO.:
AD102

City of Aurora Building Division
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NORTH

FLR DIM/TAG PLAN
SCALE: 1/4"=1'-0"



NORTH

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

DWG FILENAME: HYBRID OR 9 SHEET SIZE: 36" x 24"

SCHEDULED DOOR NUMBER
LOCK TYPE
WALL TYPE
ELEVATION NUMBER
SHEET NUMBER
CROSS SECTION

LOCK TYPE
P - PASSAGE SET
PB- PUSH BAR W/ AUTO OPERATOR FUNCTION
DC - DOOR CLOSER HARDWARE

CONSTRUCTION LEGEND			
	NEW WALL CONSTRUCTION TYPE 'A'		SURFACE MOUNTED WALL DUCT.
	EXISTING WALLS		
	EXISTING WALLS TO BE UPGRADED WITH LEAD-LINED DRYWALL TO 7'-0" A.F.F. BACK NEW & EXISTING WALL OUTLETS & SWITCHES WITH LEAD. SEE PHYSICIST REPORT FOR LEAD REQUIREMENTS		
	WP-1 ACROVYN PANEL LOCATIONS	P-2	WALL ACCENT PAINT SELECTION/LOCATION
XX-1	FLOORING TYPE	XX-1	CASEWORK FINISH
	OUT OF SCOPE		WP-2 CORNER GUARD LOCATIONS

GENERAL NOTES	
A.	REFERENCE SHIELDING PLAN FOR LEAD-LINED SPECIFICATIONS. ALL LEAD SHIELDING SHALL EXTEND FROM FLOOR TO 7'-0" A.F.F. ALL JOINTS BETWEEN LEAD SHALL BE OVERLAPPED. ALL CUTOUTS AND OPENINGS IN THE LEAD WILL BE BACKED AND BAFFLED WITH LEAD OF AT LEAST EQUIVALENT THICKNESS.
B.	INSTALL ACROVYN SPECIFIED SILICON CAULK TO ALL EDGES OF WALL PANELING, SELECT MATCHING CAULK COLOR TO WALL PROTECTION.
C.	NEW PAINT ON ALL WALLS THROUGHOUT.
D.	SPECIFY BRUSHED NICKEL HARDWARE FOR CASEWORK.
E.	PROVIDE 4" BACKSPLASH OF LIKE MATERIAL AT ALL LOCATIONS WHERE COUNTERS MEET WALLS.
F.	APPLY 3mm PVC EDGES TO ALL NEW PLASTIC LAMINATE COUNTERTOPS, DRAWERS, AND DOORS. PROVIDE EASED RADIUS EDGES FOR ALL COUNTER EDGES & TURNS.
G.	INSTALL ADDITIONAL SUPPORT FRAMING FOR NEW DOOR OPENING W/ KICKERS FOR LATERAL BRACING TO BOTTOM OF DECK ABOVE.
H.	FINISHED FLOOR MUST BE LEVEL TO 1/8" IN 10-0".
I.	DURING LEAD-LINED DRYWALL INSTALLATION, PROVIDE LEAD SHIELDING BEHIND EXISTING OUTLET BOXES BELOW 7'-0" A.F.F.

KEY NOTES	
1	DEDICATED DATA PORTS FOR i-STAT, ULTRASOUND & IVUS.
2	DEDICATED POWER FOR LUNG-HEART MACHINE HEATER/COOLER.
3	RELOCATED WALL S/C-VID 2 & DVI OUTLETS INSTALLED @ 18" AFF.
4	GE TABLE FLOOR MOUNTING PLATE. CONFIRM W/ GE PROJECT MGR ON LOCATION BEFORE INSTALL. RE: GE PLANS & PRE-INSTALLATION MANUAL. PLATE NEEDS TO INSET IN THE CONCRETE. BASE PLATE WILL NEED TO BE FLUSH W/ THE FLOOR FINISH SURFACE.
5	INSTALL FIRE RESISTANT WALL BACKING TO SUPPORT GE DISCONNECT, POU CABINET & APRON RACK.
6	NEW RECESSED WALL MOUNTED CLOCK & TIMER W/ CONTROLS. RE: ELEVATIONS & ELECTICAL.

DOOR & GLAZING SCHEDULE									
DOOR NO.	DOOR SIZE			TYPE/LABEL	LOCK TYPE	HARDWARE	FRAME	FRAME DEPTH	REMARKS
	WIDTH	HEIGHT	DEPTH						
1	3'-0"	7'-0"	1-3/4"	A/NON RATED	P	SATIN NICKEL	L.H.-H.M.	4-7/8"	SHAKER CHERRY LAMINATE, SOLID CORE, LEAD-LINED DOOR, FRAME & HARDWARE W/ LEAD-LINED, TEMPERED SITE GLASS. USE SARGENT ASSA ABLOY 10 LINE HANDLE HARDWARE & 351 DOOR CLOSER W/ P10 ARM. RE: A402
2	3'-0"/3'-0"	7'-0"	1-3/4"	B/NON RATED	P	SATIN NICKEL	L.H.R.-HM/ R.H.R.-H.M.	4-7/8"	SHAKER CHERRY LAMINATE, SOLID CORE, LEAD-LINED DOOR, FRAME & HARDWARE W/ LEAD-LINED, TEMPERED SITE GLASS. DOORS AUTO ACTIVATION USING SALVAGED HARDWARE. RE: A402
3	2'-0"	3'-0"	2-1/2"	NON RATED	-	-	H.M.	4-7/8"	LEADED FRAME & GLASS PER PHYSICIST REPORT W/ INTEGRAL BLIND INSERT.

FINISHES SPECIFICATIONS

FLOORING

PUC-1: HEAVY DUTY POLYURETHANE CONCRETE FLOOR SYSTEM, MONOPUR 4+3 / CERTIFIED VENDOR REQUIRED FOR FLOOR INSTALL.
SRF-1: EPOXY FLOORING BY SILIKAL MMA
VCT-1: MANNINGTON ESSENTIALS, VINYL COMPOSITE TILE, COLOR: ALMOND BLUFF 167
SV-1: JOHNSONITE SHEET VINYL, MELODIA, 3.0, COLOR: SAND DOLLAR WB 973
B-1: 4" COVED BASE, JOHNSONITE, COLOR BEIGE 49

WALLS

PT-1: SHERWIN WILLIAMS, SEMI-GLOSS INTERIOR PAINT, 2 COATS ON WALLS. COLOR: SW 6106 (KILIM BEIGE) - APPLY TO CONTROL & TECHNICAL ROOM LOCATIONS.
PT-2: SHERWIN WILLIAMS, SEMI-GLOSS INTERIOR PAINT, 2 COATS. COLOR:SW 7038 (TONY TAUPE) - APPLY TO DOOR & WINDOW FRAMES.
EP-1: EPOXY SHERWIN WILLIAMS, SEMI-GLOSS INTERIOR PAINT, 2 COATS ON WALLS. COLOR: SW 6106 (KILIM BEIGE) - APPLY THROUGHOUT HYBRID OR PROCEDURE ROOM.

CASEWORK

SS-1: APPLY TO ALL COUNTER TOP LOCATIONS, CORIAN, PRIVATE COLLECTION COLOR: TUMBLEWEED
INSTALL COUNTER GROMMETS FOR CABLING IN THE FIELD, LOCATIONS BY FACILITIES' DIRECTION. V.I.F. ALL EXISTING CONDITIONS TO ENSURE PROPER FABRICATION. PROVIDE SHOP DRAWINGS FOR APPROVAL.
PL-1: APPLY TO ALL VERTICAL PANEL SURFACES. WILSONART LAMINATE COLOR: SHAKER CHERRY, 7935-07. USE 3MM EDGING TO MATCH. * USE WHITE MELAMINE FOR ALL INTERIOR CABINETS AND DRAWER SURFACES.

WALL PROTECTION

WP-1 - INPRO CORPORATION, OATMEAL 0239, 0.06 THICKNESS, INSTALL W/ TOP CAP TO MATCH ROOM STANDARDS. INSTALL @ 54" AFF (48" SHEETS)

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STATE OF COLORADO
TOM THOMPSON
305692
01.14.20
LICENSED ARCHITECT

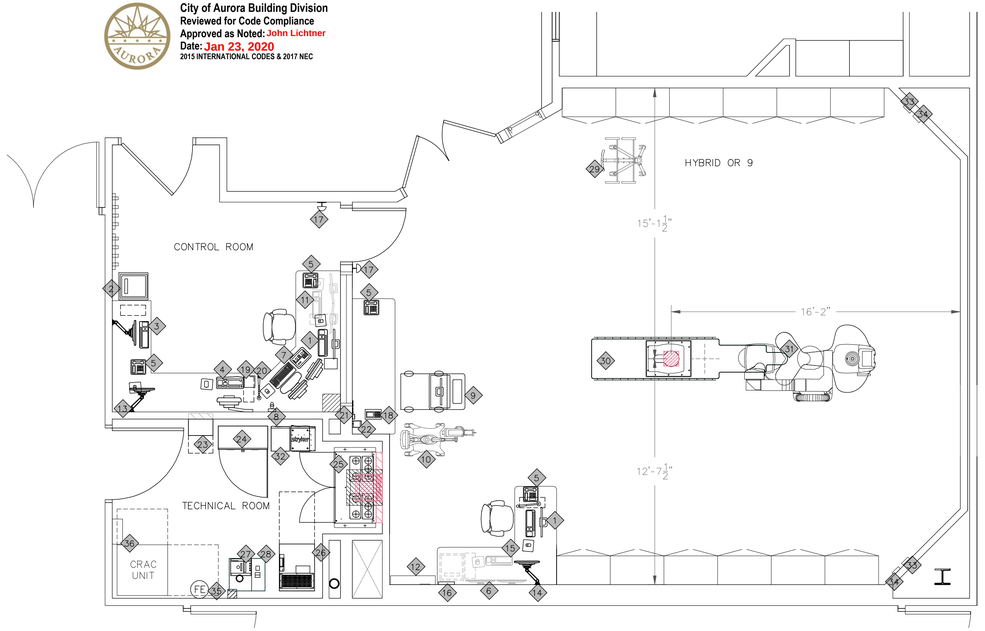
PROJECT NO.: 190318

DRAWN BY: TH, BEPS
CHECKED BY: TT
SCALE: 1/4" = 1'
DATE: 01.14.2020
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
FLOOR DIM/TAG PLAN
FINISHES PLAN

SHEET NO.:
A101

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: John Lichtner
Date: Jan 23, 2020
2015 INTERNATIONAL CODES & 2017 NEC



NORTH

FLOOR EQUIP PLAN
SCALE: 1/4"=1'-0"

EQUIPMENT KEYNOTES			
1	MEDITECH WORKSTATION	19	VITA-LINQ CONTROL
2	MAC LAB PRINTER SHARED - HP LASERJET PRINTER P4105, ON STAND	20	VITA-LINQ MICROPHONE
3	PACS WORK STATION	21	AW WIRELESS MOUSE
4	ADVANTAGE WORK (AW) STATION	22	X-RAY BUZZER
5	PHONES	23	MAIN DISCONNECT PANEL
6	MAC LAB RMOT W/ WALL MOUNTED MONITORS (FUTURE)	24	POWER DISTRIBUTION UNIT
7	OPERATOR'S CONSOLE	25	C-FRT CABINET
8	BOLUS CHASE HAND SWITCH	26	FLUORO UPS
9	VOLCANO IVUS ROLL AROUND WORKSTATION	27	DETECTOR CHILLER
10	INJECTOR	28	COOLIX WATER CHILLER
11	MAC LAB ACQUISITION, MAIN W/ UPS (FUTURE)	29	TABLE SIDE CART
12	OPTIFLEX POU CABINET, PC, MONITOR, SCANNER, TYPE TBD	30	TILTING TABLE
13	STRYKER WALL MOUNTED MONITOR	31	GANTRY
14	WALL MOUNTED STRYKER TOUCH PANEL	32	STRYKER UPS & VISUM LED POWER SUPPLY BOX
15	UNDER COUNTER STRYKER PRINTER	33	NEW DVI WALL PLATE
16	WALL MOUNTED STRYKER CONTROL PANEL (with music controls thru Stryker speakers option)	34	S-VID/BNC WALL PLATE
17	EPO SWITCH	35	CONTRACTOR INSTALLED CO2 FIRE EXTINGUISHER
18	i-STAT DOCKING STATION	36	CRAC UNIT W/ DISCONNECT

FLOORING PREPARATION & TABLE BASE PLATE INSTALLATION NOTES	
1.	GENERAL CONTRACTOR TO CONDUCT CONCRETE COMPRESSION STRENGTH TEST AS REQUIRED BY GE & STRUCTURAL PLANS. DELIVER RESULTS TO STRUCTURAL ENGINEER.
2.	FLOORING SYSTEM WITH THIS EQUIPMENT IS THE MONOPOUR 4+3" MONOLITHIC FLOORING. SEE FLOORING INSTALLATION MANUAL.
3.	DIMENSIONS FOR BASE PLATE PLACEMENT LOCATION ARE SHOWN WITHIN 1/16" PRECISION. MARK LOCATIONS & CONFIRM W/ GE INSTALL REP BEFORE DRILLING. REFER TO GE PRE-INSTALLATION MANUAL FOR BOLT HOLE DRILL LOCATIONS FOR BASE PLATE.
4.	BOLTS INSTALLED BY CONTRACTOR SHOWN IN STRUCTURAL PLANS TO BE INSPECTED BY A 3rd PARTY VENDOR DURING THE INSTALLATION. RE: STRUCTURAL
5.	SEAL GAPS AROUND BASE PLATE W/ GE SUPPLIED GE 2000 SILICONE SEALANT.
6.	SEE GE PRE-INSTALLATION MANUAL FOR ANCHOR BOLT RECOMMENDATIONS.
7.	REFERENCE GE PRE-INSTALLATION MANUAL FOR DRILLING AND ANCHORING CHART & REQUIREMENTS. OWNER TO SCHEDULE GE REP TO INSPECT AND VERIFY ANCHOR LOCATIONS PRIOR TO ANY DRILLING.
8.	NO EXPANSION JOINT SHALL BE PRESENT IN THE CONCRETE IN THE AREA WHERE MONOPUR SYSTEM IS TO BE APPLIED. NOTIFY PROJECT MANAGER IF ANY EXISTS.
9.	FLOOR SLAB ON WHICH EQUIPMENT IS TO BE INSTALLED, NEEDS TO BE LEVEL TO 1/8" OVER 10'. OWNER TO CONTACT GE REP TO INSPECT BEFORE FLOOR FINISHES ARE INSTALLED.

GENERAL NOTES	
A.	REFER TO GE & STRYKER SITE SPECIFIC DRAWINGS FOR EQUIPMENT MOUNTING REQUIREMENTS AND CLEARANCES.
B.	REVIEW & INCLUDE ALL NOTES FROM THE GE & STRYKER SITE SPECIFIC PLANS ATTACHED TO THIS CONSTRUCTION DOCUMENT SET AS PART OF CONSTRUCTION.
C.	CONTRACTOR TO PROVIDE WALL BACKING SUPPORT FOR ALL WALL HUNG EQUIPMENT.
D.	CONTRACTOR IS TO COORDINATE WITH OWNER & SUPPORT THE NEEDS OF THE INSTALLATION TEAM BEFORE & DURING SETUP.
E.	CONTRACTOR IS RESPONSIBLE FOR ALL DRILLING & SAW CUTTING NECESSARY TO PREP THE SITE.
F.	VERIFY W/ GE SITE SPECIFIC PLANS ALL DIMENSIONS & PLATE INSTALL INSTRUCTIONS. MOUNTING PLATES WILL BE DELIVERED DURING CONSTRUCTION.
G.	REFERENCE ELECTRICAL PLANS & GE SHEETS E1 & E2 FOR ELECTRICAL CONDUIT RUNS. PLAN TRENCHING & FLOOR/WALL DUCT RUNS ACCORDINGLY.
H.	REFERENCE GE'S PRE-INSTALLATION MANUAL IN CONJUNCTION WITH DRAWINGS & SPECIFICATIONS FOR COMPLETE INFORMATION.
I.	OWNER VENDOR TO INSTALL ALL LOW VOLTAGE CABLING.
J.	MONITORS INSTALLATION & CONNECTIONS TO THE GE EQUIPMENT SHALL ONLY BE MADE IN THE PRESENCE OF A GE REPRESENTATIVE.
K.	FLUSH MOUNT ALL NEW WALL DUCTS WHERE POSSIBLE. PLACE LEAD LINING BEHIND DUCT TO MAINTAIN PROTECTION.
L.	REFERENCE ELECTRICAL PLANS & GE SHEETS 17 - 21 FOR ELECTRICAL CONDUIT RUNS. GC ELECTRICIAN TO CONFIRM CABLE LENGTHS TO CONDUIT RUN DISTANCES. REFERENCE GE PRE-INSTALL MANUAL FOR ALL EQUIPMENT BACK BOX CUT-IN ELEVATIONS & DIMENSIONS.
M.	ELECTRICIAN TO INSTALL PLASTIC FLIP COVERS OVER ON EPO SWITCH LOCATIONS.
N.	CONNECTION OF THE MDP TO THE GE EQUIPMENT SHALL ONLY BE MADE IN THE PRESENCE OF A GE REPRESENTATIVE. RE: PRE-INSTALLATION MANUAL FOR CHECK LIST OF ITEMS PRIOR TO CONNECTING THE MDP.
O.	SEPARATE CONDUITS USED FOR POWER & SIGNAL WIRES. CONDUITS MUST BE LARGE ENOUGH TO PASS CABLE CONNECTORS THROUGH W/ ALL OTHER CABLES ALREADY IN THE CONDUIT.
P.	INSTALL JUNCTION BOXES/POWER OUTLETS ABOVE MOUNTING BRACKETS FOR ALL WALL HUNG MONITORS. ELEVATIONS SHOW APPROX. HEIGHT. VERIFY CLEARANCE OF BRACKET BEFORE CUTTING IN BOX LOCATIONS.
Q.	CONTRACTOR TO STRING & RING ALL NEW BACK BOXES FOR CABLING.
R.	CONTRACTOR TO WORK W/ OWNER TO INSTALL OWNER FURNISHED EQUIPMENT NOT SHOWN ON EQUIPMENT PLAN.
S.	CONTRACTOR WILL RECEIVE A ROOM TEMPLATE FROM GE AS A PRE-INSTALL ITEM TO CLEARLY IDENTIFY MOUNTING POSITIONS AS DESCRIBED IN THE PREINSTALLATION MANUAL, PAGE 99.

DWG FILENAME: HYBRID OR 9 SHEET SIZE: 36" x 24"

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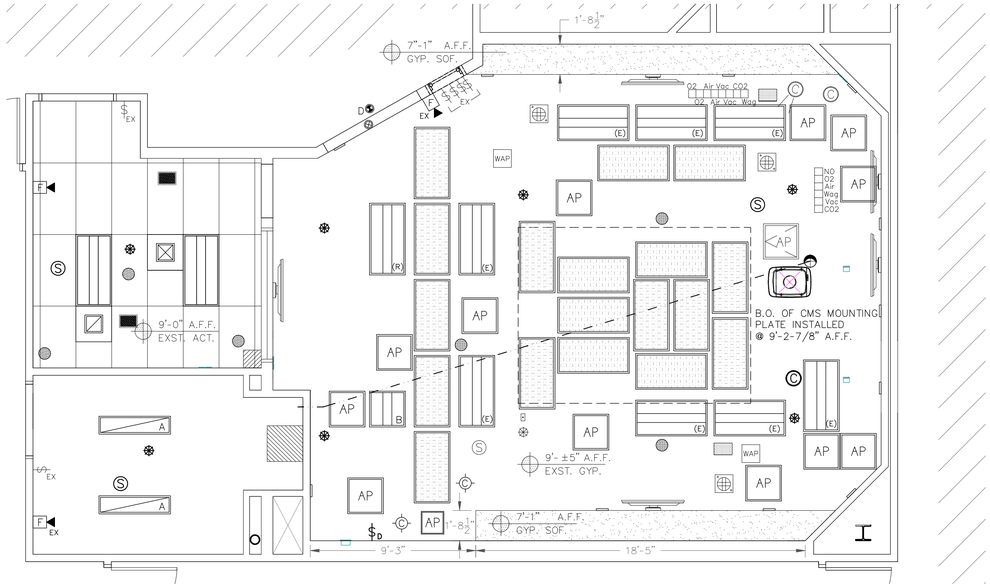
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SHEET TITLE:
EQUIPMENT FLOOR PLAN

SHEET NO.:
A102



NORTH

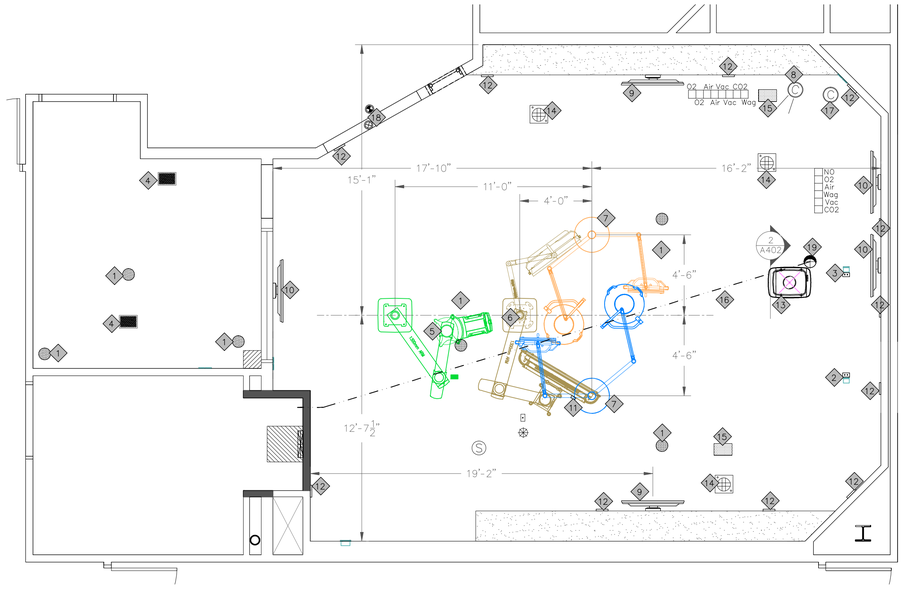
REFLECTED CEILING PLAN
SCALE: 1/4"=1'-0"

LIGHT FIXTURE SCHEDULE	
A	LITHONIA 1x4 RECESSED LENSED TROFFER, GTL SERIES GTL-4-48L-A125125-LP840
B	HEALTHCARE LIGHTING, 2x2 TROFFER W/ HIGH CRI ANTIMICROBIAL PAINT, HSTLED22-F-MVOLT
C	KENALL 4" SEALED RECESSED SURGICAL LED DOWNLIGHT, M4DL4-DCFW-14L-40K9-CSS-RIS4-120-DIM1
D	LITHONIA RECESSED LED X-RAY LIGHT, LE-P-W-1-R-120/277-SW16

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GENERAL NOTES	
A.	CONTRACTOR SHALL COMPARE THIS REFLECTED CEILING PLAN WITH ELECTRICAL LIGHTING & MECHANICAL PLANS. REPORT ANY OMISSIONS OR INCONSISTENCIES TO THE PROJECT MANAGER.
B.	REFER TO ENGINEERED LIGHTING PLAN FOR LIGHT FIXTURE SELECTION SPECIFICATIONS & EMERGENCY POWERED/CRITICAL CIRCUIT LIGHTING LOCATIONS.
C.	INSTALL GANTRY POSITIONING TARGETS ON SOFFIT & WALLS @ A MINIMUM HEIGHT OF 80.7" & MAXIMUM OF 90.5" ABOVE FINISHED FLOOR.
D.	POSITIONING TARGETS TO BE INSTALLED AT THE TIME OF GANTRY INSTALLATION & SHOULD BE VISIBLE TO THE LASER SOURCE WITHOUT OBSTRUCTIONS.
E.	CONTRACTOR TO BALANCE HVAC SYSTEM TO MEET SPECIFIED REQUIREMENTS FOR TEMP & AIR FLOW AS DESCRIBED IN MECHANICAL & GE SITE SPECIFIC DRAWINGS.
F.	NEW SPRINKLER HEAD LOCATIONS SHOWN ARE PROPOSED. CONTRACTOR TO USE CERTIFIED LICENSED FIRE VENDOR TO INSURE COMPLETE COVERAGE AS REQUIRED BY CODE.
G.	REPAIR AND/OR PATCH FIRE PROOFING ON ALL EXISTING ABOVE CEILING STRUCTURAL STEEL SUPPORT MEMBERS WHETHER AFFECTED BY CONSTRUCTION OR BY EXISTING CONDITION.
H.	REFER TO STRUCTURAL PLANS FOR INSTALLATION OF NEW UNISTRUT SUPPORT MEMBERS ABOVE CEILING.
I.	ALL CEILING MOUNTED FIXTURES TO BE FLUSH MOUNTED OR SHALL NOT EXTEND MORE THAN 1/4" BELOW THE FINISHED CEILING.
J.	CONTRACTOR TO PROVIDE LICENSED FIRE ALARM VENDOR FOR REVIEW & INSTALLATION OF ANY NEW OR RELOCATED DEVICES AS REQUIRED BY CODE.
K.	REFER TO GE & STRYKER SITE SPECIFIC DRAWINGS FOR ALL EQUIPMENT MOUNTING REQUIREMENTS & CLEARANCES ALONG WITH ELECTRICAL, CABLING & MED GAS CONNECTIONS.
L.	REVIEW BOTH GE & STRYKER PRE-INSTALLATIONS FOR IMPORTANT SPECIFICS NOT MENTIONED IN THIS DOCUMENT SET.
M.	MONITORS INSTALLATION & CONNECTIONS TO THE GE EQUIPMENT SHALL ONLY BE MADE IN THE PRESENCE OF A GE REPRESENTATIVE.
N.	VERIFY NEW CAMERA INSTALL LOCATIONS HAVE CLEAR LINE OF SITE BEFORE INSTALLING J-BOXES & MOUNTING.
O.	INSTALL FIRE RESISTANT BACKING FOR ALL WALL MOUNTED MONITOR LOCATIONS.
P.	PAINT ACCESS PANELS TO MATCH CEILING FINISH.

CMS UNIT INSTALLATION NOTES	
1.	CONTRACTOR TO PROVIDE FABRICATION OF CMS CEILING PLATE BASED UPON STRUCTURAL ENGINEER'S DESIGN. RE: STRUCTURAL & PG. 13 OF GE SITE SPECIFIC PLANS.
2.	CMS MOUNTING PLATE HEIGHT BASED ON OPTION 2 OF GE PRE-INSTALLATION MANUAL. COVER PLATE WITH DROP-DOWN BOX OR COVER TO BE CLOSED WITH REST OF CEILING. INCLUDE THE DEPTH OF THE NEW 7mm FLOORING THICKNESS IN THE MOUNTING HEIGHT CALCULATION.
3.	CMS TO C-FRT LIMITED CABLE LENGTH OF 42'-6" SHOWN ON PLANS. CONSIDER UNOBSTRUCTED PATH DURING CEILING INSTALLATION AS MUCH AS POSSIBLE. INSTALL CABLE USING "J" HOOKS.
4.	CONTRACTOR TO CONFIRM AREA OF FREE SPACE ABOVE CEILING ABOVE CABLE GUIDE FOR CABLE BUNDLE ATTACHMENT AS SHOWN ON PG. 114 OF THE PRE-INSTALLATION MANUAL.
5.	NO MOUNTED HARDWARE CAN PROTRUDE BELOW THE FINISHED CEILING HEIGHT IN THE CMS COVERAGE AREA.
6.	CONTRACTOR TO USE IDENTIFIED PIVOT ROTATIONAL CENTER WHEN ALIGNING THE FLOOR TEMPLATE TO THE STRUCTURAL PLATE, NOT THE CENTER OF THE CMS MOUNTING PLATE. THE PIVOT ROTATIONAL CENTER IS NOT CENTERED ON THE PLATE.
7.	SEE PG. 118 OF GE PRE-INSTALLATION MANUAL FOR DIMENSIONAL RELATIONSHIP BETWEEN CMS PLATE PIVOT WITH THE PATIENT TABLE AXIS. NOTICE OFFSET OF 570 MM FROM TABLE LONGITUDINAL AXIS. CMS FIXATION POINT IS A FIXED POSITION W/ RESPECT TO THE TABLE POSITION.
8.	CONTRACTOR TO CONFIRM STRUCTURAL PLATE IS THE CORRECT SIZE FOR THE GE CMS PLATE TO ENSURE PROPER INSTALLATION OF CEILING CABLE GUIDE.
9.	CONTRACTOR IS RESPONSIBLE FOR THE HARDWARE TO MOUNT THE CMS TO THE STRUCTURAL PLATE.



EQUIPMENT KEYNOTES	
1	VITA-LINQ SPEAKERS
2	DVI CEILING PLATE (TEE)
3	DVI CEILING PLATE (ANES. VITALS)
4	STRYKER SPEAKER
5	STRYKER EQUIPMENT BOOM
6	DUAL FLAT MONITOR BOOM (DVI CABLING)
7	SURGICAL LIGHT & LEAD SHIELD
8	RELOCATED SRYKER HD PAN/TILT/ZOOM CAMERA
9	STRYKER 55" LCD MONITOR
10	OWNER PROVIDED 55" LCD ANESTHESIA, PERFUSION & VITALS MONITOR/CONTRACTOR INSTALL MOUNTING BRACKETS
11	VITA-LINQ MICROPHONE ON BOOM
12	GANTRY POSITIONING TARGETS
13	CABLE MANAGEMENT SYSTEM (CMS)
14	RELOCATED ELECTRICAL MED REEL RETRACTABLE CORD MOUNT
15	RELOCATED SALVAGED SPEAKER
16	GE CABLE FROM CMS TO C-FRT CABINET. LIMITED LENGTH. SET & MAINTAIN CLEAR PATH FOR SHORTEST DISTANCE
17	RELOCATED SALVAGED STRYKER SUITE STATUS CAMERA
18	CONTRACTOR SUPPLIED X-RAY WARNING LIGHT & CONTROL PANEL. AVAILABLE FROM GE SUPPLY
19	7.87" DIA. OPENING IN CEILING FOR CABLE GUIDE KEEP AREA CLEAR OF ANY OBSTRUCTIONS

STRYKER EQUIPMENT INSTALLATION NOTES	
1.	REVIEW ALL PRE-INSTALLATION MANUALS' INSTRUCTIONS PROVIDED BY STRYKER FOR COMPLETE & PROPER EQUIPMENT INSTALLATION.
2.	CONTRACT TO PROVIDE ALL ROUGH-IN REQUIREMENTS AS EXPLAINED IN THE PRE-INSTALLATION MANUALS.
3.	INSTALL STRYKER SUPPLIED MOUNTING PLATE AT 3" ABOVE THE FINISHED CEILING & MUST BE LEVEL WITHIN .25".
4.	ALLOW ENOUGH SPACE TO ROUTE CABLES TO SURGICAL LIGHTS AND FLAT PANEL NAVIGATION ARMS.
5.	ALL CONDUITS MUST HAVE INSULATION BUSHINGS ON ALL OPEN ENDS & ALL HARD CONDUITS MUST BE TERMINATED WITHIN 18" OF THE CENTER OF THE MOUNT.
6.	ALL CABLING & ELECTRICAL TO BE COMPLETED PRIOR TO STRYKER EQUIP INSTALLS. WORK MUST BE COMPLETE INCLUDING FLOORING & PAINT AND BE A DUST-FREE ENVIRONMENT.
7.	DO NOT EXCEED FOUR 90 DEGREE BENDS FOR CONDUIT RUNS & MUST BE 50' OR LESS IN LENGTH.
8.	MED GASES MUST BE PIPED TO THE MEDICAL GAS RISER LOCATION PRIOR TO INSTALLATION OF STRYKER BOOM.

NORTH

CEILING EQUIP PLAN
SCALE: 1/4"=1'-0"

DWG FILENAME: HYBRID OR 9 SHEET SIZE: 36" x 24"

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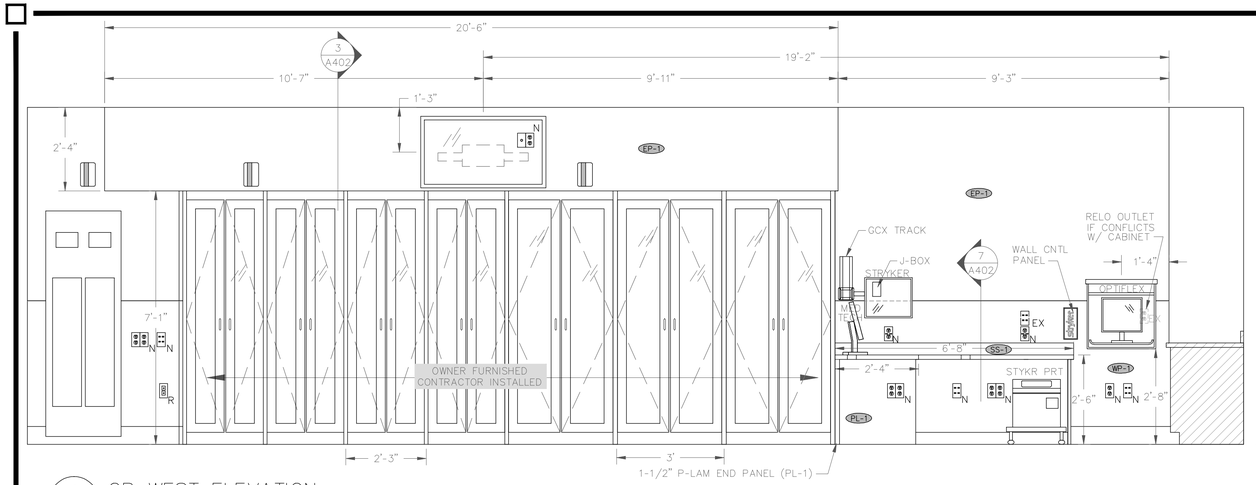
STATE OF COLORADO
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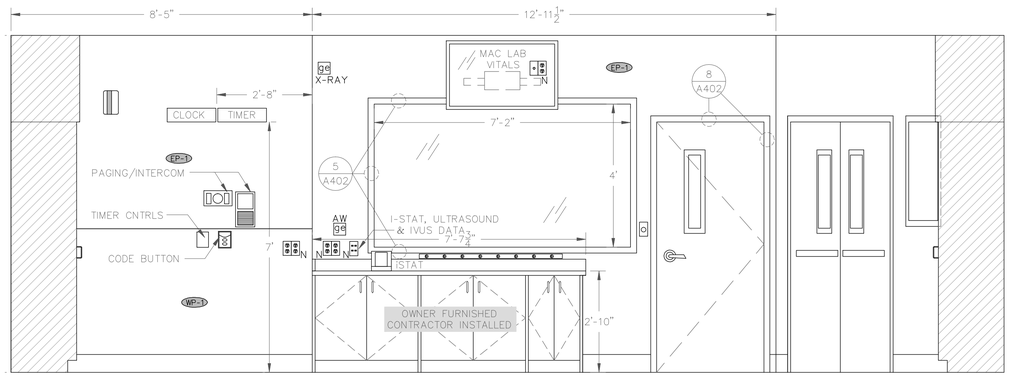
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RFELECTED CEILING PLAN
CEILING EQUIP PLAN

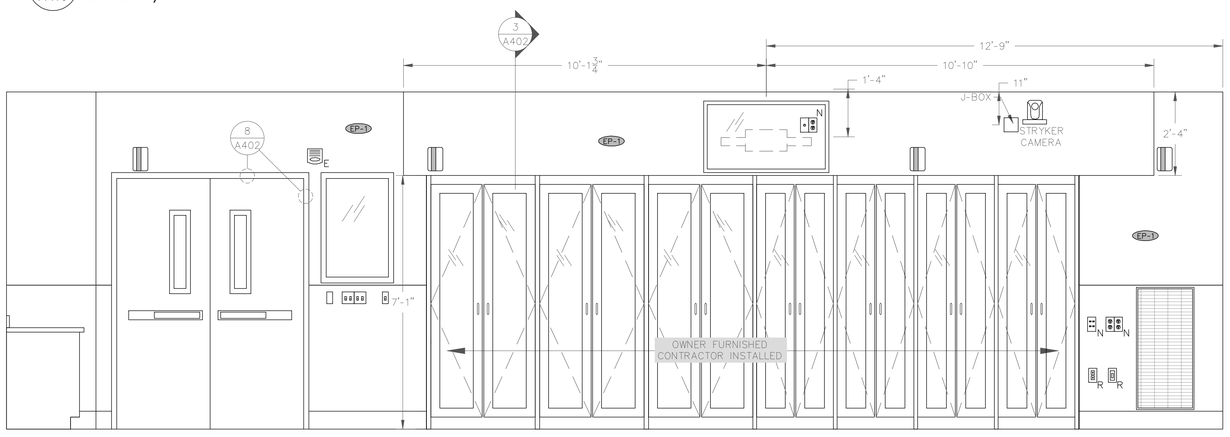
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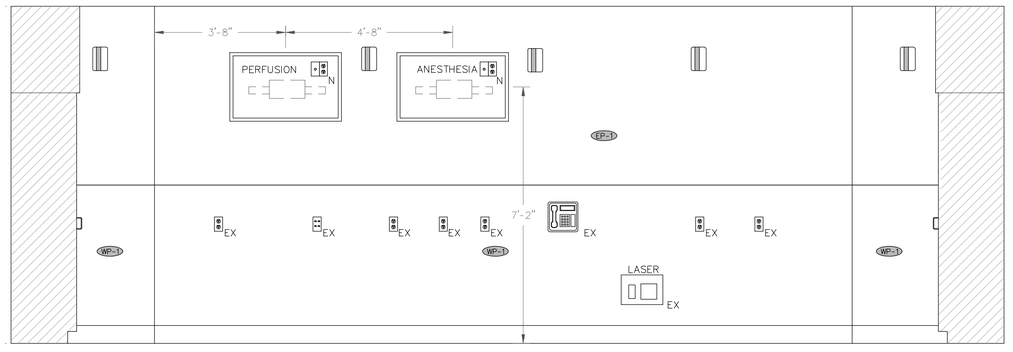
1 A4.0 OR WEST ELEVATION
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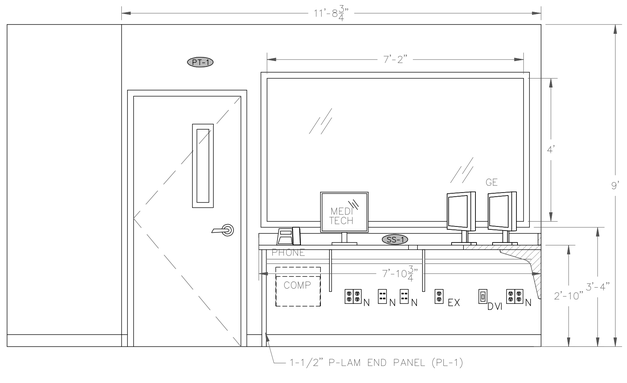
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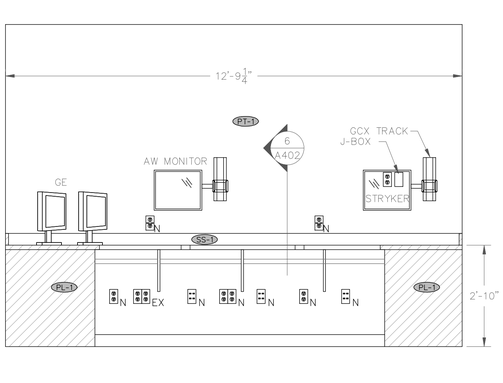
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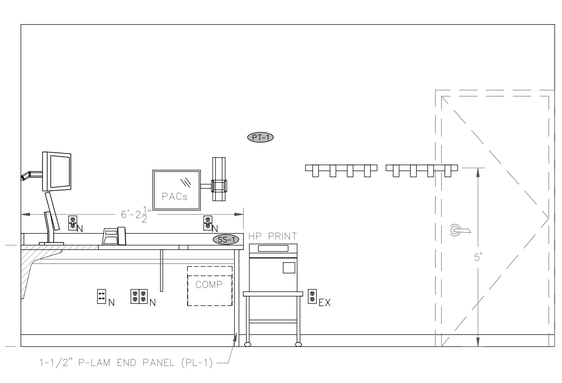
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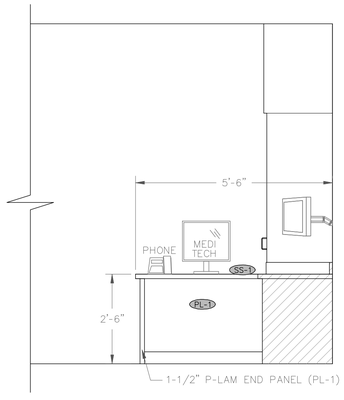
5 A4.0 CONTROL ROOM SOUTH
SCALE: 1/2" = 1'



6 A4.0 CONTROL ROOM WEST
SCALE: 1/2" = 1'



7 A4.0 CONTROL ROOM NORTH
SCALE: 1/2" = 1'



8 A4.0 NURSE STATION
SCALE: 1/2" = 1'

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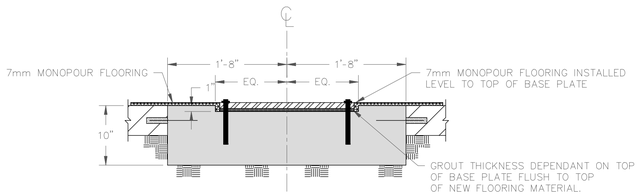
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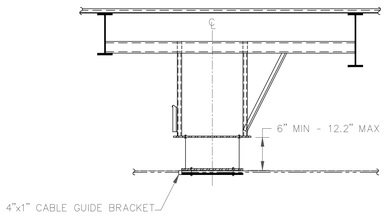
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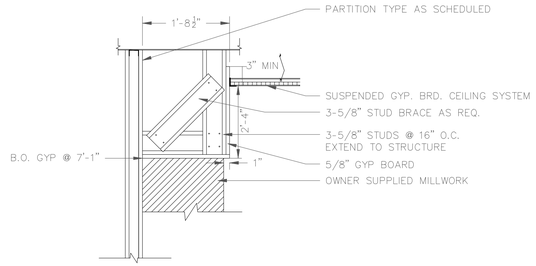
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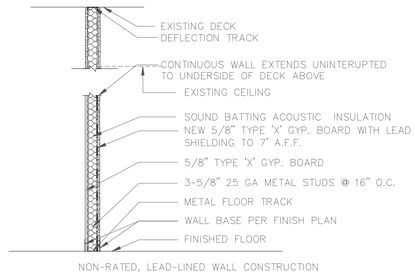
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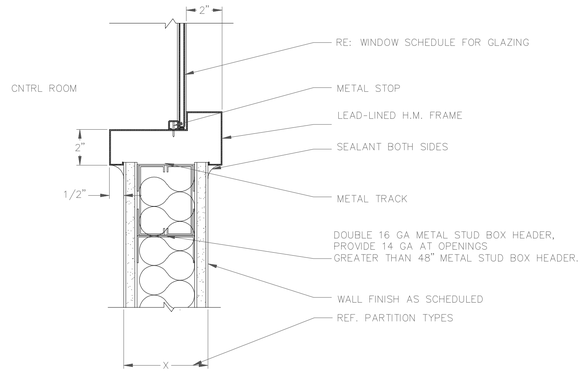
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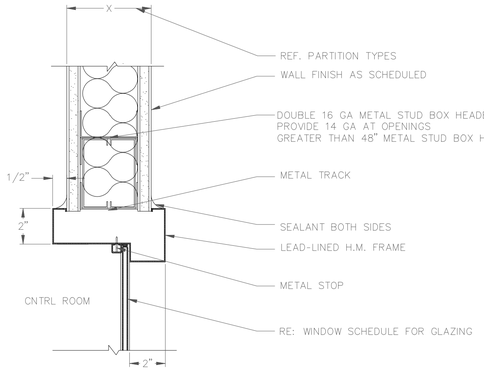
3 / A402 SOFFIT FURR DOWN SECT
SCALE: 1" = 1'



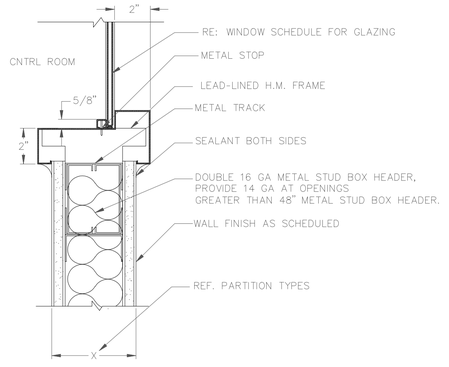
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HEAD DETAIL

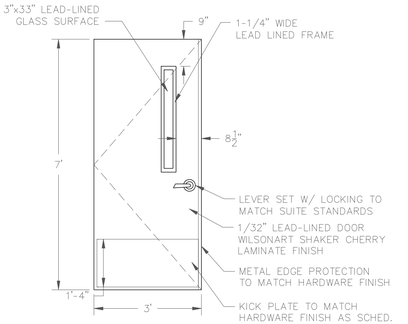


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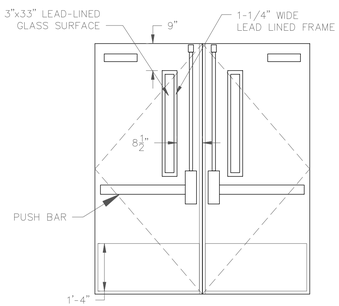


SILL DETAIL

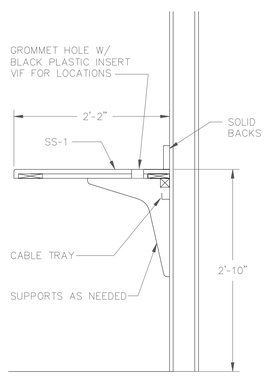
5 / A402 WINDOW FRAME DETAILS
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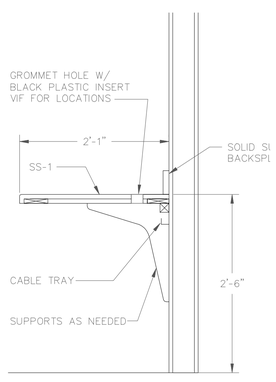
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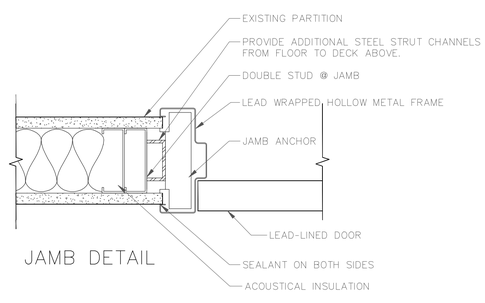
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SCALE: 1/2" = 1'



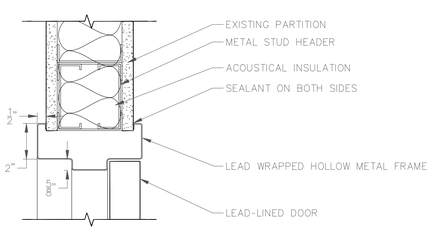
6 / A402 CNTRL COUNTER
SCALE: 1" = 1'



7 / A402 NURSE STAT COUNTER
SCALE: 1" = 1'



JAMB DETAIL



HEAD DETAIL

8 / A402 DOOR FRAME DETAILS
SCALE: 3" = 1'

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: John Lichtner
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The Medical Center of Aurora
HealthONE

HYBRID OR 9 / DISCOVERY IGS

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STATE OF COLORADO
TOM THOMPSON
305692
01.14.20
LICENSED ARCHITECT

PROJECT NO.: 190318

DRAWN BY: TH, BEPS
CHECKED BY: TT
SCALE: AS NOTED
DATE: 01.14.2020
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
ELEVATIONS
SECTIONS/DETAILS

SHEET NO.:
A402

DWG FILENAME: HYBRID OR 9 SHEET SIZE: 36" x 24"

MEDICAL GAS NOTES

PART 1 – BASIC REQUIREMENT

1.01 RELATED REQUIREMENTS

A. THIS SPECIFICATION SHALL CONTROL ALL LABOR, SERVICES, MATERIALS AND EQUIPMENT AND PERFORMANCE OF ALL WORK REQUIRED FOR THE INSTALLATION OF ALL PLUMBING AND MEDICAL GAS WORK AS SPECIFIED IN THE FOLLOWING.

B. DEFINITIONS:

1. "PIPING" INCLUDES, IN ADDITION TO PIPE, ALL FITTINGS, VALVES, PIPE COVERING, HANGERS, AND OTHER SUPPORTS AND ACCESSORIES RELATED TO SUCH PIPING.
2. CONCEALED MEANS HIDDEN FROM SIGHT IN CHASES, FURRED SPACES, SHAFTS, HUNG CEILINGS, EMBEDDED IN CONSTRUCTION, IN CRAWL SPACES OR BURIED.
3. "EXPOSED" MEANS NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
4. "PROVIDE" MEANS TO FURNISH AND INSTALL COMPLETE.

1.02 GENERAL REQUIREMENTS

A. MEDICAL GAS WORK TO COMPLY WITH 2012 EDITION OF NFPA #99 STANDARDS.

B. CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO VERIFY SCOPE OF WORK.

C. PRODUCTS AND EXECUTION SHALL BE PROVIDED FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM THROUGHOUT THE EXTENT OF THE PROJECT.

D. ALL PRODUCTS AND EQUIPMENT SHALL BE UL LISTED AND APPROVED BY THE FACILITY.

E. ALL NEW DEVICES AND TRIM SHALL COMPLY WITH RECOGNIZED NFPA STANDARDS.

F. EACH MAJOR COMPONENT OR PIECE OF EQUIPMENT TO HAVE THE MANUFACTURER'S NAME, ADDRESS, MODEL NUMBER AND RATING ON A PLATE SECURELY AFFIXED IN A CONSPICUOUS PLACE.

G. CODE RATINGS, LABELS OR OTHER DATA WHICH ARE DIE–STAMPED OR OTHERWISE AFFIXED TO THE SURFACE OF THE EQUIPMENT SHALL BE IN VISIBLE LOCATION.

H. CONTRACTOR SHALL COORDINATE PROPOSED WORK WITH EXISTING FIELD CONDITIONS INCLUDING ARCHITECTURAL BUILDING ELEMENTS, STRUCTURAL CONDITIONS, AND EXISTING MECHANICAL AND ELECTRICAL CONDITIONS.

I. CONTRACTOR SHALL ADHERE TO ALL BASE BUILDING AND CURRENT FACILITY STANDARDS AND REQUIREMENTS. SHUT–DOWN OF EXISTING BUILDING SYSTEMS FOR NEW PLUMBING CONNECTIONS SHALL BE AUTHORIZED, SCHEDULED AND PERFORMED IN ACCORDANCE TO BUILDING MANAGEMENT REQUIREMENTS. BUILDING SHALL BE NOTIFIED NO LESS THAN 72 HOURS PRIOR TO ANY SHUT–DOWNS. ACCESS TO AREAS OUTSIDE WORKS SPACES, SUCH AS ADJOINING SPACES AND SPACES IMMEDIATELY BELOW, SHALL BE PERFORMED IN ACCORDANCE TO BUILDING MANAGEMENT REQUIREMENTS.

1.03 WORK INCLUDED

A. INCLUDE ALL COSTS RELATED TO PROVIDE ALL PERMITS, LICENSES, INSPECTIONS, APPROVALS AND OTHER ARRANGEMENTS FOR WORK.

B. PROVIDE DEMOLITION OF EXISTING SYSTEMS INCLUDING REMOVAL OF ALL DEBRIS. COORDINATE WITH BUILDING MANAGEMENT EXISTING EQUIPMENT, FIXTURES OR DEVICES THAT SHALL BE RETAINED, CAREFULLY REMOVE AND TURN OVER TO OWNER. REMOVE ALL PIPING BACK TO ACTIVE SOURCE AND CAP LEAVING NO DEAD ENDS.

C. PRIOR TO DEMOLITION OF EQUIPMENT, FIXTURES OR TRIM, COORDINATE WITH OWNER ANY ITEMS TO BE RETAINED. CAREFULLY REMOVE SUCH ITEMS AND TURN OVER TO OWNER.

D. PROVIDE FIXTURES AS INDICATED ON PLUMBING AND ARCHITECTURAL DRAWINGS. FOR EXACT LOCATION OF FIXTURES, REFER TO ALL ARCHITECTURAL AND CONSULTANT PLANS AND ELEVATIONS.

E. MAKE NEW CONNECTIONS TO EXISTING BRANCH PIPING AS INDICATED ON PLANS AND RISER DIAGRAMS, AND AS NECESSARY TO COMPLETE THE WORK.

F. INSTALL PIPING WITH ADEQUATE PROVISIONS TO CONTROL EXPANSION AND CONTRACTION.

G. PROVIDE AND SET SLEEVES FOR ALL PIPING SYSTEMS PASSING THROUGH WALLS, FLOORS, PARTITIONS, ETC. SLEEVES SHALL BE SIZED AT LEAST TWO PIPE DIAMETERS LARGER THAN PIPING, OR OUTSIDE DIAMETER OF INSULATED PIPING.

H. ARRANGE FOR POWER TO SUPPORT ALL ELECTRICAL RELATED EQUIPMENT AND DEVICES.

I. PROVIDE ROUGH–IN AND FINAL CONNECTIONS TO ALL APPLIANCES AND EQUIPMENTS FURNISHED BY OTHERS, INCLUDING ALL REQUIRED DEVICES.

J. PROVIDE ALL CUTTING AND PATCHING OF BUILDING ELEMENTS AS REQUIRED FOR INSTALLATION OF WORK HERE IN SPECIFIED. ALL WORK SHALL BE COORDINATED AND APPROVED BY BUILDING AND ARCHITECTURAL FIELD REPRESENTATIVE PRIOR TO ANY WORK BEING PERFORMED.

K. PROVIDE FIRE–STOP AT ALL FLOOR AND WALL PENETRATIONS AS REQUIRED BY PROJECT PARAMETERS AND LOCAL CODE AUTHORITY.

L. PROVIDE ALL ACCESS PANELS. CONTRACTOR TO GIVE ALL LOCATIONS AND DIMENSIONS OF ALL REQUIRED ACCESS PANELS TO GENERAL CONTRACTOR. GENERAL CONTRACTOR WILL SUBMIT TO ARCHITECT FOR APPROVAL AND FINISH REQUIREMENTS PRIOR TO INSTALLATION.

M. COORDINATE PROPOSED WORK WITH ADDITIONAL TRADES AND OTHERS INVOLVED PRIOR TO ANY INSTALLATION WORK.

N. PROVIDE PIPING IDENTIFICATION MARKERS FOR ALL PIPING SYSTEMS WITH ANSI/ASME STANDARD COLORS AND LABELS. MARKERS SHALL BE INSTALLED 20 FEET ON CENTER MINIMUM AND MARKERS INSTALLED IN EACH ROOM.

O. PROVIDE VALVE TAGS OF BRASS OR STAINLESS STEEL HAVING A MINIMUM OF 1–1/2 INCH DIAMETER. PROVIDE COMPLETED VALVE CHART INDICATING VALVE SERVICE AND LOCATION.

P. PROVIDE AS–BUILT DRAWINGS IN AUTOCAD 2017 FORMAT AT COMPLETION OF PROJECT.

Q. PROVIDE TWO COPIES OF OWNER'S OPERATION AND MAINTENANCE MANUALS WITH ALL PLUMBING AND MEDICAL GAS EQUIPMENT, FIXTURES, TRIM AND DEVICES, MANUFACTURER'S MAINTENANCE INSTRUCTIONS AND MANUALS.

1.04 CLEANING

A. COORDINATE GENERAL CLEANUP WITH BUILDING MANAGEMENT.

B. CLEAN ALL PIPING SYSTEMS IN ACCORDANCE TO NFPA STANDARDS.

1.05 FIELD TESTING

A. TESTING SHALL BE IN STRICT COMPLIANCE TO THE APPLICABLE CODES AND NFPA STANDARDS.

B. NO WORK SHALL BE ENCLOSED, CONCEALED, COVERED UP OR USED UNTIL THE SYSTEMS HAVE BEEN INSPECTED AND APPROVED BY THE CODE OFFICIALS AND ARCHITECTURAL FIELD REPRESENTATIVE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALL NECESSARY ARRANGEMENTS FOR INSPECTIONS.

D. MEDICAL GAS SHALL BE TESTED AND CERTIFIED IN ACCORDANCE TO CURRENT NFPA #99 STANDARDS.

PART 2 – BASIC MATERIALS

2.01 PIPES AND FITTINGS

A. MEDICAL GAS: HARD DRAWN SEAMLESS TYPE "K" MEDICAL GAS TUBE; ASTM B819 AND MARKED ACCORDINGLY FOR SERVICE TYPE PER NFPA 99 STANDARDS. FITTINGS SHALL CLEANED AND LISTED FOR OXYGEN SERVICE. JOINTS SHALL BE BRAZED IN ACCORDANCE TO NFPA 99 AND MSS SP–73 BRAZING STANDARDS.

2.02 VALVES

F. PROVIDE VALVES FOR ALL PIPING SYSTEMS FOR PROPER CONTROL AND ISOLATION OF EQUIPMENT, FIXTURES AND DEVICES. PROVIDE VALVES FOR PROPER OPERATION OF EQUIPMENT.

B. MEDICAL GAS VALVES SHALL BE 3–PIECE DESIGN CLEANED AND LISTED FOR OXYGEN SERVICE.

2.03 SUPPORTS AND HANGERS

A. PROVIDE ALL NECESSARY HANGERS, SUPPORTS, BUILDING ATTACHMENTS, SUPPLEMENTAL STEEL, ANCHORS, INSERTS, ETC., AS REQUIRED TO INSTALL THE PIPING WORK. HANGERS AND SUPPORTS SHALL BE CAPABLE OF SUPPORTING PIPE LOADS AND FULL CONTENTS WITH ALL RELATED DEVICES, PUMPS, ETC.

B. HANGERS, SUPPORTS AND RELATED ITEMS SHALL HAVE FACTORY COATED FINISHES THAT WILL NOT PROMOTE GALVANIC OR CORROSION ACTION. RODS, NUTS AND MISCELLANEOUS FASTENERS SHALL BE GALVANIZED.

PART 3 – BASIC EXECUTION

3.01 MEDICAL GAS

A. MEDICAL GAS SYSTEM DEMOLITION AND INSTALLATION SHALL COMPLY WITH CURRENT EDITION OF NFPA 99.

B. SYSTEM TEST & CERTIFICATIONS SHALL BE IN STRICT COMPLIANCE WITH NFPA STANDARDS. TEST & CERTIFICATION SHALL CONSIST OF ALL PIPELINES WITHIN AFFECTED AREA OF SCOPE AND PIPELINE IMMEDIATELY UPSTREAM OF AREA AS PRESCRIBED IN NFPA 99. FINAL CROSS CONNECTION, CERTIFICATION AND PURITY TESTS SHALL BE CONDUCTED BY A THIRD PARTY AS DIRECTED BY THE HOSPITAL.

C. PROVIDE ALL REQUIRED CUTTING AND PATCHING FOR THE NEW MEDICAL GAS SYSTEMS.

D. PROVIDE A NOTORIZED DOCUMENT INDICATING ALL TEST RESULTS FOR SUBMISSION TO ALL NECESSARY CODE AUTHORITIES AND FOR FACILITY RECORDS.

PART 4 – EQUIPMENT, FIXTURES AND DEVICES

4.01 GENERAL

A. INSTALL ALL ITEMS IN ACCORDANCE TO MANUFACTURER'S INSTRUCTIONS. PROVIDE ALL REQUIRED FACTORY AUTHORIZED START–UP SERVICES WHERE REQUIRED.

B. ITEMS SHALL BE SET, LEVELED, FASTENED AND CONNECTED COMPLETE WITH ALL REQUIRED TRIM, SUPPORTS, ETC. ALL FIXTURES SHALL BE PERFECT IN FINISH AND COLOR, SHALL BE SQUARE WITH RELATION TO FINISHED INTERIOR AND LOCATED AS INDICATED ON THE DRAWINGS.

C. ALL ITEMS SHALL BE PROVIDED WITH PROPER SUPPORT. PROVIDE AND ARRANGE FOR ALL NECESSARY WALL FRAMING AND BLOCKING.

D. AFTER WORK HAS BEEN COMPLETED, ALL ITEMS AND TRIM SHALL BE THOROUGHLY CLEANED.

E. PROVIDE ALL MEDICAL GAS EQUIPMENT AND DEVICES AS SPECIFIED. EQUIPMENT DEVICES, VALVES AND RELATED COMPONENTS SHALL BE FROM AMICO PURITAN BENNETT AND IN ACCORDANCE TO CURRENT NFPA #99 STANDARDS.

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: John Lichtner
Date: Jan 23, 2020
2015 INTERNATIONAL CODES & 2017 NEC

CODE REFERENCES

CITY OF DENVER, COLORADO MUNICIPAL PLUMBING CODE
2015 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL PLUMBING CODE
2012 NFPA 99 STANDARDS

DRAWING LIST

P0.0	MEDICAL GAS SYMBOLS, ABBREVIATIONS AND CODE INFO	NO SCALE
P1.0	MEDICAL GAS FLOOR PLANS	1/4"=1'–0"

MEDICAL GAS MATERIAL LIST

SERVICE DESCRIPTION	MATERIAL
MEDICAL GAS	TYPE 'K' HARD DRAWN SEAMLESS COPPER AND WROT FITTINGS CLEANED & CAPPED FOR OXYGEN SERVICE. JOINTS SHALL BE BRAZED IN ACCORDANCE TO CURRENT NFPA 99 STANDARDS.

MEDICAL GAS SYMBOL LIST

SYMBOL	DESCRIPTION
O2	OXYGEN PIPING
AIR	MEDICAL COMPRESSED AIR PIPING
VAC	MEDICAL VACUUM PIPING
N	NITROGEN PIPING
WAGD	WASTE ANESTHETIC GAS DISPOSAL PIPING
CO2	CARBON DIOXIDE PIPING
NO	NITRIC OXIDE PIPING
	NEW PIPE
	EXISTING PIPE
	ZONE VALVE BOX
	SHUT–OFF VALVE
	EXISTING FIXTURE/EQUIPMENT/PIPING TO BE REMOVED
	NEW CONNECTION

MEDICAL GAS ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
AIR	MEDICAL COMPRESSED AIR
O2	OXYGEN
VAC	MEDICAL VACUUM
N	NITROGEN
WAGD	WASTE ANESTHETIC GAS DISPOSAL
CO2	CARBON DIOXIDE
NO	NITRIC OXIDE
ZVB	ZONE VALVE BOX
TYP.	TYPICAL

PLUMBING ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
(N)	NEW PIPING
(E)	EXISTING PIPING

The Medical Center of Aurora
Health ONE

HYBRID OR 9 / DISCOVERY IGS

MEDICAL CENTER OF AURORA

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AURORA, CO 80012

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COLORADO LICENSED
MICHAEL P. THOMPSON
53150
PROFESSIONAL ENGINEER
10/25/2019

PROJECT NO.: 18–22

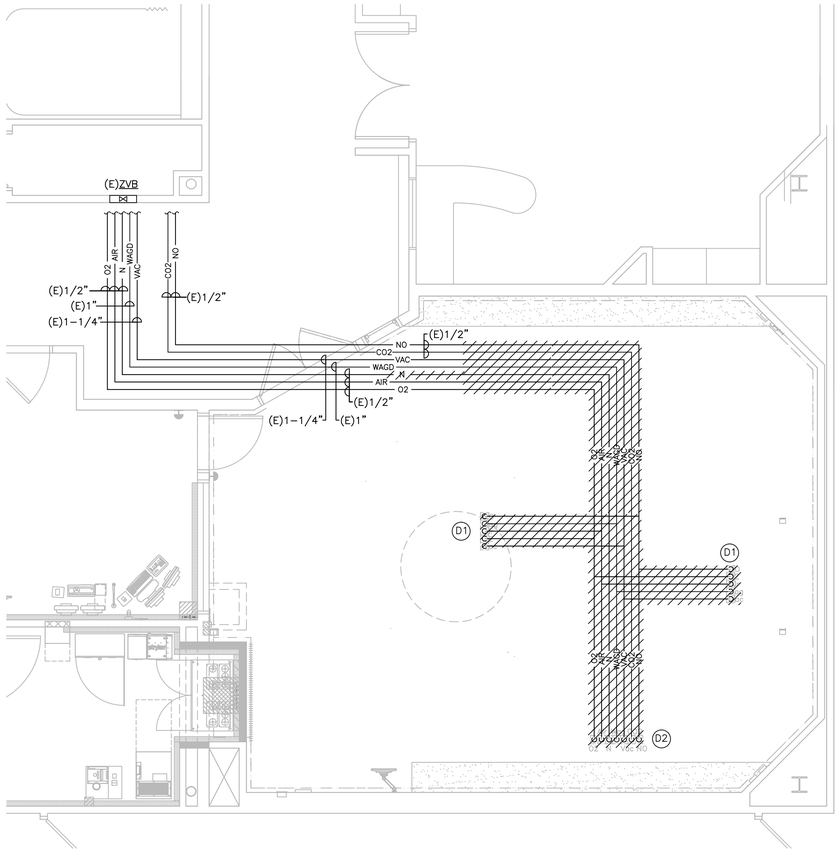
DRAWN BY:
CHECKED BY:
SCALE: AS SHOWN
DATE: 10/25/2019
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
PLUMBING SYMBOLS, ABBREVIATIONS, AND CODE INFO

SHEET NO.:
P0.0

G:\19119-00\100 PLUMB\DWG\ PLUMBING SYMBOLS, ABBREVIATIONS AND CODE INFO.DWG Last edited by: RYB on 10–10–2019 @ 10:37
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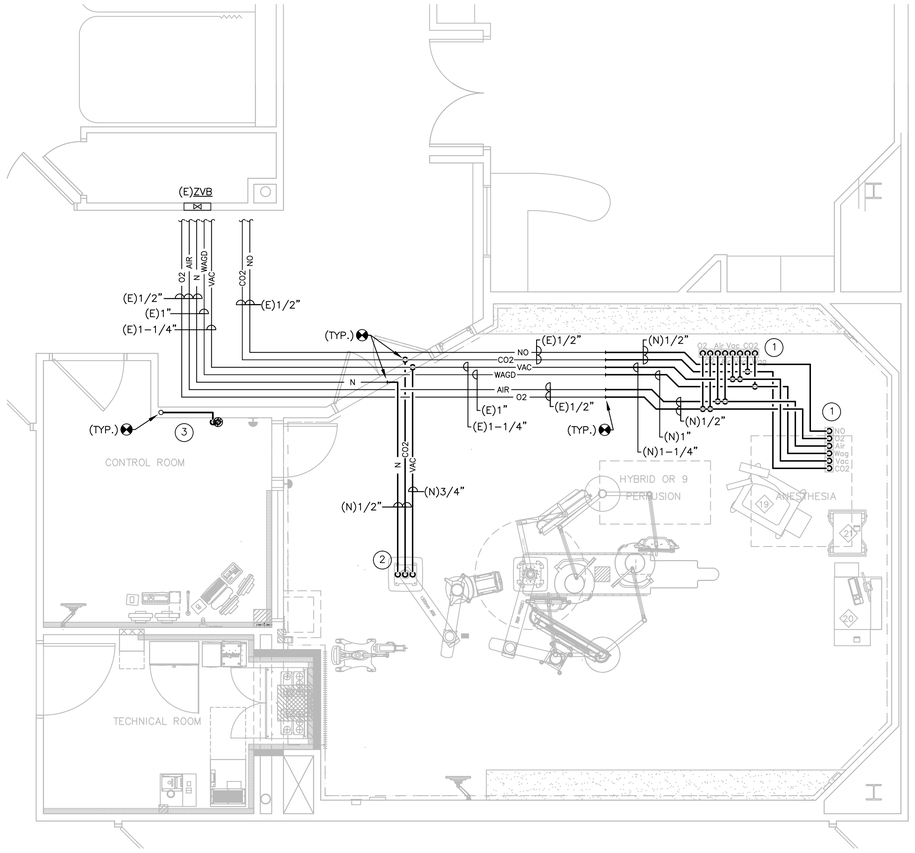
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1 PLUMBING DEMOLITION FLOOR PLAN

1/4"=1'-0"

0 2 4 8



2 PLUMBING FLOOR PLAN

1/4"=1'-0"

0 2 4 8

DEMOLITION KEY NOTES:

D1 MEDICAL GAS OUTLETS TO BE REMOVED WITH MEDICAL GASES RELOCATED TO CONNECT WITH NEW OR BOOM.

D2 EXISTING MEDICAL GAS OUTLETS AND ASSOCIATED PIPING TO BE REMOVED. REMOVE ALL PIPING BACK TO ACTIVE SOURCE AND CAP. REMOVE ALL ASSOCIATED HANGERS AND SUPPORTS UNUSED.

QUALIFICATION OF MEDICAL GAS INSTALLERS SHALL BE PER NFPA 5.1.10.11.10

CONDENSTE PIPING PER IPC 307

NEW WORK KEY NOTES:

1. PROVIDE NEW MEDICAL GAS CEILING OUTLETS. MATCH EXISTING CEILING OUTLETS. PIPE SUPPORTING MEDICAL GASES TO NEW OUTLETS.
2. EXTEND AND CONNECT EXISTING MEDICAL GAS SYSTEMS TO NEW OR BOOM. COORDINATE EXACT ROUGH-IN LOCATIONS AND CONNECTIONS REQUIRED WITH OR BOOM EQUIPMENT INSTRUCTIONS.
3. PROVIDE NEW 2" OPEN SITE DRAIN/STANDPIPE TO ACCEPT HVAC CONDENSATE. COORDINATE EXACT PLACEMENT WITH HVAC EQUIPMENT AND HVAC CONTRACTOR. CONNECT INTO EXISTING SINK PIPING IN WALL. ALIGN OPEN SITE DRAIN AND TRAP PARALLEL TO WALL. KEEP EXPOSED PIPING TO A MINIMUM.

GENERAL NOTES:

1. CONTRACTOR TO ROUGH-IN AND MAKE FINAL CONNECTIONS TO "STRYKER" CEILING BOOMS IN STRICT ACCORDANCE TO MANUFACTURER'S INSTRUCTIONS. MEDICAL GAS LINES SHALL BE TERMINATED WITH "STRYKER" SUPPLIED GAS RISERS, INSTALLED BY THIS CONTRACTOR. ALL FINAL DISS CONNECTIONS TO BE MADE BY THIS CONTRACTOR AFTER "STRYKER" INSTALLATIONS.
2. CONTRACTOR TO COORDINATE AND ROUTE MEDICAL GASES AROUND PROPOSED STRUCTURAL SUPPORTS FOR CEILING MOUNTED EQUIPMENT. COORDINATE WITH STRUCTURAL DOCUMENTS.

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COLORADO LICENSED
MICHAEL P THOMPSON
53150
PROFESSIONAL ENGINEER
10/25/2019

PROJECT NO.:	18-22
DRAWN BY:	
CHECKED BY:	
SCALE:	AS SHOWN
DATE:	10/25/2019
ISSUED FOR:	CONSTRUCTION
REVISIONS:	

SHEET TITLE:
PLUMBING PLANS

SHEET NO.:
P1.0

MECHANICAL ABBREVIATIONS

AAV	AUTOMATIC AIR VENT (VALVE)
AB	AIR BLENDER
AC	AIR CONDITIONING UNIT OR AIR COMPRESSOR
ACH	AIR CHANGES PER HOUR
AD	ACCESS DOOR
AF	AIR FILTER
AFC	AUTOMATIC FLOW CONTROL DEVICE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
AMP	AMPERE
AMS	AIR FLOW MEASURING STATION
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARCH	ARCHITECT/ARCHITECTURAL
AS	AIR SEPARATOR
AUTO	AUTOMATIC
AVG	AVERAGE
BAS	BUILDING AUTOMATION SYSTEM
BD	BALANCING DAMPER
BDD	BACK-DRAFT DAMPER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTUH	BRITISH THERMAL UNIT PER HOUR
CAP	CAPACITY
CC	COOLING COIL
CCW	COUNTER CLOCKWISE
CD	CONDENSATE DRAIN
CF	CUBIC FEET
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CL	CENTER LINE
CO	CLEAN OUT OR CARBON MONOXIDE
CONT	CONTINUOUS, CONTINUATION
CP	COIL PUMP
CT	COOLING TOWER
CU	CONDENSING/ER UNIT
CU FT	CUBIC FEET
CV	CONSTANT AIR VOLUME
CW	COLD WATER OR CLOCKWISE
D	DRAIN
DB	DECIBEL OR DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL
DE	DRYER EXHAUST
DER	DRYER EXHAUST RISER
DEG.F	DEGREE FARENHEIT
DG	DOOR GRILLE
DIA	DIAMETER
DIFF	DIFFUSER
DISCH	DISCHARGE
DN	DOWN
DP	DIFFERENTIAL PRESSURE
DWG	DRAWING
DX	DIRECT EXPANSION
(E)	EXISTING
E	EXHAUST
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EBB	ELECTRIC BASEBOARD HEATER
EC	ELECTRICAL CONTRACTOR
ECH	ELECTRIC CABINET HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	ETHYLENE GLYCOL-WATER SOLUTION (% GLYCOL BY VOLUME)
EHC	ELECTRIC HEATING COIL
ELEC	ELECTRIC/ELECTRICAL
EL/ELEV	ELEVATION
ENT	ENTERING
EQUIP OR EQT	EQUIPMENT
E/RF	EXHAUST/RETURN FAN
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXIST	EXISTING
F	FILTER
°F	DEGREE FARENHEIT
FA	FREE AREA
FD	FIRE DAMPER
FLA	FULL LOAD AMPERES
FLEX	FLEXIBLE
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT

FPB	FAN POWERED TERMINAL UNIT
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FREEZE STAT
F/SD	COMBINATION FIRE/SMOKE DAMPER
FT	FEET OR FLASH TANK
FTR	FIN TUBE RADIATION (HOT WATER)
FV	FACE VELOCITY
GA	GAUGE
GAL	GALLON
GC	GENERAL CONTRACTOR
GD	GRAVITY DAMPER
GEN	GENERAL
GE	GENERAL EXHAUST
GER	GENERAL EXHAUST RISER
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H	HUMIDISTAT
HC	HEATING COIL
HORIZ	HORIZONTAL
HP	HORSEPOWER OR HEAT PUMP
HR	HOUR
HTG	HEATING
HUM	HUMIDIFIER
HVAC	HEATING, VENTILATION & AIR CONDITIONING
HX	HEAT EXCHANGER
HZ	HERTZ
ID	INSIDE DIAMETER
IN OR "	INCH
INSUL.	INSULATION
IN W.C.	INCHES WATER COLUMN
IN W.G.	INCHES WATER GAUGE
KE	KITCHEN EXHAUST
KER	KTICHEN EXHAUST RISER
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LL	LOW LIMIT OR LANDLORD
LP	LOW PRESSURE GAS
LRA	LOCKED ROTOR AMPERES
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MB	MIXING BOX
MBH	THOUSAND BTU PER HOUR
MIN	MINIMUM OR MINUTE(S)
MD	MOTORIZED DAMPER
MP	MEDIUM PRESSURE GAS
NC	NORMALLY CLOSE OR NOISE CRITERIA
NIC	NOT IN CONTRACT
NK	NECK
NO	NORMALLY OPEN
NO OR #	NUMBER
NR	NOT REQUIRED
NTS	NOT TO SCALE
NV	NATURAL VENTILATION
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OBD	OPPOSED BLADE DAMPER
OD	OUTSIDE DIAMETER
OPNG	OPENING
OV	OUTLET VELOCITY OR OVAL
P	PUMP
CTP	COOLING TOWER PUMP
CWP	CONDENSER WATER PUMP
PC	PLUMBING CONTRACTOR
PCD	PUMPED CONDENSATE DISCAHRGE
PG	PROPYLENE GLYCOL-WATER SOLUTION (%GLYCOL BY VOLUME)
PLBG	PLUMBING
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
R	RETURN OR RISER
RA	RETURN AIR
REQ'D	REQUIRED
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RO	RELIEF OPENING
RP	RADIANT PANEL
RPM	REVOLUTIONS PER MINUTE
RV	RELIEF VALVE (VENT) OR ROOF VENTILATOR
S	SUPPLY
SA	SOUND ATTENUATOR

SF	SUPPLY FAN OR SQUARE FEET
SHT	SHEET
SL	SENSIBLE LOAD
SP	STATIC PRESSURE
SPECS	SPECIFICATIONS
SQ	SQUARE
SQ.FT.	SQUARE FEET
SS	STAINLESS STEEL
STD	STANDARD
STRUC	STRUCTURE/STRUCTURAL
T	THERMOSTAT/TEMPERATURE SENSOR
TD	TEMPERATURE DIFFERENCE OR TRANFER DUCT
TEF	TOILET EXHAUST FAN
TER	TOILET EXHAUST RISER
TEMP	TEMPERATURE
TO	TRANSFER OPENING
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UC	UNDER-CUT (DOOR)
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VENT
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VEL	VELOCITY
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VSD	VARIABLE SPEED DRIVE
W	WATT
W/	WITH
WC	WATER COLUMN
WFD	WATER PRESSURE DROP
WMS	WIRE MESH SCREEN
WT	WEIGHT
XA	VARIABLE LENGTH ACCESS

SOUND ATTENUATOR

UC OR DG — DG: DOOR GRILLE; UC: DOOR UNDERCUT

T — THERMOSTAT

T — THERMOSTAT MOUNTED TO THERMOISOLATING PAD IF ON EXTERIOR COLUMN

T — DUCT MOUNTED THERMOSTAT

H — HUMIDISTAT

SMOKE DETECTOR

CO — CARBON MONOXIDE DETECTOR

CARBON DIOXIDE DETECTOR

N.I.C. - FUTURE TENANT BUILDOUT.

REQUIRED MAINTENANCE CLEARANCE

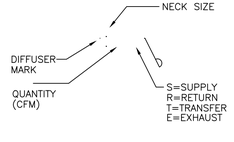
IDENTIFICATION SYMBOLS

X — KEYED NOTE TAG

X / X — EQUIPMENT TAG; EQUIPMENT TAG NO.

X / M-X — SECTION NUMBER; DRAWING ON WHICH SECTION IS SHOWN

AIR DEVICES DATA TAG



DUCTWORK SYMBOLS

DOUBLE LINE

(E)12X12 — EXISTING DUCT

EXISTING DUCT OR ITEM TO BE REMOVED

EXISTING DUCT OR ITEM TO REMAIN

BRANCH TAKE-OFF

RADIUS ELBOW

SQUARE TAP COLLAR

RADIUS TEE

BELLMOUTH CONNECTION TO RECT. DUCT

CONICAL TEE

WYE OR TEE

EXHAUST/RETURN AIR DEVICE

24X12 — RECT. DUCT DIMENSIONS (SIZE IN INCHES. FIRST DIM. IS SHOWN)

24ø — ROUND DUCT DIMENSIONS DIAMETER

24/12 — FLAT OVAL (SIZE IN INCHES) (FIRST DIM. IS SHOWN)

DUCT TRANSITION

ELBOW TURNED DOWN

ROUND DUCT DN

SUPPLY AIR DUCT

EXHAUST AND RETURN DUCT

OUTSIDE AIR INTAKE

FLEX. DUCT CONNECTION

FD — FIRE DAMPER

CLEAN OUT

MANUAL DAMPER

MD — MOTORIZED (AUTOMATIC) DAMPER

LLMD — LOW LEAKAGE MOTORIZED DAMPER

AD — ACCESS DOOR

CAP

DN — DUCT OFF-SET DN (IN DIRECTION OF FLOW)

UP — DUCT OFF-SET UP (IN DIRECTION OF FLOW)

FLEXIBLE DUCT

AIR TERMINAL UNIT

AIR TERMINAL UNIT W/REHEAT

PIPING SYMBOLS

(E)SERVICE — EXISTING PIPE

EXISTING PIPE OR ITEM TO BE REMOVED

EXISTING PIPE OR ITEM TO REMAIN

CD — CONDENSATE DRAIN

CWR — CHILLED WATER RETURN

CWS — CHILLED WATER SUPPLY

CTWR — COOLING TOWER WATER RETURN

CTWS — COOLING TOWER WATER SUPPLY

D — DRAIN

G — NATURAL GAS

HWR — HOT WATER HEATING RETURN

HWS — HOT WATER HEATING SUPPLY

V — V — VENT

AIR SEPARATOR

DIRECTION OF FLOW ARROW

CONCENTRIC REDUCER

ECCENTRIC REDUCER

TEE

TEE TURNED DOWN

TEE TURNED UP

ELBOW 45°

ELBOW TURNED UP

ELBOW TURNED DOWN

PRESSURE GAUGE

FLANGE

CAPPED END CONNECTION

EXPANSION JOINT

FLEXIBLE CONNECTION

FM — FLOW METER

EXPANSION COMPENSATOR

BALL VALVE

PRESSURE INDEPENDANT FLOW CONTROL AND SHUT-OFF VALVE

BUTTERFLY VALVE

CHECK VALVE

HOSE END DRAIN VALVE

TRIPLE DUTY CHECK VALVE

GATE VALVE

GLOBE VALVE

MANUAL AIR VENT

MOTORIZED 2-WAY OR 3-WAY CONTROL VALVE

SOLENOID VALVE

PRESSURE REDUCING VALVE

PRESSURE RELIEF VALVE

GAS COCK

PIPE UNION

STRAINER

SAFETY VALVE

VACUUM BREAKER

IN-LINE PUMP

PRESSURE GAUGE WITH COCK

THERMOMETER

FLOW SWITCH

PIPE ANCHOR

PIPE GUIDE

UNION

Y-TYPE STRAINER

Y-TYPE STRAINER WITH HOSE ENDED DRAIN VALVE

BASKET STRAINER

FILTER/DRYER

M — MOTOR ACTUATOR

T — CONDENSATE TRAP

PRESSURE-TEMPERATURE PORT

MECHANICAL CODE REFERENCE

CITY OF AURORA

2015 INTERNATIONAL BUILDING CODE

2015 INTERNATIONAL MECHANICAL CODE

2015 INTERNATIONAL ENERGY CONSERVATION CODE

ASHRAE STANDARDS 170 - 2008

MECHANICAL DRAWING LIST

M000	MECHANICAL SYMBOLS LIST AND GENERAL NOTES	NO SCALE
M001	MECHANICAL SPECIFICATIONS	NO SCALE
M101	HVAC DEMOLITION PLAN	1/4"=1'-0"
M201	HVAC FLOOR PLAN	1/4"=1'-0"
M300	MECHANICAL SCHEDULES & DETAILS	NO SCALE

MECHANICAL SCOPE SUMMARY

SCAN EQUIPMENT IS BEING ADDED TO AN O.R. ROOM, CONVERTING IT TO A HYBRID O.R. ROOM.

AN EXISTING "PUMP" ROOM WILL BE CONVERTED TO THE EQUIPMENT ROOM. EXISTING SUPPLY AND RETURN GRDs WILL BE RELOCATED IN THE ROOM TO MAINTAIN HUMIDITY CONTROL. A NEW FLOOR MOUNTED, CHILLED WATER CRAC UNIT WILL BE ADDED TO TAKE CARE OF THE ADDED HEAT LOAD.. CHILLED WATER FOR THE CRAC UNIT WILL CONNECT TO EXISTING CHWS&R PIPING NEARBY, ON THE ROOF ABOVE.

AN EXISTING "SOILED" ROOM WILL BE CONVERTED TO THE CONTROL ROOM. EXISTING SUPPLY AND RETURN DIFFUSERS SHALL BE RELCOATED IN THE ROOM.

THE OR ROOM CEILING WILL BE MODIFIED FOR A NEW TABLE LAYOUT AND CEILING SUPPORTED EQUIPMENT. THIS WILL REQUIRE REWORK OF DIFFUSER LOCATIONS, AND REWORK OF DUCTWORK TO ALLOW FOR THE INSTALL OF ABOVE CEILING STRUCTURAL ELEMENTS.

Code violations that are found during inspection are required to be corrected. Permit issuance does not grant approval of a code violation.

RSN: *1431550*
Permit #: *20-1751559 LT*

The Medical Center of Aurora
Health ONE

HYBRID OR 9 / DISCOVERY IGS

MEDICAL CENTER OF AURORA

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COLORADO LICENSED MICHAEL P THOMPSON 53150 PROFESSIONAL ENGINEER

10/25/2019

PROJECT NO.: 18-22

DRAWN BY: BH
CHECKED BY: JH
SCALE: AS SHOWN
DATE: 10/25/2019
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
MECHANICAL SYMBOL LIST AND GENERAL NOTES

SHEET NO.:
M000

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MECHANICAL SPECIFICATIONS

GENERAL SPECIFICATIONS

1. WORK UNDER THIS SECTION IS SUBJECT TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, INCLUDING THE DRAWINGS, GENERAL AND SUPPLEMENTARY CONDITIONS OF THE ARCHITECTURAL SPECIFICATIONS.
2. THE DRAWINGS AND SPECIFICATIONS SHALL BE UNDERSTOOD TO COVER SYSTEMS OF HEATING, VENTILATION AND AIR CONDITIONING, INSULATION, BUILDING AUTOMATION SYSTEMS AND TEMPERATURE CONTROL, AND TESTING AND BALANCING. THE DRAWINGS AND SPECIFICATIONS ARE TO BE TAKEN TOGETHER. WORK SPECIFIED AND NOT SHOWN, OR WORK SHOWN AND NOT SPECIFIED, SHALL BE AS BINDING AS THOUGH REQUIRED BY BOTH, THE DRAWINGS AND SPECIFICATIONS.
3. MINOR ITEMS AND ACCESSORIES OR DEVICES REASONABLY INFERABLE AS NECESSARYTO THE COMPLETE AND PROPER OPERATION OF ANY SYSTEM SHALL BE PROVIDED FOR SUCH SYSTEMS, WHETHER OR NOT THEY ARE SPECIFICALLY CALLED FOR BY THE SPECIFICATIONS OR THE DRAWINGS. THE CONTRACTOR SHALL PROCURE AND PAY FOR ALL NECESSARY PERMITS AND LICENSE FEES. MAKE ARRANGEMENTS FOR INSPECTIONS, PAY ALL FEES IN CONNECTION THEREWITH, EXCEPT BUILDING PERMIT, AND PAY ALL APPLICABLE FEDERAL, STATE AND LOCAL TAXES.
4. THE CONTRACTOR SHALL PROCURE AND PAY FOR ALL NECESSARY PERMITS AND LICENSE FEES, MAKE ARRANGEMENTS FOR INSPECTIONS, PAY ALL FEES IN CONNECTION THEREWITH, EXCEPT BUILDING PERMIT, AND PAY ALL APPLICABLE FEDERAL, STATE AND LOCAL TAXES.
5. THE CONTRACTOR SHALL GUARANTEE ALL WORK TO BE FREE FROM DEFECTS INMATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR IN ACCORDANCE WITH THE GENERAL CONDITIONS, UNLESS A LONGER PERIOD IS STIPULATED UNDER SPECIFIED HEADINGS, HE SHALL REPAIR OR REPLACE, AT NO ADDITIONAL COST TO THE OWNER, ANY MATERIAL OR EQUIPMENT DEVELOPING DEFECTS. REPAIRS OR REPLACEMENTS SHALL BEAR AN ADDITIONAL TWELVE (12) MONTHS GUARANTEE FROM TIME REPAIR OR REPLACEMENT IS COMPLETE. THIS REQUIREMENT SHALL BE BINDING, EVEN THOUGH IT WILL EXCEED PRODUCT GUARANTEES NORMALLY FURNISHED BY SOME MANUFACTURERS.
6. THE CONTRACTOR SHALL SUBMIT HIS OWN AND EACH MANUFACTURERS' WRITTEN CERTIFICATES AND WARRANTIES WHICH INDICATE THAT EACH ITEM OF EQUIPMENT FURNISHED, COMPLIES WITH ALL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. GUARANTEES AND WARRANTIES SHALL COMMENCE FROM THE DATE OF THE SIGNED ACCEPTANCE BY THE OWNER OF A PARTICULAR ITEM OF EQUIPMENT OR A PARTICULAR DEFINED PORTION OF THE WORK.
7. ALL WORK SHALL BE INSTALLED IN CONFORMITY WITH ALL GOVERNMENTAL JURISDICTIONAL AUTHORITIES REGULATIONS, LAWS, RULES, OR ORDINANCES IN EFFECT AND GOVERNING SAME; SUCH RULES AND REGULATIONS AND LOCAL ORDINANCES TO BE CONSIDERED PART OF SPECIFICATIONS. MECHANICAL CONTRACTOR SHALL BE HELD STRICTLY RESPONSIBLE FOR ANY VIOLATION OF SAME AND SHALL CHANGE HIS WORK TO CONFORM WITHOUT ADDITIONAL COST TO OWNER.
8. ALL WORK SHALL ALSO CONFORM TO THE PUBLISHED STANDARDS OF THE NATIONAL FIREPROTECTION ASSOCIATION, AND ELECTRICAL WORK AND EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF THE CURRENT ISSUE OF THE NATIONAL ELECTRICAL CODE. ALL MATERIALS, IN GENERAL, SHALL BE UNDERWRITERS' LABORATORIES LISTED AND SHALL BEAR UL LABEL WHERE LABELING SERVICE IS AVAILABLE.
9. WHERE JURISDICTIONAL RULES REQUIRE ASSISTANCE OF MECHANICS OF TRADES OTHERTHAN THOSE ORDINARILY EMPLOYED BY A PARTICULAR MECHANICAL CONTRACTOR INTHE HANDLING, STORAGE OR SETTING OF SPECIAL EQUIPMENT, THE MECHANICALCONTRACTOR SHALL EMPLOY SUCH TRADESMEN SO AS TO BE IN CONFORMANCE WITHLOCAL JURISDICTIONAL AGREEMENTS.
10. IT IS CONTEMPLATED THAT WORK INCLUDED BE DONE DURING REGULAR WORKINGHOURS ON A "STRAIGHT TIME" BASIS. ANY WORK REQUIRING OVERTIME SHALL INCLUDETHE COST FOR SUCH OVERTIME WORK AS A PART OF THE BASE BID PROPOSAL.
11. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INTERFERENCE WITHOR DAMAGE TO ANY EXISTING UTILITIES AND SHALL REPAIR OR REPLACE ANY DAMAGEDUTILITIES WITH THE LEAST POSSIBLE DELAY AND HOLD THE OWNER HARMLESS IN THEEVENT THAT THERE IS ANY DAMAGE.
12. CERTAIN ITEMS OF EQUIPMENT ARE SPECIFIED ON THE DRAWING EQUIPMENTSCHEDULES OR IN NOTES AS THE PRODUCT OF A SPECIFIC MANUFACTURER INCLUDING THE TRADE NAME, SIZE AND MODEL NUMBER. THIS IS TO ESTABLISH A STANDARD OFQUALITY AND TO MAKE PROVISIONS FOR POWER, SPACE ALLOWANCE, AND CONNECTIONS BY OTHER TRADES.
13. IF ALTERNATE MANUFACTURERS OTHER THAN THOSE NAMED IN THE DOCUMENTS AREPROPOSED TO BE USED, THE BIDDER SHALL LIST SUCH OTHER ALTERNATEMANUFACTURERS ALONG WITH ANY COST ADDITIONS OR DEDUCTIONS FROM THE BASEBID PROPOSAL. IF THE OWNER ACCEPTS THE ALTERNATE MANUFACTURER THECONTRACT WILL SO STATE. IF THE CONTRACT DOES NOT CONTAIN THE NAMES OFALTERNATE MANUFACTURERS THE CONTRACTOR SHALL SUBMIT ONLY MANUFACTURERSNAMED IN THE DOCUMENTS.
14. IF THE MECHANICAL CONTRACTOR PROPOSES TO USE THE PRODUCT OF A MANUFACTURER OTHER THAN THE ONE NAMED IN THE DOCUMENTS HE SHALL BERESPONSIBLE FOR THAT ITEM OF EQUIPMENT FITTING IN PLACE WITH ADEQUATECLEARANCES. FURTHER, IF DIFFERENT CONNECTIONS OR PROVISIONS ARE REQUIRED TOBE FURNISHED BY OTHER TRADES FROM THE PRODUCT NAMED IN THE DOCUMENTS, THEMECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OTHER TRADESOF ANY CHANGES AND IF ADDITIONAL COSTS ARE REQUIRED BY THE OTHER TRADES HESHALL PAY SUCH COSTS.
15. THE ENGINEER HAS NO CONTRACTUAL RESPONSIBILITY IN CONNECTION WITH JOB SITESAFETY MEASURES OR PRECAUTIONS AS RELATED TO MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES IN THAT REGARD. THE MECHANICAL CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THEWORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMALWORKING HOURS. THE ARCHITECTENGINEER'S OBSERVATIONS OF THE MECHANICALCONTRACTOR'S PERFORMANCE ARE NOT INTENDED TO INCLUDE REVIEW OF THEADEQUACY OF THE MECHANICAL CONTRACTOR'S SAFETY MEASURES IN, ON OR NEAR THECONSTRUCTION SITE. IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TOCOMPLY WITH "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", VOLUME 36, NO.75, PART II OF THE FEDERAL REGISTER BY THE U.S. DEPARTMENT OF LABOR. THEMECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL SUCH SAFETYMEASURES AND SHALL CONSULT WITH THE STATE OR FEDERAL SAFETY INSPECTOR FOR INTERPRETATION WHENEVER IN DOUBT AS TO WHETHER SAFE CONDITIONS DO OR DONOT EXIST; OR WHETHER HE IS OR IS NOT IN COMPLIANCE WITH STATE OR FEDERALREGULATIONS.
16. THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC IN NATURE AND SHOW GENERALARRANGEMENT OF ALL EQUIPMENT, PIPING, DUCTWORK, SERVICES, ETC. BECAUSE OFTHE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO SHOW ALL OFFSETS,FITTINGS, AND ACCESSORIES WHICH MAY BE REQUIRED. FURNISH ALL FITTINGS, ANDACCESSORIES THAT MAY BE REQUIRED TO MEET SUCH CONDITIONS AND TO FIT WORKOF OTHER TRADES.
17. FURNISH THREE (3) SETS OF CUTS OR BROCHURES, OR ONE SEPIA REPRODUCIBLE SHOPDRAWING AND TWO PRINTS SHOWING ALL DETAILS OF CONSTRUCTION FOR DUCTLAYOUTS AND EQUIPMENT AND ASSOCIATED WIRING DIAGRAMS TO BE FURNISHED.
18. REVIEW OF THE SHOP DRAWINGS IS RENDERED AS A SERVICE ONLY AND SHALL NOT BECONSIDERED AS A GUARANTEE OF MEASUREMENTS OR OF BUILDING CONDITIONS; NORSHALL IT BE CONSTRUED AS RELIEVING THE MECHANICAL CONTRACTORS OF BASICRESPONSIBILITIES UNDER HIS CONTRACT.
19. ALL EQUIPMENT SUBMITTED AS SHOP DRAWINGS SHALL BE APPROVED BY THEGOVERNING JURISDICTIONAL AUTHORITIES PREVIOUS TO SUBMITTAL. SUBMISSION OFA SHOP DRAWING SHALL MEAN THAT APPROVAL HAS BEEN OBTAINED FOR INSTALLATIONOF THE EQUIPMENT SUBMITTED FOR REVIEW.
20. AT COMPLETION OF THE PROJECT, ALL CHANGES AND DEVIATIONS FROM THE CONTRACTDOCUMENTS SHALL BE RECORDED BY THE MECHANICAL CONTRACTOR ON AS-BUILTDRAWINGS. SUPPLY TO THE ARCHITECT/ENGINEER FOUR PAPER BLUE LINE SETS AND
21. THE OWNER, ARCHITECT, ENGINEER OR OTHERS WHO THEY MAY DESIGNATE SHALL BEPRIVILEGED TO ENTER AND OCCUPY THE BUILDING OR PORTIONS THEREOF, AT ANY TIMEPRIOR TO COMPLETION OF THE MECHANICAL WORK WITHOUT PREJUDICE.
22. BEFORE MAKING ANY INSTALLATION, THE MECHANICAL CONTRACTOR SHALL CONFERWITH ALL OTHER CONTRACTORS WHOSE WORK MAY AFFECT THE WORK UNDER THISRESECTIONS AND MAKE THE NECESSARY CHANGES TO AVOID INTERFERENCES ORIMPROPER EFFECT ON WORK TO BE PERFORMED BY ALL OTHER TRADES. IN THE EVENTTHAT INTERFERENCES DEVELOP, THE ARCHITECT'S DECISION WILL BE FINAL AND NOADDITIONAL COMPENSATION WILL BE ALLOWED FOR MOVING OF MISPLACED PIPING, DUCTS, CONDUIT AND/OR EQUIPMENT.
23. ALL MATERIALS AND/OR EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
24. EACH MAJOR COMPONENT OF THE EQUIPMENT SHALL HAVE THE MANUFACTURER'S NAME, ADDRESS, MODEL NUMBER AND RATING ON A PLATE SECURELY AFFIXED IN A CONSPICUOUS PLACE. THE NAMEPLATE OF A DISTRIBUTING AGENT IS NOT ACCEPTABLE. ASME CODE RATINGS, OR OTHER DATA WHICH IS DIE-STAMPED INTO THE SURFACE OF THE EQUIPMENT SHALL BE IN A VISIBLE LOCATION.
25. USE ONLY NEW MATERIALS OF THE BEST QUALITY OF THEIR RESPECTIVE KINDS; LABOR SHALL BE DONE IN A THOROUGH WORKMANLIKE MANNER TO THE SATISFACTION OF THE ARCHITECT.
26. MATERIALS SHALL BE MANUFACTURED BY REPUTABLE MANUFACTURERS WHO HAVE BEEN PRODUCING THIS TYPE OF MATERIAL TO BE SOLD IN MAJOR CITIES IN THE UNITED STATES FOR A PERIOD OF AT LEAST FIVE (5) YEARS, UNLESS OTHERWISE NOTED HEREIN.
27. THE INSTALLATION OF ANY ACCESS PANEL IS STRICTLY LIMITED TO LOCATIONS AS INDICATED ON THE ARCHITECTURAL DRAWINGS OR APPROVED BY ARCHITECT.
28. FIRE STOPPING SHALL BE REQUIRED AT ALL FLOOR AND FIRE RATED WALL/PARTITION PENETRATIONS. FIRE STOPPING SYSTEMS SHALL BE AS DETAILED ON ARCHITECTURAL DRAWINGS.
29. ALL SHOP FABRICATED AND FACTORY BUILT EQUIPMENT NOT GALVANIZED OR PROTECTED BY PLATING SHALL BE CLEANSED AND GIVEN ONE (1) SHOP COAT OF ZINC-CHROMATE PRIMER BEFORE DELIVERY OR DURING CONSTRUCTION. ALL FINISH PAINTING SHALL BE DONE BY THE GENERAL CONTRACTOR.
30. DUCTWORK BEHIND THE GRILLES, REGISTERS, DIFFUSERS, ETC. WHICH IS EXPOSED TO VIEW THROUGH THE UNITS, SHALL BE GIVEN ONE (1) COAT OF PRIMER AND A FINISH COAT OF FLAT BLACK PAINT.
31. ALL WORKMANSHIP SHALL BE FIRST CLASS IN EVERY RESPECT AND SHALL BE PERFORMED ONLY BY SKILLED MECHANICS, RECOGNIZED AS SUCH IN THEIR RESPECTIVE TRADES.
32. FURNISH NECESSARY SCAFFOLDING, STAGING OR CRIBBING REQUIRED FOR THE COMPLETION OF THE WORK. SUCH SCAFFOLDING, ETC., SHALL BE REMOVED FROM THE PREMISES WHEN ITS USE IS NO LONGER REQUIRED ON THE JOB.
33. SHOULD DAMAGE TO ANY MECHANICAL, ELECTRICAL OR ARCHITECTURAL PART OF THE BUILDING OCCUR, PAY ALL COSTS TO THE RESPECTIVE SUBCONTRACTORS AFFECTED ON THE JOB TO MAKE REPAIRS AND/OR TEMPORARY CONNECTIONS REQUIRED.
34. OPENINGS MADE IN FIRE RATED WALL, CEILING OR FLOOR SHALL BE EFFECTIVELY CLOSED AND REPAIRED SO THE FIRE RATING IS NOT REDUCED BELOW ORIGINAL FIRE RATING REQUIREMENTS.
35. FURNISH 8 COMPLETE PORTFOLIOS TO THE OWNER'S REPRESENTATIVE, CONTAINING AS- BUILT SHOP DRAWINGS, TEST AND BALANCE REPORTS, OPERATING INSTRUCTIONS, WARRANTIES, PARTS LISTS, WIRING DIAGRAMS, ETC., ON ALL EQUIPMENT FURNISHED UNDER THIS CONTRACTOR.
36. THE CONTRACTOR SHALL FURNISH A COMPETENT INSTRUCTOR TO ADVISE THE OWNER'S OPERATING PERSONNEL AS TO THE PROPER OPERATION, SERVICING, ETC., OF ALL EQUIPMENT AND SYSTEMS INSTALLED.
37. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL CLEAN ALL OF HIS WORK, EQUIPMENT, ETC., FREE FROM DUST, ETC., AND LEAVE THE WORK IN GOOD HOUSEKEEPING FASHION IN A MANNER ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. PROVIDE NECESSARY FITTINGS, LAMPS, VALVES, ETC., AND LEAVE THE WORK CLEAN AND IN PERFECT OPERATING CONDITION.
38. WHEN DIRECTED, DURING CONSTRUCTION PERIOD, OPERATE SYSTEM WITH ALL FILTERS IN PLACE AND ALL CAULKING COMPLETE. DO NOT OPERATE OR PERMIT SUPPLY SYSTEM TO BE OPERATED WITHOUT FILTERS.
39. UNDER NO CIRCUMSTANCES SHALL ANY ITEMS OF NEW AIR HANDLING EQUIPMENT BE OPERATED FOR TEMPORARY HEAT OR VENTILATION WITHOUT FILTERS IN PLACE. IF THE UNIT IS USED BEFORE CONSTRUCTION IS COMPLETED, THE FILTERS SHALL BE REPLACED, THE UNIT AND COILS SHALL BE CLEANED AND THIS SET OF FILTERS SHALL NOT BE CONSIDERED AS THE SPARE SET OF FILTERS HEREINAFTER SPECIFIED.
40. THE CONTRACTORS SHALL EXPEDITE THE INSTALLATION OF THEIR RESPECTIVE SYSTEMS AS THAT HEATING SYSTEMS CAN BE USED FOR TEMPORARY HEAT AS SOON AS THE SPACE IS ENCLOSED, THEY SHALL COOPERATE WITH THE GENERAL CONTRACTOR IN PROVIDING TEMPORARY HEAT AS REQUIRED.
41. ALL TENDERS SUBMITTED ON THESE DRAWINGS AND SPECIFICATIONS SHALL BE BASED ON NEW MATERIALS AND APPARATUS OF MAKE AND QUALITY AS SPECIFIED. IF THE CONTRACTOR DESIRES, HE MAY ALSO TENDER ON MATERIALS AND APPARATUS WHICH SHALL BE OF SAME QUALITY AND OF SIMILAR SPECIFICATIONS TO THOSE AS HEREIN SPECIFIED, IN WHICH CASE HE SHALL STATE IN HIS TENDER ALL ADDITIONS OR DEDUCTIONS INVOLVED IN THE ALTERNATE MATERIALS AND APPARATUS, AND SHALL SPECIFY THE NAME OR MAKE ON WHICH HIS ALTERNATE IS BASED. WHEN NO ALTERNATES ARE GIVEN OR ACCEPTED PRIOR TO CONTRACT AWARD, THE MAKE SPECIFIED SHALL BE INSTALLED.

HVAC SYSTEM

1. THESE SPECIFICATIONS AND ACCOMPANYING DRAWINGS ARE TO COVER THE FURNISHINGS OF ALL LABOR, MATERIALS, EQUIPMENT, APPARATUS, SERVICE PERMANENT AND TEMPORARY FACILITIES AS NECESSARY TO THE HEATING AND AIR CONDITIONING WORK INVOLVED IN THE FURNISHING, INSTALLING, TESTING, ADJUSTING, RETESTING, READJUSTMENT AS REQUIRED AND DIRECTED, AND PLACING INTO APPROVED SATISFACTORY OPERATION THE COMPLETE RESPECTIVE SYSTEMS AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY THE JOB CONDITIONS.
2. BEFORE BEGINNING WORK, THE CONTRACTOR SHALL REVIEW THE IMAGING VENDOR FINAL SHOP DRAWINGS FOR COORDINATION AND IMAGING VENDOR EXPECTATIONS.
3. FURNISH AND INSTALL A COMPLETE AND OPERABLE SYSTEM FOR VENTILATING, HEATING AND AIR CONDITIONING CONSISTING OF, BUT NOT LIMITED TO:
   A. SUPPLY AND EXHAUST/RETURN DUCT SYSTEM
   B. GRILLES, DIFFUSERS, REGISTERS AND MANUAL VOLUME DAMPERS
   C. TESTING AND BALANCING
4. FURNISH ACCESS DOORS TO CEILING CONTRACTOR FOR ACCESS TO VALVES AND DAMPERS. ALL CONTROL DEVICES AND DAMPERS ABOVE INACCESSIBLE CEILINGS. LAY IN CEILINGS SHALL BE CONSIDERED ACCESSIBLE. PROVIDE 12"X12" (MIN.) ACCESS DOORS IN DUCTS FOR ACCESS TO FIRE DAMPERS, DUCT MOUNTED APPARATUSES, AND WHERE INDICATED FOR MAINTENANCE.
5. FURNISH AND INSTALL ALL INSULATION AS HEREINAFTER SPECIFIED.
6. FURNISH CUTTING AND CORING FOR INSTALLATION OF DUCTS AND EQUIPMENT. APPLICABLE STANDARDS AND CODES OF THE FOLLOWING:

   THE WORK UNDER THIS SECTION SHALL COMPLY WITH THE LATEST EDITION OF:
   A. IMC - INTERNATIONAL MECHANICAL CODE
   B. ASME -AMERICAN SOCIETY OF MECHANICAL ENGINEERS.
   C. ASHRAE
   D. ARI -AIR CONDITIONING AND REFRIGERATION INSTITUTE
   E. ASTM -AMERICAN SOCIETY FOR TESTING MATERIALS
   F. AABC -ASSOCIATED AIR BALANCE COUNCIL NFPA -NATIONAL FIRE PROTECTION ASSOCIATION
   G. SMACNA - SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
7. EXERCISE CARE IN TRANSPORTING AND HANDLING TO AVOID DAMAGE TO FIXTURES, EQUIPMENT AND MATERIALS.
8. STORE MATERIALS ON THE SITE SO AS TO PREVENT DAMAGE.
9. KEEP EQUIPMENT AND MATERIALS CLEAN, DRY AND FREE FROM DELETERIOUS CONDITIONS.
10. ALL DUCTWORK SHALL BE FABRICATED FROM G90 PRIME GALVANIZED SHEET STEEL WITH PAINT GRIP FINISH, UNLESS OTHERWISE SPECIFIED. THE DUCTS SHALL BE AIRTIGHT AND SHALL BE ANCHORED, BRACED AND REINFORCED TO PREVENT VIBRATION, LEAKAGE AND OIL CANNING. THE SPACING OF STIFFENERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA.
11. THE DUCTWORK SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE WITH 1 INCH X 1/8 INCH SOLID GALVANIZED STRAP HANGERS (BOTH SIDES OF DUCT AT POINT OF SUPPORT) WITH GAGES AND SPACING AS SPECIFIED IN SMACNA.
12. UNLESS OTHERWISE NOTED, ALL ROUND ELBOWS SHALL HAVE CENTER LINED RADIUS EQUAL TO 1-1/2 TIMES THE WIDTH OF THE DUCT. IF SPACE DOES NOT PERMIT, THEN PROVIDE 6" THROAT WITH SPLITTER VANES. SEE DUCT CONSTRUCTION DETAILS.
13. ALL DUCTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA STANDARDS. LOW PRESSURE SUPPLY AND EXHAUST TO HAVE A POSITIVE OR NEGATIVE RATING OF 2" W.G., VELOCITIES BELOW 2500 FPM, SEAL CLASS B.
14. ALL DUCTWORK SHALL BE 26 GAUGE GALVANIZED MINIMUM.
15. ROUND DUCTS AND FITTINGS SHALL BE FACTORY FABRICATED SPIRAL LOCK SEAM DUCT WITH MACHINE FORMED FITTINGS AS MANUFACTURED BY UNITED SHEET METAL. ALL FITTINGS SHALL BE SEALED WITH FIRE RETARDANT DUCT SEALER.
16. FLEXIBLE DUCTS SHALL BE FLEX MASTER OR APPROVED EQUAL. INSULATED FLEXIBLE DUCTS, SECURED WITH WORM DRIVE STAINLESS STEEL CLAMPS. DUCTS SHALL BE U.L. LISTED AND HAVE 2" W.G. GAUGE WORKING PRESSURE. 4'-0" MAXIMUM LENGTH.
17. FOR ALL OPERABLE DEVICES IN WALLS OR ABOVE INACCESSIBLE SUSPENDED CEILINGS, PROVIDE MILCOR ACCESS DOORS WITH SAME KEYED LOCKS AND CONCEALED HINGES. LAY IN CEILINGS ARE CONSIDERED ACCESSIBLE. SIZE AS REQUIRED FOR ACCESS.
   A. STYLE DW IN DRYWALL NO. 16 GA. FRAME NO. 14 GA. PANEL
   B. STYLE AP IN PLASTER NO. 16 GA. FRAME NO. 14 GA. PANEL
   C. STYLE M IN MASONRY NO. 16 GA. FRAME NO. 14 GA. PANEL
18. PROVIDE AN ADJUSTABLE BUTTERFLY OR OPPOSED MULTI BLADE VOLUME DAMPERS IN DUCTWORK AT EVERY DUCT JUNCTION ON ALL SUPPLY, RETURN AND EXHAUST AIR DUCTWORK. DAMPERS SHALL BE CONSTRUCTED OF GALVANIZED SHEET STEEL 2 GAGES HEAVIER THAN DUCT IN WHICH THE DAMPER IS INSTALLED. EACH DAMPER SHALL BE PROVIDED WITH DAMPER ROD HELD IN PLACE WITH A CLAMPING DEVICE. VISIBLE END OF THE DAMPER RODS SHALL BE FILE MARKED WITH MARKS PARALLEL TO THE BLADES.
19. FIRE DAMPERS SHALL BE COMPLETE WITH WALL FRAME, SLEEVES, ANGLE IRON STOPS, LATCHES, SPRINGS AND FUSIBLE LINK, ETC., AND SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS AND ELSEWHERE AS REQUIRED IN ACCORDANCE WITH NATIONAL BUREAU OF FIRE UNDERWRITER REGULATION BULLETIN 90-A. AND THE CITY OF CHICAGO FIRE PREVENTION BUREAU. THE FIRE DAMPERS SHALL BEAR UL LABEL. FIRE DAMPER SHALL BE 98% FREE AREA, AND BE OF THE LOW RESISTANCE TYPE WITH 1-1/2 HOUR OR 3 HOUR FIRE RATING AS MANUFACTURED BY PHILLIPS-AIRE AMERICAN WARNING AND VENTILATING, INC., AIR BALANCE, INC., OR RUSKIN MANUFACTURING.
20. ALL SUPPLY AND RETURN AIR OUTLETS SHALL BE MOUNTED TIGHTLY WITH RUBBER GASKETS TO PREVENT AIR LEAKAGE.
21. OUTLETS SHALL BE SELECTED AND GUARANTEED BY THE MANUFACTURER TO HANDLE THE AIR QUANTITIES AS SHOWN ON THE DRAWINGS WITH MAXIMUM PRESSURE DROP THROUGH THE OUTLET NOT EXCEEDING 0.10 IN OF WATER.
22. UNLESS OTHERWISE NOTED, DIFFUSERS, REGISTERS OR GRILLES SHALL BE FABRICATED FROM PRIME STEEL AND SHALL BE PROVIDED WITH A FINISH COAT OF WHITE BAKED ENAMEL PAINT, UNLESS NOTED OTHERWISE. DIFFUSERS, REGISTERS AND GRILLES SHALL BE AS MANUFACTURED BY TITUS, OR APPROVED EQUAL.
23. DRILLED-IN THREADED INSERTS: PHILLIPS "REDHEAD" DRILLED-IN THREADED INSERTS SHALL BE PROVIDED. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
24. PROVIDE ANCHOR BOLTS, NUTS SLEEVES FOR ANCHORING FANS, MOTORS AND ANY OTHER POWER-OPERATED EQUIPMENT.
25. ALL CONDITIONED SUPPLY AIR DUCTS SHALL BE INSULATED WITH 1 1/2" THICK FIBERGLASS INSULATION. MAKE-UP AIR DUCTS DO NOT NEED TO BE INSULATED.

DUCTWORK:

1. DUCTWORK SHALL BE GALVANIZED STEEL CONSTRUCTED & INSTALLED IN ACCORDANCE WITH THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION HVAC DUCT CONSTRUCTION STANDARDS, EXCEPT AS FOLLOWS:
2. INTERNAL LINING OF DUCTWORK SHALL NOT BE PERMITTED.
3. DUCTWORK THICKNESS SHALL BE 22 GAUGE MINIMUM EXCEPT FOR THE FOLLOWING:
   A. WHERE ANY WELDING OTHER THAN LONGITUDINAL SEAM IS PERFORMED, THE THICKNESS SHALL BE 18 GAUGE MINIMUM.
4. ROUND:
   A. ROUND DUCTS MAY BE SPIRAL OR LONGITUDINAL SEAM. LONGITUDINAL SEAMS SHALL BE CONTINUOUSLY WELDED. SNAPLOCK SEAMS ARE NOT PERMITTED. DUCTWORK WHICH WILL BE EXPOSED IN SPACE SHALL BE SPIRAL.
   B. CRIMP JOINTS ARE NOT PERMITTED.
   C. PLEATED ELBOWS ARE NOT PERMITTED.
   D. ADJUSTABLE ELBOWS ARE NOT PERMITTED.
   E. MITERED ELBOWS WITH TURNING VANES ARE NOT PERMITTED. USE RADIUS ELBOWS WITH CENTERLINE RADIUS AT LEAST AS GREAT AS THE DUCT WIDTH.
5. RECTANGULAR:
   A. BUTTON PUNCH SNAPLOCK SEAMS ARE NOT PERMITTED.
   B. TRANSVERSE (GIRTH) JOINTS T-4, 9, 17, 18, 20, AND 23 ARE NOT PERMITTED.
   C. MITERED ELBOWS WITH TURNING VANES ARE NOT PERMITTED. USE RADIUS ELBOWS WITH CENTERLINE RADIUS AT LEAST AS GREAT AS THE DUCT WIDTH.
6. SIZES OF NEW DUCT SHOWN ON DRAWINGS ARE FREE AIRWAYS SIZES, NOT OUTSIDE DIMENSIONS.
7. CONSTRUCT SUPPLY DUCTWORK DOWNSTREAM OF TERMINAL BOXES, LOW PRESSURE RETURN AND EXHAUST DUCTWORK FOR 1" W.C. PRESSSURE CLASS. TEES AND TAPS ARE TO BE CONICAL.
8. FOR FINAL CONNECTIONS TO DIFFUSERS AND MODULATING DAMPER BOXES, FLEXIBLE DUCTS MAY BE USED FOR A MAXIMUM OF 1'-0" FEET, FLEXIBLE DUCTS SHALL BE U.L. LISTED, WITH 1" THICK FIBERGLASS INSULATION W/ VAPOR BARRIER. INSTALL FULLY EXTENDED W/ A MAXIMUM OF ONE 90° CHANGE OF DIRECTION, IN LENGTHS NO GREATER THAN NECESSARY. USE GENEROUS RADIUS TURNS AND SUPPORT AS REQUIRED TO PREVENT EXCESSIVE SAGGING. FLEXIBLE ELBOWS AT THE DIFFUSER INLET IS NOT PERMITTED.
9. PROVIDE ADJUSTABLE OPPOSED BLADE OR BUTTERFLY DAMPERS FOR ALL NEW LOW PRESSURE SUPPLY & RETURN BRANCHES. EXTRACTORS AND SPLITTER DAMPERS ARE NOT PERMITTED.
10. SEAL ALL JOINTS OF NEW DUCTWORK. INSPECT EXISTING DUCTWORK FOR LEAKS & REPORT RESULTS BEFORE CONNECTING NEW DUCTWORK. ALL DUCTWORK WITHIN THE CONSTRUCTION LIMIT LINE IS SUBJECT TO LEAK TESTS AS REQUIRED AND WITNESSED BY THE OWNER. SEE LATEST BUILDING CONSTRUCTION STANDARDS FOR MEDIUM AND LOW PRESSURE ALLOWABLE LEAKAGE RATES, AND SPECIFIC TESTING REQUIREMENTS. ALL MEDIUM PRESSURE DUCTWORK UPSTREAM OF VAV AND FAN POWERED BOXES SHALL BE 3" W.G. PRESSURE CLASS, SEAL CLASS A. DUCT SEALANT SHALL BE WATER-BASED-UNITED McGILL OR APPROVED EQUAL. PRESSURE SENSITIVE TAPE IS UNACCEPTABLE. GASKETED FLANGES SHALL BE SEALED WITH A MASTIC.
11. PROTECT NEW & EXISTING DUCT OPENINGS FROM DUST & DIRT. CLEAN INSIDE & OUTSIDE OF NEW & EXISTING DUCTWORK IN AREA OF NEW WORK. REPLACE FILTERS AS REQUIRED DURING CONSTRUCTION PERIOD AND PROVIDE NEW SETS OF FILTERS AFTER COMPLETION OF WORK.
12. INSULATION
   A. INSULATION SHALL BE OWENS-CORNING, CERTAINTEED, ARMSTRONG, OR GUSTIN-BACON. NEW SUPPLY AIR DUCTWORK ABOVE CEILINGS SHALL BE INSULATED WITH MIN. 2" THICK, 1# DENSITY FIBERGLASS WRAP WITH FIRE RETARDANT VAPOR-BARRIER COVERING TO PROVIDE A MAXIMUM INSTALLED CONDUCTANCE OF 0.16.
   B. OVERLAP ALL SEAMS AND JOINTS & SECURE WITH MANUFACTURER APPROVED ADHESIVE TO PROVIDE CONTINUITY OF VAPOR BARRIER.

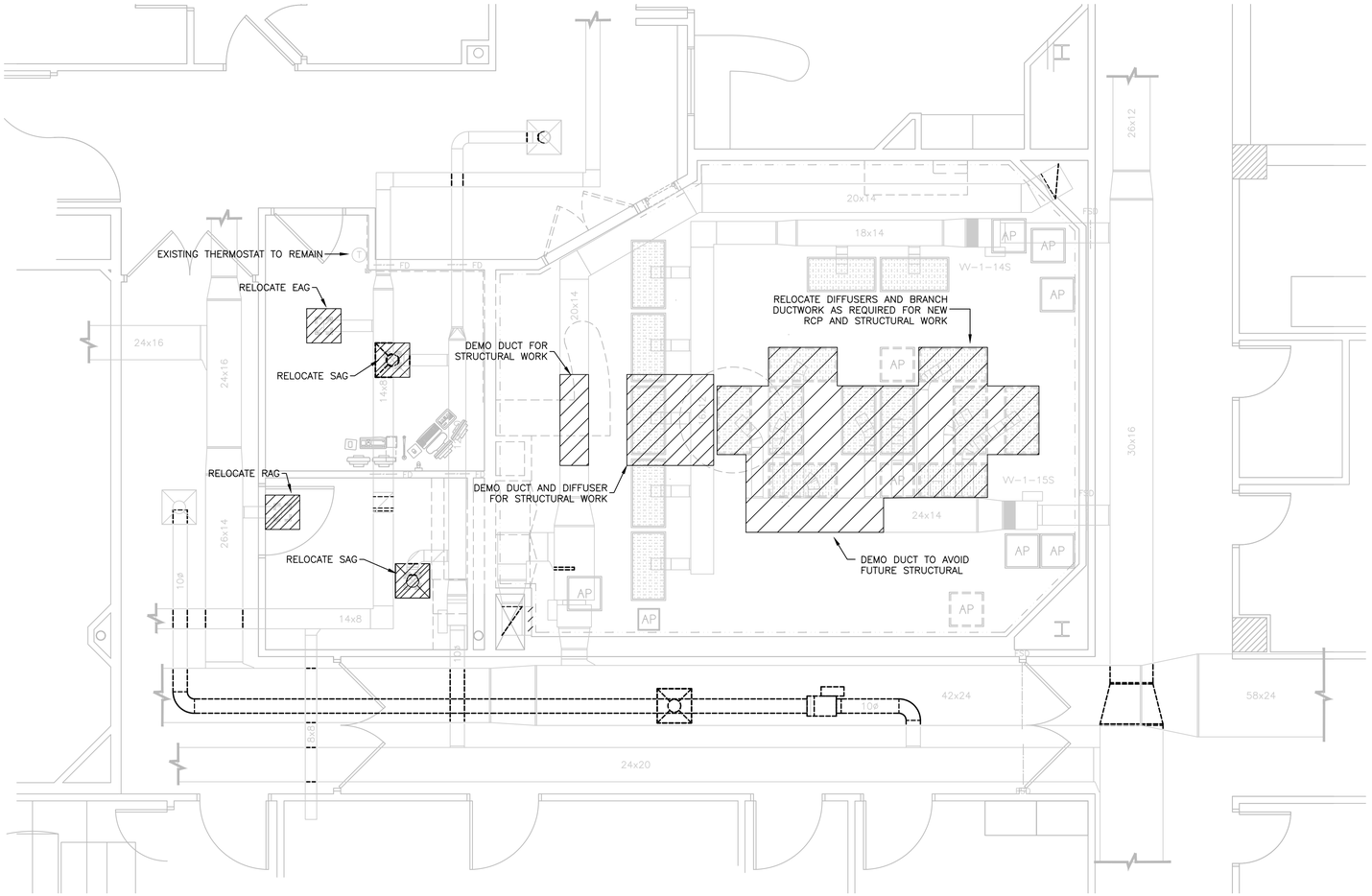
PIPING:

1. CHILLED WATER BETWEEN 1-1/4" TO 2" SHALL BE STEEL OR COPPER PIPE.
2. DIELECTRIC FITTINGS SHALL BE USED BETWEEN STEEL AND COPPER PIPING.
3. FOR CHILLED WATER, HOT WATER, AND CONDENSER WATER, ONLY WELDED STEEL PIPING MAY BE USED.VICTAULIC "PRESSFIT" SHALL NOT BE USED FOR ANY HVAC PIPING. PRESSURE AND GROOVED FITTINGS ARE NOT ALLOWED.
4. CHILLED WATER PIPING INSULATION
   A. CHILLED WATER PIPING INSULATION TO BE 1" THICK.
   B. INDOOR INSULATION SHALL BE CLOSED-CELL TYPE INSULATION ONLY - INCLUDING CELLULAR GLASS, PHENOLIC, OR FLEXIBLE ELASTOMERIC.
   C. FOAM GLASS CONCEALED ABOVE CEILINGS AND WITHIN SHAFTS DOES NOT NOT NEED TO BE COVERED.
   D. DO NOT USE FACTORY PRE-APPLIED ASJ ON FOAM GLASS.
5. CONDENSATE PIPING
   A. TYPE I DRAWN-TEMPER COPPER TUBING WITH SOLDERED JOINTS. INSTALL CONDENSATE PIPING AT A UNIFORM GRADE OF 0.4 PERCENT DOWNWARD IN DIRECTION OF FLOW.
6. GENERAL INSULATION
   A. FITTINGS ON FIBERGLASS PIPE INSULATION SHALL BE MITERED INSULATION UP TO 2" DIAMETER AND MOLDED FITTINGS FOR 2-1/2" AND LARGER. ALL INDOOR FITTING INSULATION SHALL BE COVERED WITH A TIGHT FITTING PVC JACKET.
   B. USE FOAM GLASS ON ALL OUTDOOR PIPING WITH ALUMINUM JACKET ON PIPE AND FITTINGS.
   C. FITTINGS ON FOAM GLASS INSULATION SHALL BE MADE UP OF MITERED SECTIONS OF FOAM GLASS.

TEMPERATURE CONTROLS:

1. EXISTING TEMPERATURE CONTROLS SYSTEM BY JOHHNSON CONTROLS INC TO REMAIN.
2. CRAC

This sheet of drawings has not been reviewed for code compliance.



1 DEMO PLAN
1/4"=1'-0"
0 2 4 8

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Health ONE

HYBRID OR 9 / DISCOVERY IGS

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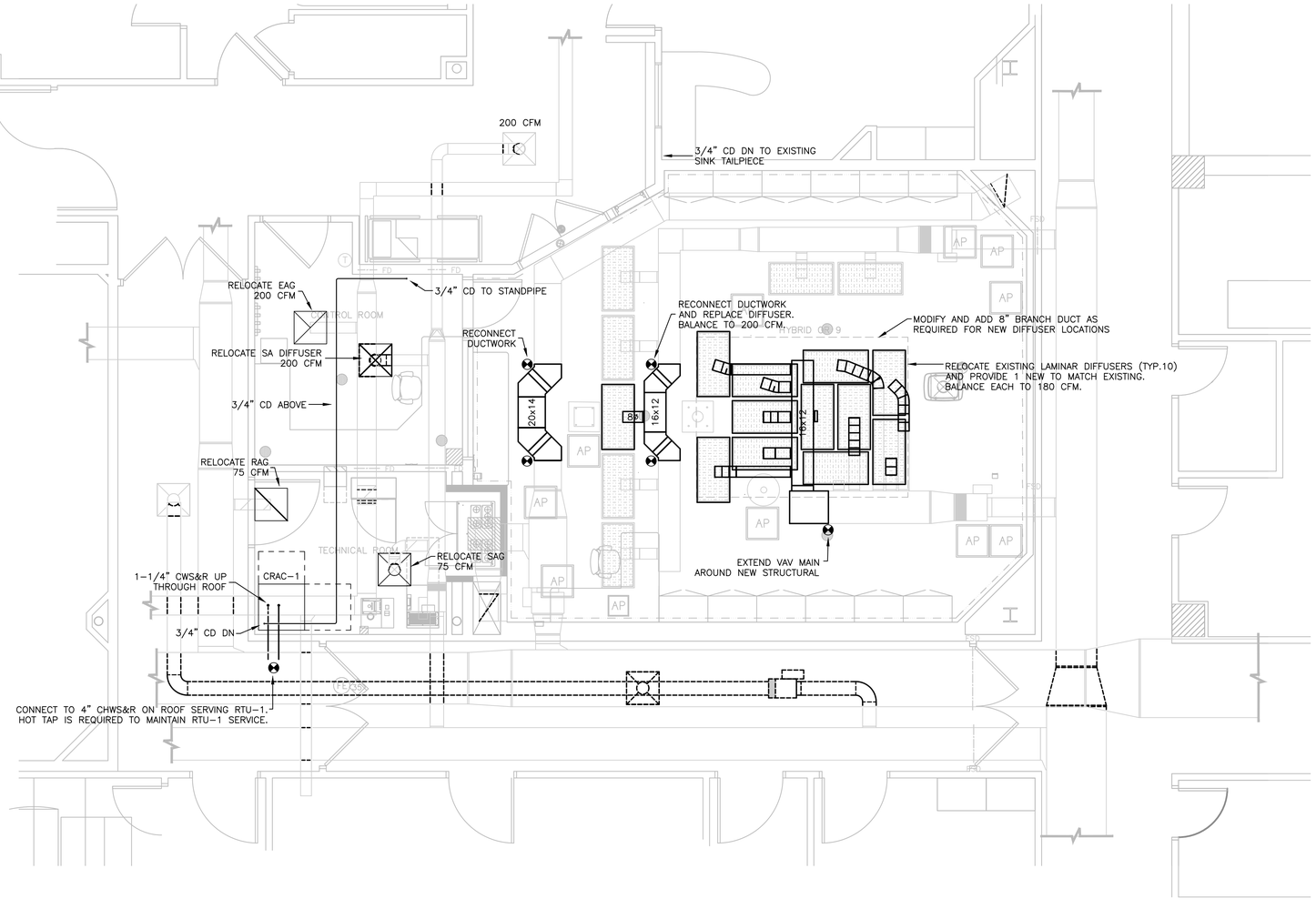
COLORADO LICENSED
MICHAEL P THOMPSON
53150
PROFESSIONAL ENGINEER
10/25/2019

PROJECT NO.: 18-22

DRAWN BY: BH
CHECKED BY: JH
SCALE: AS SHOWN
DATE: 10/25/2019
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
HVAC
DEMO PLAN

SHEET NO.:
M101



1 FLOOR PLAN
1/4"=1'-0"
0 2 4 8

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COLORADO LICENSED MICHAEL P THOMPSON 53150 PROFESSIONAL ENGINEER
10/25/2019

PROJECT NO.: 18-22

DRAWN BY: BH
CHECKED BY: JH
SCALE: AS SHOWN
DATE: 10/25/2019
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
HVAC
FLOOR PLAN

SHEET NO.:
M201

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: William Griffin
Date: Jan 17, 2020
2015 INTERNATIONAL CODES & 2017 NEC

RSN: 1431550
Permit #: 20-1751559 LT

COMPUTER ROOM AIR CONDITIONING UNIT SCHEDULE (CRAC)

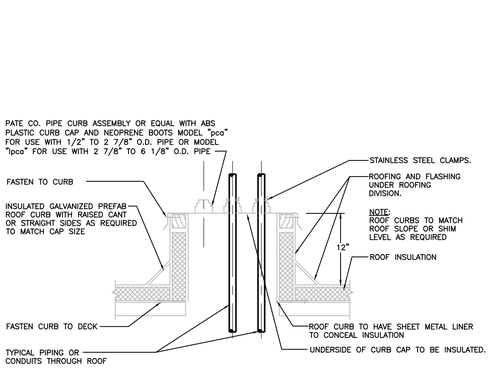
TAG	LOCATION	NOMINAL TONS	ARRANGEMENT	CAPACITY		ENTERING AIR CONDITIONS			FAN SECTION				CHILLED WATER COIL			FILTER			ELECTRICAL DATA					MANUFACTURER	MODEL	REMARKS
				TOTAL MBH	SENS. MBH	DB °F	WB °F	RH %	CFM	EXT. STATIC PRESSURE (IN.)	FAN QUANTITY	HP (TOTAL)	EWT °F	LWT °F	GPM	NO.	SIZE LxWxD	EFF.	VOLTS	PH	HZ	FLA	MOCP			
CRAC-1	EQUIP	3.0	UPFLOW	38.6	36.9	75.0	61.0	44.6	2000	0.8	1	1.3	45.0	55.0	8.1	1	34"x28"x2"	MERV 8	460	3	60	3	15	LIEBERT	PW011UC1A20208H1P0B0	1-6

REMARKS:
1. FACTORY INSTALLED DISCONNECT SWITCH.
2. FACTORY INSTALLED CONDENSATE PUMP.
3. SINGLE POINT POWER.
4. PROVIDE WITH CONDENSATE OVERFLOW SWITCH.
5. UPFLOW UNIT WITH FRONT AIR RETURN AND TOP SUPPLY.
6. PACKAGED CONTROLS WITH UNIT. PROVIDE ADAPTER FOR CONNECTION TO BAS. COORDINDATE WITH MANUFACTURER.

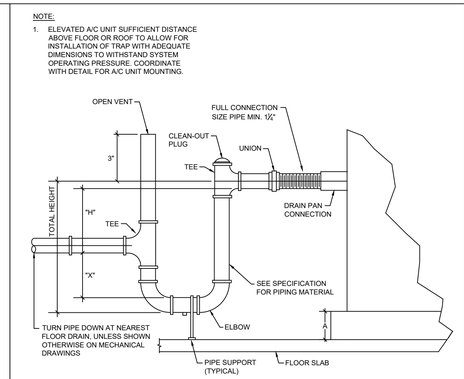
ASHREA 170 VENTILATION REQUIREMENTS

ROOM NAME	ROOM FUNCTION	FLOOR AREA (SQ. FT.)	ORDINANCE REQUIREMENTS				PLAN REQUIREMENTS			FAN SYSTEM	REMARKS
			CFM SUPPLY AIR	ACH SUPPLY	ACH OA	CFM OUTSIDE AIR	CFM SUPPLY	CFM RETURN	CFM OUTSIDE AIR	SUPPLY FAN	
CONTROL	SUBSTERILE SERVICE AREA	170	54	2	2	54	200	200	55	RTU-1	1
Hybrid OR #9	OPERATING ROOM	870	2755	20	4	551	3400	3200	935	RTU-1	1,2
TECHNICAL	STORAGE ROOM	140	-	-	-	17	75	75	21	RTU-1	1,3

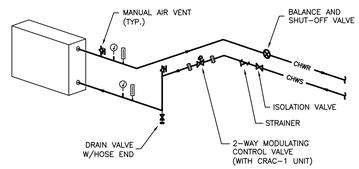
REMARKS:
1. RTU-1 SUPPLY AIR SCHEDULED AT MINIMUM 27.5% OA
2. POSITIVE ROOM PRESSURE REQUIRED
3. OA CALCULATED PER IMC 2015



1 MULTIPLE PIPE ROOF PENETRATION DETAIL
N.T.S.



2 COOLING COIL CONDENSATE DRAIN
N.T.S.



3 COOLING COIL PIPING DIAGRAM- 2-WAY VALVE
N.T.S.

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REVISIONS:

SHEET TITLE:
MECHANICAL SCHEDULES AND DETAILS

SHEET NO.:
M300

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GENERAL ELECTRICAL SYMBOLS

	CONDUIT RUN CONCEALED IN CEILING OR WALL
	CONDUIT RUN CONCEALED IN OR BELOW FLOOR
	CONDUIT RUN EXPOSED ON CEILING OR WALL

ARROWHEAD DENOTES HOMERUN TO PANELBOARD. SLASH LINES INDICATE QUANTITY OF WIRE; NEUTRAL WIRE SHOWN AS A LONG LINE, PHASE WIRES AND SWITCH LEGS SHOWN AS SHORT LINES, AND GROUND WIRE SHOWN AS A LONG LINE WITH A DOT.

— X — CONDUIT, WHERE "X" IS THE TYPE OR FUNCTION OF CONDUIT.

"C"	INDICATES CLOCK	"S"	INDICATES SOUND
"CO"	INDICATES CONDUIT ONLY	"T"	INDICATES TELEPHONE
"CTV"	INDICATES CCTV	"TVA"	INDICATES TELEVISION ANTENNA
"D"	INDICATES DATA	"TVC"	INDICATES CABLE TELEVISION
"FA"	INDICATES FIRE ALARM		
"I"	INDICATES INTERCOM		
"LV"	INDICATES LOW VOLTAGE		
"NC"	INDICATES NURSE CALL		

	FLEXIBLE CONDUIT
	UNDERGROUND DUCTBANK
PB	PULL BOX
J	JUNCTION BOX– EXPOSED OR IN CEILING
HJ	JUNCTION BOX – WALL MOUNTED
J	JUNCTION BOX WITH FLEXIBLE CONDUIT AND FINAL CONNECTION TO EQUIPMENT.
PDQ 13	EQUIPMENT IDENTIFICATION TAG

LIGHTING SYMBOLS

F1 1a	2' X 4' LED LIGHTING FIXTURE.
F1 1a	1' X 4' LED LIGHTING FIXTURE.
F1 1a	LED LIGHTING FIXTURE– LENGTH AS INDICATED.
F1 E1	2' X 4' LED LIGHTING FIXTURE CONNECTED TO EMERGENCY CIRCUIT.
F1 E1	LED LIGHTING FIXTURE CONNECTED TO EMERGENCY CIRCUIT.
OS	OCCUPANCY SENSOR

LIGHTING FIXTURES: "F1" INDICATES LIGHTING FIXTURE TYPE. REFER TO LIGHTING FIXTURE SCHEDULE FOR DESCRIPTION AND MOUNTING. "1" INDICATES CIRCUIT NUMBER "a" INDICATES SWITCH CONTROL. SHADING OF LIGHTING FIXTURE OR "E" INDICATES LIGHTING FIXTURE CONNECTED TO EMERGENCY CIRCUIT.

3W XXa $ — LIGHT SWITCH, SINGLE POLE UNLESS NOTED OTHERWISE:

"a"	INDICATES LIGHTS CONTROLLED	"XX"	INDICATES CIRCUIT NUMBER
"D"	INDICATES DIMMER SWITCH	"WP"	INDICATES WEATHERPROOF
"EP"	INDICATES EXPLOSION PROOF	"2P"	INDICATES 2 POLE
"FD"	INDICATES FLUORESCENT DIMMER	"3P"	INDICATES THREE POLE
"ID"	INDICATES INCANDESCENT DIMMER	"3W"	INDICATES THREE–WAY
"K"	INDICATES KEY OPERATED	"4W"	INDICATES FOUR–WAY
"LV"	INDICATES LOW VOLTAGE	"OS"	INDICATES COMBINATION WITH OCCUPANCY SENSOR
"MC"	INDICATES MOMENTARY CONTACT		
"P"	INDICATES PILOT LIGHT		

FIRE ALARM SYMBOLS

SD	SMOKE DETECTOR
S	VOICE SPEAKER
V	VISUAL STROBE
SV	COMBINATION VOICE SPEAKER AND VISUAL STROBE

SIGNAL SYMBOLS

WALL	FLOOR BOX	POKE–THROUGH	
			TELEPHONE OUTLET
			DATA SYSTEMS OUTLET
			COMBINATION TELEPHONE/ DATA SYSTEMS OUTLET

SUBSCRIPT INDICATES THE FOLLOWING FOR BELOW WALL MOUNTED OUTLETS, (U.N.O.):

"H"	HANDICAP MOUNTED AT 48" A.F.F.
"P"	PAY PHONE MOUNTED AT 54" A.F.F.
"W"	WALL MOUNTED AT 54" A.F.F.

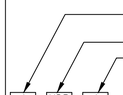
POWER SYMBOLS

WALL	FLOOR BOX	POKE–THROUGH	
			DUPLEX RECEPTACLE
			DOUBLE DUPLEX RECEPTACLE
			SPECIAL RECEPTACLE – NEMA TYPE AS INDICATED
P	P	P	JUNCTION BOX WITH FLEXIBLE CONDUIT AND FINAL EQUIPMENT OR FURNITURE SYSTEM POWER CONNECTION

WP, XX — ADJACENT LETTERS IN THE SYMBOLS ABOVE INDICATE THE FOLLOWING:

"CR"	INDICATES CHILD RESISTANT (SAFETY TYPE)
"E"	INDICATES RECEPTACLE FED BY EMERGENCY CIRCUIT
"EP"	INDICATES RECEPTACLE IS EXPLOSION PROOF
"EWC"	INDICATES RECEPTACLE SERVES ELECTRIC WATER COOLER
"GFI"	INDICATES RECEPTACLE HAS GROUND FAULT CIRCUIT INTERRUPTER
"IG"	INDICATES RECEPTACLE HAS ISOLATED GROUND
"TVS"	INDICATES RECEPTACLE HAS TRANSIENT VOLTAGE SURGE SUPPRESSION
"WP"	INDICATES RECEPTACLE HAS WATERPROOF COVER
"XX"	INDICATES RECEPTACLE CIRCUIT NUMBER
"S"	INDICATES RECEPTACLE IS SAFETY TYPE

	DUPLEX RECEPTACLE MOUNTED ABOVE COUNTERTOP OR DUPLEX MOUNTED WITHIN 12" BELOW COUNTERTOP TO SERVE COUNTER
	SWITCHGEAR, SWITCHBOARD OR MOTOR CONTROL CENTER, DASHED LINES INDICATE FUTURE SECTIONS, ARROW INDICATES FRONT
	SURFACE MOUNTED DISTRIBUTION PANELBOARD
	SURFACE MOUNTED BRANCH CIRCUIT PANELBOARD
	RECESSED MOUNTED BRANCH CIRCUIT PANELBOARD
1–HDP–1	SWITCHBOARDS, DISTRIBUTION PANELBOARDS, MOTOR CONTROL CENTERS, PANELBOARDS, CABINETS, AND RELATED EQUIPMENT



INDICATES LEVEL ON WHICH PANEL IS LOCATED – G, B, 1, 2, ETC.
INDICATES TYPE, CODED AS FOLLOWS:
INDICATES PANEL NUMBER

"C"	CRITICAL OR COMPUTER	"L"	208/120V, OR 208V
"D"	DISTRIBUTION	"MCC"	MOTOR CONTROL CENTER
"E"	EMERGENCY	"P"	POWER
"H"	480/277V, OR 480V	"Q"	EQUIPMENT
"ISP"	ISOLATION	"R"	RECEPTACLE
"K"	KITCHEN	"S"	STANDBY
"L"	LIGHTING	"SWBD"	SWITCHBOARD
		"XR"	X–RAY

T — TRANSFORMER

SINGLE LINE DIAGRAM SYMBOLS

	GROUNDING ELECTRODE CONDUCTOR
	CIRCUIT BREAKER
	PANELBOARD
	SWITCHBOARD OR MOTOR CONTROL CENTER AS INDICATED
3C 3R	TRANSFORMER WITH FLEXIBLE CONDUIT AND PAD

HEALTH CARE CALL SYMBOLS

1	SINGLE CALL STATION
2	NOT USED
3	TOILET BATH OR SHOWER CALL STATION
4	SINGLE CORRIDOR DOME ZONE LIGHT
5	NURSE CALL MASTER ANNUNCIATOR
6	NURSE CALL SYSTEM CONTROL PANEL
7	MULTIPLE CORRIDOR DOME ZONE LIGHT
8	DUTY STATION
9	STAFF DUTY STATION
20	PATIENT EXTENSION RECEPTACLE
21	PATIENT SINGLE CORD BEDSIDE STATION
23	CODE BLUE STATION

ABBREVIATIONS

NOTE: ABBREVIATIONS ARE ALPHABETICALLY LISTED BY DESCRIPTION.

ABBREV.	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
ACL	ACROSS THE LINE
ALM	ALARM
AC	ALTERNATING CURRENT
A	AMPERE
AMP	AMPERE
AIC	AMPERES INTERRUPTING CAPACITY
AL	ALUMINUM
ANN	ANNUNCIATOR
ATS	AUTOMATIC TRANSFER SWITCH
BAL	BALLAST
BR	BRANCH
BRKR	BREAKER
BGB	BUILDING GROUND BOX
CAB	CABINET
CATV	CABLE TELEVISION
C.B.	CIRCUIT BREAKER
CCT	CIRCUIT
CCTV	CLOSED CIRCUIT TELEVISION
CLO	CLOSET
COAX	COAXIAL
C.U.	COEFFICIENT OF UTILIZATION
C	CONDUIT
CONN	CONNECTION
CU	COPPER
CUH	CABINET UNIT HEATER
CT	CURRENT TRANSFORMER
HZ	HERTZ (CYCLES/SECOND)
DC	DIRECT CURRENT
DS	DISCONNECT SWITCH
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DT	DUSTTIGHT
ELEC	ELECTRIC
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EM	EMERGENCY
EMT	ELECTRIC METALLIC TUBING (THIN WALL CONDUIT)
EQ	EQUIPMENT
EUH	ELECTRIC UNIT HEATER
EX	EXISTING
EP	EXPLOSION PROOF
FPB	FAN POWERED BOX
FA	FIRE ALARM
FDC	FIRE DEPARTMENT CONNECTION
FB	FLOORBOX
FLUOR	FLUORESCENT
F	FUSE
F.S.	FUSED SWITCH
GEN	GENERATOR
GRD	GROUND
GFI	GROUND FAULT INTERRUPTER
GHW	GALVANIZED HEAVYWALL STEEL CONDUIT
HV	HIGH VOLTAGE
HP	HORSE POWER
IC	INTERRUPTING CAPACITY
IMC	INTERMEDIATE GRADE CONDUIT
JB	JUNCTION BOX
KW	KILOWATT
KWH	KILOWATT–HOUR
KVA	KILOVOLT–AMPERE
KO	KNOCKOUT
LTG	LIGHTING
LS	LOUD SPEAKER
LV	LOW VOLTAGE
MFR	MANUFACTURER
MTR	MOTOR
MCC	MOTOR CONTROL CENTER
MTD	MOUNTED
NEC	NATIONAL ELECTRICAL CODE
NEUT	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
PNL	PANEL
PH	PHASE
PT	POTENTIAL TRANSFORMER
PWR	POWER
PRI	PRIMARY
PROT.	PROTECTION OR PROTECTIVE
PA	PUBLIC ADDRESS
PB	PULL BOX
RT	RAINTIGHT
RECP	RECEPTACLE
RC	REMOTE CONTROL
R	RESISTANCE
REL	RELOCATE
SEC	SECONDARY
SC	SHORT CIRCUIT
SP	SINGLE POLE
SPST	SINGLE POLE SINGLE THROW
SPDT	SINGLE POLE DOUBLE THROW
SPKR	SPEAKER
SPEC	SPECIFICATION
SS	STAINLESS STEEL
STA	STATION
	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
SYS	SYSTEM
TC	TERMINAL CABINET
TEL	TELEPHONE
TEL.CL.	TELEPHONE CLOSET
TTC	TELEPHONE TERMINAL CABINET
TV	TELEVISION
TERM.	TERMINAL
TX	TRANSFORMER
	TRIP
TL	TWIST LOCK
UL	UNDERWRITER'S LABORATORIES
UNG	UNGROUNDED
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
V	VOLT
VA	VOLT–AMPERE
WT	WATERTIGHT
W	WATT
WP	WEATHERPROOF
XR	EXISTING TO BE REMOVED
XRL	EXISTING TO BE RELOCATED
XRW	EXISTING TO BE REWIRED

GENERAL NOTES

1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF LIGHTING AND CONTROLS, RECEPTACLES, COMMUNICATIONS DEVICES, FIRE ALARM DEVICES, AND LIFE SAFETY DEVICES.
2. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION OF HVAC, PLUMBING, AND FIRE PROTECTION EQUIPMENT.
3. REFER TO PANEL DIVISION LINES FOR BRANCH CIRCUIT HOMERUN PANELBOARD DEMARCATION LINES, UNLESS NOTED OTHERWISE.
4. BRANCH CIRCUIT WIRING FOR 120 VOLT 20 AMP CIRCUITS WIRED TO 208Y/120V SYSTEMS SHALL BE AS FOLLOWS:
   A. GENERAL RECEPTACLE LOADS:
      UP TO 100 FEET IN LENGTH: 3#12, 1#12N, 1#12G –3/4"C.
      OVER 100 FEET IN LENGTH: 3#10, 1#10N, 1#10G –3/4"C.
   B. ISOLATED GROUND RECEPTACLE LOADS:
      UP TO 80 FEET IN LENGTH: 3#12,1#10N,1#12G,1#12IG–3/4"C.
      OVER 80 FEET IN LENGTH: 3#10,1#8N,1#10G,1#10IG–3/4"C.
   C. LIGHTING LOADS:
      UP TO 100 FEET IN LENGTH: 3#12, 1#10N, 1#12G –3/4"C.
      OVER 100 FEET IN LENGTH: 3#10, 1#8N, 1#10G –3/4"C.
5. BRANCH CIRCUIT WIRING FOR 277 VOLT 20 AMP CIRCUITS WIRED TO 480Y/277V SYSTEMS SHALL BE AS FOLLOWS:
   A. ELECTRIC HEATING LOADS:
      UP TO 150 FEET IN LENGTH: 3#12, 1#12N, 1#12G –3/4"C.
      OVER 150 FEET IN LENGTH: 3#10, 1#10N, 1#10G –3/4"C.
   B. LIGHTING LOADS:
      UP TO 100 FEET IN LENGTH: 3#12, 1#10N, 1#12G –3/4"C.
      OVER 100 FEET IN LENGTH: 3#10, 1#8N, 1#10G –3/4"C.
6. MOUNTING HEIGHTS OF ELECTRICAL ITEMS SHALL BE AS LISTED BELOW ABOVE FINISHED FLOOR TO CENTERLINE, UNLESS NOTED OTHERWISE:

A. GENERAL RECEPTACLES	18"
B. GENERAL TELE AND DATA OUTLETS	18"
C. GENERAL TOGGLE SWITCHES	48"
D. CLOCK AND PAGING SPEAKER OUTLETS	84"
E. FIRE ALARM AUDIO VISUAL DEVICES	80"
F. INDIVIDUAL DISCONNECTS AND STARTERS	60"
G. GROUPED DISCONNECTS AND STARTERS	> 12"
	< 72"
H. PANELBOARD OVERCURRENT DEVICES	> 12"
	< 72"

7. PROVIDE RACEWAY AND GROUNDING FOR COMMUNICATIONS SYSTEMS INCLUDING TELEPHONE, DATA, SECURITY, CABLE TELEVISION, PAGING, INTERCOM, ETC. VERIFY REQUIREMENTS WITH COMMUNICATIONS CONSULTANTS AND CONTRACTORS.
8. VOICE AND DATA RACEWAY FOR WALL MOUNTED OUTLETS SHALL BE AS FOLLOWS: PROVIDE A TWO–GANG J–BOX AND SINGLE OR DOUBLE GANG FLUSH WALL OPENING AS REQUIRED FOR EACH VOICE/DATA OUTLET. CONDUITS SHALL INCLUDE PULL STRINGS AND 48" RADIUS BENDS. CONDUIT STUBS SHALL INCLUDE INSULATING BUSHINGS. CONDUIT FROM OUTLET BOX SHALL BE 1" MINIMUM AND SHALL STUB UP INTO ACCESSIBLE CEILING SPACE.

BRANCH CIRCUIT WIRING SCHEDULE

OCPD	1P & 2P	2P–3W & 3P–3W	3P–4W
15	2#12, 1#12G, 3/4"C	3#12, 1#12G, 3/4"C	4#12, 1#12G, 3/4"C
20	2#12, 1#12G, 3/4"C	3#12, 1#12G, 3/4"C	4#12, 1#12G, 3/4"C
25	2#10, 1#10G, 3/4"C	3#10, 1#10G, 3/4"C	4#10, 1#10G, 3/4"C
30	2#10, 1#10G, 3/4"C	3#10, 1#10G, 3/4"C	4#10, 1#10G, 3/4"C
35	2#8, 1#10G, 3/4"C	3#8, 1#10G, 3/4"C	4#8, 1#10G, 3/4"C
40	2#8, 1#10G, 3/4"C	3#8, 1#10G, 3/4"C	4#8, 1#10G, 3/4"C
45	2#6, 1#10G, 3/4"C	3#6, 1#10G, 3/4"C	4#6, 1#10G, 1"C
50	2#6, 1#10G, 3/4"C	3#6, 1#10G, 3/4"C	4#6, 1#10G, 1"C
60	2#4, 1#10G, 3/4"C	3#4, 1#10G, 1"C	4#4, 1#10G, 1 1/4"C
70	2#4, 1#8G, 3/4"C	3#4, 1#8G, 1"C	4#4, 1#8G, 1 1/4"C
80	2#3, 1#8G, 1"C	3#3, 1#8G, 1"C	4#3, 1#8G, 1 1/4"C
90	2#2, 1#8G, 1"C	3#2, 1#8G, 1 1/4"C	4#2, 1#8G, 1 1/4"C
100	2#1, 1#8G, 1 1/4"C	3#1, 1#8G, 1 1/4"C	4#1, 1#8G, 1 1/2"C

Code violations that are found during inspection are required to be corrected. Permit issuance does not grant approval of a code violation.

The Medical Center of Aurora
Health ONE

HYBRID OR 9 / DISCOVERY IGS

MEDICAL CENTER OF AURORA

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COLORADO LICENSED PROFESSIONAL ENGINEER — MICHAEL P THOMPSON — 55150

10/25/2019

PROJECT NO.: 18–22

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CHECKED BY:
SCALE: AS SHOWN
DATE: 10/25/2019
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
ELECTRICAL SYMBOL LIST AND GENERAL NOTES

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RSN: 1431550
PERMIT # 20-1751559-LT

DIVISION 16000 – ELECTRICAL

1. GENERAL

A. Requirements:

1) Products and execution shall be provided for a complete and fully operational electrical system throughout the extent of the project, in conformance with applicable codes, laws, ordinances and agency standards of governing bodies having jurisdiction, and in strict accordance with the contract documents, and building standards.

2) Products, including equipment, devices, fixtures, and materials shall be new unless noted otherwise, UL listed, and bear appropriate label.

3) Execution, including preparation, installation, starting, and testing shall be performed by skilled trades personnel, in compliance with the associated manufacturers recommendations, and coordinated with the other construction trades.

B. Applicable Codes:

1) National Electrical Code	NEC
2) International Building	IBC
3) Local Amendments	

C. Applicable Laws and Agency Standards:

1) American National Standards Institute	ANSI
2) American Society for Testing and Materials	ASTM
3) Americans with Disabilities Act	ADA
4) Electrical Testing Laboratories	ETL
5) Electronic/Telecommunications Industries Association	EIA/TIA
6) Federal Aviation Administration	FAA
7) Illuminating Engineering Society of North America	IESNA
8) Institute of Electrical and Electronics Engineers	IEEE
9) Insulated Cable Engineers Association	ICEA
10) National Electrical Manufacturers Association	NEMA
11) National Fire Protection Association	NFPA
12) Underwriters' Laboratories	UL

D. Approvals:

1) Emergency and Exit Lighting Documents shall be prepared and submitted to the Local Fire Department for their approval of system layout, circuiting, and fixture type. Approved drawings shall be submitted for review prior to construction.

2) Fire Alarm and Life Safety Documents shall be prepared and submitted to the Local Fire Department for their approval of system expansion, layout, circuiting, equipment and device type. The base building fire alarm and life safety system manufacturer/installer shall be retained to produce or update the building fire alarm and life safety documents, and to make final connections and alterations to the existing system. Approved drawings shall be submitted for review prior to construction.

3) Other systems requiring specific approval.

E. Submittals:

1) Product Data shall be prepared and submitted for review prior to construction for the following products: cabinets, access panels, supports, raceway components, floor boxes, fire proof fittings, wire, fuses, circuit breakers, receptacles, toggle switches, slide dimmers, disconnect switches, motor starters, contactors, lighting fixtures, ballasts, lamps, controls, fire alarm devices, life safety devices, and electric heating equipment.

2) Shop Drawings shall be prepared and submitted for review prior to construction for the following products: metering equipment, distribution panelboards, branch panelboards, transformers, cable tray, dimming equipment, fire alarm equipment, and life safety equipment.

3) Test Results shall be prepared and submitted prior to project completion for cable insulation, grounding system, emergency system, fire alarm system, and life safety systems in accordance with authorities having jurisdiction, and applicable codes and agency standards.

4) Manufacturers Instructions shall be prepared and submitted prior to construction including installation manuals with application conditions and limitations for electrical apparatus use, storage, handling, protection, examination, preparation, installation, and starting.

5) Utility Service Request shall be prepared and submitted prior to construction. Utility prepared drawings shall be submitted for review prior to construction.

6) Project Record Documents shall be prepared using AutoCAD or equivalent CAD package. Project Record Documents shall be submitted on reproducible media prior to project completion for electrical systems. Record actual location of equipment, devices, fixtures, etc. Record actual routing of overhead feeders. Record actual routing of feeders below slab and branch circuits within or below slab.

7) Maintenance Data shall be prepared and submitted prior to project completion for electrical apparatus including operation manuals and maintenance manuals.

F. Electrical Power System Studies:

1) Short Circuit Current and Protective Device Coordination Studies:
   a. Submit short circuit current and protective device coordination studies with coordination plots on standard log–log graphs for the medium and low voltage systems.
   b. The data shall include:
      1} Selected base quantities.
      2} One line diagrams.
      3} Impedance diagrams.
      4} Calculation methods.
      5} Tabulation of data.
      6} Conclusions.
      7} Recommendations.
   c. Equipment shop drawings shall not be submitted until the short circuit and coordination study has been reviewed by the Architect/Engineer.
   d. Provide proper fuse size and type. Provide proper selection and setting of relays, sensors and circuit breakers.

2) Arc Flash Hazard Analysis:
   a. Submit arc flash hazard analysis study in conjunction with the short circuit current and protective device coordination studies.
   b. The data shall include:
      1} Device or bus name.
      2} Bolted fault and arcing fault current levels.
      3} Flash protection boundary distances.
      4} Personal protective equipment (PPE) classes.
      5} Arc flash incident energy (AFIE) levels.
   c. The arc flash analysis shall include recommendations for reducing AFIE levels and enhancing worker safety.

G. Coordination:

1) Utility Company: Obtain and coordinate temporary service and permanent services in conformance with utility company requirements. Arrange for services in a timely manner. Provide temporary service until such time that permanent service can be energized.

2) Electrical Engineer: Notify the Engineer of any conflicting design information or any design intentions which are not readily interpreted from the contract documents prior to any product selection or execution of work. Notify the Engineer of any products which are damaged, unsuitable, incompatible, or non–compliant with any applicable codes or ordinances of any governing bodies having lawful jurisdiction.

3) Architect: Coordinate construction of the electrical system with the Architect. Final locations and mounting heights of electrical equipment, fire alarm equipment, receptacles, switches, communications devices, fire alarm devices, lighting fixtures, etc. shall be as directed by the Architect.

4) Construction Trades: Coordinate work with other construction trades.

5) Building Management: Meet on site with the building engineer to become familiar with building standards. Normal building working hours shall be recognized. After–hours work or temporary services shall be with prior written approval from building management. Enclose construction area from other areas to prevent transmission of dust, dirt and noise into other existing tenant areas. Product and waste transfer shall be coordinated with building management for scheduling of the elevators, deliveries, and waste removal.

6) Existing Building Systems: Review building standards with the building engineer. Perform a site visit to verify the existing site conditions. Costs associated with unforeseen conditions as result of not performing a site visit shall not be an entitlement for an increase to the contract. Construction shall be performed without interruption to the building power, communications, security, fire alarm and life safety systems, or interference to common areas, corridors, exits or existing tenants. Where any construction would interfere with the daily operations of the building or other tenants, after–hours work or temporary services shall be provided at no increase to the contract.

H. Warrantee and Guarantee

1) Provide warrantee and manufacturers certificate for each product, minimum of one year or longer as specified, from the date of occupancy. Repair and/or replace any equipment, devices, fixtures, materials, etc. with defect as required at no increase to the contract.

2) Provide guarantee of installation for a period of one year from the date of occupancy. Repair and/or reinstall any work with defect as required at no increase to the contract. Provide guarantee of rework for a period of one year from the completion of repair or reinstallation.

3) Damage caused to finishes, surfaces, ceiling tiles, equipment, etc. shall be repaired and/or replaced to match the pre–existing condition at no increase to the contract.

I. Pay fees and other charges incidental to the electrical work and obtain and pay for required liability and casualty insurance, permits, licenses, inspections, taxes, etc.

J. Construction shall be done during regular working hours and days, unless otherwise specified. Work required to be performed during overtime hours or days shall be as indicated.

K. Allow for 8 man–hours of training to the Owners staff for the operation of the electrical systems.

L. Substitutions are not acceptable.

2. PRODUCTS

A. Cabinets, enclosures and access panels shall be code gage steel with baked enamel finish and flangeless hinges and fasteners. Equipment bases shall be 3 inch high concrete, steel braced and reinforced with 1/4 inch chamfer, and shall extend a minimum of 2 inches around base of equipment. Vibration isolation shall be spring elements in suspended rods and isolation pads below equipment, electrical connections shall be flexible conduit.

B. Conduits shall be hot–dipped galvanized or electro–galvanized steel, minimum size shall be 3/4 inch, except power branch circuits may be 1/2 inch (unless noted otherwise) and flexible connections to recessed lighting fixtures which may be 3/8 inch. Flexible steel conduit shall be galvanized steel, with UL listed liquid tight jacket as required, for final connections to motors, recessed lighting fixtures, and life safety devices. Supports, including channels, angles, rods, and fasteners shall be hot–dipped galvanized steel. Manufacturer shall be Allied, LTV/Republic, Steelduct, or Wheatland.

C. Conduit fittings shall be steel, die cast fittings of pot metal are not acceptable. Electrical metallic tubing (EMT) fittings shall be compression type with insulated throats; set screw fittings are not acceptable. Intermediate metal conduit (IMC) and heavy wall conduit (HWG) fittings shall be of threaded joints; set screw and compression fittings are not acceptable. Manufacturer shall be Appleton, Crouse Hinds/Midwest, OZ/GGedney, Raco, Steel City, or T&B.

D. Outlet boxes for all toggle switches, receptacles, communications devices, fire alarm devices, and life safety devices shall include plaster rings, device plates, and cover plates where required. Provide boxes suitable for plenum, wet, or hazardous locations as required. Device cover plates shall be stainless steel painted to match finish. Multi–gang outlet boxes shall include suitable one–piece device cover plate. Outlets located on opposite sides of a partition shall be staggered by 12 inches, minimum. Manufacturer shall be Appleton, Raco, or Steel City.

E. Floor boxes shall be adjustable concrete tight pressed steel with brass flange and covers. Flush floor boxes shall include brass trim and hinged outlet opening covers. Fire rated poke–through floor fittings shall be UL listed and approved for the floor slab fire rating. Floor mounted service fittings for connection to underfloor electrified metal deck shall be compatible with the deck manufacturer. Access floor mounted fittings for use with raised floors shall be flush type with space for equipment cord plug devices and suitable flip type cover. Manufacturer shall be Hubbell, Wiremold, or Steel City.

F. Raceway poles for power and communications shall be two compartment steel, length and finish as required, complete with all bases, adjustable stanchions, horizontal supports, trim plates, and connecting harnesses. Manufacturer shall be Wiremold.

G. Flush infloor duct raceway systems, including power and communications ducts, adjustable supports, elbows, fittings, and all required accessories shall be of UL standard galvanized steel, and shall be sized in accordance with code to adequately facilitate pulling and connecting the quantity and size of wires and cables contained. Manufacturer shall be Wiremold or Steel City.

H. Surface metal raceway including power devices, communications devices, fittings, connectors, feeds, elbows, couplings, blanks, tees, wire clips, device brackets, device covers, and other associated apparatus shall be sized to facilitate pulling the quantity and size of wires and cables, and installing the devices contained. Raceway shall be of code gage galvanized steel, shall include mounting knock–outs, and shall be finished as directed by the Architect. Manufacturer shall be Wiremold.

I. Ladder type cable tray systems, including all runners, elbows, tees, crosses, and fittings shall be of aluminum and shall be sized to facilitate pulling the quantity and size of wires and cables contained. Manufacturer shall be B–Line, Square D, or Legrand.

J. Wire shall be 600 Volt insulated copper, minimum size shall be No.12 AWG, wire sizes No.8 AWG and larger shall be stranded. Manufacturer shall be American Insulated Wire Corp., Cerro, Collyer, Capitol Wire and Cable, Okonite, Senetor, South Wire, or Triangle.

K. Cable supports shall be appropriate for the size of conduit and type of wire and cables. Cable lubricant shall be less than six percent solid residue after drying and shall not contain any waxes, greases, silicones, or glycol oils.

L. Local disconnect switches for electrically operated equipment shall be heavy duty within enclosure suitable for the location. Fusible disconnect switches 800 Amps and larger shall be bolted pressure, load–break type. Fusible and non–fusible disconnect switches 600 Amps and smaller shall be quick–make, quick–break type. Manufacturer shall be Cutler–Hammer, Siemens/ITE, or Square D.

M. Overcurrent and short circuit protection within fusible switches shall be Class L current limiting time delay fuses for switches rated 800 Amps and larger, and Class RK–1 current limiting time delay fuses for switches rated 600 Amps and smaller. Manufacturer shall be Bussmann.

N. Grounding system, including service and equipment grounding and bonding, shall be in accordance with code and shall connect all electrically operated equipment. Provide a separate green ground wire for each branch circuit and feeder.

O. Receptacles shall be duplex NEMA 5–20R, back and side wired, specification grade, unless noted otherwise. Special receptacle configurations, duplex isolated ground receptacles, and duplex ground fault interrupter receptacles shall be as required or as indicated on the contract documents. General receptacle color shall be white and IG receptacle color shall be orange unless specified otherwise, verify color with Architect. Manufacturer shall be Bryant, Hubbell, Leviton, or Pass & Seymour.

P. Toggle switches shall be single pole 20 Amp, 120–277 Volt, back and side wired, specification grade, unless noted otherwise. Special switches, including 3–way, pilot light and momentary contact, shall be as required or as indicated on the contract documents. Color shall be white unless specified otherwise, verify color with Architect. Manufacturer shall be Bryant, Hubbell, Leviton, or Pass & Seymour.

Q. Lighting contactors shall be enclosed and mechanically held, and shall include all required control modules, timeclocks, and remote photocells. Main contactors for panelboard feeders shall match the panel ratings. Multiple pole contactors for branch circuits shall be rated at 20 Amps, or more, as required for the specific load type. Manufacturer shall be ASCO 920 & 917 or Zenith MVP & MMC.

R. Slide dimmers shall be low profile, quiet, slide–to–off type, and shall be rated as required for the wattage and specific load type. Manufacturer shall be Lutron, Lightolier, Hubbell, or Leviton.

S. Lighting fixtures shall include all appropriate accessories, mounting frame and trim for ceiling type. Fluorescent fixtures shall include rapid–start standard–output electronic ballasts with ninety percent (90%) ballast factor and total harmonic distortion of (10%) or less, type or appropriate compact type lamps. Lighting fixtures shall include coordinated air handling capability, plenum rating, damp label, wet label, and shall be explosion proof where required. Lighting fixtures recessed within grid type ceilings shall include securing clips as required by the local authority. Fixture manufacturer shall be as indicated; Electronic ballast manufacturer shall be Advance, Motorola, or MagneTek with minimum 3 year warrantee; Lamp manufacturer shall Osram Sylvania, General Electric, or Phillips.

T. New fire alarm devices provided within existing systems shall match existing device manufacturer and type. Strobes shall meet ADA guidelines for the application and shall rated 75dc, except in sleeping areas which shall be rated 110dc. Strobes rated 15/75dc with 75dc on axis are not acceptable except in small conference rooms. Existing fire alarm devices shall be extended as required. Existing fire alarm equipment shall be expanded as required with any additional components for proper operation of new devices on existing equipment.

U. Uninterruptible power supply (UPS) equipment includes converters, rectifiers, chargers, filters, inverters, pulse–width modulation, self–contained or external batteries, transfer switches, input and output isolation transformers, external maintenance by–pass switch, synchronizing equipment, protective devices, indicated, E.P.O. provisions, instrumentation, monitors, and controls. UPS manufacturer shall be Liebert, MGE or Powerware.

V. Power distribution units (PDU's) shall include input power/control junction box with ten (10) foot liquid tight cable, main input circuit breaker, K–20 rated isolation transformer, protective devices, non–linear output branch circuit panelboards, with main circuit breaker and 200% neutral bus, liquid tight output cables with plenum junction box and wiring devices as indicated, E.P.O. provisions, instrumentation, monitors, and controls in accordance with Owner requirements. PDU manufacturer shall be Liebert, MGE or Powerware.

3. EXECUTION

A. Penetrations and channels in floors and walls shall be via cutting and coring as required for the size of product, only in accordance with the Architect and Engineer recommendations, and as scheduled with the building management. Patch and fill sleeves, inserts, penetrations, and channels with appropriate code approved fire safing or filling to match or restore the original fire rating of the construction.

B. Make final connections to vibrating equipment, fixtures, and devices with flexible metal conduit or liquid tight flexible metal conduit as required. Extend ground wire through flexible connections.

C. Install conduit, fittings, supports, etc. in accordance with codes, standards, and manufacturers recommendations. The voltages identified in the following schedules are line–to–line or line–to–neutral. Interior concealed locations are those locations which are above ceilings, within walls, within floor slabs, and within dedicated electrical rooms. Conduit installation shall be as follows unless noted otherwise:

Voltage Location	0V thru 50V	Above 50V thru 250V	Above 250V thru 600V	Above 600V
Interior Concealed	EMT	EMT	≤ 2"EMT ≥ 2 1/2"IMC	HWG
Interior Exposed	EMT	≤ 2"EMT ≥ 2 1/2"IMC	IMC	HWG
Exterior and Hazardous Locations	EMT	IMC	HWG	HWG

D. Installations within air handling spaces, including plenum ceilings and built up air handling systems shall be approved for plenum installation and shall be in strict accordance with all applicable codes.

E. Install pull boxes, junction boxes, and outlet boxes in accordance with codes, standards, and manufacturers recommendations. Boxes shall include accessible covers, shall be fabricated of heavy gage galvanized steel, and shall be sized with code to adequately facilitate pulling and connecting the quantity of wires, cables, and feeders contained. Conduit terminations shall be made with bushings and locknuts. Supports for conduits and boxes shall be suspended directly to the building structural components and in no case shall they be attached to suspended ceiling grid, ductwork, or piping components.

F. Install feeders and branch circuit wiring in accordance with codes, standards, and manufacturers recommendations. Provide neutral sized at 200% or (2) neutral conductors where serving panels with 200% rated neutral bus, coordinate installation with panel manufacturers lug provisions. Install normal power, emergency power, fire alarm, and life safety systems within continuous metal raceways. Install concealed security and communications wiring within continuous metal raceways. Separate each system into independent raceways. Provide cable supports as required. Terminate cables per code and manufacturers recommendations. Provide (2) hole lugs for cables 250 kcmil and larger. Power wiring insulation shall be as follows unless noted otherwise:

Wire Location	300 kcmil and smaller	350 kcmil and larger	Environmental Conditions
Interior Locations	THHN/THWN	XHHW	dry
Exterior Locations	THHN/THWN THHN/THWN	XHHW XHHW–2	damp wet

G. Install electrical distribution equipment and devices, including metering, distribution panelboards, branch panelboards, motor starters, local disconnect switches, overcurrent protection, transformers, main contactors, receptacles, etc. in accordance with codes, standards, and manufacturers recommendations.

H. Install grounding systems in accordance with codes, standards, and manufacturers recommendations. Communications system shall include ground lug and AWG No. 6 which shall connect to the electrical service equipment ground bus. Grounding conductor between computer room raised floor pedestals, computer room structural steel, and computer room equipment shall be AWG No. 6. Grounding loop around computer room perimeter pedestals shall be AWG No. 2 which shall connect to the electrical service equipment ground bus. Grounding conductors shall be secured to computer room raised floor pedestals via Burndy GP series clamps.

I. Install lighting and associated controls, including fixtures, ballasts, lamps, toggle switches, slide dimmers, dimming equipment, lighting contactors, etc in accordance with codes, standards, and manufacturers recommendations.

J. Install single and multiple device cover plates as required. Extend existing devices to finished surface as required.

K. Install fire alarm and other life safety systems in accordance with codes, standards, and manufacturers recommendations.

L. Install inscription plates and identification markings for products and wiring including the same inscriptions where indicated on the contract documents. Install plastic laminate nameplates on enclosures for each device within metering equipment, distribution panelboards, branch panelboards, motor starters, disconnect switches, transformers, and contactors. Nameplates shall be white with black core, 1–1/4 inches by 3 inches minimum, with 3/16 inch lettering, secured to equipment with two machine screws. Prepare and install type–written panel directory within each branch panel. Device plates shall be engraved for toggle switches and other devices whose function is not readily apparent. Markers shall be self–sticking for each wire and cable at terminations and at each accessible point in equipment and raceway.

M. Clean electrical apparatus prior to completion of construction. Keep work areas clean at all times.

N. Alterations and Demolition of existing systems shall be as follows:

1) Provide all alterations and demolition of the existing electrical installation as required, including any incidental materials to execute all removal, rerouting, relocation, and any other modifications for proper accommodation of all new construction as indicated on the contract documents. All alterations and demolition shall be as indicated on the contract documents or as required, including any modifications not specifically identified on any contract documents but required to complete all new construction.

2) Provide all modifications to existing equipment as required or as indicated on the contract documents in strict accordance with the existing product manufacturers recommendations.

3) Existing raceway, wire and cable extending through the construction area but serving areas outside the contract shall be rerouted and reconnected as required. All modifications shall be without any interruption to the building power, communications, security, fire alarm and life safety systems, or interference to other areas or tenants. Where any modifications would interfere with the daily operations of the building or other tenants, after–hours work or temporary services shall be provided with prior written approval from the building.

4) Existing conduit, wire, cable, supports, hangers, and other electrical installation which is removed, shall be completely removed, back to the first device or that equipment which is unaffected by the modifications. Conduit which is buried in concrete or otherwise inaccessible may be abandoned and capped at each end. All wire and cable shall be removed from any abandoned conduit.

5) Existing electrical materials and equipment, including lighting fixtures, switches, receptacles, speakers, conduit, outlet boxes, fittings, wire, cable, and other equipment and devices which are removed shall remain the property of the Owner and shall be stored or discarded as directed.

6) Reuse existing electrical products as indicated on the contract documents only as is found practical. Examine the condition of all such products, determine suitability for re–use, and periodically notify the Architect/Engineer of findings for final acceptance of re–use. Wire and cable for new construction or extension of an existing installation shall be new, in no case shall existing wire and cable be reused.

7) Refer to architectural demolition drawings for full extent and scope of partition and ceiling modifications.

   a. Existing ceilings to remain shall not be altered except where removal and replacement of surfaces is required to modify systems within ceiling space.
   b. Existing ceilings to be removed shall included demolition of all fixtures equipment, speakers, raceway, and wire, including any obsolete or previously abandoned products. Remaining areas shall only be altered as required and in accordance with the contract documents.
   c. Existing partitions to remain shall not be altered except where removal and replacement of surfaces is required to modify systems within partitions.
   d. Existing partitions to be removed shall include demolition of all devices, raceway and wire including any obsolete or previously abandoned products. Raceway and wiring systems serving other remaining areas shall only be altered as required and in accordance with the contract documents.
   e. Existing floor mounted devices shall be demolished. Provide abandoning plates and fire proofing as required.

8) Refer to mechanical and plumbing demolition drawings for full extent and scope of electrically operated equipment modifications.

   a. Demolition of existing mechanical equipment shall include associated disconnects, raceway, wire and controls.

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The Medical Center of Aurora
Health ONE

HYBRID OR 9 / DISCOVERY IGS

MEDICAL CENTER OF AURORA

1501 S. POTOMAC ST.
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SOUTH CAMPUS

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IN ASSOCIATION WITH
WMA a Salas O'Brien Company
815 South Wabash Avenue, Chicago, IL 60605
9250 East Costilla Avenue, Greenwood Village, CO 80112
WMA Job# 19119-00

DESIGN DOT LOT
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(303) 565–7282

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COLORADO LICENSED
MICHAEL P. THOMPSON
53150
PROFESSIONAL ENGINEER
10/25/2019

PROJECT NO.: 18–22

DRAWN BY:
CHECKED BY:
SCALE: AS SHOWN
DATE: 10/25/2019
ISSUED FOR: CONSTRUCTION
REVISIONS:
1
2
3
4
5

SHEET TITLE:
ELECTRICAL SPECIFICATIONS

SHEET NO.:
E001

RSN: 1431550
Permit #: 20-1751559 LT

Utility fault contribution			
Transformer KVA:	2000		
Transformer %Z:	5.32		
Secondary Voltage:	480 Volts		
3-Phase I_{SCA}	= PER XCEL STANDARDS	=	45,200

Source:	Utility Transformer Secondary		
Load:	MSBA		
System Voltage:	480 Volts		
Conductor Material:	Copper		
Conductor Size:	500 AWG or MCM		
# of sets (n):	11		
Raceway Material:	PVC		
Conductor Constant (C):	26706		
Length of Circuit (L):	79 Feet		
f	= $\frac{1.732 \times L \times I}{C \times n \times V_{L\text{-}L}}$	=	0.0
M	= $\frac{1}{1+f}$	=	0.958
3-Phase I_{SCA}	= $I_{SCA} \times M$	=	43,301

Source:	MSBA		
Load:	ATS-2B-N		
System Voltage:	480 Volts		
Conductor Material:	Copper		
Conductor Size:	350 AWG or MCM		
# of sets (n):	2		
Raceway Material:	Steel		
Conductor Constant (C):	19704		
Length of Circuit (L):	35 Feet		
f	= $\frac{1.732 \times L \times I}{C \times n \times V_{L\text{-}L}}$	=	0.1
M	= $\frac{1}{1+f}$	=	0.878
3-Phase I_{SCA}	= $I_{SCA} \times M$	=	38,024

Source:	ATS-2B-L		
Load:	CR		
System Voltage:	480 Volts		
Conductor Material:	Copper		
Conductor Size:	350 AWG or MCM		
# of sets (n):	2		
Raceway Material:	Steel		
Conductor Constant (C):	19704		
Length of Circuit (L):	27 Feet		
f	= $\frac{1.732 \times L \times I}{C \times n \times V_{L\text{-}L}}$	=	0.1
M	= $\frac{1}{1+f}$	=	0.914
3-Phase I_{SCA}	= $I_{SCA} \times M$	=	34,757

Source:	CR		
Load:	ECHS		
System Voltage:	480 Volts		
Conductor Material:	Copper		
Conductor Size:	500 AWG or MCM		
# of sets (n):	1		
Raceway Material:	Steel		
Conductor Constant (C):	22185		
Length of Circuit (L):	400 Feet		
f	= $\frac{1.732 \times L \times I}{C \times n \times V_{L\text{-}L}}$	=	2.3
M	= $\frac{1}{1+f}$	=	0.307
3-Phase I_{SCA}	= $I_{SCA} \times M$	=	10,658

Source:	ECHS		
Load:	MDP		
System Voltage:	480 Volts		
Conductor Material:	Copper		
Conductor Size:	1 AWG or MCM		
# of sets (n):	1		
Raceway Material:	Steel		
Conductor Constant (C):	7293		
Length of Circuit (L):	100 Feet		
f	= $\frac{1.732 \times L \times I}{C \times n \times V_{L\text{-}L}}$	=	0.5
M	= $\frac{1}{1+f}$	=	0.655
3-Phase I_{SCA}	= $I_{SCA} \times M$	=	6,978

Transformer fault contribution:	T-ECLOR		
Transformer KVA:	75		
Transformer %Z:	1		
Primary Voltage (V_p):	480		
Secondary Voltage (V_s):	208		
f	= $\frac{I_{SCA(P)} \times V_p \times 1.732 \times \%Z}{100{,}000 \times KVA}$	=	0.8
M	= $\frac{1}{1+f}$	=	0.564
3-Phase $I_{SCA(S)}$	= $V_p/V_s \times M \times I_{SCA(P)}$	=	9,080

Source:	T-ECLOR		
Load:	ECLOR		
System Voltage:	208 Volts		
Conductor Material:	Copper		
Conductor Size:	250 AWG or MCM		
# of sets (n):	1		
Raceway Material:	Steel		
Conductor Constant (C):	16483		
Length of Circuit (L):	10 Feet		
f	= $\frac{1.732 \times L \times I}{C \times n \times V_{L\text{-}L}}$	=	0.0
M	= $\frac{1}{1+f}$	=	0.956
3-Phase I_{SCA}	= $I_{SCA} \times M$	=	8,682

GENERAL NOTES:

1. REFER TO ELECTRICAL GENERAL NOTES AND SYMBOLS ON SHEET E000.
2. REFER TO ELECTRICAL SPECIFICATIONS ON SHEET E001.
3. ALL ELECTRICAL DISTRIBUTION SHOWN IS EXISTING TO REMAIN U.N.O.

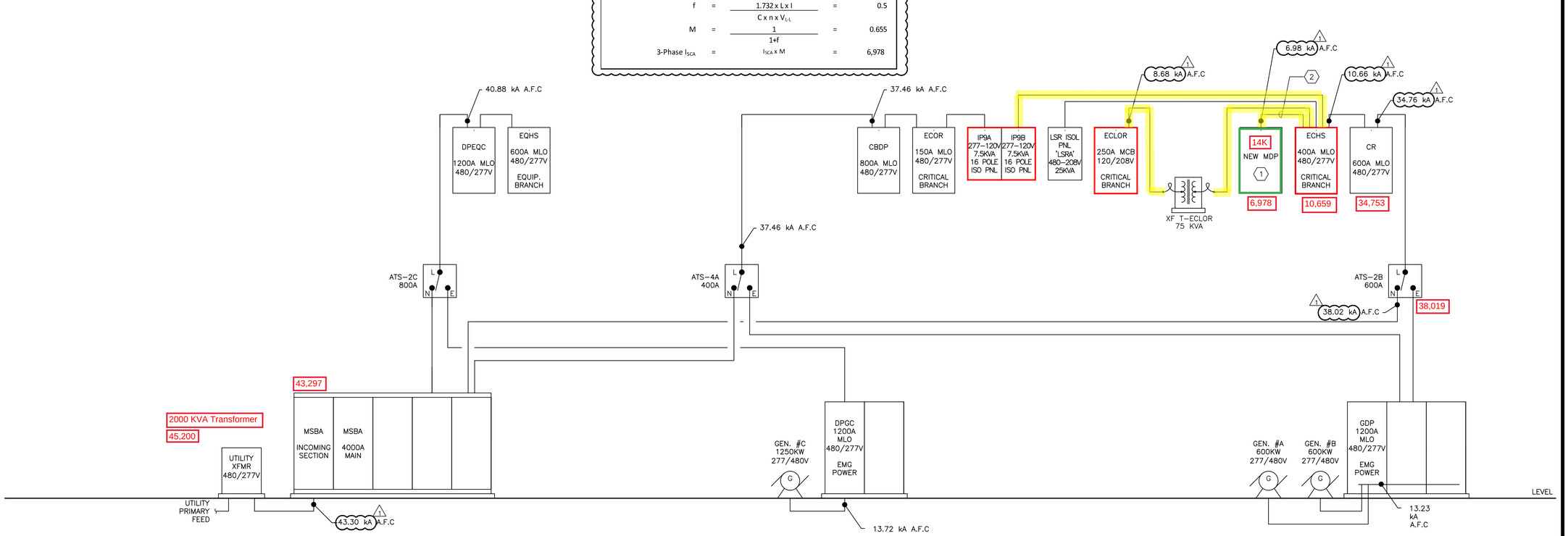
KEYED NOTES: (#)

1. MDP FURNISHED BY IMAGING EQUIPMENT VENDOR AND INSTALLED BY EC.
2. PROVIDE NEW FEEDER, 4#1, 1#8, 1-1/2"C

Locate the required overcurrent protection per 2017 NEC 240.21

Install electrical connections per 2017 NEC 110.14, identify disconnects per 2017 NEC 110.22 and provide working space around electrical equipment per 2017 NEC 110.26.

Service equipment shall be permanently and legibly marked to show the available fault current and date.
2017 NEC Article 110.24(A)(B).



1 ELECTRICAL RISER DIAGRAM

N.T.S.

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: William Griffin
Date: Feb 12, 2020
2015 INTERNATIONAL CODES & 2017 NEC

RSN: 1431550
Permit #: 20-1751559 LT

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Health ONE

HYBRID OR 9 / DISCOVERY IGS

MEDICAL CENTER OF AURORA

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WMA Job# 19119-00

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COLORADO LICENSED MICHAEL F THOMPSON 53150 PROFESSIONAL ENGINEER
02/10/2020

PROJECT NO.: 18-22

DRAWN BY: JSC
CHECKED BY: JG
SCALE: AS SHOWN
DATE: 10/25/2019
ISSUED FOR: CONSTRUCTION
REVISIONS:
1 02/10/2020 PERMIT COMMENT RESPONSES

SHEET TITLE:
ELECTRICAL RISER DIAGRAM

SHEET NO.:
E002

G:\19119_001\300_ELECTRICAL\DRAWINGS\E002 - ELECTRICAL RISER DIAGRAM.DWG Last edited by C21 on 10-10-2019 @ 3:16
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LOAD JUSTIFICATION: CR		
EXISTING LOAD (BASED ON NEC CALCULATED LOAD)	148500	VA
DEMOLISHED LOAD	-7320	VA
ADDED LOAD:	30810.8	VA
NET ADDED LOAD:	23490.8	VA
	28.27	AMPS

LOAD JUSTIFICATION: ECHS		
EXISTING LOAD (BASED ON NEC CALCULATED LOAD)	102719.3	VA
DEMOLISHED LOAD	-7320	VA
ADDED LOAD:	30810.8	VA
NET ADDED LOAD:	23490.8	VA
	28.27	AMPS

LOAD JUSTIFICATION: ECLOR		
EXISTING LOAD (BASED ON NEC CALCULATED LOAD)	97868	VA
DEMOLISHED LOAD	-2980	VA
ADDED LOAD:	6850.8	VA
NET ADDED LOAD:	3870.8	VA
	4.66	AMPS

LOAD JUSTIFICATION: ECOR		
EXISTING LOAD (BASED ON NEC CALCULATED LOAD)	31666.7	VA
DEMOLISHED LOAD	-4340	VA
ADDED LOAD:	0	VA
NET ADDED LOAD:	-4340	VA
	-5.22	AMPS

LOAD JUSTIFICATION: IP9A & IP9B		
EXISTING LOAD (BASED ON NEC CALCULATED LOAD)	9760	VA
DEMOLISHED LOAD	-8680	VA
ADDED LOAD:	0	VA
NET ADDED LOAD:	-8680	VA
	-10.45	AMPS

Legibly identify each breaker or switch for it's use or purpose on the circuit directory in the panel/switchboard per 2017 NEC 408.4.

Service equipment shall be permanently and legibly marked to show the available fault current and date.
2017 NEC Article 110.24(A)(B).

PANEL DESIGNATION: ECHS | LOCATION: | MOUNTING: SURFACE | FAULT DUTY: 35,000A
MLO: X | MAIN: | BUS: 400A | VOLTS 480/277 | PHASE: 3 | WIRE: 4

EQUIPMENT DESCRIPTION	DMD	WATTS A	WATTS B	WATTS C	BRKR SIZE			BRKR SIZE	WATTS A	WATTS B	WATTS C	DMD	EQUIPMENT DESCRIPTION
ISO PNL 1E1B	EX				35	1	2	70				EX	ISO PNL LSRA
ISO PNL 1E2B	EX				35	3	4						
ISO PNL 1E3B	EX				35	5	6					EX	SPACE
ISO PNL 1E4B	EX				35	7	8					EX	SPACE
ISO PNL 1E5B	EX				35	9	10					EX	SPACE
ISO PNL 1E6B	EX				35	11	12					EX	SPACE
ISO PNL 1E7B	EX				35	13	14					EX	SPACE
ISO PNL 1E8B	EX				35	15	16					EX	SPACE
ISO PNL 1E9B	EX			5960	35	17	18					EX	SPACE
ISO PNL 1E10B	EX				35	19	20					EX	SPACE
SPACE	EX					21	22					EX	SPACE
SPACE	EX					23	24					EX	SPACE
SPACE	EX					25	26					EX	SPACE
SPACE	EX					27	28					EX	SPACE
SPACE	EX					29	30					EX	SPACE
T-CL1C	EX					31	32		6000				
					110	33	34	100		6000		G	OR 9 GE MDP [3]
						35	36				6000		
T-ECLOR	EX	2077				37	38						
			3060		110	39	40	110				EX	T-CL1DS
				1713.8		41	42						
TOTAL "A"		2077				8077			6000				30.8 CONN.KVA
TOTAL "B"			3060			9060				6000			37.1 CONN. AMPS
TOTAL "C"				7673.8		13674					6000		
TOTAL "A,B,C"						30811 CONN.							

NOTES: [#]
1. LOADS SHOWN REPRESENT NEW LOADS ONLY.
2. NEW LOAD CONNECTED TO EXISTING CIRCUIT BREAKER.
3. NEW LOAD CONNECTED TO NEW CIRCUIT BREAKER.

PANEL DESIGNATION: IP9A | LOCATION: OR9 | MOUNTING: RECESSED | FAULT DUTY: 10,000A
PRIMARY VOLTAGE: 277V | SECONDARY VOLTAGE: 120V | ISOLATION TRANSFORMER: 10KVA
PRIMARY MAIN: 30A | SECONDARY MAIN: | PHASE: 1 | WIRE: 3

EQUIPMENT DESCRIPTION	WATTS A	BRKR SIZE			BRKR SIZE	WATTS A	EQUIPMENT DESCRIPTION
RECP SE WALL (N)	360	20	1	2	20	540	RECP N WALL/CLG (N)
SOUTH WALL RECP (EX)	720	20	3	4	20	360	SOUTH WALL RECP (EX)
STRYKER ARM F MOTOR (N)	1200	20	5	6	20	900	RECP DESK (N)
STRYKER ARM F OUTLETS (N)	360	20	7	8	20	720	ANES. RETRACTABLE RECP (REL)
STRYKER ARM F OUTLETS (N)	540	20	9	10	20	1080	STRYKER ARM D MOTOR (N)
STRYKER ARM F OUTLETS (N)	540	20	11	12	20	540	STRYKER ARM D OUTLETS (N)
STRYKER ARM F OUTLETS (N)	540	20	13	14	20	540	STRYKER ARM D OUTLETS (N)
STRYKER ARM F OUTLETS (N)	540	20	15	16	20		SPARE
TOTAL "A"	4800		9480			4680	9.5 CONN. KVA
							79 CONN. AMPS

PANEL DESIGNATION: IP9B | LOCATION: OR9 | MOUNTING: RECESSED | FAULT DUTY: 10,000A
PRIMARY VOLTAGE: 277V | SECONDARY VOLTAGE: 120V | ISOLATION TRANSFORMER: 10KVA
PRIMARY MAIN: 30A | SECONDARY MAIN: | PHASE: 1 | WIRE: 3

EQUIPMENT DESCRIPTION	WATTS A	BRKR SIZE			BRKR SIZE	WATTS A	EQUIPMENT DESCRIPTION
SE WALL RECP (N)	180	20	1	2	20	900	RECP DESK (N)
SOUTH WALL RECP (EX)	360	20	3	4	20	1080	RECP N WALL (N)
WEST RETRACTABLE RECP (EX)	360	20	5	6	20	360	EAST RETRACTABLE RECP (REL)
WEST RETRACTABLE RECP (EX)	360	20	7	8	20	360	EAST RETRACTABLE RECP (REL)
STRYKER ARM B PANEL (N)	500	20	9	10	20	500	STRYKER ARM C PANEL (N)
STRYKER ARM B LIGHT (N)	500	20	11	12	20	500	STRYKER ARM C LIGHT (N)
SPARE		20	13	14	20		SPARE
SPARE		20	15	16	20		SPARE
TOTAL "A"	2260		5960			3700	6 CONN. KVA
							49.7 CONN. AMPS

TOTAL SECTION 1		9480	15.4 CONN. KVA
TOTAL SECTION 2		5960	
TOTAL SECTION 1 AND 2		15440	55.7 CONN. AMPS

NOTES [#]:
1. LOADS SHOWN REPRESENT NEW LOADS ONLY.
2. NEW LOAD CONNECTED TO EXISTING CIRCUIT BREAKER.

1
PANEL: MDP (PROVIDED BY MEDICAL EQUIPMENT VENDOR) | ENCLOSURE: NEMA 1 | MAINS(A): 100A MCB | CONTINUOUS(A): 100A
LOCATION: TECHNICAL ROOM | MOUNTING: SURFACE | WIRING: 3-PHASE 4-WIRE | BUS SC RATING (A): 14,000
FED FROM: ECHS | VOLTAGE: 480/277

CUBICLE NO.	DESCRIPTION	CONNECTED KVA	DEMAND KVA	DESIGN KVA	DESIGN AVE AMPS	OC DEVICE TYPE	SIZE	P	NOTES
1	PDU	12	12	12	14.4	CB	100	3	NOTE 1,2
2	FLOURO UPS	6	6	6	7.2	CB	50	3	NOTE 1,2

	KVA	AMPS
ALL CONNECTED	18	21.7
TOTAL CONNECTED	18	21.7
TOTAL DEMAND	18	21.7
TOTAL DESIGN	18	21.7

NOTES:
1. MDP AND ALL INTERIOR DEVICES, ACCESSORIES ARE PROVIDED MY THE MEDICAL EQUIPMENT VENDOR
2. LOADS SHOWN REPRESENT NEW LOADS ONLY.

1
PANEL DESIGNATION: ECLOR | LOCATION: LV1 ELEC | MOUNTING: SURFACE | FAULT DUTY: 25,000A
MLO: | MAIN: 225A | BUS: 250A | VOLTS 208/120 | PHASE: 3 | WIRE: 4

EQUIPMENT DESCRIPTION	DMD	WATTS A	WATTS B	WATTS C	BRKR SIZE			BRKR SIZE	WATTS A	WATTS B	WATTS C	DMD	EQUIPMENT DESCRIPTION
1-SS007 UPS	G				30	1	2	20				G	1-SS007 IT RACK
	G					3	4	20				G	1-SS007 IT RACK
1-SS001, 5, 6, 7, 8 LTG	G				20	5	6	20				G	OR 10 LTS
1-SS006, 8 RECP	G				20	7	8	20	97			G	OR 9 LTS
1-SS007 RECO	G				20	9	10	20				G	1-SS007 COMM RESP BRD
1-SS007 RECP	G				20	11	12	20			61.8	G	TECH RM LTG
1-SS001 FRZR	G				20	13	14	20				G	RECP 1-SS013,21,20,18
1-SS001 PLGMLD	G				20	15	16	20				G	OR 10 FILM ILLUMINATOR
1-SS001 PLGMLD	G				20	17	18	20				G	COR MANIFOLD
1-SS001 PLGMLD	G				20	19	20	20				G	1-SS001 PLGMLD
1-SS001 PLGMLD	G					21	22	20				G	1-SS001 FRZR
1-SS001 PLGMLD	G				20	23	24	20				G	1-SS001 FRZR
1-SS001 PLGMLD	G				20	25	26	20				G	PLUG MOLD
1-SS001 PLGMLD	G				20	27	28	20				G	EQP RM 1-SS012 PLGMLD
1-SS001 PLGMLD	G				20	29	30	20				G	1-SS001 FRZR
1-SS001 PLGMLD	G				20	31	32	20				G	OR10 MONITORS
O.R 8 LTS	G				20	33	34	20				G	1-SS007 COMM RESP BRD
1-SS012 PLGMLD	G				20	35	36	20				G	OR 9 FILM ILLUMINATOR
EQP RM 1-SS012 PLGMLD	G				20	37	38	20				G	CORR LTS
O.R. 7 FILM ILLUMINATOR	G				20	39	40	20		180		G	TECH RM RECP
1-SS012 PLGMLD	G				20	41	42	20				G	TECH RM RECP
1-SS012 PLGMLD	G				20	43	44	20				G	LTG I-SS105, LTG I-SS106
OR #7 & #8 MONITORS	G				20	45	46	20				G	OR #5 LTGS
OR #10 MONITORS	G				20	47	48	20				G	OR #5, OR #6, OR #11 CAN LTGS
OR #7 & #8 SUB STERILE PLUGS	G				20	49	50	20				G	OR #6 LTG
OR #7 & #8 SUB STERILE PLUGS	G				20	51	52	20				G	OR #5 AND OR #6 MONITORS
OR #10 MONITOR X-RAY	G				20	53	54	20				G	OR #6 MONITOR & ILLUMINATOR
CORRIDOR RECPS OUTSIDE OR #7 AND #8	G				20	55	56	20				G	OR #5 MONITOR & ILLUMINATOR
SPD LTG	G				20	57	58	20				G	DEDICATED RCPT RM I-SS127
MAKEUP CSOT LTG	G				20	59	60	20				G	RCPTS BY CLEAN SUPPLY RMS I-SS126 CLEAN SUPPLY, I-SS124 STRAIC I-SS123 STRAIC I-SS127 SUB STERILE
CASE CARTS CS11 LTG	G				20	61	62	20				G	NURSES DESK DOOR CONTROLLER
OR #11 LTGS	G				20	63	64	20				G	OR #3 LTGS
ELEC RM CS 16 RCPT	G				20	65	66	20				G	OR #1, OR #2 LTGS
POU SCAN RCPT	G				20	67	68	20				G	PLUG MOLD RM I-SS137
SCANNER RCPT BY CLEAN STORAGE	G				20	69	70	20				G	PLUG MOLD RM I-SS137
SPD, MAY OP CSOT RCPT	G				20	71	72	20				G	PLUG MOLD RM I-SS137
TEMP CORRIDOR LTG/ FUTURE OR #4 LTG	G				20	73	74	20				G	PLUG MOLD RM I-SS137
PACU LTGS, CORRIDOR I-SS029, I-SS036	G				20	75	76	20				G	OR #3 MONITOR & ILLUMINATOR
BAY LETG BY RM I-SS224	G				20	77	78	20				G	OR #1, OR #2, OR #3 MONITORS
BAY LETG BY RM I-SS204	G				20	79	80	20				G	OR #2 MONITOR & ILLUMINATOR
DESK RCPT RM I-SS205	G				20	81	82	20				G	OR #1 MONITOR & ILLUMINATOR
ABOVE DESK RCPT RM I-SS205	G				20	83	84	20				G	OR #3 LTGS
OR 11 MONITOR/ ILLUMINATOR	G				20	85	86					G	SPACE
OR 11 TV MONITOR	G				20	87	88					G	SPACE
OFF SPARE	G				20	89	90	20				G	OFF SPARE
CS 07 POWER POLE	G				20	91	92	20				G	OFF SPARE
CS 07 POWER POLE	G				20	93	94	20				G	ANES WK 1-SS012A GFCI
CS 07 POWER POLE	G				20	95	96					G	SPACE
CS 07 POWER POLE	G				20	97	98	20				G	1-SS125 1-SS102 LIGHTS
OR 9 MONITORS	G		900		20	99	100	20				G	DORNIER
OR 9 AND OR 10 CAN LIGHTS	G			32	20	101	102	20				G	DORNIER
OR 7 AND OR 8 SUB STERILE PLUGS	G				20	103	104	20				G	STORAGE BY OR 1 PLUG MOLD
OR 7 AND OR 8 PUMP ROOM PLUGS	G				20	105	106	20				G	STORAGE BY OR 1 PLUG MOLD
OR 7 AND OR 8 SUB STERILE PLUGS	G				20	107	108	20				G	STORAGE BY OR 1 PLUG MOLD
OR 7 AND OR 8 MONITORS & ILLUMINATORS	G				20	109	110	20	360			G	OR 9 EQPM PWR SUP [3]
OR 7 LIGHTS	G				20	111	112	20		360		G	OR 9 EQPM PWR SUP [3]
ON SPARE	G				20	113	114	20			360	G	OR 9 EQPM PWR SUP [3]
OR 7, OR 8, PUMP ROOM AND SUBSTERILE LIGHTS	G				20	115	116	20	360			G	OR 9 EQPM PWR SUP [3]
OR 9 CONTROL RM [3]	G		900		20	117	118	20		360		G	OR 9 EQPM PWR SUP [3]
OR 9 CONTROL RM [3]	G			900	20	119	120	20			360	G	OR 9 EQPM PWR SUP [3]
OR 9 CONTROL RM [3]	G	900			20	121	122	20	360			G	OR 9 EQPM PWR SUP [3]
SPACE	G					123	124	20		360		G	OR 9 EQPM PWR SUP [3]
SPACE	G					125	126					G	SPACE
TOTAL "A"		900				2077			1177				6.9 CONN.KVA
TOTAL "B"			1800			3060				1260			19.0 CONN. AMPS
TOTAL "C"				932		1713.8					781.8		
TOTAL "A,B,C"						6850.8 CONN.							

NOTES: [#]
1. LOADS SHOWN REPRESENT NEW LOADS ONLY.
2. NEW LOAD CONNECTED TO EXISTING CIRCUIT BREAKER.
3. NEW LOAD CONNECTED TO NEW CIRCUIT BREAKER.

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: William Griffin
Date: Feb 12, 2020
2015 INTERNATIONAL CODES & 2017 NEC

RSN: 1431550
Permit #: 20-1751559 LT

The Medical Center of Aurora
Health One

HYBRID OR 9 / DISCOVERY IGS

MEDICAL CENTER OF AURORA

1501 S. POTOMAC ST.
AURORA, CO 80012

SOUTH CAMPUS

TOM THOMPSON ARCHITECT
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IN ASSOCIATION WITH
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9250 East Costilla Avenue, Greenwood Village, CO 80112
WMA Job# 19119-00

DESIGN LOT
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(303) 565-7282

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COLORADO LICENSED RACHEL F THOMPSON 53150 PROFESSIONAL ENGINEER
02/10/2020

PROJECT NO.: 18-22

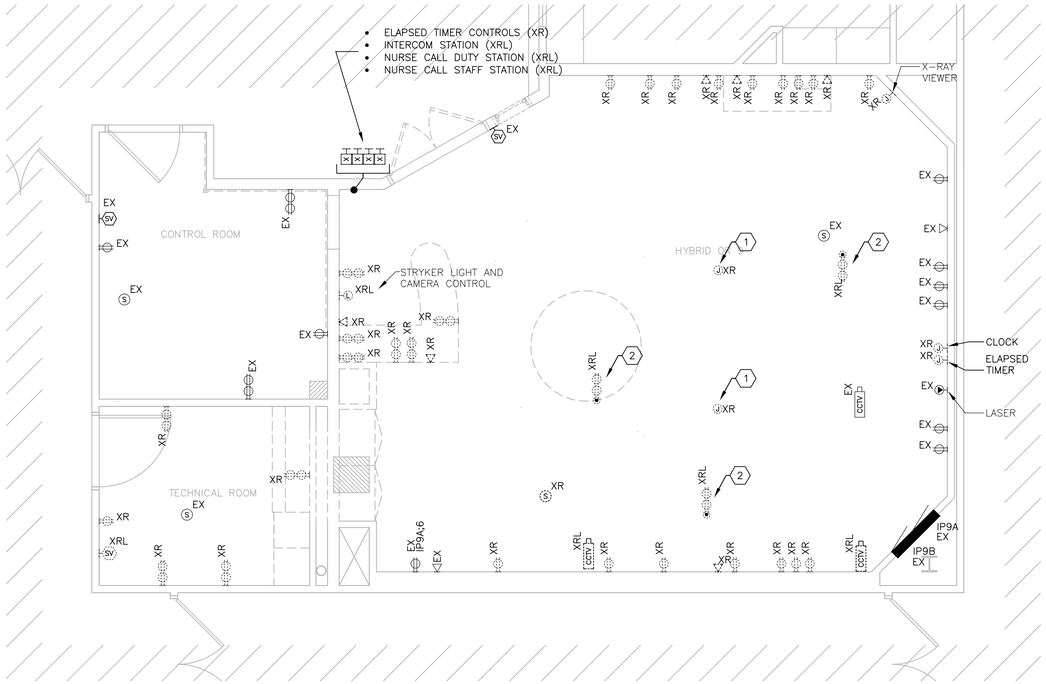
DRAWN BY: JSC
CHECKED BY: JG
SCALE: AS SHOWN
DATE: 10/25/2019
ISSUED FOR: CONSTRUCTION

REVISIONS:
1 02/10/2020 PERMIT COMMENT RESPONSES
2
3
4
5

SHEET TITLE: ELECTRICAL DETAILS

SHEET NO.: E003

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1 DEMOLITION PLAN - POWER AND SIGNAL

1/4"=1'-0"

0 2 4 8

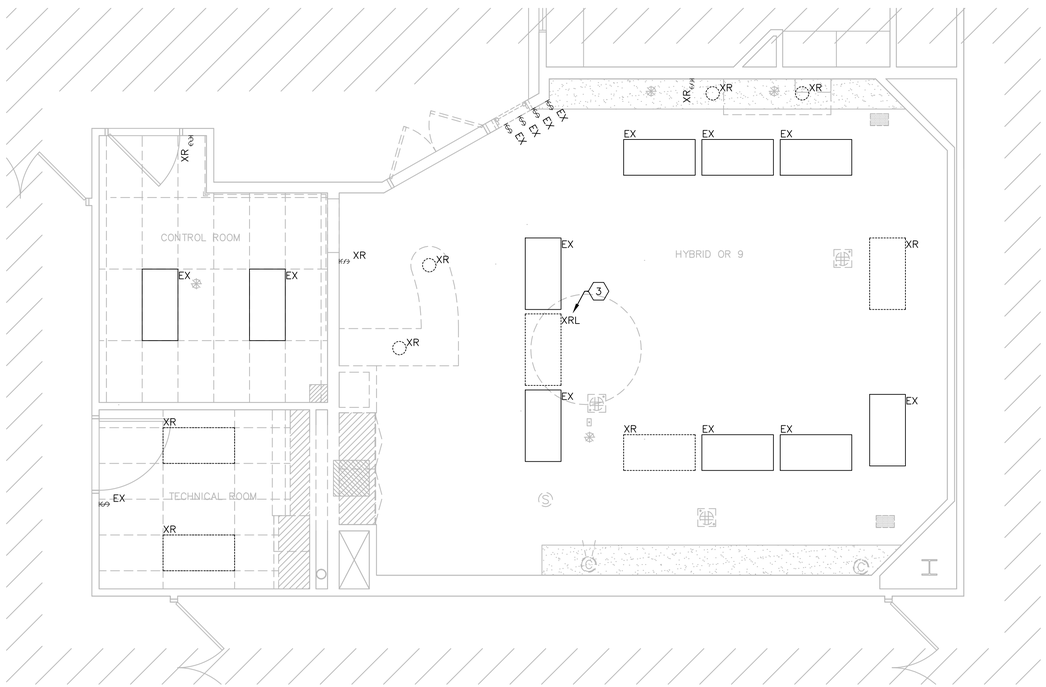
GENERAL NOTES:

1. REFER TO ELECTRICAL GENERAL NOTES AND SYMBOLS ON SHEET E0.0.
2. REFER TO ELECTRICAL SPECIFICATIONS ON SHEET E0.1.

KEYED NOTES: (#)

1. DISCONNECT BRANCH CIRCUITS TO EXISTING BOOM. REMOVE EXISTING CONDUCTORS TO ISOLATED POWER PANEL. EXISTING CONDUIT HOMERUN MAY REMAIN FOR EXTENSION TO NEW BOOM LOCATION.
2. DISCONNECT BRANCH CIRCUITS TO EXISTING DROP CORD OUTLET. REMOVE AND SALVAGE DROP CORD OUTLET ASSEMBLY FOR RELOCATION. REMOVE EXISTING CONDUCTORS TO ISOLATED POWER PANEL. EXISTING CONDUIT HOMERUN MAY REMAIN FOR EXTENSION TO NEW OUTLET LOCATION.
3. REMOVE EXISTING LIGHTING FIXTURE FOR RELOCATION. MAINTAIN EXISTING LIGHTING CONTROLS.

This sheet of drawings has not been reviewed for code compliance.



1 DEMOLITION PLAN - LIGHTING

1/4"=1'-0"

0 2 4 8

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Health ONE

HYBRID OR 9 / DISCOVERY IGS

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IN ASSOCIATION WITH
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815 South Wabash Avenue Chicago, IL 60605
9250 East Costilla Avenue Greenwood Village, CO 80112

WMA Job# 19119-00

DESIGN DOT LOT
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COLORADO LICENSED MICHAEL P. THOMPSON 55450 PROFESSIONAL ENGINEER

10/25/2019

PROJECT NO.: 18-22

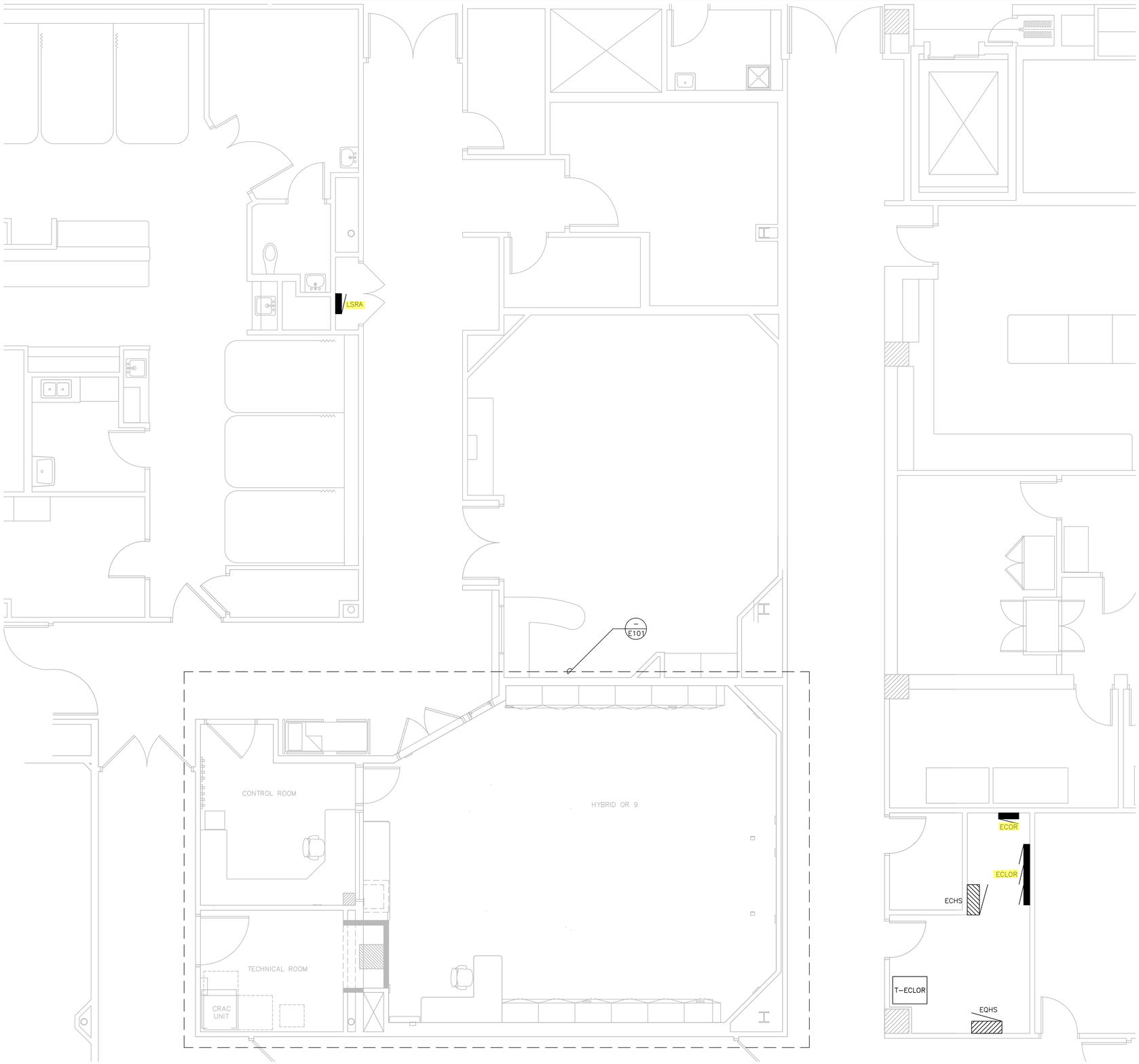
DRAWN BY:
CHECKED BY:
SCALE: AS SHOWN
DATE: 10/25/2019
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
DEMOLITION PLANS
ELECTRICAL

SHEET NO.:
ED101

RSN: 1431550
Permit #: 20-1751559 LT

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GENERAL NOTES:

1. REFER TO ELECTRICAL GENERAL NOTES AND SYMBOLS ON SHEET E000.
2. REFER TO ELECTRICAL SPECIFICATIONS ON SHEET E001.
3. ALL ELECTRICAL DISTRIBUTION SHOWN IS EXISTING TO REMAIN U.N.O.

1 ELECTRICAL FLOOR PLAN

1/4"=1'-0"

0 2 4 8

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Health ONE

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COLORADO LICENSED MICHAEL P THOMPSON 58150 PROFESSIONAL ENGINEER

10/25/2019

PROJECT NO.: 18-22

DRAWN BY:
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SCALE: AS SHOWN
DATE: 10/25/2019
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
ELECTRICAL FLOOR PLAN

SHEET NO.:
E100

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: William Griffin
Date: Feb 12, 2020
2015 INTERNATIONAL CODES & 2017 NEC

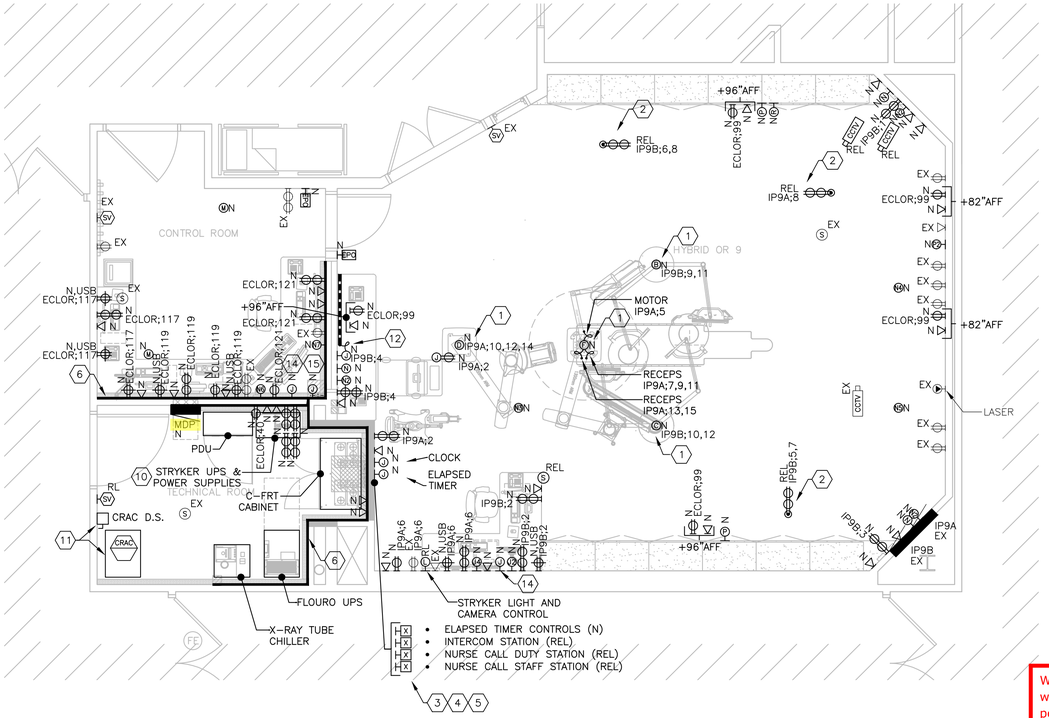
RSN: 1431550
Permit #: 20-1751559 LT

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1 ENLARGED OR PLAN - POWER AND SIGNAL

1/4"=1'-0"

0 2 4 8



STRYKER CONDUIT SCHEDULE		
CONDUIT RUN ITEM - ITEM	CONDUIT QTY	CONDUIT QTY
B - UPS	2	1-1/4"
B - PWR SUP	1	2"
C - UPS	2	1-1/4"
C - PWR SUP	1	2"
D - UPS	2	2"
F - UPS	2	1-1/4"
F - UPS	2	2"
L - PWR SUP	1	3/4"
M - UPS	1	3/4"
N - UPS	1	1-1/4"
N2 - UPS	1	1-1/4"
N3 - UPS	1	1-1/4"
N4 - UPS	1	1-1/4"
N5 - UPS	1	1-1/4"
N6 - UPS	1	2"
N7 - UPS	1	2"
P - UPS	1	1-1/4"
P2 - UPS	1	1-1/4"
R - UPS	1	1-1/4"

Additional Conduit Runs (Contractor Supplied and Installed)

From	To	Qty	Size In.	Size mm
Cable Management system	CFRT Cabinet	4	4	100
Table	CFRT Cabinet	2	4	100
Bolus Chase	Table	1	2 1/2	64
Water line	Cable Management system	1	3	75
Warning light controller	Warning light	1	1/2	50
Warning light controller	Power distribution unit	1	1/2	50
Warning light controller	120-V 1 phase power	1	As Required	As Required
XR-Buzzer	CFRT Cabinet	1	3/4	19
XR-Buzzer	Control Room	1	3/4	19
Monitor	Control Room	1	2 1/2	64
Large Display Monitor	CFRT Cabinet	1	3 and 3/4	75 and 19
CFRT Cabinet	Tram/PDM	2	3	75
Main Disconnet Panel	20 KVA UPS	2	As Required	As Required
Power distribution unit	Emergency off	1	1/2	50
Power distribution unit	Emergency off	1	1/2	50
Main Disconnect Panel	Power distribution unit	1	1	25
Main Disconnect Panel	480-V 3 phase power	1	As Required	As Required
AW wireless mouse	AW workstation	1	3/4	19
Patient Monitoring	Monitor boom	1	3	75
Patient Monitoring	TRAM/PDM (vendor equip. boom)	2	3	75

Locate the required overcurrent protection per 2017 NEC 240.21

Install electrical connections per 2017 NEC 110.14, identify disconnects per 2017 NEC 110.22 and provide working space around electrical equipment per 2017 NEC 110.26.

Wiring in air handling spaces must comply with 2017 NEC 300.22. Firestop penetrations per 2017 NEC 300.21. Secure and support equipment per 2017 NEC 300.11.

GENERAL NOTES:

1. REFER TO ELECTRICAL GENERAL NOTES AND SYMBOLS ON SHEET E0.0.
2. REFER TO ELECTRICAL SPECIFICATIONS ON SHEET E0.1.
3. REMOVE AND RE-INSTALL EXISTING CEILING MOUNTED DEVICES AS REQUIRED TO ACCOMMODATE WORK ABOVE CEILING.
4. WIRE NEW ELECTRICAL DEVICES TO INDICATED NORMAL AND CRITICAL BRANCH PANELBOARDS, UNO. CIRCUIT NUMBERS INDICATED DESIGN INTENT ONLY. VERIFY AVAILABLE CIRCUITS IN FIELD.
5. RACEWAY FOR MEDICAL EQUIPMENT SHOWN FOR DESIGN INTENT ONLY. REFER TO MEDICAL EQUIPMENT VENDOR DRAWINGS FOR RACEWAY REQUIREMENTS, DETAILS, AND ADDITIONAL INFORMATION. CONTRACTOR SHALL INSTALL RACEWAY SYSTEMS TO ACCOMMODATE MAXIMUM VENDOR CABLE LENGTHS.
6. CONTRACTOR SHALL INSTALL EMPTY RACEWAY SYTSEM AND EQUIPMENT DESIGNATED AS CONTRACTOR/OWNER PROVIDED ON VENDOR DRAWINGS. CUT AND PATCH WALLS, CEILING, AND FLOOR SLAB FOR INSTALLATION OF NEW CONDUITS.
7. MODIFY EXISTING EQUIPOTENTIAL GROUNDING SYSTEM AS REQUIRED.

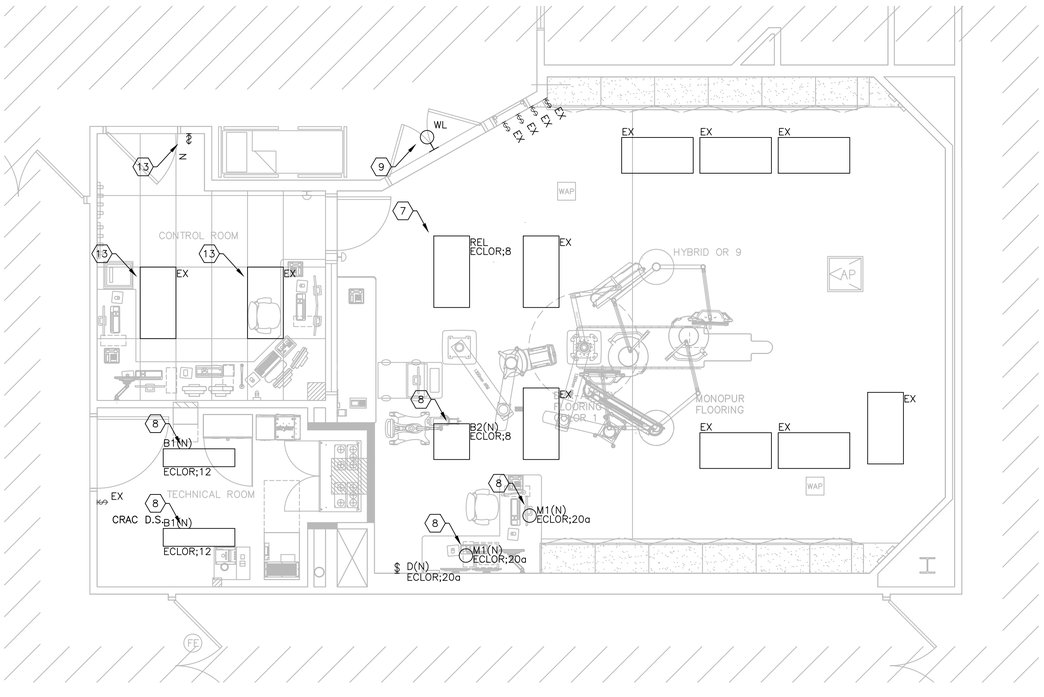
KEYED NOTES: (#)

1. EXTEND EXISTING BRANCH CIRCUIT RACEWAY AND PROVIDE NEW BRANCH CIRCUIT CONDUCTORS TO RE-FEED BOOM IN NEW LOCATION. REFER TO STRYKER CONDUIT SCHEDULE.
2. RELOCATE SALVAGED DROP CORD OUTLET ASSEMBLY AND INSTALL IN NEW CEILING. EXTEND EXISTING BRANCH CIRCUIT RACEWAY AND PROVIDE NEW BRANCH CIRCUIT CONDUCTORS TO RE-FEED DROP CORD OUTLET.
3. RELOCATE EXISTING NURSE CALL DEVICES. COORDINATE WIRING REQUIREMENTS WITH EXISTING SYSTEM VENDOR, BEACON COMMUNICATIONS.
4. RELOCATE EXISTING INTERCOM STATION. COORDINATE WIRING REQUIREMENTS WITH EXISTING SYSTEM VENDOR.
5. PROVIDE NEW ELAPSED TIMER CONTROLS. PROVIDE 2-GANG BACKBOX AND EMPTY 1"C TO NEW ELAPSED TIMER LOCATION.
6. SURFACE-MOUNTED WALL DUCT. REFER TO GE DRAWINGS FOR SIZE AND INSTALLATION CRITERIA.
7. EXTEND EXISTING LIGHTING BRANCH CIRCUIT TO NEW LIGHTING FIXTURE LOCATION. PROVIDE NEW TRIM. MAINTAIN EXISTING LIGHTING CONTROLS.
8. RE-WORK EXISTING LIGHTING BRANCH CIRCUIT SERVING ROOM TO NEW LIGHTING FIXTURES. PROVIDE CONTROLS AS INDICATED.
9. PROVIDE 120V, 1PH POWER CONNECTION TO WARNING LIGHT VIA 2#12, 1#12G, 3/4"C FEEDER. CONNECT TO AVAILABLE CIRCUIT IN PANEL ECLOR, PROVIDE NEW 20A/1P CIRCUIT BREAKER AS REQUIRED. PROVIDE CONNECTION TO WARNING LIGHT CONTROL PANEL AND PDU AS REQUIRED, REFER TO GE VENDOR DRAWINGS.
10. PROVIDE (4) QUADRUPLEX RECEPTACLES FOR STRYKER UPS AND POWER SUPPLIES. PROVIDE (2) CIRCUITS FOR EACH QUADRUPLEX FOR A TOTAL OF (8) CIRCUITS. CONNECT CIRCUITS TO PANELBOARD 'ECLOR', USE AVAILABLE CIRCUIT SPACES #110-124 (EVEN NUMBERED). PROVIDE A NEW 20A/1P BREAKER FOR EACH UTILIZED CIRCUIT SPACE. REFER TO STRYKER VENDOR DRAWINGS.
11. PROVIDE POWER CONNECTION TO CRAC UNIT VIA 4#12, 1#12G, 3/4"C FEEDER FROM AVAILABLE CIRCUIT IN PANEL EQHS. PROVIDE NEW 15A/3P CIRCUIT BREAKER IN PANEL EQHS FOR CRAC CIRCUIT. PROVIDE NEW 30A/3P, 600V DISCONNECT SWITCH FOR CRAC UNIT IN TECHNICAL ROOM IN AN ACCESSIBLE LOCATION. REFER TO MECHANICAL SCHEDULES.
12. PROVIDE 4LF SINGLE-CIRCUIT PLUGMOLD WITH SINGLE OUTLETS 12" OC EQUAL TO WIREMOLD #2400 SERIES.
13. REPLACE EXISTING TOGGLE SWITCH WITH 0-10V WALLBOX DIMMER SWITCH. REPLACE EXISTING FLUORESCENT BALLASTS WITH DIMMING BALLASTS. COORDINATE BALLASTS AND DIMMER FOR COMPATIBILITY IN DIMMING DOWN TO 10%.
14. PROVIDE A 6X6 JUNCTION BOX WITH BLANK COVERPLATE WITH BUSHED 2" OPENING AND 2" CONDUIT BETWEEN CONTROL ROOM AND NURSE WORKSTATION. PROVIDE PULLSTRING AND INSULATING BUSHINGS.
15. PROVIDE A 6X6 JUNCTION BOX WITH BLANK COVERPLATE WITH BUSHED 2" OPENING AND 2" CONDUIT TO STRYKER EQUIPMENT BOOM 'D'. PROVIDE PULLSTRING AND INSULATING BUSHINGS.

1 ENLARGED OR PLAN - LIGHTING

1/4"=1'-0"

0 2 4 8



LIGHTING FIXTURE SCHEDULE

TAG	DESCRIPTION	LAMP QUANT	LAMP TYPE/CRI-CT	FIXTURE VOLT	FIXTURE WATTS	MANUFACTURER	ITEM NUMBER	REMARKS
B1	1x4 RECESSED LENSED LED TROFFER WITH 4800 LUMEN PACKAGE	-	LED / 80-4000K	120	30.9	LITHONIA	GTL-4-48L-A12125-LP840	NOTES 1,2,3
B2	2x2 TROFFER WITH HIGH CRI ANTIMICROBIAL PAINT	-	LED / 90-4000K	120	97.0	HEALTHCARE LIGHTING	HSTLED22-F-MVOLT	NOTES 1,2,3
M1	4" SEALED RECESSED SURGICAL LED DOWNLIGHT WITH 1000 LUMEN PACKAGE AND UL WET LOCATION	-	LED / 90-4000K	120	16.0	KENALL	M4DL4-DCFW-14L-40K9-CSS-RIS4-120-DIM1	NOTES 1,2,3
WL	RECESSED LED 'XRAY IN USE' SIGN	-	LED	120	1.0	LITHONIA	LE-P-W-1-R-120/277-SW16	NOTES 1,2

NOTES:

1. MANUFACTURERS' CATALOG NUMBERS ARE INTENTIONALLY INCOMPLETE; COORDINATE REQUIRED TRIM KITS, MOUNTING BRACKETS, LAMPS, FINISHES, ETC. WITH THE ARCHITECT, CONTRACT DOCUMENTS, SPECIFICATIONS, AND OTHER TRADES.
2. VERIFY TYPE OF CEILING OR WALL FOR MOUNTING OF LIGHTING FIXTURES PRIOR TO ORDERING.
3. UTILIZE EXISTING POWER CONNECTIONS WHERE PRACTICABLE

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: William Griffin
Date: Feb 12, 2020
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RSN: 1431550
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COLORADO LICENSED MICHAEL P THOMPSON 53150 PROFESSIONAL ENGINEER
10/23/2018

PROJECT NO.: 18-22

DRAWN BY:
CHECKED BY:
SCALE: AS SHOWN
DATE: 10/25/2019
ISSUED FOR: CONSTRUCTION
REVISIONS:

SHEET TITLE:
ENLARGED PLAN ELECTRICAL

SHEET NO.:
E101

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REV	DATE	MODIFICATIONS
B	08/AUG/2019	Revised final drawing based on request DC-201370
A	01/AUG/2019	Final drawing based on request DC-201178

01 - C1 - Cover Sheet
02 - C2 - Disclaimer - Site Readiness
03 - A1 - General Notes
04 - A2 - Equipment Layout
05 - A3 - Movement Layout
06 - A4- Section Views
07 - A5 - Equipment Details (1)
08 - A6 - Equipment Details (2)
09 - A7 - Delivery
10 - S1 - Structural Notes
11 - S2 - Structural Layout
12 - S3 - Structural Details (1)
13 - S4 - Structural Details (2)
14 - S5 - Structural Details (4)
15 - M1 - HVAC
16 - E1 - Electrical Notes
17 - E2 - Electrical Layout
18 - E3 - Electrical Elevations
19 - E4 - Electrical Details
20 - E5 - Power Requirements
21 - E6 - Interconnections

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

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MEDICAL CENTER OF AURORA
AURORA, COLORADO
USA

GE Healthcare

TONY SCHRADER
720-467-4290
Tony.schrader@ge.com

DISCOVERY IGS 7
FINAL STUDY

Drawn by	Verified by	Concession	S.O. (GON)	PIM Manual	Rev
TST	TST	-	4794421	5730951-1-1EN	3

Format	Scale	File Name	Date	Sheet
A3	1:48	IGS-M118450-FIN-00-B.DWG	08/AUG/2019	01/21

DISCLAIMER

GENERAL SPECIFICATIONS

- GE is not responsible for the installation of developers and associated equipment, lighting, cassette trays and protective screens or derivatives not mentioned in the order.
- The final study contains recommendations for the location of GE equipment and associated devices, electrical wiring and room arrangements. When preparing the study, every effort has been made to consider every aspect of the actual equipment expected to be installed.
- The layout of the equipment offered by GE, the dimensions given for the premises, the details provided for the pre-installation work and electrical power supply are given according to the information noted during on-site study and the wishes expressed by the customer.
- The room dimensions used to create the equipment layout may originate from a previous layout and may not be accurate as they may not have been verified on site. GE cannot take any responsibility for errors due to lack of information.
- Dimensions apply to finished surfaces of the room.
- Actual configuration may differ from options presented in some typical views or tables.
- If this set of final drawings has been approved by the customer, any subsequent modification of the site must be subject to further investigation by GE about the feasibility of installing the equipment. Any reservations must be noted.
- The equipment layout indicates the placement and interconnection of the indicated equipment components. There may be local requirements that could impact the placement of these components. It remains the customer's responsibility to ensure that the site and final equipment placement complies with all applicable local requirements.
- All work required to install GE equipment must be carried out in compliance with the building regulations and the safety standards of legal force in the country concerned.
- These drawings are not to be used for actual construction purposes. The company cannot take responsibility for any damage resulting therefrom.

CUSTOMER RESPONSIBILITIES

- It is the responsibility of the customer to prepare the site in accordance with the specifications stated in the final study. A detailed site readiness checklist is provided by GE. It is the responsibility of the customer to ensure all requirements are fulfilled and that the site conforms to all specifications defined in the checklist and final study. The GE Project Manager of Installation (PMI) will work in cooperation with the customer to follow up and ensure that actions in the checklist are complete, and if necessary, will aid in the rescheduling of the delivery and installation date.
- Prior to installation, a structrual engineer of record must ensure that the floor and ceiling is designed in such a way that the loads of the installed system can be securely borne and transferred. The layout of additional structural elements, dimensioning and the selection of appropriate installation methods are the sole responsibility of the structural engineer. Execution of load bearing structures supporting equipment on the ceiling, floor or walls are the customer's responsibility.

RADIO-PROTECTION

- Suitable radiological protection must be determined by a qualified radiological physicist in conformation with local regulations. GE does not take responsibility for the specification or provision of radio-protection.

ALL DETAILS OF EQUIPMENT AND TECHNICAL DATA ARE SUBJECT TO CHANGE.

THE UNDERSIGNED, HEREBY CERTIFIES THAT I HAVE READ AND APPROVED THE PLANS IN THIS DOCUMENT.		
DATE	**NAME**	**SIGNATURE**

GLOBAL SITE READINESS CHECKLIST (DI)

DOC1809666 Rev. 6

Customer Name:	PMI Name:
GON/SO Number:	Field Service Name:
Equipment:	Country/City or City/State:
Site Visit Date for SRC:	SRC Status:

Site Ready Checks at Installation
General Site Planning
Room dimensions, including ceiling height, for all Exam, Equipment/Technical & Control rooms meets GE specifications.
Ceiling support structure, if on the GE drawing, is at correct location and height according to the drawing specifications. Levelness and spacing has been measured. Overhead support Structure has been confirmed with contractor to meet GE criteria.
Rooms that will contain equipment, including staging areas if applicable, are construction debris free. Precautions must be taken to prevent debris from entering rooms containing equipment.
Finished ceiling is installed. If applicable ceiling tiles installed per PMI discretion.
Delivery route from truck to installation space has been reviewed, all communications have occurred, arrangements made for special handling (if needed). Floors along delivery route will support weight of the equipment, reinforcements arranged if needed.
System power & grounding (PDB/MDP) is available as per GE specifications, installed at point of final connection and ready to use. Lock Out Tag Out is available.
System power and grounded audit has been scheduled to be completed during installation of equipment. (If Required) GEHC PM to confirmed if needed.
Adequate room illumination installed and working.
Cableways (floor, wall, ceiling, etc.) ready for GE cables and are of correct length and diameter. Cableways routed per GE Final drawings and access openings installed as determined by GEHC PM. Surface floor duct installed at time of system installation.
HVAC systems Installed, and the site meets minimum environmental operational system requirements.
Network outlets installed and computer network available and working.
Hospital IT/connectivity contacts have been engaged and information has been added to Project management tool. (If Required)
Floor levelness/flatness is measured and within tolerance, and there are no visible defects per GEHC specifications. Floor Strength and thickness have been discussed with customer/contractor and they have confirmed GE requirements are met.
Customer supplied countertops where GE equipment will be installed are in place.
Specific for Vascular
Vascular baseplates preparation complete per GE requirements.
For IGS 730/740: Floor finish is according to the GE Specifications and protection is installed . Specifications for concrete substrate & Monopur 7 mm flooring have been met. Table baseplate installed and flush to the finished floor.
For IGS 730/740: Room Interventional Reference Point (RIRP) value has been defined with the customer. Either 1120mm, 1278 mm or 1508 mm.
Ensure that all third party suppliers are identified and have been informed about the project dates and how they need to proceed in accordance with their needs for interfacing to our equipment.
Doors and windows complete or scheduled to be installed. If applicable, radiation protection (shielding) finished & radioprotection regulatory approval for installation obtained.

PMI Signature:	
Customer Signature:	
FS Signatature: optional	

This sheet of drawings has not been reviewed for code compliance.

RSN: 1431550
PERMIT # 20-1751559-LT

CUSTOMER SITE READINESS REQUIREMENTS

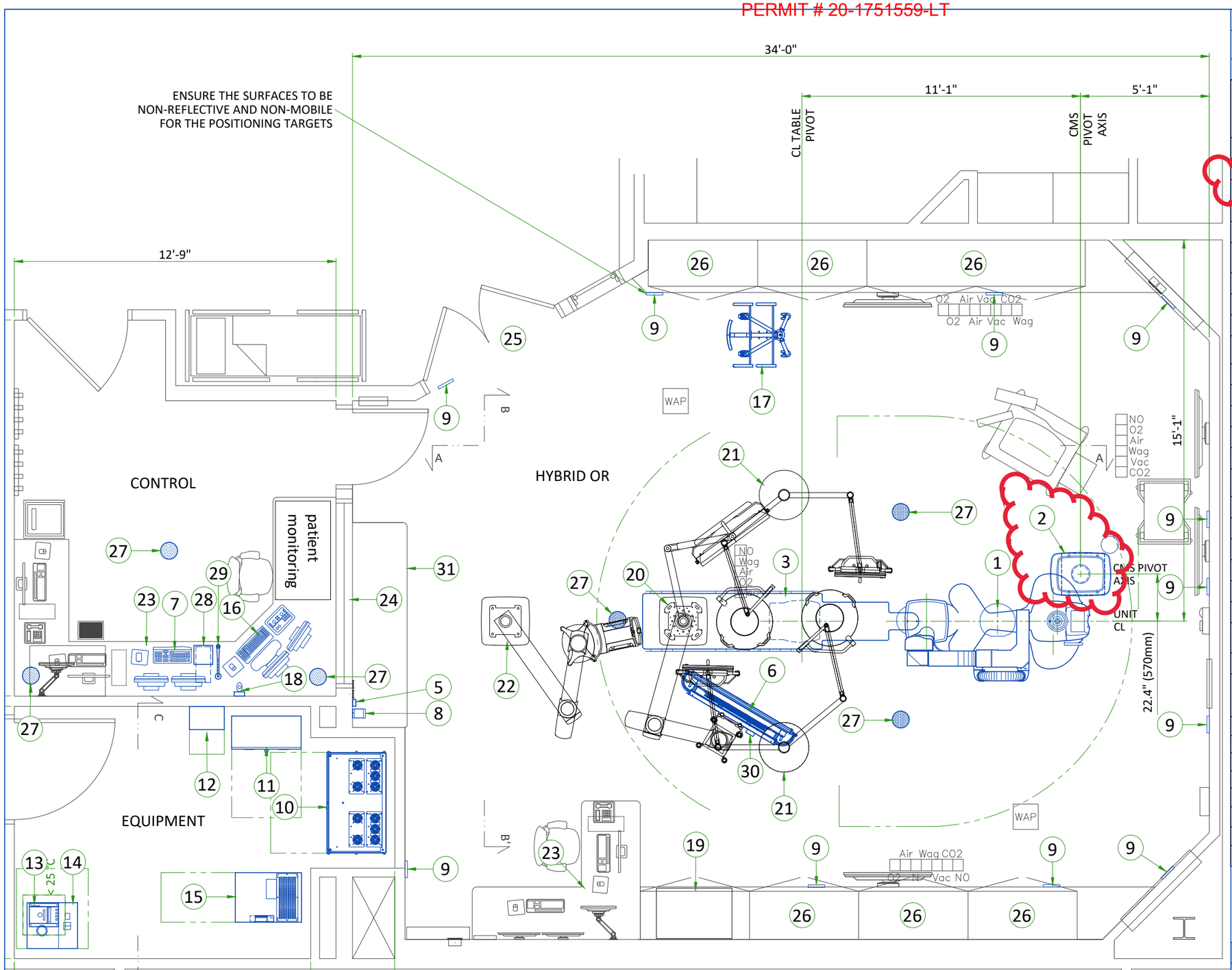
- Any deviation from these drawings must be communicated in writing to and reviewed by your local GE healthcare installation project manager prior to making changes.
- Make arrangements for any rigging, special handling, or facility modifications that must be made to deliver the equipment to the installation site. If desired, your local GE healthcare installation project manager can supply a reference list of rigging contractors.
- New construction requires the following;
  1. Secure area for equipment,
  2. Power for drills and other test equipment,
  3. Capability for image analysis,
  4. Restrooms.
- Provide for refuse removal and disposal (e.g. crates, cartons, packing)
- It is the customer's responsibility to contract a vibration consultant/engineer to implement site design modifications to meet the GE vibration specification. Refer to the system preinstallation manual for the vibration specification.

This sheet of drawings has not been reviewed for code compliance.

ELECTROMAGNETIC INTERFERENCE

The IGS System is intended for use in the electromagnetic environment specified below. The customer or user of the system should assure that it is used in such an environment.

EMISSIONS	TEST COMPLIANCE	ELECTROMAGNETIC ENVIRONMENT
Radio–Frequency Emissions CISPR11	Group1 Class A limits	The IGS system uses RF energy only for its internal function. Therefore, its RF emission is very low and not likely to cause any interference in nearby electronic equipment.
		The IGS system uses RF energy only for its internal function. Therefore, the RF emission is very low and not likely to cause any interference in nearby electronic equipment.
Harmonic emissions IEC 61000–3–2	Not applicable	The IGS system is suitable for use in all establishments other than domestic and those directly connected to the low voltage power supply network that supplies buildings used for domestic purposes.
Voltage fluctuations/ flicker emissions IEC 61000–3–3	Not applicable	The IGS system is suitable for use in all establishments other than domestic and those directly connected to the low voltage power supply network that supplies buildings used for domestic purposes.



City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: John Lichtner
Date: Jan 23, 2020
2015 INTERNATIONAL CODES & 2017 NEC

Structural plan review is limited to a general survey for code compliance. No review is implied nor was undertaken to verify structural adequacy.

LEGEND

A	GE Supplied	C	Customer/contractor supplied and installed
B	GE Supplied/contractor installed	D	Available from GE

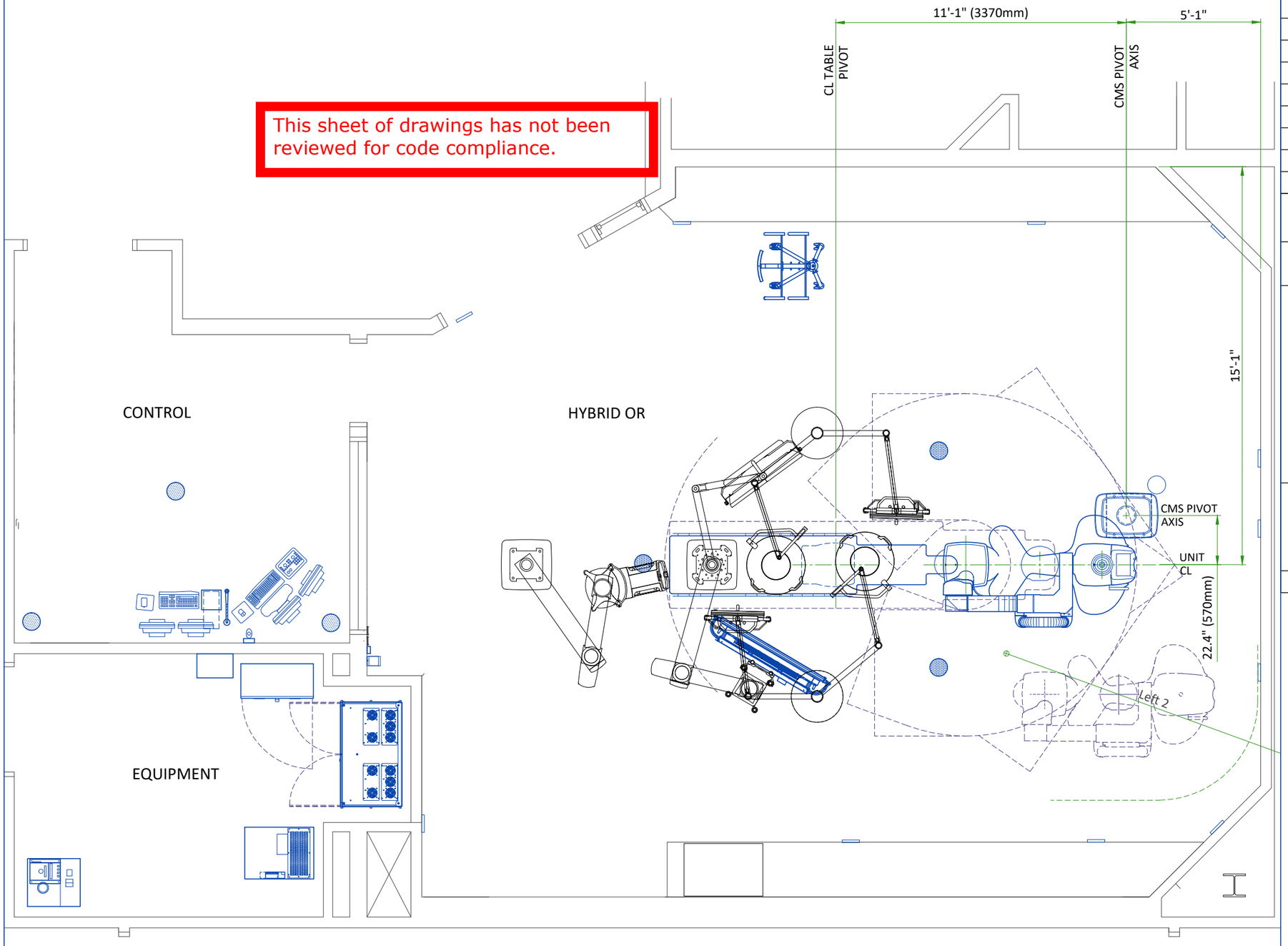
BY	ITEM	DESCRIPTION	MAX HEAT OUTPUT (btu)	WEIGHT (lbs)
A	1	Gantry	5528	2204
A	2	Cable management system	-	1047
A	3	Tilting table	1614	1750
A	4	Number not used	-	-
A	5	AW wireless mouse	-	-
A	6	Large display monitor with two backup monitors on vendor ceiling boom	1706	784
A	7	Advantage workstation	2019	22
A	8	Xray buzzer	-	1
A	9	Positioning targets (x11)		
A	10	C-FRT Cabinet	2388	1171/ 1193
A	11	Power Distribution Unit	1365	628
B	12	Main Disconnect Panel	205	19
A	13	Detector chiller	717	32
A	14	COOLIX 4100 water chiller	23646	265
A	15	20kVA Fluoro UPS UL	6756	1169
A	16	Operator console	341	19.6
A	17	Table side cart		
A	18	Bolus chase hand switch	-	2
C	19	Storage cabinet		
C	20	Vendor boom with monitors (customer supplied)		
C	21	Vendor boom with rad shield and lamp (customer supplied)		
C	22	Vendor equipment boom		
C	23	Counter top for equipment- provide grommeted openings as required to route cables		
C	24	Control wall to ceiling with lead glass viewing window.		
C	25	Minimum door opening for equipment delivery is 44 in. w x 83 in. h [1118mm x 2108mm], contingent on a 96 in. [2438mm] corridor width		
C	26	Catheter cabinets		
A	27	Vita-linq speakers (x6)		
A	28	Vita-linq control		
A	29	Vita-linq microphone		
A	30	Vita-linq microphone on monitor boom		
C	31	Counter top with base cabinets		
A	35	Printer		
A	36	Tram/PDM net rack on vendor boom D		

EXAM ROOM HEIGHT	
FINISHED FLOOR TO SLAB HEIGHT	T.B.D.
FALSE CEILING HEIGHT	REC. 10'-0"

Note:
- Reflectors to be located above cabinet top; minimum height from finished floor 80.7" [2.05m]
- Ensure the surfaces to be non-reflective and non-mobile for the positioning targets

The GE HPI Technical Support Group is an additional resource that can provide answers for general GE product siting questions and can be reached at (877)-305-9677 or mail to:HPITechCOE@ge.com

This sheet of drawings has not been reviewed for code compliance.



PARKING POSITIONS

NAME	RIRP* 59.4"		FEASIBLE DISTANCE	PROPOSED
	min	max		
Park Head 1	19.7"	154.7"		NO
Park Left 2	19.7"	160.6"		YES
Park Left 3	19.7"	105.9"		NO
Park Left 4	19.7"	52.8"		NO
Park Right 2	19.7"	144.9"		NO
Park Right 3	19.7"	123.6"		NO
Park Right 4	19.7"	98.0"		NO

A maximum of two parking positions can be selected.

BACKOUT POSITIONS

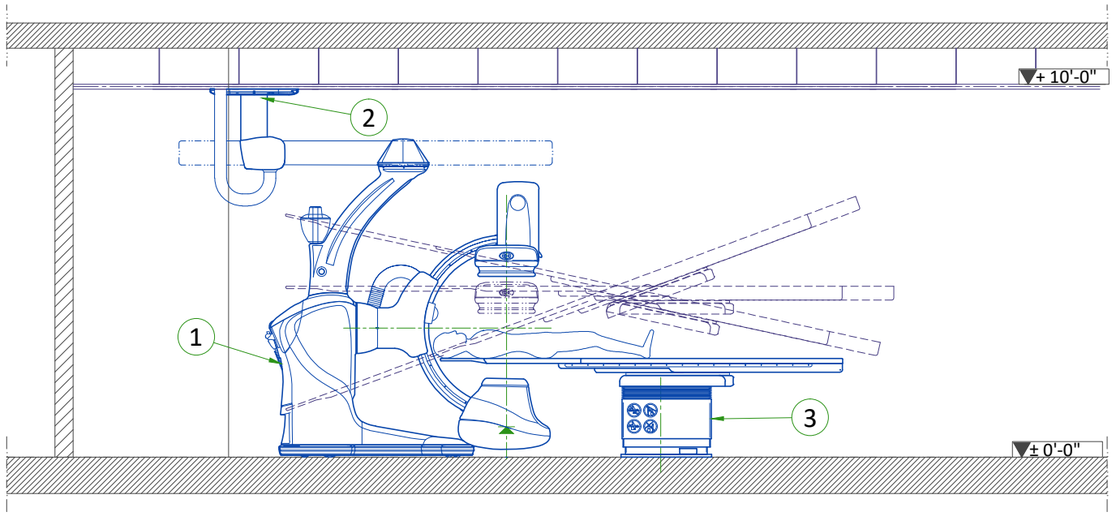
TYPE	NAME	RIRP* 59.4"		TYPICAL
		min	max	
Backouts	**Head Long**	19.7"	169.7"	47.2"
	Left 1	19.7"	169.7"	47.2"
	Right 1	19.7"	169.7"	47.2"
	Head Left	19.7"	106.3"	106.3"
	Head Right	19.7"	141.7"	106.3"
	Left Lat	19.7"	55.1"	35.5"
	Left Feet	19.7"	43.3"	35.5"
	Right Lat	19.7"	94.5"	35.5"
	Right Feet	19.7"	82.7"	35.5"
Arm backouts	**Left Inter**	19.7"	137.8"	-
	Right Inter	19.7"	31.5"	-
	Left Swivel	19.7"	35.5"	-
	Right Swivel	19.7"	67.0"	-

* RIRP: Room Interventional Reference Point

EXAM ROOM VIEW

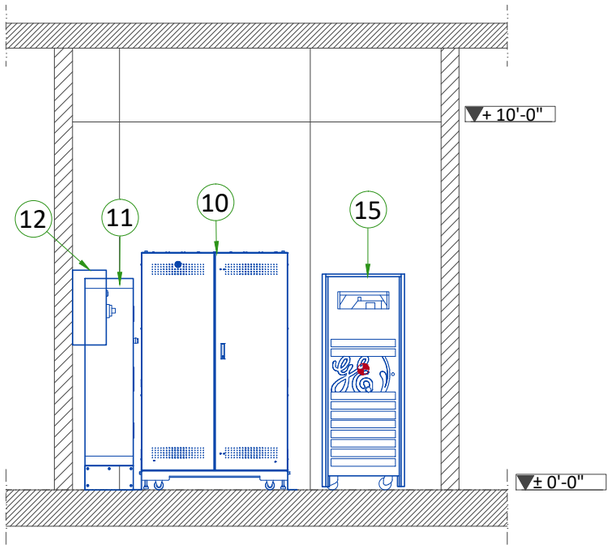
SECTION A-A'

This sheet of drawings has not been reviewed for code compliance.



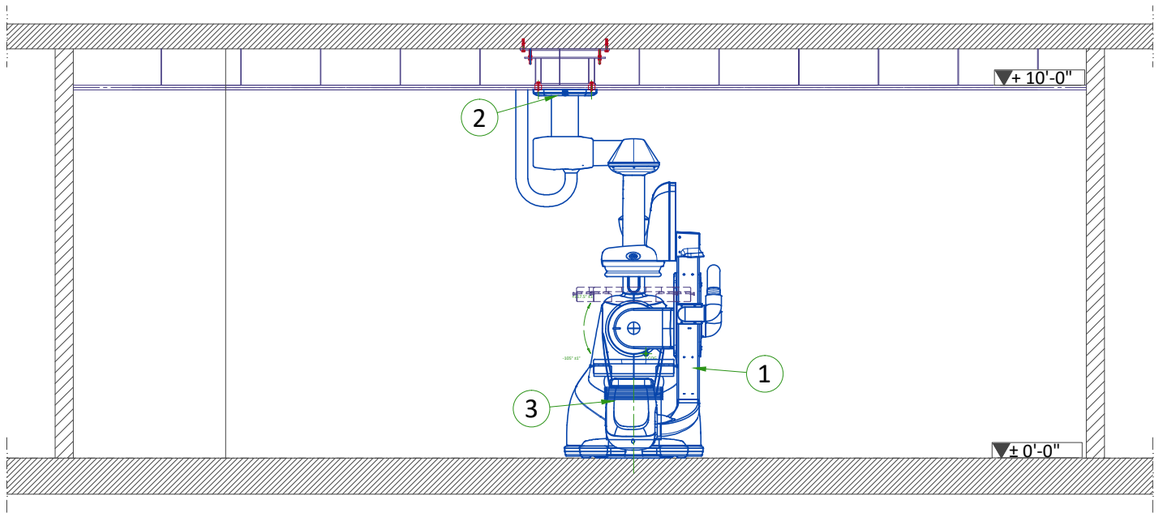
TECHNICAL ROOM VIEW

SECTION C-C'

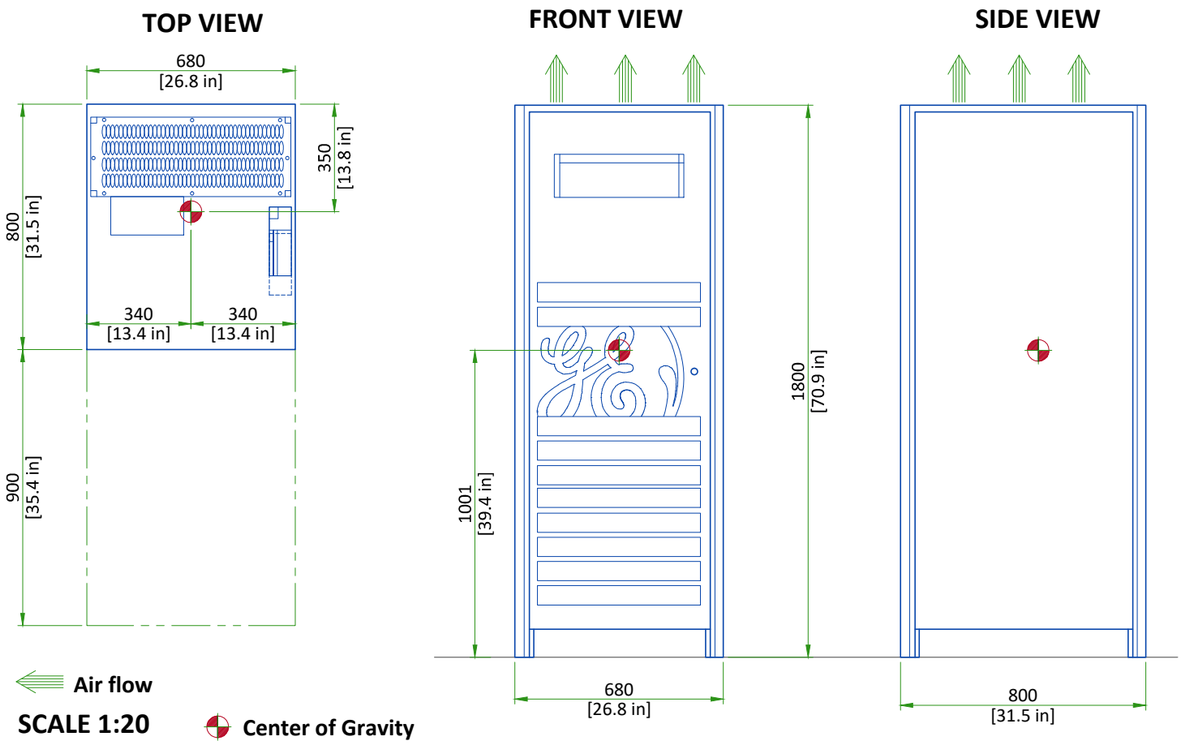


EXAM ROOM VIEW

SECTION B-B'

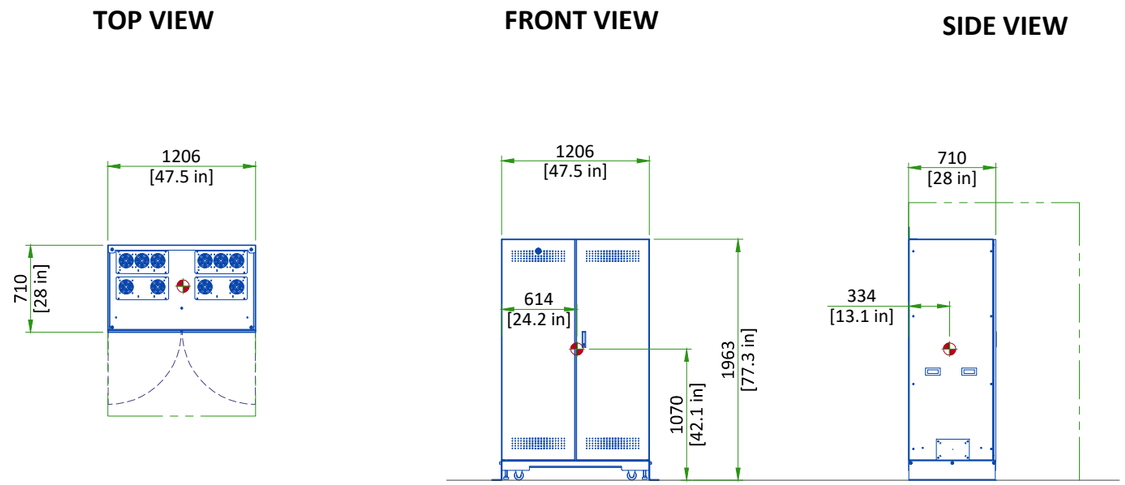


20kVA FLURO UPS



SCALE 1:20

C-FRT CABINET

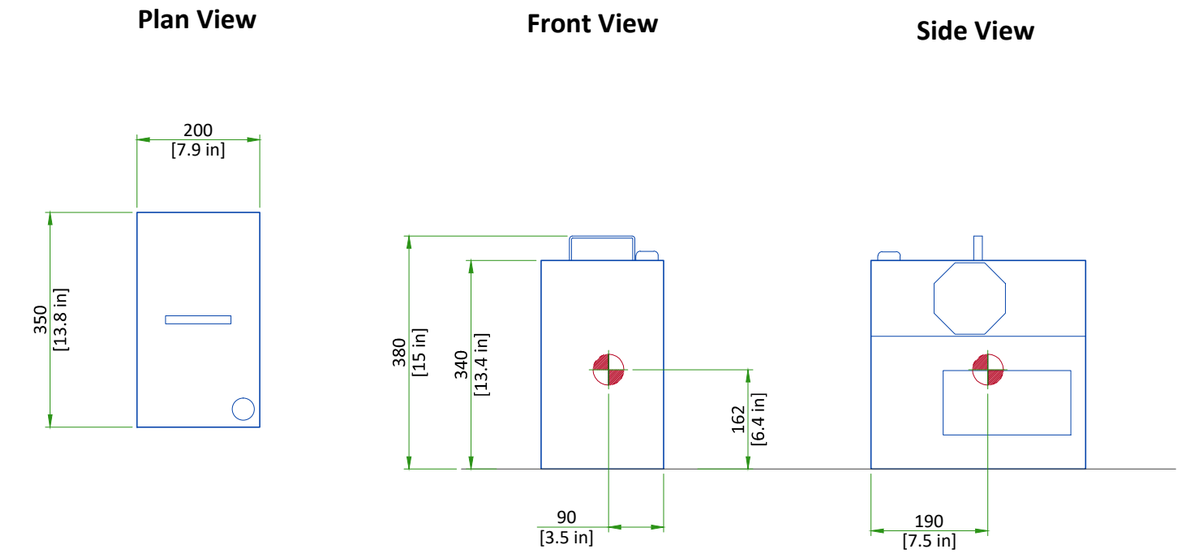


This sheet of drawings has not been reviewed for code compliance.

Center of Gravity

SCALE 1:50

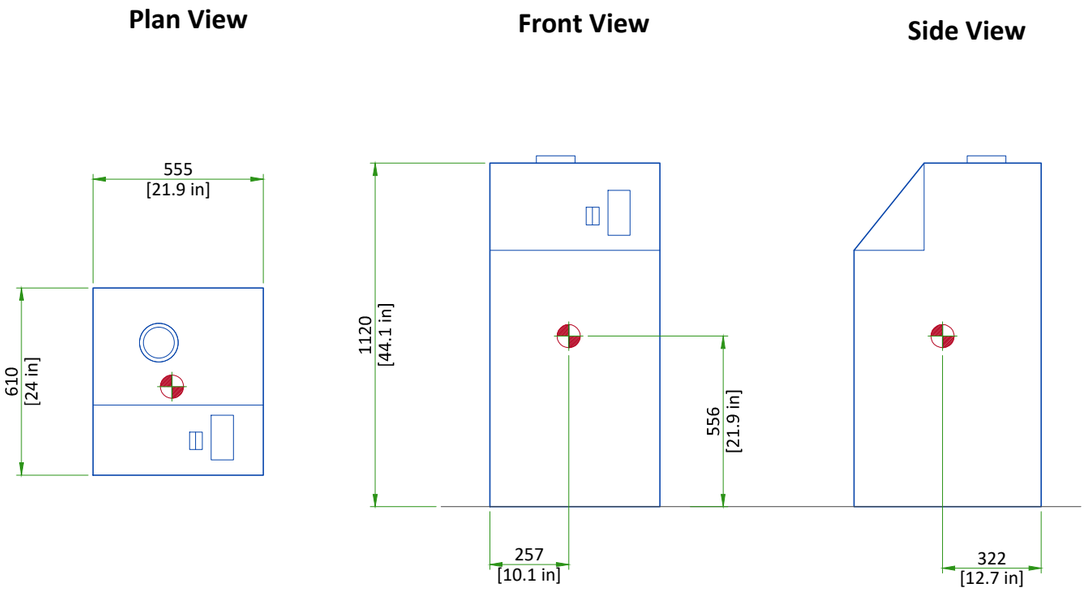
DETECTOR CONDITIONER



Center of Gravity

Scale 1:10

X-RAY TUBE CHILLER

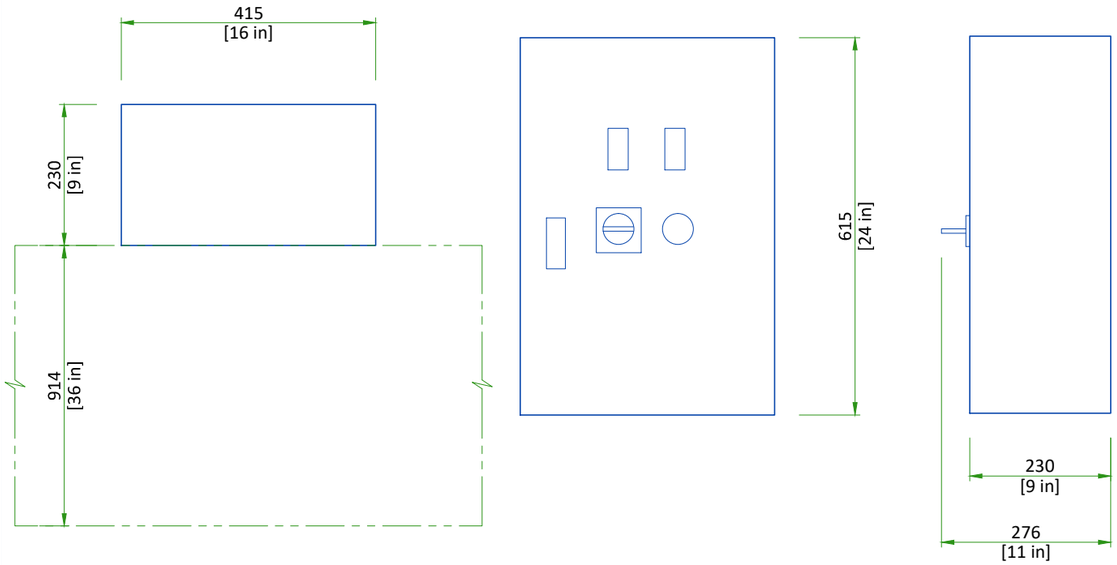


Center of Gravity

Scale 1:20

MAIN DISCONNECT PANEL

Plan View **Front View** **Side View**



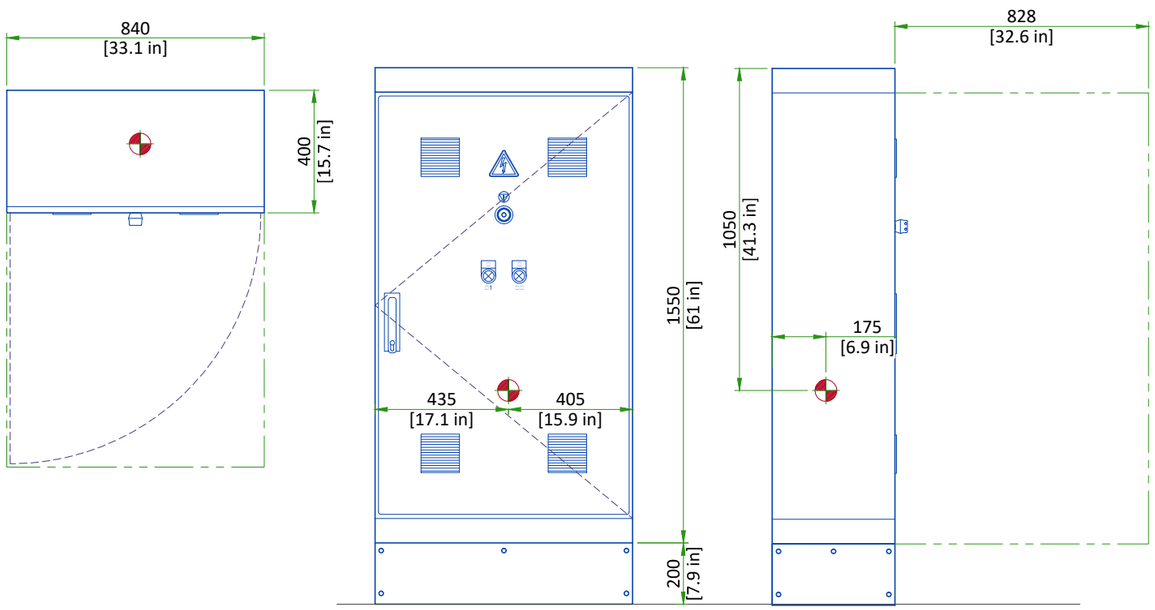
Center of Gravity

Scale 1:10

This sheet of drawings has not been reviewed for code compliance.

NPA PDU

TOP VIEW **FRONT VIEW** **SIDE VIEW**



SCALE 1:20 **Center of Gravity**

DELIVERY

THE CUSTOMER/CONTRACTOR SHOULD:

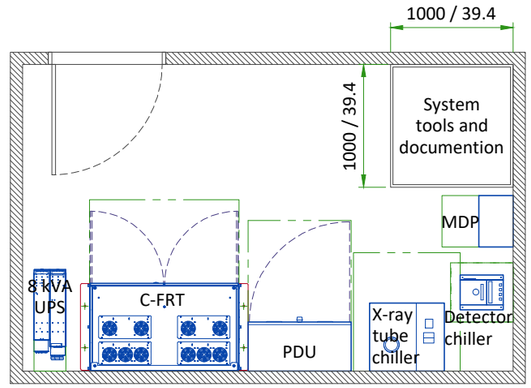
- Provide an area adjacent to the installation site for delivery and unloading of the GE equipment.
- Ensure that the dimensions of all doors, corridors, ceiling heights are sufficient to accommodate the movement of GE equipment from the delivery area into the definitive installation room.
- Ensure that access routes for equipment will accommodate the weights of the equipment and any transportation, lifting and rigging equipment.
- Ensure that all necessary arrangements for stopping and unloading on public or private property not belonging to the customer have been made.

EQUIPMENT	DIMENSIONS			WEIGHT	
		mm	in	kg	lb
Gantry (on dolly)	Length	1410	55.5	1100	2425
	Width	2890	113.7		
	Height	2060	81.1		
Tilting Table base assembly (on pallet)	Length	1000	39.4	700	1534
	Width	2150	84.6		
	Height	1160	45.7		
Tilting Table covers (on pallet)	Length	940	37	50	110
	Width	940	37		
	Height	600	23.6		

RECOMMENDED AREA IN THE TECHNICAL ROOM

THE TECHNICAL ROOM NEED EXTRA SPACE FOR TOOLS AND DOCUMENTATION

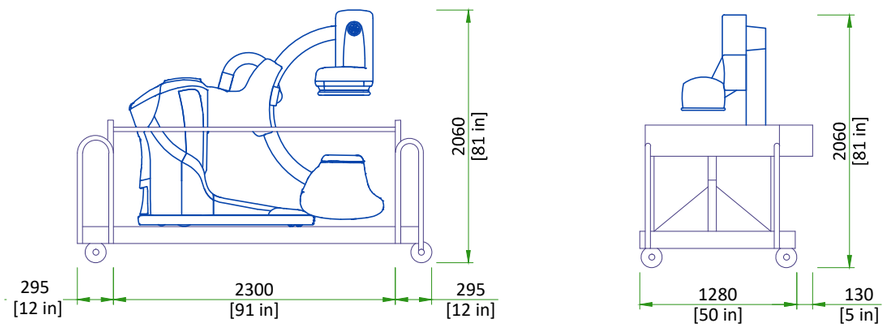
- GE recommend an extra area of 1.0 x 1.0 m (39.4 x 39.4 in) for storage of tools and documention for the system
- This area doesn't need to be inside the technical room, but in a closer space from the system



Dimensions in (mm / in)

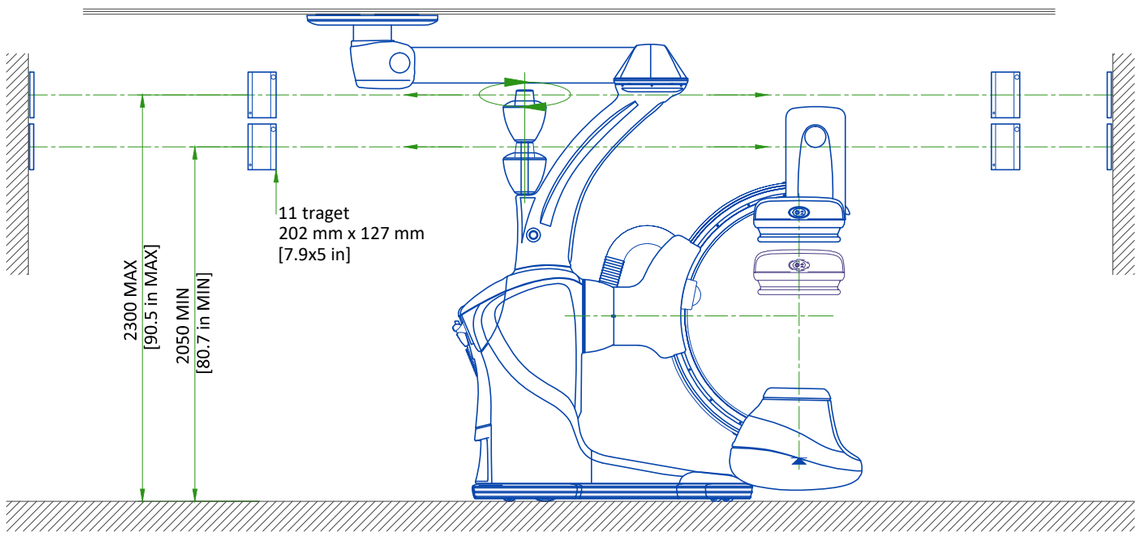
This sheet of drawings has not been reviewed for code compliance.

SHIPPING DOLLY FOR DISCOVERY GANTRY



DIMENSIONS			
	HEIGHT	WIDTH	LENGTH
Full configuration	2060 mm [81.1 in]	1410 mm [55.5 in]	2890 mm [113.7 in]
Left top handle removed and right top handle inside	2060 mm [81.1 in]	1280 mm [50.4 in]	2890 mm [113.7 in]
Short lifts configuration	2120 mm [83.5 in]	1280 mm [50.4 in]	2300 mm [90.5 in]
No dolly configuration	2000 mm [78.7 in]	1260 mm [49.6 in]	2150 mm [84.6 in]
NOTE	Dolly can be removed to facilitate movement of Discovery gantry into exam room. However, if moving the gantry without shipping dolly, there is a risk of damaging the floor surface.		

POSITIONING TARGETS



NOTE
The targets are mounted at the time of the gantry installation.
Targets should be visible to the laser source of the AGV:

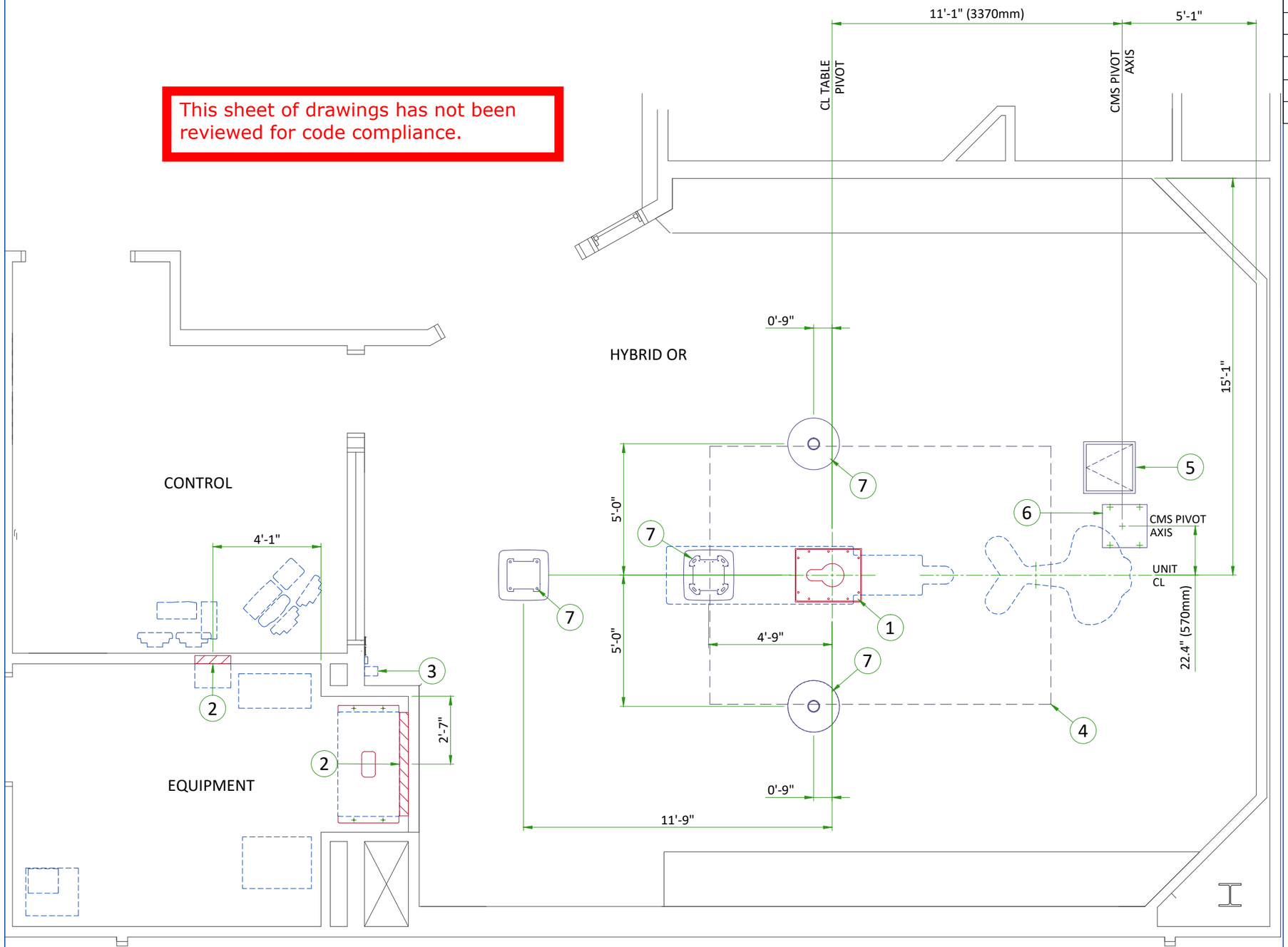
- Shouldn't be mounted on movable surface (door, window, etc.).
- Shouldn't be mounted on a surface that could be hidden in operation by door or movable component.
- Shouldn't be mounted on or near a reflective surface.

STRUCTURAL NOTES

- All steel work and parts necessary to support ceiling mounted tube hanger or other equipment are to be supplied by the customer or his contractors. The structural support should run continuous with no fittings extending below face of structural support channel, run wall to wall, be parallel, square and in the same horizontal plane flush with finished ceiling. The system is to be cross braced vertically, horizontally and diagonally to allow no movement and a maximum of 1,58mm (1/16") deflection. 12,7mm (1/2") dia. X 38,1mm (1 1/2") long bolts with unistrut 12,7mm (1/2") nuts with springs are to be provided by customer or his contractors for each stationary and auxillary support rail. Closure strips shall be provided for areas of unistrut exposed and without mounting units.
- Methods of support for the steelwork that will permit attachment to structural steel or through bolts in concrete construction should be favored. Do not use concrete or masonry anchors in direct tension.
- All units that are wall mounted or wall supported are to be provided with supports where necessary. Wall supports are to be supplied and installed by the customer or his contractors. See plan and detail sheets for suggested locations and mounting hole locations.
- All ceiling mounted fixtures, air vents, sprinklers, etc. To be flush mounted, or shall not extend more than 6,35mm (1/4") below the finished ceiling.
- Control walls with tube hanger passage above shall be constructed to 2130mm (7'-0") high.
- Floor slabs on which equipment is to be installed must be level to 3,17mm (1/8") in 3050mm (10'-0")
- Dimensions are to finished surfaces of room.
- Customers contractor must provide all penetrations in post tension floors.
- Customers contractor must provide and install any non-standard anchoring. Documents for standard anchoring methods are included with GE equipment drawings for geographic areas that require such documentation.
- Customers contractor must provide and install hardware for "through the floor" anchoring and/or any bracing under access floors. This contractor must also provide floor drilling that cannot be completed because of an obstruction encountered while drilling by the GE installer such as rebar etc.
- It is the customer's responsibility to perform any floor or wall penetrations that may be required. The customer is also responsible for ensuring that no subsurface utilities (e.g., electrical or any other form of wiring, conduits, piping, duct work or structural supports (i.e. post tension cables or rebar)) will interfere or come in contact with subsurface penetration operations (e.g. drilling and installation of anchors/screws) performed during the installation process. To ensure worker safety, GE installers will perform surface penetration operations only after the customer's validation and completion of the "GE surface penetration permit"

This sheet of drawings has not been reviewed for code compliance.

This sheet of drawings has not been reviewed for code compliance.



	STRUCTURAL LAYOUT ITEM LIST (contractor supplied & installed)
1	Area occupied by GE supplied table baseplate
2	support backing, locate as shown.
3	Mount X-Ray buzzer bracket on wall above ceiling
4	Laminar air flow area (to be defined)
5	600 x 600 [24" x 24"] Service access in ceiling
6	Customer supplied plate (520x502 [20.5"x19.8"])
7	Structural support in ceiling for vendor booms

FLOOR SPECIFICATION

IMPORTANT

THE FLOOR SYSTEM COMPATIBLE WITH THE DISCOVERY IGS EQUIPMENT IS THE **"MONOPUR 4+3"** MONOLITHIC FLOORING SYSTEM INSTALLED BY A CERTIFIED APPLICATOR.

CONTACT YOUR LOCAL GE REPRESENTATIVE FOR THE LIST OF APPLICATORS.

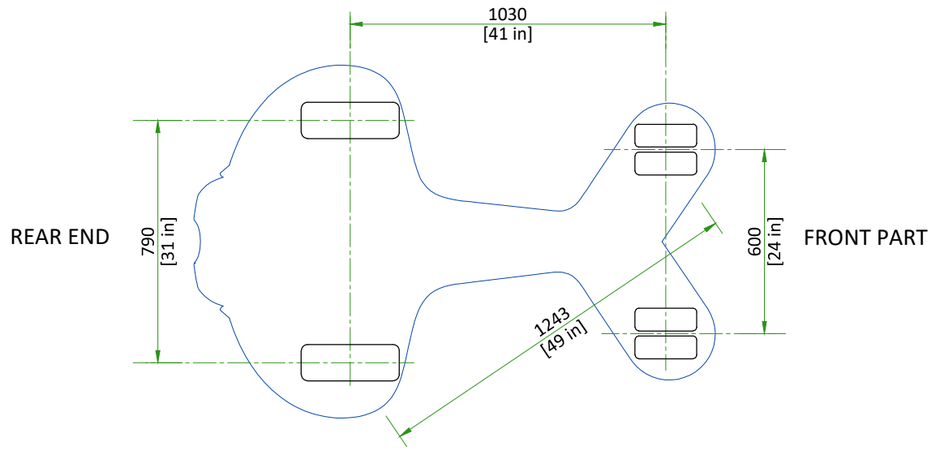
EXAM ROOM FLOOR ACCEPTANCE SPECIFICATION FOR SUBSTRATE BEFORE MONOPUR APPLICATION	
SUBSTRATE FLATNESS	**< 3 mm/2 m [0.12 in/6 ft]**
SUBSTRATE LEVELNESS	**< 1 mm/m [0.04 in/3 ft]**
PULL-OUT STRENGTH (i.e. Elcometer Adhesion Testor)	**> 1.5 MPa**
HARDNESS (i.e. Schmidt Hammer Sclerometer)	**> 30 MPa**
SUBSTRATE HYGROMETRY CaCl (ASTM F1869), RH% (ASTM F2170)	**< 6% surface** **(pin method)**
FINISHED FLOOR SURFACE SPECIFICATIONS	
FLATNESS	**< 3 mm/2 m [0.12 in/6 ft]**
LEVELNESS	**< 1 mm/m [0.04 in/3 ft]**

- (Bare) Concrete floor preparation and floor resin application falls under the customer's contractor responsibility.
- No expansion joint shall be present in the concrete in the area where the flooring system will be applied.
- Electrical connection of the conductive flooring falls under customer's responsibility.

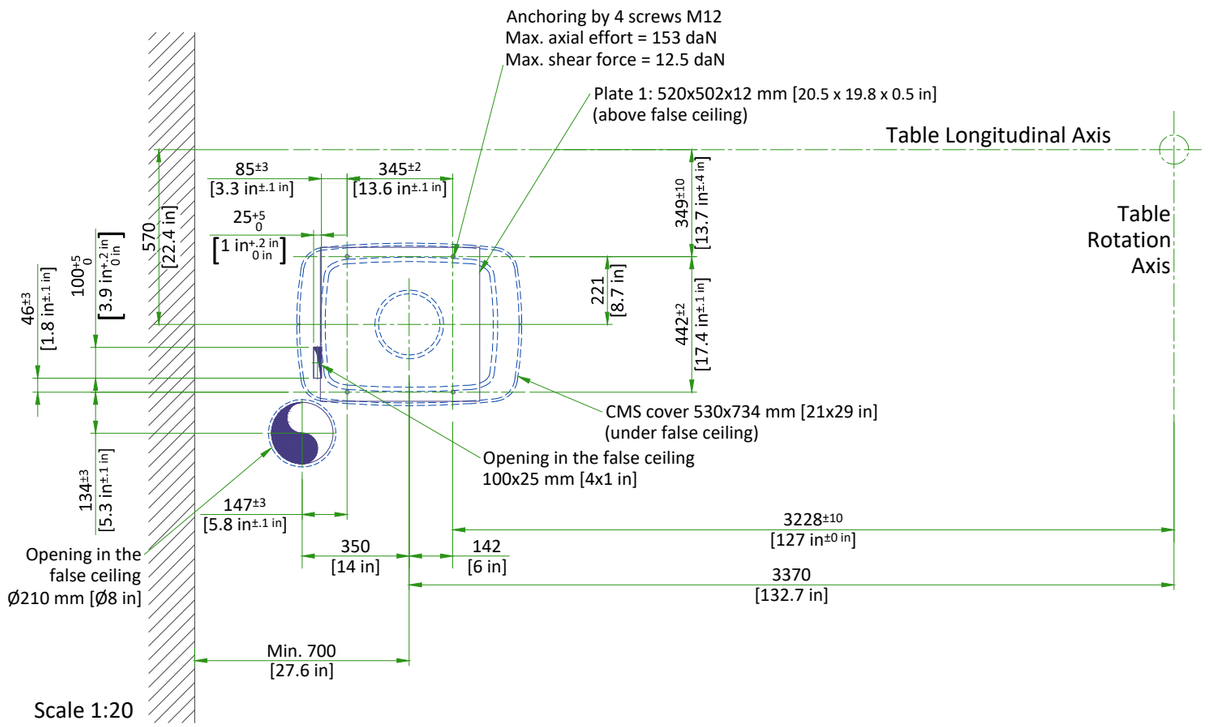
This sheet of drawings has not been reviewed for code compliance.

GANTRY WEIGHT

COMPONENT	NET WEIGHT		LOAD BEARING AREA	WEIGHT/OCCUPIED AREA
GANTRY	TOTAL WEIGHT	990 kg [2183 lb]	1 m² [1550 in²]	990 kg/m² [1.41 lb/in²]
	REAR ISOLATED LOAD	350 kg [772 lb]	640 mm² [0.99 in²]	5.5 MPa [798 lb/in²]
	FRONT ISOLATED LOAD	110 kg [243 lb]	135 mm² [0.21 in²]	8.1 MPa [1175 lb/in²]

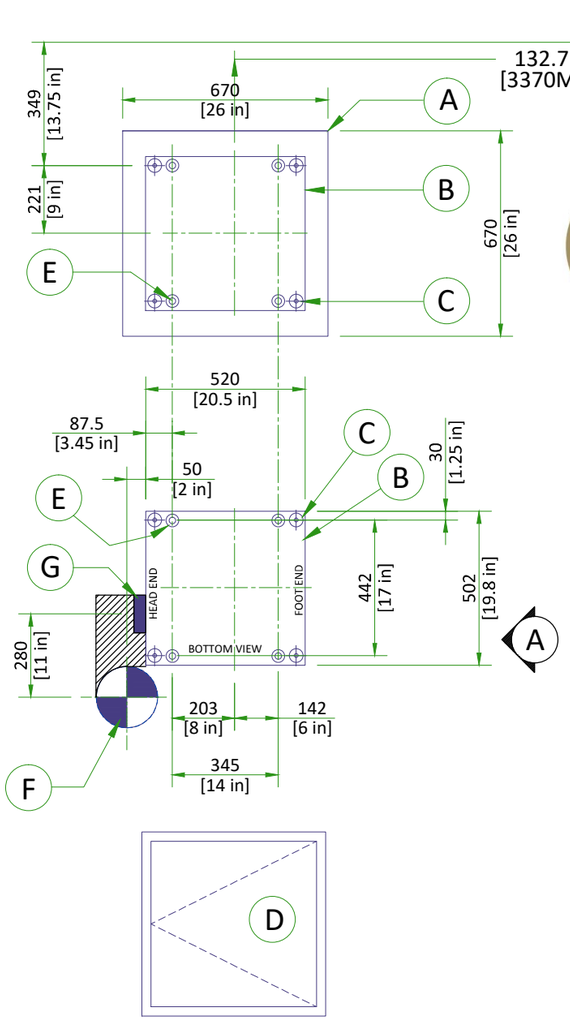


CMS MOUNTING



CMS STRUCTURAL SUPPORT PLATE INFORMATION

IMPORTANT NOTE: CUSTOMER/CONTRACTOR INSTALLED AND DESIGNED BY STRUCTURAL ENGINEER
- ●FIRE DETECTION, LIGHTING, VENTILATION, ETC. NOT TO EXCEED FINISHED CEILING
- ●EACH MOUNTING BOLT MUST NOT "PULL OUT" OR OTHERWISE FAIL UNDER A VERTICALLY DOWNWARD DEAD LOAD OF 635daN



City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: John Lichtner
Date: Jan 23, 2020
2015 INTERNATIONAL CODES & 2017 NEC

SEE STRUCTURAL CALCS

Structural plan review is limited to a general survey for code compliance. No review is implied nor was undertaken to verify structural adequacy.

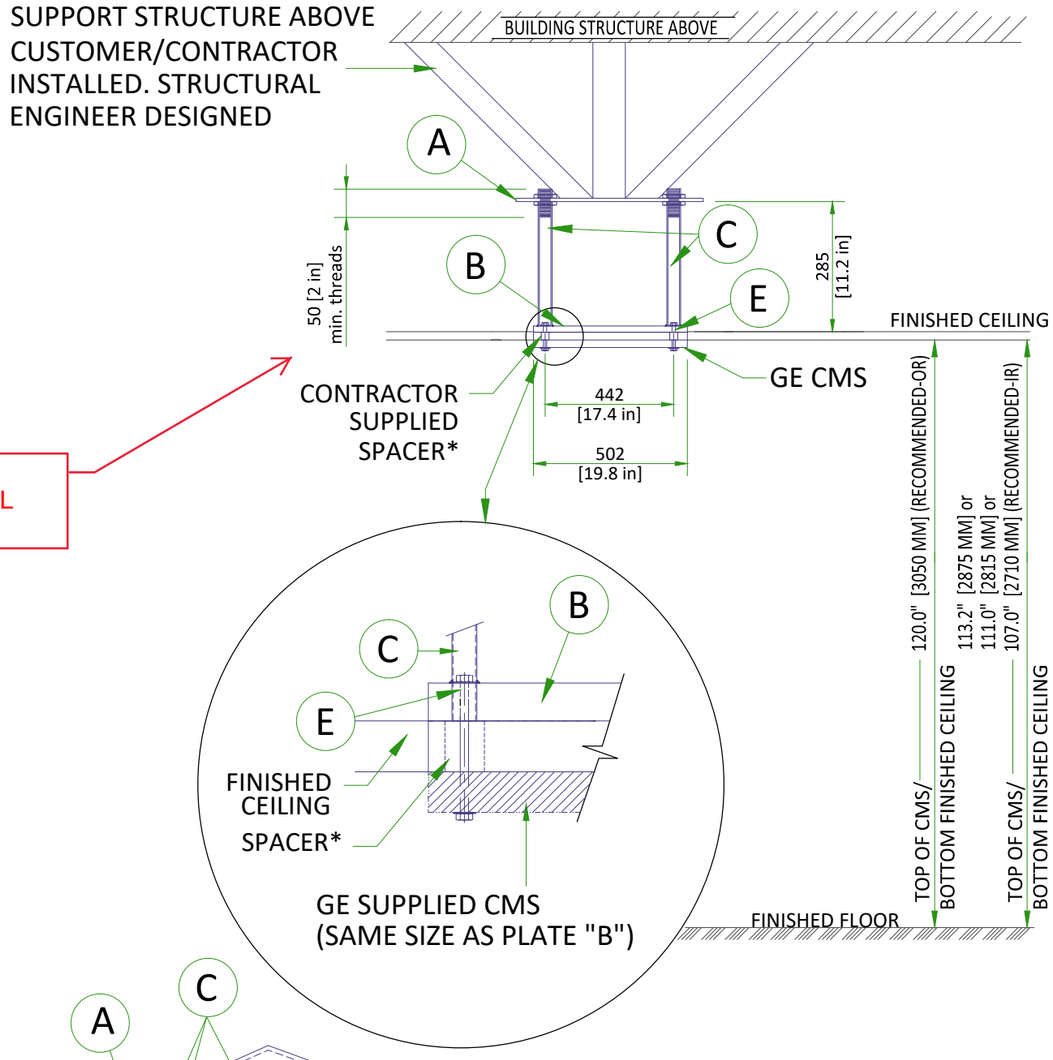
Material legend
(customer supplied and installed)

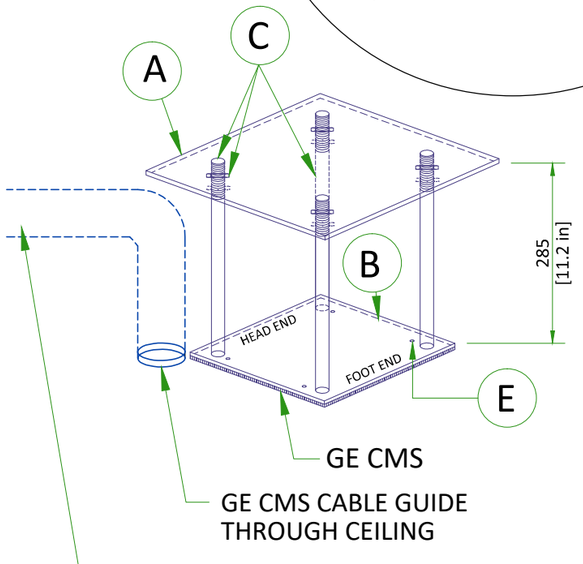
A	PLATE 2 [12MM]-SIZED BY CUSTOMER (ATTACH TO STRUCTURE ABOVE CEILING)
B	PLATE 1 [12MM] 20.5" (520MM) x 19.8" [502MM]
C	HARDENED THREADED RODS [50x50MM] (WELD & GRIND FLUSH TO BOTTOM PLATE 1) (DOUBLE NUT ADJUSTABLE TO PLATE 2)
D	ACCESS PANEL - 24" x 24" [600x600MM]
E	ANCHORED BY (4) M12 GRADE 8.8 BOLTS or ANCHORED BY (4) 1/2" GRADE 5 BOLTS (8) NORD WASHERS (8) NYLOC NUTS ●MAX. AXIAL EFFORT 153daN ●MAX. SHEAR FORCE 125daN
F	8.5" [210MM] DIA. OPENING IN FALSE CEILING (CABLE ACCESS, KEEP CLEAR NO OBSTRUCTIONS)
G	4" [100MM] x 1" [25MM] OPENING (FOR CABLE GUIDE BRACKET IN FALSE CEILING)

DETAIL NOT TO SCALE

CMS ELEVATION SUPPORT STRUCTURE

ELEVATION "A" VIEW



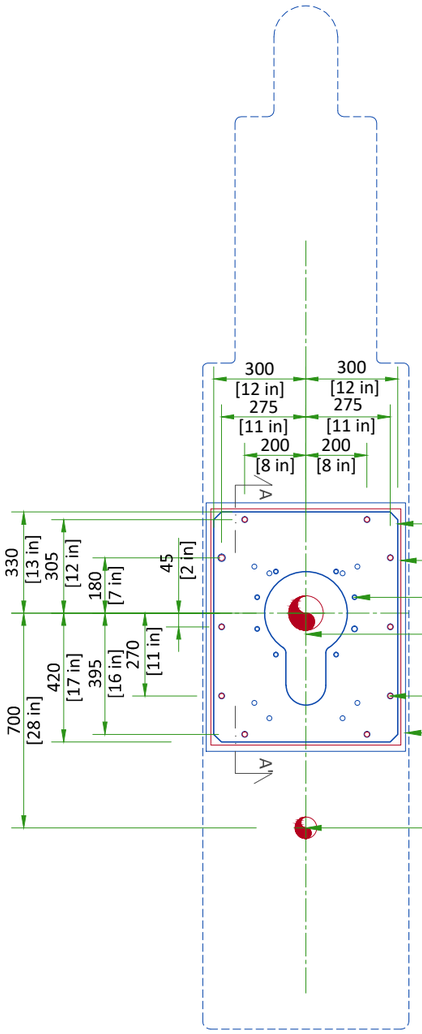


SCHEMATIC VIEW

* SPACER REQUIRED IF CONTRACTOR PLATE B NOT FLUSH WITH FINISHED CEILING.

DETAIL NOT TO SCALE

TABLE MOUNTING WITH TABLE BASEPLATE



750x600x25 mm [30x24x1 in] baseplate - supplied by GE

770x620 mm [30x24 in] depth of 18 mm [1 in] recess in the floor

8 bolts for table mounting (1)

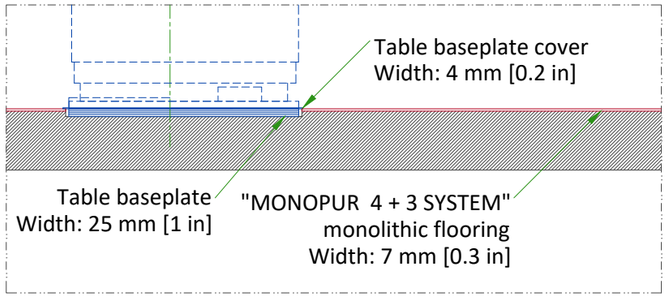
Cable inlet Ø100 mm [Ø4 in] opening in the floor

10 bolts for baseplate mounting (2)

810x650x4 mm [32x26x0.2 in] baseplate cover - supplied by GE

Ø70 mm [Ø3 in] opening for options

BASEPLATE COVER - SECTION A-A'



(1) Tilting table mounting location: 8 piece of M16x40 mm bolts - supplied by GE

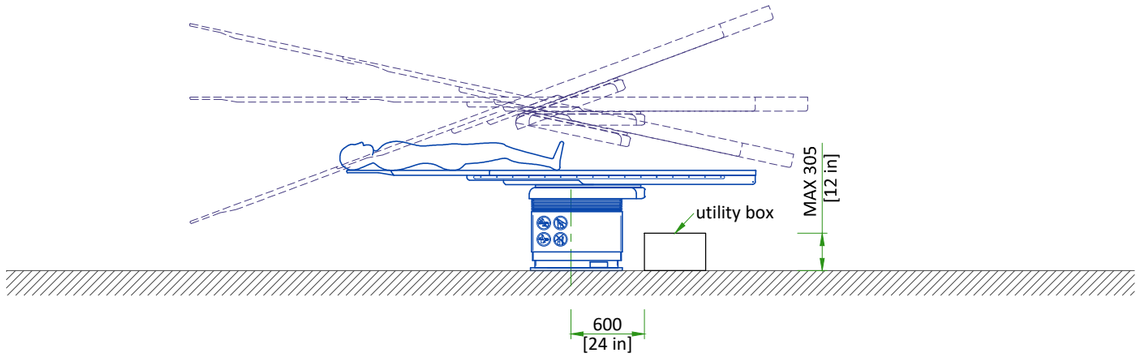
(2) Tilting table baseplate mounting location: 10 piece of M20 bolts - plate and bolts are supplied by GE.
Pull out strength on each bolt: 1120 daN

BASEPLATE MOUNTING REQUIREMENTS

- The maximum pullout force per provided anchor was calculated assuming:
  - A concrete compression strength of **17.24 MPa** at 28 days (which is the minimum required compression strength).
  - Anchors installed to the required hole depth of **165.1 mm [6.5 in]** minimum.
  - The distance between the center of anchor hole and the edge of the concrete is **79.4 [3.1 in] mm**.
- Make sure to obtain data on compression strength of the concrete before using floor anchors.
- Chemical anchors can be used as well: HILTIHVU adhesive capsule + HAS Anchor rod
- The fixation screws shall not jut out of the table baseplate, plate has to be level.

UTILITY BOX

RECOMMENDED DIMENSION		
The minimum distance from table pivot to the medical utility box		600 mm [24 in]
Maximum dimensions of the medical utility box	height	305 mm [12 in]
	width	250 mm [10 in]
	length	500 mm [20 in]
The Utility box under the table is not recommended for the surgical configuration.		
It is forbidden to place or install objects under the table towards head end that could interfere with the AGV motion.		



This sheet of drawings has not been reviewed for code compliance.

TEMPERATURE AND HUMIDITY SPECIFICATIONS

IN-USE CONDITIONS

	EXAM ROOM			CONTROL ROOM			TECHNICAL ROOM		
Temperature	Min	Recommended	Max	Min	Recommended	Max	Min	Recommended	Max
	15 °C [59 °F]	22 °C [72 °F]	32 °C [90 °F]	15 °C [59 °F]	22 °C [72 °F]	35 °C [95 °F]	15 °C [59 °F]	20 °C [68 °F]	25 °C [77 °F]
Temperature gradient	**≤ 10 °C/h**			**≤ 10 °C/h**			**≤ 10 °C/h**		
RH (1) non condensing	30% to 70%			30% to 75%			30% to 75%		
Humidity gradient	**≤ 10%/h**			**≤ 10%/h**			**≤ 10%/h**		

STORAGE CONDITIONS

Temperature	+10 °C [50 °F] to +40 °C [104 °F]
RH (1) non condensing	10% to 80%
Pressure	700 hPa to 1030 hPa
Overall storage time shall be less than 6 months.	

(1) Relative humidity

20 kVA FLUORO UPS

Air renewal	According to Standard IEC 62040-1-2

Systems with 20 kVA UPS shall be stored for less than 6 weeks if the storage temperature is above +30 °C, and less than 12 weeks if storage temperature is above +25 °C .

AIR RENEWAL

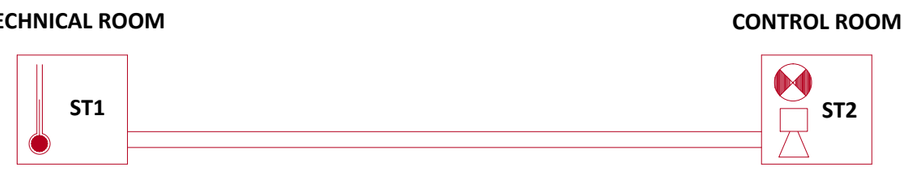
According to local standards.

This sheet of drawings has not been reviewed for code compliance.

NOTE
In case of using air conditioning systems that have a risk of water leakage it is recommended not to install it above electric equipment or to take measures to protect the equipment from dropping water.

ST1-ST2 OVERHEAT ALARM FOR THE TECHNICAL ROOM

28 °C [82.4 °F] to 30 °C [86 °F]: Warning lamps (lit or flashing) in the control room
above 30 °C [86 °F]: Warning lamps (lit or flashing) and audible warning buzzers in the control room with transfer at the security post.



ST1 thermal contact at 1.80 m [71 in] from floor level in the technical room
ST2 warning lamps (lit or flashing) and audible warning buzzers at 1.50 m [59 in] from floor level in the control room

NOTE:
Installation of the above mentioned overheat alarm system belongs to customer responsiblity

HEAT DISSIPATION

ROOM	DESCRIPTION	HEAT OUTPUT (kW)				HEAT OUTPUT (BTU/hr)			
		STAND BY	MODERATE[1]	TYPICAL[2]	MAX[3]	STAND BY	MODERATE[1]	TYPICAL[2]	MAX[3]
Exam room	LC gantry and table	0.41	0.55	0.89	1.62	1399	1877	3037	5528
	Large Display Monitor (LDM)	0.50	0.50	0.50	0.50	1706	1706	1706	1706
	TOTAL	**0.91**	**1.05**	**1.39**	**2.12**	**3105**	**7234**	**4743**	**7234**
Control room	DL console and live monitor	0.10	0.10	0.10	0.10	341	341	341	341
	AW Workstation	0.59	-	0.59	0.59	2019	-	2019	2019
	TOTAL	**0.69**	**0.10**	**0.69**	**0.69**	**2360**	**2360**	**2360**	**2360**
Technical room	C-FRT cabinet	0.70	0.70	0.70	0.70	2388	2388	2388	2388
	PDU	0.40	0.40	0.40	0.40	1365	1365	1365	1365
	Coolix tube chiller	2.53	4.49	5.49	6.93	8633	15321	18733	23646
	Detector Conditioner	0.21	0.21	0.21	0.21	717	717	717	717
	MDP (Mains Disconnect Panel)	0.06	0.06	0.06	0.06	205	205	205	205
	Fluoro UPS UL	1.98	1.98	1.98	1.98	6756	6756	6756	6756
	TOTAL	**5.88**	**7.84**	**8.84**	**10.28**	**20064**	**35077**	**30164**	**35077**

WARNING
The list contains only the principal components of the system and doesn't contain any non-GE supplied equipment.

[1] Moderate Use corresponds to 8 cases in 10 hours.

[2] Typical Use corresponds to 11 cases in 10 hours.

[3] Maximum Use is during the case.

CONNECTIVITY REQUIREMENTS

Broadband Connections are necessary during the installation process and going forward to ensure full support from GE for the customers system. Maximum performance and availability for the customers system is maintained and closely monitored during the lifetime of the system. Proactive and reactive maintenance is available utilizing the wide range of digital tools using the connectivity solutions listed below:

- Site-to-Site VPN/GE Solution
- Site-to-Site VPN/Customer Solution
- Connection through Dedicated Service Network
- Internet Access - connectivity for InSite 2.0

The requirements for these connectivity solutions are explained in the broadband solutions catalogue (separate document).

This sheet of drawings has not been reviewed for code compliance.

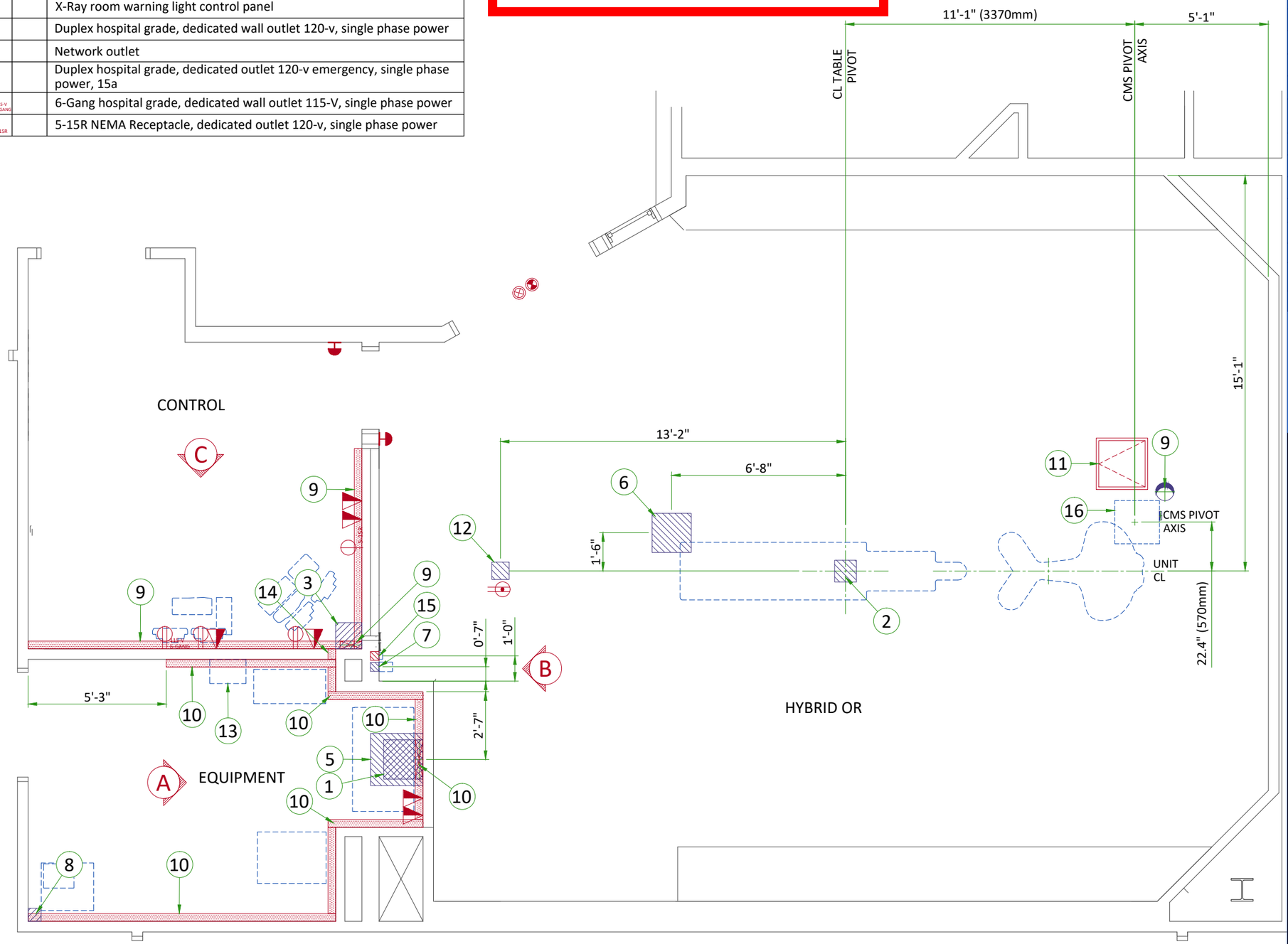
ELECTRICAL NOTES

1. All wires specified shall be copper stranded, flexible, thermo-plastic, color coded, cut 10 foot long at outlet boxes, duct termination points or stubbed conduit ends. All conductors, power, signal and ground, must be run in a conduit or duct system. Electrical contractor shall ring out and tag all wires at both ends. Wire runs must be continuous copper stranded and free from splices.
   1.1. Aluminum or solid wires are not allowed.
2. Wire sizes given are for use of equipment. Larger sizes may be required by local codes.
3. It is recommended that all wires be color coded, as required in accordance with national and local electrical codes.
4. Conduit sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or national codes.
5. Convenience outlets are not illustrated. Their number and location are to be specified by others. Locate at least one convenience outlet close to the system control, the power distritbution unit and one on each wall of the procedure room. Use hospital approved outlet or equivalent.
6. General room illumination is not illustrated. Caution should be taken to avoid excessive heat from overhead spotlights. Damage can occur to ceiling mounting components and wiring if high wattage bulbs are used. Recommend low wattage bulbs no higher than 75 watts and use dimmer controls (except mr). Do not mount lights directly above areas where ceiling mounted accessories will be parked.
7. Routing of cable ductwork, conduits, etc., must run direct as possible otherwise may result in the need for greater than standard cable lengths (refer to the interconnection diagram for maximum usable lengths point to point).
8. Conduit turns to have large, sweeping bends with minimum radius in accordance with national and local electrical codes.
9. A special grounding system is required in all procedure rooms by some national and local codes. It is recommended in areas where patients might be examined or treated under present, future, or emergency conditions. Consult the governing electrical code and confer with appropriate customer administrative personnel to determine the areas requiring this type of grounding system.
10. The maximum point to point distances illustrated on this drawing must not be exceeded.
11. Physical connection of primary power to GE equipment is to be made by customers electrical contractor with the supervision of a GE representative. The GE representative would be required to identify the physical connection location, and insure proper handling of GE equipment.
12. GEHC conducts power audits to verify quality of power being delivered to the system. The customer's electrical contractor is required to be available to support this activity.

- All junction boxes, conduit, duct, duct dividers, switches, circuit breakers, cable tray, etc., are to be supplied and installed by customers electrical contractor.
- Conduit and duct runs shall have sweep radius bends
- Conduits and duct above ceiling or below finished floor must be installed as near to ceiling or floor as possible to reduce run length.
- Ceiling mounted junction boxes illustrated on this plan must be installed flush with finished ceiling.
- All ductwork must meet the following requirements:
  1.Ductwork shall be metal with dividers and have removable, accessible covers.
  2.Ductwork shall be certified/rated for electrical power purposes.
  3.Ductwork shall be electrically and mechanically bonded together in an approved manner.
  4.PVC as a substitute must be used in accordance with all local and national codes.
- All openings in access flooring are to be cut out and finished off with grommet material by the customers contractor.
- General contractor to insert pull cords for all cable run conduits between the equipment room and the operators control room.
- 10 foot pigtails at all junction points.
- Grounding is critical to equipment function and patient safety. Site must conform to wiring specifications shown on this plan.

ITEM	QTY	Outlet Legend for GE Equipment (contractor suplied & installed)
		System emergency off (SEO), (recommended height 1.2m [48"] above floor)
		X-Ray ON lamp (L1) - 24 V
		X-Ray room warning light control panel
		Duplex hospital grade, dedicated wall outlet 120-v, single phase power
		Network outlet
		Duplex hospital grade, dedicated outlet 120-v emergency, single phase power, 15a
115-V 6-GANG		6-Gang hospital grade, dedicated wall outlet 115-V, single phase power
5-15R		5-15R NEMA Receptacle, dedicated outlet 120-v, single phase power

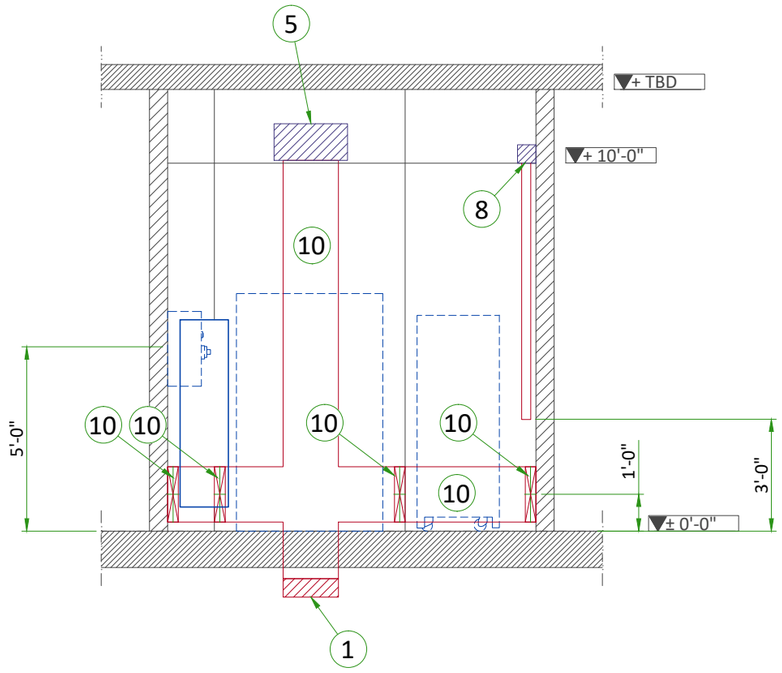
This sheet of drawings has not been reviewed for code compliance.



	ELECTRCAL LAYOUT ITEM LIST (contractor supplied & installed)
1	18" x 18" x 6" box below floor in equipment room
2	10" x 10" x 6" box below floor at table
3	12" x 12" x 6" box above ceiling in control
4	Cable management system (cms)
5	24" x 24" x 12" box above ceiling in equipment room
6	18" x 18" x 6" box above ceiling for monitors
7	4" x 4" x 4" flush junction box 12" below finished ceiling (xr-buzzer)
8	6" x 6" x 6" flush junction box in ceiling for 75 [3"]dia flexible pipe for water lines
9	10" x 3 1/2" surface wall duct with minimum 2 dividers
10	18" x 3 1/2" surface wall duct with minimum 2 dividers
11	24"x24" service access in ceiling
12	Box-size as required in ceiling for patient monitoring (TRAM/PDM
13	Main disconnect panel
14	Wall pass thru for duct
15	4" x 4" x 4" wall box with chase nipple for USB port for AW wireless mouse
16	Customer supplied plate (520 [20.5] x 502 [19.8])

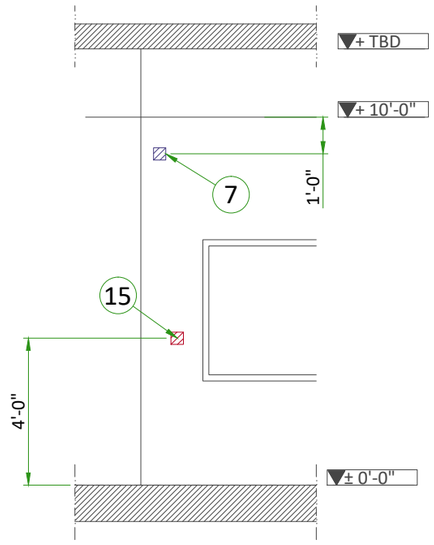
Additional Conduit Runs (Contractor Supplied and Installed)

From	To	Qty	Size In.	Size mm
Cable Management system	CFRT Cabinet	4	4	100
Table	CFRT Cabinet	2	4	100
Bolus Chase	Table	1	2 1/2	64
Water line	Cable Management system	1	3	75
Warning light controller	Warning light	1	1/2	50
Warning light controller	Power distribution unit	1	1/2	50
Warning light controller	120-V 1 phase power	1	As Required	As Required
XR-Buzzer	CFRT Cabinet	1	3/4	19
XR-Buzzer	Control Room	1	3/4	19
Monitor	Control Room	1	2 1/2	64
Large Display Monitor	CFRT Cabinet	1	3 and 3/4	75 and 19
CFRT Cabinet	Tram/PDM	2	3	75
Main Disconnet Panel	20 KVA UPS	2	As Required	As Required
Power distribution unit	Emergency off	1	1/2	50
Power distribution unit	Emergency off	1	1/2	50
Main Disconnect Panel	Power distribution unit	1	1	25
Main Disconnet Panel	480-V 3 phase power	1	As Required	As Required
AW wireless mouse	AW workstation	1	3/4	19
Patient Monitoring	Monitor boom	1	3	75
Patient Monitoring	TRAM/PDM (Boom D)	2	3	75

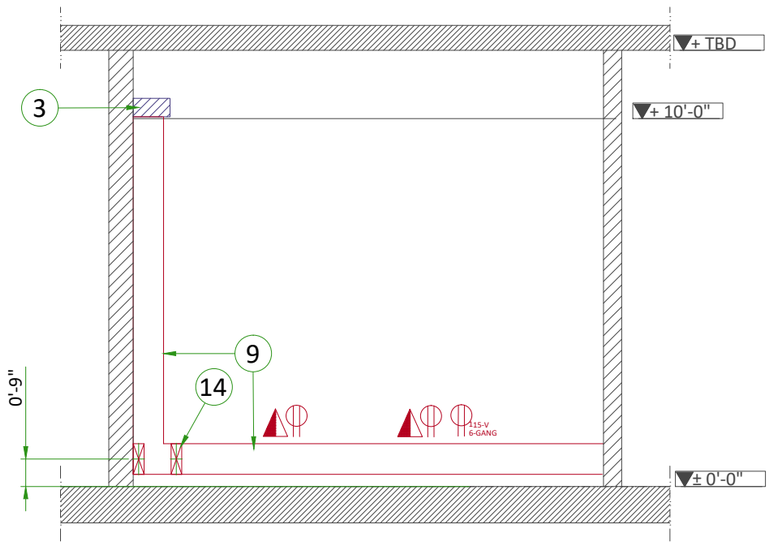


A

This sheet of drawings has not been reviewed for code compliance.



B



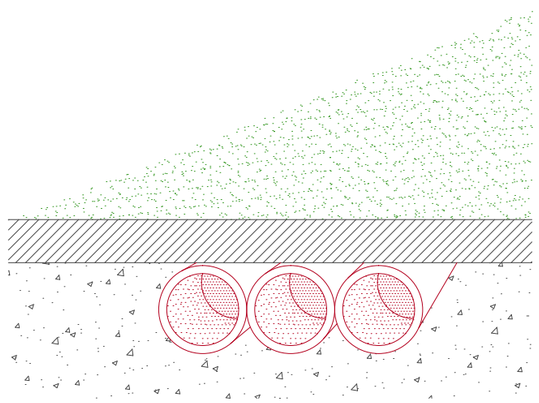
C

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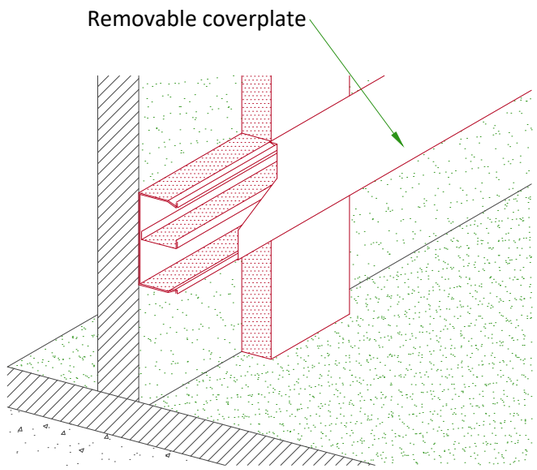
FEEDER TABLE								
MIN. FEEDER WIRE SIZE, AWG OR MCM (sq. mm)/VAC	MINIMUM FEEDER WIRE LENGTH - ft (m)							
	50 (15)	100 (30)	150 (46)	200 (61)	250 (76)	300 (91)	350 (107)	400 (122)
480 VAC	*1/0 (55)	*1/0 (55)	*1/0 (55)	1/0 (55)	3/0 (85)	4/0 (107)	4/0 (107)	300M (150)
GENERAL NOTES								
In all cases qualified personnel must verify that the feeder (at the point of take-off) and the run to the GE system meet all the requirements stated in the PIM								
For a single unit installation, the minimum transformer size is 225kva, with 2.4% rated regulation at unity power factor. Resultant maximum allowable feeder regulation is 3.6%								
The ground wire to earth shall be a minimum of AWG 2 (UL) OR 35 mm² (CE) or the same size (100%) as feeder wires, which ever is larger.								
When a fluoro ups is or will be installed, a neutral line is mandatory. If it scheme as earthing system is used, an isolation transformer is required with delta-wye or delta-star connection.								
* Minimum wire size for circuit breaker, based on recommended overcurrent protection.								

CABLE MANAGEMENT

CONDUIT IN THE FLOOR



WALL DUCT



NOT TO SCALE

RSN: 1431550
PERMIT # 20-1751559-LT

This sheet of drawings has not been reviewed for code compliance.

POWER REQUIREMENTS

POWER SUPPLY	**3 PHASES+N+G 380/400/415/480 V ±10%**
FREQUENCIES for 380/400/415V	**50/60 Hz ± 3 Hz**
FREQUENCIE for 480V	**60 Hz ± 3Hz**
PEAK POWER CONSUMPTION	**150 kVA (0.1 sec max)**
MOMENTARY POWER CONSUMPTION	**100 kVA**
LONG TIME POWER CONSUMPTION	**18 kVA**
MAXIMUM LINE RESISTANCE PER 2 PHASE WIRES	**380 V : 0.09 Ω / 400 V : 0.096 Ω / 415 V : 0.102 Ω / 480 V : 0.12 Ω**

- Neutral is mandatory for UPS control.
- TNC neutral point connection must not be used.
- In case of IT or delta configuration without neutral, an isolation transformer is needed (supplied by customer)
- Three-phase, 5 conductors (3 phase conductors, 1 neutral and 1 protective earth conductor)
- Power supply should come into a Mains Disconnect Panel (MDP) containing the protective units and controls.
- The section of the supply cable should be calculated in accordance with its length and the maximum line resistance per 2 phases.

SUPPLY CHARACTERISTICS

- Power input must be separated from any others which may generate transients (elevators, air conditioning, radiology rooms equipped with high speed film changers ...)
- All equipment installed with IGS system components must be powered separately (e.g. lighting, power outlets)
- Transients must be less than 2,000 V peak in common mode and 1,000 V in differential mode, with a duration limited to a few microseconds.

GROUND SYSTEM

- At least 35mm² copper from main ground point to the MDP.
- The equipotential link will be by means of an equipotential bar. This equipotential bar should be connected to the protective earth conductors in the ducts of the non IGS cableways and to additional equipotential connections linking up all the conducting units in the rooms where IGS units are located.

CABLES

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

CABLEWAYS

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

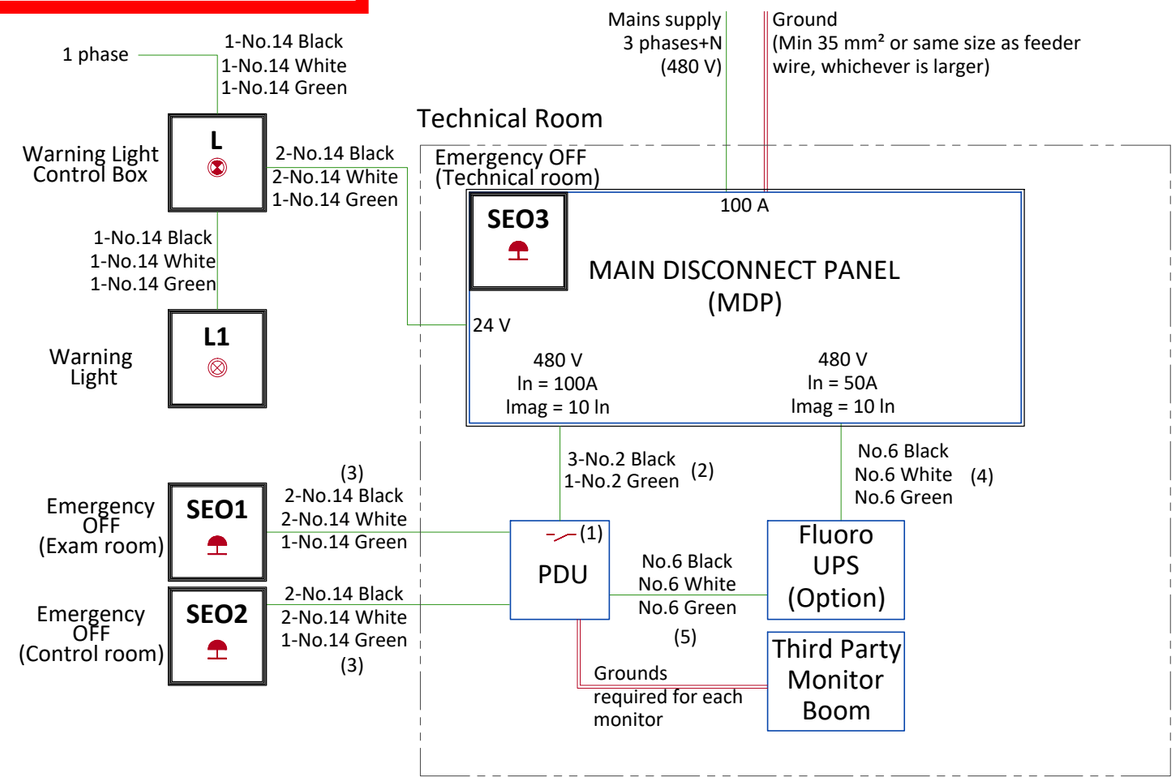
- Protecting cables against water (Cableways should be waterproof),
- Protecting cables against abnormal temperatures (Proximity to heating pipes or ducts),
- Protecting cables against temperature shocks,
- Replacing cables (Cableways should be large enough for cables to be replaced) ,
- Only GE cables are running inside cableways,
- Metal cableways should be grounded.

LOTO DEVICES

- The MDP shall provide means of disconnecting the mains power from the system, with LOTO capability to ensure safe service operation. It can be done by the input breaker if it has disconnecting capability, or by a separate disconnection device.
- LOTO device is installed on the MDP input breaker or on the disconnecting device, there shall be no voltage at the output of the MDP.

POWER DISTRIBUTION

POWER SUPPLY FOR MAIN SYSTEM



L	Warning Light Control Box - 24 V, Located near access doors*
L1	Warning light - 24 V, Located near access doors and inside the exam room*
SEO1-2	Emergency OFF button, located 1.50m [5 ft.] above floor
SEO 3	Emergency OFF button with extra protection, located in the door of the MDP
PDU	Power distribution unit

Cable SUPPLIED BY CUSTOMER
Equipment SUPPLIED BY CUSTOMER
Equipment SUPPLIED BY GE
Equipment can be SUPPLIED BY GE

*Refer to local codes, see layout for quantity and location

(1) Two dry contacts: "System ON" and "X-Ray ON", both released by PDU. Max. voltage = 24 V and the UPS emergency shutdown. able with 2m [6.5 ft] extra length on the floor behind the back of PDU

(2) If length < 6m [19.7ft] - Cable with 2m [6.5 ft] extra length on the floor behind the back of PDU

(3) Cable with 2m [6.5 ft] extra length on the floor behind the back of PDU

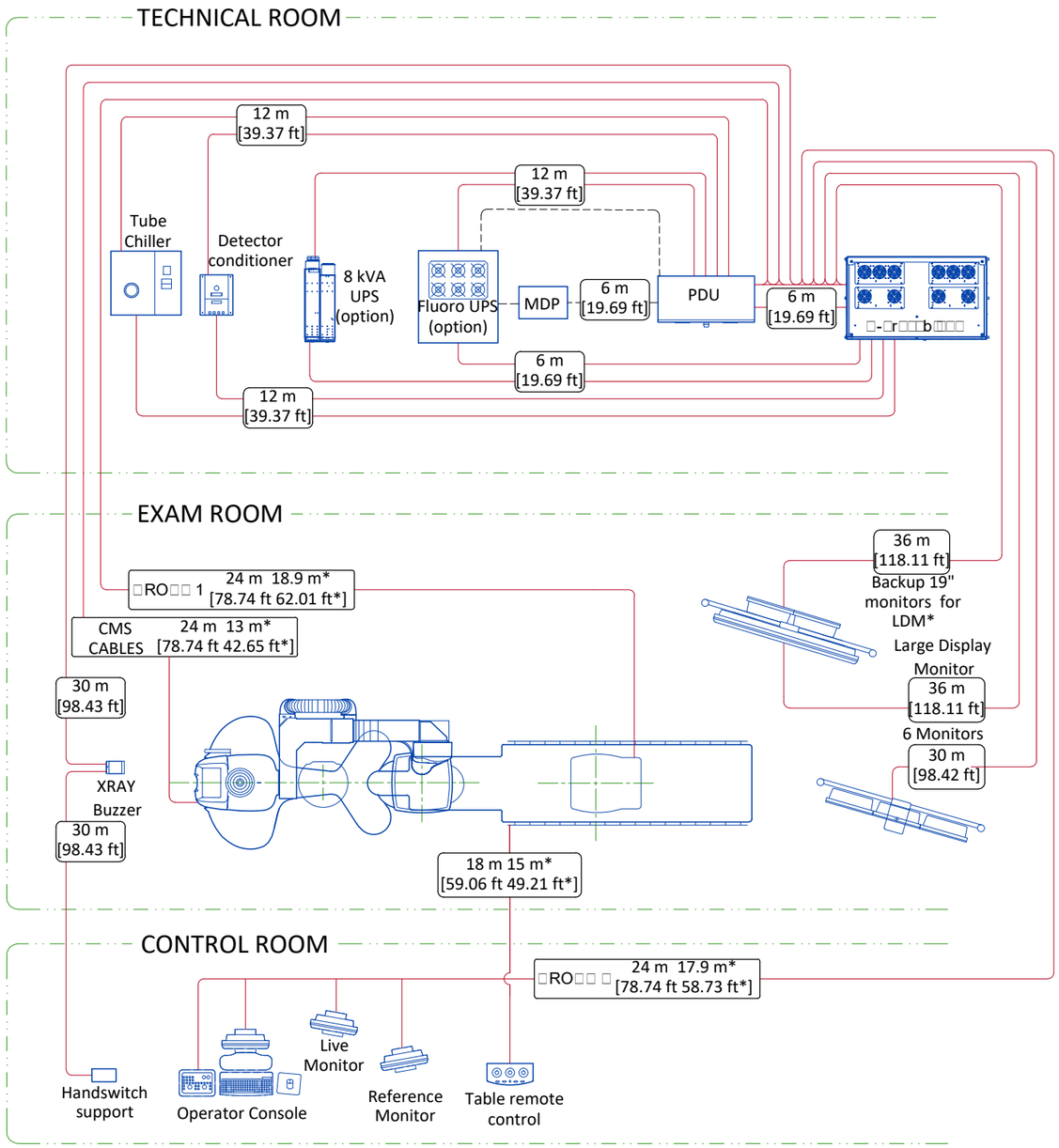
(4) If length < 10m [32.8 ft] - Cable with 2m [6.5 ft] extra length on the floor behind the back of the Fluoro UPS

(5) If length < 10m [32.8 ft] - Cable with 2m [6.5 ft] extra length on each side on the floor behind the back of the Fluoro UPS and PDU

NOTES :
The Fluoro UPS requires a Neutral line connected to the Protective Earth. For hospitals with an IT Electrical Network, a transformer is required with Delta-Wye or Delta-Star connection. This transformer shall be provided by the customer; its characteristics shall be: 30 kVA minimum; Secondary star 3 Ph+N; The power distribution shall be of TNS type with the Neutral grounded; The transformer impedance shall be 4.5% or less (this parameter is also called %Z or short circuit voltage

This sheet of drawings has not been reviewed for code compliance.

INTERCONNECTIONS



- - - - - - - -	Cable supplied by the client
———	Cable supplied by GE
- · - · - · -	Room wall
.....m	Total length
.....m*	Usable length
*	Can be positioned on the back of LDM or on separate suspension boom

THE MEDICAL CENTER OF AURORA

-

HYBRID OR 9

-

AURORA, CO

DATE: 28 OCT 19

This sheet of drawings has not been reviewed for code compliance.

DIRECTORY

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TABLE OF CONTENTS

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EQUIPMENT LAYOUTS .....(R) SHEET SECTION

PRE-INSTALL NOTES .....(P) SHEET SECTION

ENGINEERING APPROVAL

AUTHORIZED SIGNATURE:

DRAWING#: CO-636800_7

APPROVED REVISION: 7

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stryker

REP: MARK BRAYTON
PM: MATTHEW ALLEN

SHEET:
TITLE

SUMMARY LIST OF CHANGES		
KEY #	**DESCRIPTION OF CHANGE**	**ROOM #**
1	ADDED ONE 55" LCD MONITOR (P)	HYBRID OR 9

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REV:	DATE:	DRAFTER	IR
7	28OCT19	STUART.COURTNEY	-

DRAWING #: CO-636800_7
REFERENCE #: DRC # 388993

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REVISION SUMMARY

THE MEDICAL CENTER OF AURORA
-
AURORA, CO

REP: MARK BRAYTON
PM: MATTHEW ALLEN

SHEET:
C-1

NOTES: (UNLESS OTHERWISE SPECIFIED)

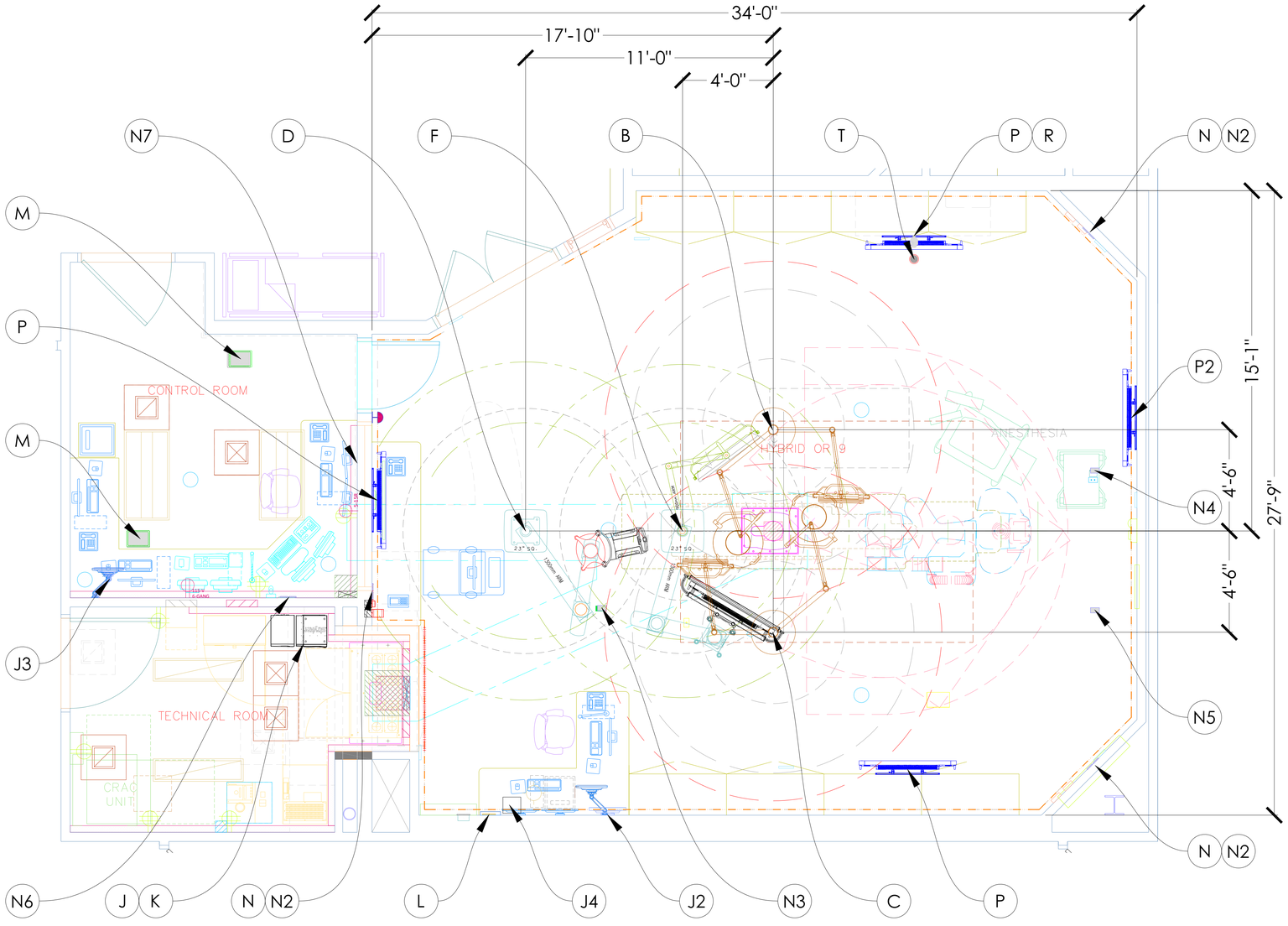
EQUIPMENT SCHEDULE

KEY ITEM	NAME	QTY
B	VISUM LED SURGICAL LIGHT & FLAT PANEL	1
C	VISUM LED SURGICAL LIGHT & FLAT PANEL	1
D	TELETOM TP-622 EQUIPMENT BOOM -1300 TOP ARM	1
F	TC MOUNT: S-SERIES SPS-2-LSM3T MONITOR BOOM -1300 TOP ARM DUAL FLAT PANEL -900 TOP ARM	1
J	SWITCHPOINT INFINITY 3 - UPS | SUITESTREAM | SDC3	1
J2	TOUCH PANEL (WALL MOUNTED)	1
J3	TOUCH PANEL (GCX WALL MOUNTED)	1
J4	PRINTER | MP3	1
K	VISUM LED POWER SUPPLY BOX	1
L	VISUM LED WALL CONTROL PANEL	1
M	FLUSH RECTANGULAR CEILING SPEAKER	2
N	DVI WALL PLATE (FUTURE)	3
N2	S-VID/BNC WALL PLATE	3
N3	DVI CEILING PLATE (EXISTING)	1
N4	DVI CEILING PLATE (ANES. VITALS)	1
N5	DVI CEILING PLATE (TEE)	1
N6	IVUS | PACS	1
N7	MACLAB	1
P	55" LCD MONITOR	3
P2	CUSTOMER PROVIDED 55" LCD MONITOR	1
R	HD PTZ CAMERA	1
T	SUITESTATUS CAMERA	1

CONDUIT SCHEDULE

CONDUIT RUN ITEM - ITEM	CONDUIT QTY	CONDUIT SIZE
B - J	2	1 1/4"
B - K	1	2"
C - J	2	1 1/4"
C - K	1	2"
D - J	2	2"
F - J	2	1 1/4"
F - J	2	2"
L - K	1	3/4"
M - J	1	3/4"
N - J	1	1 1/4"
N2 - J	1	1 1/4"
N3 - J	1	1 1/4"
N4 - J	1	1 1/4"
N5 - J	1	1 1/4"
N6 - J	1	2"
N7 - J	1	2"
P - J	1	1 1/4"
P2 - J	1	1 1/4"
R - J	1	1 1/4"

This sheet of drawings has not been reviewed for code compliance.



SCALE: 3/8" = 1'-0"

AUTOCAD DRAWING TEMPLATE | TEM100XX | REV. A

PLOT STAMP:COURTNEY, STUART | DATE: 10/28/2019 7:42 AM

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7	28OCT19	REFERENCE #: DRC # 388993	STUART.COURTNEY	-

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EQUIPMENT LAYOUT

THE MEDICAL CENTER OF AURORA
- AURORA, CO

REP: MARK BRAYTON
PM: MATTHEW ALLEN

SHEET:
R-HY9

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. **ALL CONDUIT RUNS INCLUDE INSULATED BUSHINGS AND PULL STRINGS.**
2. **CONDUIT RUNS CANNOT EXCEED 45' FROM END-TO-END. DO NOT EXCEED FOUR (4) 90 DEGREE BENDS.**
3. **CABLES BETWEEN ITEMS OVER 45 FEET IN LENGTH ARE PROVIDED BY THE CUSTOMER / CONTRACTOR. PLEASE REFER TO EQUIPMENT LIST FOR CABLE SPECIFICATIONS.**
4. **THE PRE-INSTALL MANUAL REQUIREMENTS SUPERSEDE ALL PRE-INSTALL NOTES IN THIS DRAWING PACKAGE.**
5. **EQUIPMENT LIST:**

This sheet of drawings has not been reviewed for code compliance.

PRE-INSTALL NOTES SCHEDULE

KEY ITEM	NAME
B C	**VISUM LED SURGICAL LIGHT & FLAT PANEL ARM** **VISUM LED SURGICAL LIGHT & FLAT PANEL ARM** "STRUCTURAL: STRYKER PRE-INSTALL PLATE SHALL BE INSTALLED BY CUSTOMER/CONTRACTOR AT 3"" , ± .25"" ABOVE FINISHED CEILING PER CUSTOMER PROVIDED STRUCTURAL ENGINEER SPECS. - A 21"" CIRCULAR HOLE CENTERED ON STRYKER PRE-INSTALL PLATE IN THE FINISHED CEILING IS REQUIRED FOR INSTALLATION. A 24"" DIAMETER CEILING COVER CONCEALS HOLE AFTER SUSPENSION IS INSTALLED MONITOR POWER: ONE (1) - 20 AMP CIRCUIT LOCATED AT JUNCTION BOX WITHIN 18"" OF CENTER OF STRYKER PRE-INSTALL PLATE. - THE CONTRACTOR / ELECTRICIAN TO HARDWIRE STRYKER ELECTRICAL WHIPS DURING STRYKER INSTALLATION. - IF REQUIRED BY LOCAL ELECTRICAL CODE INSTALL ONE (1) - 5 AMP FUSE FOR 100V- 120V APPLICATIONS, OR A 2.5 AMP FUSE FOR 200V-240V APPLICATIONS. THESE FUSES MUST BE PROVIDED BY THE CONTRACTOR. CONDUIT: REFER TO ROOM LAYOUT FOR CONDUIT SIZE. TERMINATE ALL CONDUITS WITHIN 18"" OF THE CENTER OF THE CEILING MOUNT. ACCESS PANEL: ONE (1) 24"" X 24"" ACCESS PANEL ADJACENT TO SUSPENSION."
D	**TELETOM TP-622 EQUIPMENT BOOM** "STRUCTURAL: STRYKER COMMON PRE-INSTALL PLATE SHALL BE INSTALLED BY CUSTOMER/CONTRACTOR AT 3-INCH, ± .25-INCH ABOVE FINISHED CEILING PER CUSTOMER PROVIDED STRUCTURAL ENGINEER SPECS. - TO ENSURE ADEQUATE ROOM FOR INSTALLATION OF THE TELETOM THE OWNER AND/OR CONTRACTOR MUST ENSURE THAT STRUCTURAL/UTILITY COMPONENTS DO NOT INTERFERE WITH ANY PART OF THE TELETOM. THIS "NO-FLY" ZONE EXTENDS 12-INCHES FROM THE MOUNTING PLATE ON ALL SIDES, AND 16-INCHES UP FROM THE FINISHED CEILING. - REQUIRED: A 21-INCH SQUARE HOLE CENTERED ON STRYKER PRE-INSTALL PLATE IN THE FINISHED CEILING IS REQUIRED FOR INSTALLATION. A 23-INCH SQUARE CEILING COVER CONCEALS HOLE AFTER BOOM IS INSTALLED POWER: REFER TO TELETOM MANUFACTURING SERVICE MODULE DRAWING FOR ELECTRICAL CIRCUIT COUNT. - THE CONTRACTOR / ELECTRICIAN TO HARDWIRE STRYKER ELECTRICAL WHIP DURING STRYKER INSTALLATION. - ALL ELECTRICAL CIRCUITS SHALL BE CONNECTED TO TELETOM OUTLET BOX OR BOXES. - THE TELETOM OUTLET BOX (8-INCH HEIGHT X 8-INCH WIDTH X 4-INCH DEPTH) ARRIVES ATTACHED TO TELETOM BOOM AND MOUNTS TO THE STRYKER PROVIDED MOUNTING PLATE VIA A MOUNTING BRACKET. IT IS STRYKERS RESPONSIBILITY TO MOUNT THE TELETOM OUTLET BOX. THE OUTLET BOX WILL BE MOUNTED ADJECENT TO THE MED GAS LINES. REQUIRED ACCESS PANEL: ONE (1) 24-INCH X 24-INCH ACCESS PANEL ADJACENT TO BOOM, SO OUTLET BOXES, AND MED GAS LINES CAN BE EASILY ACCESSED. CONDUIT: REFER TO ROOM LAYOUT FOR CONDUIT SIZE. TERMINATE ALL CONDUITS WITHIN 18-INCHES OF THE CENTER OF THE CEILING MOUNT. PLUMBING: INSTALL VALVE BRIDGE TO TOP OF PRE-INSTALL PLATE. ALL GAS LINES MUST BE TERMINATED WITH STRYKER SUPPLIED GAS RISERS BY CUSTOMER/MEDGAS INSTALLER. - ALL FINAL DISS CONNECTIONS TO BE MADE BY CUSTOMER/MEDGAS INSTALLER AFTER STRYKER INSTALLATION."

PRE-INSTALL NOTES SCHEDULE

KEY ITEM	NAME
F	**TC MOUNT:** **- S-SERIES SPS-2-LSM3T MONITOR BOOM** **- DUAL FLAT PANEL** "STRUCTURAL: STRYKER COMMON PRE-INSTALL PLATE SHALL BE INSTALLED BY CUSTOMER/CONTRACTOR AT 3-INCH, ± .25-INCH ABOVE FINISHED CEILING PER CUSTOMER PROVIDED STRUCTURAL ENGINEER SPECS. - TO ENSURE ADEQUATE ROOM FOR INSTALLATION OF THE S-SERIES BOOM THE OWNER AND/OR CONTRACTOR MUST ENSURE THAT STRUCTURAL/UTILITY COMPONENTS DO NOT INTERFERE WITH ANY PART OF THE S-SERIES BOOM. THIS "NO-FLY" ZONE EXTENDS 12-INCHES FROM THE MOUNTING PLATE ON ALL SIDES, AND 16-INCHES UP FROM THE FINISHED CEILING. - REQUIRED: A 21-INCH SQUARE HOLE CENTERED ON STRYKER PRE-INSTALL PLATE IN THE FINISHED CEILING IS REQUIRED FOR INSTALLATION. A 23-INCH SQUARE CEILING COVER CONCEALS HOLE AFTER BOOM IS INSTALLED POWER: REFER TO S-SERIES MANUFACTURING SERVICE MODULE DRAWING FOR ELECTRICAL CIRCUIT COUNT. - THE CONTRACTOR / ELECTRICIAN TO HARDWIRE STRYKER ELECTRICAL WHIP DURING STRYKER INSTALLATION. - ALL ELECTRICAL CIRCUITS SHALL BE CONNECTED TO S-SERIES JUNCTION BOX OR BOXES. - THE S-SERIES JUNCTION BOX (7.4" X 3.5" X 3.74") ARRIVES ATTACHED TO THE S-SERIES BOOM FLANGE BY A GROUND WIRE. THE JUNCTION BOX MUST BE MOUNTED ADJACENT TO THE MED GAS LINES BY THE CUSTOMER/CONTRACTOR ACCORDING TO NATIONAL AND LOCAL BUILDING CODES. REQUIRED ACCESS PANEL: ONE (1) 24-INCH X 24-INCH ACCESS PANEL ADJACENT TO BOOM, SO JUNCTION BOX(ES), AND MED GAS LINES CAN BE EASILY ACCESSED. CONDUIT: REFER TO ROOM LAYOUT FOR CONDUIT SIZE. TERMINATE ALL CONDUITS WITHIN 18-INCHES OF THE CENTER OF THE CEILING MOUNT. PLUMBING: INSTALL VALVE BRIDGE TO TOP OF PRE-INSTALL PLATE. ALL GAS LINES MUST BE TERMINATED WITH STRYKER SUPPLIED GAS RISERS BY CUSTOMER/MEDGAS INSTALLER. - ALL FINAL DISS CONNECTIONS TO BE MADE BY CUSTOMER/MEDGAS INSTALLER AFTER STRYKER INSTALLATION."

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7	28OCT19	REFERENCE #: DRC # 388993	STUART.COURTNEY	-

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PRE-INSTALL NOTES

THE MEDICAL CENTER OF AURORA
- AURORA, CO

REP: MARK BRAYTON
PM: MATTHEW ALLEN

SHEET:
P-1

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. **ALL CONDUIT RUNS INCLUDE INSULATED BUSHINGS AND PULL STRINGS.**
2. **CONDUIT RUNS CANNOT EXCEED 45' FROM END-TO-END. DO NOT EXCEED FOUR (4) 90 DEGREE BENDS.**
3. **CABLES BETWEEN ITEMS OVER 45 FEET IN LENGTH ARE PROVIDED BY THE CUSTOMER / CONTRACTOR. PLEASE REFER TO EQUIPMENT LIST FOR CABLE SPECIFICATIONS.**
4. **THE PRE-INSTALL MANUAL REQUIREMENTS SUPERSEDE ALL PRE-INSTALL NOTES IN THIS DRAWING PACKAGE.**
5. **EQUIPMENT LIST:**

This sheet of drawings has not been reviewed for code compliance.

PRE-INSTALL NOTES SCHEDULE

KEY ITEM	NAME
J	**SWITCHPOINT INFINITY 3** "DIMENSIONS: - MEDIA ROUTER: 20.6""W X 24""H X 17"D - CONTROL SECTION: 12.5"W X 2.6"H X 17"D - TOTAL SPACE REQUIRED: 27.5"W X 31"H X 29"D POWER: SIXTEEN (16) ELECTRICAL RECEPTACLES AT THE MEDIA ROUTER LOCATION ALL RECEPTACLES REQUIRE CRITICAL POWER ALL ELECTRICAL CIRCUITS SHALL BE INSTALLED IN ACCORDANCE WITH THE LOCAL BUILDING CODE OR WHAT IS SPECIFIED IN THE IBC. DATA: ONE (1) ETHERNET CONNECTION BACKBOX: ONE (1) 18"W X 18"H X 4"D (OR LARGER) JUNCTION BOX FLUSH MOUNTED. - SET BOTTOM OF BOX 9" ABOVE FINISHED FLOOR. NOTE: TERMINATE ALL INTEGRATION CONDUITS TO THIS JUNCTION BOX. " **SDC3** DIMENSIONS: 12.5"W X 7.25"H X 16.5"D DATA: ONE (1) ETHERNET CONNECTION BACKBOX: NONE **SUITESTREAM** "DIMENSIONS: 12.7"" W x 17.3"" D x 2.6"" H DATA: TWO (2) ETHERNET CONNECTION POWER: ONE (1) STANDARD OUTLET WITHIN 18"" OF SUITESTREAM LOCATION"
J2	**SPI3 TOUCH PANEL (WALL MOUNTED)** CONDUIT: - REFER TO ROOM LAYOUT FOR CONDUIT QUANTITY AND SIZE BACK BOX: ONE (1) 4"W X 4"H JUNCTION BOX WITH SINGLE-GANG MUD RING - MOUNT J-BOX WITHIN 18" OF TOUCH PANEL LOCATION GCX TRACK: CONTRACTOR TO MOUNT 4" X 7" (W X H) TRACK VERTICALLY ON THE WALL AT A CUSTOMER SPECIFIED HEIGHT ABOVE FINISHED FLOOR POWER: ONE (1) STANDARD OUTLET WITHIN 18" OF TOUCH PANEL LOCATION.
J3	**SPI3 TOUCH PANEL (GCX WALL MOUNT)** "CONDUIT: - REFER TO ROOM LAYOUT FOR CONDUIT QUANTITY AND SIZE BACK BOX: ONE (1) 4"W X 4"H JUNCTION BOX WITH SINGLE-GANG MUD RING - MOUNT J-BOX WITHIN 18" OF TOUCH PANEL LOCATION GCX TRACK: CONTRACTOR TO MOUNT 4"" X 7"" (W X H) TRACK VERTICALLY ON THE WALL AT A CUSTOMER SPECIFIED HEIGHT ABOVE FINISHED FLOOR POWER: ONE (1) STANDARD OUTLET WITHIN 18" OF TOUCH PANEL LOCATION. "
K	**VISUM LED POWER SUPPLY BOX** DIMENSIONS: 12.5""W X 7""H X 15.5"D - TOTAL SPACE REQUIRED: 20"W X 9"H X 21"D DATA: ONE (1) ETHERNET CONNECTION WHEN THERE IS NOT A SPI-3 IS PRESENT BACKBOX: ONE (1) 6"W X 6"H X 4"D (OR LARGER) JUNCTION BOX FLUSH MOUNTED. - SET BOTTOM OF BOX 14" ABOVE FINISHED FLOOR. NOTE: TERMINATE ALL SURGICAL LIGHT CONDUITS TO THIS JUNCTION BOX"
L	**VISUM LED WALL CONTROL PANEL** CONDUIT: ONE (1) ¾" CONDUIT TO LIGHT POWER SUPPLY BOX. CONDUIT: - REFER TO ROOM LAYOUT FOR CONDUIT QUANTITY AND SIZE - MOUNT IN VERTICAL ORIENTATION AT CONVENTIONAL LIGHT SWITCH HEIGHT. - IF MULTIPLE WALL CONTROL PANELS ARE INSTALLED, A MINIMUM OF 1.5" IS REQUIRED BETWEEN EACH RACO 942 JUNCTION BOX. POWER: NONE"

PRE-INSTALL NOTES SCHEDULE

KEY ITEM	NAME
M	**FLUSH MOUNTED RECTANGULAR CEILING SPEAKER** CONDUIT: - REFER TO ROOM LAYOUT FOR CONDUIT QUANTITY AND SIZE STRUCTURAL: CUSTOMER/CONTRACTOR TO CUT ONE 7 ¼"W X 10 ¾"L HOLE (TEMPLATE SUPPLIED W/ SPEAKER) IN THE CEILING AT EACH SPEAKER MOUNTING LOCATION. MINIMUM 4"" CEILING CLEARANCE."
N N2 N3 N4 N5	**DVI WALL PLATE** **S-VIDEO/BNC WALL PLATE** **DVI CEILING PLATE (EXISTING)** **DVI CEILING PLATE (ANES. VITALS)** **DVI CEILING PLATE (TEE)** "CONDUIT: - REFER TO ROOM LAYOUT FOR CONDUIT QUANTITY AND SIZE BACK BOX: ONE (1) 4"W X 4"H JUNCTION BOX WITH SINGLE-GANG MUD RING - MOUNT THE J-BOX 18" ABOVE FINISHED FLOOR. POWER: NONE REQUIRED, BUT SHOULD BE LOCATED NEXT TO OUTLET"
P	**55" LCD MONITOR** "CONDUIT: REFER TO ROOM LAYOUT FOR CONDUIT QUANTITY AND SIZE BACK BOX: ONE (1) 4"W X 4"H JUNCTION BOX WITH SINGLE-GANG MUD RING - MOUNTED DIRECTLY ABOVE THE TOP OF THE MOUNTING BRACKET. POWER: ONE (1) STANDARD DUPLEX OUTLET MOUNTED ADJACENT TO JUNCTION BOX. STRUCTURAL: CUSTOMER/CONTRACTOR TO MOUNT STRYKER PROVIDED BRACKET TO THE WALL IN THE DESIRED LOCATION WITH PROPER REINFORCEMENT TO SUPPORT THE MONITOR PRIOR TO STRYKER INSTALLATION. DIMENSIONS: 51.9"" X 30.5"" X 4.7"" NOTE: STRYKER PROJECT MANAGER WILL PROVIDE MOUNTING SPECIFICATIONS."
R	**HD PAN/TILT/ZOOM CAMERA** "CONDUIT: REFER TO ROOM LAYOUT FOR CONDUIT QUANTITY AND SIZE BACK BOX: ONE (1) 4"W X 4"H JUNCTION BOX WITH SINGLE-GANG MUD RING - FLUSH MOUNT J-BOX IN WALL 12" BELOW FINISHED CEILING POWER: NONE STRUCTURAL: CUSTOMER/CONTRACTOR TO MOUNT STRYKER PROVIDED BRACKET TO THE WALL IN THE DESIRED LOCATION WITH PROPER REINFORCEMENT TO HD PAN/TILT/ZOOM CAMERA PRIOR TO STRYKER INSTALLATION."
T	**SUITESTATUS CAMERA** POWER: POWER OVER ETHERNET STRUCTURAL: CUSTOMER/CONTRACTOR TO CUT 184MM DIAMETER CIRCLE IN CEILING AT EACH CAMERA MOUNTING LOCATION. - PROVIDE 4.5" MINIMUM CEILING CLEARANCE STRUCTURAL: CUSTOMER/CONTRACTOR TO MOUNT STRYKER PROVIDED BRACKET TO THE CEILING IN THE DESIRED LOCATION WITH PROPER REINFORCEMENT TO SUITESTATUS CAMERA PRIOR TO STRYKER INSTALLATION. DIMENSIONS: 5.5"DIA X 4.4"H DATA: ONE (1) ETHERNET CONNECTION PULLED THROUGH 184MM CAMERA CUTOUT HOLE MENTIONED ABOVE WITH A (3) FOOT SERVICE LOOP AND THEN TIE THE CABLE IN A LOOSE KNOT TO ENSURE CABLE WILL NOT BE LOST. BACKBOX: NONE.

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PRE-INSTALL NOTES

THE MEDICAL CENTER OF AURORA
- AURORA, CO

REP: MARK BRAYTON
PM: MATTHEW ALLEN

SHEET:
P-2

7186 S. Forest Lane
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nextlevel STRUCTURAL ENGINEERS

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Structural plan review is limited to a general survey for code compliance. No review is implied nor was undertaken to verify structural adequacy.

STRUCTURAL CALCULATIONS

FOR

MEDICAL CENTER OF AURORA

HYBRID OR 9

1501 S. Potomac Street
Aurora, CO 80012

NLI #19-087

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: John Lichtner
Date: Jan 23, 2020
2015 INTERNATIONAL CODES & 2017 NEC

PREPARED FOR

MEDICAL CENTER OF AURORA

January 14, 2020

COLORADO LICENSED
MATTHEW W. NICHOLS
36279
01-14-20
PROFESSIONAL ENGINEER

Job Title TMCA CR9 Job No. 19-087

Client TMCA By MWN Date 10.24.19 Sheet of

CEILING EQUIPMENT SUPPORT FRAMING

CONSIDER MAX. EQUIP. LOADS

- VERT. WT. = 1,100#, MOMENT = 5,650 FT-#

FOR HSS VERTS & ANGLE KICKERS, CONSIDER EACH SUPPORTING 100% OF LOAD (CONSERVATIVE) W/ 10" RESISTING MOMENT ARM.

$$\Rightarrow T_{S\,MAX} = \frac{1{,}100^{\#}}{4} + 5{,}650^{FT\text{-}\#} \times 12''/1 \times \frac{L}{10''}$$

$$= 275^{\#} + 6{,}780^{\#} = 7055^{\#}$$

$$T_U = 1.2\,T_S = 8.5^{K}$$

HSS 1 1/2 x 1 1/2 x 3/16 → $\phi T_N = (0.9)(46^{KSI})(0.894) = 37^{K}$ OK

L 1 1/2 x 1 1/2 x 3/16 → $\phi T_N = (0.9)(36^{KSI})(0.527) = 17.1^{K}$ OK

CONSIDER MAX COMPRESSION, $P_{CU} = 1.2 \times 6.78^{K} = 8.1^{K}$ & $L_U = 4'$

HSS 1 1/2 x 1 1/2 x 3/16 – COMPACT – L = 48", r = 0.521", A = 0.894 in²

$F_e = 33.7^{KSI}$

$F_{cr} = 26^{KSI}$; $\phi P_N = (0.9)(26^{KSI})(0.894^{in^2}) = 20.9^{K}$ OK

L 1 1/2 x 1 1/2 x 3/16 – r = 0.457" ; A = 0.527 in² – COMPACT

$F_e = 25.9^{KSI}$; $F_{cr} = 20.1^{KSI}$; $\phi P_N = (0.9)(20.1^{KSI})(0.527^{in^2})$

$= 9.5^{K}$ OK

Job Title TMCA ORG Job No. 19-087

Client TMCA By MWN Date 10.24.19 Sheet of

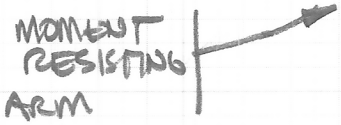
HORIZ. EQUIP. BOOM SUPPORT

CONSIDER:

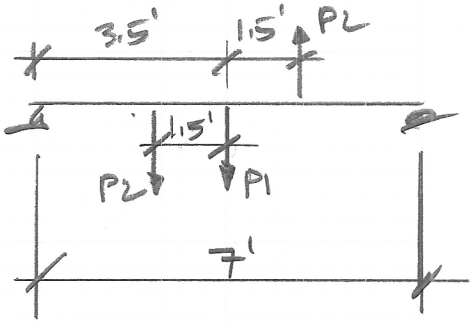
$P1 = \frac{1,100\#}{2} = 550\#$

$P2 = \frac{5,650\ FT\text{-}\#}{3'} = 1,884\#$

MOMENT RESISTING ARM

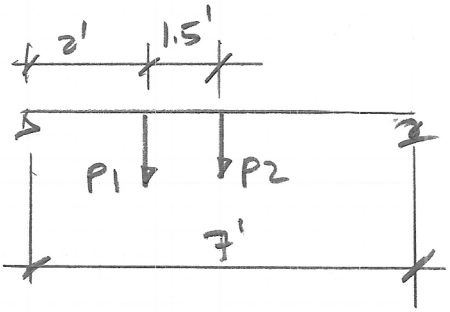


LC1



HSS 4x4x1/4 OK

LC2



PATIENT TABLE BASE & ANCHORAGE

SPEC'S PER G.E. REQUIREMENTS:

- CONC. f'_c = 17.24 MPa = 2,500 psi → 4,500 psi OK
  (ANCHORAGE)
  = ⟶ = 4,300 psi
  (FLOORING)

- MIN. CONC. EDGE DISTANCE TO ℄ ANCHOR
  = 79.4 mm = 3.2" → 6" MIN. PROVIDED OK

- ANCHOR INSTALLATION DEPTH = 6.5"
  → 10" CONC. THICKNESS PROVIDED OK

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Project Title: TMCA OR 9
Engineer:
Project ID: 19-087
Project Descr:

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Steel Beam

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DESCRIPTION: Horiz Equip. Boom Support - Load Case 1

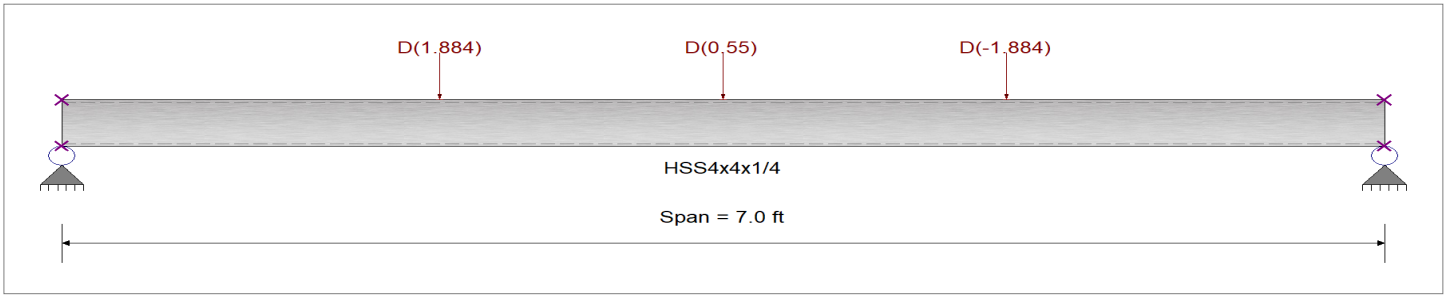
CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10
Load Combination Set : IBC 2015

Material Properties

Analysis Method : Load Resistance Factor Design
Beam Bracing : Completely Unbraced
Bending Axis : Major Axis Bending

Fy : Steel Yield : 46.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Load(s) for Span Number 1
Point Load : D = 1.884 k @ 2.0 ft, (Boom Moment Reaction)
Point Load : D = 0.550 k @ 3.50 ft, (Boom Vert Load)
Point Load : D = -1.884 k @ 5.0 ft, (Boom Moment Reaction)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.187 : 1	Maximum Shear Stress Ratio =	0.050 : 1
Section used for this span	HSS4x4x1/4	Section used for this span	HSS4x4x1/4
Mu : Applied	3.031 k-ft	Vu : Applied	1.892 k
Mn * Phi : Allowable	16.181 k-ft	Vn * Phi : Allowable	38.211 k
Load Combination	+1.40D	Load Combination	+1.40D
Location of maximum on span	2.000 ft	Location of maximum on span	3.520 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.000 in	Ratio =	0 <600
Max Upward Transient Deflection	0.000 in	Ratio =	0 <600
Max Downward Total Deflection	0.037 in	Ratio =	2277 >=600
Max Upward Total Deflection	0.000 in	Ratio =	0 <600

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D Only	1	0.0369	2.440		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.082	-0.532
Overall MINimum	0.649	-0.319
D Only	1.082	-0.532
+0.60D	0.649	-0.319

Next Level, Inc.
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Project Title: TMCA OR 9
Engineer:
Project ID: 19-087
Project Descr:

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Steel Beam

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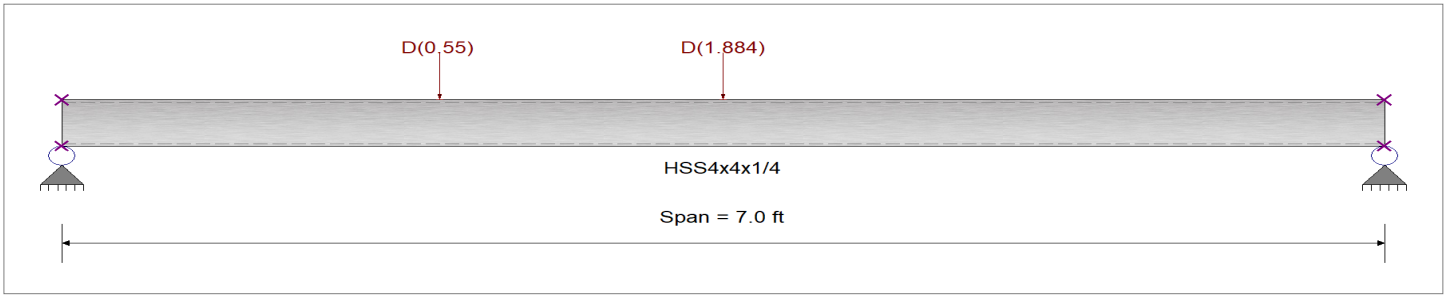
DESCRIPTION: Horiz Equip. Boom Support - Load Case 2

CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10
Load Combination Set : IBC 2015

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	46.0 ksi
Beam Bracing :	Completely Unbraced	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Load(s) for Span Number 1
Point Load : D = 1.884 k @ 3.50 ft, (Boom Moment Reaction)

Point Load : D = 0.550 k @ 2.0 ft, (Boom Vert Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.333 : 1	Maximum Shear Stress Ratio =	0.049 : 1
Section used for this span	HSS4x4x1/4	Section used for this span	HSS4x4x1/4
Mu : Applied	5.386 k-ft	Vu : Applied	1.869 k
Mn * Phi : Allowable	16.181 k-ft	Vn * Phi : Allowable	38.211 k
Load Combination	+1.40D	Load Combination	+1.40D
Location of maximum on span	3.500 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.000 in	Ratio =	0 <600
Max Upward Transient Deflection	0.000 in	Ratio =	0 <600
Max Downward Total Deflection	0.126 in	Ratio =	665 >=600
Max Upward Total Deflection	0.000 in	Ratio =	0 <600

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D Only	1	0.1264	3.460		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.335	1.099
Overall MINimum	0.801	0.659
D Only	1.335	1.099
+0.60D	0.801	0.659