



**Regional Map** 



**Location Map** 

# **VMC Linear Accelerator** Replacement & Infrastructure Upgrades Building Code 1164

# **100% Construction Documents** October 12, 2023

## 930 Campus Road Ithaca, NY 14853

#### **SWBR Project #** 23024.00

**DRAWING LIST** 

GENERAI

COVER SHEET CODE COMPLIANCE PLAN AND NOTES

STRUCTURAL

S-101 PARTIAL ROOF AND EQUIPMENT FRAMING PLAN

#### ARCHITECTURAL

A-000	GENERAL NOTES AND LEGENDS	

A-101	PARTIAL LEVEL 2 DEMOLITION PLAN
A-110	PARTIAL LEVEL 1 FLOOR PLAN

- A-110 PARTIAL LEVEL 2 FLOOR PLAN A-111
- PARTIAL ROOF PLAN A-120
- PARTIAL LEVEL 2 REFLECTED CEILING PLAN A-130 A-140 INTERIOR FINISH PLAN AND FINISH SCHEDULE
- A-420 INTERIOR ELEVATIONS A-501 INTERIOR DETAILS
- INTERIOR DETAILS A-502 ROOF DETAILS A-503
- ROOF DETAILS A-504
- ROOF DETAILS A-505 SCHEDULES AND DETAILS A-601

#### FIRE PROTECTION

FP-000 GENERAL NOTES, SYMBOLS LIST & SCHEDULES -

FIRE PROTECTION FP-101 PARTIAL LEVEL 2 DEMOLITION PLAN - FIRE

- PROTECTION
- FP-111 PARTIAL LEVEL 2 FLOOR PLAN FIRE PROTECTION

#### PLUMBING

⊃-000	GENERAL NOTES, SYMBOLS LIST & SCHEDULES - PLUMBING	E-000	GENERAL NOTES & SYMBOLS LIST - ELECTRICAL
P-100	PARTIAL LEVEL 1 DEMOLITION PLAN - PLUMBING	E-100	PARTIAL LEVEL 1 & 2 DEMOLITION PLANS -
P-101	PARTIAL LEVEL 2 DEMOLITION PLAN - PLUMBING		ELECTRICAL
P-110	PARTIAL LEVEL 1 FLOOR PLAN - PLUMBING	E-101	PARTIAL LEVEL 2 DEMOLITION PLAN - LIGHTING
P-111	PARTIAL LEVEL 2 FLOOR PLAN - PLUMBING	E-200	PARTIAL LEVEL 1 FLOOR PLANS - ELECTRICAL
		E-201	PARTIAL LEVEL 2 FLOOR PLAN - POWER & SPECIAL
MECHAI	NICAL		SYSTEMS
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000-N	GENERAL NOTES & SYMBOLS LIST - HVAC	E-203	PARTIAL ROOF PLAN - ELECTRICAL
M-101	PARTIAL LEVEL 2 DEMOLITION PLAN - DUCTWORK	E-211	LINEAR ACCELERATOR - CONDUITS
M-110	PARTIAL LEVEL 1 - DEMOLITION PLAN - PIPING	E-212	LINEAR ACCELERATOR - IN-SLAB CONDUITS
M-111	PARTIAL LEVEL 2 DEMOLITION PLAN - PIPING	E-213	LINEAR ACCELERATOR - GROUNDING
M-201	PARTIAL LEVEL 2 FLOOR PLAN - DUCTWORK	E-214	LINEAR ACCELERATOR - CONDUIT RISER
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M-301	LOAD SHED MATRICES		
M-302	CONTROL SCHEMATICS AND SYSTEM SUMMARIES		
M-303	CONTROL SCHEMATICS AND SYSTEM SUMMARIES		
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4 400			

M-402 DETAILS - HVAC M-501 SCHEDULES - HVAC

## Mechanical, Electrical, Plumbing & Fire Protection Engineer:

M/E Engineering 300 Trolley Blvd Rochester, NY 14606 585 288 5590

#### ELECTRICAL

## **Architect & Structural Engineer:**

## SWBR

387 East Main Street Rochester, NY 14604 585 232 8300 rochester@swbr.com





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Revisions

**VMC Linear Accelerator** Replacement & Infrastructure Upgrades SWBR Project Number 23024.00

**Cornell University** lthaca, NY

**G-000** 

COVER SHEET



FIRE RESISTANCE RATING SCHEDULI	E FOR BUILDING ELEMENTS

DESCRIPTION	FIRE RESISTANCE RATING	TEST REFERENCE	COMMENTS
STRUCTURAL FRAME INCLUDING COLUMNS, GIRDERS AND TRUSSES	2, EXISTING	-	EXISTING ASSEMBLY
INTERIOR AND EXTERIOR BEARING WALLS	2, N/A	-	N/A
INTERIOR AND EXTERIOR NON-BEARING WALLS	0	-	EXISTING ASSEMBLY
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2, EXISTING	-	EXISTING ASSEMBLY
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1, EXISTING	-	EXISTING ASSEMBLY

#### **FIRE-RESISTANT CONSTRUCTION LEGEND**

DESCRIPTION	PLAN DESIGNATION
FIRE WALL	2FW 2FW 3FW 3FW
FIRE BARRIER (HORIZONTAL EXIT, INCIDENTAL USE/HAZARD, OCCUPANCY SEPARATION)	1FB — 1FB — 2FB — 2FB —
SHAFT ENCLOSURE (FIRE BARRIER AT ELEVATOR, STAIR OR MECHANICAL SHAFT)	1SE - 1SE - 1SE - 2SE -
FIRE PARTITION (ELEV LOBBY & CORRIDOR WALL)	
PRESUMED EXISTING FIRE-RATED ASSEMBLIES	PREFIX E. SEE NOTE 1

#### NOTES:

1. WHEN THE PREFIX "E" IS INDICATED ON THE CODE COMPLIANCE FLOOR PLAN, IT DENOTES EXISTING WALL CONSTRUCTION WITH A PRESUMED FIRE-RESISTANCE RATING OF THE TYPE INDICATED AS INDICATED ON RECORD DRAWINGS PROVIDED BY THE OWNER. THE ACTUAL CONDITIONS IN THE FIELD HAVE NOT BEEN VERIFIED TO CONFIRM COMPLIANCE. NEW PENETRATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH UL LISTED THROUGH-PENETRATION FIRE STOP SYSTEMS FOR THE RATING INDICATED. NEW OPENINGS TO BE PROTECTED WITH OPENING PROTECTIVES FOR RATING INDICATED.

2. PENETRATIONS THROUGH FIRE-RESISTANT CONSTRUCTION SHALL BE BUILT IN ACCORDANCE WITH U.L. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS. SEE CODE COMPLIANCE PLAN FOR FIRE-RATED PARTITIONS LOCATIONS.

CONSTRUCTION CLASSIFICATION: BUILDING OCCUPANCY CLASSIFICATION
FIRE PROTECTION SYSTEM:

B [BUSINESS], A-2, A-3, F-2, S-2, S-1 DRAWINGS) 1,401 SF







PARTIAL EXISTING ROOF FRAMING PLAN

<u>{</u>2}-

1/8" = 1'-0"





W8x18

W8x1

3' - 6 5/8"

+/-

16'-4 3/4" VIF

TYP

- 6 5/8"

W8x18

W8x18

⁄.5.250#⁄

TYP

\S-101/

16'-4 3/4" VIF





- FABRICATION.

- OFF

#### **GENERAL STRUCTURAL NOTES:**

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS, DIMENSIONS, ELEVATIONS, AND PLUMBNESS OF EXISTING CONSTRUCTION AS SHOWN AND IMMEDIATELY REPORT TO THE ARCHITECT ANY DISCREPANCIES OR OMISSIONS PRIOR TO CONSTRUCTION OR FABRICATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ACCURATELY DETERMINE THE ACTUAL DIMENSIONS, ELEVATIONS, AND PLUMBNESS OF EXISTING WORK.

2. ALL EXISTING CONSTRUCTION ADJACENT TO NEW WORK IS TO BE ADEQUATELY SUPPORTED DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY NEW OR EXISTING WORK DAMAGED WHILE WORK IS IN PROGRESS TO THE SATISFACTION OF THE ARCHITECT.

3. IN THE ABSENCE OF AN INTERPRETATION BY THE ARCHITECT OR ENGINEER, SHOULD THE DRAWINGS DISAGREE IN THEMSELVES OR WITH THE SPECIFICATIONS, THE BETTER QUALITY OR THE GREATER QUANTITY OF WORK OR MATERIALS SHALL BE ESTIMATED UPON, AND UNLESS OTHERWISE ORDERED, SHALL BE FURNISHED.

4. THE CONTRACTOR SHALL COORDINATE THE LOCATION AND SIZE OF ALL ROOF TOP EQUIPMENT AND ANY ROOF PENETRATIONS THAT THEY MIGHT REQUIRE WITH THE FRAMING PLANS. THE CONTRACTOR SHALL ADVISE THE ENGINEER OF LOCATIONS AND OPERATING WEIGHTS OF ALL SUCH EQUIPMENT FOR REVIEW. SUPPLEMENTAL FRAMING MAY BE REQUIRED. THE CONTRACTOR SHALL PROVIDE ANGLE FRAMES FOR OPENINGS PER THE CONSTRUCTION DOCUMENTS.

5. THE MECHANICAL UNIT SUPPORT FRAMING WAS DESIGNED TO SUPPORT A SPECIFIC UNIT WHICH MAY OR MAY NOT BE THE ACTUAL UNIT SUPPLIED DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL DIMENSIONS WITH THE ACTUAL UNIT SUPPORT REQUIREMENTS AND SHALL INFORM THE ARCHITECT OF ANY REQUIRED MODIFICATIONS PRIOR TO

6. CONTRACTOR IS RESPONSIBLE TO COORDINATE REQUIRED SPECIAL INSPECTIONS WITH THE PROJECT SPECIAL INSPECTOR. THE PROJECT STATEMENT OF SPECIAL INSPECTIONS IS LOCATED AS AN ATTACHMENT TO SECTION 014000 OF THE PROJECT MANUAL.

#### STRUCTURAL STEEL NOTES:

1. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN STRICT ACCORDANCE WITH THE LATEST AISC SPECIFICATIONS.

2. ALL STRUCTURAL STEEL SHAPES SHALL CONFORM TO ASTM A992, GRADE 50. STEEL PLATES SHALL CONFORM TO ASTM A36. STEEL TUBE SECTIONS SHALL CONFORM TO ASTM A500, GRADE C. STEEL PIPE SECTIONS SHALL CONFORM TO ASTM A501 OR ASTM A53, TYPES E OR S, GRADE B.

3. ALL BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER ASTM F3125 GRADE A325 OR F1852 (TWIST-OFF) HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED. ALL STANDARD BEARING, TENSION, OR COMBINED SHEAR-TENSION CONNECTIONS SHALL BE INSTALLED TO A "SNUG TIGHT" CONDITION UNLESS LOOSENING OR FATIGUE DUE TO VIBRATION OR LOAD FLUCTUATIONS ARE PRESENT. ALL OTHER CONNECTIONS SHALL BE TIGHTENED TO WITHIN 70% OF THEIR SPECIFIED MINIMUM TENSILE STRENGTH. THE CONTRACTOR SHALL USE INDICATOR WASHERS, LOAD INDICATOR BOLTS, OR STANDARD BOLTING WITH FIELD TESTING TO VERIFY PROPER INSTALLATION. TURN OF THE NUT METHOD IS ACCEPTABLE. NO FIELD BURNING OF HOLES WILL BE PERMITTED. LOAD INDICATOR BOLTS SHALL BE TIGHTENED UNTIL THE SPLINED END SNAPS OFF.

4. ALL CONNECTIONS IN STEEL FRAMING SHALL BE DESIGNED FOR AN END REACTION EQUAL TO ONE HALF (1/2) OF THE AISC ALLOWABLE UNIFORM LOAD CAPACITY FOR THE BEAM OR REACTION, IF NOTED, ON THE PLANS.

5. THE FABRICATOR IS RESPONSIBLE FOR AND SHALL CERTIFY TO THE ADEQUACY OF ANY CONNECTIONS DESIGNED BY THE FABRICATOR TO THE PERFORMANCE STANDARDS ESTABLISHED IN THE CONTRACT DOCUMENTS. THE FABRICATOR SHALL SUBMIT CALCULATIONS TO THE ENGINEER USED IN THE DESIGN OF SUCH CONNECTIONS. IF UNACCEPTABLE TO THE ENGINEER, THE FABRICATOR SHALL MODIFY THE CONNECTION DESIGNS UNTIL ACCEPTANCE BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.

6. THE FABRICATOR MAY CERTIFY THE ADEQUACY OF CONNECTIONS BY STATING THAT THE SUPPLIED CONNECTIONS WERE PRE-ENGINEERED CONNECTIONS TAKEN FROM THE AISC MANUAL OF STEEL CONSTRUCTION, VOLUME I AND II, AISC PUBLICATION "ENGINEERING FOR STEEL CONSTRUCTION" AND/OR AISC PUBLICATION "DETAILING FOR STEEL CONSTRUCTION" WHILE NOTING ANY EXCEPTIONS.

7. THE FABRICATOR SHALL SUBMIT CALCULATIONS FOR THE DESIGN OF ANY CONNECTIONS THAT ARE NOT PRE-QUALIFIED IN THE ABOVE REFERENCED AISC PUBLICATIONS.

8. ALL WELDS SHALL BE MADE IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE AWS, USING E70 ELECTRODES. PROVIDE FIELD TOUCH-UP PAINT TO MATCH SHOP-APPLIED PRIMER WHERE PAINT HAS BEEN BURNED

9. THE CONTRACTOR SHALL COORDINATE THE LOCATION AND SIZE OF ALL ROOF TOP EQUIPMENT, AND ANY ROOF PENETRATIONS THAT THEY MIGHT REQUIRE, WITH THE FRAMING PLANS. THE CONTRACTOR SHALL PROVIDE ANGLE FRAMES FOR OPENINGS PER THE CONSTRUCTION DOCUMENTS.

10. ALL STRUCTURAL STEEL SHALL BE HOT-DIPPED GALVANIZED.

#### PARTIAL ROOF FRAMING AND EQUIPMENT SUPPORT FRAMING PLAN NOTES:

1. SEE THIS DRAWING FOR GENERAL NOTES.

2. DATUM ELEVATION = 942'-6 1/2" (TOP OF EXISTING ROOF STEEL). DATUM REFERENCE ELEVATION = (+)0'-0"

3. TOP OF STEEL ELEVATIONS ARE REFERENCED FROM DATUM REFERENCE ELEVATION.

4. TOP OF EQUIPMENT SUPPORT FRAMING SHALL BE ESTABLISHED SUCH TO MAINTAIN 2'-6" CLEAR BETWEEN TOP OF EXISTING ROOFING AND BOTTOM OF EQUIPMENT SUPPORT FRAMING.

5. THE GENERAL CONTRACTOR SHALL COORDINATE THE EXACT SIZE AND LOCATION OF ALL ROOF OPENINGS WITH THE TRADE REQUIRING THEM. PROVIDE ANGLE FRAMES PER THE FRAMING PLAN KEYNOTES UNLESS OTHERWISE NOTED ON THE PLANS. SEE MEP DRAWINGS FOR ANY ADDITIONAL OPENINGS NOT SHOWN ON THE FRAMING PLANS.

\*\* BEAM SIZE \*\* DENOTES EXISTING STRUCTURAL FRAMING MEMBER.

INDICATES A BEAM TO BEAM MOMENT RESISTING CONNECTION. SEE DETAIL 4/S-101.

8. ALL EQUIPMENT SUPPORT FRAMING MEMBERS AND COMPONENTS SHALL BE HOT-DIPPED GALVANIZED.

SWBR 387 East Main Street Rochester NY 14604 585 232 8300 | rochester@swbr.com SWBR NYS Certificate of Authorization #: 235221



Drawn By: Checked

Checked By:	MPW
Proiect Manager:	CRE

AJN

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Revisions

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## **S-101**

PARTIAL ROOF AND EQUIPMENT FRAMING PLAN

## **GYPSUM BOARD / METAL STUD SERIES PARTITIONS**

A3 3 5/8" METAL STUDS AT 16" O.C. 4 7/8" (1) LAYER 5/8 " GYPSUM BOARD EACH SIDE. 1 HOUR FIRE RESISTANT RATED WHEN INDICATED (WITH OR WITHOUT INSULATION) PER UL U419

#### JOB SPECIFIC PARTITIONS

J1	7 1/8"	6" CMU 7/8" ME <sup>-</sup> (1) LAYE
J2	4 3/4"	3 5/8" M (1) LAYE (1) LAYE

IETAL STUDS AT 16" O.C. ER 1/2" PLYWOOD ROOM SIDE ONLY (1) LAYER 5/8 " GYPSUM BOARD ROOM SIDE ONLY.

#### <u>LEGEND</u>

	FINISHED F	LOOR:		
XX	"X" AFC ——	PARTITION 1 FINISHED CE		
^ <b>^</b>	UFC	PARTITION 1 FINISHED CE		
	X'-X"	WHERE HEIG CONSTRUCT HEIGHT INCI WALL CAP		
A3	ATES PARTITIO	N TYPE		
A- BLAN (REFI	ATES ADDITION KETS FOR ACO ER TO GENERAI	IAL SOUND ATTE USTICAL PURPO - PARTITION NOT		
REFER TO CODE COM BE FIRE-RESISTANT-R	IPLIANCE PLAN( ATED CONSTRU	S) FOR PARTITIC JCTION.		

#### WITH HORIZONTAL REINFORCING AT 16" O.C. (VERT.) TAL HORIZONTAL FURRING CHANNELS AT 16" O.C. ER 5/8" GYPSUM BOARD ROOM SIDE ONLY

- GHT ABOVE
- TO X" ABOVE EILING
- TO UNDERSIDE OF EILING
- GHT IS NOTED, T WALL TO THAT LUDING TOP OF
- ENUATION SES TES)
- ONS REQUIRED TO

#### **GENERAL NOTES:**

1. ALL GENERAL NOTES PERTAIN TO ALL ARCHITECTURAL (A-SERIES) DRAWINGS IN THIS SET

- 2. FOR NEW OPENINGS IN EXISTING MASONRY WALLS; UNLESS SPECIFICALLY INDICATED OTHERWISE, GENERAL CONTRACTOR SHALL PROVIDE THE DEMOLITION, LINTEL INSTALLATION AND RECONSTRUCTION. THE GENERAL CONTRACTOR SHALL PROVIDE ALL LOOSE LINTELS AT ALL MASONRY OPENINGS EXCEEDING 16" WIDE. OPENINGS LESS THAN 16" WIDE WILL NOT REQUIRE A LINTEL. LINTEL LOCATIONS FOR PLUMBING, ELECTRICAL, AND MECHANICAL WORK ARE NOT SHOWN ON THE ARCHITECTURAL DRAWINGS. CONTRACTOR SHALL COORDINATE WITH RESPECTIVE DRAWINGS. ASSUME ALL EXISTING WALLS ARE MASONRY UNLESS INDICATED OTHERWISE.
- 3. WHERE DIFFERENT FLOORING MATERIALS MEET, AND A SPECIFIC TRANSITION DETAIL IS NOT INDICATED, PREPARE SUBSTRATE WITH A TRANSITION HEIGHT BUILD UP USING TROWELABLE LEVELING AND PATCHING COMPOUND TO PRODUCE A FLUSH SMOOTH CONDITION. TROWEL MATERIAL FOR A MINIMUM DISTANCE OF 2 FEET FROM A FEATHER EDGE CONDITION UP TO A MAXIMUM SINGLE LAYER APPLICATION THICKNESS OF 1/2". FOR APPLICATIONS THICKER THAN 1/2", PLACE MATERIAL IN SUCCESSIVE LAYERS, SCORING PREVIOUS LAYER, UP TO A MAXIMUM THICKNESS OF 1".
- 4. PROVIDE CONCEALED STEEL STUD BLOCKING OR 2" x 18 GA CONTINUOUS STEEL STRAPPING ATTACHED TO FACE OF STUDS BEHIND ALL WALL MOUNTED ITEMS SUCH AS: WALL CABINETS, SHELVING, COAT RODS, GRAB BARS, HANDRAILS, TOILET ACCESSORIES, ETC. SEE INTERIOR ELEVATIONS & FURNITURE PLANS FOR ADDITIONAL INFORMATION AND SCOPE
- 5. FLOOR FINISH TRANSITIONS/CHANGES SHALL OCCUR BELOW THE DOOR
- 6. DIMENSIONS LOCATING INTERIOR PARTITIONS ARE TO THE FACE OF WALL (EXCLUDING FINISH MATERIALS SUCH AS - BUT NOT LIMITED TO: CERAMIC TILE, AND WOOD PANELING) UNLESS NOTED OTHERWISE. SEE PARTITION SCHEDULE FOR WALL THICKNESS
- 7. ALL EXISTING DIMENSIONS ARE APPROXIMATE AND FOR CONTRACTORS VERIFICATIONS. IF DISCREPANCIES ARISE, NOTIFY THE ARCHITECT (AND/OR CONSTRUCTION MANAGER) PRIOR TO PROCEEDING WITH THE WORK THAT MAY BE EFFECTED BY THE DIMENSION CHANGE
- 8. EVERY ATTEMPT HAS BEEN MADE TO INDICATE PERTINENT EXISTING UTILITIES AND CONDITIONS AS ACCURATELY AS POSSIBLE FROM EXISTING SURVEYS, DRAWINGS AND OTHER DATA. PRIOR TO THE BID OPENING, CONTRACTORS SHALL WALK THE JOB SITE AND SATISFY THEMSELVES TO EXISTING CONDITIONS. THE ARCHITECT SHALL BE CONSULTED WHEN ANY QUESTION ARISES RELATIVE TO MATERIALS NOT SPECIFICALLY SHOWN OR SPECIFIED
- 9. ALL EXISTING WORK (CEILINGS, FLOORS, WALLS, PARTITIONS, FINISHES, ETC.) DISTURBED BY NEW CONSTRUCTION, INCLUDING MECHANICAL, PLUMBING, AND ELECTRICAL, SHALL BE PATCHED AND REPAIRED TO RESTORE SURFACES TO THE ORIGINAL CONDITION AFTER INSTALLATION OF OTHER WORK
- 10. PENETRATIONS THROUGH FIRE-RESISTANT CONSTRUCTION SHALL BE BUILT IN ACCORDANCE WITH U.L. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS. SEE CODE COMPLIANCE PLAN FOR PARTITION LOCATIONS. PENETRATIONS THROUGH NON FIRE-RESISTANT RATED HORIZONTAL ASSEMBLIES, NOT PROTECTED BY A SHAFT ENCLOSURE, SHALL HAVE ITS ANNULAR SPACE FILLED WITH NON-COMBUSTIBLE MATERIAL TO PREVENT THE PASSAGE OF FLAME, SMOKE FUMES, AND HOT GASES. NON-COMBUSTIBLE PENETRATING ITEMS SHALL NOT PENETRATE MORE THAN 3 FLOOR ASSEMBLIES. COMBUSTIBLE PENETRATING ITEMS SHALL NOT PENETRATE MORE THAN 1 FLOOR ASSEMBLY

#### **GENERAL PARTITION NOTES:**

- A. ALL STUD PARTITIONS NOT INDICATED WITH A PARTITION TYPE SHALL BE TYPE A3A. ALL MASONRY PARTITIONS NOT INDICATED WITH A PARTITION TYPE SHALL BE TYPE J1.
- B. PARTITIONS WITH SOUND ATTENUATION BLANKETS: 1. PROVIDE SOUND ATTENUATION BLANKETS IN ALL CAVITY SPACES IN WALL FULL HEIGHT
- 2. THICKNESS OF BLANKETS IN STUD WALLS SHALL BE EQUAL TO THICKNESS OF CAVITY TO NEAREST 1/2", UNLESS INDICATED OTHERWISE
- 3. PARTITIONS TO BE SEALED @ THE PERIMETER, BEHIND CONTROL JOINTS, AROUND OPENINGS AND AT ALL PENETRATIONS WITH EACH LAYER OF BOARD TO RECEIVE A BEAD OF NON-HARDENING SEALANT
- 4. SEE WALL TYPE DESCRIPTIONS FOR CONDITIONS REQUIRING MINERAL FIBER SAFING INSULATION BATTS
- C. GYPSUM BOARD TO BE "TYPE X" UNLESS OTHERWISE NOTED
- D. ALL PARTITIONS ARE TO BE TO THE UNDERSIDE OF DECK UNLESS OTHERWISE NOTED
- E. DIMENSIONS SHOWN FOR EACH PARTITION DESCRIPTION INDICATE FACE-TO-FACE THICKNESS OF MATERIALS LISTED FOR THAT PARTITION
- F. PROVIDE LISTED U.L. FIRE-RESISTANT JOINT ASSEMBLIES @ TOP OF ALL WALLS INDICATED TO BE FIRE-RESISTANT RATED
- G. FOR CMU WALLS INDICATED TO BE FIRE-RESISTANT RATED, PROVIDE UNITS MEETING THE FIRE RATING DURATION INDICATED BASE ON THE EQUIVALENT THICKNESS OF THE MASONRY AND TYPE OF AGGREGATE USED.
- H. REFER TO CODE COMPLIANCE PLANS FOR PARTITION FIRE RESISTANCE RATINGS.
- I. GYPSUM BOARD JOINT TREATMENT IN CONCEALED SPACES SHALL BE FIRE TAPED. UNLESS OTHERWISE INDICATED IN A SPECIFIC UL DESIGN, JOINTS SHALL BE FIRE TAPED, AND JOINTS AND FASTENER HEADS COVERED WITH (1) COAT OF JOINT COMPOUND. BASE LAYERS IN MULTI-LAYER SYSTEMS ARE NOT REQUIRED TO HAVE JOINTS OR FASTENER HEADS TAPED OR COVERED WITH JOINT COMPOUND.
- J. FOR PARTITIONS SCHEDULED WITH BOARD ON (1) SIDE ONLY, PROVIDE 20 GA. MINIMUM PRE-NOTCHED BRIDGING/SPACING BARS (SIMILAR TO SPAZZER 9200 BY CLARK DIETRICH) AT 4'-0" O.C. HORIZONTALLY. AT CONTRACTORS' OPTION, 1-1/2" x 12GA. C.R. CHANNEL BRIDGING WITH 16 GA. CLIP ATTACHMENT TO EACH STUD CAN BE UTILIZED.

Drawing symbols		
View title	Exterior elevation 1	001) OR 100 A Door numbers
Title		Window type
SCALE: X"=1'-0"	Drawing no3	101 Room number
Building / wall section cut	Interior elevations 1	
Detail no. Viewing direction	Elevation no. 2 A-XXX 4	C12 OR C12 Partition type
Drawing no.	Drawing no. 3	1 Plan key note
Detail section cut	Structural grid (1) (2)	1 Demolition key note
Detail no. Viewing direction		S'-0" AFF Ceiling type and height
DRAWING NO.		
Detail - blow up	Accessibility V/HAU	
A-XXX Detail no.	Visual / hearing accommodation unit	
Drawing no.	Accessible unit	

/laterial symbols						
	Undisturbed earth		Steel - large scale (Other metals as noted)		Batt insulation	
	Gravel or crushed stone	Ţ	Steel - small scale (Other metals as noted)		Rigid insulation	
	Stone	$\boxtimes$	Wood framing (continuous)		Wood blocking (intermittent)	
A	Concrete		Finish wood			
	Concrete masonry unit		Plywood			
	Brick		Gypsum, sand, mortar			

	Anchor holt
	Air condition(ing) (ed
	Accessible Air cooled condensin
-	American Concrete I
Γ ΛΙ	Acoustical ceiling tile Asbestos containing
DUS PNL	Acoustical panel
5 PNL DL	Access panel Additional
j	Adjustable, adjacent
1	Adhesive Above finished ceiling
	Above finished floor
GR J	Aggregate Air handling unit
с	American Institute of
	American Iron and Si Alternate
М	Aluminum
PROX	Anodized Approximate
СН	Architect(ural)
)	Auxillary roof drain Allowable stress desi
М	American Society for
P S	Acoustical wall panel American Welding S
Ē.	Batten
D	Back to back Base board
NYS	Building Code of Nev
UM	Bituminous
)G	Building
G	Blocking Beam Benchmark
г	Bottom
_	Bedroom
2	Bronze
ЛТ	Basement
7 7	Built up roofing
E) /	Both ways
1 V 3	Closed circuit televis
	Catch basin, Corner
N N	Cement
45	Contractor furnished
CI	Contractor furnished
OI	Contractor furnished
	Corner guard Coat hook
	Cast iron
	Cast in place, Cast in Control joint
	Centerline
; )	Closet
2	Clear, Color
I U	Ceramic mosaic tile Concrete masonry ui
ſR	Counter
L	Cleanout, Cased ope Column
NC	Concrete
NF NN	Conterence Connect(ion)
NSTR	Construction
NT NTR	Continue(ous)
ORD	Coordinate
F I	Carpet Construction joint
, <	Counter sunk
2	Ceramic tile, Count,
	Cold water piping, Ca
4	Cubic Cabinet unit heater
YD	Cubic yard
	Deep, Depth Penny (nail)
	Bar diameter
- S	Double Direct-applied exterio
G	Degree
NO PT	Demolition Department
Г	Detail
OR ø	Drinking fountain Diameter
G	Diagonal, Diagram
F	Diffuser
	Direction
۲	Dispenser Division
PF	Damp proofing
	Dead load
	Ditto
	Door, Drive Downspout
	Dishwasher

#### Architectural / Structural abbreviations

c)DWV Dranage washe & ventLHLeft hand, Liter headRFResil(f)DWG DowleDowleLKRLockerRHRyRyH <t< th=""><th>lient flooring ing thand, Roof hatch m gh opening t of way top unit vent ber wall base h d attenuation batts tary l core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yeed fire-resistive trial ctural glazed tile et ver lar on grade dpipe, Sump pit bes aker cification are ondary roof drain ice sink l surface material less steel on nd transmission class dard</th><th></th></t<>	lient flooring ing thand, Roof hatch m gh opening t of way top unit vent ber wall base h d attenuation batts tary l core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yeed fire-resistive trial ctural glazed tile et ver lar on grade dpipe, Sump pit bes aker cification are ondary roof drain ice sink l surface material less steel on nd transmission class dard	
b)         DWG         Drwing         LIN         Linear         M+G         K-G         K-	Ing thand, Roof hatch m gh opening t of way top unit vent vent or wall base h d attenuation batts tary core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yed fire-resistive vrial ctural glazed tile et ver lar on grade dpipe, Sump pit es aker ondary roof drain ice sink I surface material less steel on at transmission class dard are	
ng unit E L E Est H L L Lier ad H RM Faximum RM FAM Faximum R	n m gh opening t of way t op unit vent vert b d attenuation batts tary c ore, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yed fire-resistive orial ctural glazed tile et ver lar on grade dpipe, Sump pit res aker ondray roof drain ice sink l surface material less steel on d transmission class dard	
Institute EA Each Each LLH Long leg vortical ROW Right on a EBCNY Existing Building Code of New York State EC Electrical contractor LLV Long leg vortical ROW Right on attend EC Education and finish system LLV Location Action Roug Between the State Stat	gh opening t of way top unit vent per wall base h d attenuation batts tary core, Shading coefficient edule er on floor (finish) ion are foot, Safety factor yeed fire-resistive vrial ctural glazed tile et ver lar on grade dpipe, Sump pit bes aker cification are ondary roof drain ice sink I surface material less steel on on transmission class dard are	
eb         EBCNYS         Existing Building Code of New York State         LUV         Long gevertal         PROV         Regin           material         EC         Electrical contractor         LOC         Location         RTU         Rod           EF         Each face         LIF         Location         RTU         Rod           EJ         Expansion joint         LT         Light         RWB         RWB         Rod           t         ELA         Elasomeric         LT         Light generic         SAB         Sou           org         ELC         Electric(al)         MAINT         Mantenance         SC         Solid           big         ELEV         Elevation         MAX         Masimum         SEAL         SeaL </td <td>t of way top unit vent vent are wall base h d attenuation batts tary l core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yeed fire-resistive trial ctural glazed tile at ver lar on grade dpipe, Sump pit tes aker cification are ondary roof drain ice sink l surface material less steel on d transmission class dard are</td> <td></td>	t of way top unit vent vent are wall base h d attenuation batts tary l core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yeed fire-resistive trial ctural glazed tile at ver lar on grade dpipe, Sump pit tes aker cification are ondary roof drain ice sink l surface material less steel on d transmission class dard are	
InductionEPEach faceILRFDLoad & resistance factor designRVRVRodEIFSExterior insulation and finish systemLTLightingRVBRub <td< td=""><td>vent ber wall base h d attenuation batts tary l core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yeed fire-resistive trial ctural glazed tile et ver lar on grade dpipe, Sump pit bes aker cification are ondary roof drain ice sink l surface material less steel on d transmission class dard ane</td><td></td></td<>	vent ber wall base h d attenuation batts tary l core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yeed fire-resistive trial ctural glazed tile et ver lar on grade dpipe, Sump pit bes aker cification are ondary roof drain ice sink l surface material less steel on d transmission class dard ane	
EIFSExterior insulation and finish systemL.TL.GLightRWBRubbtELASElastomericL/WCLightingSSouthingELECElevationMACHMachineSANSoniingELECElevationMACHMachineSANSoniingELECElevationMAXMaintenanceSCSolideLECElevationMAXMasimumSEALSealf Steel ConstructionENCLEnclosureMCMcCancer beadSFRSealiteel InstituteENCREngineerMCBMetal contractorSFSolidSoliditeel InstituteEOSEdge of slabMOCMechanical contractorSFRSpriteel InstituteEQElectric panelMDFMedium density fiberboardSGTStruciteel InstituteEQEquipmentMECHMechanical, electrical, plumbing and fire protectionSIRShruignETRExisting to remainMHManloeSPSpaSpaignETRExisting to remainMIFRMechanical, electrical, plumbing and fire protectionSIRSpaignETRExisting to remainMHManloeSPSpaSpaignETRExisting to remainMIFRMaintenanceSPCSpaSpaignETRExisting to remainMIFRCMascinanceSPCSpaSpaignETR <t< td=""><td>per wall base h d attenuation batts tary l core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yeed fire-resistive trial ctural glazed tile at ver lar on grade dpipe, Sump pit tes aker cification are ondary roof drain ice sink l surface material less steel on on d transmission class dard on grade</td><td></td></t<>	per wall base h d attenuation batts tary l core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yeed fire-resistive trial ctural glazed tile at ver lar on grade dpipe, Sump pit tes aker cification are ondary roof drain ice sink l surface material less steel on on d transmission class dard on grade	
EJExpansion jointLIGLight-weight concreteS SouthitELASElastiomericLWCLight-weight concreteSABSouthigELEElectric(al)MAINTMaintenanceSCSolidigELECElectric(al)MAINTMaintenanceSCSolidEMEREntry mat, Expanded metalMASMasonySCHEDScheDScheDEMEREntry mat, Expanded metalMAXMaximumSECTSectSectSteel InstituteENGREngineerMCMechanical contractorSFSquaSteel InstituteENGREngineerMCMechanical contractorSFSquaSteel InstituteENGREquipmentMDOMedium density overlayMaterialSHTSheeEQEqualMDCMechanical, electrical, plumbing and fire protectionSHRShowSheesignETCElectric panelMFRManfacturerSOGSlabsignETCElectric water coolerMIFRCMastic/intunescent fire-resistive coatingSPASpaesocietyEXSTExistingMIMinimumSPECSpeeSpeeSpeesocietyEXCExavation, ExavateMISCMicellaneousSQSquawindFFFace of faceMRKManfacturerSSSocietySSSpeewindEXCExavation, ExavateMISCMiscellaneousSQSquaSpee <td< td=""><td>n d attenuation batts tary l core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yeed fire-resistive trial ctural glazed tile et ver lar on grade dpipe, Sump pit tes aker cification are ondary roof drain ice sink I surface material less steel n on d transmission class dard are</td><td></td></td<>	n d attenuation batts tary l core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yeed fire-resistive trial ctural glazed tile et ver lar on grade dpipe, Sump pit tes aker cification are ondary roof drain ice sink I surface material less steel n on d transmission class dard are	
EL         Elevation         MACH         Machine         SAN         Sant           ig         ELEC         Elevation         MACH         Maintenance         SC         Solid           ig         ELEV         Elevator         MAINT         Material         SC         Solid           isteel         Entry mat, Expanded metal         MATL         Material         SECT         Section           isteel         Entry mat, Expanded metal         MATL         Material         SECT         Section           isteel Institute         Ender Engineer         MC         Machanical contractor         SF         Square           isteel Institute         Ender Engineer         MCB         Medium density fiberbaard         SGT         SGT           isteel Institute         EQS         Edge of slab         MDF         Medium density fiberbaard         SGT         SGT         SGT           istign         EQUIP         Equipment         MEP         Mechanical, electrical, plumbing and fire protection         SHR         Show           sign         ETC         E catera         MFR         Manufacturer         SOG         Slab           iggn         ETC         Existing to remain         MH         Manfacturer         <	tary core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yed fire-resistive trial ctural glazed tile et ver lar on grade dpipe, Sump pit bes sker cification are ondary roof drain ice sink I surface material less steel on d transmission class dard are	
ig     ELEC     Electric(a)     MAINT     Maintenance     SC     Solid       if Steel Construction     EMK     Entry mat, Expanded metal     MATL     Material     SEAL     Soak       if Steel Construction     ENCL     Enclosure     MC     Mechanical contractor     SF Squa       itel Institute     ENCR     Engineer     MCB     Mechanical contractor     SF Squa       itel Institute     EOS     Edge of slab     MDO     Medium density overlay     Material       itel Institute     EO     Equipment     MEP     Mechanical     SetT     Strut       itel Could     Equipment     MEP     Mechanical, electrical, plumbing and fire protection     SHR     Show       ign     ETR     Existing to remain     MH     Manhole     SP     Spa       ign     ETR     Existing to remain     MH     Manhole     SPK Spa       isociety     EVC     Exectric water cooler     MIRC     Misconfinuescent fire-resistive coating     SPKR Spa       isociety     EXC     Excavation, Excavate     MISC     Misconfinuescent fire-resistive coating     SPKR Spa       isociety     EXC     Excavation, Excavate     MIRC     Misconfinuescent fire-resistive coating     SPKR Spa       isociety     EXC     E	l core, Shading coefficient adule er on floor (finish) ion are foot, Safety factor yed fire-resistive trial ctural glazed tile at ver lar on grade dpipe, Sump pit tes aker cification are ondary roof drain ice sink I surface material less steel n on d transmission class dard are	
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f Steel Construction iseel InstituteEMER EnclosureEmergencyMAX MaximumMaximumSECT SecureSecureiseel InstituteENCR EngineerEngineerMC MCB Metal cormer beadSFR MCB Metal cormer beadSFR MCB Metal cormer beadSFR MCB Metal cormer beadSFR MCBSFR SFR SFR SFR SFR SFR SFR SFRSFR SFR SFR SFR SFR SFR SFR SFR SFRSFR <br< td=""><td>ion are foot, Safety factor yed fire-resistive irrial ctural glazed tile et ver lar on grade dpipe, Sump pit bes sker cification are ondary roof drain ice sink I surface material less steel n on d transmission class dard are</td><td></td></br<>	ion are foot, Safety factor yed fire-resistive irrial ctural glazed tile et ver lar on grade dpipe, Sump pit bes sker cification are ondary roof drain ice sink I surface material less steel n on d transmission class dard are	
If Steel Institute     ENCL     Enclosure     MC     Mechanical contractor     SF     Squa       Steel Institute     ENGR     Engineer     MCB     Metal corner bead     SFRM     Sprat       EOS     Edge of slab     MDO     Medium density fiberboard     SGT     Struc       EQ     Equal     MECH     Mechanical, electrical, plumbing and fire protection     SHR     Show       EQ     Equal     MEP     Mechanical, electrical, plumbing and fire protection     SHR     Show       sign     ETC     Et cetera     MFR     Manufacturer     SOG     Slab       sign     ETR     Existing to remain     MH     Manhole     SP     Stan       r Testing and Materials     EW     Each way     MIFRC     Mastic/inturescent fire-resistive coating     SPKR     Spea       society     EXIST     Existing     MIN     Milimeter     SQ     Squa       society     EXT     Exterior, External, Extinguisher     MO     Masonry opening     SS     SQua       w York State     F/F     Face to face     MRK BD     Marke board     SST     Stain       FD     Floor drain     MULL     Mullion     ST     Stain       FD     Floor drain     MIC     North	are root, Sarety factor yeed fire-resistive strial ctural glazed tile et ver lar on grade dpipe, Sump pit bes sker cification are ondary roof drain ice sink I surface material less steel h on d transmission class dard are	
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LogEquipmentMEDMicro Micro MicroSinSincESEquipmentMEPMechanical, electrical, plumbing and fire protectionSilkSimilETCEt ceteraMFRManufacturerSOGSlabr Testing and MaterialsEWEach wayMIRManufacturerSPStanalEWCElectric water coolerMIRCMastic/intumescent fire-resistive coatingSPKRSpacsocietyEXISTExisting to remainMINMilimeterSPStansocietyEXISTExistingMINMinimumSPECSpecEXCExcavation, ExcavateMISCMiscellaneousSQSquaeXPExpansionMIVKMilworkSRDSecceXTExterior, Exterior, Ex	ver ar on grade dpipe, Sump pit ese sker ondary roof drain ice sink I surface material less steel pipe ness steel n on d transmission class dard	
ESEmergency showerMEZZMezzanineSIMSimiliarsign r Testing and MaterialsETRExisting to remainMFRManufacturerSOGSlabalEWEach wayMMMillimeterSPASpacesocietyEWCElectric water coolerMIFRCMastic/intumescent fire-resistive coatingSPKRSpacesocietyEXISTExistingMINMinimumSPECSpeceEXCExcavation, ExcavateMISCMiscellaneousSQSquageEXTExterior, External, ExtinguisherMOMasonry openingSSSocietyw York StateF/FFace to faceMRK BDMarker boardSSMSolidFAPFire alarm annunciator panelMTDMountedSSTStainFDFloor drainMULLMullionSTStainFEFire extinguisherNATNaturalSTCSourFEFire extinguisher cabinetNCOMBLNorcombustibleSTDStainFEFire extinguisher cabinetNICNot in contractSTIFF<	lar on grade dpipe, Sump pit ses sker offication are ondary roof drain ice sink I surface material less steel pipe less steel n on d transmission class dard	
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r Testing and Materials       EW       Each way       MM       Millimeter       SPA       Space         a)       EWC       Electric water cooler       MIFRC       Mastic/intumescent fire-resistive coating       SPKR       Spec         Society       EXIST       Existing       MIN       Minimum       SPEC	ves aker cification are ondary roof drain ice sink I surface material less steel pipe less steel on on d transmission class dard	
A     EWC     Electric water cooler     MIFRC     Mastic/intumescent tire-resistive coating     SPRR     Spea       Society     EXIST     Existing     MIN     Minimum     SPEC     Spea       Society     EXC     Excavation, Excavate     MISC     Miscellaneous     SQ     Squa       EXP     Expand, Expansion     MLWK     Milwork     SRD     Seco     Squa       EXT     Exterior, External, Extinguisher     MO     Masonry opening     SS     Servi       W York State     F/F     Face to face     MRK BD     Marker board     SSM     Solid       FAAP     Fire alarm annunciator panel     MTD     Mounted     SSP     Stain       FD     Floor drain     MULL     Mullion     ST     Stain       FEC     Fire extinguisher     NAT     Natural     STC     Sou       FEC     Fire extinguisher cabinet     NCOMBL     Noncombustible     STL     Stain       FHC     Fire hose cabinet     NIC     Not in contract     STIFF     Stiffe       FIXT     Fixture     NOM     Nominal     STC     Store       FHC     Fire withingisher     NORM     Normal     STC     Store       FHC     Fire withingisher     NOR	aker jification are ondary roof drain ice sink surface material aless steel pe steel on on transmission class dard one	
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EX1     Extendor, External, Extinguisher     MO     Masonry opening     SS     Servi       w York State     F/F     Face to face     MRK BD     Marker board     SSM     Solid       FAAP     Fire alarm annunciator panel     MTD     Mounted     SSP     Stain       FACP     Fire alarm control panel     MTL     Metal     SST     Stain       FD     Floor drain     MULL     Mullion     ST     Stain       FE     Fire extinguisher     NAT     North     ST     Stain       FEC     Fire extinguisher cabinet     NCOMBL     Noncombustible     STD     Stan       FHC     Fire hose cabinet     NIC     Not in contract     STIFF     Stiffe       FIN     Finish(ed)     NO OR #     Number     STO R     Store       FLASH     Flashing     NORM     Normal     STC Store       FLASH     Flashing     NRC     Noise reduction coefficient     STR     Strau       FLOUR     Fluorescent     NTS     Not to scale     SUSP     Super	ice sink Isurface material iless steel pipe iless steel on id transmission class dard aver	
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FACP     Fire alarm control panel     MTL     Metal     SST     Stain       FD     Floor drain     MULL     Mullion     ST     Stain       FDTN     Foundation     N     North     ST     Stain       FE     Fire extinguisher     NAT     Natural     STC     Sound       FEC     Fire extinguisher cabinet     NAT     Natural     STD     Stain       FHC     Fire extinguisher cabinet     NIC     Not in contract     STIFF     Stiffe       FHC     Fire obse cabinet     NIC     No OR #     Number     STL     Stelet       FIN     Finish(ed)     NO OR #     Number     STOR     Store       FLASH     Flashing     NORM     Normal     STR     Strain       FLEX     Flexible     NRC     Noise reduction coefficient     STR/Strain       FLOUR     Fluorescent     NTS     Not to scale     SUSP     SuSP       FLG     Flooring, flange     NWC     Normal weight concrete     SV     Shee	iless steel on id transmission class dard aner	
FDTN     Foundation     Note     Note     Note       FDTN     Foundation     N     North     STA     Stating       FE     Fire extinguisher     NAT     Natural     STC     Sound       FEC     Fire extinguisher cabinet     NCOMBL     Noncombustible     STD     Stand       FHC     Fire extinguisher cabinet     NIC     Not in contract     STIFF     Stiffe       FHC     Fire extinguisher cabinet     NO OR #     Nomber     STL     Stell       FHC     Fire extinguisher cabinet     NO OR #     Nontract     STIFF     Stiffe       FHC     Fire bose cabinet     NO OR #     Number     STL     Stell       FIN     Finish(ed)     NO OR #     Nommal     STOR     Store       FLASH     Flashing     NORM     Normal     STR     Straig       FLOUR     Fluerescent     NTS     Not to scale     SUSP     SuSP       FLG     Flooring, flange     NWC     Normal weight concrete     SV     Shee	on nd transmission class dard	
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FEC     Fire extinguisher cabinet     NCOMISE     Noncombustible     STD     Stant       FHC     Fire bose cabinet     NIC     Not in contract     STIFF     Stiffe       FIN     Finish(ed)     NO OR #     Number     STL     Steel       FIXT     Fixture     NO M     Normal     STOR     Store       FLASH     Flashing     NORM     Normal     STR VCT     Struct       FLOUR     Flucrescent     NTS     Not to scale     SUSP     Susp       FLG     Flooring, flange     NWC     Normal weight concrete     SV     Sheet	0ard	
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FLEX     Flexible     NRC     Noise reduction coefficient     STRUCT     StruCT       FLOUR     Fluorescent     NTS     Not to scale     SUSP     Susp       FLG     Flooring, flange     NWC     Normal weight concrete     SV     Sheet	age abt Stringers	
FLOUR         Fluorescent         NTS         Not to scale         SUSP         Susp           FLG         Flooring, flange         NWC         Normal weight concrete         SV         Sheet	ctural	
FLG Flooring, hange INVIC Invitia weight concrete SV Shee	pended	
sion FO Finished opening 0/0 Out to out 5Y Squa	are vard	
FP         Fire protection, Fireproof         OA         Overall, Outside air         T         Tread	d	
bead FRTW Fire retardant treated wood OC On center 1/ 10 pc FT Foot. Feet OD Outside diameter T&B Too.	of and bottom	
FTG Footing OF/CI Owner furnished, Contactor installed T&G Tong	jue and groove	
f FTR Finned tube radiation OF/OI Owner furnished, Owner installed TEL Telep raming EURN Europee Europhyse	shone	
I Contract installed FUT Future OFF Office TEMP Temp	porary	
// Owner installed FWC Fabric wall covering OH Opposite hand TER Terrer	azzo	
GAL Gallon OPNG Opening TK BD Tack	(ness)	
GALV Galvanized OPP Opposite TMPD Temp	pered	
ron pipe GB Grab bar DOPT Optional, Optimum TOC Top C GC General contract(or) OZ Ounce TOM Too C	of masonry	
GFRC Glass fiber reinforced concrete PA Public address TOPO Topo	ography, Topographic	
GERG Glass tiber reinforced gypsum PBD Particleboard 10S 10p of GL Glass Ground level PC Plumbing contractor Portland cement TOW Ton o	of steel of wall	
GL BLK Glass block PCC Precast concrete TPD Toile	t paper dispenser	
Init CP Crade Crase PCT Porcelain ceramic tile TSTAT Them	mostat	
GWT Glazed valitie PEND Pendant TYP Typic	cal	
ening, Company GYP Gypsum PER Period U Heat	transfer coefficient	
GYP BD Gypsum board PERF Perforated UC Under GYP PLAS Gypsum plaster PGRD Peg board UC Under	ercut er cabinet lighting	
HB Hose bibb PL Plate, Property line UGND Unde	erground	
HC Hollow core, Hose cabinet PLF Ponds per linear foot UH Unit I	heater	
HDW Hardware PLAS Plaster UNC Unde	cavated	
HDWD Hardwood PLB Plumbing UNFIN Unfin	hished	
HM Hollow metal PLYWD Plywood UON Unies HO Hold nogen PNI Panel UTII Utilit	ss otherwise noted	
HORIZ Horizontal POL Polished UV Unit	ventilator	
HP High point, Horsepower PORC Porcelain VARN Varni	ish(ed)	
HSS Hollow structural section PPT Pressure-preservative treated VCT Vinyi	composition tile	
asement window HT Height PR Pair VENT Venti	ilation	
LITO HERE DECAD DECAD DECADE LITO LITO LITO LITO LITO LITO LITO LITO	cai ibule	
HTG Heating PREFAB Prefabricate VERT Vertin HTR Heater PREFIN Prefinish VEST Vesti		
HTG     Heating     PREFAB     Prefabricate     VERT     Verting       HTR     Heater     PREFIN     Prefinish     VEST     Vest       HVAC     Heating, ventilating and air conditioning     PREP     Preparation     VIF     Verting	y in field	
HTG     Heating     PREFAB     Prefabricate     VERT     Vertin       HTR     Heater     PREFIN     Prefinish     VEST     Vest       HVAC     Heating, ventilating and air conditioning     PREP     Preparation     VIF     Verifinity       HW     Hot water     PROJ     Project     VIN     Viny	y in field 	
HTG     Heating     PREFAB     Prefabricate     VERT     Vertit       HTR     Heater     PREFIN     Prefinish     VEST     Vesti       HVAC     Heating, ventilating and air conditioning     PREP     Preparation     VIF     Vertify       HW     Hot water     PROJ     Project     VIN     Vinyl       HYD     Hydrant     PROJ SCRN Projection screen     VOL     Volu       ID     Inside diameter     PSF     Pounds per square foot     VR     Vapor	y in field   me pr retarder	
HTG     Heating     PREFAB     Prefabricate     VERT     Vertitive       HTR     Heater     PREFIN     Prefinish     VEST     Vestive       HVAC     Heating, ventilating and air conditioning     PREP     Preparation     VIF     Vertifive       HW     Hot water     PROJ     Project     VIN     Vinyl       HYD     Hydrant     PROJ SCRN Projection screen     VOL     Volution       ID     Inside diameter     PSF     Pounds per square foot     VR     Vapor       IN     Inches     PSI     Pounds per square inch     VT     Vinyl	y in field me or retarder tile	
HTG     Heating     PREFAB     Prefabricate     VERT     Vertitive       HTR     Heater     PREFIN     Prefinish     VEST     Vestive       HVAC     Heating, ventilating and air conditioning     PREP     Preparation     VIF     Vertify       HW     Hot water     PROJ     Project     VIN     Viny       HYD     Hydrant     PROJ SCRN Projection screen     VOL     Volur       ID     Inside diameter     PSF     Pounds per square foot     VR     Vapor       IN     Inches     PSI     Pounds per square inch     V SHT     Viny       or finish system     INCAND     Incaudescent     PTN     Partition     V SHT     Viny	y in field me or retarder tile I sheet wall covering	
HTG         Heating         PREFAB         Prefabricate         VERT         Vertinity           HTR         Heater         PREFIN         Prefinish         VEST         Vestinity           HVAC         Heating, ventilating and air conditioning         PREFIN         Prefinish         VEST         Vestinity           HVAC         Heating, ventilating and air conditioning         PREP         Preparation         VIF         Vertinity           HW         Hot water         PROJ         Project         VIN         Vinyity         Vinyity           HYD         Hydrant         PROJ SCRN Projection screen         VOL         Voluty         Voluty         Voluty           ID         Inside diameter         PSF         Pounds per square foot         VR         Vapo           IN         Inches         PSI         Pounds per square foot         VS HT         Vinyity           INCAND         Incandescent         PTN         Partition         VSHT         Vinyity           INFO         Information         PVC         Polyvinyl chloride (plastic)         W         Westing	y in field me or retarder tile I sheet wall covering t	
HTG     Heating     PREFAB     Prefabricate     VERT     Vertitive       HTR     Heater     PREFIN     Prefinish     VEST     Vestitive       HVAC     Heating, ventilating and air conditioning     PREP     Preparation     VIF     Vertifive       HW     Hot water     PROJ     Project     VIN     Viny     Viny       HYD     Hydrant     PROJ SCRN Projection screen     VOL     Volutive       ID     Inside diameter     PSF     Pounds per square foot     VT     Viny       IN     Inches     PSI     Pounds per square foot     VS T     Viny       INCAND     Incandescent     PTN     Partition     VWC     Viny       INFO     Information     PVC     Polyvinyl chloride (plastic)     W     Wesi       INSUL     Insulation     PVG     Paving     W/< With	y in field me or retarder tile I sheet wall covering t	
HTG     Heating     PREFAB     Prefabricate     VERT     Vertitive       HTR     Heater     PREFIN     Prefinish     VEST     Vestitive       HVAC     Heating, ventilating and air conditioning     PREP     Preparation     VIF     Vestitive       HW     Hot water     PROJ     Project     VIN     Viny     Viny       HYD     Hydrant     PROJ SCRN Projection screen     VOL     Volutive     Volutive       ID     Inside diameter     PSF     Pounds per square foot     VT     Vapo       IN     Inches     PSI     Pounds per square foot     VS T     Viny       INCAND     Incadescent     PTN     Partition     VWC     Viny       INFO     Information     PVC     Polyvinyl chloride (plastic)     W     Wess       INSUL     Insulation     PVG     Paving     W/     With       INTERM     Intermediate     QT     Quarty tile     W/O     With	y in field me or retarder tile I sheet wall covering t er closet, Wall covering out	
HTG     Heating     PREFAB     Prefabricate     VERT     Vertitive       HTR     Heater     PREFIN     Prefinish     VEST     Vestitive       HVAC     Heating, ventilating and air conditioning     PREP     Preparation     VIF     Vestitive       HW     Hot water     PROJ     Project     VIN     Viny     Viny       HYD     Hydrant     PROJ SCRN Projection screen     VOL     Volutive     Volutive       ID     Inside diameter     PSF     Pounds per square foot     VR     Vapo       IN     Included     PT     Paint, Post tension     VC     Viny     Viny       INCA     Included     PTN     Partition     VWC     Viny       INFO     Information     PVC     Polyvinyl chloride (plastic)     W     West       INTERM     Interior     QTR     Quarter     W/O     With       JAN     Janitor     P     Puser Preserving     W/O     With	y in field me or retarder tile sheet wall covering t er closet, Wall covering out d	
HTG     Heating     PREFAB     Prefabricate     VERT     Vertitive       HTR     Heater     PREFIN     Prefinish     VEST     Vestitive       HVAC     Heating, ventilating and air conditioning     PREP     Preparation     VIF     Vestitive       HW     Hot water     PROJ     Project     VIN     Viny     Viny       HYD     Hydrant     PROJ SCRN Projection screen     VOL     Volutive     Volutive       ID     Inside diameter     PSF     Pounds per square foot     VR     Vapo       IN     Included     PT     Paint, Post tension     VS SHT     Vinyl       INCA     Included     PTN     Partition     VWC     Vinyl       INFO     Information     PVG     Polyningl chloride (plastic)     W     West       INSUL     Insulation     PVG     Paving     W/     With       INTERM     Interior     QTR     Quarter     W/O     With       JAN     Janitor     QTY     Quantity     WD     Woo       JT     Joint     RB     Rubber base.     Resilient base     WF     Wind	y in field me or retarder t tile sheet wall covering t er closet, Wall covering out d dow f flange	
HTGHeatingPREFABPrefabricateVERTVertitHTRHeaterPREFINPrefinishVESTVestitHVACHeating, ventilating and air conditioningPREPPreparationVIFVestitHWHot waterPROJProjectVINVinyVinyHYDHydrantPROJ SCRN Projection screenVOLVolurIDInside diameterPSFPounds per square footVRVapoINInchesPSIPounds per square inchVTVinylINCLIncludedPTPaint, Post tensionVWCVinylINCANDIncandescentPTNParttionWWCVinylINFOInformationPVGPavingW/WithINTERMInteriorQTRQuartyr tileWCWattJANJanitorQTYQuantityWDWooWithJSTJoistRRiser, Radius, Thermal resistanceWDWWindKIP1000 PoundsRCPReinforced concrete pipe, Reflected ceiling planWD GDWoo	y in field me or retarder t tile sheet wall covering t er closet, Wall covering out d dow f fange d guard	
HTG     Heating     PREFAB     Prefabricate     VERT     Vertit       HTR     Heater     PREFIN     Prefinish     VEST     Vestit       HVAC     Heating, ventilating and air conditioning     PREP     Preparation     VIF     Vestit       HW     Hot water     PROJ     Project     VIN     Viny     Viny     Viny       HYD     Hydrant     PROJ SCRN Projection screen     VOL     Volut     Volut     Volut       ID     Inside diameter     PSF     Pounds per square foot     VR     Vapo       INCL     Included     PT     Point, Post tension     VSHT     Viny       INCL     Included     PT     Paint, Post tension     VSHT     Viny       INCL     Included     PVC     Polyvinyl chloride (plastic)     W     West       INSUL     Insulation     PVG     Paving     W//     W//     W/W       INT     Interior     QTR     Quarter     W/O     W/ith       JAN     Janitor     RB     Rubber base, Resilient base     WF     Wide       KIP     1000 Pounds     RCP     Reinforced concrete pipe, Reflected ceiling plan     WD GD     Woo       KIT     Kitchen     REF     Recreased     WH     W	y in field me or retarder I tile I sheet I wall covering t er closet, Wall covering out d d fange d guard er heater upht iron	
HTGHeatingPREFABPrefabricateVERTVertitHTRHeaterPREPPrefinishVESTVestitHVACHeating, ventilating and air conditioningPREPPreparationVIFVestitHWHot waterPROJProjectVINVinNVinNVinNHYDHydrantPROJ SCRNProjectVINVinNVinNVinNVinNIDInside diameterPSFPounds per square footVRVapoINInchesPSIPounds per square inchVTVinyIVinVVinyIINCLIncludedPTPaint, Post tensionVSHTVinyIVinCVinyIINCLIncludedPVGPolyvinyI chloride (plastic)WWestWCVinyIINFOInformationPVGPavingW//W//WithWithINTInteriorQTQuarty tileWCWateWOWithJANJanitorRRiser, Radius, Thermal resistanceWFWideWOWooJTJointRBRubber base, Resilient baseWFWideWD GDWooWAWateKIP1000 PoundsRCPReinforced concrete pipe, Reflected ceiling planWD GDWooWHWateKITKitchenRDRoof drain, RoadWHWateWHWateKOKnockoutREFRefrigeratorWMWinto	y in field me or retarder I tile I sheet wall covering t er closet, Wall covering out d d fange d guard er heater ught iron mesh	
HTGHeatingPREFABPrefabricateVERTVertitHTRHeaterPREFINPrefinishVESTVestiHVACHeating, ventilating and air conditioningPREPPreparationVIFVestiHWHot waterPROJProjectVINVinNVinNHVDHydrantPROJ SCRN Projection screenVOLVolurIDInside diameterPSFPounds per square footVRVapoINInchesPSIPounds per square inchVTVinyIINCLIncludedPTPaint, Post tensionVSHTVinyIINCLIncludedPVGPolyvinyl chloride (plastic)WWestINSULInsulationPVGPaingW/< With	y in field me or retarder I tile isheet wall covering t er closet, Wall covering out d d d d guard er heater ught iron mesh er proofing, Working point er proofing, Working point	
HTG     Heating     PREFAB     Prefabricate     VERT     Vertiliating and air conditioning       HTR     Heater     PREFIN     Prefabricate     VEST     Vestiliating and air conditioning       HW     Hot water     PREP     Preparation     VIF     Ventiliating and air conditioning       HW     Hot water     PRCJ     PROJ     Project     VIN     Vinyi       HYD     Hydrant     PROJ     SCRN Projection screen     VOL     Volu       ID     Inside diameter     PSF     Pounds per square foot     VR     Vapo       IN     Inches     PSI     Pounds per square inch     VT     Vinyi       INCAND     Incandescent     PT     Parition     VWC     Vinyi       INFO     Information     PVC     Polyninyl chloride (plastic)     W     Wesi       INSUL     Insulation     PVG     Paving     W/O     Who       INT     Interior     QTR     Quarter     W/O     WD     Woo       JAN     Janitor     QTY     Quantity     WD     WDG     WDG       JST     Joist     RB     Rubber base, Resilient base     WF     Wide       KIP     1000 Pounds     RCP     Reinforced concrete pipe, Reflected ceiling plan     WD GD	y in field me or retarder I tile i sheet wall covering t er closet, Wall covering out d d d guard e flange d guard er heater ught iron mesh er proofing, Working point er repellent, weather resistant te receptacle	
HTG     Heating     PREFAB     Prefabricate     VERT     Vetiti       HTR     Heating     PREFIN     Prefinish     VEST     Vest     Vest       HW     Hot water     PROJ     Project     VIN     Vinyi       HW     Hot water     PROJ     Project     VOL     Volut       HYD     Hydrant     PSF     Pounds per square foot     VR     Vapor       ID     Inside diameter     PSF     Pounds per square foot     VT     Vinyi       IN     Inches     PSI     Pounds per square foot     VT     Vinyi       INCAND     Incadescent     PT     Paint, Post tension     VSFT     Vettit       INSUL     Included     PT     Paint, Post tension     VS     WC     Vinyi       INFO     Information     PVC     Polyinyi chloride (plastic)     W     Westit       INSUL     Insulation     QT     Quarter     WO     WO       JAN     Janitor     QTY     Quantity     WD     WD     WO       JST     Joist     R     Riser, Radius, Thermal resistance     WD     WD       KIP     1000 Pounds     RCP     Reinforced concrete pipe, Reflected ceiling plan     WD GD     WO GD       KIP <td< td=""><td>y in field me or retarder I tile i sheet wall covering t er closet, Wall covering out d d d gourd e flange d guard er heater ught iron mesh er proofing, Working point er repellent, weather resistant te receptacle iscot</td><td></td></td<>	y in field me or retarder I tile i sheet wall covering t er closet, Wall covering out d d d gourd e flange d guard er heater ught iron mesh er proofing, Working point er repellent, weather resistant te receptacle iscot	
HTG     Heating     PREFAB     Prefabricate     VERT     Vertity       HTR     Heater     PREFIN     Prefabricate     VERT     Vertity       HVAC     Heating, ventilating and air conditioning     PREFN     Preparation     VIF     Vertity       HW     Hot water     PROJ     Project     VIN     Viny     Viny     Viny       HW     Hot water     PSF     Pounds per square foot     VR     Vapo       ID     Inside diameter     PSF     Pounds per square foot     VR     Vapo       INCL     Included     PT     Paint, Post tension     VSFT     Viny       INCL     Included     PT     Paint, Post tension     VWC     Viny       INSUL     Insulation     PVC     Polyvinyl chloride (plastic)     WW     WW       INSUL     Insulation     PVG     Paving     W/C     With       INTERM     Intermediate     QT     Quarter     W/O     With       JAN     Janitor     QTY     Quarter     WD     WD     WO       JT     Joint     RB     Rubber base, Resilient base     WF     Wide       KIP     1000 Pounds     RCP     Recreased     WH     WH       KO     Knockout	y in field me or retarder I tile is heet wall covering t er closet, Wall covering out d d out d d guard er heater ught iron mesh erropofing, Working point er repellent, weather resistant te receptacle iscot pht, Watertight, Water table jed wire fabric	
HTG     Heating     PREFAB     Prefinish     VERT     Vertinitian       HTR     Heating, ventilating and air conditioning     PREFIN     Prefinish     VEST     Vestinitian       HVAC     Heating, ventilating and air conditioning     PROJ     Proparation     VIF     Vertinitian       HW     Hot water     PROJ     Proparation     VIN     Vinyi     Vinyi       HTG     Included     PSF     Pounds per square foot     VR     Vapo       ID     Inside diameter     PSF     Pounds per square inch     VT     Vinyi       INCL     Included     PT     Paint, Post tension     VWC     Vinyi       INCAND     Included     PVC     Polyinyl chloride (plastic)     W     We West       INSUL     Insulation     PVC     Paving     W/C     With       INTERM     Intermodiate     QT     Quarter     W/O     Whith       JAN     Janitor     QTY     Quantity     WD     WD Wind       JT     Joint     RB     Ruber base, Resilient base     WF     Wide       KIT     Kitchen     RD     Roof drain, Road     WH     Wate       KO     Knockout     REFC     Refrect     WP     Wate       L     Liter	y in field me or retarder I tile is sheet wall covering t er closet, Wall covering out d d d d d d d d d d d d d d d d d d d	





Drawn By:	CRE
Checked By:	SDF
Project Manager:	CRE
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Revisions

VMC Linear Accelerator Replacement & Infrastructure Upgrades SWBR Project Number 23024.00

Cornell University lthaca, NY

# **A-000**

GENERAL NOTES AND LEGENDS





CONTRACTORS SHALL WALK THE SITE AND SATISFY THEMSELVES TO EXISTING VISUAL CONDITIONS. THE ARCHITECT SHALL BE CONSULTED WHEN ANY QUESTION ARISES RELATIVE TO MATERIALS AND

- SHALL BE PATCHED AND REFINISHED. PATCHING AND FINISH WORK IS THE REPAIR WORK REQUIRED TO RESTORE SURFACES TO THE ORIGINAL CONDITION AND/ OR MATCHING THE ADJACENT SURFACES. DEMOLITION HAVE NOT BEEN TOTALLY INCORPORATED INTO THE ROOM FINISH SCHEDULE. REFER TO THE DEMOLITION , FLOOR AND REFLECTED CEILING PLANS FOR ADDITIONAL CUTTING , PATCHING
- 5. CARE SHALL BE TAKEN TO LIMIT IMPACT OF CONSTRUCTION ON THE SURROUNDING OCCUPANTS AND OPERATIONS DURING THE PROJECT. SAFE LEGAL PASSAGES SHALL BE PROVIDED FOR ALL BUILDING
- CONSTRUCTION AS A RESULT OF CONTRACTOR'S WORK, IT SHALL BE REPAIRED AND/OR REPLACED
- (I.E., WALL CLOCKS, COAT HOOKS/RODS, TACK BOARDS, MARKER BOARDS, WALL HANGINGS, WALL
- 10. PROVIDE DUMPSTER, INCLUDING HAULING AND DISPOSAL, FOR 30 CU. YD. OF CONSTRUCTION WASTE





-E PATH: Autodesk Docs://23024.00 Cornell VMC Linear Accelerator Replcmnt/23024.00 Cornell VMC Linear Accelerator Replacement



#### GENERAL NEW WORK NOTES:

 ALL FLOORS, WALLS, CEILINGS, AND OTHER SURFACES THAT ARE TO REMAIN ARE TO BE PATCHED, REPAIRED, AND REFINISHED PRIOR TO FINISH INSTALLATION. ALL SURFACES ARE TO BE RESTORED TO THEIR ORIGINAL CONDITION AND/OR MATCH THE ADJACENT SURFACES.

FIRESTOP ALL FLOOR PENETRATIONS (USED/UNUSED/ABANDONED) WITH 2 HR UL LISTED PENETRATION FIRESTOPPING.
 OF/CI: OWNER FURNISHED, CONTRACTOR INSTALLED.

OF/OI: OWNER FURNISHED, OWNER INSTALLED.

4. DIMENSIONS WITHIN PARENTHESES, (X'-X"), HAVE BEEN PROVIDED FOR REFERENCE ONLY.

5. SEE A-601 FOR EQUIPMENT (" 🛞 ")

		(18)
TING CHILLED W ATIONS, VIF BEFO CORES AND (2) TRICAL DRAWIN TING SPRINKLEF ATION, VIF BEFO	ATER LINES, APPROXIMATE ORE CORING 3" CORES, REFER TO IGS FOR CONDUIT PIPING, APPROXIMATE RE CORING (3) 3" CORES, REFER TO ELECTRICAL DRAWINGS FOR CONDUIT - CARBON FRP LAMINATE STRIP (AT U/S OF CONC SLAB) PROVIDING 1.0 IN <sup>4</sup> 2 EQUIVALENT A615, 60 KSI REINFORCEMENT STEEL. DEVELOP FRP BEYOND DASHED LINE OUTSIDE OF CORE LOCATIONS - EXTENT OF STRUCTRAL CONCRETE SLAB C110UB - EXISTING CONCRETE ENCASED BEAM	
	C1124	GENERAL: VERIFY ALL EXISTING AND PROPOSED CONDITIONS BEFORE CORING. NOTIFY ARCHITECT OF ANY CONFLICTS.
3		
	C1124	









1/4" = 1'-0"

SWBR

387 East Main Street Rochester NY 14604

585 232 8300 | rochester@swbr.com

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		PLAN KEY NOTES
ED, AND	NO	
NDITION	NO.	
ESTOPPING.	2	TOUCH UP PAINT TO COVER MARKER MARKS AND MATCH EXISTING FINISH.
	4	REINSTALL SALVAGED ROOM SIGNAGE.
	6	WALL MOUNTED ADJUSTABLE PLAM SHELVING. SEE INTERIOR ELEVATIONS FOR DETAILS.
	7 8	DROP-IN EPOXY RESIN SINK, SK-A, 25"x15"x10" DROP-IN EPOXY RESIN SINK, SK-B, 25"X15"X4.75"
	9 10	PLAM COUNTERTOP, SEE INTERIOR ELEVATIONS FOR DETAILS. COMPUTER WORKSTATION, OF/OI
	11	PHENOLIC RESIN COUNTERTOP AND PAINTED STEEL CABINETS, SEE INTERIOR ELEVATIONS FOR DETAILS.
	12	PLAM TALL STORAGE CABINETS, BASE CABINETS, WALL CABINETS AND COUNTERTOPS. SEE INTERIOR ELEVATIONS FOR DETAILS.
	13	HAS A MIX OF INTEGRAL AND RUBBER WALL BASE).
		MASONRY TO MATCH ADJACENT FINISH. PATCH WALL BASE TO MATCH EXISTING UNLESS NOTED OTHERWISE.
	15	REMOVE, PREP, REPAINT AND REINSTALL EXISTING UTILITY TRENCH COVER. SEE FINISH SCHEDULE FOR PAINT COLORS.
	16	DECK-MOUNTED EMERGENCY EYEWASH, COORDINATE WITH PLUMBING DRAWINGS.
	17	HOSE BIBB INSIDE OF SINK BASE CABINET, COORDINATE WITH PLUMBING DRAWINGS. PLAM TALL STORAGE CABINETS, SEE INTERIOR ELEVATIONS FOR DETAILS
	10	NOTE: COORDINATE CABINET INSTALLATION WITH LINEAR ACCELERATOR MFR. CABINETS TO BE INSTALLED AFTER LINEAR ACCELERATOR
	19	EQUIPMENT HAS BEEN INSTALLED. RESPIRATORY GATING POST, SEE INTERIOR ELEVATIONS FOR DETAILS.
	20 21	30"W X 30"H PHENOLIC PEGBOARD WITH 2" DEEP SST DRIP TRAY INFILL PORTION OF +/-4" DEEP TRENCH WITH NON-SHRINK GROUT. PREP
	22	WALL MOUNTED CABLE MANAGEMENT, REFER TO DETAIL 2/A-111
	23	REINSTALL SALVAGED RADIATION SHIELDING DOOR.
	25	<ul> <li>(4) 4" GROMMETS, INIDICATED WITH SHADED GREY AREAS, FOR WIRING AND CABLING ENTERING CHASE FROM FLOOR TRENCH</li> </ul>
_	26 27	MODIFY FLOOR TRENCH COVER TO ACCOMMODATE CHASE. PROVIDE GROMMETS AT SIDE OF CHASE FOR WIRING TO ADJACENT
		TABLES. COORDINATE SIZE, QUANTITY AND LOCATION WITH EQUIPMENT PROVIDER.
ONDS WITH D COORDINATE &-FURNISHED O INSTALLATION.		
[	<u>C2287</u>	
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L.		
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	/	
15		
A-420		
		RECOVERY
		C2286

NOTE: FURNITURE SHOWN FOR REFERENCE ONLY, NIC.







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CENSEND. FERNARD SELVEND. FERNARD SSELVEND. SSELVEND.
Registration Expires: 11/30/24
Drawn By: KEP Checked By: SDF Project Manager: CRE
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Revisions
VMC Linear Accelerator Replacement & Infrastructure Upgrades SWBR Project Number 23024.00
<b>Cornell University</b> Ithaca, NY
A-120
PARTIAL ROOF PLAN
October 12, 2023 100% Construction Documents

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585 232 8300 | rochester@swbr.com

SWBR NYS Certificate of

Authorization #: 235221







## <u>SECTION 06 41 16 – PLASTIC-LAMINIATE-CLAD ARCHITECTURAL CABINETS /</u> PLASTIC LAMINATE (PLAM)

PLAM-1 FORMICA, COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE (TYPICAL CABINETS)

#### SECTION 12 36 23.13 – PLASTIC-LAMINIATE-CLAD COUNTERTOPS PLASTIC LAMINATE (PLAM)

PLAM-2 FORMICA, COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE (COUNTERTOPS)

<u>SECTION 07 92 00 – JOINT SEALANT</u> JOINT SEALANT

AT COUNTERTOP TO WALL TRANSITIONS, MATCH JOINT SEALANT TO COUNTERTOP.

#### SECTION 09 51 13 – ACOUSTICAL PANEL CEILINGS

#### ACOUSTICAL CEILING TILE (ACT) ARMSTRONG CLEAN ROOM FL TILE, SQUARE LAY IN MINTERAL FIBER TILE, STYLE: SMOOTH TEXTURE, TYPE: 1716 AND 1721, SIZE: 24"X48", COLOR: WHITE, INCLUDE COORDINATING ARMSTRONG CLEAN ROOM 15/16" SUSPENSION GRID, COLOR: WHITE.

#### SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES

RESILIENT BASE (RB) RB-1 ROPPE, PINNACLE RUBBER BASE, 4" H, COVE TOE BASE, COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE

#### RESILIENT TRANSITION STRIPS (TS)

TS-1 TARKETT, WHEELED TRANSITION, CTA-XX-K, 3/8" TO 1/8" MATERIAL, COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE

#### <u>SECTION 09 67 23 – RESINOUS FLOORING</u> **RESINOUS FLOORING (RES)**

**RES-1** RETOP EPOXY RESINOUS FLOORING SYSTEM: SHERWIN WILLIAMS, RESUFLOR SCREED TG46: RESUPRIME 3579 PRIME COAT, RESUFLOR 3561 RESIN AND GP5115 AGGREGATE AT 3/16" MORTAR, RESUPRIME 3579 GROUT COAT, RESUFLOR TOPCOAT SD 3725, COLOR: CUSTOM TO MATCH ARCHITECT'S SAMPLE. FLOORING IS STATIC DISSIPATIVE, REFER TO MANUFACTURER'S STANDARD DETAILS FOR GROUNDING METHODS(C2289C)

**RES-2** EPOXY RESINOUS FLOORING SYSTEM: SHERWIN WILLIAMS, TRAFFICOTE 105 W/ RESUFLOR 3741 SOLVENT/ACID RESISTANT COATING, COLOR: CUSTOM TO MATCH ARCHITECT'S SAMPLE.

#### SECTION 09 91 23 - INTERIOR PAINTING

PAINT (PT) • ALL DOORS, FRAME AND TRIM - SEMI-GLOSS

- CEILINGS FLAT
- ALL PAINTED VERTICAL SURFACES (WALLS, SOFFITS, COLUMNS, ETC) EGGSHELL FINISH
- EXPOSED CEILING DRYFALL PAINT PT-1 BENJAMIN MOORE, COLOR: LINEN WHITE 912
- (GENERAL)
- PT-2 BENJAMIN MOORE, COLOR: TO BE SELECTED BY ARCHITECT (UTILITY TRENCH COVER CONTROL ROOM)
- PT-3 BENJAMIN MOORE, COLOR: TO BE SELECTED BY ARCHITECT (UTILITY TRENCH COVER LINEAR ACCELERATOR ROOM)
- PT-4 BENJAMIN MOORE, COLOR: MATCH EXISTING (RADIATION SHIELDING DOOR)

#### SECTION 10 14 23.16 - ROOM IDENTIFICATION PANEL SIGNAGE

SIGNAGE (SIGN) INTEGRAL ACRYLIC SHEET COLOR: AS SELECTED FROM FULL RANGE OF INDUSTRY COLORS. RASED TEXT AND TYPE FACE COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE.

#### SECTION 12 35 53.13 – METAL LABORATORY CASEWORK METAL CASEWORK MOTT MANUFACTURING, SCIENCE LABORATORY FURNITURE,

#### SOLID PHENOLIC (SP)

SP-1: TRESPA TOP LAB PLUS, BLACK T90.0.0 CRYSTAL MATTE, STANDARD THICKNESS NO BUILT UP EDGE.

	FINISH PLAN KEY NOTE
NO.	DESCRIPTIO
1	PROVIDE RB-1 AT CASEWORK TOEKICK AND SIDE
2	RESINOUS BASE (RES-2) AT INFILL TO MATCH EXIS
3	PROVIDE RB-1 AT CHASE.
4	PATCH EPOXY RESINOUS FLOORING SYSTEM AT FLOORING SYSTEM THICKNESS TO MATCH EXISTI BASE.

COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE.

					R	OOM FINISH	I SCHED	ULE					
ROOM		FLOOR	BASE	NORTH	WALL	EAST V	VALL	SOUTH	WALL	WEST V	VALL	CEILING	
NUMBER	ROOM NAME	FINISH	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	FINISH	REMARKS
C2289	CONTROL ROOM	ETR RES/RES-2	ETR RES/RB-1	ETR GWB	PT-1	ETR GWB	PT-1	ETR GWB	PT-1	ETR GWB	PT-1	ETR ACT	
C2289A	LAB	RES-2	RES-2/RB-1	ETR GWB/GWB	PT-1	ETR GWB/GWB	PT-1	ETR GWB	PT-1	ETR GWB	PT-1	ETR ACT	
C2289B	WORKROOM	ETR RES	ETR RES/RES-2	ETR GWB	PT-1	ETR GWB/GWB	PT-1	ETR GWB/GWB	PT-1	ETR GWB	PT-1	ETR ACT	
C2289C	LINEAR ACCELERATOR	RES-1	RES-1/RB-1	ETR GWB	PT-1	ETR GWB	PT-1	ETR GWB	PT-1	ETR GWB	PT-1	ACT-1	

#### FINISH PLAN GENERAL NOTES

- A. EXTEND FINISH FLOORING BENEATH APPLIANCES AND INTO KNEE SPACES BELOW COUNTERTOPS, WORK SURFACES, AND WHERE REMOVABLE SINK FRONTS ARE PROVIDED IN CASEWORK.
- B. PAINT ALL MISCELLANEOUS HVAC, PLUMBING AND ELECTRICAL ITEMS EXPOSED ON WALLS AND HARD CEILINGS THAT ARE NOT OTHERWISE INDICATED TO BE PRE-FINISHED OR A SPECIFIC COLOR. THE COLOR SHALL MATCH THE ADJACENT OR BACKGROUND SURFACE.
- C. PAINT PORTIONS OF INTERNAL SURFACES OF METAL DUCTS, WITHOUT LINERS, BEHIND AIR INLETS AND OUTLETS THAT ARE VISABLE FROM OCCUPIED SPACES. COLOR SHALL BE "FLAT BLACK."
- D. DO NOT PAINT OPERATIONAL COMPONENTS OF SYSTEMS SUCH AS SPRINKLER HEADS, FIRE, SMOKE, OR HEAT DETECTORS. COLORS OF THESE COMPONENTS ARE TO BE SELECTED TO MATCH BACKGROUND SURFACES, UNLESS OTHERWISE NOTED.
- E. REFER TO "ROOM FINISH SCHEDULE", INTERIOR ELEVATIONS, AND REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION.
- F. PAINTING IS NOT REQUIRED BEHIND FIXED CABINETS.
- G. PROVIDE TRANSITION STRIPS BETWEEN DIFFERENT FLOOR MATERIALS.
- H. FLOOR FINISHES WHICH DIFFER BETWEEN ROOMS SHALL TRANSITION AT THE CENTERLINE OF A CLOSED DOOR, UNLESS OTHERWISE NOTED.
- I. PAINT HOLLOW METAL DOORS AND FRAMES THAT ARE NOT SPECIFIED TO BE PRE-FINISHED. THE PAINT COLOR SHALL BE THE SAME ON BOTH SIDES UNLESS OTHERWISE INDICATED TO BE A SPLIT FINISH.
- J. ALL PAINTED CEILINGS AND EXPOSED CEILING ELEMENTS TO HAVE A "FLAT" FINISH, UNLESS OTHERWISE INDICATED.
- K. PROVIDE RUBBER BASE TO THE TOE KICK SPACE OF ALL CASEWORK AND CABINETS UNLESS OTHERWISE INDICATED. FOR EXPOSED SIDES, AND CASEWORK WITH KNEE SPACES, APPLY BASE TO THE EXPOSED SIDE OF THE CASEWORK AND CABINETS.
- L. UNTAGGED SPACES AND ANCILLARY SPACES SUCH AS CLOSETS, NICHES, ETC. SHALL RECEIVE THE SAME FINISHES OF THE SPACE TO WHICH THEY ARE ADJACENT.
- M. MISCELLANEOUS FINISH REQUIREMENTS TO WALLS, FLOORS AND CEILINGS IN AREAS AFFECTED BY DEMOLITION WORK HAVE NOT BEEN TOTALLY INCORPORATED INTO THE ROOM FINISH PLANS. REFER TO DEMOLITION PLANS, FLOOR AND REFLECTED CEILING PLANS FOR EXTENT OF "CUTTING AND PATCHING". PATCHING SHALL BE THE REPAIR WORK REQUIRED TO RESTORE SURFACES TO THE ORIGINAL CONDITION AND/OR MATCHING THE ADJACENT SURFACES.
- N. FOR EXISTING SURFACES INDICATED TO BE "PAINTED," THE SURFACE SHALL BE PROPERLY PREPARED, INCLUDING ANY PRE-EXISTING DEFECTS, TO PROVIDE A "LIKE NEW" APPEARANCE.
- O. THE PAINT COLOR INDICATED ON GYPSUM BOARD SOFFITS SHALL APPLY TO BOTH THE HORIZONTAL AND VERTICAL SURFACES UNLESS OTHERWISE INDICATED.
- P. IN THE ROOM FINISH SCHEDULE IN ANY ROW OR COLUMN "-" or "ETR" INDICATES THERE ARE NO CHANGES OR NEW FINISHES, EXISTING TO REMAIN.
- Q. PROVIDE MOISTURE RESISTANT GYP BD AT ALL WALLS AT WET AREAS.









SWRR

387 East Main Street Rochester NY 14604







**GENERAL NOTE:** GC TO VERIFY AND COORDINATE ALL VARIAN EQUIPMENT DIMENSIONS WITH EQUIPMENT INSTALLER.

10/12/2023 12:07:55 PM







![](_page_12_Figure_0.jpeg)

![](_page_12_Figure_1.jpeg)

![](_page_13_Figure_1.jpeg)

E PATH: Autodesk Docs://23024.00 Cornell VMC Linear Accelerator Replcmnt/23024.00 Cornell VMC Linear Accelerator Replacemer

![](_page_14_Figure_0.jpeg)

ATH: Autodesk Docs://23024.00 Cornell VMC Linear Accelerator Replcmnt/23024.00 Cornell VMC Linear Accelerator Replacement.rvt

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![](_page_15_Figure_2.jpeg)

![](_page_15_Figure_3.jpeg)

## 2 SERVICE PLATFORM SECTION 1" = 1'-0"

1 SERVICE PLATFORM SECTION  $\smile$ 

![](_page_15_Figure_6.jpeg)

![](_page_15_Figure_7.jpeg)

![](_page_15_Picture_8.jpeg)

**SWBR** 

387 East Main Street Rochester NY 14604 585 232 8300 | rochester@swbr.com

SWBR NYS Certificate of Authorization #: 235221

8 FILE PATH:

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			-	НЕІСНТ			WEIGHT				ELECTRI		EMERG			HOUSE									EXHALIST					
LETTER QT	Y EQUIPMENT NAME	MFR MODEL NO.	LOCATION			(IN)	(LBS)	(VAC)	PHAS	E Hz AMPS	6 HP KVA	WATTS GR	ROUND POW	ENCT	PE DCW		VENT RO/	DI PROPANE	VAC CA 85	PSI CA LP	GASES (*	F) %	SENSITIVE	(BTUH)	(CFM)	FURNISHED	INSTALLED	) FURNISHED	INSTALLED	COMMENTS
									I				I					1			,	·	L							
A 1	LINEAR ACCELERATOR STAN	D VARIAN TRUEBEAM	FLOOR	102.375	50.375	134	18754						Х				-	-	-	-	- 60	TO 30 TO 70		24760		Х	Х			DEDICATED
	AND GANTRY																				8	0								GROUND/PROTECTIVE EARTH
																														MODULATOR. COUCH AND
																														CONSOLE CABINET. CHILLED
																														WATER CONNECTION.
B 1	CONSOLE CABINET	VARIAN 2-1 CONFIG	FLOOR	61.44	26.44	36	640	208-230	1	50/6 20			X	IEC 6030	9		-	-	-	-	-			3753		Х	X		Х	POWER OUTLET WITHIN 2'-0",
										0				RECEPTAC	JLE															H/-6", CONTRACTOR TO
																														CONSOLE CABINET BRACKET
C 1	MAIN CIRCUIT BREAKER	VARIAN	WALL	37.25	25.5	9.25	179		3				X				-	-	-	-	-					Х			Х	
	PANEL																													
D 1	TRANSTECTOR POWER	VARIAN	FLOOR	66	29	36	1142										-	-	-	-	-					Х			Х	
	CONDITIONER																													
E 1	COMPUTER WORKSTATION	VARIAN TRUEBEAM	BENCH	20	43	26											-	-	-	-	-					Х	X			INCLUDES (2) MONITORS, (1)
																														MONITORS, AND DEDICATED
																														KEYBOARD
F 1	COMPUTER WORKSTATION	EZ VET	BENCH														-	-	-	-	-					Х	Х			
G 2	PRINTER		BENCH														-	-	-	-	-					Х	Х			
H 1	MODULATOR CABINET	VARIAN	FLOOR	33	47.25	31	1985	480		60 80			Х				-	-	-	-	-			17930		Х	Х			
J 1	RELAY JUNCTION BOX	VARIAN	WALL	20	16	6	24						Х				-	-	-	-	-					Х			Х	SURFACE MOUNTED.
																														CIRCUIT FOR RELAY JUNCTION
																														BOX, LIVE VIEW CAMERA,
																														MICROPHONE, OPTICAL
																														IMAGING CAMERA,
																														IN-ROOM MONITORS.
К 1		VARIAN	CEILING	30-54	42	10	59						X								_		X			X	X		X	CONTRACTOR TO INSTALL
		v, u u, u u	0EIEII10	0001			00																			X			X	VARIAN PROVIDED MOUNTING
																														HARDWARE (PLATE, POST AND
																														BRACKET). REFER TO RCP
																														STRUCTURAL STEEL
1 2				30-54	52.5	61	105	120	1	60			X										X			×	×		×	
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																														HARDWARE (PLATE, POST AND
																														BRACKET). REFER TO RCP
																														FOR SUPPLEMENTAL
M 4			\A/ALI	9 125	6	7	6.7	120	1	60																v	×		v	
111 4		VARIAN	VVALL	0.120	0		0.7	120	1	00							-	-	-	-	-					^	^		^	CONTRACTOR TO INSTALL
																														VARIAN PROVIDED MOUNTING
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N 1	LIVE VIEW CAMERA W/ MIC	VARIAN	WALL	8.5		10.25	8						Х				-	-	-	-	-					Х	Х		Х	CONTRACTOR TO INSTALL
																														BRACKET)
0 1	UNDERCOUNTER		FLOOR														-		-	_	-					Х	Х			- ,
	REFRIGERATOR																													
P 1	MICROPHONE	VARIAN	CEILING	14	1.5	6.5							Х				-	-	-	-	-					Х	Х		Х	CONTRACTOR TO INSTALL
																														VARIAN PROVIDED MOUNTING
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	SPEAKER		\\/ALL	6	2	15	5																		+	Y			Y	
			V V / \LL			+.5																				Λ			~	VARIAN PROVIDED MOUNTING
																														HARDWARE (PLATE, POST AND
										_																				BRACKET)
R   4	PATIENT POSITIONING LASEF	VARIAN	WALL/CEI			4.125	7.9	100-250	1	50/6 10			X				-	-	-	-	-		Х			Х	Х		Х	CONTRACTOR TO INSTALL
			LING							U																				HARDWARE (PLATE) REFER
																														TO RCP FOR SUPPLEMENTAL
																														STRUCTURAL STEEL.
S 2	WARNING LIGHTS	VARIAN	CEILING							5							-	-	-	-	-							X	X	
T 1	BASE FRAME PULL BOX		FLOOR	10	24	12				_							-	-	-		-							X	Х	
U 1	TREATMENT COUCH	VARIAN TRUEBEAM	FLOOR	VARIES	50	74.75	1382	-		_			X				-	-	-		-				ļ	Х	Х			
V   1	BASE FRAME	VARIAN	FLOOR	11	57.1875	141.1875	1669	-									-	-	-	-	-						Х	X	Х	
																														CONTRACTOR TO BACKFILL
																														PIT.
W 1	CENTRIFUGE		BENCH														-	-	-	-	-					Х	Х			
X 1	FILTRINE QUICK CONNECT	VARIAN	WALL	36	30	10	250																			Х			Х	
	PANEL																													
Y 1	CHILLER	VARIAN	FLOOR														-	-	-	-	-					Х			Х	
Z   1	WIRELESS KEYBOARD AND	VARIAN	BENCH																							Х	Х			CONFIRM LOCATION WITH
																														SHOWN ON THE ELECTRICAL
																														DRAWINGS.

								DOC	OR SCHEDULE							
				DC	OR					FRA	AME					
		SIZE														
DOOR #	LEAFS	WIDTH	HEIGHT	THICK	TYPE	MATERIAL	FINISH	GLASS	ELEVATION	TYPE	MATERIAL	FINISH	HARDWARE	LABEL	THRESHOLD	REMARKS
LEVEL 2			1						· ·				1			
2289	1	4' - 4 1/2"	8' - 0"	1 3/4"	F	ETR STL, LEAD LINED	PT	-	F1	ETR	ETR HM	PT	SEE REMARKS	-	-	1, 2, 3 AND 4.
DOOR SC		FMARKS														

DOOR SCHEDULE REMARKS:

1. REINSTALL DOOR IN EXISTING TO REMAIN FRAME. 2. INSTALL OF/CI OPERATOR, NELCO NB-500-PULL-LH, PER

INSTALL OF/CLOPERATOR, NELCO NB-500-PULL-LH, PER MANUFACTURER'S WRITTEN INSTRUCTIONS
 INSTALL OF/CI BOLT-ON HINGES, NELCO W-100 LH, TO EXISTING FRAME
 DOOR MOUNTED SAFETIES, POINTS OF CONTROL, BATTERY BACKUP AND EMERGENCY EGRESS BUTTON WILL BE OF/OI BY NELCO.

#### EQUIPMENT SCHEDULE

![](_page_16_Picture_10.jpeg)

![](_page_16_Figure_11.jpeg)

<b>(#</b> )	INDICATES FOLUPMENT KEVNOTE
(#)	INDICATES EQUIPMENT RETINUTE

GENERAL NOTES:
1. GC TO VERIFY AND COORDINATE ALL VARIAN EQUIPMENT DIMENSIONS AND POWER REQUIREMENTS WITH EQUIPMENT INSTALLER.
2. OWNER FURNISHED EQUIPMENT INCLUDES EQUIPMENT FURNISHED BY VARIAN.

E OF NEW Issue Date: 10/12/23 Registration Expires: 11/30/24

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hecked By:	SDF
roject Manager:	CRE
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MC Linear Accele eplacement & Infr pgrades	rator astructure
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SCHEDULES AND DETAILS

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#### **FLUSHING NOTES:**

- A. FLUSHING FULL-PORT BALL VALVES SHALL STILL BE PROVIDED ON UNDERGROUND MAINS (INSIDE THE BUILDING) AND ABOVE-GROUND MAINS, CROSS-MAINS, BRANCH LINES AND RUN OUTS OF NEW SPRINKLER SYSTEMS (WET AND DRY), TO FACILITATE ANY FUTURE PERIODIC INTERNAL INSPECTIONS, OBSTRUCTION INVESTIGATIONS AND AS-NEEDED FLUSHING WORK.
- B. VALVES SHALL BE SIZED BY THE ENGINEER OF RECORD AND PER NFPA 25, IN ORDER TO OBTAIN THE NFPA REQUIRED MINIMUM VELOCITY OF 10 FT/S FOR ANY GIVEN PIPE SIZE. AS AN ALTERNATIVE TO THE HYDRAULIC CALCULATION VALVE SIZING METHOD, THE FOLLOWING SIZING RULES CAN BE APPLIED:
  - 1-INCH THRU 2•-INCH PIPE: LINE-SIZE FULL-PORT BALL VALVE
  - 3-INCH PIPE: ONE (1) 2•-INCH BALL VALVE - 4-INCH PIPE: TWO (2) 2•-INCH BALL VALVES
  - 6-INCH PIPE: THREE (3) 2• INCH BALL VALVES
  - 8-INCH PIPE: FOUR (4) 2• INCH BALL VALVES

#### **GENERAL NOTES:**

- A. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS DOCUMENTS WHEN AVAILABLE. THE LOCATIONS SHOWN MUST OTHER SUCH WORK MAY EXIST, HOWEVER, LOCATION AND SIZE VISIT SITE PRIOR TO BID TO REVIEW EXISTING CONDITIONS AND
- B. WHEN EXISTING CONSTRUCTION IS DAMAGED DURING WORK BY AND/OR REPLACE WITH SIMILAR OR LIKE MATERIALS AS MUCH A ARCHITECTS APPROVAL.
- C. DISPOSE OF ALL DEMOLITION AND/OR OTHER WASTE MATERIALS CONTRACTOR. LEGALLY DISPOSE ALL MATERIALS TO A LOCATIO
- D. COORDINATE AND SCHEDULE WORK AND SHUTDOWNS WITH TH PRIOR TO DEMOLITION.
- E. ALL EXISTING PIPING TO REMAIN SHALL BE RECONNECTED TO A
- F. ALL PIPING TO BE REMOVED. SHALL BE REMOVED BACK TO ACTI AND CAP ALL WATER PIPING. REMOVE ALL INACTIVE PIPING UNLI
- G. ALL PIPING TO BE REMOVED AND LOCATED WITHIN A WALL TO R PLACE UNLESS NOTED. REMOVE PIPING BACK TO BEHIND THE FI CAP.
- H. PLUG HOLES IN EXISTING CONSTRUCTION LEFT BY THE REMOVA MAINTAIN FIRE/SMOKE RATING.
- DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO: PIPING, V HANGERS, SUPPORTS, AND INSULATION EXCEPT ASBESTOS.
- J. All SECURING AND ATTACHMENT POINTS TO EXISTING BUILDING WALLS, CEILINGS, FLOORS, SLABS, DECKS, ETC. SHALL BE REVIE UNIVERSITY AND THE PROJECT ENVIRONMENTAL CONSULTANT ATTACHING DEVICES AND EQUIPMENT. SOME BUILDING ELEMEN AND ABATEMENT MAY BE REQUIRED. ABATEMENT SHALL BE PER CONTRACTOR WITH THE ASSISTANCE OF THIS CONTRACTOR FO POINT LOCATIONS.
- MIXING OF DEMOLITION AND CONSTRUCTION DEBRIS IN COMMO K. ALLOWED. ALL DEMOLITION AND CONSTRUCTION DEBRIS SHALL THEN PLACED IN THE DESIGNATED DUMPSTER FOR THAT SPECI WITH PROJECT LEED CONSTRUCTION WASTE MANAGEMENT REC
- ABANDONING EXISTING SYSTEMS, EQUIPMENT AND APPURTENA ALLOWED. ALL SYSTEMS, EQUIPMENT AND APPURTENANCES DE REMOVED. THE CONTRACTOR SHALL NOTIFY CORNELL UNIVERS EQUIPMENT AND APPURTENANCES ARE FOUND THAT HAD NOT E PROJECT PLANS TO EITHER BE REMOVED OR TO REMAIN IN PLA
- M. PIPE ROUTING DOES NOT SHOW PIPE FITTINGS THAT WILL BE RE WILL REQUIRE PIPING TO RISE INTO STRUCTURAL CAVITY AND T LOCATIONS).
- N. PROVIDE WIRE GAGES ON ALL SPRINKLERS IN ELECTRICAL AND PROVIDE TEMPORARY HEAT DETECTORS IN AREAS WHERE SPR Ο.
- SERVICE DURING CONSTRUCTION. COORDINATE WITH FIRE PRO TEMPORARY HEAT NEED TO BE TESTED WITH EHS BEFORE REM

![](_page_17_Figure_25.jpeg)

DETAIL NOTES:

- A. PROVIDE A PIPE LABEL FOR EACH PIPE FUNCTION.
- PROVIDE AT LEAST ONE LABEL ON EACH PIPE FOR EVERY ROOM THE Β. PIPE PASSES THROUGH.
- C. PROVIDE LABELS IN LARGE SPACES ON MAXIMUM 20' CENTERS FOR EVERY PIPE UNLESS OTHERWISE NOTED IN THE SPECIFICATIONS.
- D. LABELS TO BE LOCATED IN AN EASILY VISIBLE LOCATION AS THEY WOULD NORMALLY BE SEEN. IE. ON THE BOTTOM HALF OF PIPES IN THE AIR AND ON THE TOP HALF OR SIDES OF PIPES MOUNTED LOW.
- E. LABELS SHALL BE, COLOR CODED, PRE-PRINTED, SELF ADHESIVE VINYL. F. SEE SPECIFICATION FOR OTHER REQUIREMENTS AND LIST OF PIPE FUNCTIONS.

**PIPING IDENTIFICATION LABEL DETAIL** NOT TO SCALE

![](_page_17_Figure_34.jpeg)

![](_page_17_Picture_35.jpeg)

![](_page_17_Figure_36.jpeg)

![](_page_17_Picture_38.jpeg)

-	F	RE PROTECTION SYMBOL LIST
F	SYMBOL	DESCRIPTION
R CONSTRUCTION	OR ///////	EXISTING WORK TO BE REMOVED
DERED APPROXIMATE. PRESENTLY KNOWN. NE SCOPE OF WORK.	${\color{black} \bullet}$	POINT OF CONNECTION
NTRACTOR, REPAIR		POINT OF DISCONNECTION
E, SUBJECT TO	NTS	NOT TO SCALE
	(E)	EXISTING
BY WORK OF THIS	(ETR)	EXISTING TO REMAIN
E	AFF	ABOVE FINISHED FLOOR
	GC	GENERAL CONTRACTOR
	MC	MECHANICAL CONTRACTOR
RVICE PIPING.	EC	
AND CAPPED. VALVE	(E)	EXISTING PIPING
·		
OR EQUIPMENT.	<del></del>	45°OFFSET
	0	ELBOW UP
URES, EQUIPMENT,		BOTTOM/TEE CONNECTION
-	U	TOP TEE CONNECTION
		PIPE CONTINUATION
CORNELL		FLUSHING CONNECTION
	•	PENDENT SPRINKLER
SEPARATE	۶	DRY PENDENT SPRINKLER
GATTACHMENT	₩	QUICK RESPONSE PENDENT SPRINKLER
_	()	CONCEALED PENDENT SPRINKLER
S IS NOT	0	UPRIGHT SPRINKLER
ED AND SORTED	× 	
D		
CE IS NOT		RELIEF VALVE
		BACKELOW PREVENTER (BEP)
ED ON THE		SHUT-OFF VALVE WITH TAMPER SWITCH (TS)
	ES ES	FLOW SWITCH (FS)
	PS	PRESSURE SWITCH (PS)
OWN. (TYPICAL ALL	$\bowtie$	FIRE DEPARTMENT VALVE (FDV)
· · · · · · · · · · · · · · · · · · ·	, k	POST INDICATOR VALVE (PIV)
_		WATER MOTOR GONG
	•	
E REMOVED FROM	<u> </u>	
N FRACTOR.	<u>(X)</u>	DRAWING KEYNOTE
	X	DEMOLITION/REMOVAL KEYNOTE
	X	
	\ x /	

![](_page_17_Picture_40.jpeg)

/BR

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![](_page_18_Figure_1.jpeg)

![](_page_18_Figure_2.jpeg)

#### **GENERAL NOTES:**

A. PROTECT SPRINKLER HEADS DURING CONSTRUCTION AND PUT BACK IN SAME LOCATION AS REQUIRED.

## **DEMOLITION NOTES**

- 1 DISCONNECT AND REMOVE PIPING AS REQUIRED TO ALLOW FOR INSTALLATION OF NEW HVAC DUCTWORK. REFER TO 'M' DRAWINGS
- FOR FURTHER REQUIREMENTS. PREP PIPING FOR REINSTALLATION.
  2 DISCONNECT AND REMOVE PIPING AND SPRINKLER HEADS AS REQUIRED TO ALLOW FOR INSTALLATION OF ROOF SUPPORTS FOR AHU AND DUCT SUPPORT RAILS. PREP PIPING FOR REINSTALLATION. REFER TO 'M' DRAWINGS FOR FURTHER REQUIREMENTS. COORDINATE WORK WITH G.C. AND M.C.

![](_page_18_Picture_8.jpeg)

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![](_page_19_Figure_1.jpeg)

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#### **GENERAL NOTES:**

A. PROTECT SPRINKLER HEADS DURING CONSTRUCTION AND PUT BACK IN SAME LOCATION AS REQUIRED.

#### **DRAWING NOTES**

- 1 REINSTALL PIPING AS REQUIRED AFTER HVAC WORK IS COMPLETE. REFER TO 'M' DRAWING FOR FURTHER REQUIREMENTS.
- 2 REINSTALL PIPING AND SPRINKLER HEADS AS REQUIRED AFTER THE INSTALLATION OF AHU AND DUCT SUPPORT RAILS. REFER TO 'M' DRAWINGS FOR FURTHER REQUIREMENTS. COORDINATE WORK WITH G.C. AND M.C.

![](_page_19_Picture_8.jpeg)

![](_page_20_Picture_2.jpeg)

<sup>/</sup> NOT TO SCALE

![](_page_20_Picture_3.jpeg)

FIXTURE	E AND EQ	DUIPM	ENT C	ONNE	CTION	I SCHEDULE
DESIGNATION	DESCRIPTION	COLD WATER	HOT WATER	WASTE OR SANITARY	VENT	REMARKS
SK-A	SINK	1/2"	1/2"	2"	1 1/2"	-
SK-B	SINK	1/2"	1/2"	2"	1 1/2"	-
EEW-A	EYE WASH	1/2" T	EPID	-	-	-

#### **GENERAL NOTES:**

- A. THESE NOTES ARE APPLICABLE TO THE FULL SET OF CONTRAC
- B. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS CONSTRUCTION DOCUMENTS WHEN AVAILABLE. THE LOCATIO BE CONSIDERED APPROXIMATE. OTHER SUCH WORK MAY EXIS LOCATION AND SIZE ARE NOT PRESENTLY KNOWN. IT IS STROM ENCOURAGED TO VISIT SITE PRIOR TO BID TO REVIEW EXISTIN AND CONFIRM SCOPE OF WORK.
- C. WHEN EXISTING CONSTRUCTION IS DAMAGED DURING WORK CONTRACTOR, REPAIR AND/OR REPLACE WITH SIMILAR MATER POSSIBLE, SUBJECT TO ARCHITECTS APPROVAL.
- D. DISPOSE OF ALL DEMOLITION AND/OR OTHER WASTE MATERIA WORK OF THIS CONTRACTOR. LEGALLY DISPOSE ALL MATERIA OFF SITE.
- E. COORDINATE AND SCHEDULE WORK AND SHUTDOWNS WITH T OTHER TRADES PRIOR TO DEMOLITION.
- F. ALL EXISTING PIPING TO REMAIN SHALL BE RECONNECTED TO / PIPING.
- G. ALL PIPING TO BE REMOVED, SHALL BE REMOVED BACK TO AC CAPPED. VALVE AND CAP ALL WATER PIPING. REMOVE ALL INA UNLESS NOTED.
- H. ALL PIPING TO BE REMOVED AND LOCATED WITHIN A WALL TO ABANDONED IN PLACE UNLESS NOTED. REMOVE PIPING BACK T FINISHED WALL SURFACE AND CAP.
- I. PATCH HOLES IN EXISTING CONSTRUCTION LEFT BY THE REMO EQUIPMENT WITH MATERIALS TO MATCH EXISTING CONSTRUC FIRE/SMOKE RATING.
- J. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO: PIPING, FIXTURES, EQUIPMENT, HANGERS, SUPPORTS, AND INSULATION ASBESTOS.
- K. REMOVE EXISTING CONSTRUCTION IN THE WAY OF NEW WORK BUILDING AND FURNISHINGS FROM DAMAGE.
- L. WHERE NEW WORK IS TO BE INSTALLED ABOVE AN EXISTING C FOR THE REMOVAL OF THE CEILING. UPON COMPLETION OF W DAMAGED CEILING SURFACES, REPLACE ALL DAMAGED TILES.
- M. SLEEVE AND SEAL ALL WALL AND FLOOR PENETRATIONS. PRO FIRESTOPPING FOR ALL PENETRATIONS.
- N. MAINTAIN SERVICE CLEARANCES OF ALL EQUIPMENT. ADVISE ( THE REQUIRED SERVICE CLEARANCES.
- O. PROVIDE FOR THE DRAINING AND REFILLING OF PIPING SYSTEM REMOVAL, RESETTING OF FLUSH VALVES, FLUSHING SYSTEMS SCALE CAUSED BY SHUTDOWNS AND STARTUPS.
- P. REFER TO EQUIPMENT/ FIXTURE SCHEDULE FOR FINAL CONNE

![](_page_20_Figure_22.jpeg)

![](_page_20_Figure_23.jpeg)

-FLOW DIRECTION LABEL. PROVIDE 360 DEGREE WRAP OVERLAPPING BOTH ENDS OF THE PIPE FUNCTION LABEL AND MATCHING THE FLOW DIRECTION OF THE PIPE CONTENTS.

A. PROVIDE A PIPE LABEL FOR EACH PIPE FUNCTION.

B. PROVIDE AT LEAST ONE LABEL ON EACH PIPE FOR EVERY ROOM THE

C. PROVIDE LABELS IN LARGE SPACES ON MAXIMUM 20' CENTERS FOR EVERY PIPE UNLESS OTHERWISE NOTED IN THE SPECIFICATIONS.

D. LABELS TO BE LOCATED IN AN EASILY VISIBLE LOCATION AS THEY WOULD NORMALLY BE SEEN. IE. ON THE BOTTOM HALF OF PIPES IN THE AIR AND ON THE TOP HALF OR SIDES OF PIPES MOUNTED LOW. E. LABELS SHALL BE, COLOR CODED, PRE-PRINTED, SELF ADHESIVE VINYL. F. SEE SPECIFICATION FOR OTHER REQUIREMENTS AND LIST OF PIPE FUNCTIONS.

**PIPING IDENTIFICATION LABEL DETAIL** 

![](_page_20_Figure_30.jpeg)

NOTE: IF IN ADA CABINET, ALL PIPING SHALL MEET ANSI & ADA REQUIREMENTS

SINK WITH EYEWASH DETAIL

2 NOT TO SCALE

		FLU
	SYMBOL	
CT DOCUMENTS.		WORK
IS AND PRIOR DNS SHOWN MUST	${\color{black}}$	POINT
ST, HOWEVER, NGLY		POINT
NG CONDITIONS	NTS	NOT T
	(E)	EXIST
RV THIS	(R)	REMO
RIALS AS MUCH AS	(FTR)	FXIST
ALS CAUSED BY	BFF	BELOV
ALS TO A LOCATION	VTR	VENT
	GC	GENE
	MC	MECH
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	NO	

	PLUMBING SYMBOL LIST
YMBOL	DESCRIPTION
	WORK TO BE REMOVED
${\color{black}}$	POINT OF CONNECTION
	POINT OF DISCONNECTION
NTS (E)	NOT TO SCALE EXISTING
(R)	REMOVE
(ETR)	EXISTING TO REMAIN
AFF	ABOVE FINISHED FLOOR
	BELOW FINISHED FLOOR
GC	
MC	MECHANICAL CONTRACTOR
PC	PLUMBING CONTRACTOR
EC	ELECTRICAL CONTRACTOR
– (E) ——	EXISTING PIPING
	NEW PIPING LOCATED ABOVE FLOOR/SLAB
	NEW PIPING LOCATED BELOW FLOOR/SLAB
•	
_ • •	
140 ••	140° HOT WATER RECIRCULATING PIPING (HWR)
40 •••	140° HOT WATER RECIRCULATING PIPING (HWR)
– TW ——	TEMPERED HOT WATER PIPING (TW)
TWR —	TEMPERED HOT WATER RETURN PIPING (TWR)
- 02	OXYGEN PIPING (02)
- VAC	VACUUM PIPING (VAC)
- MV	MEDICAL VACUUM PIPING (MV)
- MS	MEDICAL SUCTION (MS)
– MA ———	MEDICAL AIR PIPING (MA)
N20 ——	NITROUS OXIDE PIPING (NO2)
)	ELBOW DOWN
	45°OFFSET
0	
	"P" TRAP
	PIPE CONTINUATION
]	CAP OR PLUG
φ	DECK PLATE CLEANOUT (DPCO)
	WALL PLATE CLEANOUT (WPCO)
	FLOOR DRAIN (FD) / FLOOR SINK (FS)
	WALL HYDRANT (WH) / HOSE BIBB (HB)
Ţ.	STRAINER
M	WATER METER
	SHUT OFF VALVE
——————————————————————————————————————	BALANCING VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
	SHOCK ABSORBER (SA)
	RECIRCULATION PUMP
-	THERMOMETER
<b>-↓</b> - <b>○</b>	PRESSURE GAUGE
T	TRAP PRIMER (TP)
S	VACUUM SLIDE
NO	
	VACUUM OUTLET
$\overline{\mathbf{x}}$	DRAWING KEYNOTE
\ <u>^</u> /	

![](_page_20_Figure_36.jpeg)

CONDENSATE DRAIN DETAIL 3 NOT TO SCALE

![](_page_20_Picture_38.jpeg)

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![](_page_21_Figure_2.jpeg)

1 PARTIAL LEVEL 1 DEMOLITION PLAN - PLUMBING 1/4" = 1'-0"

![](_page_21_Picture_4.jpeg)

![](_page_22_Figure_1.jpeg)

![](_page_22_Figure_2.jpeg)

## **DEMOLITION NOTES**

- DISCONNECT AND REMOVE PIPING AS REQUIRED TO ALLOW FOR INSTALLATION OF NEW HVAC DUCTWORK. REFER TO 'M' DRAWINGS FOR FURTHER REQUIREMENTS. PREP PIPING FOR REINSTALLATION.
   DISCONNECT PIPING FROM SINK AND PREPARE FOR NEW CONNECTION
- DISCONNECT AND REMOVE PIPING AS REQUIRED TO ALLOW FOR INSTALLATION OF ROOF SUPPORTS FOR AHU AND DUCT SUPPORT RAILS.
   PREP PIPING FOR REINSTALLATION. REFER TO 'M' DRAWINGS FOR FURTHER REQUIREMENTS. COORDINATE WORK WITH G.C. AND M.C.

![](_page_22_Picture_6.jpeg)

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![](_page_23_Figure_2.jpeg)

![](_page_23_Figure_3.jpeg)

![](_page_23_Picture_4.jpeg)

![](_page_23_Figure_7.jpeg)

![](_page_24_Figure_2.jpeg)

## **DRAWING NOTES**

- 1 RECONNECT PIPING TO NEW SINK AS REQUIRED.
- 2 CONNECT 3/4" CW TO EXISTING PIPING AS REQUIRED AND ROUTE
- THROUGH CASEWORK CHASE. 3 CONNECT 3/4" CW TO HOSE BIBB. MOUNT HOSE BIBB INSIDE OF THE
- SINK BASE CABINET. 4 ROUTE 3/4" IW THROUGH CASEWORK CHASE AND CONNECT TO SINK
- TAILPIECE.
- 5 CONNECT 3/4" IW TO HVAC EQUIPMENT AS REQUIRED.
- 6 REINSTALL PIPING AS REQUIRED AFTER HVAC WORK IS COMPLETE. REFER TO 'M' DRAWING FOR FURTHER REQUIREMENTS.
- 7 REINSTALL PIPING AS REQUIRED AFTER THE INSTALLATION OF AHU AND DUCT SUPPORT RAILS. REFER TO 'M' DRAWINGS FOR FURTHER REQUIREMENTS. COORDINATE WORK WITH G.C. AND M.C.

	CMD
Checked By:	
Project Manager:	
	GDD
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Documents

**SWBR** 

387 East Main Street Rochester NY 14604

585 232 8300 | rochester@swbr.com

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ENGINEERING Mechanical/Electrical Engineering Consultants Rochester | Buffalo | Syracuse | Capital District

M/E Project #230003

300 TROLLEY BOULEVARD ROCHESTER, NY 14606

585.288.5590 www.meengineering.com

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Example Model To be pairweight         Example Model To be pairweight         Example Model To be pairweight           Image: Provide Construction         Image: Provide Construction         Image: Provide Construction         Image: Provide Construction           Image: Provide Construction         Image: Provide Construction         Image: Provide Construction         Image: Provide Construction           Image: Provide Construction         Image: Provide Construction         Image: Provide Construction         Image: Provide Construction           Image: Provide Construction         Image: Provide Construction         Image: Provide Construction         Image: Provide Construction           Image: Provide Construction         Image: Provide Construction         Image: Provide Construction         Image: Provide Construction           Image: Provide Construction         Image: Provide Construction         Image: Provide Construction         Image: Provide Construction           Image: Provide Construction         Image: Provide Construction         Image: Provide Construction         Image: Provide Construction           Image: Provide Construction         Image: Provide Construction         Image: Provide Construction         Image: Provide Construction           Image: Provide Construction         Image: Provide Construction         Image: Provide Construction         Image: Provide Construction           Image: Provide Construction         Image: Provide Construct	SYMROL			
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		POINT OF DISCONNECTION	CS	CONDENSER WATER SUPPLY
3.3         DPAMING CHNOTE         OWN         CHILLD WATER RETURN           1         MEMORAND TENDE         -DO         FUE OUR HILL           1         MEMORAND TENDE         -DO         FUE OUR HILL           1         FUE OUR HILL         -DO         FUE OUR HILL           1         FUE OUR TENDERAL LINES - FUE TOKE         -DO         FUE OUR FUE WATER FUE			CWS	CHILLED WATER SUPPLY
Image: state in the s	$\mathbf{X}$	DRAWING KEYNOTE	CWR	CHILLED WATER RETURN
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MR         Industry         Product         Pr			FOF	FUEL OIL FILL
TO         PAGE NO.         PAGE         PAGE NO.         PAGE NO.           (b)         ACOUSTIC THERMALLINING - 112 THICK         G.         G.         G.           (c)         ACOUSTIC THERMALLINING - 112 THICK         G.         G.         G.           (c)         ACOUSTIC THERMALLINING - 112 THICK         G.         G.         G.         G.           (c)         ACOUSTIC THERMALLINING - 112 THICK         G.		THOUSAND BTU/HOUR	FOG	
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(2)     AOUSTIC THERMALLINING.2*THICK     -G     0.48       FC     FLEWER CONNECTON     -GR     GLYCOL RETURN       FPM     FRET FER MAUTE     -GR     GLYCOL RETURN       FPM     FRET FER MAUTE     -GR     GLYCOL RETURN       AD     ACCESS DOC NEACTOR     -HOY MATER SUPPLY       MO     ACCESS DOC NEACTOR     -LPS     LOW PRESSURE STEAM       GC     GENERAL CONTRACTOR     -LPS     LOW PRESSURE STEAM       GC     FEMENACA CONTRACTOR     -LPS     LOW PRESSURE STEAM       GC     FEMENACA CONTRACTOR     -LPS     LOW PRESSURE STEAM       FE     FEELE RULE CONTRACTOR     MPC     MEDIM PRESSURE CONCENATE       FE     FEELE RULE CONTRACTOR     MPC     MEDIM PRESSURE CONCENATE       NC     MCRATCHARCHARCHARCE     FE     FERENCENATION CONCENATE       NC     MCRATCHARCHARCHARCHARCHARCE     FE     FERENCENATION CONCENATE       NC     MCRATCHARCHARCHARCHARCHARCHARCHARCHARCHARCHAR	(L)	ACOUSTIC THERMAL LINING - 1-1/2" THICK	FOV	FUEL OIL TANK VENT
F.C.         FLEXULE CONNECTION         -6.8         G. VOCI, SUPPLY           CPM         FETERER MINUTE         -6.8         G. VOCI, SUPPLY           CMD         CASCES BODO         HMAN         HEALT POLAR WATER SUPPLY           MIL         HMAN         HOW WATER SUPPLY         HEALT POLAR WATER SUPPLY           WW         WOLL TO WALL         HMAN         HOW WATER SUPPLY           C.C.         DEREAL CONTRACTOR         LPC         LOW PRESSURE STAML           M.C.         MERCAL CONTRACTOR         LPC         LOW PRESSURE STAML           F.C.         FLEXINE CONTRACTOR         HMC         MEDIUM PRESSURE STAML           M.C.         MORALLY OPPN         HEAL POLY         MEDIUM PRESSURE STAML           M.C.         PC         FLEXINE CONTRACTOR         HMC         MEDIUM PRESSURE CONDENSATE           M.C.         MORALLY OPPN         HEAL POLY         MEDIUM PRESSURE CONDENSATE         MEDIUM PRESSURE STAML           MILL         MEDIUM PRESSURE CONDENSATE         MEDIUM PRESSURE CONDENSATE         MEDIUM PRESSURE CONDENSATE           MILL         MEDIUM PRESSURE STAML         MEDIUM PRESSURE STAML         MEDIUM PRESSURE CONDENSATE           MILL         MEDIUM PRESSURE STAML         MEDIUM PRESSURE STAML         MEDIUM PRESSURE STAML	(2L)	ACOUSTIC THERMAL LINING - 2" THICK	G	GAS
Head	F.C.	FLEXIBLE CONNECTION	GS	GLYCOL SUPPLY
ADD         ADD/E         FILL         FILL <th< td=""><td>FPM CEM</td><td></td><td></td><td></td></th<>	FPM CEM			
AD     ACCESS DOOR     HOT WATER SUPEY       WW     WATER SUPEY     HOT WATER SUPEY       G.C.     GENERAL CONTRACTOR     LPS       LOW PRESSURE STAM     LOW PRESSURE CONCENTE       P.C.     PLUMENG CONTRACTOR     MPS       M.C.     MEDIUM PRESSURE CONCENTE       P.C.     PLUMENG CONTRACTOR     MPS       M.C.     MEDIUM PRESSURE CONCENTE       N.C.     MEDIUM PRESSURE CONCENTE       MEDIUM PRESSURE CONCENTE     PRESSURE CONCENTE       MEDIUM PRESSURE CONCENTR     MEDIUM PRESSURE CONCENTE       MEDIUM PRESSURE CONCENTR     MEDIUM PRESSURE CONCENTR       MEDIUM PRESSURE CONCENTR     MEDIUM PRESSURE CONCENTR <t< td=""><td>AFF</td><td>ABOVE FINISHED FLOOR</td><td>——HPWR——</td><td>HEAT PUMP WATER RETURN</td></t<>	AFF	ABOVE FINISHED FLOOR	——HPWR——	HEAT PUMP WATER RETURN
WWW         WALL TO WALL         — HWR         — HOT WATER RETURN           C.C.         DERRAL CONTRACTOR         LPC         LOW MRESSURE STEAM           M.C.         MECHANOL CONTRACTOR         LPC         LOW MRESSURE STEAM           P.C.         PLUDINING CONTRACTOR         MPC         MEDUM RESSURE CONDENSATE           P.C.         PLUDINING CONTRACTOR         MPC         MEDUM RESSURE CONDENSATE           P.C.         PLUDINING CONTRACTOR         MPC         MEDUM RESSURE CONDENSATE           M.C.         MORALLY OPEN         MPC         MEDUM RESSURE CONDENSATE           M.C.         MORALLY OPEN         MPC         MEDUM RESSURE CONDENSATE           M.C.         MORALLY OPEN         MEDUM RESSURE STEAM         MEDUM RESSURE STEAM           M.C.         MORALY OPEN         MEDUM RESSURE STEAM         MEDUM RESSURE STEAM           M.C.         MORALY OPEN         MEDUM RESSURE STEAM         MEDUM RESSURE STEAM           M.C.         MORALY OPEN         MEDUM RESSURE STEAM         MEDUM RESSURE STEAM           M.C.         MERSING STACK         PRESSURE STEAM TEXTON DEDUCTION         MEDUM RESSURE STEAM           M.C.         MERSING STACK         PRESSURE STORE STEAM STEAM TEXTON DEDUCTION         MEDUM RESSURE STEAM           M.C.         MEDUT	AD	ACCESS DOOR	——HWS——	HOT WATER SUPPLY
G.C.     GENERAL CONTRACTOR     IPS     I.OW PRESSURE STEAM       M.C.     MECLAMICAL CONTRACTOR     MPS     MECLAMICS STEAM       P.C.     PUMBING CONTRACTOR     MPS     MECLAMISSINE STEAM       P.C.     PUMBING CONTRACTOR     MPS     MECLAMISSINE STEAM       N.C.     NORMALLY OFENANCION     PREPARE FUNCTION     MECLAMISSINE STEAM       N.C.     NORMALY OFENANCION     PREPARE FUNCTION     PREPARE FUNCTION       N.C.     NORMALY OFENANCION     PREPARE FUNCTION     PREPARE FUNCTION       N.C.     DUCT SECTION - RETURN     TREE MACHANICOLON     NACLAMIS       N.C.     DUCT SECTION - RETURN     TREE FUNCTION     TREE FUNCTION       N.C.     DUCT SECTION - RETURN     TREE FUNCTION     TREE FUNCTION       N.C.     RECENT SULLY     CONTROL VALVE     TREE FUNCTION       N.C.     RECENT SULLY     CONTROL VALVE     TREE FUNCTION       N.C.     RECENT SUL	W/W	WALL TO WALL	——HWR——	HOT WATER RETURN
M.C.     M.E.LPAARAZ LONITAZ (DM     LPG       PCC     FULURING GOVTRACTOR     MPD2       E.C.     ELONINGLY CONTRACTOR     MPD2       M.C.     NORMALLY CORESULTE STAM     MPD2       N.C.     NORMALLY CORESULTE STAM     MPD2       M.C.     NORMALLY CORESULTE STAM     MPD2       M.C.     NORMALLY CORESULTE STAM     MPD2       M.C.     NORMALLY CORES     PC       M.C.     NORMALLY CORES     PC       M.G.     NORMALLY CORES     PC       M.G.     NORMALLY CORES     PC       M.G.     NORMALY CORES     PC </td <td>G.C.</td> <td>GENERAL CONTRACTOR</td> <td>LPS</td> <td>LOW PRESSURE STEAM</td>	G.C.	GENERAL CONTRACTOR	LPS	LOW PRESSURE STEAM
PIC     PIC DUBBING LAWING LAW     PIC DUBBING LAWING LAW       PIC     PICARDING LAWING LAW     PICARDING LAWING LA	M.C.			
NO     HORMALY CORED     HPC       N.C.     NORMALY CORED     HPC       HI-H-H-     REWRLP CONDENSATE       PC     HORMALY CORED       HI-H-H-     REWRLP CONDENSATE       PC     HORMALY CORED       HI-H-H-     REWRLP CONDENSATE       PC     HORMALY CORED       PC     PC       PC     NOTHALY CORED       PC     HORMALY CORED       PC     PC	P.C.			
N.C.     NGRMALL VCLOSED       PH-H-H-H-BRIE FULCTWORK     PPC-HIGH RESSURE CONDENSATE       PLUET EBUR FULCTWORK     PR       PLUET ESCIDE - NETURN     PR       PLUET A VEFTH B     PR       PLUET IN DIRECTION OF AIRLOW     PLUET ENVICE       PLUET IN DIRECTION OF AIRLOW     PLUET ENVICE <tr< td=""><td><u> </u></td><td></td><td></td><td>HIGH PRESSURE STEAM</td></tr<>	<u> </u>			HIGH PRESSURE STEAM
H+H+H+     FLEXIBLE DUCTWORK     PC     PUMPED CONDENATE       Main     BUCT SECTION - FLAT OVAL (F0)     -RL     REFRIGERANT LIGCIONAGE       Main     REFRIGERANT LIGCION     REFRIGERANT LIGCION       Main     DUCT SECTION - RUPH Y     VAC       Main     DUCT SECTION OF AIRFLOW     SATE WAY FE       Main     DROP IN DUCT - IN DRECTION OF AIRFLOW     DECENTRY VALVE       Main     DROP IN DUCT - IN DRECTION OF AIRFLOW     BUTTERPLY VALVE       Main     DROP IN DUCT - IN DRECTION OF AIRFLOW     BUTTERPLY VALVE       Main     DROP IN DUCT - IN DRECTION OF AIRFLOW     BUTTERPLY VALVE       Main     DROP IN DUCT - IN DRECTION OF AIRFLOW     BUTTERPLY VALVE       Main     DROP IN DUCT - IN DRECTION OF AIRFLOW     PRESSURE REPURITION RUPH       Main     DROP IN DUCT - IN DRECTION OF AIRFLOW     PRESSURE REPURITION RUPH       Main     DROP IN DUCT - IN DRECTION OF AIRFLOW     DROP IN DUCT - IN DRECTION OF AIRFLOW	N.C.	NORMALLY CLOSED	—— HPC ——	HIGH PRESSURE CONDENSATE
Ans     Duct SECTION - FLAT OVAL (PO)     RC     REFRICERANT LIDICATION       127     ROUND DUCT - IN INCHES     RS     REFRICERANT SUCTION       128     DUCT SECTION - SUPPLY	+++++++++++++++++++++++++++++++++++++++	FLEXIBLE DUCTWORK	—— PC ——	PUMPED CONDENSATE
PO     PO     PERFECTANT LIQUID       PI     REFIGERANT LIQUID       PI     PROVID DUCT - IN INCHES     HOT CAS       PU     PUCT SECTION - SUPPLY     OWNERTIC COLD WATER       PU     DUCT SECTION - REFURN     DUT TRANSTIC COLD WATER       PU     PUCT SECTION - REFURN     DUT TRANSTIC COLD WATER       PU     PALL VALVE     PALL VALVE       PU     TRANSTIC COLD WATER     PALL VALVE       PU     TRANSTIC SOLUTION VALVE     PALL VALVE       PU     DROP IN DUCT - IN DIRECTION OF ARFLOW     DO CONTROL VALVE       PU     DROP IN DUCT - IN DIRECTION OF ARFLOW     BUTTER/LY VALVE       PU     DROP IN DUCT TURNING UP OR DOWN     DUT REFLY VALVE       PU     DROP IN DUCT TURNING UP OR DOWN     PRESUME REGULANG VALVE       PU     SUPPLY PUCT TURNING UP OR DOWN     PRESENTER/EMPERATULE TEST FLUC       PUP TARETURN     SINGLE LINE FIPE CONTINUED     DOUDER LINE CONTINUED       PUP TARETURN     PUP TARETURN     DOUDER LINE CONTINUED       PUP TARETURN     PUP TARETURN     PUP TARETURN	AxB		RD	REFRIGERANT DISCHARGE
Image: Section - Supply       Res	└ <b>J</b> F0		RL	REFRIGERANT LIQUID
Number         Number         Number           DUCT SECTION - RETURN	9 12"	ROUND DUCT - IN INCHES	RS — RS — IC	KEFRIGERANT SUCTION
DUCT SECTION - SUPPLY         OW         DOWNESTIC COLD WATER           Image: Construction of the	-		пс VAС	VACUUM
↓         ↓         Territe DUTY VALVE           ↓         ■         ■         ■           ↓         ■         ■         ■           ↓         ■         ■         ■           ↓         ■         ■         ■           ↓         ■         ■         ■           ↓         ■         ■         ■           ↓         ■         ■         ■           ↓         ■         ■         ■           ↓         ■         ■         ■           ↓         ■         ■         ■           ↓         ■         ■         ■         ■           ↓         ■         ■         ■         ■           ↓         ■         ■         ■         ■           ↓         ■         ■         ■         ■           ↓         ■         ■         ■         ■           ↓         ■         ■         ■         ■           ↓         ■         ■         ■         ■           ↓         ■         ■         ■         ■           ↓         ■         ■         ■		DUCT SECTION - SUPPLY	CW	DOMESTIC COLD WATER
Image: Supervised of the duration of the dura				TRIPLE DUTY VALVE
B     WIDTH A X DEPTH B       B     PALL VALVE       CATE VALVE       D       Rest IN DUCT - IN DIRECTION OF AIRFLOW       V     CHECK VALVE       D     BUTTERFLY VALVE       V     SUPPLY DUCT TURNING UP OR DOWN       V     PERSURE REPORTING TEST FLUG       V     SINCLE LINE PIPE CONTINUED       DUP TAP     SUPPLY DUCT TURNING UP OR DOWN       V     RECTANGULAR MAN       RECTANGULAR MAN     SINCLE LINE PIPE CONTINUED       DUP TAP     DUP CONTINUED       DUP TAP     DUP CONTINUED       DUP TAP     DUP CONTINUED       DUP TAP     DUP CONTINUED       DUP CONTINUE     DUP CONTINUE       DUP CONTINUE     DUP CONTINUE       DUP CONTINUE     DUP CONTINUE       DUP CONTINUE       DUP CONTINUE				
Image: Supervise transmission square to round     Image: Supervise transmission square to round the supervise transmission square transmissquare transmission square transmission square transmission square	AB	WIDTH A X DEPTH B	• • • • • • • • • • • • • • • • • • •	BALL VALVE
ITRANSITION SQUARE TO ROUND     ITRANSITION SQUARE TO ROUND       Rise IN DUCT - IN DIRECTION OF AIRFLOW     ITREE WAY CONTROL VALVE       DROP IN DUCT - IN DIRECTION OF AIRFLOW     BALANCING VALVE       BLEE VALUE     BALANCING VALVE       DROP IN DUCT - IN DIRECTION OF AIRFLOW     BALANCING VALVE       BLEE VALUE     BALANCING VALVE       SUPPLY DUCT TURNING UP OR DOWN     Image: Stream of the stream				
R     RISE IN DUCT - IN DIRECTION OF AIRFLOW     P       P     DROP IN DUCT - IN DIRECTION OF AIRFLOW     Check Value       P     DROP IN DUCT - IN DIRECTION OF AIRFLOW     Check Value       P     SUPPLY DUCT TURNING UP OR DOWN     BUTTERLY VALUE       P     SUPPLY DUCT TURNING UP OR DOWN     PRESUBE ENEMPERATURE TEST PLUG SINGLE LINE PIPE CONTINUED       P     SUPPLY OUCT TURNING UP OR DOWN     Image State State Part Part State Part Part State State Part Part State Part Part State Part Part State Part Part Part Part State Part Part Part State Part Part Part State Part Part Part Part Part Part Part Part		TRANSITION SQUARE TO ROUND		
Nobe: Inv Direction of ARFLOW       Image: Construction of ARFLOW         Image: Construction of ARFLOW       Image: C	R L			THREE WAY CONTROL VALVE
P       DROP IN DUCT - IN DIRECTION OF AIRFLOW       ■ ERLANCING VALVE         M22x12       UP       SUPPLY DUCT TURNING UP OR DOWN       ■ RELEF VALVE         M22x12       UP       RETURN DUCT TURNING UP OR DOWN       ■ PRESSURE REDUCING VALVE         M22x12       UP       RETURN DUCT TURNING UP OR DOWN       ■ PRESSURE REDUCING VALVE         M2       SUPPLY INETURN       SUPPLY INETURN       ■ SINGLE LINE PIPE CONTINUED         M2       TAP       SUPPLY INETURN       ■ ODUBLE LINE PIPE CONTINUED         M2       TAP       ■ CONTACULAR MAIN       ■ ODUBLE LINE PIPE CONTINUED         M2       TAP       ■ CONTACULAR MAIN       ■ ODUBLE LINE PIPE CONTINUED         M2       TAP       ■ ODUBLE LINE PIPE CONTINUED       ■ ODUBLE LINE PIPE CONTINUED         M2       TAP       ■ ODUBLE LINE PIPE CONTINUED       ■ ODUBLE LINE PIPE CONTINUED         M3       SUPPLY INETURN       ■ PIPE AUDUP       ■ ODUBLE LINE PIPE CONTINUED         M3       SUPPLY INETURN       ■ PIPE AUDUP       ■ PIPE AUDUP         M1       THERMOMETER       ■ ODUBLE LINE PIPE CONTINUED       ■ ODUBLE LINE PIPE CONTINUED         M1       THERMOMETER       ■ ODUBLE LINE PIPE CONTINUED       ■ ODUBLE LINE PIPE CONTINUED         M1       THERMOMETER       ■ ODUBLE LINE PIPE CONTING TA		RISE IN DUCT - IN DIRECTION OF AIRFLOW	<u> </u>	CHECK VALVE
24x12       UP       SUPPLY DUCT TURNING UP OR DOWN       PRESSURE REDUCING VALVE         24x12       UP       RETURN DUCT TURNING UP OR DOWN       PRESSURE REDUCING VALVE         24x12       UP       RETURN DUCT TURNING UP OR DOWN       PRESSURE REDUCING VALVE         6*BODT       SUPPLYRETURN       PRECTANEOLIAR MAIN       DOUBLE LINE RECTANGULAR         14x8       RECTANGULAR BRANCH       DOUBLE LINE RECTANGULAR       DOUBLE LINE RECTANGULAR         14x8       RECTANGULAR MAIN       PRESSURE REMOVED       DOUBLE LINE RECTANGULAR         14x8       RECTANGULAR MAIN       DOUBLE LINE RECTANGULAR       DOUDCT CONTINUED         14x8       SUPPLYRETURN       ROUND BRANCH       PIPE AND CONFENSATOR WITH GUIDE         14x8       SUPPLYRETURN       ROUND BRANCH       SUPPLYRETURN         14x8 </td <td>D</td> <td>DROP IN DUCT - IN DIRECTION OF AIRFLOW</td> <td></td> <td>BALANCING VALVE</td>	D	DROP IN DUCT - IN DIRECTION OF AIRFLOW		BALANCING VALVE
<sup>1</sup> / <sub>2</sub> 24:12 UP SUPPLY DUCT TURNING UP OR DOWN <sup>2</sup> / <sub>2</sub> PRV           RELIEF VALVE <sup>1</sup> / <sub>2</sub> 24:12 UP <sup>1</sup> / <sub>2</sub> PRV           RELIEF VALVE           RESSURE REDUCING VALVE <sup>1</sup> / <sub>2</sub> 24:12 UP           RETARDUCT TURNING UP OR DOWN <i>PRESSURE REDUCING VALVE             <sup>1</sup>/<sub>1</sub>/<sub>4</sub> 24:12 UP           SUPPLY RETURN           Single Line PiPe OR INDUCT             <sup>1</sup>/<sub>1</sub>/<sub>1</sub>/<sub>3</sub>/<sub>3</sub>          RECTARGULAR MAN           Supply RETURN           Single Line PiPe OR             <sup>1</sup>/<sub>1</sub>/<sub>1</sub>/<sub>3</sub>/<sub>1</sub>/<sub>3</sub>/<sub>3</sub>            Single Line PiPe OR           Double Line Rectangular             <sup>1</sup>/<sub>1</sub>/<sub>1</sub>/<sub>1</sub>/<sub>1</sub>/<sub>1</sub>/<sub>1</sub>/<sub>1</sub>/<sub>1</sub>/<sub>1</sub>/<sub>1</sub></i>			┤	BUTTERFLY VALVE
24x12       UP       RETURN DUCT TURNING UP OR DOWN	I ∕ ∕ 1 24x12 UP	SUPPLY DUCT TURNING UP OR DOWN		RELIEF VALVE
<ul> <li>APPESSURE/TEMPERTURE TEST PLUG</li> <li>SINGEL LINE PIPE CONTINUED</li> <li>SINGEL LINE PIPE CONTINUED</li> <li>SINGEL LINE PIPE CONTINUED</li> <li>SINGEL LINE PIPE CONTINUED</li> </ul> <ul> <li>G* BOOT</li> <li>SUPPLYRETURN</li> <li>RECTANGULAR RANN</li> <li>BUPLYRETURN</li> <li>SUPPLYRETURN</li> <li>SUPPLYRETURN</li> <li>SUPPLYRETURN</li> <li>SUPPLYRETURN</li> <li>SUPPLYRETURN</li> <li>SUPPLYRETURN</li> <li>CONICAL</li> <li>SUPPLYRETURN</li> <li>CONICAL</li> <li>SUPPLYRETURN</li> <li>SUPPLYRETURN</li> <li>SUPPLYRETURN</li> <li>SUPPLYRETURN</li> <li>SUPPLYRETURN</li> <li>SUPPLYRETURN</li> <li>SUPPLYRETURN</li> <li>STRAINER</li> <li>STRAINER</li> <li>STRAINER</li> <li>SUPPLYRETURN</li> <li>SUPPLY DIFFUSER, REGISTER OR GRILLE</li> <li>SUPPLY DIFFUSER, REGISTER OR GRILLE</li> <li>SUPPLY DIFFUSER, REGISTER OR GRILLE</li> <li>SUPPLY DIFFUSER</li> <li>SUPPLY DIFFUSER</li> <li>SUPPLY DIFFUSER</li> <li>SUPPLY DIFFUSER</li> <li>SUPPL</li></ul>				PRESSURE REDUCING VALVE
Image: Construct of the product of		RETURN DUCT TURNING UP OR DOWN	[	PRESSURE/TEMPERATURE TEST PLUG
Integration       Decide the problem of t				SINGLE LINE PIPE CONTINUED
Image: A rectangoluar branch       Image: A rectangoluar branch		RECTANGULAR MAIN		
Image: Supply Rectangeluar Main Rectangeluar Main Rectangeluar Main Rectangeluar Main Round Branch       Image: Supply Rectangeluar Main Round Branch         Image: Connect Connection Round Branch       Image: Supply Rectangeluar Main Round Branch       Image: Supply Rectangeluar Main Round Branch         Image: Connect Connection Round Branch       Image: Supply Rectangeluar Main Round Branch       Image: Supply Rectangeluar Main Round Branch         Image: Connect Connection Round Branch       Image: Supply Rectangeluar Main Round Branch       Image: Supply Rectangeluar Main Round Branch         Image: Connect Connection Round Branch       Image: Supply Rectangeluar Main Round Branch       Image: Supply Rectangeluar Main Round Branch         Image: Connect Co	N <u>   ] 14x8 </u>	RECTANGULAR BRANCH		
SV     TAP     SUPPLYRETURN ROUND BRANCH     AR FLOW       SV     FRECTANGULAR MAIN ROUND BRANCH     PIPE GUIDE       CONICAL     SUPPLYRETURN ROUND BRANCH     EXPANSION COMPENSATOR WITH GUIDE       C     CONICAL     SUPPLYRETURN ROUND BRANCH     EXPANSION COMPENSATOR WITH GUIDE       Image: Conical Supply Content of the stress of the st	v V⊤ _ 6" BOOT		·	DUCT CONTINUED
Image: Signed Stress		SUPPLY/RETURN	\ <b>_</b>	AIR FLOW
CONICAL       SUPPLY/RETURN         ROUND MAIN       ROUND BRANCH         Image: Conical relation of the second	₦ 14"	ROUND BRANCH		PIPE ANCHOR
Image: Supplymetrum Round main Round main Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch         Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch         Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch         Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch         Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch         Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch         Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch         Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch         Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch         Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch       Image: Supplymetrum Round Branch <t< td=""><td></td><td></td><td></td><td>PIPE GUIDE</td></t<>				PIPE GUIDE
14*       ROUND MAIN ROUND BRANCH       C       PRE-SURE GAUGE         Internal       SUPPLY/RETURN ROUND BRANCH       STRAINER       STRAINER         Internal       SUPPLY/RETURN ROUND BRANCH       Internal       Internal         Internal       MITERED ELBOW WITH TURNING VANES       Internal       Internal         Internal       SUPPLY DIFFUSER, REGISTER OR GRILLE       Internal       Internal         Internal       SUPPLY DIFFUSER, REGISTER OR GRILLE       Internal       Internal         Internal       RETURN REGISTER       Internal       Internal         Intube RADIATION       Intube RADIATION       Internal       Intube RADIATION         Intube RADIATION       Intube RADIATION       Intube RADIATION TAG       Intube RADIATION TAG         Intube RADIATION TAG<	© / TEE	SUPPLY/RETURN		
LATERAL       SUPPLYRETURN ROUND BRANCH       Image: Stranker	14"			PRE-FAB EXPANSION LOOP
ATERAL       SUPPLY/RETURN ROUND MAIN ROUND BRANCH       Image Cauce         Image Cauce       Image Cauce				STRAINER
A       P       THERMONE TER         NOUND BRANCH       IV       AIR VENT         Image: Construction of the second secon			<u> </u>	PRESSURE GAUGE
14*       ROUND BRANCH       IV       AIR VENT         IV       AIR VENT       IV       AIR VENT         IV       AIR VENT       IT       THERMOSTATIC TRAP         IV       ITT       THERMOSTATIC TRAP         IV       SUPPLY DIFFUSER, REGISTER OR GRILLE       ITT       THERMOSTATIC TRAP         IV       SUPPLY DIFFUSER, REGISTER OR GRILLE       ITT       THERMOSTATIC TRAP         IV       RETURN REGISTER       ITT       THERMOSTATIC TRAP         IV       RETURN REGISTER       ITT       CAP OR PLUG         IV       REDUCER       ELBOW DOWN       ELBOW DOWN         IV       EXHAUST GRILLE       Ittel Composition       Ittel Composition         IV       FIN TUBE RADIATION       Ittel Composition       AD AUTOMATIC AIR DAMPER         IV       VALANCE       SD SMOKE DAMPER       SD SMOKE DAMPER         IV       RADIANT CEILING PANEL       Ittel Composition DIFFUSER       MOTORIZED DAMPER         IV       REGISTER, GRILLE OR DIFFUSER TAG       SD       SUCTION DIFFUSER         IV       A and TYPE       Ittel Commetore       BO BACK DRAFT DAMPER         IV       Ca C FM       Ittel Commetore       SD         IV       Ca C FM       Ittel Commetore<	₹.V	ROUND MAIN		THERMOMETER
Image: state in the state	14"	ROUND BRANCH	• V	
MITERED ELBOW WITH TURNING VANES <ul> <li>FT</li> <li>FLOAT &amp; THERMODYNAMIC TRAP</li> <li>TD</li> <li>THERMODYNAMIC TRAP</li> <li>BT</li> <li>BUCKET TRAP</li> <li>DIRECTION OF FLOW</li> </ul> SUPPLY DIFFUSER, REGISTER OR GRILLE <ul> <li>BT</li> <li>BUCKET TRAP</li> <li>DIRECTION OF FLOW</li> <li>RETURN REGISTER</li> <li>CAP OR PLUG</li> <li>EXHAUST GRILLE</li> <li>BOTTOM TAP</li> </ul> VALANCE <ul> <li>FIN TUBE RADIATION</li> <li>AUTOMATIC AIR DAMPER</li> <li>SUD BACK DRAFT DAMPER</li> </ul> VALANCE <ul> <li>BD BACK DRAFT DAMPER</li> <li>SUD BACK DRAFT DAMPER</li> <li>SUD BACK DRAFT DAMPER</li> </ul> MITERED ELBOGH <ul> <li>FIN TUBE RADIATION TAG</li> <li>FT-A TYPE</li> <li>B = NICK SIZE</li> <li>C = CRM</li> <li>SUD SUCTION DIFFUSER</li> </ul> MITERED ELBOGH <ul> <li>FIN TUBE RADIATION TAG</li> <li>FT-A = TYPE</li> <li>B = NICK SIZE</li> <li>C = CRM</li> <li>SUD SUCTION DIFFUSER</li> </ul> FTA = TYPE <ul> <li>FIN TUBE RADIATION TAG</li> <li>FT-A = TYPE</li> <li>B = NIN TUBE LENGTH</li> <li>D = GPM</li> </ul> <ul> <li>SUDATIC TAL DAMPER</li> <li>SUDA</li></ul>			TT	THERMOSTATIC TRAP
Image: Supply diffuser, register or grille       ■ D       THERMODYNAMIC TRAP         Image: Supply diffuser, register or grille       ■ BT       BUCKET TRAP         Image: Supply diffuser, register or grille       Image: Supply diffuser, register       Image: Supply diffuser, register       Image: Supply diffuser, register         Image: Supply diffuser, register       Image: Supply diffuser, register       Image: Supply diffuser, register       Image: Supply diffuser, register         Image: Supply diffuser, register       Image: Supply diffuser, register       Image: Supply diffuser, register, register       Image: Supply diffuser, register,			■ FT	FLOAT & THERMOSTATIC TRAP
●BT       BUCKET TRAP         SUPPLY DIFFUSER, REGISTER OR GRILLE       →         →       DIRECTION OF FLOW         RETURN REGISTER       →         →       CAP OR PLUG         EXHAUST GRILLE       →         →       BOTTOM TAP         FIN TUBE RADIATION       →         ✓       AUTOMATIC AIR DAMPER         ✓       FIN TUBE RADIATION         ✓       AUTOMATIC AIR DAMPER         ✓       VALANCE         ✓       RADIANT CEILING PANEL         ✓       REGISTER, GRILLE OR DIFFUSER TAG         A       BC         B       NOTORIZED DAMPER         ✓       BC         C       C C C CFM         MOTORIZED DAMPER         ✓       SUCKTION DIFFUSER         FIT-A       TYPE         B       FIN TUBE RADIATION TAG         FT-A       FT-A         C       C C C CFM         Ø       VOLUME DAMPER         Image: PLANE       →         Ø       SUCTION DIFFUSER         FT-A       TYPE         B       FIN TUBE LENGTH         C       G         C       GOLANT CEILING PANEL TAG		WITERED ELDOW WITH TURNING VANES	■ TD	THERMODYNAMIC TRAP
M       SUPPLY DIFFUSER, REGISTER OR GRILLE			■ BT	
NEDUCER         RETURN REGISTER         CAP OR PLUG         EXHAUST GRILLE         FIN TUBE RADIATION         VALANCE         VALANCE         REGISTER, GRILLE OR DIFFUSER TAG         A = TYPE         B = NECK SIZE         C = CFM         FIN TUBE RADIATION TAG         FT-A         FT-A         FIN TUBE RADIATION TAG         FT-A         FIN TUBE RADIATION TAG         FT-A         FIN TUBE RADIATION TAG         FT-A         FT-A         FO THE CONNECTOR - DUCTWORK         A = TYPE         B = NECK SIZE         C = ENCLOSURE LENGTH         C = ENCLOSURE LENGTH         C = GPM         A = TYPE         B = COLOSURE LENGTH         C = GPM         A = TYPE         B = COLOSURE LENGTH         C = GPM         A = TYPE         B = COLOSURE LENGTH         C = GPM	$\left  \mathbf{X} \right $	SUPPLY DIFFUSER, REGISTER OR GRILLE		BEDLICER
N       RETURN REGISTER       Image: Construction of the second s				CAP OR PLUG
EXHAUST GRILLE				ELBOW DOWN
Image: Sector of Number       Bottom tap         Fin TUBE RADIATION		EXHALIST GRULE	0	ELBOW UP
Image: Pin Tuble RADIATION      AD AUTOMATIC AIR DAMPER         VALANCE      FD FIRE DAMPER         RADIANT CEILING PANEL      FD SMOKE DAMPER         REGISTER, GRILLE OR DIFFUSER TAG      FC FLEX CONNECTOR - DUCTWORK         A = TYPE       B = NECK SIZE         C = CFM			÷	
VALANCE       Intervention of the product of the produc			AAD	
RADIANT CEILING PANEL       BDD BACK DRAFT DAMPER         A       REGISTER, GRILLE OR DIFFUSER TAG       FILEX CONNECTOR - DUCTWORK         A       TYPE       B = NECK SIZE       MOTORIZED DAMPER         C       C = CFM       VOLUME DAMPER       VOLUME DAMPER         FT-A       FIN TUBE RADIATION TAG       SD       SUCTION DIFFUSER         FT-A       FIN TUBE RADIATION TAG       SD       SUCTION DIFFUSER         FT-A       FT-A = TYPE       SUCTION DIFFUSER       DRAIN VALVE WITH HOSE CONNECTION, CAP AND CHAIN         D       C = GPM       PH       HUMIDISTAT         A       RADIANT CEILING PANEL TAG       ® TEMPERATURE SENSOR         B       C = GPM       ® TEMPERATURE SENSOR         C       C = GPM       C CARBON DIOXIDE SENSOR         A       A = TYPE       © CARBON MONOXIDE SENSOR         B       C = COLLING GPM       © NITROGEN DIOXIDE SENSOR         C       C = COULING GPM       © NEUMATIC THERMOSTAT         D       HEATING GPM       © G § G THERMOSTAT         C       C = COULING GPM       © G § G THERMOSTAT         D       D = HEATING GPM       © G § G THERMOSTAT/SENSOR WITH GUARD         VAV-X-XX       AIR TERMINAL UNIT AND TAG (OPTION 1)       A B		VALANCE	FD SD	SMOKE DAMPER
A       B       REGISTER, GRILLE OR DIFFUSER TAG         A       = TYPE         B       C       C         C       C       C         FT-A       FIN TUBE RADIATION TAG       ¬         VOLUME DAMPER       ¬         B       FIN TUBE LENGTH         C       GPM         C       GPM         C       GPM         C       GPM <td></td> <td>RADIANT CEILING PANEL</td> <td> BDD</td> <td>BACK DRAFT DAMPER</td>		RADIANT CEILING PANEL	BDD	BACK DRAFT DAMPER
A       A       TYPE       MOTORIZED DAMPER         B       C       C = CFM       ¬ BG       BLAST GATE         FT.A       FIN TUBE RADIATION TAG       ¬ VOLUME DAMPER         FT.A       FIN TUBE RADIATION TAG       SUCTION DIFFUSER         FT.A       TYPE       SUCTION DIFFUSER         B       C       ENCLOSURE LENGTH       SUCTION DIFFUSER         D       D       G       DRAIN VALVE WITH HOSE CONNECTOR - PIPING         B       FIN TUBE LENGTH       PIEXIBLE CONNECTOR - PIPING         D       G       FLEXIBLE CONNECTOR - PIPING         A       A = TYPE       DRAIN VALVE WITH HOSE CONNECTION, CAP AND CHAIN         C       C = ENCLOSURE LENGTH       PIEXIBLE CONNECTOR - PIPING         C       G = GAM       WITH OSE CONNECTION, CAP AND CHAIN         C       C = GPM       Image: Piexibility of the piexibilit			FC	FLEX CONNECTOR - DUCTWORK
<ul> <li>B = NECK SIZE C = CFM</li> <li>B = NECK SIZE C = CFM</li> <li>C = CFM</li> <li>VOLUME DAMPER</li> </ul> <ul> <li>FT-A</li> <li>FT-A = TYPE</li> <li>B = FIN TUBE LENGTH</li> <li>C = ENCLOSURE LENGTH</li> <li>D = GPM</li> </ul> <ul> <li>FT-A = TYPE</li> <li>B = FIN TUBE LENGTH</li> <li>C = ENCLOSURE LENGTH</li> <li>D = GPM</li> </ul> <ul> <li>A = TYPE</li> <li>B = LENGTH</li> <li>C = GPM</li> <li>RADIANT CEILING PANEL TAG</li> <li>B = LENGTH</li> <li>C = GPM</li> <li>MITROGEN DIOXIDE SENSOR</li> </ul> <ul> <li>A = TYPE</li> <li>B = LENGTH</li> <li>C = GPM</li> <li>C C = GPM</li> <li>C C = GPM</li> <li>C C = GPM</li> <li>C C = COLING GPM</li> <li>C = COOLING GPM</li> <li>D = HEATING GPM</li> <li>C = COOLING GPM</li> <li>D = HEATING GPM</li> <li>T = LINE VOLTAGE THERMOSTAT</li> <li>T = LINE VOLTAGE THERMOSTAT</li> <li>T = LINE VOLTAGE THERMOSTAT</li> <li>T G © S G THERMOSTAT/SENSOR WITH GUARD</li> </ul> <ul> <li>VAV-X-XX</li> <li>AIR TERMINAL UNIT WITH FACTORY</li> <li>AIR TERMINAL UNIT WITH FACTORY</li> <li>AIR TERMINAL UNIT WITH FACTORY</li> </ul> <ul> <li>AIR TERMINAL UNIT WITH FACTORY</li> <li>AIR TERMINAL UNIT TAG (OPTION 1)</li></ul>	A B	A = TYPE		
FT-A       FIN TUBE RADIATION TAG         FT-A       FIN TUBE LENGTH         C       ENCLOSURE LENGTH         D       C = ENCLOSURE LENGTH         C       ENCLOSURE LENGTH         D       C = ENCLOSURE LENGTH         C       ENCLOSURE LENGTH         D       C = ENCLOSURE LENGTH         C       ENCLOSURE LENGTH         D       C = GPM         RADIANT CEILING PANEL TAG         A       TYPE         B = LENGTH       ®         C       C = GPM         VALANCE TAG         A = TYPE         B = LENGTH         C       G G C         C = GPM         VALANCE TAG         A = TYPE         B = COIL SIZE         C = COOLING GPM         D = HEATING (OPTION 1)         AIR TERMINAL UNIT WITH FACTORY	C	B = NECK SIZE	— BG	
FT-A       B       FT.A = TYPE       FT.A = TYPE         B = FIN TUBE LENGTH       C = ENCLOSURE LENGTH       DRAIN VALVE WITH HOSE CONNECTION, CAP AND CHAIN         D = GPM       HUMIDISTAT       CAP AND CHAIN         A = TYPE       HUMIDISTAT       B         B C       C = GPM       Image: Construction of the second construc		FIN TUBE RADIATION TAG	SD	
C       D       B = FIN TUBE LENGTH C = ENCLOSURE LENGTH D = GPM       DRAIN VALVE WITH HOSE CONNECTION, CAP AND CHAIN         A       D = GPM       H       HUMIDISTAT         A       A = TYPE       B       LENGTH C = GPM       H         C       B = LENGTH C = GPM       H       HUMIDISTAT         A       A = TYPE       B       IEMOGEN DIOXIDE SENSOR         B       LENGTH C = GPM       C       CARBON DIOXIDE SENSOR         VALANCE TAG A = TYPE B = COIL SIZE C D       G       GAS SENSOR         C       C = COOLING GPM D = HEATING GPM       T       PNEUMATIC THERMOSTAT         D       H = HEATING GPM       T       E LINE VOLTAGE THERMOSTAT         F VAV-X-XX       AIR TERMINAL UNIT AND TAG (OPTION 1)       T       AIR TERMINAL UNIT TAG (OPTION 2) A = UNIT NO. B = MAXIMUM CFM         AIR TERMINAL UNIT WITH FACTORY VAV-X-XXX       AIR TERMINAL UNIT WITH FACTORY ATTENUATOR (OPTION 1)       AIR TERMINAL UNIT TAG (OPTION 2) A = UNIT NO. B = MAXIMUM CFM	B	FT-A = TYPE		FLEXIBLE CONNECTOR - PIPING
D       GPM       T       CAP AND CHAIN         A       B       RADIANT CEILING PANEL TAG       H       HUMIDISTAT         A       TYPE       S       TEMPERATURE SENSOR         B       LENGTH       NITROGEN DIOXIDE SENSOR         C       GPM       C       CARBON DIOXIDE SENSOR         A       TYPE       NITROGEN DIOXIDE SENSOR         B       LENGTH       NITROGEN DIOXIDE SENSOR         C       GPM       C         A       TYPE       S         B       A = TYPE       S         B       A = TYPE       S         B       C = COOLING GPM       S         D       HEATING GPM       T         D = HEATING GPM       T       PNEUMATIC THERMOSTAT         D = HEATING GPM       T       E         VAV-X-XX       AIR TERMINAL UNIT AND TAG (OPTION 1)       AIR TERMINAL UNIT TAG (OPTION 2)         A = UNIT NO.       B = MAXIMUM CFM       A = UNIT NO.         VAV-X-X-XX       AIR TERMINAL UNIT WITH FACTORY       AIR TERMINUM CFM         VAV-X-X-XX       AIR TERMINAL UNIT WITH FACTORY       AIR TERMINUM CFM	С	B = FIN TUBE LENGTH	1	DRAIN VALVE WITH HOSE CONNECTION,
A       RADIANT CEILING PANEL TAG       (H)       HUMIDISTAT         B       A = TYPE       (S)       TEMPERATURE SENSOR         B = LENGTH       (S)       TEMPERATURE SENSOR         C       GPM       (C)       CARBON DIOXIDE SENSOR         A = TYPE       (G)       CARBON MONOXIDE SENSOR         B       A = TYPE       (G)       CARBON MONOXIDE SENSOR         B       A = TYPE       (G)       GAS SENSOR         B       C COLING GPM       (T)       PNEUMATIC THERMOSTAT         D       D = HEATING GPM       (T) E       LINE VOLTAGE THERMOSTAT         D       HEATING GPM       (T) G       (S) G       THERMOSTAT/SENSOR WITH GUARD         VAV-X-XX       AIR TERMINAL UNIT AND TAG (OPTION 1)       (T) G       (T) G       (T) G       (T) G         VAV-X-XX       AIR TERMINAL UNIT WITH FACTORY       (T) G       (T) G       (T) G       (T) A         VAV-X-XX       AIR TERMINAL UNIT WITH FACTORY       (T) G       (T) G       (T) A       (T) A         VAV-X-XX       AIR TERMINAL UNIT WITH FACTORY       (T) G       (T) G       (T) A       (T) A         (T) TENUATOR (OPTION 1)       (T) A       (T) C       (T) A       (T) A       (T) A   <	D	D = GPM	Ţ,	
B       A = TYPE       Impervatione sensor         B       C       G       NITROGEN DIOXIDE SENSOR         C       GPM       C       CARBON DIOXIDE SENSOR         A       YALANCE TAG       C       CARBON MONOXIDE SENSOR         A       TYPE       G       GAS SENSOR         B       C C COLING GPM       C       CARBON MONOXIDE SENSOR         C       C COOLING GPM       G       GAS SENSOR         D       D = HEATING GPM       T       PNEUMATIC THERMOSTAT         D = HEATING GPM       T       E       LINE VOLTAGE THERMOSTAT         T       C = COOLING GPM       T       T       E         VAV-X-XX       AIR TERMINAL UNIT AND TAG (OPTION 1)       T       G       S       G         VAV-X-XX       AIR TERMINAL UNIT WITH FACTORY       AIR       AIR TERMINAL UNIT TAG (OPTION 2)       A = UNIT NO.         A = UNIT NO       B = MAXIMUM CFM       C = MINIMUM CFM       C = MINIMUM CFM	Α	RADIANT CEILING PANEL TAG	(H)	
C       C = GPM       C       C = ARBON DIOXIDE SENSOR         A       A       VALANCE TAG       ©       CARBON MONOXIDE SENSOR         B       A = TYPE       ©       CARBON MONOXIDE SENSOR         C       D       C = COOLING GPM       ©       CARBON MONOXIDE SENSOR         D       D = HEATING GPM       ©       CARBON MONOXIDE SENSOR         D       D = HEATING GPM       ©       GAS SENSOR         T       PNEUMATIC THERMOSTAT       ©         T       PNEUMATIC THERMOSTAT       ©         D       HEATING GPM       ©       C = COULTAGE THERMOSTAT         T       T       E       LINE VOLTAGE THERMOSTAT         T       F       LINE VOLTAGE THERMOSTAT       ©         AIR TERMINAL UNIT AND TAG (OPTION 1)       T       AIR TERMINAL UNIT TAG (OPTION 2)         A = UNIT NO.       B = MAXIMUM CFM       A = UNIT NO.       B = MAXIMUM CFM         VAV-X-XX       AIR TERMINAL UNIT WITH FACTORY       A = UNIT NO.       B = MAXIMUM CFM	В	A = TYPE B = LENGTH	(N)	NITROGEN DIOXIDE SENSOR
A       B       VALANCE TAG       ©       CARBON MONOXIDE SENSOR         B       C       CARBON MONOXIDE SENSOR       ©       CARBON MONOXIDE SENSOR         B       C OIL SIZE       ©       CARBON MONOXIDE SENSOR         C       C OOLING GPM       ©       GAS SENSOR         D       HEATING GPM       ①       PNEUMATIC THERMOSTAT         D       HEATING GPM       ①       ①         VAV-X-XX       AIR TERMINAL UNIT AND TAG (OPTION 1)       ①       ①         AIR TERMINAL UNIT WITH FACTORY       AIR TERMINAL UNIT TAG (OPTION 2)       AIR UNIT NO.         VAV-X-XX       AIR TERMINAL UNIT WITH FACTORY       AIR C       AIR MAXIMUM CFM         VAV-X-XX       AIR TERMINAL UNIT WITH FACTORY       AIR C       B = MAXIMUM CFM	С	C = GPM	©	CARBON DIOXIDE SENSOR
B       A = TYPE         B = COIL SIZE       ①         C = COOLING GPM       ①         D = HEATING GPM       ①         P = HEATING GPM       ①         P = HEATING GPM       ①         P = HEATING GPM       ①         B = COIL SIZE       ①         P = HEATING GPM       ①         P = MAXIMUAL UNIT AND TAG (OPTION 1)       P = MAXIMUAL UNIT TAG (OPTION 2)         A = UNIT NO.       B = MAXIMUM CFM         VAV-X-XX       AIR TERMINAL UNIT WITH FACTORY         A = UNIT NO.       B = MAXIMUM CFM         C = MINIMUM CFM       C = MINIMUM CFM	Α	VALANCE TAG	<u> </u>	CARBON MONOXIDE SENSOR
C       D       C	В	A = TYPE B = COU SIZE	G	GAS SENSOR
D = HEATING GPM       (T) E       LINE VOLTAGE THERMOSTAT         VAV-X-XX       AIR TERMINAL UNIT AND TAG (OPTION 1)       (T) G (S) G       THERMOSTAT/SENSOR WITH GUARD         AIR TERMINAL UNIT WITH FACTORY VAV-X-XX       AIR TERMINAL UNIT WITH FACTORY ATTENUATOR (OPTION 1)       AIR TERMINAL UNIT TAG (OPTION 2) A = UNIT NO. B = MAXIMUM CFM C = MINIMUM CFM	С	C = COOLING GPM		PNEUMATIC THERMOSTAT
Image: Wav-x-xx       AIR TERMINAL UNIT AND TAG (OPTION 1)         Image: Wav-x-xx       AIR TERMINAL UNIT WITH FACTORY ATTENUATOR (OPTION 1)         Image: Wav-x-xx       AIR TERMINAL UNIT WITH FACTORY ATTENUATOR (OPTION 1)         Image: Wav-x-xx       AIR TERMINAL UNIT WITH FACTORY ATTENUATOR (OPTION 1)		D = HEATING GPM		
AIR TERMINAL UNIT WITH FACTORY VAV-X-XX ATTENUATOR (OPTION 1) AIR TERMINAL UNIT WITH FACTORY ATTENUATOR (OPTION 1) AIR TERMINAL UNIT TAG (OPTION 2) A = UNIT NO. B = MAXIMUM CFM C = MINIMUM CFM	🔁 vav-x-xx	AIR TERMINAL UNIT AND TAG (OPTION 1)		
AIR TERMINAL UNIT WITH FACTORY     A     ONIT NO.       VAV-X-XX     AIR TERMINAL UNIT WITH FACTORY     B = MAXIMUM CFM       C     C     B = MAXIMUM CFM			В	AIR TERMINAL UNIT TAG (OPTION 2) A = UNIT NO
				B = MAXIMUM CFM
	VAV-X-XX			C = MINIMUM CFM

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
⊟⇒ <sub>BI</sub>	BINARY INPUT (GENERAL)		SINGLE POINT SENSOR
BO	BINARY OUTPUT (GENERAL)		
↑AI	ANALOG INPUT (GENERAL)		
			TRANSDUCER
			ELECTRONIC/ELECTRIC TRANSDUCER
	ANALOG POINT		ELECTRICAL INTERFACE
BV	BINARY VALUE		
BI BO	BINARY INPUT BINARY OUTPUT		START/STOP
AV			OPEN/CLOSE
AO	ANALOG NUTPUT	ED	ENABLE/DISABLE
IJ	THERMOWELL		HARD WIRE INTERFACE
Α	ALARM		PNEUMATIC CONTROL
			VALVE (3-WAY)
E			VALVE (2-WAY)
FZ	FREEZE-STAT	E	ELECTRIC/ELECTRONIC
Н	HUMIDIFIER	E	ELECTRIC/ELECTRONIC
~~~	HUMIDIFIER DISPERSION GRID		CONTROL VALVE (2-WAY)
			SOLENOID VALVE
R	RELAY		THERMOSTATIC EXPANSION VALVE
S	STATUS	++++++	
$\langle M \rangle$	FLOW METER		(PARALLEL BLADE)
	MOTOR		(OPPOSED BLADE)
			BUTTERFLY CONTROL DAMPER
BTU	BTU ENERGY METER		PNEUMATIC ACTUATOR
	AIR FLOW MEASURING		MAIN TEMPERATURE
Ε 	STATION	EA	CONTROL AIR SOURCE
5	AVERAGING SENSOR	OA	OUTSIDE AIR
H	HUMIDITY SENSOR (DUCT MOUNTED)	RA SA	RETURN AIR SUPPLY AIR
T		F.L.	FAIL LAST
		F.U.	
2	(DUCT MOUNTED)		
	CARBON MONOXIDE SENSOR		SMOKE CONTROL FAN
	(DUCT MOUNTED)	RF	RETURN AIR FAN
SA S	SPACE SENSOR WITH SETPOINT	(EF_	EXHAUST AIR FAN
	SPACE SENSOR WITH OCCUPANCY		
S	DISPLAY		BASE MOUNTED PUMP
(F) S	SPACE SENSOR WITH FAN ON/OFF SWITCH		IN LINE PUMP
SA T	ROOM TEMPERATURE SENSOR WITH	ASD	ADJUSTABLE SPEED DRIVE
T	OCCUPANCY OVERRIDE		
	ROOM TEMPERATURE SENSOR WITH	Č C	COOLING COIL
(F)		H	HEATING COIL
T	FAN ON/OFF SWITCH		
OS	OCCUPANCY SENSOR	С	HEAT RECOVERY COIL
Μ	MOISTURE SENSOR	G	GAS BURNER
	PROBE SENSOR		
FS		- (R134a)→	(WALL MOUNTED)
		HI	HIGH LEVEL SWITCH
F	FLOW SWITCH		
ES	END SWITCH	LOW	
S	MANUAL SWITCH		VENTURI AIRFLOW CONTROL VALVE
			TRANSFORMER
Ρ			
$\triangle \mathbf{P}$	DIFFERENTIAL STATIC PRESSURE SWITCH		MOTOR STARTER
	DIFFERENTIAL STATIC	RD	ROTATION DETECTOR
E/	ELECTRIC/PNEUMATIC	SD	SMOKE DETECTOR
	SWITCH OR RELAY	CS	CURRENT SENSOR
PE	SWITCH OR RELAY		
F	FLOW TRANSMITTER	MOD	MODULATING
	PRESSURE TRANSMITTER	SC	SPEED COMMAND
$\vee$		AOM	ADDRESSABLE OUTPUT MODULE
	(DUCT MOUNTED)		(FIRE ALARM INTERFACE)
DP		COM	INTERFACE POINT
			LIQUID IMMERSION
DP SP	STATIC PRESSURE SENSOR (DUCT MOUNTED)	Y	
DP SP C	STATIC PRESSURE SENSOR (DUCT MOUNTED)		
	STATIC PRESSURE SENSOR (DUCT MOUNTED) CONDENSATE SENSOR ELECTRIC TO PNEUMATIC	RH	RELATIVE HUMIDITY SENSOR
	STATIC PRESSURE SENSOR (DUCT MOUNTED) CONDENSATE SENSOR ELECTRIC TO PNEUMATIC TRANSDUCER	RH FZ	RELATIVE HUMIDITY SENSOR

## **GENERAL NOTES:**

- C.
- F AT NO ADDITIONAL COST TO THE OWNER.
- F. OF THE GRILLE NECK.
- SENSORS SHALL BE 48 IN. TO TOP OF THE COVER.
- Н. TO THE OWNER.
- J.
- L.
- VERIFY EXISTING CONDITIONS AND DIMENSIONS.
- ADDITIONAL COST TO THE OWNER.
- Ρ. FABRICATION.
- Q. ALL MATERIAL AND EQUIPMENT SHALL BE NEW. CODES.
- RATINGS SHALL BE MAINTAINED.
- T. MAINTAIN SERVICE CLEARANCES OF ALL EQUIPMENT.

A. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DISPOSE OF ALL DEMOLITION DEBRIS AND MATERIALS OFF SITE IN A PROPER LEGAL MANNER.

B. ALL NEW PENETRATIONS THROUGH WALLS, FLOORS AND ROOFS SHALL BE PROVIDED FOR INSTALLATION OF MECHANICAL SYSTEMS INCLUDING, BUT NOT LIMITED TO, EQUIPMENT, DUCTWORK, PIPING, ETC. ALL PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE FIRE/SMOKE STOPPED. ALL PENETRATIONS THROUGH NON RATED WALLS SHALL BE SEALED WITH A NON-HARDENING SEALANT ON BOTH SIDES OF WALL PENETRATION TO REDUCE NOISE TRANSMISSION.

THE DUCTWORK SIZES AND TYPES (ROUND AND RECTANGULAR)WERE SELECTED FOR SPACE LIMITATION WITHIN THE RENOVATED AREA. IN ADDITION, THE DUCTWORK SIZES AND TYPES WERE CHOSEN TO ALLOW SPACE ABOVE THE CEILINGS FOR FUTURE DUCTWORK, PIPING AND/OR CONDUIT. IT IS NOT ACCEPTABLE FOR THE CONTRACTOR TO CHANGE THE SIZE OR TYPE OF DUCTWORK FOR BIDDING OR INSTALLATION UNLESS SPECIFICALLY APPROVED BY THE ENGINEER.

D. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL SHUTDOWNS OF AIR HANDLING, CHILLED WATER, HOT WATER, STEAM, ETC. SYSTEMS WITH CORNELL UNIVERSITY FACILITY PERSONNEL FOR TIE-IN CONNECTIONS. ALL SHUT DOWNS WILL OCCUR DURING NIGHTS OR WEEKENDS. THE CONTRACTOR SHALL ASSIST THE UNIVERSITY PERSONNEL IN SHUTTING DOWN, DRAINING, VENTING, ETC. OF SYSTEM TO FACILITATE THE INTENDED WORK.

A MINIMUM OF 1'-6" SHALL BE PROVIDED IN FRONT OF CONTROL ACCESS ENCLOSURES AT ALL TERMINAL UNITS. NO PIPING OR CONDUIT SHALL BE DIRECTLY INSTALLED BELOW AIR TERMINAL UNIT ACCESS ENCLOSURES THAT WILL PROHIBIT ACCESS UP TO THE CONTROL ENCLOSURE. COORDINATE THESE REQUIREMENTS WITH ALL OTHER TRADES ON THE PROJECT. IF PROPER SERVICE ACCESS IS NOT MAINTAINED BECAUSE OF POOR COORDINATION, THE CONTRACTOR SHALL RELOCATE OBSTRUCTIONS

PROVIDE A VOLUME DAMPER AT EACH DIFFUSER AND GRILLE FOR PROPER BALANCING REGARDLESS IF SHOWN ON DRAWINGS. ALL VOLUME DAMPERS SHALL BE A MINIMUM OF 6'-0" FROM DIFFUSER OR GRILLE CONNECTION. IF FLEXIBLE DUCTWORK IS UTILIZED FOR FINAL CONNECTION AT GRILLES, THE CROSS SECTIONAL AREA OF THE FLEXIBLE DUCTWORK SHALL NOT BE LESS THAN THE CROSS SECTIONAL AREA

G. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE LOCATIONS OF ALL ROOM TEMPERATURE SENSORS WITH THE ARCHITECT/ENGINEER. THE CONTRACTOR SHALL SCHEDULE A WALK THROUGH WITH THE ARCHITECT/ENGINEER TO LOCATE SENSOR LOCATIONS PRIOR TO INSTALLATION. THE TEMPERATURE SENSORS SHALL BE INSTALLED IN ALIGNMENT WITH ELECTRICAL, FIRE, AND OTHER DEVICES WHEN LOCATED ON COMMON WALLS. THE MOUNTING HEIGHT FOR ALL TEMPERATURE

DAMAGE TO EXISTING SYSTEMS (EQUIPMENT, PIPING, DUCTWORK, CONTROLS AND ACCESSORIES) SHOWN TO REMAIN AS A RESULT OF THE CONTRACTORS WORK IS THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND/OR REPLACE WITH SIMILAR OR LIKE MATERIALS AT NO ADDITIONAL COST

I. COORDINATE ALL SHUT DOWNS WITH OWNER PRIOR TO CONSTRUCTION.

THE DEMOLITION DRAWINGS SHOW IN GENERAL MAJOR EQUIPMENT, PIPING AND DUCTWORK REMOVALS. THE INTENT IS NOT TO IDENTIFY ALL MISCELLANEOUS PIPING, PIPING ACCESSORIES, DUCTWORK, DUCTWORK ACCESSORIES, SUPPORTS, CONTROLS, CONTROL ACCESSORIES, CONTROL WIRING, CONDUIT, AND CONTROL PNEUMATIC TUBING AND ACCESSORIES TO BE DISCONNECTED AND REMOVED BUT IS THE REQUIREMENTS UNDER THIS CONTRACT. NO EQUIPMENT, PIPING OR DUCTWORK SHALL BE ABANDONED IN PLACE UNLESS OTHERWISE NOTED ON THE DRAWINGS.

K. IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL AIR VENTS OR DRAINS FOR THE INSTALLATION OF THE PIPING SYSTEMS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AIR VENTS AT ALL SYSTEM HIGH POINTS AND AT AREAS WITHIN THE PIPING SYSTEMS THAT COULD ACCUMULATE OR TRAP AIR PREVENTING PROPER OPERATION OF THE SYSTEMS. DRAINS SHALL BE PROVIDED AT ALL LOW POINTS WITHIN THE PIPING SYSTEMS TO FACILITATE DRAINING OF THE SYSTEM COMPLETELY.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PATCH WITH LIKE MATERIAL AND FINISH ALL EXISTING DUCTWORK OR PIPE PENETRATIONS THROUGH FLOORS AND WALLS AFTER DEMOLITION.

M. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR CONSTRUCTION DOCUMENTS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BID. NO ALLOWANCE WILL BE MADE FOR ADDITIONAL COSTS DUE TO CONTRACTORS FAILURE TO

N. THE OWNER OCCUPIED AREAS INCLUDE SENSITIVE EQUIPMENT AND RESEARCH WHICH MUST NOT BE INTERRUPTED OR OTHERWISE DISTRUPTED WITHOUT PRIOR NOTICE AND APPROPRIATE PLANNING.

O. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO

VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY ALL DIMENSIONS BEFORE

R. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTRUCTION AND LOCAL, STATE, AND NATIONAL

S. SLEAVE AND SEAL ALL WALL AND FLOOR PENETRATIONS. PROVIDE FIRESTOPPING FOR ALL FIRE-RATED PENETRATIONS. PROVIDE ACOUSTICAL SEALANT FOR ALL NON RATED PENETRATIONS. ALL FIRE

U. ALL BUNKER SLAB PENETRATIONS NEED TO BE REVIEWED BY THE "PHYSICIST OF RECORD".

![](_page_25_Picture_46.jpeg)

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![](_page_25_Picture_48.jpeg)

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M/E Project #230003

![](_page_25_Picture_51.jpeg)

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Checked By:	MJW
Project Manager:	GDD

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Upgrades	
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Cornell University lthaca, NY

**M-000 GENERAL NOTES &** SYMBOLS LIST -HVAC

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![](_page_26_Figure_1.jpeg)

![](_page_26_Figure_2.jpeg)

## **DEMOLITION NOTES**

- 1 DISCONNECT AND REMOVE EXISTING DUCTWORK AND DUCTWORK ACCESSORIES.
- 2 DISCONNECT AND REMOVE EXISTING AIR TERMINAL UNIT AND ASSOCIATED CONTROLS.3 DISCONNECT AND REMOVE EXISTING HUMIDIFIER DISTRIBUTOR.
- 4 EXISTING LEAD LINED DUCTWORK PENETRATING CONCRETE SLAB TO REMAIN.

![](_page_26_Picture_7.jpeg)

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![](_page_26_Picture_9.jpeg)

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M/E Project #230003

![](_page_26_Picture_12.jpeg)

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**M-101** PARTIAL LEVEL 2 DEMOLITION PLAN -DUCTWORK

![](_page_27_Figure_0.jpeg)

![](_page_27_Figure_1.jpeg)

![](_page_27_Figure_2.jpeg)

PARTIAL LEVEL 1 DEMOLITION PLAN - PIPING 1/8" = 1'-0"

## **DEMOLITION NOTES**

- 1 DISCONNECT AND REMOVE EXISTING CWS/R PIPING TO EXISTING CHILLER. EXISTING CHILLER TO BE REMOVED.
- DISCONNECT AND REMOVE EXISTING CWS/R PIPING. PREPARE PIPING FOR CONNECTION DURING NEW WORK PHASE.

![](_page_27_Picture_7.jpeg)

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![](_page_28_Figure_2.jpeg)

## **DEMOLITION NOTES**

- 1 DISCONNECT AND REMOVE EXISTING 3/4" HWS/R PIPING AND PIPING ACCESSORIES.
- 2 DISCONNECT AND REMOVE EXISTING AIR TERMINAL UNIT AND ASSOCIATED CONTROLS.
  3 DISCONNECT AND REMOVE EXISITING HUMIDIFIER DISTRIBUTOR.
- 4 CAP PIPING AT POINT OF DISCONNECT.
- 5 DISCONNECT AND REMOVE ALL EXISTING CWS/R PIPING BACK TO PIPING PENETRATION IN THE FLOOR. REMOVE CWS/R PIPING AND PIPING ACCESSORIES WITHIN THE WALL. PREPARE PIPING FOR CONNECTION DURING NEW WORK PHASE.

![](_page_28_Picture_8.jpeg)

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**M-111** PARTIAL LEVEL 2 DEMOLITION PLAN -PIPING

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![](_page_29_Figure_1.jpeg)

![](_page_29_Figure_2.jpeg)

#### **DRAWING NOTES**

- 1 CONNECT DUCTWORK INTO ASSOCIATED EXISTING DUCTWORK AS SHOWN.
- 2 CAP NEW DUCTWORK BELOW ROOF FOR FUTURE USE.
- 3 PROVIDE NEW HOT WATER REHEAT COIL.4 PROVIDE NEW SUPPLY AIR VALVE AND ASSOCIATED CONTROLS.
- 5 PROVIDE NEW RETURN AIR VALVE AND ASSOCIATED CONTROLS.
- 6 DISCONNECT AND RELOCATE EXISTING DUCTWORK AS NEEDED WITHIN AREA OUTLINED TO ALLOW FOR INSTALLATION OF ROOF SUPPORTS FOR AHU-13 AND DUCT SUPPORT RAILS.

![](_page_29_Picture_9.jpeg)

![](_page_29_Picture_10.jpeg)

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M/E Project #230003

![](_page_29_Picture_13.jpeg)

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**M-201** PARTIAL LEVEL 2 FLOOR PLAN -DUCTWORK

![](_page_30_Figure_2.jpeg)

## **DRAWING NOTES**

- 1 NEW CHILLER PROVIDED BY OTHERS. CONNECT EXISTING CWS/R TO NEW CHILLER. 2 SEE DETAIL 5 ON DRAWING M-402 FOR LINEAR ACCELERATOR CHILLER PIPING.
- **SWBR** 387 East Main Street Rochester NY 14604 585 232 8300 | rochester@swbr.com SWBR NYS Certificate of Authorization #: 235221 ENGINEERING Mechanical/Electrical Engineering Consultants Rochester | Buffalo | Syracuse | Capital District 585.288.5590 www.meengineering.com 300 TROLLEY BOULEVARD ROCHESTER, NY 14606 M/E Project #230003 THE OF NEW Reg. Exp: 04/30/2026 Cert. of Auth: 0018443 JAC Drawn By: MJW Checked By: Project Manager: GDD These documents and all the ideas, arrangements, designs and plans indicated thereon or presented thereby are owned by and remain the property of SWBR and no part thereof shall be utilized by any person, firm, or corporation for any purpose whatsoever except with the specific written permission of SWBR. All rights reserved. © Revisions -----VMC Linear Accelerator Replacement & Infrastructure Upgrades SWBR Project Number 23024.00 Cornell University lthaca, NY **M-210** PARTIAL LEVEL 1 FLOOR PLAN -PIPING October 12, 2023

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Documents

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![](_page_31_Figure_2.jpeg)

#### **DRAWING NOTES**

- 1 REFER TO ARCHITECTURAL PLANS FOR SHIELDING REQUIREMENTS.
- 2 DISCONNECT AND RELOCATE EXISTING MECHANICAL PIPING AS NEEDED WITHIN AREA OUTLINED TO ALLOW FOR INSTALLATION OF ROOF SUPPORTS FOR AHU-13 AND DUCT SUPPORT RAILS.
- 3 CWS/R PIPE TO RUN FROM POINT OF CONNECTION TO BEHIND WALL WITHIN FLOOR SLAB.
- 4 CWS/R PIPE TO RUN VERTICALLY IN WALL AND THEN RUN HORIZONTALLY AS SHOWN.
- 5 CWS/R PIPE TO RUN DOWN TO 1' ABOVE FIX FLOOR. BALL VALVES TO BE INSTALLED ON VERTICAL PIPING AND PIPE TO HAVE FEMALE NPT CONNECTIONS AT END OF PIPE.
  6 MANUFACTURER PROVIDED HOSE TO CONNECT TO FEMALE NPT CONNECTIONS AND
- BE ROUTED TO LINEAR ACCELERATOR WITHIN (2) 2" SLEEVES BELOW SLAB.

![](_page_31_Picture_10.jpeg)

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![](_page_31_Picture_12.jpeg)

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![](_page_31_Picture_15.jpeg)

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**M-211** PARTIAL LEVEL 2 FLOOR PLAN -PIPING

ΡA ILE

![](_page_32_Figure_1.jpeg)

![](_page_32_Figure_2.jpeg)

#### **DRAWING NOTES**

H

G

- 1 INSTALL OWNER FURNISHED EQUIPMENT ON STRUCTURAL DUNNAGE. REFER TO STRUCTURAL DRAWINGS.
- 2 PIPE VESTIBULES TO BE INSTALLED ON INSULATED ROOF CURB. G.C TO PROVIDE CURB, REFER TO ARCHITECTURAL DRAWINGS.
- 3 PROVIDE DUCTWORK SUPPORTS. REFER TO DETAILS FOR FURTHER INFORMATION.
- 4 PROVIDE ROOF CURB. REFER TO DETAILS FOR FURTHER INFORMATION. 5 CONNECT 1-1/4" INDIRECT WASTE TO COIL DRAIN PAN CONNECTION, DOWN TO ROOF. OUTLET TO BE 8" ABOVE ROOF.

![](_page_32_Picture_8.jpeg)

	CONTROL POINT	LOAD SHE						
NON-RE	SEARCH SPACES							
CRITICA	L SPACES (2)							
MIXED A	AIR FAN SYSTEMS - CRITICAL (2)							
NOTES:								
(1)	RETAIN ORIGINAL SET POINT IF LOWER THAN 55 DEG F.							
(2)	THE DETERMINATION OF WHETHER A SYSTEM OR ZONE IS CONSID							

)	THE DETERMINATION OF WHETHER A SYSTEM OR ZONE IS CONSID
	GENERALLY ANIMAL ROOMS, SERVER ROOMS AND LIBRARIES ARE
	EACH PROJECT SHALL CONDUCT AN INDEPENDENT MEETING WITH

![](_page_33_Picture_3.jpeg)

	CONTROL POINT	
NON-RI	ESEARCH SPACES	С
CRITIC	AL SPACES (2)	
NOTES (1)	RETAIN FREE COOLING IF REQUIRED AND AV	AILABL
(2)	THE DETERMINATION OF WHETHER A SYSTEM GENERALLY ANIMAL ROOMS, SERVER ROOMS EACH PROJECT SHALL CONDUCT AN INDEPEN	1 OR Z 3 AND NDENT
	LED WATER LOAD SHED MATR	XIX
	) SCALE	

	STEAM LO	DAD SHED MATRIX							
1 STEAM	LOAD SHED-2 STEAM	LOAD SHED-5 STEAM	LOAD SHED-6 STEA						
	ZON	IE CONTROL							
	INDEX SPACE TO U	INDEX TEMPERATURE	SET POINT TO 60 DEG F						
UNDER CONTROL									
AIR HANDLING SYSTEM CONTROL									
UNDER CONTROL									

DERED "CRITICAL" SHALL BE DETERMINED ON A CASE-BY-CASE BASIS. E THE ONLY SPACES THAT ARE PREQUALIFIED AS "CRITICAL" H THE PRIMARY PURPOSE OF MAKING LOAD SHED DECISIONS

CHILLED WATER LOAD SHED MATRIX										
	LOAD SHED 1 - CHILLED WATER DAYTIME (DEFCON 2)	LOAD SHED 2 - CHILLED WATER NIGHT (DEFCON 3)	LOAD SHED 4 - CHILLED WATER LCS EMERGENCY (DEFCON)							
ZONE CONTROL										
		INDEX SPACE TO U	NOCCUPIED MODE							
	CHILLED WATER COIL CONTROL VALVE UNDER CONTROL									
UNDER CONTROL										
AIR HANDLING SYSTEM CONTROL										
	UNDER CONTROL									
AND AVAILABLE										
A SYSTEM OR ZONE IS CONSIDERED "CRITICAL" SHALL BE DETERMINED ON A CASE-BY-CASE BASIS. R ROOMS AND LIBRARIES ARE THE ONLY SPACES THAT ARE PREQUALIFIED AS "CRITICAL" I INDEPENDENT MEETING WITH THE PRIMARY PURPOSE OF MAKING LOAD SHED DECISIONS										

![](_page_33_Picture_10.jpeg)

LOAD SHED MATRICES

EAM	

![](_page_34_Figure_1.jpeg)

ROOFTOP AIR HANDLING UNIT CONTROL SCHEMATIC AND SYSTEM SUMMARY NOT TO SCALE

E POINTS	SHOWN ON	
	GRAPHIC	NULES
DEGORI HON		BINARY NETWORK INPUTS FROM EMCS
		BINARY NETWORK INPUTS FROM EMCS
	Х	
LOW POINT	Х	
	X	
	X	
	X	INTERLOCK WITH FA SYSTEM
EAULIPE	X	
TALUNE	×	BACnet MSTP NETWORK POINT
	X	BACnet MSTP NETWORK POINT
HIGH LIMIT	х	
10% DEVIATION FROM SETPOINT	Х	
	X	
	X	
	X	
	X Y	
	X	
	X	
	Х	
	Х	
	Х	
	X	
	X	AVERAGING SENSOR
	X Y	
DEVIATION FROM SETPOINT	X	
	X	
HIGH LIMIT	Х	MAGNEHELIC INDICATING TRANSMITTER
HIGH LIMIT	Х	MAGNEHELIC INDICATING TRANSMITTER
DELTA T ACROSS COIL WITH VALVE COMMANDED CLOSED	Х	NORMALLY OPEN
5444055	X	
FAILURE	X	VIA CONTACT ON DRIVE
	X X	
	X	BACnet MSTP NETWORK POINT
	Х	AVERAGING SENSOR
	Х	
LOW LIMIT	X	
	X	
	X	
	X X	
	X	
	Х	
	Х	
	Х	
FAILURE	X	
	X	
HIGH LIMIT	х х	DAGRELING IF NETWORK PUINT
LOW LIMIT	X	
DELTA ACROSS COIL WITH VALVE COMMANDED CLOSED	X	NORMALLY CLOSED
	Х	AVERAGING SENSOR
10% DEVIATION FROM SETPOINT	X	
	X	
	X	
FAII URF	<u>х</u>	VIA CONTACT ON DRIVE
	X	
	х	BACnet MSTP NETWORK POINT
	X	BACnet MSTP NETWORK POINT
HIGH LIMIT	X	MAGNEHELIC INDICATING TRANSMITTER
DEVIATION FROM SETPOINT	X	SINGLE POINT SENSOR
	X	
	X Y	
10% DEVIATION FROM SFTPOINT	<u>х</u>	
	X	
	-	

#### **SEQUENCE OF OPERATION**

#### SYSTEM DESCRIPTION

RECIRCULATING AIR HANDLING UNIT (AC-13) SUPPLY AIR FAN **RETURN AIR FAN** GLYCOL PREHEAT COIL CHILLED WATER COOLING COIL STEAM HUMIDIFIER

#### **GENERAL**

SYSTEM SHALL BE CONTROLLED THROUGH THE BUILDING AUTOM/ SYSTEM (BACS).

ALL SETPOINTS SHALL BE ADJUSTABLE.

THE BACS SHALL BE CAPABLE OF STARTING AND STOPPING THE SY DIFFERENT DAILY SCHEDULES PER WEEK.

THE BACS SHALL BE CAPABLE OF RETAINING ITS PROGRAMMING A DURING A LOSS OF POWER FOR AT LEAST TEN HOURS. ALL SAFETIES SHALL BE HARD WIRED INTO THE FAN MOTOR POWE REQUIRE MANUAL RESET.

DURING HEATING MODE, THE HEATING CONTROL VALVE SHALL CO WHEN THE FAN IS OFF FOR CONTINUED FREEZE PROTECTION.

#### <u>SETPOINTS</u>

AHU DISCHARGE AIR TEMPERATURE: 55°F

MINIMUM OUTSIDE AIRFLOW RATE: 650 CFM

HUMIDIFICATION SETPOINT: 40% RH

FREEZESTAT LOW LIMIT TEMPERATURE: 38°F

FILTER DIFFERENTIAL PRESSURE HIGH LIMIT: 1.0" W.C.

SUPPLY DOWNSTREAM STATIC PRESSURE: SEE FAN SPEED CONT SUPPLY FAN DISCHARGE HIGH STATIC PRESSURE LIMIT: 6.0" W.C. RETURN FAN DISCHARGE HIGH STATIC PRESSURE LIMIT: 6.0" W.C.

SUPPLY FAN SUCTION LOW STATIC PRESSURE LIMIT: - 6.0" W.C.

RETURN FAN SUCTION LOW STATIC PRESSURE LIMIT: - 6.0" W.C.

MODULATED ECONOMIZER MIXED AIR TEMPERATURE: 50°F MINIMUM SPACE OCCUPANCY INDEX TIME: 30 MINUTES

SYSTEM OCCUPANCY SCHEDULE: COORDINATE WITH OWNER START/STOP

OCCUPIED: SUPPLY AIR FAN AND ASSOCIATED RETURN AIR FAN SH OPERATE CONTINUOUSLY BASED ON THE TIME OF DAY SCHEDULE START CONTROL ALGORITHM. THE ALGORITHM SHALL, AS A MINIMU THE DIFFERENCE BETWEEN SPACE TEMPERATURE AND THE AMOU THE SCHEDULED OCCUPANCY.

UNOCCUPIED: DURING THE SCHEDULED UNOCCUPIED PERIOD, THE INDEXED TO START WHENEVER ANY SPACE ASSOCIATED WITH TH LEVEL DROPS BELOW SET POINT OR BECOMES OCCUPIED, AS DET OCCUPANCY SENSORS. THE SYSTEM SHALL STOP AND INDEX BAC MODE WHEN OCCUPANCY IS NOT SENSED FOR A PERIOD OF 30 MIN SWITCHES ARE PROVIDED IN LIEU OF OCCUPANCY SENSORS, THE INDEXED TO START WHENEVER ANY OF THE MANUAL OVERRIDE S' OCCUPANCY; IN WHICH CASE THE SYSTEM SHALL OPERATE FOR A HOURS.

#### SHUTOFF DAMPER CONTROL

WHEN THE SYSTEM FANS ARE OFF, THE OUTSIDE AIR AND RELIEF BE CLOSED. THE RETURN AIR DAMPER SHALL BE OPEN.

#### FAN SPEED CONTROL

THE SUPPLY AIR FANS SHALL MODULATE VIA VARIABLE FREQUENC REQUIRED TO MAINTAIN THE DOWNSTREAM STATIC PRESSURE SE DOWNSTREAM STATIC PRESSURE SETPOINT SHALL BE RESET AS I THE CRITICAL ZONE DAMPER POSITION AT 95% OPEN.

RETURN FAN SHALL MODULATE VIA A VARIABLE FREQUENCY DRIV MAINTAIN THE RETURN AIR FLOW OFFSET.

RETURN AIR FLOW OFFSET = 98% TOTAL SUPPLY AIRFLOW.

**DISCHARGE AIR TEMPERATURE CONTROL** 

HEATING MODE: WHEN THE AHU DISCHARGE AIR TEMPERATURE F SETPOINT. HEATING MODE SHALL BE INITIATED. THE CHILLED WAT SHALL BE CLOSED. THE PREHEAT COIL PUMP SHALL BE ENABLED A SPEED. PREHEAT COIL CONTROL VALVE SHALL MODULATE AS REQ SETPOINT. THE OUTSIDE AIR DAMPER SHALL BE AT MINIMUM POSIT

COOLING MODE: WHEN DISCHARGE AIR TEMPERATURE RISES ABC COOLING MODE SHALL BE INITIATED. THE PREHEAT COIL PUMP SHA PREHEAT COIL CONTROL VALVE SHALL BE CLOSED. THE CHILLED \ VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN SETPOINT. TH DAMPER SHALL BE AT MINIMUM POSITION.

UNOCCUPIED TEMPERATURE CONTROL

THE AHU SUPPLY AND RETURN FANS SHALL BE OFF, THE RELIEF, RETURN AND OUTSIDE AIR DAMPERS SHALL BE CLOSED.

	HUMIDITY CONTROL								
	OCCUPIED: WHEN THE RETURN AIR HUMIDITY DROPS BELOW 40% RH (ADJ), AS SENSED BY THE RETURN AIR HUMIDITY SENSOR, HUMIDIFICATION CONTROL SHALL BE ENABLED. THE STEAM HUMIDIFIER CONTROL VALVES SHALL MODULATE AS REQUIRED TO MAINTAIN THE HUMIDITY SETPOINT. THE SUPPLY AIR RELATIVE HUMIDITY, AS SENSED BY THE SUPPLY AIR HUMIDITY SENSOR, SHALL LIMIT THE HUMIDIFIER FROM EXCEEDING A RELATIVE HUMIDITY OF 55% (ADJ) OR GREATER. IF THE RELATIVE HUMIDITY EXCEEDS 55% (ADJ), THE HUMIDIFIER SHALL MODULATE CLOSED. THE HUMIDIFIER CONTROL VALVE SHALL BE CLOSED UNLESS PROOF OF AIRFLOW IS DETERMINED.								
ATION AND CONTROL	UNOCCUPIED MODE: WHEN THE RETURN AIR HUMIDITY DROPS BELOW 30% RH (ADJ.), AS SENSED BY THE SPACE HUMIDITY SENSOR, THE HUMIDIFICATION CONTROL SHALL BE ENABLED. THE STEAM HUMIDIFIER CONTROL VALVES SHALL MODULATE AS REQUIRED TO MAINTAIN THE HUMIDITY SETPOINT. THE SUPPLY AIR BELATIVE HUMIDITY AS SENSED BY								
YSTEM FOR SEVEN	THE SUPPLY AIR HUMIDITY SENSOR, SHALL LIMIT THE HUMIDIFIER FROM EXCEEDING A RELATIVE HUMIDITY OF 55% (ADJ) OR GREATER. IF THE RELATIVE HUMIDITY EXCEEDS 55% (ADJ), THE HUMIDIFIER SHALL MODULATE CLOSED. THE HUMIDIFIER CONTROL VALVE SHALL BE CLOSED UNLESS PROOF OF AIRFLOW IS DETERMINED.								
ND TIME SETTING	MINIMUM VENTILATION CONTROL								
ER CIRCUIT, AND SHALL	WHEN THE SYSTEM IS OPERATING, THE UNIT IS NOT IN ECONOMIZER MODE, THE MINIMUM OUTSIDE AIR DAMPER IS FULLY OPEN AND THE VENTILATION AIRFLOW IS BELOW SETPOINT, THE RETURN AIR DAMPER SHALL MODULATE CLOSED AS NEEDED TO MAINTAIN SETPOINT.								
	WHEN THE SYSTEM IS OPERATING, THE UNIT IS NOT IN ECONOMIZER MODE, THE RETURN AIR DAMPER IS FULLY OPEN AND THE VENTILATION AIRFLOW IS ABOVE SETPOINT, THE MINIMUM OUTSIDE AIR DAMPER SHALL MODULATE CLOSED AS NEEDED TO MAINTAIN SETPOINT.								
	ECONOMIZER CONTROL								
	THE SYSTEM SHALL BE EQUIPPED WITH BOTH MODULATED AND DIFFERENTIAL DRY BULB INTEGRATED ECONOMIZER CONTROL SEQUENCES.								
	MODULATED ECONOMIZER MODE (MAT CONTROL):								
ROL	WHEN THE RETURN AIR TEMPERATURE RISES ABOVE THE COOLING SETPOINT, AND THE OUTSIDE AIR TEMPERATURE IS LESS THAN 50°F, MODULATED ECONOMIZER MODE (MAT CONTROL) SHALL BE INITIATED.								
	THE MINIMUM OUTSIDE AIR AND MINIMUM RELIEF AIR DAMPERS SHALL BE FULLY OPEN. THE OUTSIDE AIR DAMPER, RELIEF AIR DAMPER AND RETURN AIR DAMPER SHALL MODULATE TO MAINTAIN THE MIXED AIR TEMPERATURE SETPOINT OF 50°F.								
	LOW LIMIT: WHEN THE MIXED AIR TEMPERATURE FALLS BELOW SETPOINT, THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER SHALL INDEX CLOSED, MINIMUM VENTILATION CONTROL AND HEATING MODE SHALL BE INITIATED.								
	HIGH LIMIT: WHEN THE MIXED AIR TEMPERATURE RISES ABOVE SETPOINT, THE OUTSIDE AIR DAMPERS AND RELIEF AIR DAMPERS SHALL INDEX TO FULL OPEN, THE RETURN AIR DAMPER SHALL CLOSE AND INTEGRATED ECONOMIZER MODE SHALL BE INITIATED.								
	INTEGRATED ECONOMIZER MODE:								
HALL START AND E AND AN OPTIMUM UM, BE A FUNCTION OF JNT OF TIME PRIOR TO	WHEN THE RETURN AIR TEMPERATURE IS ABOVE THE OUTDOOR AIR TEMPERATURE AND THE OUTDOOR AIR DEWPOINT TEMPERATURE IS BELOW 53°F, THE INTEGRATED ECONOMIZER MODE SHALL BE INITIATED. THE OUTSIDE AND RELIEF DAMPERS SHALL OPEN AND THE RETURN AIR DAMPER SHALL BE CLOSED, THE CHILLED WATER CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SETPOINT.								
E SYSTEM SHALL BE E SYSTEM HUMIDITY FERMINED VIA SPACE	LOW LIMIT SHUTOFF: INTEGRATED ECONOMIZER CONTROL SHALL BE DISABLED AND MODULATED ECONOMIZER SHALL BE INITIATED WHEN THE OUTSIDE AIR TEMPERATURE FALLS BELOW 50°F.								
NUTES. IF OVERRIDE SYSTEM SHALL BE WITCHES INDICATE PERIOD OF UP TO 12	HIGH LIMIT SHUTOFF: INTEGRATED ECONOMIZER CONTROL SHALL BE DISABLED WHEN THE OUTDOOR AIR TEMPERATURE EXCEEDS THE RETURN AIR TEMPERATURE. THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER SHALL INDEX CLOSED, MINIMUM VENTILATION CONTROL AND COOLING MODE SHALL BE INITIATED.								
	SAFETIES								
AIR DAMPERS SHALL	FREEZE PROTECTION: THE SUPPLY AIR FAN SHALL SHUT DOWN, THE OUTSIDE AIR DAMPER SHALL CLOSE, THE GLYCOL COIL PUMP SHALL START AND THE ASSOCIATED CONTROL VALVE SHALL OPEN AS REQUIRED TO MAINTAIN THE AHU CHAMBER TEMPERATURE OF 45 DEG F (ADJ).								
CY DRIVES AS TPOINT. THE NEEDED TO MAINTAIN	HIGH FAN STATIC: THE SUPPLY AIR FAN SHALL SHUT DOWN AND THE OUTSIDE AIR DAMPER SHALL CLOSE UPON ACTIVATION OF THE HIGH FAN DISCHARGE STATIC PRESSURE SWITCH.								
E AS REQUIRED TO	LOW FAN STATIC: THE SUPPLY AIR FAN SHALL SHUT DOWN AND THE OUTSIDE AIR DAMPER SHALL CLOSE UPON ACTIVATION OF THE LOW FAN DISCHARGE STATIC PRESSURE SWITCH.								
	SMOKE DETECTION: THE FAN SHALL SHUT DOWN AND THE OUTSIDE AIR AND RELIEF AIR DAMPER SHALL CLOSE UPON ACTIVATION OF A DUCT SMOKE DETECTOR.								
	EXISTING AHU BACK-UP								
FALLS BELOW FER CONTROL VALVE AND RUN AT CONSTANT	FAILURE OF AHU-13 SHALL BE EITHER THE LEAVING AIR TEMPERATURE EXCEEDS SETPOINT BY 5 DEGREES OR THE SUPPLY OR RETURN FAN ARE IN ALARM.								
DUIRED TO MAINTAIN TION. DVE SETPOINT, ALL BE OFF AND WATER CONTROL HE OUTSIDE AIR	UPON FAILURE OF AHU-13, AUTOMATIC AIR DAMPERS AAD-1S AND AAD-1R SHALL CLOSE AND AAD-2S AND AAD-2R SHALL OPEN. AHU-13 RELIEF, RETURN AND OUTSIDE AIR DAMPERS SHALL CLOSE. THE CHILLED WATER COIL PUMP AND GLYCOL COIL PUMP SHALL START AND ASSOCIATED CONTROL VALVES SHALL OPEN.								

![](_page_34_Picture_40.jpeg)

SWBR

387 East Main Street Rochester NY 14604

585 232 8300 | rochester@swbr.com

SWBR NYS Certificate of

Authorization #: 235221

**ENGINEERING** 

Mechanical/Electrical Engineering Consultants

Rochester | Buffalo | Syracuse | Capital District

M/E Project #230003

585 288 559

300 TROLLEY BOULEVARD ROCHESTER, NY 14606

![](_page_34_Picture_41.jpeg)

Drawn By:	JAC				
Checked By:	MJW				
Project Manager:	GDD				
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Revisions

VMC Linear Accelerator Replacement & Infrastructure Upgrades SWBR Project Number 23024.00

Cornell University lthaca, NY

**M-302** CONTROL SCHEMATICS AND SYSTEM SUMMARIES

023 Q 10/1

![](_page_35_Figure_1.jpeg)

#### POINT SCHEDULE HARDWARE POINTS EQUIPMENT BO BI AI AO BV AV STEAM LOAD SHED X (6) CHILLED WATER LOAD SHED X (4) LAB AIR CHANGE RATE (ACPH) FLOW OFFSET SETPOINT (CFM) Х FLOW OFFSET ACTUAL (CFM) Х RETURN AIR VALVE FLOW FEEDBACK (CFM) Х RETURN AIR VALVE ALARM Х RETURN AIR VALVE POSITION COMMAND (%) Х Х SUPPLY AIR VALVE FLOW FEEDBACK (CFM) SUPPLY AIR VALVE ALARM Х SUPPLY AIR VALVE COMMAND (%) Х REHEAT COIL LEAVING AIR TEMPERATURE X REHEAT COIL VALVE POSITION COMMAND (%) Х BC FAN STATUS Х BC FAN MOTOR SPEED CONTROL BC COOLING COIL CONTROL VALVE POSITION COMMAND (%) BC HEATING COIL CONTROL VALVE POSITION COMMAND (%) Х BC HEATING COIL DISCHARGE AIR TEMPERATURE BC LEAVING AIR TEMPERATURE Х BC CONDENSATE OVERFLOW SWITCH Х SPACE TEMPERATURE / HUMIDITY SPACE TEMPERATURE SETPOINT ADJUSTMENT Х SPACE TEMPERATURE SETPOINT SPACE OCCUPANCY Х

LINACC ROOM CONTROL SCHEMATIC AND SYSTEM SUMMARY / NOT TO SCALE

![](_page_35_Figure_4.jpeg)

![](_page_35_Figure_5.jpeg)

REFER TO PLANS

POINT SCHEDULE													
EQUIPMENT		HARDWARE POINTS				SOFTWARE POINTS							
		BO	Δι	40	Δ\/	BV	SCH	TREND	ALARM		GRAPHIC	NOTES	
		80	7.0			DV	5011	INCIND	BACS	EMCS	DESCRIPTION		
STEAM LOAD SHED						X (6)							BINARY NETWORK INPUTS FROM EMCS
CHILLED WATER LOAD SHED						X (4)							BINARY NETWORK INPUTS FROM EMCS
FIN RADIATION CONTROL VALVE POSITION COMMAND				Х				X				Х	FAIL LAST
SPACE TEMPERATURE			X					X			SPACE TEMPERATURE +/- 4 DEG F FROM SETPOINT	Х	REFER TO PLANS
SPACE TEMPERATURE SETPOINT ADJUSTMENT					Х							Х	

#### **SEQUENCE OF OPERATION**

SYSTEM DESCRIPTION **4 PIPE BLOWER COIL** SUPPLY AIR VALVE (SAV) RETURN AIR VALVE (RAV) DUCT MOUNTED REHEAT COIL (RHC)

#### <u>GENERAL</u>

SYSTEM SHALL BE CONTROLLED THROUGH THE BUILDING AUTOMATION AND CONTROL SYSTEM (BACS).

ALL SETPOINTS SHALL BE ADJUSTABLE.

THE BACS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK.

THE BACS SHALL BE CAPABLE OF RETAINING ITS PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR AT LEAST TEN HOURS.

ALL SAFETIES SHALL BE HARD WIRED INTO THE FAN MOTOR POWER CIRCUIT, AND SHALL REQUIRE MANUAL RESET.

IF THE ZONE BECOMES OCCUPIED DURING THE SCHEDULED UNOCCUPIED PERIOD, THE SPACE SHALL INDEX TO OCCUPIED MODE FOR THE DURATION OF OCCUPANCY. WHEN THE SPACE BECOMES UNOCCUPIED AGAIN DURING THE SCHEDULED UNOCCUPIED PERIOD, THE SPACE SHALL INDEX BACK TO UNOCCUPIED MODE.

<u>SETPOINTS</u>

SPACE TEMPERATURE SETPOINTS:

OCCUPIED: UNOCCUPIED:	71°F 71°F
HUMIDITY SETPOINTS:	
	40% E

OCCUPIED:	40% R
UNOCCUPIED:	30% R

SUPPLY AIRFLOW RATE (CFM): SEE VAV SCHEDULE

SPACE AIR DIFFERENTIAL OFFSET: 0 CFM (NEUTRAL)

MINIMUM SPACE OCCUPANCY INDEX TIME: 30 MINUTES ZONE OCCUPANCY SCHEDULE: COORDINATE WITH OWNER

SPACE OCCUPANCY

ZONE OCCUPANCY SHALL BE DETERMINED BASED ON A COMBINATION OF TIME OF DAY SCHEDULE.

DURING THE SCHEDULED UNOCCUPIED PERIOD, THE SPACE OCCUPANCY SENSOR SHALL INDEX THE ZONE TO OCCUPIED FOR THE DURATION OF OCCUPANCY. THE ZONE SHALL INDEX BACK TO UNOCCUPIED WHEN OCCUPANCY IS NOT SENSED FOR A PERIOD OF 30 MINUTES.

			SOF	TWARE POINTS		
211	TDEND			ALARM	SHOWN ON	NOTES
JΗ	IREND	BACS	EMCS	DESCRIPTION		
						BINARY NETWORK INPUTS FROM EMCS
						BINARY NETWORK INPUTS FROM EMCS
	X				Х	
					Х	
					Х	
	X				Х	
		Х		ALARM	Х	
	X				Х	FAIL CLOSED
	X				Х	
		Х		ALARM	Х	
	Х				Х	FAIL CLOSED
	X				Х	SINGLE POINT SENSOR
	X	Х		5 DEG DELTA ACROSS COIL WITH VALVE COMMANDED CLOSED	Х	FAIL LAST
	X	Х		FAILURE	Х	VIA CURRENT SENSOR
	X				Х	
	X				X	FAIL LAST
	X				X	FAIL LAST
	X	v				
	X	X				
	X	X				
	<b>^</b>	^				
x	X				$\frac{\hat{x}}{x}$	
X	X				x h	REFER TO PLANS

FAN START/STOP
DURING THE SCHEDULED OCCUPANCY PERIOD, THE SYSTEM SHALL START BASED ON THE TIME OF DAY SCHEDULE AND AN OPTIMUM START CONTROL ALGORITHM. THE ALGORITHM SHALL, AS A MINIMUM, BE A FUNCTION OF THE DIFFERENCE BETWEEN SPACE TEMPERATURE AND THE OCCUPIED SETPOINT AND THE AMOUNT OF TIME PRIOR TO THE SCHEDULED OCCUPANCY. WHEN THE SYSTEM STARTS, IT SHALL INITIALLY OPERATE FOR A MINIMUM OF 30 MINUTES. THE UNIT SHALL OPERATE WHENEVER THE SPACE IS OCCUPIED OR IN OCCUPIED SETBACK MODE.
THE SYSTEM SHALL BE OFF WHEN THE SPACE IS IN UNOCCUPIED MODE, UNLESS THE SYSTEM IS NEEDED TO MAINTAIN THE UNOCCUPIED TEMPERATURE SETPOINTS.
SUPPLY AIR VAV BOX CONTROL
OCCUPIED: THE SUPPLY AIR VAV SHALL MODULATE AS NEEDED TO MAINTAIN THE SUPPLY AIRFLOW RATE.
UNOCCUPIED: THE SUPPLY AIR VALVE SHALL REMAIN CLOSED.
EXHAUST AIR VAV BOX CONTROL
OCCUPIED: THE RETURN AIR VALVE SHALL MODULATE AS NEEDED TO MAINTAIN THE SPACE OFFSET.
UNOCCUPIED: THE RETURN AIR VALVE SHALL REMAIN CLOSED.
ZONE TEMPERATURE CONTROL AND FAN SPEED CONTROL
TEMPERATURE SETPOINTS SHALL BE DETERMINED BASED ON A COMBINATION OF PROGRAMMED SCHEDULED AND ZONE OCCUPANCY.
OCCUPIED HEATING: IF THE SPACE IS OCCUPIED DURING THE SCHEDULED OCCUPIED PERIOD AND THE SPACE TEMPERATURE FALLS BELOW THE TEMPERATURE SETPOINT, THE FAN SHALL INDEX TO MINIMUM POSITION AND THE BLOWER COIL HEATING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN THE TEMPERATURE SETPOINT. THE COOLING COIL CONTROL VALVE SHALL BE CLOSED. IF THE BLOWER COIL UNIT CANNOT MAINTAIN SPACE TEMPERATURE SET POINT WITH THE BLOWER COIL HEATING COIL CONTROL VALVE AT 100% OPEN, THE REHEAT CONTROL VALVE SHALL MODULATE TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. WHEN THE SPACE TEMPERATURE IS AT SETPOINT, THE REHEAT CONTROL VALVE SHALL BE CLOSED.
OCCUPIED COOLING: IF THE SPACE IS OCCUPIED DURING THE SCHEDULED OCCUPIED PERIOD AND THE SPACE TEMPERATURE RISES ABOVE THE TEMPERATURE SETPOINT, THE COOLING COIL VALVE SHALL FIRST MODULATE AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SETPOINT AT MINIMUM SPEED. ONCE THE COOLING COIL CONTROL VALVE AT MINIMUM SPEED IS AT 100%, THE BLOWER COIL SPEED SHALL MODULATE BETWEEN MINIMUM AND MAXIMUM POSITIONS TO MAINTAIN THE SPACE TEMPERATURE SETPOINT AND THE REHEAT COIL CONTROL VALVE SHALL BE CLOSED.
UNOCCUPIED HEATING/COOLING: WHEN THE SPACE IS UNOCCUPIED DURING THE

SCHEDULED UNOCCUPIED PERIOD, THE ABOVE OCCUPIED HEATING/COOLING SEQUENCES SHALL APPLY. THE SPACE SHALL BE MAINTAINED AT THE UNOCCUPIED

#### SEQUENCE OF OPERATION

TEMPERATURE SETPOINT.

SYSTEM DESCRIPTION

FIN RADIATION <u>GENERAL</u>

SYSTEM SHALL BE CONTROLLED THROUGH THE BUILDING AUTOMATION AND CONTROL

SYSTEM (BACS). ALL SETPOINTS SHALL BE ADJUSTABLE.

THE BACS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK.

THE BACS SHALL BE CAPABLE OF RETAINING ITS PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR AT LEAST TEN HOURS.

<u>SETPOINTS</u> SPACE HEATING TEMPERATURE SETPOINT:

50°F

HEATING: START/STOP

THE FIN RADIATION SHALL OPERATE TO MAINTAIN THE SPACE HEATING TEMPERATURE SETPOINT.

ZONE TEMPERATURE CONTROL

IF THE ZONE TEMPERATURE FALLS BELOW THE HEATING TEMPERATURE SETPOINT THE HEATING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN TEMPERATURE SETPOINT.

![](_page_35_Picture_45.jpeg)

**SWBR** 

387 East Main Street Rochester NY 14604

585 232 8300 | rochester@swbr.com

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**ENGINEERING** 

Mechanical/Electrical Engineering Consultants

Rochester | Buffalo | Syracuse | Capital District

M/E Project #230003

585.288.5590 www.meengineering.com

300 TROLLEY BOULEVARD ROCHESTER, NY 14606

![](_page_35_Picture_46.jpeg)

Drawn By:	JAC
Checked By:	MJW
Project Manager:	GDD

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Revisions

VMC Linear Accelerator Replacement & Infrastructure Upgrades SWBR Project Number 23024.00

Cornell University lthaca, NY

**M-303** CONTROL SCHEMATICS AND SYSTEM SUMMARIES

![](_page_36_Figure_0.jpeg)

<sup>/</sup> NOT TO SCALE

NOT TO SCALE

VAV BOX DETAIL <sup>/</sup> NOT TO SCALE

![](_page_36_Figure_4.jpeg)

![](_page_37_Figure_0.jpeg)

UNIT NO.	LOCATION	SERVICE	SUPPLY F	AN						
			AIR	MIN	EXT.	TOTAL	FAN CHAR	ACTERISTICS		
			FLOW	O.A.	STATIC	STATIC	TYPE	FAN NO.	MAX	Ν
			(CFM)	(CFM)	(In. WC)	(In. WC)		& MIN DIA.	BHP	
AHU-13	ROOF	LINAC/CT	3900	650	1.0	4.93	PLENUM	1 @ 18.25"	4.8	

PRE-HEA	T COIL (HOT	WATER)										HUMIDIFIE	ER DISTRIBUT	DR						CTRICAL			MANUFACTURER & MODE
	AIR SIDE				WATER SIDE					ROWS	FINS	ORIFICE	STEAM	STEAM	EAT (DEG F)	HUMID	NTY	AIR TEMP	VOLTS	PHASE	CIRCUIT	CIRCUIT	
TOTAL	AIR P.D	. EAT (DEG. F)	LAT (DEG. F)	MAX. FACE	WATER	WATER P.D.	ENT. WATER	LVG. WATER	FLUID	]	PER	SIZE	PRESSURE	RATE	DB	ENT. (%) L	LVG. (%)	GAIN			#1	#2	
(MBH)	(In. WC)	DB	DB	VEL. (FPM)	FLOW (GPM)	(Ft. HD)	TEMP. (DEG. F)	TEMP. (DEG. F)			FOOT	(ln.)	(PSIG)	(LB/HR)			. ,	(DEG. F)			FLA	FLA	
63.44	0.059	40	55	424	4.65	0.49	130	100	40% PG	1	90	1/2	5	99.81	70	20	55	0.90	460	3	6.7	4.2	TRANE CSAA010

PRE-PURCHASE BY CORNELL. SHOWN FOR COORDINATION PURPOSES.

BLOWEF	R COIL UN	IT SCHEDU	JLE - CI	HILLED	) WATER	R/HOT W	ATER																						
UNIT NO.	LOCATION	TYPE	AIR SIDE		COOLING CO	JIL											HEATING C	DIL							FAN MOTO	DR		MANUFACTURER & MODEL No.	REMARKS
			AIR	EXT.	CAPACITY			EAT (DE	G. F)	LAT (DEG. F)		WATER	WATER	ENT. WATER	LVG. WATER	FLUID	CAPACITY	ENT. AIR	LVG. AIR	WATER	WATER	ENT. WATER	LVG. WATER	FLUID	RPM H	P VOLTS	B PHASE		
			FLOW	STATIC	SENSIBLE	LATENT	TOTAL	DB	WB	DB \	VB	FLOW	P.D.	TEMP.	TEMP.		(MBH)	TEMP.	TEMP.	FLOW	P.D.	TEMP.	TEMP.						
			(CFM)	(In. WC)	(MBH)	(MBH)	(TONS)					(GPM)	(Ft. HD)	(DEG. F)	(DEG. F)			(DEG. F)	(DEG. F)	(GPM)	(Ft. HD)	(DEG. F)	(DEG. F)						
BC-1	LINAC	HORIZONTAL	1100	0.5	19.88	0	1.66	71	58	54.25 5	.26	3.62	1.68	48	60	WATER	22.39	71	90.11	2.01	1.2	130.0	109.58	WATER	1518	1 460	3	TRANE BCHE036	-

![](_page_38_Figure_5.jpeg)

									_										- — — —						
2																									
		RETURN	FAN								COOLING CO	IL (CHILLED	D WATER)												
		AIR	EXT.	TOTAL	FAN CHAR	ACTERISTICS					CAPACITY		AIR SIDE						WATER SIDE					ROWS	FINS
10TOR	FAN DRIV	E FLOW	STATIC	STATIC	TYPE	FAN NO.	MAX	MOTOR	FAN	DRIVE	SENSIBLE	TOTAL	AIR P.D.	EAT (DEC	G. F)	LAT (DE	G. F)	MAX. FACE	WATER	WATER P.D.	ENT. WATER	LVG. WATER	FLUID	1	PER
HP	RPM	(CFM)	(In. WC)	(In. WC)		& MIN DIA.	BHP	HP	RPM		(MBH)	(MBH)	(In. WC)	DB	ŴВ	DB	ŴВ	VEL. (FPM)	FLOW (GPM)	(Ft. HD)	TEMP. (DEG. F)	TEMP. (DEG. F)			FOOT
5	2400 DIREC	T 3900	1.0	1.94	PLENUM	1 @ 18.25"	1.95	3	1668	DIRECT	85.7	93.3	0.69	75	63	55	54.9	424	9.3	0.94	47	67	WATER	8	131
				:							:													: · · · · · ·	
	ATE FILTERS																								

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AIR FILTE	ER SCHED	DULE													
	LOCATION	SERVICE	TYPE	SYSTEM		PRESSURE	CART				HOLDING	MERV	FACE	MANUFACTURER & MODEL NO.	REMARKS
BANK NU.				(CFM)	VELOCITY	(In. WC)	NO.	HEIGHT	WIDTH	LENGTH	FRAME	RATING	(Sq. Ft.)		
					(FPM)			(In.)	(In.)	(ln.)					
F_1	ΔHU_13			3 900	450	0.629	1	16	2	25	ΡΙ ΕΔΤΕΓ	8	8.67	CAMEIL-EARR 30/30	_
1 - 1	Ano-10			3,300	400	0.025	2	20	2	25	ILLAILD	0	0.07		
Γĵ		EINIAL		2 000	450	0 003	1	12	12	24	BAG/CARTIDGE	110	9.67		
F-2	AH0-13	FINAL	SIDE SERVICE	3,900	450	0.003	2	20	12	24	FRAME	14A	0.07	CAMPIL-PARK DURAFIL ESZ	-

TING	COIL SCI	HEDULE -	HOT WA	TER																
T NO.	LOCATION	SERVICE	MOUNTING	CAPACITY	AIR SIDE					WATER SI	DE				ROWS	FINS	COIL	FACE	MANUFACTURER & MODEL No.	REMARKS
				(MBH)	AIR	ENT. AIR	LVG. AIR	AIR	MAX. FACE	WATER	ENT. WATER	LVG. WATER	WATER	FLUID	DEEP	PER	DIMEN	SIONS		
					FLOW	TEMP.	TEMP.	P.D.	VELOCITY	FLOW	TEMP.	TEMP.	P.D.			INCH	LENGTH	WIDTH		
					(CFM)	(DEG. F)	(DEG. F)	(In. W.C.)	(FPM)	(GPM)	(DEG. F)	(DEG. F)	(Ft. HD)				(ln.)	(ln.)		
IC-1	LINAC	SAV-1	FLANGED	97.2	1,800	45	95	0.19	480	7.0	130	100	4.4	WATER	4	9	18	30	AEROFIN W-9.0AF-18.0 X 30.0-4-0-0.25	-

REMARKS: 1. SPECIAL COATINGS; BAKED PHENOLIC, HIPOXY. 2. SPECIAL MATERIALS; [TUBE, FINS, HEADERS].

PUMP SC	CHEDULE													
PUMP NO.	LOCATION	SERVICE	UNIT TYPE	PUMP CA	APACITY	MOTOR	CHAF	RACTERIS	TICS		MIN.	SUCTION &	MANUFACTURER & MODEL NO.	REMARKS
			& DESCRIPTION	FLOW	TOTAL HEAD	RPM	HP	VOLTS	PHASE	STARTER	PUMP	DISCHARGE		
				(GPM)	IN FEET						EFF.	SIZES		
											(%)	(ln.)		
CP-1	FIRST FLOOR MECH. ROOM	AHU-13 PRE-HEAT COIL	INLINE	4.65	20	2792	0.5	208	1	INTEGRAL ASD	21.9	1	BELL & GOSSETT ECOCIRC XL 55-45	1,2,3

REMARKS:

GLYCOL - PROPYLENE, 40%
 EC MOTOR (ELECTRONICALLY COMMUTATED)
 INTEGRATED ADJUSTABLE SPEED DRIVE

	RADIATIO	ON SCH	EDULE -	HOT WA	ATER										
	UNIT TYPE	CAPACITY	AVERAGE	ENT.	ENT.	LVG.	FLUID	HEATING	<b>ELEMEN</b>	Г	FIN			MANUFACTURER & MODEL No.	REMARKS
		(BTUH/LF)	WATER	AIR	WATER	WATER		TUBE	TIERS	MIN. WATER	HEIGHT	WIDTH	FINS		
1			TEMP.	TEMP.	TEMP.	TEMP.		SIZE		VELOCITY	(ln.)	(In.)	PER		
			(DEG. F)	(DEG. F)	(DEG. F)	(DEG. F)		(ln.)		(FT/SEC.)			FOOT		
	FT-1	538	115	65	130	100	WATER	3/4	1	3.0	4.5	4.5	40	SLANT/FIN BARE ELEMENTS C-340	-

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AIR VALVE SCHEDULE											
UNIT NO	LOCATION	SERVICE	SIZE	FACTOR	Y RANGE	OPERATIN	NG RANGE	MOUNTING	MINIMUM	MANUFACTURER & MODEL NO.	REMARKS
			(ln.)	MAX AIR	MIN AIR	MAX AIR	MIN AIR	POSITION	OPERATING		
				FLOW	FLOW	FLOW	FLOW		PRESSURE		
				(CFM)	(CFM)	(CFM)	(CFM)		(In. WC.)		
SAV-1	LINAC	LINAC	14	2750	250	1800	550	HORIZONTAL	0.2	ACCUTROL ACCUVALVE AVC6000	1,2
RAV-1	LINAC	LINAC	14	2750	250	1800	550	HORIZONTAL	0.2	ACCUTROL ACCUVALVE AVC6000	1,2

REMARKS: 1. PROVIDE WITH TIGHT SHUT OFF. 2. THE MAX/MIN POSITIONS ON THE VALVE WILL BE SET AT THE FACTORY TO THE FULL RANGE WITH ACTUAL SETPOINTS IN SOFTWARE.

REGISTER GRILLE AND DIFFUSER SCHEDULE								
TYPE	APPLICATION	MATERIAL	FINISH	MANUFACTURER & MODEL NO.	REMARKS			
1	SUPPLY	ALUMINUM	WHITE	TITUS MODEL ML-39	1			
А	RETURN	ALUMINUM	WHITE	TITUS MODEL ML-39	1			
REMARKS:								

1. LINEAR DIFFUSER TO HAVE (5) FIVE SLOTS.

SWBR
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BINE         BINE <t< td=""></t<>
M/E Project #230003
Image: Second state sta
Drawn By:       JAC         Checked By:       MJW         Project Manager:       GDD         These documents and all the ideas, arrangements, designs and plans indicated thereon or presented thereby are owned by and remain the property of SWBR and no part thereof shall be utilized by any person, firm, or corporation for any purpose whatsoever except with the specific written permission of SWBR. All rights reserved. ©         Revisions
VMC Linear Accelerator Replacement & Infrastructure Upgrades SWBR Project Number 23024.00
<b>Cornell University</b> Ithaca, NY
M-501 SCHEDULES-HVAC

	BASIC MATERIALS AND METHODS		COMMUNICATIONS	
	HOME RUN TO PANELBOARD. LETTERS/NUMBERS	DIDF	DATA INTERMEDIATE DISTRIBUTION FRAME	Т
LP-404	NUMBER OF ARROWS EQUALS NUMBER OF CIRCUITS. NUMBER OF ARROWS EQUALS NUMBER OF CIRCUITS. CIRCUIT SHALL BE 20 AMP, 120 VOLT, 2 #12, 1 #12 EG., IN 3/4" C. UNLESS NOTED OTHERWISE, BRANCH	DMDF	DATA MAIN DISTRIBUTION FRAME	
	CIRCUIT WIRING SIZE AND NUMBER TO MATCH HOMERUN. REFER TO SPEC'S FOR RACEWAY TYPE.	$\nabla$	EXISTING COMMUNICATIONS OUTLET	
	SOLID HALF ARROW(S) INDICATES 120 VOLT CIRCUIT TO SINGLE POLE CIRCUIT BREAKER(S), UNLESS NOTED OTHERWISE	•		
	SOLID FULL ARROW(S) INDICATES 208 VOLT CIRCUIT TO MULTI-POLE CIRCUIT BREAKER, UNLESS NOTED OTHERWISE.		FACEPLATE WITH DUPLEX DESIGN. 1" CONDUIT EXTENDED TO NEAREST CABLE TRAY IN CORRIDOR (UNLESS OTHERWISE NOTED) FOR DATA/VOICE. TERMINATE CONDUIT AT J HOOK IN CORRIDOR WITH	
	OPEN HALF ARROW(S) INDICATES 277 VOLT CIRCUIT TO SINGLE POLE CIRCUIT BREAKER(S), UNLESS NOTED OTHERWISE.		W - SINGLE GANG BACK BOX WITH MUD RING AND 1" CONDUIT EXTENDED TO NEAREST CABLE TRAY IN	 ⊠'
⊳	OPEN FULL ARROW(S) INDICATES 480 VOLT CIRCUIT TO MULTI-POLE CIRCUIT BREAKER, UNLESS NOTED OTHERWISE.		CORRIDOR (UNLESS OTHERWISE NOTED) FOR DATA/VOICE. WALL MOUNT AT 46"AFF. PROVIDE (1) CAT 6A CABLE TO BDF.	M
(E)	EXISTING TO REMAIN - INDICATES EXISTING ITEM SHALL REMAIN. MAINTAIN EXISTING ELECTRICAL CONNECTIONS UNLESS OTHERWISE NOTED.		DDC - SINGLE GANG BOX WITH BLANK COVER PLATE. PROVIDE 3/4"C STUBBED TO ACCESSIBLE CEILING SPACE ABOVE. DDC ALARM WIRING BY DIV 23.	Þ
(ER)	EXISTING TO BE RELOCATED - INDICATES EXISTING ITEM SHALL BE RELOCATED. DISCONNECT AND REMOVE, REINSTALL AT NEW LOCATION AND		C - CAMERA, COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS. TV - COORDINATE MOUNTING HEIGHT WITH	
, 1ħ , Ħ	RECONNECT ITEM AS REQUIRED. EXISTING ELECTRICAL WIRING, EQUIPMENT OR DEVICE, DASHED LIGHT IS EXISTING TO BE REMOVED OR RELOCATED	WAP •	WAP - WIRELESS ACCESS POINT WALL MOUNT AT 90"AFF 4"x4"x2.25" BOX WITH DOUBLE GANG PLASTER RING. 1" EMT CONDUIT EXTENDED TO NEAREST CABLE TRAY IN CORRIDOR (UNLESS OTHERWISE NOTED).	⊕
, Ф	EXISTING ELECTRICAL WIRING, EQUIPMENT OR DEVICE, SOLID LIGHT IS EXISTING TO REMAIN		AND 6-8" PIGTAIL WITHOUT FACEPLATE.	
<b>—</b> , <b>P</b>	HEAVY SOLID IS NEW		COMBINATION POWER/COMMUNICATION SURFACE RACEWAY WITH DEVICES AS INDICATED. WIREMOLD G4000. RACEWAY SHALL BE MOUNTED "OVER COUNTER" UNLESS OTHERWISE NOTED.	
3	REFERENCE TO DRAWING NOTE	Φ	CEILING DUPLEX RECEPTACLE, 20A, 125 VOLT. REFER TO DUPLEX RECEPTACLE FOR SUBSCRIPT DEFINITIONS.	, <b>₽ ₽ ₽</b>
	JUNCTION BOX	EM V	TYPICAL EMERGENCY PHONE OUTLET LOCATION. PROVIDE 4"x4" BACKBOX WITH A SINGLE GANG MUD RING AND (1) 3/4" CONDUIT TO ACCESSIBLE CEILING SPACE, PROVIDE (1) CAT 64 CABLE TO BDE	
	JUNCTION BOX JUNCTION BOX SPECIAL PURPOSE RECEPTACLE. PROVIDE PROPER VOLTAGE, CLASS, CURRENT RATING AND NEMA CONFIGURATION AS REQUIRED BY BRANCH CIRCUIT AND/OR MATCH CAP ON EQUIPMENT BEING FURNISHED BY OTHERS. PROVIDE CORD AND CAP. SUBSCRIPTS INDICATE TYPE.	COORDINATE FINAL LOCATION WITH THE OWNER PRIOR TO INSTALLATION.		
U	AND/OR MATCH CAP ON EQUIPMENT BEING FURNISHED BY OTHERS. PROVIDE CORD AND CAP. SUBSCRIPTS INDICATE TYPE.	CR	CARD READER, REFER TO DETAIL	⊗ 
ዋ	DUPLEX RECEPTACLE, 20 AMP, 125 VOLT SUBSCRIPTS INDICATE TYPE: G - GROUND FAULT INTERRUPT OC - OVER COUNTER UC - UNDER THE COUNTER	DC	DOOR CONTACT ENCLOSED CABLE TRAY SIZE PER QUANTITY OF	
	<ul> <li>WP - WEATHER PROOF</li> <li>TP - TAMPER PROOF</li> <li>P - CEILING PROJECTOR, MOUNT IN PROJECTOR MOUNTING PLATE</li> <li>USB - INTEGRAL USB CHARGER</li> <li>TV - COORDINATE MOUNTING HEIGHT WITH</li> </ul>			
0		S	SMOKE DETECTOR	
т —	GFCI DUPLEX RECEPTACLE 20 AMP, 125 VOLT	F	MANUAL PULL STATION	
₩ 	QUAD RECEPTACLE 20 AMP, 125 VOLT	F	ALARM SIGNAL, SPEAKER AND STROBE, SHALL BE WHITE DEVICE c -INDICATES CEILING MOUNTED DEVICE	
	TOGGLE SWITCH, VOLTAGE AS INDICATED ON FIXTURE SCHEDULE, SUBSCRIPTS INDICATE TYPE:	FA	ALARM SIGNAL, STROBE, SHALL BE WHITE DEVICE c -INDICATES CEILING MOUNTED DEVICE	
<b>S</b> <sup>3</sup> a,b,c	<ul> <li>2 - TWO POLE SWITCH</li> <li>3 - THREE WAY SWITCH</li> <li>4 - FOUR WAY SWITCH</li> <li>MOMENTARY CONTACT</li> </ul>		RATE-OF-RISE HEAT DETECTOR	
	M - MOMENTARY CONTACT K - KEY OPERATED a,b,c - SWITCHING DESIGNATIONS NUMBER OF LETTERS FOULLS NO. OF GANGED SWITCHES	RTS	REMOTE DUCT SMOKE DETECTOR TEST INDICATOR	
	V - VACANCY SENSOR VD - VACANCY SENSOR, DIMMER SWITCH VDS - VACANCY SENSOR, DUAL SWITCHED WP - WEATHERPROOF		SMOKE DAMPER CONNECTION	
	DIMMER - SHALL BE COMPATIBLE WITH FIXTURES	TS		
OS	CEILING MOUNTED OCCUPANCY SENSOR	FSD	FIRE ALARM SHUT DOWN RELAY	
DH	DOOR HOLD	DSD	DUCT SMOKE DETECTOR	
•	PUSH BUTTON	FACP	FIRE ALARM CONTROL PANEL	
ML	MAG LOCK	FAAP	FIRE ALARM ANNUNCIATION PANEL	
	LIGHTNING PROTECTION AIR TERMINAL			

#### POWER DISTRIBUTION AND CONTROL

T	TRANSFORMER
	208Y/120 VOLT PANELBOARD.
	480Y/277 VOLT PANELBOARD.
	DISTRIBUTION PANELBOARD.
<b>D</b>	DISCONNECT SWITCH
Ŋ	FUSED DISCONNECT SWITCH
$\bowtie$	COMBINATION FUSED DISCONNECT SWITCH AND MAGNETIC STARTER
$(\mathbb{M})$	MOTOR CONNECTION. REFER TO ELECTRICAL EQUIPMENT AND CONTROL SCHEDULE FOR SIZE
	MOTORIZED DAMPER CONNECTION
	CONTACTOR
СВ	ENCLOSED CIRCUIT BREAKER
\$	COMPLETE ELECTRICAL CONNECTION TO EQUIPMENT
	LUMINAIRES

CEILING MOUNTED LUMINAIRE. UPPERCASE LETTERS

INDICATE FIXTURE TYPE ON LUMINAIRE SCHEDULE, LOWER CASE LETTER INDICATE LIGHTING ZONE

WALL MOUNTED LUMINAIRE. UPPERCASE LETTERS

INDICATE FIXTURE TYPE ON LUMINAIRE SCHEDULE,

LOWER CASE LETTER INDICATE LIGHTING ZONE

LUMINAIRE CONNECTED TO EMERGENCY

CEILING MOUNTED EXIT LUMINAIRE

WALL MOUNTED EXIT LUMINAIRE

POWER

#### GENERAL NOTES: (APPLY TO ALL DRAWINGS):

- A. SLEEVE AND SEAL ALL WALL AND FLOOR PENETRATIONS. PROVIDE FIRESTOPPING FOR ALL FIRE-RATED PENETRATIONS. UTILIZE REMOVABLE FIRESTOPPING MATERIAL AT CABLE TRAY PENETRATIONS. PROVIDE ACOUSTICAL SEALANT FOR ALL NON RATED PENETRATIONS. ALL FIRE RATINGS SHALL BE MAINTAINED.
- B. MAINTAIN SERVICE CLEARANCES OF ALL EQUIPMENT.
- C. COORDINATE EXACT LOCATION OF ALL CONDUIT ROUTES, EQUIPMENT AND DEVICES WITH EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- D. MINIMUM CONDUIT SIZE SHALL BE 3/4" FOR POWER CIRCUITS UNLESS NOTED OTHERWISE.
- E. PROVIDE NYLON PULSATING IN ALL EMPTY CONDUITS.
- FIRE ALARM SIGNALING APPLIANCES SHALL BE MOUNTED SUCH THAT THE ENTIRE LENS IS NOT LESS THAN 80 INCHES AND NOT GREATER THAN 96 INCHES ABOVE THE FINISHED FLOOR.
- G. CIRCUITING TO DEVICES/EQUIPMENT SHALL BE 2-#12AWG & 1-#12EG (MULTIPLE HOME RUNS IN SAME CONDUIT MAY SHARE SAME EQUIPMENT GROUND) FOR EACH 20 AMPERE CIRCUIT UNLESS OTHERWISE NOTED. ALL CIRCUITS SHALL HAVE SEPARATE NEUTRALS (CIRCUITS SHALL NOT SHARE NEUTRALS).
- H. PROVIDE CONDUIT/WIRING (CIRCUITING) AND REQUIRED EQUIPMENT CONNECTIONS TO ALL DEVICES/EQUIPMENT. CONNECT TO CIRCUIT(S) AS INDICATED.
- ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REFERENCE STANDARD EDITION OF NFPA CODES, AS CITED BY THE FIRE CODE OF NEW YORK STATE, BUILDING CODE OF NEW YORK STATE AND CORNELL UNIVERSITY DESIGN STANDARDS.
- J. ALL CONDUITS AND SUPPORTS SHALL BE AS TIGHT TO DECK AS POSSIBLE.
- K. PROVIDE PULLBOX FOR EVERY 180 DEGREE OF BENDS FOR TEL/DATA AND 360 DEGREES OF BENDS FOR POWER CONDUITS.
- .. ALL ELECTRICAL DEVICES (RECEPTACLES, SWITCHES, FIRE ALARM, ETC.) SHALL BE ALIGNED HORIZONTALLY AND VERTICALLY. CONTRACTOR TO SCHEDULE AND COORDINATE PROJECT WALKTHROUGH WITH ARCHITECT AND ENGINEER PRIOR TO COMMENCEMENT OF ANY DEVICE ROUGH-IN FOR FINALIZATION OF ALIGNMENTS.
- M. ALL EXISTING DEVICES CIRCUITED TO PANELS BEING RENAMED SHALL BE PROVIDED WITH UPDATED LABELS.
- N. COORDINATE IT SERVICE CHANGES OR DISRUPTIONS IN SERVICE WITH CIT OPERATIONS AT (607)255-5500.
- O. ALL OUTLETS WITHIN 6' OF SINK EDGE SHALL BE GFCI RATED.
- P. FLEX CONDUIT IS PROHIBITED FOR USE IN DATA APPLICATIONS WITHOUT WRITTEN PERMISSION FROM CORNELL CIT INFRASTRUCTURE ENGINEERS.
- Q. ALL DATA WORK MUST BE COORDINATED WITH CORNELL CIT.

#### GENERAL DEMOLITION NOTES: (APPLY TO ALL DRAWINGS):

- WHEN EXISTING CONSTRUCTION, WHICH IS TO REMAIN, IS DAMAGED DURING THE COURSE OF DEMOLITION AS A RESULT OF THE CONTRACTOR'S WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS, AS MUCH AS POSSIBLE, SUBJECT TO THE OWNERS APPROVAL.
- THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF EXISTING CONSTRUCTION IN THE WAY OF NEW WORK. PROTECT BUILDING AND FURNISHINGS FROM DAMAGE.
- COORDINATE PHASING OF WORK WITH OWNER'S REPRESENTATIVE.
- COORDINATE ALL SHUTDOWNS WITH UNIVERSITY PRIOR TO DEMOLITION. ALL FIRE ALARM SHUTDOWNS SHALL BE SCHEDULED THROUGH CUSTOMER SERVICE WITH AT LEAST 24 HOURS NOTICE BEFORE WORK IS TO BE STARTED.
- EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR CONSTRUCTION DOCUMENTS WHEN AVAILABLE AND ARE NOT GUARANTEED. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE DEMOLITION WORK. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS. THIS CONTRACTOR SHALL PARTICIPATE IN SURVEY OF THE EXISTING ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL DISCONNECT AND CAP ALL SERVICE LINES TO BE DISCONNECTED FOR THOSE SERVICES WHICH NORMALLY ARE INCLUDED IN HIS FIELD OF WORK. PARTICULAR CARE SHALL BE TAKEN TO AVOID CREATING HAZARD OR CAUSING DISRUPTION IN ADJOINING AREAS. NOT ALL DEVICES TERMINATIONS, JUNCTION BOXES AND WIRING HAVE BEEN SHOWN.
- REFER TO PLUMBING CONTRACT DRAWINGS AND SPECIFICATIONS FOR EXACT QUANTITIES AND LOCATIONS OF ALL PLUMBING EQUIPMENT BEING ABANDONED OR REMOVED, WHICH WILL REQUIRE DE-ENERGIZATION, REMOVAL AND BLANK-OFF BY THE CONTRACTOR.
- EXISTING FIRE ALARM SYSTEM SHALL BE KEPT OPERATIONAL DURING THE CONSTRUCTION PERIOD THE BUILDING UNDER RENOVATION MAY BE DISCONNECTED FROM SERVICE DURING THE HOURS THE CONTRACTOR IS WORKING, AT THE DISCRETION OF THE FIRE DEPARTMENT AND THE OWNER'S REPRESENTATIVE, BUT MUST BE PLACED BACK ON LINE DURING OTHER PERIODS. APPROVAL TO BE IN WRITING.
- THE EXISTING ELECTRICAL EQUIPMENT AND DEVICES WITHIN DEMOLITION AREA SHALL BE DEMOLISHED ALONG WITH ALL FEEDERS AND CONDUITS BACK TO POINT OF SOURCE UNLESS OTHERWISE NOTED. ALL ITEMS SHOWN ON THE DEMOLITION DRAWINGS SHALL BE DISCONNECTED AND REMOVED UNLESS NOTED OTHERWISE. WALLBOXES, BACKBOXES AND CONDUIT SHALL BE REUSED AS DETERMINED BY CONTRACTOR. ALL UNUSED CONDUITS SHALL BE REMOVED. DISCONNECT AND MAKE SAFE ANY EQUIPMENT TO BE REMOVED BY OTHERS. COORDINATE REMOVAL OF EQUIPMENT WITH OTHER TRADES PRIOR TO DEMOLITION.
- MAINTAIN AND RESTORE, IF INTERRUPTED BY REMOVALS OR IN PATH OF NEW CONSTRUCTION, ALL CIRCUITS, CONDUITS AND FEEDERS PASSING THROUGH AND SERVING UNDISTURBED AREAS (SHOWN OR NOT SHOWN).
- ALL EXISTING CONDUITS STUBBED THROUGH FLOOR SERVING ITEMS TO BE REMOVED AND NOT SHOWN OR REQUIRED TO BE REUSED, SHALL BE CUT OFF FLUSH WITH SLAB LEVEL WITH CONCRETE.
- IN ANY AREA REQUIRING THE PERFORMANCE OF ANY TRADE'S WORK, THIS CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ANY OR ALL ELECTRICAL ITEMS IN PATH OF WORK, REINSTALLING AND RECONNECTING SAME AS REQUIRED, IN ACCORDANCE WITH THE PLANS AND/OR AS DIRECTED AFTER COMPLETION OF OTHER TRADE'S WORK IN THAT AREA.
- DISCONNECT, MAKE SAFE AND REMOVE ALL TEMPORARY AND ABANDONED WIRE WITHIN THE SPACE.
- BRANCH CIRCUIT WIRING TO DEVICES IN AREAS OF DEMOLITION SHALL BE DISCONNECTED, MADE SAFE AND REMOVED COMPLETELY BACK TO THE PANELBOARD. THE CONTRACTOR SHALL NOT ABANDON BRANCH CIRCUIT WIRING TO ANY AREAS WHICH ARE TO REMAIN BUT ARE AFFECTED BY THE DEMOLITION OR NEW CONSTRUCTION.
- DISCONNECT AND REMOVE PANEL, FEEDERS AND BRANCH CIRCUITS BACK TO POINT OF SOURCE PRIOR TO THE START OF DEMOLITION, CONTRACTOR SHALL FIELD VERIFY ALL BRANCH CIRCUITS AND MAINTAIN THOSE CIRCUITS THAT EXTEND OUTSIDE OF THE SCOPE OF WORK.
- AFTER RENOVATING EXISTING ELECTRICAL WORK, THE CONTRACTOR SHALL INSURE THAT ALL REMAINING AND NEW EQUIPMENT WILL OPERATE PROPERLY.
- PROVIDE TEMPORARY HEAT DETECTORS IN AREAS WHERE SPRINKLERS ARE REMOVED FROM SERVICE DURING CONSTRUCTION. COORDINATE WITH FIRE PROTECTION CONTRACTOR.
- REFER TO HVAC CONTRACT DRAWINGS AND SPECIFICATIONS FOR EXACT QUANTITIES AND LOCATIONS OF ALL HVAC EQUIPMENT BEING ABANDONED OR REMOVED, WHICH WILL REQUIRE DE-ENERGIZATION. REMOVAL AND BLANK-OFF BY THE CONTRACTOR.

![](_page_39_Picture_41.jpeg)

SWBR NYS Certificate of Authorization #: 235221

![](_page_39_Picture_43.jpeg)

Mechanical/Electrical Engineering Consultants Rochester | Buffalo | Syracuse | Capital District 300 TROLLEY BOULEVARD ROCHESTER, NY 14606 www.meengineering.c

M/E Project #230003

#### **ABBREVIATIONS** ABBREVIATIONS ABBREV. DESCRIPTION ABBREV. DESCRIPTION A.F.F. KW. ABOVE FINISHED FLOOR KILOWATT A.F.G. ABOVE FINISHED GRADE LTG. LIGHTING M.C.B. Α. AMPERE MAIN CIRCUIT BREAKER AUTO. AUTOMATIC M.L.O. MAIN LUG ONLY BSMT. MICRO BASEMENT MICROWAVE BKR. BREAKER NL NIGHT LIGHT CLG. CEILING PINL PANEL CONTR. CONTRACTOR PH. PHASE CONT. CONTACTOR P.C. PLUMBING CONTRACTOR ΡV POWER VENTILATOR CAMERA, CONDUIT DP DISTRIBUTION PANEL Ρ. POLE REFRIG. DN. REFRIGERATOR DOWN SP. EA. EACH SPACE E.C. SPEC. ELECTRICAL CONTRACTOR SPECIFICATION ELEC. SW. ELECTRIC SWITCH EMERG. EMERGENCY ΤV TELEVISION TELEPHONE BACKBOARD EM. T.B.B. EMERGENCY T.T.C. EWC ELECTRIC WATER COOLER TELEPHONE TERMINAL CABINET EXIST. EXISTING TYP. TYPICAL F.A. FIRE ALARM U.L. UNDERWRITER'S LABORATORY F.A.C.P. FIRE ALARM CONTROL PANEL V. VOLT WP F.A.T.C. FIRE ALARM TERMINAL CABINET WEATHERPROOF FCU FAN COIL UNIT 4 W. WIRE 3P.15A. P = POLE A = AMPERE FZ (3) FIRE ZONE (3) OC GRS. GALVANIZED RIGID STEEL MOUNTED OVER COUNTER HEIGHT UC MOUNTED UNDER COUNTER HEIGHT GND. GROUND UV UNIT VENTILATOR G.C. GENERAL CONTRACTOR WG WIRE GUARD GEN. GENERATOR EHP FRACTIONAL HORSEPOWER G.F.C.I. **GROUND FAULT CIRCUIT INTERRUPTER** EF EXHAUST FAN H.V.A.C. HEATING, VENTILATING AND AIR CONDITIONING CUH CABINET UNIT HEATER HP. HORSEPOWER UH UNIT HEATER WAP WIRELESS ACCESS POINT

![](_page_39_Picture_46.jpeg)

IJC	
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GD	D
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**E-000 GENERAL NOTES &** SYMBOLS LIST -ELECTRICAL

![](_page_40_Figure_1.jpeg)

![](_page_40_Figure_3.jpeg)

#### **GENERAL DEMOLITION NOTES:**

A. SALVAGE CIRCUITS WHERE FEASIBLE FOR EXTENSION AND USE IN NEW WORK PHASE.

#### **DEMOLITION NOTES:**

- 1. DISCONNECT AND REMOVE POWER CONNECTION TO LINEAR ACCELERATOR BACK TO SOURCE PANEL (AP-L2HE). REMOVE ALL SYSTEM COMPONENTS COMPLETELY.
- RECEPTACLE TO BE REMOVED IN DEMOLITION PHASE. LOCATION TO REMAIN 2. FOR GFCI RECEPTACLE TO BE INSTALLED IN NEW WORK PHASE.
- 3. EXISTING DISCONNECT SWITCH TO REMAIN.
- ALL CEILING COMPONENTS TO BE REMOVED TO ALLOW FOR CEILING 4. DEMOLITION. REINSTALL IN NEW CEILING AS INDICATED ON NEW WORK PLAN.
- COORDINATE MECHANICAL CONTRACTOR FOR ANY NECESSARY REMOVALS, 5. REWORK, AND REINSTALLATION OF ELECTRICAL CONDUITS AND COMPONENTS IN THIS AREA TO FACILITATE THE INSTALLATION OF FAN COIL

![](_page_40_Picture_17.jpeg)

SWBR NYS Certificate of Authorization #: 235221

![](_page_40_Picture_19.jpeg)

Mechanical/Electrical Engineering Consultants

Rochester | Buffalo | Syracuse | Capital District

M/E Project #230003

585.288.5590

www.meengineering.co

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![](_page_40_Picture_21.jpeg)

Drawn By:	IJC
Checked By:	MRG
Project Manager:	GDD
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VMC Linear Accele Replacement & Inf Upgrades SWBR Project Num	erator irastructure iber 23024.00
<b>Cornell University</b> Ithaca, NY	
E-100	
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![](_page_41_Figure_2.jpeg)

![](_page_41_Figure_3.jpeg)

## **GENERAL NOTES:**

A. DISCONNECT AND REMOVE ALL LIGHTING AND CONTROLS WITHIN THE PROJECT AREA AND SALVAGE CIRCUITS FOR REUSE. REFER TO NEW WORK PLAN FOR NEW LIGHTS AND LOCATIONS. MANY LOCATIONS WILL HAVE 1:1 REPLACEMENT OF FIXTURES IN NEW OR EXISTING CEILINGS.

#### **DEMOLITION NOTES:**

1. REMOVE EXISTING IN-USE LIGHT. SALVAGE CONTROLS AS NECESSARY TO CONNECT NEW IN-USE LIGHT TO NEW LINEAR ACCELERATOR.

![](_page_41_Picture_8.jpeg)

VMC Linear Accelerator Replacement & Infrastructure

SWBR Project Number 23024.00

PARTIAL LEVEL 2 DEMOLITION PLAN -

Upgrades

Ithaca, NY

Cornell University

E-101

LIGHTING

Documents

October 12, 2023 100% Construction

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![](_page_42_Figure_2.jpeg)

1/8" = 1'-0"

![](_page_43_Figure_1.jpeg)

#### **DRAWING NOTES:**

- PROVIDE AND INSTALL EMERGENCY POWER OFF BUTTON. PROVIDE (1) "SAFETY LOOP" AND ONE "SENSING LOOP" WIRED IN SERIES THROUGH EMERGENCY POWER OFF BUTTONS BACK TO RELAY JUNCTION BOX WITH VARIAN-FURNISHED RESISTORS INSTALLED ACROSS THE NORMALLY OPEN SENSING LOOP CONNECTIONS AT EACH EMERGENCY POWER OFF BUTTON.
- EXISTING SHUNT-TRIP CIRCUIT BREAKER TO BE REMOVED. PROVIDE BLANK 2 COVER FOR EXISTING BACK BOX.
- VARIAN MCB CABINET. SHALL BE WIRED TO PANELBOARD DPHBA-2-1 IN 3 BASEMENT MECHANICAL ROOM C100UC VIA POWER CONDITIONING UNIT (PCU) IN BASEMENT MECHANICAL ROOM C100UB. REFER TO SHEET E-200 FOR PANELBOARD AND PCU LOCATIONS.
- 4. INSTALL GFCI RECEPTACLE AT EXISTING RECEPTACLE LOCATION.
- REFER TO ARCHITECTURAL DRAWINGS TO COORDINATE LOCATION OF DATA AND POWER IN FIELD AT TELEVISION.
- RECEPTACLE FOR CCTV CAMERA ASSOCIATED WITH MEDICAL EQUIPMENT. 6 COORDINATE MOUNTING HEIGHT AND LOCATION SUCH THAT RECEPTACLE IS LOCATED WITHIN 1'-0" OF CAMERA LOCATION.

#### **GENERAL NOTES:**

DRAWINGS.

MOUNTING HEIGHTS.

PROVIDE ALL ITEMS LISTED AS BY OWNER OR CONTRACTOR WITH THE

OWNER'S LINEAR ACCELERATOR DOCUMENTS. INSTALL THE POWER

CONDITIONER BETWEEN SOURCE PANEL AND LINEAR ACCELERATOR.

ALL NEW DATA DROPS TO BE ROUTED TO TR-2C ROOM NUMBER C2408A.

TRAY. PROVIDE ADDITIONAL PATHWAYS AS NEEDED BACK TO C2408A.

E. ELECTRICAL DEVICES TO BE CIRCUITED TO PANELBOARD AP-L2HF, CIRCUIT

NUMBER AS INDICATED, UNLESS OTHERWISE NOTED. CONTRACTOR MAY USE

CIRCUITS MADE SPARE DURING DEMOLITION FIRST. REFER TO DETAIL 2 ON

C. COORDINATE RACEWAY HEIGHTS AND LOCATIONS WITH ARCHITECTURAL

D. REFER TO ARCHITECTURAL ELEVATIONS FOR ELECTRICAL DEVICE

THIS SHEET FOR PANELBOARD LOCATION.

REFER TO DETAIL 2 ON THIS SHEET FOR TR LOCATION AND EXISTING CABLE

Α.

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![](_page_43_Picture_28.jpeg)

**Cornell University** Ithaca, NY

## **E-201** PARTIAL LEVEL 2 FLOOR PLAN -

**POWER & SPECIAL** SYSTEMS

ΡA ШГЕ

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![](_page_44_Picture_2.jpeg)

![](_page_44_Figure_3.jpeg)

![](_page_44_Figure_7.jpeg)

## **GENERAL NOTES:**

A. UTILIZE EXISTING LIGHTING CIRCUITS MADE SPARE DURING DEMOLITION. EXTEND AND REWORK AS REQUIRED.

## DRAWING NOTES:

1. EXTEND CIRCUIT FROM CORRIDOR EM LIGHTS TO NEW EXIT SIGN LOCATION.

2. CONNECT NEW WARNING LIGHT TO NEW LINEAR ACCELERATOR. UNIT SHALL BE ILLUMINATED WHEN MACHINE IS RUNNING. REUSE EXISTING PATHWAYS AS AVAILABLE. REFER TO LITERATURE PROVIDED BY VARIAN FOR WIRING AND REQUIREMENTS. PROVIDE RELAYS AS REQUIRED FOR INTERCONNECTION WITH

![](_page_44_Picture_13.jpeg)

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![](_page_45_Picture_2.jpeg)

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![](_page_45_Figure_3.jpeg)

#### DRAWING NOTES:

1. MOUNT RECEPTACLE ON STAINLESS STEEL UNISTRUT. CIRCUIT NUMBER AS INDICATED FROM PANELBOARD APL2HE. CONNECT TO EXISTING 20A, 1P CIRCUIT BREAKER.

**SWBR** 

387 East Main Street Rochester NY 14604

585 232 8300 | rochester@swbr.com

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- 2. CONNECT INTO EXISTING LIGHTNING PROTECTION SYSTEM.
- 3. PROVIDE (2) 120V, 20A-1P CIRCUITS TO NEW AIR HANDLING UNIT. CIRCUIT NUMBERS AS INDICATED FROM PANELBOARD APL2HE. CONNECT TO (2) NEW 20A, 1P CIRCUIT BREAKERS IN OPEN SPACE. NEW CIRCUIT BREAKERS TO MATCH EXISTING PANELBOARD MANUFACTURER AND RATINGS.
- 4. NEW AIR TERMINAL MOUNTED TO NEW ROOFTOP MECHANICAL EQUIPMENT. EXTEND EXISTING LIGHTING PROTECTION AS INDICATED IN DRAWINGS AND SPECIFICAITONS.

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TAG FROM  $\langle \alpha \rangle$ А BASEFRAME PULL BOX (21) С D1 MODULATOR PULL BOX (20) D2 Е RELAY JUNCTION BOX (24) F G Н I J K ACCESSORY PULL BOX (22) L М Ν 0 Р MAIN CIRCUIT BREAKER PANEL(25) Q R NETWORK T CONTROL AREA

## TRUBEAM CONDUIT SCHEDULE

то	QTY	SIZE	TAG α	NOTE
CONTROL CONSOLE PULL BOX (19)	4	4"	А	
MODULATOR PULL BOX (20)	3	4"	В	
RELAY JUNCTION BOX (24)	2	2"	С	
MAIN CIRCUIT BREAKER PANEL(25)	1	2"	D1	
MAIN CIRCUIT BREAKER PANEL(25)	1	2"	D2	
WARNING LIGHTS (18)	1	3/4"	E	
DOOR INTERLOCKS (24VDC & 120VAC)	1	3/4"	F	
	1	3"	G	
CONTROL CONSOLE PULL BOX (19)	2	2"	Н	
OPTICAL IMAGING CAMERA	1	3"	I	
IN-ROOM MONITORS	1	2"	J	
LIVE VIEW CAMERA & MICROPHONE (PRIMARY)	2	1-1/4"	К	
MICROPHONE (SECONDARY, CEILING)	1	1-1/4"	L	
CCTV CAMERA (QTY. 2)	1	1"	М	
SPEAKER (QTY. 2)	1	1"	Ν	
SERVICE KEYBOARD & OPTIONAL VVS SYSTEM	1	1"	0	
CONTROL CONSOLE PULL BOX (19)	1	1"	Р	
IEC 60309, 30A, 250V RECEPTACLE	1	1"	Q	
-	1	1"	R	
TREATMENT ROOM (FUTURE USE, OPTIONAL)	2	4"	Т	
END OF SCHEDULE				

## TRUBEAM COMPONENT SCHEDULE

TAG	EQUIPMENT	FURNISHED / INSTALLED	NOTES				
01	STAND	VF/VI					
02	GANTRY	VF/VI					
03	MODULATOR CABINET	VF/VI					
06	ISOCENTER	-					
08	CONTROL CABINET	VF/VI					
09	OPTICAL IMAGING CAMERA	VF/VI					
10	IN-ROOM MONITOR	VF/VI					
11	CCTV CAMERA	VF/VI					
12	LIVE VIEW CAMERA	VF/VI					
13	MICROPHONE (CELING)	VF/VI					
14	WIRELESS KEYBOARD/MOUSE	VF/VI					
15	SPEAKER	VF/CI					
16	OPTIONAL VVS OR PAVS SYSTEM	-					
17	PATIENT POSITIONING LASERS	VF/VI					
18	WARNING LIGHTS	CF/CI					
19	CONTROL CONSOLE PULL BOX	CF/CI					
20	MODULATOR PULL BOX	CF/CI					
21	BASEFRAME PULL BOX	CF/CI					
22	ACCESSORY PULL BOX	CF/CI					
23	SHIELDED DOOR	CF/CI					
24	RELAY JUNCTION BOX	VF/CI					
25	MAIN CIRCUIT BREAKER PANEL	VF/CI					
26	IEC 60309 RECEPTACLE	VF/CI					
30	TRANSTECTOR POWER CONDITIONER	VF/CI					
40	FILTRINE CHILLER	VF/CI					
41	FILTRINE QUICK CONNECT PANEL	VF/CI					
a50	DOOR SWITCHES (24VDC & 120VAC)	CF/CI					
END OF SCHEDULE							

![](_page_46_Figure_7.jpeg)

#### **GENERAL NOTES:**

- A. PROVIDE ADEQUATE CLEARANCE FOR TYPICAL CONDUIT BEND RADIUS OF SIX TIMES THE DIAMETER. CONDUIT BENDS SHALL NOT EXCEED 270 DEGREES PER CABLE RUN. PROVIDE JUNCTION BOXES AND PULL POINTS AS REQUIRED.
- B. ROUTE ALL ROOM PENETRATIONS AS PERPENDICULAR TO THE ISOCENTER AS POSSIBLE TO AVOID RADIATION SCATTER. VERIFY ALL ROOM PENETRATIONS WITH THE PHYSICIST OF RECORD.
- C. CONDUIT RUN LENGTHS FOR VARIAN-SUPPLIED CABLES SHALL NOT EXCEED 75'-0".

#### DRAWING NOTES:

- 120V CIRCUIT FOR WARNING LIGHTS, POSITIONING LASER RECEPTACLES (CONTROLLED FROM RELAY JUNCTION BOX), CCTV RECEPTACLES, AND CEILING-MOUNTED IN-ROOM MONITOR.
- 2. BOX ON PLANS IS REPRESENTATIVE OF 120V CONTROLLED RECEPTACLE FOR POSITIONING LASER.
- 3. PROVIDE RECEPTACLE (NOT SHOWN ON THIS PLAN) FOR CCTV CAMERA WITHIN 1'-0" OF CCTV CAMERA LOCATION. REFER TO E-202 FOR CIRCUIT INFORMATION.
- 4. PROVIDE 1" CONDUIT DOWN THE SOUTH WALL OF THE VAULT. LOCATION TO BE CONFIRMED WITH OWNER AND EQUIPMENT MANUFACTURER. REFER TO ARCHITECTURAL DETAILS.

![](_page_46_Picture_17.jpeg)

**E-211** LINEAR ACCELERATOR -CONDUITS

![](_page_47_Figure_0.jpeg)

![](_page_47_Figure_1.jpeg)

## TRUBEAM CONDUIT SCHEDULE

то	QTY	SIZE	TAG	NOTE
CONTROL CONSOLE PULL BOX (19)	4	4"	А	
MODULATOR PULL BOX (20)	3	4"	В	
RELAY JUNCTION BOX (24)	2	2"	С	
MAIN CIRCUIT BREAKER PANEL(25)	1	2"	D1	
MAIN CIRCUIT BREAKER PANEL(25)	1	2"	D2	
WARNING LIGHTS (18)	1	3/4"	Е	
DOOR INTERLOCKS (24VDC & 120VAC)	1	3/4"	F	
	1	3"	G	
CONTROL CONSOLE PULL BOX (19)	2	2"	Н	
OPTICAL IMAGING CAMERA	1	3"	I	
IN-ROOM MONITORS	1	2"	J	
LIVE VIEW CAMERA & MICROPHONE (PRIMARY)	2	1-1/4"	К	
MICROPHONE (SECONDARY, CEILING)	1	1-1/4"	L	
CCTV CAMERA (QTY. 2)	1	1"	М	
SPEAKER (QTY. 2)	1	1"	Ν	
SERVICE KEYBOARD & OPTIONAL VVS SYSTEM	1	1"	0	
CONTROL CONSOLE PULL BOX (19)	1	1"	Р	
IEC 60309, 30A, 250V RECEPTACLE	1	1"	Q	
-	1	1"	R	
TREATMENT ROOM (FUTURE USE, OPTIONAL)	2	4"	Т	
END OF SCHEDULE	•			

## TRUBEAM COMPONENT SCHEDULE

TAG	EQUIPMENT	FURNISHED / INSTALLED	NOTES				
01	STAND	VF/VI					
02	GANTRY	VF/VI					
03	MODULATOR CABINET	VF/VI					
06	ISOCENTER	-					
08	CONTROL CABINET	VF/VI					
09	OPTICAL IMAGING CAMERA	VF/VI					
10	IN-ROOM MONITOR	VF/VI					
11	CCTV CAMERA	VF/VI					
12	LIVE VIEW CAMERA	VF/VI					
13	MICROPHONE (CELING)	VF/VI					
14	WIRELESS KEYBOARD/MOUSE	VF/VI					
15	SPEAKER	VF/CI					
16	OPTIONAL VVS OR PAVS SYSTEM	-					
17	PATIENT POSITIONING LASERS	VF/VI					
18	WARNING LIGHTS	CF/CI					
19	CONTROL CONSOLE PULL BOX	CF/CI					
20	MODULATOR PULL BOX	CF/CI					
21	BASEFRAME PULL BOX	CF/CI					
22	ACCESSORY PULL BOX	CF/CI					
23	SHIELDED DOOR	CF/CI					
24	RELAY JUNCTION BOX	VF/CI					
25	MAIN CIRCUIT BREAKER PANEL	VF/CI					
26	IEC 60309 RECEPTACLE	VF/CI					
30	TRANSTECTOR POWER CONDITIONER	VF/CI					
40	FILTRINE CHILLER	VF/CI					
41	FILTRINE QUICK CONNECT PANEL	VF/CI					
a50	DOOR SWITCHES (24VDC & 120VAC)	CF/CI					
END OF SCHEDULE							

![](_page_47_Figure_8.jpeg)

#### **GENERAL NOTES:**

- A. PROVIDE ADEQUATE CLEARANCE FOR TYPICAL CONDUIT BEND RADIUS OF SIX TIMES THE DIAMETER. CONDUIT BENDS SHALL NOT EXCEED 270 DEGREES PER CABLE RUN. PROVIDE JUNCTION BOXES AND PULL POINTS AS REQUIRED.
- B. ROUTE ALL ROOM PENETRATIONS AS PERPENDICULAR TO THE ISOCENTER AS POSSIBLE TO AVOID RADIATION SCATTER. VERIFY ALL ROOM PENETRATIONS WITH THE PHYSICIST OF RECORD.
- C. CONDUIT RUN LENGTHS FOR VARIAN-SUPPLIED CABLES SHALL NOT EXCEED 75'-0".

#### DRAWING NOTES:

- 4" CONDUITS FROM TRENCH TO IN-SLAB BASEFRAME PULL BOX. PROVIDE CUSTOM BENDS AS REQUIRED TO INSTALL PATHWAYS. CONDUIT INNER WALL MUST BE SMOOTH. LFMC AND FMC ARE NOT ACCEPTABLE.
- "C" CONDUITS FROM RELAY JUNCTION BOX TO BASE FRAME PULL BOX. CONTRACTOR MAY UTILIZE EXISTING TRENCH IN CONJUNCTION WITH CONDUIT SIZE SCHEDULED FOR COMPLETE PATHWAY.
- 3. "B" CONDUITS THROUGH NEW SLAB CORES. COORDINATE CORE LOCATIONS WITH AREA BELOW. REFER TO DETAILS 2 AND 3 ON THIS SHEET AND CONDUIT RISER DIAGRAM ON SHEET E-214.
- "D" CONDUITS THROUGH NEW SLAB CORES. COORDINATE CORE LOCATIONS WITH AREA BELOW. REFER TO DETAILS 2 AND 3 ON THIS SHEET AND CONDUIT RISER DIAGRAM ON SHEET E-214.
- 5. JUNCTION/PULL BOXES FOR ROUTING PATHWAYS. MINIMUM SIZE PER NEC REQUIREMENTS. COORDINATE LOCATION AND SIZE IN FIELD IF NEEDED.
- 6. PROVIDE PULL BOX FOR POWER CONNECTIONS TO SEPARATE FROM LOW VOLTAGE/SIGNAL CONNECTIONS IN PEDESTAL UNDERNEATH MODULATOR.

![](_page_47_Picture_20.jpeg)

**Cornell University** Ithaca, NY

Upgrades

VMC Linear Accelerator Replacement & Infrastructure

SWBR Project Number 23024.00

**E-212** LINEAR ACCELERATOR -IN-SLAB CONDUITS

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TAG FROM А BASEFRAME PULL BOX (21) С D1 MODULATOR PULL BOX (20) D2 Е RELAY JUNCTION BOX (24) F G Н Ι J K ACCESSORY PULL BOX (22) L М Ν 0 Р MAIN CIRCUIT BREAKER PANEL(25) Q R NETWORK T CONTROL AREA

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## TRUBEAM CONDUIT SCHEDULE

то	QTY	SIZE	TAG	NOTE
CONTROL CONSOLE PULL BOX (19)	4	4"	А	
MODULATOR PULL BOX (20)	3	4"	В	
RELAY JUNCTION BOX (24)	2	2"	С	
MAIN CIRCUIT BREAKER PANEL(25)	1	2"	D1	
MAIN CIRCUIT BREAKER PANEL(25)	1	2"	D2	
WARNING LIGHTS (18)	1	3/4"	E	
DOOR INTERLOCKS (24VDC & 120VAC)	1	3/4"	F	
	1	3"	G	
CONTROL CONSOLE PULL BOX (19)	2	2"	Н	
OPTICAL IMAGING CAMERA	1	3"	I	
IN-ROOM MONITORS	1	2"	J	
LIVE VIEW CAMERA & MICROPHONE (PRIMARY)	2	1-1/4"	К	
MICROPHONE (SECONDARY, CEILING)	1	1-1/4"	L	
CCTV CAMERA (QTY. 2)	1	1"	М	
SPEAKER (QTY. 2)	1	1"	Ν	
SERVICE KEYBOARD & OPTIONAL VVS SYSTEM	1	1"	0	
CONTROL CONSOLE PULL BOX (19)	1	1"	Р	
IEC 60309, 30A, 250V RECEPTACLE	1	1"	Q	
-	1	1"	R	
TREATMENT ROOM (FUTURE USE, OPTIONAL)	2	4"	Т	
END OF SCHEDULE				

## TRUBEAM COMPONENT SCHEDULE

TAG	EQUIPMENT	FURNISHED / INSTALLED	NOTES
01	STAND	VF/VI	
02	GANTRY	VF/VI	
03	MODULATOR CABINET	VF/VI	
06	ISOCENTER	-	
08	CONTROL CABINET	VF/VI	
09	OPTICAL IMAGING CAMERA	VF/VI	
10	IN-ROOM MONITOR	VF/VI	
11	CCTV CAMERA	VF/VI	
12	LIVE VIEW CAMERA	VF/VI	
13	MICROPHONE (CELING)	VF/VI	
14	WIRELESS KEYBOARD/MOUSE	VF/VI	
15	SPEAKER	VF/CI	
16	OPTIONAL VVS OR PAVS SYSTEM	-	
17	PATIENT POSITIONING LASERS	VF/VI	
18	WARNING LIGHTS	CF/CI	
19	CONTROL CONSOLE PULL BOX	CF/CI	
20	MODULATOR PULL BOX	CF/CI	
21	BASEFRAME PULL BOX	CF/CI	
22	ACCESSORY PULL BOX	CF/CI	
23	SHIELDED DOOR	CF/CI	
24	RELAY JUNCTION BOX	VF/CI	
25	MAIN CIRCUIT BREAKER PANEL	VF/CI	
26	IEC 60309 RECEPTACLE	VF/CI	
30	TRANSTECTOR POWER CONDITIONER	VF/CI	
40	FILTRINE CHILLER	VF/CI	
41	FILTRINE QUICK CONNECT PANEL	VF/CI	
a50	DOOR SWITCHES (24VDC & 120VAC)	CF/CI	
	END OF SCHED	DULE	

![](_page_48_Figure_7.jpeg)

#### **GENERAL NOTES:**

- A. PROVIDE ADEQUATE CLEARANCE FOR TYPICAL CONDUIT BEND RADIUS OF SIX TIMES THE DIAMETER. CONDUIT BENDS SHALL NOT EXCEED 270 DEGREES PER CABLE RUN. PROVIDE JUNCTION BOXES AND PULL POINTS AS REQUIRED.
- B. ROUTE ALL ROOM PENETRATIONS AS PERPENDICULAR TO THE ISOCENTER AS POSSIBLE TO AVOID RADIATION SCATTER. VERIFY ALL ROOM PENETRATIONS WITH THE PHYSICIST OF RECORD.
- C. CONDUIT RUN LENGTHS FOR VARIAN-SUPPLIED CABLES SHALL NOT EXCEED 75'-0".
- D. ALL GROUND CONDUCTORS INDICATED SHALL BE #6AWG CU MINIMUM. PROVIDE CONNECTIONS AND SPLICES AS REQUIRED. GROUND WIRE MAY BE COMBINED WITH OTHER CABLES IN CONDUITS DESCRIBED ON OTHER SHEETS. ADDITIONAL CONDUITS (IF REQUIRED) SHALL BE COORDINATED WITH ARCHITECT AND SHALL BE ROUTED WITH OTHER LINEAR ACCELERATOR CONDUITS.

#### DRAWING NOTES:

- 1. SPLICE POINT (DIAGRAMMATIC)
- 2. PROVIDE GROUND CONNECTION TO IN-ROOM MONITORS AND POST.
- 3. PROVIDE GROUND CONNECTION TO OPTICAL IMAGING CAMERA AND POST.
- 4. PROVIDE GROUND CONNECTION TO RELAY JUNCTION BOX.
- 5. PROVIDE GROUND CONNECTION TO POSITIONING LASER MOUNTING PLATE.
- 6. PROVIDE GROUND CONNECTION TO MODULATOR PULL BOX.
- 7. PROVIDE GROUND CONNECTION TO MAIN CIRCUIT BREAKER PANEL.
- 8. GROUND PROVIDED BY PARITY GROUND IN FEEDER CONDUIT, TERMINATED IN MCB.
- 9. GROUND PROVIDED BY SEPARATE GROUND FEED. REFER TO RISER DIAGRAM ON SHEET E-214, DRAWING NOTE 6.

![](_page_48_Picture_23.jpeg)

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VMC Linear Accelerator Replacement & Infrastructure Upgrades SWBR Project Number 23024.00 Cornell University Ithaca, NY

**E-213** LINEAR ACCELERATOR -GROUNDING

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TAG FROM А BASEFRAME PULL BOX (21) С D1 MODULATOR PULL BOX (20) D2 Е RELAY JUNCTION BOX (24) F G Н I J K ACCESSORY PULL BOX (22) L М Ν 0 Р MAIN CIRCUIT BREAKER PANEL(25) Q R NETWORK T CONTROL AREA

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## TRUBEAM CONDUIT SCHEDULE

	то	QTY	SIZE	TAG	NOTE
СС	ONTROL CONSOLE PULL BOX (19)	4	4"	А	
M	DDULATOR PULL BOX (20)	3	4"	В	
RE	ELAY JUNCTION BOX (24)	2	2"	С	
MA	AIN CIRCUIT BREAKER PANEL(25)	1	2"	D1	
MA	AIN CIRCUIT BREAKER PANEL(25)	1	2"	D2	
W	ARNING LIGHTS (18)	1	3/4"	Е	
DC	OOR INTERLOCKS (24VDC & 120VAC)	1	3/4"	F	
		1	3"	G	
	JNTROL CONSOLE PULL BOX (19)	2	2"	Н	
OF	PTICAL IMAGING CAMERA	1	3"	I	
IN	-ROOM MONITORS	1	2"	J	
L۱	/E VIEW CAMERA & MICROPHONE (PRIMARY)	2	1-1/4"	К	
MI	CROPHONE (SECONDARY, CEILING)	1	1-1/4"	L	
CC	CTV CAMERA (QTY. 2)	1	1"	М	
SF	PEAKER (QTY. 2)	1	1"	N	
SE	RVICE KEYBOARD & OPTIONAL VVS SYSTEM	1	1"	0	
CC	ONTROL CONSOLE PULL BOX (19)	1	1"	Р	
IE	C 60309, 30A, 250V RECEPTACLE	1	1"	Q	
-		1	1"	R	
TF	REATMENT ROOM (FUTURE USE, OPTIONAL)	2	4"	Т	
	END OF SCHEDULE	•			

## TRUBEAM COMPONENT SCHEDULE

TAG	EQUIPMENT	FURNISHED / INSTALLED	NOTES
01	STAND	VF/VI	
02	GANTRY	VF/VI	
03	MODULATOR CABINET	VF/VI	
06	ISOCENTER	-	
08	CONTROL CABINET	VF/VI	
09	OPTICAL IMAGING CAMERA	VF/VI	
10	IN-ROOM MONITOR	VF/VI	
11	CCTV CAMERA	VF/VI	
12	LIVE VIEW CAMERA	VF/VI	
13	MICROPHONE (CELING)	VF/VI	
14	WIRELESS KEYBOARD/MOUSE	VF/VI	
15	SPEAKER	VF/CI	
16	OPTIONAL VVS OR PAVS SYSTEM	-	
17	PATIENT POSITIONING LASERS	VF/VI	
18	WARNING LIGHTS	CF/CI	
19	CONTROL CONSOLE PULL BOX	CF/CI	
20	MODULATOR PULL BOX	CF/CI	
21	BASEFRAME PULL BOX	CF/CI	
22	ACCESSORY PULL BOX	CF/CI	
23	SHIELDED DOOR	CF/CI	
24	RELAY JUNCTION BOX	VF/CI	
25	MAIN CIRCUIT BREAKER PANEL	VF/CI	
26	IEC 60309 RECEPTACLE	VF/CI	
30	TRANSTECTOR POWER CONDITIONER	VF/CI	
40	FILTRINE CHILLER	VF/CI	
41	FILTRINE QUICK CONNECT PANEL	VF/CI	
a50	DOOR SWITCHES (24VDC & 120VAC)	CF/CI	
	END OF SCHEI	DULE	

![](_page_49_Figure_7.jpeg)

#### **GENERAL NOTES:**

- A. PROVIDE ADEQUATE CLEARANCE FOR TYPICAL CONDUIT BEND RADIUS OF SIX TIMES THE DIAMETER. CONDUIT BENDS SHALL NOT EXCEED 270 DEGREES PER CABLE RUN. PROVIDE JUNCTION BOXES AND PULL POINTS AS REQUIRED.
- B. ROUTE ALL ROOM PENETRATIONS AS PERPENDICULAR TO THE ISOCENTER AS POSSIBLE TO AVOID RADIATION SCATTER. VERIFY ALL ROOM PENETRATIONS WITH THE PHYSICIST OF RECORD.
- C. CONDUIT RUN LENGTHS FOR VARIAN-SUPPLIED CABLES SHALL NOT EXCEED 75'-0".

#### DRAWING NOTES:

- 1. CORE PENETRATIONS THROUGH CONCRETE WALL ABOVE DOORWAY. UTILIZE EXISTING CORES MADE SPARE WHERE AVAILABLE.
- 2. CORE PENETRATIONS THROUGH SLAB TO AREA BELOW.
- 3. ADDITIONAL JUNCTION BOXES FOR ROUTING CONDUITS THROUGH CORES.
- 4. ROUTE CONDUITS THROUGH EXISTING TRENCH. EXTEND PATHWAY TO BASE FRAME PULL BOX DIRECTLY. ADDITIONAL ELBOWS SHOWN FOR DIAGRAMMATIC CLARITY.
- 5. INSTALL (4)#2AWG & (1)#2 EG IN 1-1/2"C FROM POWER CONDITIONER TO MCB.
- INSTALL (1)#2EG IN 1"C FROM ELECTRIC ROOM CE110UL TO CHASE. PROVIDE GROUND BAR IN CHASE. REFER TO E-213 FOR EXTENT OF GROUNDING SYSTEM. REFER TO E-200 FOR FIRST FLOOR ELECTRIC ROOM LOCATION. TERMINATE AT GROUND IN ELECTRIC ROOM. EXTEND FROM DISTRIBUTION PANEL IF NO EXTERNAL GROUND BAR EXISTS.
- 7. ARCHITECTURAL CHASE TO SERVE AS VARIAN EQUIPMENT #19 CONTROL CONSOLE PULL BOX.
- 8. PROVIDE RACEWAY "P" FROM MAIN CIRCUIT BREAKER PANEL TO CHASE.
- 9. REFER TO ARCHITECTURAL ELEVATIONS. PROVIDE 1" CONDUIT RUN DOWN THE SOUTH WALL OF VAULT TO LOCATION OF WIRELESS KEYBOARD AND MOUSE. LOCAITON TO BE CONFIRMED WITH OWNER AND VARIAN.

![](_page_49_Picture_23.jpeg)

![](_page_49_Picture_24.jpeg)

Mechanical/Electrical Engineering Consultants

Rochester | Buffalo | Syracuse | Capital District

M/E Project #230003

300 TROLLEY BOULEVARD ROCHESTER, NY 14606 585.288.5590 www.meengineering.com

![](_page_49_Picture_25.jpeg)

Drawn By:	FCS	
Checked By:	MRG	
Project Manager:	GDD	
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Revisions		
VMC Linear Accele	erator	
VMC Linear Accele	erator rastructure	
VMC Linear Accele Replacement & Inf Upgrades	erator frastructure	_
VMC Linear Accele Replacement & Inf Upgrades SWBR Project Num	erator rastructure ber 23024.	0
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Ъ :57:12 10/11/2023 3::

![](_page_50_Figure_1.jpeg)

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![](_page_50_Figure_4.jpeg)

![](_page_50_Figure_8.jpeg)

![](_page_50_Picture_13.jpeg)

9

![](_page_50_Figure_14.jpeg)

- (5) BOND EQUIPMENT GROUND CONDUCTOR TO ENCLOSURE. (6)

BOND EQUIPMENT GROUND CONDUCTOR TO MOTOR FRAME.

- (4) DISCONNECT SWITCH PROVIDED UNDER ELECTRICAL WORK.
- (3) CONTROL DEVICES FURNISHED AND INSTALLED UNDER ELECTRICAL WORK.
- (2) MOTOR STARTER FURNISHED AND INSTALLED UNDER ELECTRICAL WORK
- (1)POWER WIRING AND CONNECTIONS PROVIDED UNDER ELECTRICAL WORK.

#### DETAIL NOTES:

![](_page_51_Figure_8.jpeg)

# 6 ASSIGNING OUTLET NUMBERS

![](_page_51_Figure_10.jpeg)

![](_page_51_Figure_11.jpeg)

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![](_page_51_Figure_13.jpeg)

![](_page_51_Figure_14.jpeg)

![](_page_51_Picture_15.jpeg)

October 12, 2023 100% Construction Documents

#### CEILING-MOUNTED TERMINATION LOCATED IN ACCESSIBLE CEILING SPACE-

РМ

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		ELECTRIC EQU	JIPME	NT AN	ID CON	TROL	SCHE	DULE					AU B ECB F HOA	AT UNIT ASD WI ENCLOS FUSED HAND-C	- TH BYPAS SED CIRC DFF-AUTO	SS :UIT BRE ) WITH R	AKER	ABB IU M NF R RE	REVIATIC INTEGRA MULTIPLE NON-FUS ASD WITH REMOTE	DNS IL WITH I E MOTOI GED H REDUN	JNIT R ASD IDANT A	SD				A. B. C.	REFER REQUIF PROVIE LOCATI DETEC	GI TO SPE( EMENT: DE CONT IONS/QU TORS AF	ENERAL CIFICATIO S ROLLER IANTITIES RE SHOW	NOTES DNS FOR E SIZED PER OF FIRE A N ON PLA	QUIPMENT R HP/AMPS. ALARM DUCT NS
		EQUIPMENT						POWE	ER SOURCE,	PROTECTI	ION & WIRIN	IG			MO		NTROLL	ER				DISCON	NECTING	G MEAN	S		CONNE	CTIONS	;	E	QUIPMENT
ITEM ID	NAME	ROOM LOCATION	HP	ĸw	AMPERAGE	PHASE	VOLTAGE	SOURCE	OCPD RATING	WIRING E ODISCO PHASE	G FROM SOU QUIPMENT CONTROLLE DNNECTING	URCE TO VIA ER / MEANS	MANUAL MOTOR STARTER WITH RELAY	MAGNETIC MOTOR STARTER	COMBINATION MAGNETIC STARTER AND SAFETY SWITCH	ADJUSTABLE SPEED DRIVE	PACKAGED CONTROL UNIT	NEMA ENCLOSURE TYPE	NEMA STARTER SIZE	LOCATION	SAFETY SWITCH	SAFETY SWITCH AMPERE RATING	FUSE/CB AMPERE RATING	NEMA ENCLOSURE TYPE	LOCATION	FIRE ALARM SHUTDOWN	FIRE ALARM DUCT DETECTOR(S)	MOTORIZED DAMPER	LINE VOLTAGE TEMPERATURE CONTROL	REFERENCE NOTES	ITEM ID
AHU-13 (S)	AIR HANDLING UNIT SUPPLY FAN	ROOF	5		7.6	3	480	LP-H2B(E)	20/3	3#12	1#12	3/4"C				Х				AU	Y	30A	NF	3R	AU	X	X	$\square$		1,2	AHU-13 (S)
AHU-13 (R)	AIR HANDLING UNIT RETURN FAN	ROOF	3		4.8	3	480	LP-H2B(E)	20/3	3#12	1#12	3/4"C				Х				AU	Y	30A	NF	3R	AU	X	<u> </u>	∟′		1,2	AHU-13 (R)
UH-1	UNIT HEATER	AHU SERVICE CORRIDOR	1/50		0.1	1	120	AP-L2HE(E)	20/1	2#12	1#12	3/4"C		Х						AU	Y	30A	NF	3R	AU		<b> </b> '	<b>└──</b> ′		1,3	UH-1
CP-1		BASEMENT MECH RM	1/2		2.4	3	208		20/3	3#12	1#12	3/4"C	×				X			AU		30A		1	AU		<b> </b> '	└───┦		1	CP-1
					2.1	3	400		15/3	3#12	1#12	3/4 C								AU	Ť	30A		1	AU						DC-1

REFERENCE NOTES

1

2 3

4

PROVIDE NEW CIRCUIT BREAKER IN EXISTING PANEL. MATCH EXISTING PANEL RATINGS. PANELBOARD LOCATED IN ELECTRIC ROOM C230UB. REFER TO DETAIL 2 ON SHEET E-201 FOR ELECTRIC ROOM LOCAITON.

PANELBOARD LOCATED IN CORRIDOR NEAR PROJECT AREA. REFER TO DETAIL 2 ON SHEET E-201 FOR ELECTRIC ROOM LOCATION. PROVIDE NEW CIRCUIT BREAKER IN EXISTING PANEL. REMOVE SPARE 30A, 3P CIRCUIT BREAKER IN SPACES 1,3,5 AND TURN OVER TO OWNER.

TYPE DESCRIPTION L1 6" RECESSED DOWNLIGHT FOR CLEANROOM SIMPLESEAL: APPLICATIONS #CDL6-FF-XX-22L-L2 2X4 LED TROFFER FOR CLEANROOM APPLICATIONS SIMPLESEAL: #CSEDI-24-90L-35 L3 2X4 LED TROFFER FINELITE: HPR LED-A-2x4-H-L4 1X4 LED TROFFER FINELITE: HPR LED-A-1x4-S-8 L5 SINGLE FACE EDGE-LIT LED SIGN WITH "X-RAY ON" EXITRONIX 900E S GRAPHICS. ALUMINUM HOUSING. #902E-WR-LB-RC-I L6 SINGLE FACE EDGE-LIT LED SIGN WITH "BEAM ON' EXITRONIX 900E S GRAPHICS. ALUMINUM HOUSING. #902E-WR-LB-RC-E X1 EDGE-LIT EXIT SIGN WITH MIRRORED BACKGROUND CHLORIDE BY SIG #45VL-XX-X--X-RM

## **REFERENCE NOTES:**

1. FINISH BY ARCHITECT. 2. PROVIDE RELAYS AS REQUIRED FOR INTERFACE WITH VARIAN EQUIPMENT.

JMINAIRE SCHEDULE				
MFR. & CATALOG No.	LAMP	VOLTAGE	UNIT WATTS	REFERENCE NOTES
-35K8-M-FW-G-RIG6-DV-DIM1	LED 3500K 80CRI	120/277	22W	1
iK8-DIM1-DV-XX-4H-SYM	LED 3500K 82CRI	120/277	90W	1
-835-DCO-96LG-XXX-FC-10%-XX-96LG-	LED 3500K 80CRI	120/277	40.6W	
-835-DCO-96LG-XXX-FC-10%-XX-96LG	LED 3500K 80CRI	120/277	28.4W	
SERIES: -BA-SS31	LED	120/277		1,2
SERIES: -BA-SS91	LED	120/277		1,2
GNIFY: A-XX-XX	LED	120/277V	2.9W	1

MLC	RLC	PORT	TR	RACK/ CABINET	PATCH PANEL	PORT	CIT LABEL	NOTE
C2289	A	1	C2480A	SEE NOT	ESA&B		C2289-A1	
C2289	А	2	C2480A	SEE NOT	ESA&B		C2289-A2	
C2289	В	1	C2480A	SEE NOT	ESA&B		C2289-B1	
C2289	С	1	C2480A	SEE NOT	ESA&B		C2289-B2	
C2289	С	2	C2480A	SEE NOT	ESA&B		C2289-C1	1
C2289	D	1	C2480A	SEE NOT	ESA&B		C2289-D1	
C2289	D	2	C2480A	SEE NOT	ESA&B		C2289-D2	
C2289	E	1	C2480A	SEE NOT	ESA&B		C2289-E1	
C2289	Е	2	C2480A	SEE NOT	ESA&B		C2289-E2	
C2289	F	1	C2480A	SEE NOT	ESA&B		C2289-F1	
C2289	F	2	C2480A	SEE NOT	ESA&B		C2289-F2	
C2289	G	1	C2480A	SEE NOT	ESA&B		C2289-G1	
C2289	G	2	C2480A	SEE NOT	ESA&B		C2289-G2	
C2289	Н	1	C2480A	SEE NOT	ESA&B		C2289-H1	
C2289	Н	2	C2480A	SEE NOT	ESA&B		C2289-H2	
C2289	l	1	C2480A	SEE NOT	ESA&B		C2289-I1	
C2289		2	C2480A	SEE NOT	ESA&B		C2289-I2	
C2289	J	1	C2480A	SEE NOT	ESA&B		C2289-J1	
C2289	J	2	C2480A	SEE NOT	ESA&B		C2289-J2	
C2289A	А	1	C2480A	SEE NOT	ESA&B		C2289A-A1	
C2289A	А	2	C2480A	SEE NOT	ESA&B		C2289A-A2	
C2289B	А	1	C2480A	SEE NOT	ESA&B		C2289B-A1	
C2289B	А	2	C2480A	SEE NOT	ESA&B		C2289B-A2	
C2289B	В	1	C2480A	(E)	(E)		C2289B-B1	2
C2289B	В	2	C2480A	(E)	(E)		C2289B-B2	2
C2289B	С	1	C2480A	SEE NOT	ESA&B		C2289B-C1	
C2289B	С	2	C2480A	SEE NOT	ESA&B		C2289B-C2	
C2289B	D	1	C2480A	SEE NOT	ESA&B		C2289B-D1	
C2289B	D	2	C2480A	SEE NOT	ESA&B		C2289B-D2	
C2289B	E	1	C2480A	SEE NOT	ESA&B		C2289B-E1	
C2289B	Е	2	C2480A	SEE NOT	ESA&B		C2289B-E2	
C2289B	F	1	C2480A	SEE NOT	ESA&B		C2289B-F1	
C2289B	F	2	C2480A	SEE NOT	ESA&B		C2289B-F2	
C2289B	G	1	C2480A	SEE NOT	ESA&B		C2289B-G1	
C2289B	G	2	C2480A	SEE NOT	ESA&B		C2289B-G2	
C2289C	А	1	C2480A	SEE NOT	ESA&B		C2289C-B1	3

<u>CA</u>	B
A.	CC

ONTRACTOR SHALL USE EXISTING SPARE PATCH PANEL LOCATIONS AND PATCH PANEL OPENINGS MADE SPARE DURING DEMOLITION BEFORE POPULATING NEW PATCH PANEL.

B. FURNISH AND INSTALL NEW PATCH PANEL BELOW LAST EXISTING PATCH PANEL. IN RACK 3. PATCH PANEL TO BE NAMED PP-S. ADJUST REQUIPMENT RACK COMPONENTS AS REQUIRED FOR NEW PATCH PANEL AND HORIZONTAL CABLE MANAGEMENT. COORDINATE WITH CIT FOR FINAL PATCH PANEL DESIGNATIONS.

1. WALL PHONE LOCATION. REFER TO PLANS.

2. CONTRACTOR SHALL REDESIGNATE EXISTING DATA DROPS AS REQUIRED FOR NEW ROOM LAYOUTS. UPDATE PATCH PANEL, CABLE, AND WALLPLATE MARKINGS.

3. WIRELESS ACCESS POINT.

![](_page_52_Picture_22.jpeg)

**SWBR** 

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ENGINEERING Mechanical/Electrical Engineering Consultants Rochester | Buffalo | Syracuse | Capital District

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585.288.5590 www.meengineering.com

300 TROLLEY BOULEVARD ROCHESTER, NY 14606

rawn By:	IJC
hecked By:	MRG
roject Manager:	GDD
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MC Linear Accelo eplacement & Inf pgrades WBR Project Num cornell University haca, NY E-400 SCHEDULE ELECTRICA	erator frastructure aber 23024.00