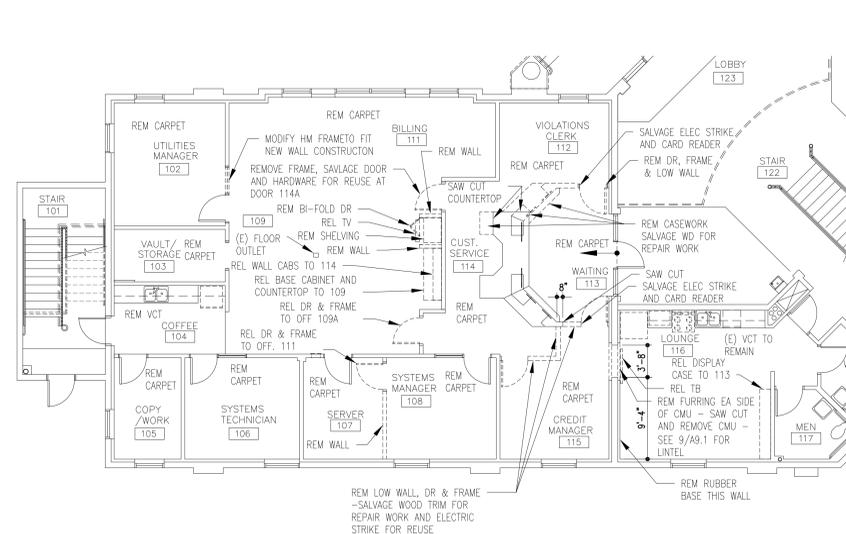


24b

Reflected Ceiling Demolition Plan

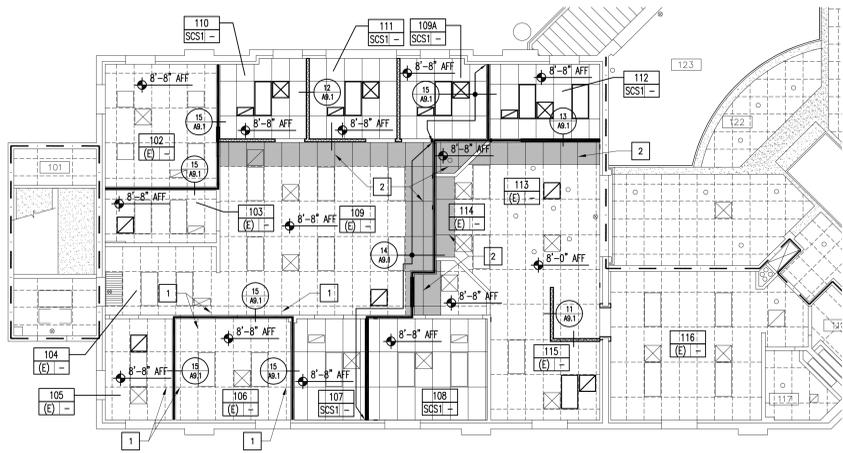
Scale: 1/8" = 1'-0"



14b

Demolition Floor Plan

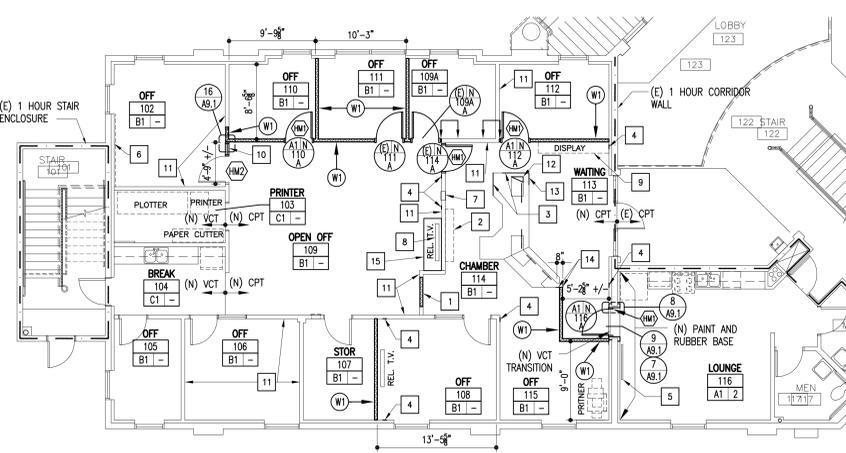
Scale: 1/8" = 1'-0"



22b

New Work Reflected Ceiling Plan

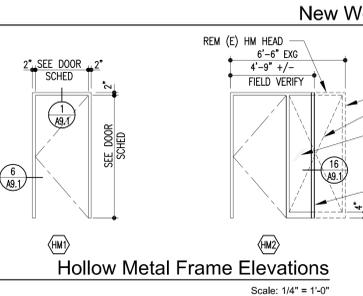
Scale: 1/8" = 1'-0"



12b

New Work Floor Plan

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



Hollow Metal Frame Elevations

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

Ceiling Specific Notes

- REMOVE AND REPLACE EXG CEILING GRID AND PANELS AS REQUIRED TO INSTALL NEW WALL OR WALL EXTENSION TO DECK ABOVE - SEE DETAILS
- RECONSTRUCT EXISTING CEILING USING SALVAGED GRID AND PANELS PER SHAVED AREA

Ceiling Notes

ABBREVIATIONS:
(E) EXISTING

GENERAL CEILING NOTES:

- ALL (N) CEILINGS TO BE 8'-8" AFF UNLESS OTHERWISE NOTED AT EACH RM.
- ELEVATIONS ARE REFERENCED FROM THE TOP OF 3.3 TYP.
- REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF SPEAKERS AND SMOKE DETECTORS.
- SEE DEMOLITION CEILING PLAN FOR ROOMS IN WHICH REMOVAL OF ENTIRE EXISTING CEILING GRID AND PANELS, LIGHT FIXTURES, DIFFUSERS AND GRILLES IS REQUIRED.
- REFER TO MECHANICAL DRAWINGS FOR HVAC. IN ROOMS WHERE EXISTING CEILINGS ARE TO REMAIN, REMOVE CEILING TILES AND GRID AS REQUIRED TO PERFORM ABOVE CEILING WORK. INSTALL NEW CEILING TILES AND GRID TO MATCH ADJACENT FINISHES OR REINSTALL CEILING GRID AND TILES AT COMPLETION OF WORK.
- REFER TO ELECTRICAL DRAWINGS FOR LIGHT FIXTURE REMOVAL OR REPLACEMENT AND NEW OR RELOCATED WIRING ABOVE CEILINGS. IN ROOMS WHERE EXISTING CEILINGS ARE TO REMAIN REMOVE AND REINSTALL CEILING TILES AS REQUIRED TO PERFORM ABOVE CEILING WORK.
- AT AREAS OF REMODEL, AND WHERE EXISTING ACCESSIBLE CEILING TILES ARE TO BE REMOVED AS PART OF THE WORK, PROVIDE PAINTED STENCILING AT FIRE PARTITIONS IN ACCESSIBLE FLOOR/CEILING OR ROOF/CEILING SPACES AT INTERVALS NOT EXCEEDING 30 FEET MEASURED HORIZONTALLY ALONG THE WALL OR PARTITION. INCLUDE LETTERING NOT LESS THAN 1/2 INCH IN HEIGHT, INCORPORATING THE WORDING: "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS."

Ceiling Legend

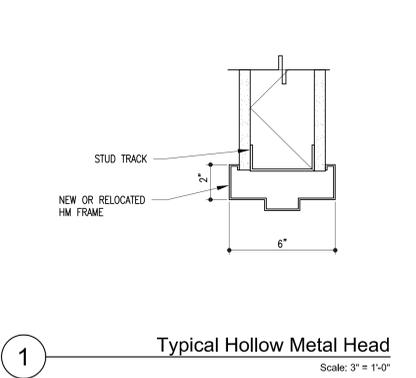
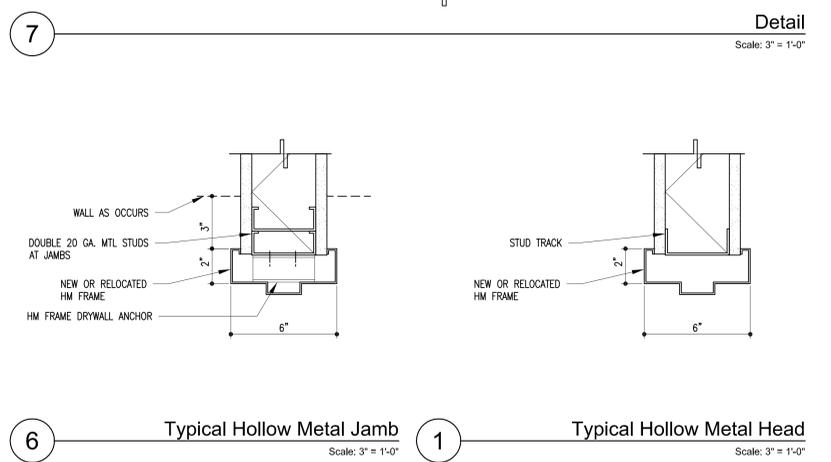
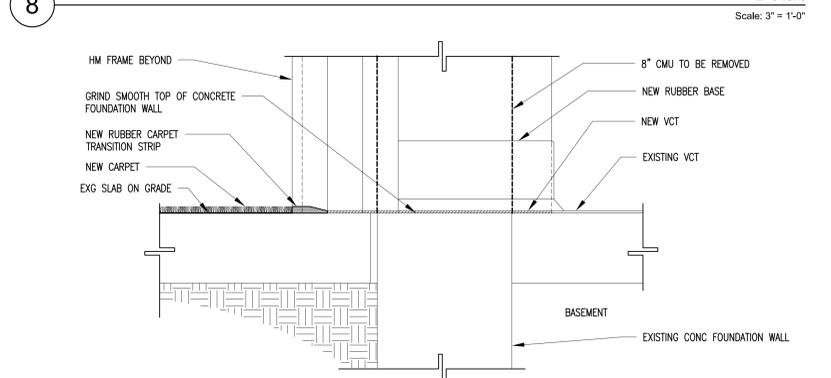
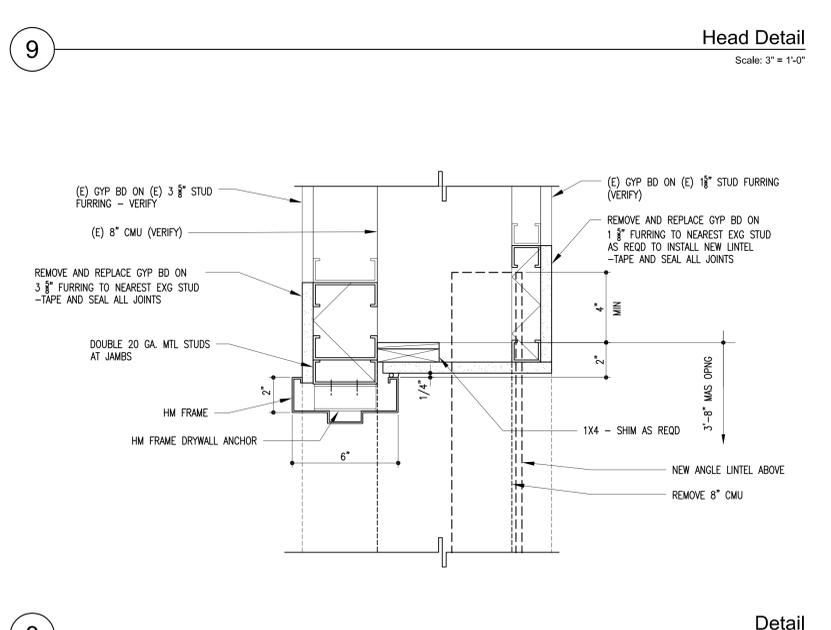
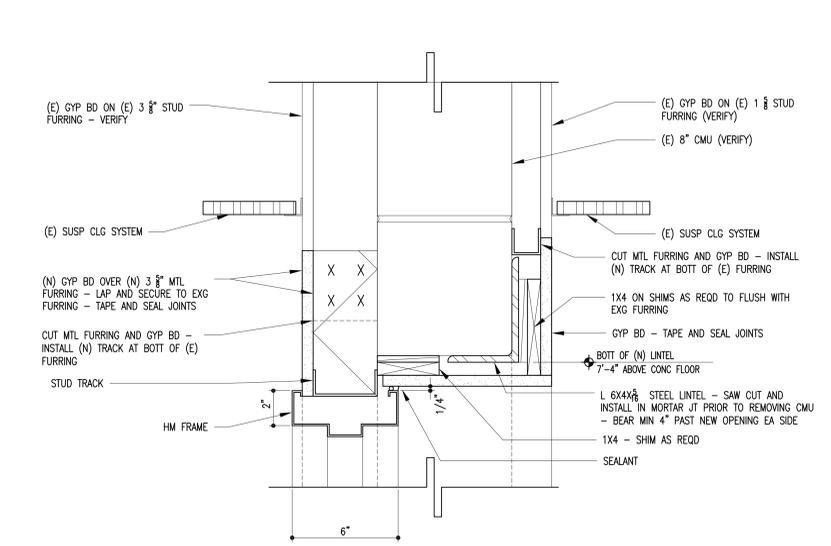
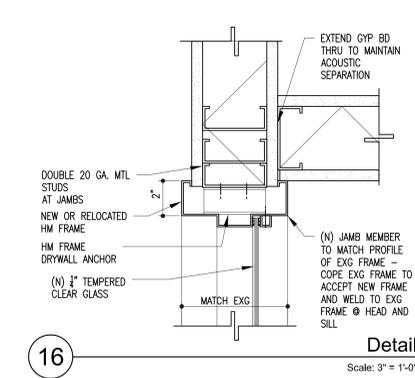
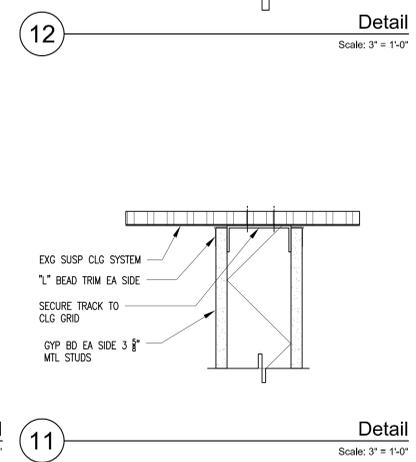
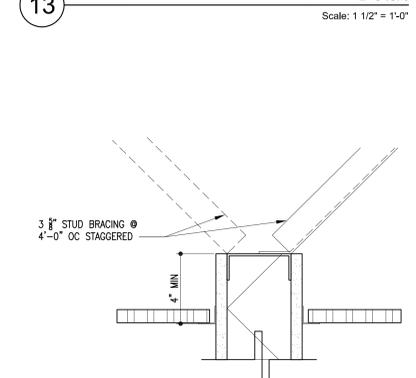
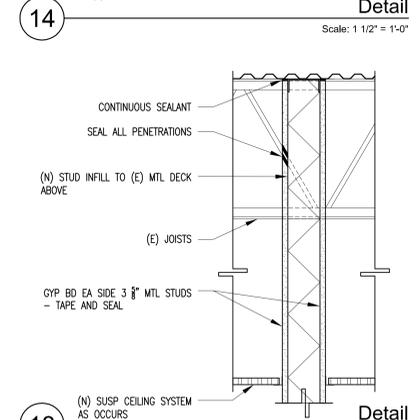
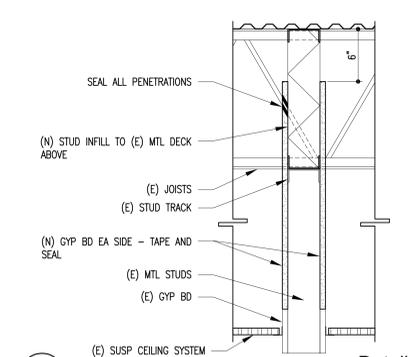
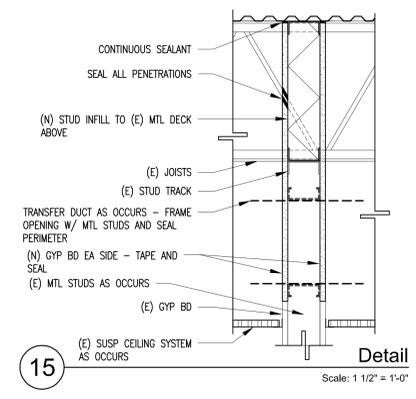
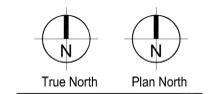
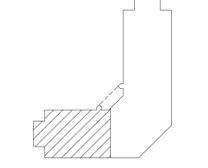
NON-RATED PARTITION WALL	EXIT LIGHT
EXISTING 1 HOUR AREA SEPARATION WALL FIRE PARTITION	NEW SUSPENDED CEILING SYSTEM
NEW AND/OR EXTEND (E) MTL STUD WALL TO DECK ABOVE PER DETAILS	REMOVED CEILING GRID ON REFLECTED CEILING DEMO PLANS
MECHANICAL GRILLE	EXISTING SUSPENDED CEILING SYSTEM ON NEW WORK REFLECTED CEILING PLANS
RECESSED LIGHT FIXTURE	EXISTING SUSPENDED CEILING SYSTEM ON REFLECTED CEILING DEMOLITION PLANS

Floor Plan Specific Notes

- INFILL (E) DOOR OPENING WITH 9.8 ON 3-5/8" 9.6. MATCH THICKNESS OF (E) WALL ASSEMBLY.
- REL (E) UPPER CABINETS FROM OPEN OFFICE 109. SECURE TO WALL AT 7'-0" AFF TO TOP OF CABINET. PROVIDE ADDITIONAL WALL BLOCKING AS NECESSARY TO SUPPORT CABINET.
- REPAIR SAW CUT EDGE OF COUNTERTOP WITH (N) 3MM EDGING TO MATCH EXG. PROVIDE (N) P-LAM END PANELS TO CLOSE OFF THE CUT ENDS OF THE WORKSTATION. MATCH EXG COLOR FINISH.
- PATCH (E) GYPSUM BOARD AFTER (E) WALLS REMOVED.
- REL (E) TACKBOARD W/TOP AT 7'-0" AFF.
- PATCH GYPSUM BOARD WHERE (E) FURNITURE WAS ATTACHED.
- INFILL (E) 12"x12" +/- HOLE IN WALL, 9.8 EA SIDE OF 9.6. MATCH THICKNESS OF (E) WALL ASSEMBLY.
- REL (E) WALL MOUNTED TV, BY OWNER.
- REL (E) DISPLAY CASE FROM LOUNGE 116. CONTRACTOR TO SECURE TO WALL.
- MODIFY (E) HM FRAME TO ACCOMMODATE NEW WALL LOCATION. MATCH (E) FRAME PROFILE & DEPTH. PROVIDE NEW GLAZING.
- EXTEND (E) TOP OF EXG WALL TO BOTTOM OF FLOOR DECK AS INDICATED ON REFLECTED CEILING PLAN
- REPAIR END OF UPPER CABINET WITH SALVAGED END PIECE
- REPAIR END OF LOWER CABINET WITH SALVAGED WOOD
- REPAIR SAW CUT END AND TOP TO MATCH EXISTING WITH SALVAGED WOOD
- REPAIR LEFT EDGE OF COUNTERTOP WITH (N) 3MM EDGING. FIELD APPLY NEW P-LAM TO UNFINISHED LEFT END PANEL TO MATCH EXG - RELOCATE TIGHT TO RIGHT WALL AND CALK COUNTERTOP AT WALL INTERSECTION

Key Notes List

21 DRILLED CONC PIER	8.1 HM FRAME
22 BRICKLIT	8.2 HM DOOR
23 FREE-DRAINING	8.3 HM FIXED PANEL
24 GRANULAR BACKFILL	8.4 HM WINDOW
25 COMPACTED SUBGRADE	8.5 HM STOP
26 ASPHALTIC CONCRETE COURSE	8.6 HM DEFLECTION CHANNEL
27 ASPHALTIC CONCRETE PAVING	8.7 HM ANCHOR
28 CONCRETE PAWING	8.8 HM CRIB-SILL
29 CONC WALK	8.9 WOOD FRAME
30 BRICK PAVEN	8.10 WOOD DOOR
31 TENS COURT	8.11 WOOD FIXED PANEL
32 SURFACING	8.12 WOOD WINDOW
33 TRUCK SURFACING	8.13 WOOD STOP
34 BASEBALL FIELD FINISHING	8.14 ALUM STOREFRONT
35 CONC CURB & GUTTER	8.15 ALUM CURTAIN WALL FINISHING
36 ASPHALT CURB	8.16 ALUM FRAME
37 LANGSHIRE TIMBER	8.17 ALUM DOOR
38 CHAIN LINK FENCE	8.18 ALUM WINDOW
39 CHAIN LINK GATE	8.19 ALUM STOP
40 BRICKSTOP	8.20 ALUM DEFLECTION CHANNEL
41 MASONRY RETAINING WALL SYSTEM	8.21 ALUM CRIB-SILL
42 TREE GRATE	8.22 ALUM SILL FILL
43 FILTER FABRIC	8.23 ALUM THRESHOLD
44 PERFORATED DRAIN	8.24 WOOD ACCESS DR
45 UNPERFORATED DRAIN PIPE	8.25 FLOOR ACCESS DR
46 TRENCH DRAIN	8.26 OVERHEAD COILING DOOR
47 FRENCH DRAIN	8.27 OVERHEAD COILING GRILLE
48 CONC CHANNEL	8.28 SLIDING GLASS DR
49 INLET	8.29 SCREEN DOOR
50 MANHOLE	8.30 SHOWER DOOR
51 CONC HEAD WALL	8.31 DOOR LOUVER
52 CONC PIPE FLARED END SECTION	8.32 CONC PIPE FLARED END SECTION
53 CONC FOUNDATION	9.1 PORTLAND CEMENT PLASTER
54 CONC GRADE BEAM	9.2 ACoustICAL PLASTER
55 UNDERSLAB GRAVEL BED	9.3 VENEER PLASTER
56 UNDERSLAB VAPOR BARRIER	9.4 COAT STUCCO
57 UNDERSLAB	9.5 PORTLAND CEMENT STUCCO
58 BUTTER LAYER	9.6 DRYWALL STUD
59 CONC COLUMN	9.7 ACoustICAL INSUL
60 CONC BEAM	9.8 GYPSUM BOARD
61 CONC WALL	9.9 ALUM RESISTANT GYPSUM BOARD
62 PRECAST CONC COL	9.10 WATER RESISTANT GYPSUM BOARD
63 PRECAST CONC WALL PANEL	9.11 GYPSUM BOARD
64 PRECAST CONC DOUBLE TEE	9.12 SHAPWALL SYSTEM
65 CONC SPLASH BLOCK	9.13 GYPSUM BOARD CEILING
66 WEIGHT CONC	9.14 SUSPENDED CEILING SYSTEM
67 REINFORCING BAR	9.15 ACoustICAL TILE
68 WELDED WIRE FABRIC	9.16 QUARRY TILE BASE
69 PREMOULDED JOINT FILLER	9.17 CERAMIC TILE BASE
70 WATERSTOP	9.18 CERAMIC TILE
71 CMU-SOLID UNIT	9.19 VAPOR BARRIER FLOORING
72 CMU-GROUTED	9.20 VAPOR BARRIER FLOORING
73 CMU-SAND FILLED	9.21 VINYL COMPOSITION TILE
74 CMU-ACoustICAL	9.22 SHEET VINYL FLOORING
75 BOND BEAM	9.23 SPANLESS TROMBELED FLOORING
76 GLASS BLOCK	9.24 CARPET
77 GROUT FILL	9.25 RUBBER BASE
78 REINFORCING	9.26 RUBBER TREADS & RISERS
79 MASONRY ANCHOR	9.27 RUBBER STAR SHIRT
80 MASONRY VENER	9.28 ACoustICAL WALL
81 WALL TIES	9.29 MESH FLASHING PANEL
82 MASONRY INSUL	9.30 ROCKABLE WALL PANEL
83 NON-ASPHALTIC FIBERGLASS	9.31 METAL TOILET PARTITION
84 CONC POWER COLLECTION SYSTEM	9.32 BRASS SCREEN
85 STEEL COLUMN	9.33 SHOCK TRACK
86 STEEL BEAM	9.34 CURTAIN & CURTAIN
87 STEEL ANGLE	9.35 METAL WALL LOUVER
88 STEEL PLATE	9.36 INTERIOR SIGNAGE
89 STEEL ROOF DECK	9.37 FIRE EXTINGUISHER CABINET
90 STEEL ACoustICAL	9.38 WIRE MESH BRACKET
91 CORRUGATED METAL FORMING	9.39 PAINT STAR TRAP & RISER
92 STRUCTURAL STUD	9.40 FOLDING GATE
93 COIL-FORMED METAL FRAMING	9.41 STEEL STAR SYSTEM
94 STEEL LADDER	9.42 FOUNDING PANEL
95 COIL-FILLED STEEL PAN STAR TRAP & RISER	9.43 ACCORDION PARTITION
96 MANUFACTURED STEEL STAR SYSTEM	9.44 WIL STORAGE
97 BRASS STAR	9.45 ROLLING STORAGE INF
98 STEEL RAILING	9.46 BACKPACK HOOK
99 SLUMP PAN	9.47 PLATFORM CURTAIN
100 DRINKING WATER	9.48 BACKDROP
101 CHECKERED PLATE	9.49 PROTECTION SCREEN
102 STEEL COL COVER	9.50 TV/MONITOR/VCR MOUNTING BRACKET
103 BOLLARD POST	9.51 MAT MOVER
104 WOOD FRAMING	9.52 SCRAMBLED RUBBER BASE
105 WOOD STUD/JOIST	9.53 DIM DIMMER
106 WOOD BLOCKING	9.54 CURTAIN
107 WOOD FURNISH	9.55 DIM WALL PAD
108 WOOD MILLER	9.56 DIM FLOOR
109 WOOD SHIM	9.57 BLEEDER
110 WOOD TRUSS	9.58 CERAMIC KILN
111 WOOD SHIM	9.59 FLAMMABLE STORAGE CABINET
112 GLUED LAMINATED	9.60 VENTED ACID STORAGE CABINET
113 LAMINATED VENEER	9.61 PLASTIC LAMINATE COUNTERTOP
114 PLYWOOD SHEATHING	9.62 REBAR TRAY
115 ORIENTED STRAND BOARD SHEATHING	9.63 ARTICULATING KEYBOARD TRAY
116 PARTICLE BOARD	9.64 PENAL DRAWER
117 TEMPERED HARDBOARD	9.65 WATERPROOFING
118 PLASTIC LAMINATE	9.66 FLUID APPLIED WATERPROOFING
119 WOOD CURB	9.67 WATER REPELLENT/GRAFFITI CONTROL
120 WOOD FLOORING	9.68 RIGID INSULATION
121 WOOD CEILING	9.69 TAPERED INSUL
122 WOOD HANDRAIL	9.70 BATT INSULATION
123 WOOD TRIM	9.71 BLANK FIBERGLASS (DUCT WORK) PANEL
124 WOOD SHELF	9.72 BUILDING INSULATION (DUCT WORK) PANEL
125 DAMPROOFING	9.73 PREN MTL SIDING
126 SELF-ADHERED SHEET MEMBRANE	9.74 WOOD SHIM
127 FLUID APPLIED WATERPROOFING	9.75 FIBERGLASS SHIMLES
128 WATER REPELLENT/GRAFFITI CONTROL	9.76 PREN MTL ROOFING
129 RIGID INSULATION	9.77 PREN MTL SOFTI
130 TAPERED INSUL	9.78 WOOD SHIM
131 BATT INSULATION	9.79 BLANK FIBERGLASS (DUCT WORK) PANEL
132 BUILDING INSULATION (DUCT WORK) PANEL	9.80 BUILDING INSULATION (DUCT WORK) PANEL
133 PREN MTL SIDING	9.81 PREN MTL ROOFING
134 WOOD SHIM	9.82 SELF-ADHERED UNDERLAYMENT
135 FIBERGLASS SHIMLES	9.83 2" FURNISH
136 PREN MTL ROOFING	9.84 EXT DECK COATING
137 PREN MTL SOFTI	9.85 ROOF WALKWAY PAVEN
138 WOOD SHIM	9.86 ROOF WALKWAY PADS
139 BLANK FIBERGLASS (DUCT WORK) PANEL	9.87 CAM STRIP
140 BUILDING INSULATION (DUCT WORK) PANEL	9.88 BASE FLASHING
141 PREN MTL SIDING	9.89 FLEXIBLE FLASHING
142 WOOD SHIM	9.90 MTL FLASHING
143 SELF-ADHERED UNDERLAYMENT	9.91 MTL RESLET
144 2" FURNISH	9.92 MTL SPRING FLG
145 EXT DECK COATING	9.93 MTL COUNTER FLG
146 ROOF WALKWAY PAVEN	9.94 MTL CRACKET FLG
147 ROOF WALKWAY PADS	9.95 MTL GROWER STOP
148 CAM STRIP	9.96 PANED MTL WALL CP
149 BASE FLASHING	9.97 PREN MTL WALL CP
150 FLEXIBLE FLASHING	9.98 MTL CLEAR
151 MTL FLASHING	9.99 MTL OVERFLOW
152 MTL RESLET	9.100 MTL CUTTER
153 MTL SPRING FLG	9.101 MTL SCREWER
154 MTL COUNTER FLG	9.102 MTL CURB
155 MTL CRACKET FLG	9.103 MTL EQUIP CURB
156 MTL GROWER STOP	9.104 MTL ROOF ACCESS
157 PANED MTL WALL CP	9.105 SMOKE VENT
158 PREN MTL WALL CP	9.106 SNOW GUARD
159 MTL CLEAR	9.107 BASE FLASHING
160 MTL OVERFLOW	9.108 FLEXIBLE FLASHING
161 MTL CUTTER	9.109 MTL FLASHING
162 MTL SCREWER	9.110 MTL RESLET
163 MTL CURB	9.111 MTL SPRING FLG
164 MTL EQUIP CURB	9.112 MTL COUNTER FLG
165 MTL ROOF ACCESS	9.113 MTL CRACKET FLG
166 SMOKE VENT	9.114 MTL GROWER STOP
167 SNOW GUARD	9.115 PANED MTL WALL CP
168 BASE FLASHING	9.116 PREN MTL WALL CP
169 FLEXIBLE FLASHING	9.117 MTL CLEAR
170 MTL FLASHING	9.118 MTL OVERFLOW
171 MTL RESLET	9.119 MTL CUTTER
172 MTL SPRING FLG	9.120 MTL SCREWER
173 MTL COUNTER FLG	9.121 MTL CURB
174 MTL CRACKET FLG	9.122 MTL EQUIP CURB
175 MTL GROWER STOP	9.123 MTL ROOF ACCESS
176 PANED MTL WALL CP	9.124 SMOKE VENT
177 PREN MTL WALL CP	9.125 SNOW GUARD
178 MTL CLEAR	9.126 BASE FLASHING
179 MTL OVERFLOW	9.127 FLEXIBLE FLASHING
180 MTL CUTTER	9.128 MTL FLASHING
181 MTL SCREWER	9.129 MTL RESLET
182 MTL CURB	9.130 MTL SPRING FLG
183 MTL EQUIP CURB	9.131 MTL COUNTER FLG
184 MTL ROOF ACCESS	9.132 MTL CRACKET FLG
185 SMOKE VENT	9.133 MTL GROWER STOP
186 SNOW GUARD	9.134 PANED MTL WALL CP
187 BASE FLASHING	9.135 PREN MTL WALL CP
188 FLEXIBLE FLASHING	9.136 MTL CLEAR
189 MTL FLASHING	9.137 MTL OVERFLOW
190 MTL RESLET	9.138 MTL CUTTER
191 MTL SPRING FLG	9.139 MTL SCREWER
192 MTL COUNTER FLG	9.140 MTL CURB
193 MTL CRACKET FLG	9.141 MTL EQUIP CURB
194 MTL GROWER STOP	9.142 MTL ROOF ACCESS
195 PANED MTL WALL CP	9.143 SMOKE VENT
196 PREN MTL WALL CP	9.144 SNOW GUARD
197 MTL CLEAR	9.145 BASE FLASHING
198 MTL OVERFLOW	9.146 FLEXIBLE FLASHING
199 MTL CUTTER	9.147 MTL FLASHING
200 MTL SCREWER	9.148 MTL RESLET
201 MTL CURB	9.149 MTL SPRING FLG
202 MTL EQUIP CURB	9.150 MTL COUNTER FLG
203 MTL ROOF ACCESS	9.151 MTL CRACKET FLG
204 SMOKE VENT	9.152 MTL GROWER STOP
205 SNOW GUARD	9.153 PANED MTL WALL CP
206 BASE FLASHING	9.154 PREN MTL WALL CP
207 FLEXIBLE FLASHING	9.155 MTL CLEAR
208 MTL FLASHING	9.156 MTL OVERFLOW
209 MTL RESLET	9.157 MTL CUTTER
210 MTL SPRING FLG	9.158 MTL SCREWER
211 MTL COUNTER FLG	9.159 MTL CURB
212 MTL CRACKET FLG	9.160 MTL EQUIP CURB
213 MTL GROWER STOP	9.161 MTL ROOF ACCESS
214 PANED MTL WALL CP	9.162 SMOKE VENT
215 PREN MTL WALL CP	9.163 SNOW GUARD
216 MTL CLEAR	9.164 BASE FLASHING
217 MTL OVERFLOW	9.165 FLEXIBLE FLASHING
218 MTL CUTTER	9.166 MTL FLASHING
219 MTL SCREWER	9.167 MTL RESLET
220 MTL CURB	9.168 MTL SPRING FLG
221 MTL EQUIP CURB	9.169 MTL COUNTER FLG
222 MTL ROOF ACCESS	9.170 MTL CRACKET FLG
223 SMOKE VENT	9.171 MTL GROWER STOP
224 SNOW GUARD	9.172 PANED MTL WALL CP
225 BASE FLASHING	9.173 PREN MTL WALL CP
226 FLEXIBLE FLASHING	9.174 MTL CLEAR
227 MTL FLASHING	9.175 MTL OVERFLOW
228 MTL RESLET	9.176 MTL CUTTER
229 MTL SPRING FLG	9.177 MTL SCREWER
230 MTL COUNTER FLG	9.178 MTL CURB
231 MTL CRACKET FLG	9.179 MTL EQUIP CURB
232 MTL GROWER STOP	9.180 MTL ROOF ACCESS
233 PANED MTL WALL CP	9.181 SMOKE VENT
234 PREN MTL WALL CP	9.182 SNOW GUARD
235 MTL CLEAR	9.183 BASE FLASHING
236 MTL OVERFLOW	9.184 FLEXIBLE FLASHING
237 MTL CUTTER	9.185 MTL FLASHING
238 MTL SCREWER	9.186 MTL RESLET
239 MTL CURB	9.187 MTL SPRING FLG
240 MTL EQUIP CURB	9.188 MTL COUNTER FLG
241 MTL ROOF ACCESS	9.189 MTL CRACKET FLG
242 SMOKE VENT	9.190 MTL GROWER STOP
243 SNOW GUARD	9.191 PANED MTL WALL CP
244 BASE FLASHING	9.192 PREN MTL WALL CP
245 FLEXIBLE FLASHING	9.193 MTL CLEAR
246 MTL FLASHING	9.194 MTL OVERFLOW
247 MTL RESLET	9.195 MTL CUTTER
248 MTL SPRING FLG	9.196 MTL SCREWER
249 MTL COUNTER FLG	9.197 MTL CURB
250 MTL CRACKET FLG	9.198 MTL EQUIP CURB
251 MTL GROWER STOP	9.199 MTL ROOF ACCESS
252 PANED MTL WALL CP	9.200 SMOKE VENT
253 PREN MTL WALL CP	9.201 SNOW GUARD
254 MTL CLEAR	9.202 BASE FLASHING
255 MTL OVERFLOW	9.203 FLEXIBLE FLASHING
256 MTL CUTTER	9.204 MTL FLASHING
257 MTL SCREWER	9.205 MTL RESLET
258 MTL CURB	9.206 MTL SPRING FLG
259 MTL EQUIP CURB	9.207 MTL COUNTER FLG
260 MTL ROOF ACCESS	9.208 MTL CRACKET FLG
261 SMOKE VENT	9.209 MTL GROWER STOP
262 SNOW GUARD	9.210 PANED MTL WALL CP
263 BASE FLASHING	9.211 PREN MTL WALL CP
264 FLEXIBLE FLASHING	9.212 MTL CLEAR
265 MTL FLASHING	9.213 MTL OVERFLOW
266 MTL RESLET	9.214 MTL CUTTER
267 MTL SPRING FLG	9.215 MTL SCREWER
268 MTL COUNTER FLG	9.216 MTL CURB
269 MTL CRACKET FLG	9.217 MTL EQUIP CURB
270 MTL GROWER STOP	9.218 MTL ROOF ACCESS
271 PANED MTL WALL CP	9.219 SMOKE VENT
272 PREN MTL WALL CP	9.220 SNOW GUARD
273 MTL CLEAR	9.221 BASE FLASHING
274 MTL OVERFLOW	9.222 FLEXIBLE FLASHING
275 MTL CUTTER	9.223 MTL FLASHING
276 MTL SCREWER	9.224 MTL RESLET
277 MTL CURB	9.225 MTL SPRING FLG
278 MTL EQUIP CURB	9.226 MTL COUNTER FLG
279 MTL ROOF ACCESS	9.227 MTL CRACKET FLG
280 SMOKE VENT	9.228 MTL GROWER STOP
281 SNOW GUARD	9.229 PANED MTL WALL CP
282 BASE FLASHING	9.230 PREN MTL WALL CP
283 FLEXIBLE FLASHING	9.231 MTL CLEAR
284 MTL FLASHING	9.232 MTL OVERFLOW
285 MTL RESLET	9.233 MTL CUTTER
286 MTL SPRING FLG	9.234 MTL SCREWER
287 MTL COUNTER FLG	9.235 MTL CURB
288 MTL CRACKET FLG	9.236 MTL EQUIP CURB
289 MTL GROWER STOP	9.237 MTL ROOF ACCESS
290 PANED MTL WALL CP	9.238 SMOKE VENT
291 PREN MTL WALL CP	9.239 SNOW GUARD
292 MTL CLEAR	9.240 BASE FLASHING
293 MTL OVERFLOW	9.241 FLEXIBLE FLASHING
294 MTL CUTTER	9.242 MTL FLASHING
295 MTL SCREWER	9.243 MTL RESLET
296 MTL CURB	9.244 MTL SPRING FLG
297 MTL EQUIP CURB	9.245 MTL COUNTER FLG
298 MTL ROOF ACCESS	9.246 MTL CRACKET FLG
299 SMOKE VENT	9.247 MTL GROWER STOP
300 SNOW GUARD	9.248 PANED MTL WALL CP
301 BASE FLASHING	9.249 PREN MTL WALL CP
302 FLEXIBLE FLASHING	9.250 MTL CLEAR
303 MTL FLASHING	9.251 MTL OVERFLOW
304 MTL RESLET	9.252 MTL CUTTER
305 MTL SPRING FLG	9.253 MTL SCREWER
306 MTL COUNTER FLG	9.254 MTL CURB
307 MTL CRACKET FLG	9.255 MTL EQUIP CURB
308 MTL GROWER STOP	9.256 MTL ROOF ACCESS
309 PANED MTL WALL CP	9.257 SMOKE VENT
310 PREN MTL WALL CP	9.258 SNOW GUARD
311 MTL CLEAR	9.259 BASE FLASHING
312 MTL OVERFLOW	9.260 FLEXIBLE FLASHING
313 MTL CUTTER	9.261 MTL FLASHING
314 MTL SCREWER	9.262 MTL RESLET
315 MTL CURB	9.263 MTL SPRING FLG
316 MTL EQUIP CURB	9.264 MTL COUNTER FLG
317 MTL ROOF ACCESS	9.265 MTL CRACKET FLG
318 SMOKE VENT	9.266 MTL GROWER STOP
319 SNOW GUARD	9.267 PANED MTL WALL CP
320 BASE FLASHING	9.268 PREN MTL WALL CP
321 FLEXIBLE FLASHING	9.269 MTL CLEAR
322 MTL FLASHING	9.270 MTL OVERFLOW
323 MTL RESLET	9.271 MTL CUTTER
324 MTL SPRING FLG	9.272 MTL SCREWER
325 MTL COUNTER FLG	9.273 MTL CURB
326 MTL CRACKET FLG	9.274 MTL EQUIP CURB
327 MTL GROWER STOP	9.275 MTL ROOF ACCESS
328 PANED MTL WALL CP	9.276 SMOKE VENT
329 PREN MTL WALL CP	9.277 SNOW GUARD</



2009 INTERNATIONAL ENERGY CONSERVATION CODE COMPLIANCE	
503.2.3	HVAC EQUIPMENT PERFORMANCE REQUIREMENTS. EQUIPMENT SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES 503.2.3 THROUGH 503.2.3(7), WHEN TESTED AND RATED IN ACCORDANCE WITH THE APPLICABLE TEST PROCEDURE. THE EFFICIENCY SHALL BE VERIFIED THROUGH DATA FURNISHED BY THE MANUFACTURER OR THROUGH CERTIFICATION UNDER AN APPROVED CERTIFICATION PROGRAM. WHERE MULTIPLE RATING CONDITIONS OR PERFORMANCE REQUIREMENTS ARE PROVIDED, THE EQUIPMENT SHALL SATISFY ALL STATED REQUIREMENTS.
503.2.4.3.1	THERMOSTATIC SETBACK CAPABILITIES. THERMOSTATIC SETBACK CONTROLS SHALL HAVE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).
503.2.4.3.2	AUTOMATIC SETBACK AND SHUTDOWN CAPABILITIES. AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR AT LEAST 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS, A MANUALLY OPERATED TIMER CAPABLE OF BEING ADJUSTED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS, OR AN OCCUPANCY SENSOR.
503.2.9	HVAC SYSTEM COMPLETION PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY, THE FOLLOWING SHALL BE COMPLETED:
503.2.9.3	MANUALS THE CONSTRUCTION DOCUMENTS SHALL REQUIRE AN OPERATING AND MAINTENANCE MANUAL BE PROVIDED TO THE BUILDING OWNER BY THE MECHANICAL CONTRACTOR. THE MANUAL SHALL INCLUDE, AT LEAST, THE FOLLOWING: 1. EQUIPMENT CAPACITY (INPUT AND OUTPUT) AND REQUIRED MAINTENANCE ACTIVITIES. 2. EQUIPMENT OPERATION AND MAINTENANCE MANUALS. 3. HVAC SYSTEM CONTROL MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCE DESCRIPTIONS. DESIRED OR FIELD-DETERMINED SET POINTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS, AT CONTROL DEVICES, OR, FOR DIGITAL CONTROL SYSTEMS, IN PROGRAMMING COMMENTS. 4. A COMPLETE WRITTEN NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE.

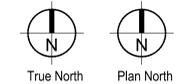
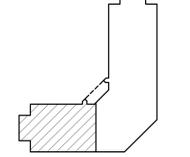
HVAC PIPING LEGEND		
SYMBOL	ABBR.	DESCRIPTION
	HWS	HOT WATER SUPPLY
	HWR	HOT WATER RETURN
	CHWS	CHILLED WATER SUPPLY
	CHWR	CHILLED WATER RETURN
	C	CONDENSER WATER SUPPLY
	CR	CONDENSER WATER RETURN
	D	CONDENSATE OR EQUIPMENT DRAIN
	RD	REFRIGERANT DISCHARGE
	RS	REFRIGERANT SUCTION
	RFLS	REFRIGERANT LINE SET (SUCTION AND DISCHARGE)
	G	NATURAL GAS
	CA	COMPRESSED AIR
	HPS	HIGH PRESSURE STEAM
	HPC	HIGH PRESSURE CONDENSATE
	MPS	MEDIUM PRESSURE STEAM
	MPC	MEDIUM PRESSURE CONDENSATE
	LPS	LOW PRESSURE STEAM
	LPC	LOW PRESSURE CONDENSATE
		HATCH DENOTES TO BE REMOVED
		ELBOW DOWN
		ELBOW UP
		TEE DOWN
		TEE UP
		STRAINER WITH BLOWOFF VALVE
		REDUCER
		BALL VALVE
		BUTTERFLY VALVE
		DIAPHRAGM VALVE
		GATE VALVE
		GLOBE VALVE
		ANGLE VALVE
		PLUG VALVE
		CHECK VALVE
	CBV	CALIBRATED BALANCING VALVE
		SOLENOID ACTUATOR
		MOTOR ACTUATOR
		PNEUMATIC ACTUATOR

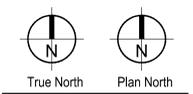
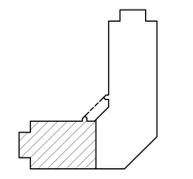
HVAC LEGEND	
SYMBOL	DESCRIPTION
	SUPPLY DIFFUSER - FOUR WAY THROW, UNLESS NOTED OTHERWISE (UNO), OR SUPPLY (POSITIVE PRESSURE) AIR DUCT
	SUPPLY DIFFUSER WITH ROUND CONNECTION
	FOUR WAY THROW, UNLESS NOTED OTHERWISE (UNO)
	RETURN GRILLE OR RETURN (NEGATIVE PRESSURE) AIR DUCT
	RETURN GRILLE WITH ROUND CONNECTION
	OUTSIDE AIR DUCT
	DUCT SIZE, FIRST FIGURE IS FOR SIDE SHOWN.
	TRANSITION, RECTANGULAR
	TRANSITION, SQUARE-TO-ROUND
	ELBOW WITH TURNING VANES
	BRANCH, NO SPLITTER
	ROUND SPIN-IN WITH MANUAL VOLUME DAMPER (MVD)
	OPPOSED BLADE DAMPER
	PARALLEL BLADE DAMPER
	FIRE DAMPER, FD= FIRE, SD=SMOKE, FSD= FIRE/SMOKE
	SMOKE DETECTOR
	FIRE (HEAT) DETECTOR
	FLEX DUCT TO DIFFUSER
	THERMOSTAT WITH EQUIPMENT CONTROLLED TAG
	HUMIDISTAT
	CABINET EXHAUST FAN
	ROOF MOUNTED EXHAUST FAN
	AIR FLOW DIRECTION
	CONNECT NEW TO EXISTING
	SUPPLY AIR DEVICE CALLOUT TOP LINE DENOTES CFM BOTTOM LINE DENOTES NECK SIZE (SEE SCHEDULE)
	SUPPLY AIR DEVICE CALLOUT WITH QUANTITY TOP LINE DENOTES CFM BOTTOM LINE DENOTES NECK SIZE (SEE SCHEDULE)
	RETURN AIR GRILLE CALLOUT (SEE SCHEDULE)
	GENERAL EQUIPMENT TAG (SEE SCHEDULE)

ABBREVIATIONS	
AAV/AV	AIR VENT
AC	AIR COMPRESSOR/ AIR CONDITIONER
ACU	AIR CONDENSING UNIT
AD	AIR DRIER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFS	AIRFLOW STATION
AHU	AIR HANDLING UNIT
AF	AIR PURIFIER
AT	AIR TANK
BAT	BATTERY COOLING UNIT
BCU	BOTTOM OF DUCT
DD	COMPRESSED AIR
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CIRC	CIRCULATION
CRAC	COMPUTER ROOM AIR CONDITIONER
CT	COOLING TOWER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
DD	DUAL DUCT TERMINAL BOX
DDC	DIRECT DIGITAL CONTROLLER
DHW	DOMESTIC HOT WATER
D	DRAIN
(E), EX	EXISTING
EA	EXHAUST AIR
EDH	ELECTRIC DUCT HEATER
EF/EX	EXHAUST FAN
EHC	ELECTRICAL HEATING CABINET
FB	FILTER BOX
FC	FAN COIL
G	NATURAL GAS
HWP	HOT WATER PUMP
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
MAU	MAKEUP AIR UNIT
MM	MECHANICAL ROOM
MVD	MANUAL VOLUME DAMPER
MZU	MULTI ZONE UNIT
NA	NOT AVAILABLE
OA	OUTSIDE AIR
P	PUMP
PENT	PENTHOUSE
PWU	PACKAGED WALL UNIT
RA	RETURN AIR
RD	REFRIGERANT DISCHARGE
RF	RETURN FAN
RR	REST ROOM
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
TA	TRANSFER AIR
TF	TRANSFER FAN
TOD	TOP OF DUCT
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
VAV	VARIABLE AIR VOLUME

- ### MECHANICAL GENERAL NOTES
- A NOT ALL EXISTING DUCTWORK, PIPING, AND ACCESSORIES ARE NECESSARILY SHOWN ON THIS DRAWING, BUT WHAT IS DEEMED NECESSARY TO SHOW INTENT OF WORK INVOLVED IN THIS PROJECT. REFER TO ALL PLANS, SECTIONS, DETAILS, SCHEDULES AND SPECIFICATIONS FOR COMPLETE SYSTEM REQUIREMENTS.
 - B CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO ORDERING OR FABRICATION OF MATERIAL OR PERFORMING ANY NEW WORK. DEVIATIONS FROM CONDITIONS SHOWN IN THESE PLANS SHALL BE REPORTED TO THE PROJECT MANAGER IMMEDIATELY AND NO WORK SHALL BE PERFORMED IN THIS AREA UNTIL A RESOLUTION HAS BEEN ESTABLISHED. SITE CONDITIONS DIFFERING FROM THOSE SHOWN ON THESE PLANS WILL NOT BE GENERALLY CONSIDERED A BASIS FOR CONTRACT MODIFICATION AS THE CONTRACTOR SHALL TAKE INTO ACCOUNT WORST CASE SITE CONDITIONS WHEREVER POSSIBLE.
 - C COORDINATE ALL PENETRATIONS OF FLOOR, ROOF, WALLS, ETC. WITH GENERAL CONTRACTOR. ALL PENETRATIONS THROUGH FIRE/SMOKE RATED CONSTRUCTION SHALL BE SEALED WITH A FIRE RATED CAULK EQUAL TO OR EXCEEDING THE CONSTRUCTION FIRE RATING.
 - D ALL NEW MATERIALS IN THE RETURN AIR PLENUM SHALL HAVE A MAXIMUM FLAME SPREAD RATING OF 25 AND A MAXIMUM SMOKE DEVELOPED RATING OF 50 IN ACCORDANCE WITH SECTION 602.2.1 OF THE 2009 INTERNATIONAL MECHANICAL CODE.
 - E FLEXIBLE AIR DUCTS SHALL CONFORM TO UL181 IN ACCORDANCE WITH SECTION 603.6 OF THE 2009 INTERNATIONAL MECHANICAL CODE. LENGTH OF FLEX DUCT SHALL NOT EXCEED 5 FT.
 - F ALL MECHANICAL EQUIPMENT SHALL BE LABELED AS TO THE AREA(S) SERVED IN ACCORDANCE WITH SECTION 304.12 OF THE 2009 INTERNATIONAL MECHANICAL CODE.
 - G PROVIDE ACCESS DOORS OR OTHER MEANS OF APPROVED ACCESS TO ALL FIRE AND FIRE/SMOKE DAMPERS. ACCESS DOORS SHALL BE LABELED ON THE ACCESS DOOR AND ON THE CEILING BELOW.
 - H PROVIDE AND INSTALL A BALANCING DAMPER AT EACH BRANCH TAKEOFF FOR THE SUPPLY AND EXHAUST AIR SYSTEMS. PROVIDE AND INSTALL A BALANCING DAMPER AT EACH BRANCH TAKEOFF FOR THE RETURN AIR SYSTEM WHERE INDICATED. BALANCING DAMPERS LOCATED ABOVE GYPSUM BOARD OR OTHER INACCESSIBLE CEILING SHALL BE INSTALLED WITH A CONCEALED DAMPER REGULATOR AND COVER PLATE, PAINTED TO MATCH CEILING COLOR.
 - I MOUNT SPACE TEMPERATURE SENSORS, THERMOSTATS, AND REMOTE CONTROL DEVICES WITH CENTERLINE AT 48" A.F.F. UNLESS OTHERWISE INDICATED.
 - J PROVIDE BALANCE REPORT TO INSPECTOR AT TIME OF HEATING FINAL IN ACCORDANCE WITH 2009 INTERNATIONAL MECHANICAL CODE. SUBMIT TO OWNER FOR FINAL APPROVAL.
 - K DUCTWORK SHALL BE SEALED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE 2009 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE, SECTION 503.2.7.
 - L DUCT SIZES SHOWN REPRESENT CLEAR INSIDE DIMENSIONS.
 - M ALL RECTANGULAR DUCT ELBOWS OR CHANGES IN DIRECTION OF 45 DEGREES OR GREATER, OTHER THAN BRANCH CONNECTIONS SHALL INCLUDE DOUBLE THICKNESS AIRFOIL SHAPED TURNING VANES.
 - N UNLESS NOTED OTHERWISE, DIFFUSER/GRILLE/REGISTER NECK SIZE SHOWN ON DRAWINGS INDICATES SIZE OF DUCT TO DIFFUSER/GRILLE/REGISTER.
 - O COORDINATE FINAL LOCATION OF DUCTWORK, PIPING, DIFFUSERS, ETC. WITH ALL OTHER TRADES BEFORE FABRICATION OR INSTALLATION.
 - P CONTRACTOR SHALL PROVIDE ALL REQUIRED OFFSETS, TRANSITIONS AND FITTINGS FOR DUCTWORK AND PIPING FOR COMPLETE SYSTEM.
 - Q UNLESS NOTED OTHERWISE, PROVIDE BELL MOUTH SPIN-IN FITTING WITH A 2" STAND-OFF BRACKET AND LOCKING QUADRANT VOLUME DAMPER FOR ALL DIFFUSER CONNECTIONS.
 - R COORDINATE LOCATION OF ALL WALL/CEILING MOUNTED DIFFUSERS AND GRILLES WITH ALL TRADES AND GENERAL CONTRACTOR.
 - S PROVIDE AND INSTALL 1/4" BIRDSCREEN ON OPENINGS FREELY COMMUNICATING WITH THE OUTDOORS.
 - T FOR AIR HANDLING EQUIPMENT WITH A CAPACITY OF 2,000 CFM OR GREATER, A SMOKE DETECTOR SHALL BE INSTALLED IN THE RETURN AIR STREAM.
 - U PROVIDE 115V MAINTENANCE RECEPTACLE WITHIN 25'-0" OF ROOF TOP EQUIPMENT.
 - V BUILDING EXHAUST AND VENTS SHALL BE INSTALLED A MINIMUM OF 10'-0" FROM VENTILATION INTAKES.

MECHANICAL SHEET INDEX	
Sheet Number	Sheet Title
M001	MECHANICAL NOTES AND LEGEND
M002	MECHANICAL SPECIFICATION
MD111	MECHANICAL DEMOLITION PLAN
M111	MECHANICAL HVAC PLAN
M500	MECHANICAL DETAILS & SCHEDULES





SECTION 15840 - AIR DISTRIBUTION

PART 1 - GENERAL
1.01 **WORK INCLUDED**
A. FURNISH AND INSTALL DUCTWORK AND SHEET METAL ACCESSORIES AS SHOWN AND SPECIFIED HEREIN.

1.02 **QUALITY ASSURANCE**
A. FIRE HAZARD CLASSIFICATION: TESTED AS A COMPOSITE IN ACCORDANCE WITH ASTM E84 OR NFPA 255 OR UL723 AND SO LABELED. MAXIMUM FLAME SPREAD = 25, MAXIMUM SMOKE DEVELOPED = 50.
B. ENERGY CONSERVATION: COMPLY WITH 2009 INTERNATIONAL ENERGY CONSERVATION CODE.
C. PROHIBITED MATERIALS: PRODUCTS OR MATERIALS CONTAINING ASBESTOS ARE EXPRESSLY PROHIBITED.

PART 2 - PRODUCTS

2.01 **DUCTWORK MATERIALS**
A. GALVANIZED STEEL
1. GAUGE: AS PRESCRIBED BY CODE.
2. FLAT SHEETS: ASTM A527
3. ROUND:
a. FABRICATION: PIPING SHALL LONGITUDINAL SEAMS WITH BEADED CORNER TRANSVERSE JOINTS SECURED WITH SHEET METAL SCREWS.
b. FITTINGS: ADJUSTABLE 4- SEGMENT ELBOWS, MANUFACTURED CONICAL TEE FITTINGS AND TAPS (SADDLE TAPS NOT PERMITTED), MANUFACTURED REGISTER BOOTS AND STACK HEADS.
B. FLEXIBLE DAMPERS
1. ACCEPTABLE MANUFACTURERS: FLEXMASTER, THERMATEX.
2. CLASSIFICATION: NFPA 90A - CLASS 1, UL 181 LABELED.
3. LOW PRESSURE: 1/2" THROUGH 1" THICK ONE-POUND DENSITY INSULATION, FACTORY FABRICATED, ASSEMBLY CONSISTING OF A ZINC-COATED STEEL FIBER HELIX, SEAMLESS INNER LINER WRAPPED WITH NOMINALLY 1" THICK ONE-POUND DENSITY FIBERGLASS INSULATION ALL ASSEMBLED IN A VAPOR BARRIER JACKET, RATED FOR PRESSURES TO +10" WG.
4. SPRING WITH BALANCING DAMPER AND 2" INSULATION STAND-OFF BRACKET.

PART 2 - DUCTWORK SPECIALTIES

A. TURNING VANES
B. BALANCING DAMPERS
1. CONSTRUCTION: RIGID BEARINGS AND LOCKING QUADRANTS, WHERE USED IN CONJUNCTION WITH DUCT-WOUND COILS.
C. FIRE/SMOKE DAMPERS
1. CONSTRUCTION: CONSTRUCTION AND INSTALLATION SHALL CONFORM TO ULFC STANDARD 1710 AND ULFC 45-12 AND MANUFACTURER'S INSTRUCTIONS.
D. ACCESS DOORS
1. HINGED DOOR WITH HOUSING FRAME, SASH-TYPE CLOSURES, DOOR OF TWO GAUGES HEAVIER THAN DUCT, SPONGE RUBBER GASKETS CEMENTED IN PLACE.
E. FLEX CONNECTS: DOUBLE-FLANGE VENTILATORS VENTGLASS
F. TEST HOLE FOR LOW VELOCITY DUCTWORK: DRILLED HOLE WITH FRICTION-FIT PLASTIC CAP ON METAL DUCT.
G. DUCT SEALANT TO COMPLY WITH UL 181A OR 181B PER 2000 IECC
1. HARDCAST IRON-GRIP 601 CEMENT
2. HARDCAST ALUMA-GRIP 701 TAP

PART 3 - EXECUTION

3.01 **GENERAL**
A. APPLY INSULATION AFTER SYSTEMS HAVE BEEN TESTED.
B. COMPLY WITH MANUFACTURER COMMENTARY REGARDING AMBIENT AND SYSTEM TEMPERATURES AND APPLICATION METHODS.
C. APPLY INSULATION TO CLEAN, DRY SURFACES.
D. APPLY INSULATION WITH SECTIONS OR EDGES FIRMLY BUTTED TOGETHER.
E. RUN INSULATION CONTINUOUS THROUGH SLEEVES AND OPENINGS IN WALLS AND FLOORS.
F. MAINTAIN INTEGRITY OF VAPOR BARRIER ON COLD SYSTEMS. AVOID THE USE OF STAPLES ON VAPOR BARRIER. SEAL ALL VAPOR BARRIER PENETRATIONS.
G. REPAIR INSULATION DAMAGED DUE TO STRAIN OR POOR WORKMANSHIP.
H. REPAIR DAMAGED INSULATION WITH SAME TYPE AND THICKNESS.
I. INSULATION WHICH HAS BEEN APPLIED IN AN UNSIGHTLY MANNER WILL BE ORDERED REPLACED.
3.02 **PIPE INSULATION - INSTALLATION**
A. GENERAL
1. INSULATE PIPE, FITTINGS AND VALVES.
2. DO NOT INSULATE UNIONS, FLANGES, STRAINERS, FLEXIBLE CONNECTIONS, EXPANSION JOINTS. TERMINATE INSULATION NEATLY WITH INSULATION AND FINISHING GASKET TIGHTLY ON A BEVEL.
3. INSULATE THROUGH HANGERS AND SUPPORTS. USE HEAVY DENSITY INSERT AND SHEET METAL SHIELDS.
4. FOR COLD PIPING, SEAL FITTINGS/VALVE COVERS AT EACH END AND THROAT.
B. USE
1. INDOORS, ABOVE GROUND: FIBERGLASS WITH LONGITUDINAL SEAMS LOCATED AWAY FROM NORMAL LINES OF SIGHT.
2. OUTDOORS, ABOVE GROUND: FIBERGLASS WITH METAL JACKET SECURED WITH DRAW BANDS 1/2" ON CENTER AND SEALED WEATHER TIGHT. FOR HORIZONTAL PIPING LOCATE LONGITUDINAL SEAM AND DRAWBAND CLAMP ON UNDERSIDE OF PIPE. FOR VERTICAL JOINTS IN VERTICAL PIPING, WRAP UPPER JACKET SECTION AROUND THE LOWER SECTION.
3. DOORS BURIED
a. 2" AND SMALLER: FLEXIBLE CLOSED CELL ELASTOMERIC WITH ALL JOINTS SEALED WATERTIGHT WITH CONTACT ADHESIVE. MITER INSULATION AT FITTINGS.
b. 2-1/2" AND LARGER: MINERAL FIBER INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE MINERAL FIBER CUSHIONS AT ALL ELBOWS AND TEES TO ALLOW TAKE-UP SPACE FOR THERMAL EXPANSION. INSTALL RISERS AND WALL PENETRATIONS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. OUTDOORS, BURIED: MINERAL POWDER SAME AS FOR INDOORS BURIED.
C. THICKNESS: INSULATE FOLLOWING PIPING SYSTEMS WITH THICKNESS INDICATED. INSULATE ENTIRE SYSTEM UNLESS NOTED OTHERWISE.
INSULATION THICKNESS SCHEDULE:

PIPING SYSTEM	1/2"		1 1/4"		GREATER THAN 1 1/2"	NOTES
	TO 1"	TO 1 1/2"	TO 1 1/2"	TO 1 1/2"		
REFRIGERANT SUCTION	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1.4
DOMESTIC HOT WATER	1"	1"	1"	1"	1"	1.2, 5
DOMESTIC HOT WATER	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2.5
HYDRONIC CHWS / HW	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2
HYDRONIC HWS / HW	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2
STEAM	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	3
ROOF DRAIN LEADERS	1"	1"	1"	1"	1"	1, 3

SCHEDULE NOTES
1. MAINTAIN INTEGRITY OF VAPOR BARRIER JACKET.
2. INSULATION NOT REQUIRED ON FIXTURE HEADERS AND RUNOUTS IN PLUMBING CHASE.
3. INSULATE ALL ABOVE-GROUND HORIZONTAL LINES. INSULATE ROOF DRAIN BOWLSUMP. INSULATE VERTICAL LINE FROM HORIZONTAL UP TO BOWLSUMP. INSULATION NOT REQUIRED ON OTHER VERTICAL LINES. INSULATE OVERFLOW DRAINS AND LINES SAME FOR LEADERS.
4. MAY USE FLEXIBLE CLOSED CELL ELASTOMERIC INSULATION OUTDOORS ON PIPING 2" OR SMALLER, WITHOUT METAL JACKET.
5. INSULATE HOT, COLD AND SANITARY PIPES UNDER HANDICAPPED LAVATORIES AND SINKS WITH 1/2" THICK FLEXIBLE CLOSED CELL ELASTOMERIC INSULATION.
3.03 **DUCT INSULATION - INSTALLATION**
A. LNER: INTERNALLY INSULATE ALL SUPPLY AND RETURN DUCTWORK WITH 1" DUCT LINER UNLESS INDICATED OTHERWISE. APPLY LINER WITH COATED SURFACE FACING THE AIR STREAM. APPLY LINER WITH 100% ADHESIVE COVERAGE. BUTTER ALL RAW EDGES WITH ADHESIVE. ADHERE TO MANUFACTURER'S RECOMMENDATIONS REGARDING MECHANICAL FASTENERS AND NOSINGS.
B. WRAP: 1/2" THICK. ADHERE TO DUCT EXTERIOR PER MANUFACTURER'S RECOMMENDATIONS. SEAL ALL JOINTS AND PUNCTURES TO MAINTAIN INTEGRITY OF VAPOR BARRIER ON COLD AIR DUCTS. APPLY TO ALL SUPPLY AIR AND OUTSIDE AIR DUCT WORK.

END OF SECTION 15800

SECTION 15050 - BASIC MATERIALS AND METHODS (cont'd)

E. BEAM CLAMPS: USE FOR STEEL BEAMS AND JOISTS, CLAMPED IN PLACE.
F. CLIP ANGLES: USE FOR STEEL BEAMS, WELDED IN PLACE. USE FOR WOOD BEAMS AND JOISTS, THROUGH-BOLTED IN PLACE WITH BACKER PLATE AND LOCK NUT.
G. HANGER RODS: SUSPENDED FROM INSERTS AND ANCHORS WITH JAMB NUT.
H. HANGERS: SUSPENDED FROM CLAMPS AND ANCHORS WITH TOP AND BOTTOM LOCK NUTS.
I. HANGERS: SUSPENDED FROM RODS WITH TOP AND BOTTOM LOCK NUTS. ALLOW FOR AT LEAST 1-1/2" VERTICAL ADJUSTMENT.
J. WALL SUPPORTS: SECURELY ATTACH TO WALL USING INSERTS, EXPANSION CHORS, BOLTS, ETC. AS SUITS THE APPLICATION AND TO ASSURE A PERMANENT FASTENING.
K. RISER CLAMPS: LOCATE AT EACH FLOOR FOR RISERS WHICH EXTEND THROUGH MORE THAN ONE FLOOR AND FOR PIPING WHICH IS NOT ADEQUATELY SUPPORTED FROM BELOW.
L. FLOOR STANDS: USE FOR HORIZONTAL PIPING SUPPORTED FROM THE FLOOR.
M. PROVIDE GENERAL CONTRACTOR WITH ANCHOR BOLTS AND SETTING TEMPLATES FOR CONCRETE PIERS.

3.03 SLEEVES, SAFING, AND ESCUTCHEONS

A. MAKE PENETRATIONS THROUGH BUILDING ELEMENTS AS FOLLOWS:
1. NEW CONCRETE: USE INDIVIDUAL SLEEVES CAST IN PLACE. ONLY ONE PIPE OR DUCT TO A SLEEVE. MULTIPLE PIPES/DUCTS IN A SLEEVE NOT ALLOWED.
2. PRE-CAST AND EXISTING CONCRETE: SLEEVES NOT REQUIRED. SAW CUT OR CORE DRILL CONCRETE AS IN ACCORDANCE WITH CUTTING AND PATCHING HEREIN.
3. NEW MASONRY: SAME AS NEW CONCRETE.
4. EXISTING MASONRY: SAME AS EXISTING CONCRETE.
5. FRAME: SAME AS EXISTING CONCRETE.
B. WRAP (UNCONDITIONED SPACES): MINERAL-FIBER BLANKET IN ACCORDANCE WITH ASTM C553, TYPE I, 2" THICK, MIN. R-5 PER 2009 IECC. 0.75 LBF/FT DENSITY WITH K-0.29 FSK FACING.
C. WRAP (SUPPLY IN PLENUM): MINERAL-FIBER BLANKET IN ACCORDANCE WITH ASTM C553, TYPE I, 2" THICK, MIN. R-4.2 PER PRP80. 0.75 LBF/FT DENSITY WITH K-0.29 FSK FACING.
D. LNER (UNCONDITIONED SPACES): RETURN DUCT ONLY. MINERAL-FIBER DUCT LINER IN ACCORDANCE WITH ASTM C1071, TYPE I, MIN. R-5 PER 2009 IECC. 1.5" THICK. 1.5 LBF/FT DENSITY WITH K-0.29 FSK FACING.
E. LNER (PLENUM NOISE CONTROL): SAME AS ABOVE EXCEPT 1.0" THICK, K-0.17 FSK FACING.
F. EXTERIOR: MINERAL-FIBER BOARD IN ACCORDANCE WITH ASTM C612, TYPE IA, 2" THICK OR R-18 PER 2009 IECC. 6 LBF/FT DENSITY WITH K-0.29 FSK FACING.
G. EXTERIOR (ALTERNATE): MINERAL-FIBER DUCT LINER IN ACCORDANCE WITH ASTM C1071, TYPE I, MIN. R-8 PER 2009 IECC. 2" THICK, K-0.13, 1.5 LBF/FT DENSITY WITH COATING ON AIR-SIDE SURFACE RATED TO 6,000 FPM.

3.04 VALVES

A. ORIENTATION: INSTALL WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED. INSTALL SWING CHECKS HORIZONTALLY OR IN UPFLOW VERTICAL PIPING, NOT DOWNFLOW VERTICAL.
B. SHUT-OFF AND ISOLATION: PROVIDE WHERE SHOWN, AT INLET AND OUTLET TO EACH PIECE OF EQUIPMENT, TO ISOLATE MAJOR HORIZONTAL BRANCHES, AT BASE OF VERTICAL RISERS, MAY OMIT WHERE BALANCING VALVE CAN BE USED FOR SHUT-OFF.
C. BALANCING: PROVIDE BALANCING VALVE WHERE SHOWN.
D. DRAINS: PROVIDE WHERE SHOWN, AT MAIN SHUT-OFF VALVES, AT LOW POINTS OF PIPING AND EQUIPMENT, TO ASSURE COMPLETE SYSTEM DRAIN-DOWN. LOCATE AT ACCESSIBLE POINTS WITHIN THE PIPING SYSTEM. USE DRAIN VALVES.
3.05 **UNIONS**
A. PROVIDE WHERE SHOWN, AT ALL EQUIPMENT AND CONTROL VALVE CONNECTIONS, FOR CONNECTION TO OTHER ITEMS REQUIRING REMOVAL FOR SERVICE/REPAIR/REPLACEMENT.
B. PROVIDE DIELECTRIC TYPE AT JUNCTIONS OF DISSIMILAR METALS.

3.06 PIPING SPECIALTIES

A. PRESSURE AND TEMPERATURE RELIEF VALVES: PROVIDE WHERE SHOWN AND TO ADEQUATELY PROTECT FIRED AND UNFIRED PRESSURE VESSELS BEHIND PIPING AND TO PREVENT OVERHEATING OR OPERATION AT REDUCED PRESSURE. PIPE DISCHARGE TO A SAFE LOCATION. DO NOT PROVIDE ISOLATION VALVE BETWEEN RELIEF VALVE AND SYSTEM BEING PROTECTED.
B. BACKFLOW PREVENTERS: PROVIDE WHERE SHOWN, AT INLET AND OUTLET TO ALL FIRED PRESSURE VESSELS EXCEPT RESIDENTIAL-SIZED DOMESTIC WATER HEATERS, AT OUTLET FROM DOMESTIC WATER STORAGE TANKS AND STORAGE WATER HEATERS.
C. PRIMARY AND SECONDARY INLET AND OUTLET TO CONVERTERS AND HEAT EXCHANGERS, DOWNSTREAM OF MAJOR MIXING VALVES. OMIT ON STEAM AND CONDENSATE SYSTEMS.

3.07 PIPE INSTALLATION

A. LOCATION: ROUTE PIPING GENERALLY AS INDICATED. PARALLEL WITH BUILDING ELEMENTS. IN AN ORDERLY MANNER. LOCATE CONCEALED UNLESS INDICATED OTHERWISE. ARRANGE TO CONSERVE HEADROOM AND TO CLEAR DOORS, WINDOWS AND OTHER OPENINGS.
B. INSTALLATION: INSTALL WITHOUT SPRING OR FORCING UNLESS COLD-SPRINGING IS INDICATED. MAKE CHANGES IN DIRECTION WITH FITTINGS. PROVIDE NECESSARY OFFSETS TO ACCOMMODATE OTHER WORK AND AS REQUIRED FOR EQUIPMENT FIT-UP. BEAM AND CLEAN PRIOR TO JOINING. CAP OPEN ENDS TO PREVENT ENTRANCE OF FOREIGN MATERIAL.
C. GRADES: SLOPE ALL PIPING TO ALLOW FOR DRAINAGE, MINIMUM 1" IN 40' OR AS PRESCRIBED BY CODE OR SPECIFIED IN OTHER DIVISION 15 SECTIONS.
D. DRAINS: PROVIDE AT LOW POINTS IN WATER PIPING.
E. CLEARANCES: ALLOW FOR APPLICATION OF INSULATION AND FOR ACCESS TO CONVEYORS, NEARLY LIE AS NECESSARY.
F. BUILDING SETTLEMENT: PROVIDE SWING JOINTS AS NECESSARY TO PERMIT FREE BUILDING MOVEMENT WITHOUT CAUSING UNDER PIPE STRESS OR DAMAGE TO BUILDING. PAY PARTICULAR ATTENTION TO PIPING CROSSING BUILDING EXPANSION JOINTS AND TO PIPING PENETRATING FLOORS, FOUNDATIONS, AND ROOF.
G. CONNECTIONS
1. COPPER: SWEAT OR BRAZED AS IN ACCORDANCE WITH APPLICABLE DIVISION 15 SECTIONS.

3.08 PIPE TESTING

A. NEW PIPING: TEST ALL PIPING INSTALLED UNDER DIVISION 15. CONDUCT TESTS PRIOR TO CONCEALING OR INSULATING. NOTIFY OWNER PRIOR TO CONDUCTING TESTS, TO ALLOW HIM TO OBSERVE TEST. PROVIDE ALL INSTRUMENTS AND EQUIPMENT REQUIRED TO CONDUCT TESTS. SEE APPROPRIATE DIVISION 15 SECTIONS FOR TESTING SPECIFICS AND PRESSURES.
B. EXISTING PIPING: ISOLATE FROM TEST PRESSURES USING ISOLATING VALVES, BLIND FLANGES, ETC. REPAIR ANY EXISTING PIPING DAMAGED DURING TESTING.
C. FIXTURES, EQUIPMENT: ISOLATE FROM TEST PRESSURES IF SUCH PRESSURE MAY DAMAGE THE FIXTURE/EQUIPMENT. USE ISOLATION VALVES, CAPS, ETC.
D. DURATION: HOLD HYDROSTATIC TESTS FOR EIGHT HOURS MINIMUM WITHOUT PRESSURE LOSS. HOLD AIR TESTS FOR ONE HOUR MINIMUM WITHOUT SIGNIFICANT PRESSURE LOSS. AIR TEST MAY BE SUBSTITUTED FOR HYDROSTATIC TEST IF APPROVED BY OWNER.
E. RE-TESTING: CORRECT ANY WORK FAILING THE INITIAL TEST. RE-TEST IN ACCORDANCE WITH INITIAL TEST PROCEDURES.
F. FIELD RECORDS: MAINTAIN FOR ALL TESTS. SUBMIT TO OWNER IN TRIPLICATE.

3.09 PIPE FLUSHING

A. NEW PIPING: TEST ALL PIPING INSTALLED UNDER DIVISION 15. CONDUCT TESTS PRIOR TO CONCEALING OR INSULATING. NOTIFY OWNER PRIOR TO CONDUCTING TESTS, TO ALLOW HIM TO OBSERVE TEST. PROVIDE ALL INSTRUMENTS AND EQUIPMENT REQUIRED TO CONDUCT TESTS. SEE APPROPRIATE DIVISION 15 SECTIONS FOR TESTING SPECIFICS AND PRESSURES.
B. EXISTING PIPING: ISOLATE FROM TEST PRESSURES USING ISOLATING VALVES, BLIND FLANGES, ETC. REPAIR ANY EXISTING PIPING DAMAGED DURING TESTING.
C. FIXTURES, EQUIPMENT: ISOLATE FROM TEST PRESSURES IF SUCH PRESSURE MAY DAMAGE THE FIXTURE/EQUIPMENT. USE ISOLATION VALVES, CAPS, ETC.
D. DURATION: HOLD HYDROSTATIC TESTS FOR EIGHT HOURS MINIMUM WITHOUT PRESSURE LOSS. HOLD AIR TESTS FOR ONE HOUR MINIMUM WITHOUT SIGNIFICANT PRESSURE LOSS. AIR TEST MAY BE SUBSTITUTED FOR HYDROSTATIC TEST IF APPROVED BY OWNER.
E. RE-TESTING: CORRECT ANY WORK FAILING THE INITIAL TEST. RE-TEST IN ACCORDANCE WITH INITIAL TEST PROCEDURES.
F. FIELD RECORDS: MAINTAIN FOR ALL TESTS. SUBMIT TO OWNER IN TRIPLICATE.

3.10 CUTTING AND PATCHING

A. GENERAL: PERFORM AS REQUIRED FOR DIVISION 15 WORK. KEEP TO A MINIMUM THROUGH PROPER SCHEDULING, WHERE UNAVOIDABLE, PERFORM IN ACCORDANCE WITH APPLICABLE DIVISIONS. SEE DIVISION 1.
B. CUTTING: OBTAIN OWNER'S APPROVAL PRIOR TO CUTTING OR DRILLING TO STRUCTURAL ELEMENTS. USE SAW OR ROTARY DRILL. DO NOT USE PNEUMATIC HAMMER.
C. PATCHING: SEAL OPENINGS, REPAIR, REFINISH, RESTORE DAMAGED ELEMENTS TO ORIGINAL CONDITIONS. COMPLY WITH PROVISIONS OF APPLICABLE DIVISIONS.
3.12 **ACCESS PANELS**
FURNISH IN ACCORDANCE WITH DIVISION 8 AND WITH FIRE RATING COMPATIBLE WITH CEILING OR PARTITION RATING. FURNISH WHERE INDICATED AND AT LOCATIONS WHERE REQUIRED FOR ACCESS TO CONCEALED VALVES, DAMPERS, CLEANOUTS, CONTROL DEVICES, EQUIPMENT, OTHER ITEMS REQUIRING SERVICE/MAINTENANCE. DELIVER TO GENERAL CONTRACTOR FOR INSTALLATION UNDER OTHER DIVISIONS. PROVIDE INSTRUCTIONS FOR LOCATION.
3.13 **ITEMS FURNISHED BY OTHERS**
INSTALL IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS AND AS REQUIRED BY APPLICABLE DIVISION 15 SECTIONS.

END OF SECTION 15050

SECTION 15050 - BASIC MATERIALS AND METHODS (cont'd)

2.02 **PIPE SCHEDULE**
A. WATER: COPPER TUBING PER ASTM B88, TYPE L, HARD DRAWN ABOVEGROUND AND ASTM B42, TYPE K UNDERGROUND. GRADE 95TA SOLDER JOINTS ABOVEGROUND AND ANS B88 SILVER BRAZED UNDERGROUND.
B. HYDRONIC: GALVANIZED STEEL PIPE FOR WATER OR STEEL PIPE ASTM A53 SCH. 40 WITH ASME B16.3 MALLEABLE IRON OR ASTM A234 FORGED STEEL THREADED FITTINGS. PROVIDE DIELECTRIC UNIONS FOR DISSIMILAR METALS.
C. SANITARY WASTE AND VENT: PVC PIPE PER ASTM D2729 WITH SOLVENT WELD JOINTS PER ASTM D2855 USING ASTM D2564 SOLVENT CEMENT.
D. NATURAL GAS: STEEL PIPE, ASTM A53 SCH. 40 WITH ASME B16.3 MALLEABLE IRON OR ASTM A234 FORGED STEEL THREADED OR WELDED FITTINGS.

2.03 PIPE HANGERS AND SUPPORTS

A. INSERTS: STEEL CASE AND EXPANDER PLUG FOR THREADED CONNECTION WITH LATERAL ADJUSTMENT, TOP SLOT FOR REINFORCING RODS AND LUGS FOR ATTACHING TO FORMS. SIZE TO MATCH HANGER ROD.
B. EXPANSION ANCHORS: LEAD SHELD OR SLIDING EXPANSION TYP WITH MACHINE BOLT. SIZE TO MATCH HANGER ROD.
C. BEAM CLAMPS: STEEL WITH CLAMPING BOLT AND JAMB NUT, CONFIGURED TO ATTACH SECURELY TO BEAM.
D. CLIP ANGLES: SHORT SECTION OF STEEL ANGLE WITH SUITABLE FASTENERS.
E. HANGER RODS: STEEL ALL-THREAD.
F. HANGERS:
1. INDIVIDUAL HANGERS: ADJUSTABLE WROUGHT STEEL RING FOR PIPING THROUGH 1-1/2". ADJUSTABLE WROUGHT STEEL CLEVIS FOR PIPING 2" AND LARGER. CHAIN OR PERFORATED STRAP HANGERS NOT PERMITTED.
2. TRAPEZE: INVERTED STEEL CHANNELS WITH WELDED PIPE SPACERS. PIPING MAY REST DIRECTLY ON TRAPEZE. SIZE HANGER RODS ONE SIZE LARGER THAN SLEEVING HANGERS AS FOLLOWS:
MAXIMUM 3" ON CENTER, LOCATE PIPING ON TRAPEZE TO ALLOW FOR INSULATION AND THERMAL EXPANSION. SEE SECTION 15080-INSULATION.
G. WALL SUPPORTS: CAST IRON PIPING THROUGH 1 1/2" WELDED STEEL WALL BRACKET WITH WROUGHT STEEL CLAMP FOR COLD PIPING 4" TO 6". SIZE IN ACCORDANCE WITH CODE AND TO ALLOW FOR INSULATION. SEE SECTION 15080 - INSULATION.
H. RISER CLAMPS: STEEL, BOLT-TOGETHER, WITH SUPPORTING TABS. SIZE FOR UNINSULATED PIPE.
I. FLOOR STANDS:
1. BASE: CONCRETE PIER OR STEEL SUPPORT.
2. STAND: CAST IRON ADJUSTABLE SADDLE WITH PIPE NIPPLE RISER, LOCKNUT AND FLOOR FLANGE FOR PIPING THROUGH 1". ADJUSTABLE STEEL STAND AND CAST IRON ROLLER FOR PIPING 6" AND LARGER. SIZE IN ACCORDANCE WITH CODE AND TO ALLOW FOR INSULATION. SEE SECTION 15080 - INSULATION.
J. MATERIALS: METALLIC PIPE HANGERS SHALL BE OF SAME MATERIAL AS BASE METAL OF PIPE.

2.04 SLEEVES, SAFING, AND ESCUTCHEONS

A. SLEEVES
1. ROUND: STEEL PIPE SIZED LARGE ENOUGH TO ALLOW FOR UNINTERRUPTED INSULATION THROUGH THE MANUFACTURER'S STANDARDIZATION SOCIETY OF THE VALVE AND FITTING INDUSTRY.
2. RECTANGULAR: GALVANIZED STEEL, REINFORCED TO PREVENT DEFORMATION.
B. SAFING
1. WATERPROOF: ELASTIC MASTIC, SILICONE, ETC.
2. FIREPROOF: PLASTER, GROUT, OTHER MATERIAL AS APPROVED BY LOCAL AUTHORITIES.
C. ESCUTCHEONS: GALVANIZED STEEL.
1. PIPING: ADJUSTABLE CHROME-PLATED, SOLID OR SPLIT, FLAT OR DISHED TO SUIT THE APPLICATION.
2. DUCTWORK: FABRICATED SHEET METAL.

2.05 VALVES

A. ACCEPTABLE MANUFACTURERS: CRANE, HAMMOND, JENKINS, KENNEDY, NIBCO, POWELL, STOCKHAM, GRINNELL.
B. GENERAL: ALL VALVES OF THE SAME TYPE SHALL BE OF ONE MANUFACTURER. USE VALVE LISTED WITH THE MANUFACTURER'S STANDARDIZATION SOCIETY OF THE VALVE AND FITTING INDUSTRY.
C. ISOLATION VALVES:
1. 2" AND SMALLER: BALL VALVE; BRONZE; SWING-AWAY DESIGN, FULL PORT, BRONZE BALL, TEFLON SEAT, LEVER OPERATOR, SCREWED OR SOLDERED ENDS, 150# WSP, 400# WOG.
2. 2-1/2" AND LARGER: BUTTERFLY VALVE; MSS SP87, 200 PSI, DUCTILE IRON BODY WITH 2" EXTENSION TO ACCOMMODATE INSULATION, LUG OR WAFER BODY STYLE.
D. CHECK VALVES: WITH ADJUSTABLE MEMORY STOP.
E. BALANCING VALVES:
1. 2" AND SMALLER: PLUG COOKS OR ECCENTRIC VALVES OR BALL VALVES.
2. 2-1/2" AND LARGER: WITH ADJUSTABLE MEMORY STOP.
F. DRAIN VALVES:
1. BRONZE; COMPRESSION STOP WITH NIPPLE AND CAP OR HOSE THREAD OUTLET, 25# WSP.

2.06 UNIONS

A. FERROUS PIPING
1. 2" AND SMALLER: 150# MALLEABLE IRON GROUND JOINT, THREADED ENDS.
2. 2-1/2" AND LARGER: GRADE 1 150# FORGED STEEL SLIP ON OR WELD-NECK FLANGES IN ACCORDANCE WITH ASTM B1, REGULAR SQUARE-HEAD MACHINE BOLTS WITH HEAVY HEXAGONAL NUTS IN ACCORDANCE WITH ASTM A307 GRADE B, 1/16" THICK PRE-FORMED SYNTHETIC GASKETS.
B. COPPER PIPING
1. 2" AND SMALLER: WROUGHT COPPER IN ACCORDANCE WITH ANSI B16.22.
2. 2-1/2" AND LARGER: 150# BRONZE FLANGES, 1/16" THICK PRE-FORMED SYNTHETIC GASKET.
2.07 **PIPING SPECIALTIES**
A. PRESSURE AND TEMPERATURE RELIEF VALVES
1. ACCEPTABLE MANUFACTURERS: WATTS, CRANE, CASHMACE.
2. DESCRIPTION: ASME STAMPED, SUITABLY SIZED AND RATED TO PROTECT THE INTENDED SYSTEM AND EQUIPMENT.
B. THERMOMETERS
1. ACCEPTABLE MANUFACTURERS: SKA, MOELLER, WEKSLER.
2. DESCRIPTION: METAL CASE WITH COLORED-ALCOHOL FILLED GLASS OR PLASTIC READING TUBE WITH SUITABLE 9" SCALE, ADJUSTABLE MULTI-ANGLE HOUSING, BRASS SEPARABLE SOCKET.

PART 3 - EXECUTION

3.01 **MOTORS, STARTERS, AND MISC. ELECTRICAL**
A. PROVIDE MOTORS OF MINIMUM HORSEPOWER INDICATED, COMPLETE WITH STARTERS, ETC. WHERE REQUIRED.

3.02 PIPE HANGERS, SUPPORTS

A. GENERAL: ADEQUATELY SUPPORT PIPING FROM BUILDING STRUCTURE, TO MAINTAIN REQUIRED GRADES, TO PREVENT SAGGING, SUPPORT PIPING INDEPENDENTLY OF EQUIPMENT SO ITS WEIGHT WILL NOT BE SUPPORTED BY THE EQUIPMENT. PROVIDE SWAY BRACING WHERE NECESSARY. ISOLATE HANGERS AND SUPPORTS COMING IN CONTACT WITH BARE COPPER PIPE. USE DIELECTRIC HANGER CONNECTORS OR WRAP WITH NON-CONDUCTIVE TAPE.
B. HANGER SPACING:
1. SCHEDULE OF SIZES AND SPACING:

PIPE OR TUBING SIZE	MAXIMUM SPACING (FT)	MINIMUM ROD DIA
1/2" THROUGH 1"	6	3/8"
1 1/4" THROUGH 2"	7	3/8"
2-1/2" THROUGH 3"	10	1/2"
4"	14	5/8"

2. TO PROVIDE 1/2" MINIMUM CLEARANCE BETWEEN INSULATION AND ADJACENT WORK.
3. SUPPORT HORIZONTAL CAST IRON PIPING NEAR EACH JOINT, MAXIMUM 5' ON CENTER.
4. SUPPORT VERTICAL CAST IRON PIPING AT EACH FLOOR INDEPENDENTLY OF CONNECTING HORIZONTAL PIPING WHERE PRACTICAL.
5. HANGER SPACING FOR NON-METALLIC PIPING, DOMESTIC WATER PIPING, SOIL, WASTE, AND VENT PIPING, SHALL BE IN ACCORDANCE WITH ABOVE OR INTERNATIONAL PLUMBING CODE WHICHEVER IS MORE STRINGENT.
C. INSERTS: USE FOR CAST-IN-PLACE CONCRETE. SET IN PLACE PRIOR TO CONCRETE POUR. ATTACH INSERT TO RE-BAR IF INSERT WILL CARRY PIPING 4" AND OVER. WHERE CONCRETE WILL REMAIN EXPOSED, FINISH INSERTS FLUSH WITH EXPOSED SURFACE.
D. EXPANSION ANCHORS: USE FOR PRECAST AND EXISTING CONCRETE. DRILL APPROPRIATE SIZE HOLE AND SECURELY SET ANCHOR. DO NOT CUT STRESSED CONCRETE REINFORCING. WHERE OWNER ALLOWS, MAY DRILL THROUGH CONCRETE SLAB FROM BELOW AND PROVIDE HANGER ROD WITH RECESSED SQUARE STEEL PLATE AND NUT ABOVE SLAB.

DIVISION 15 - MECHANICAL

SECTION 15010 - BASIC REQUIREMENTS

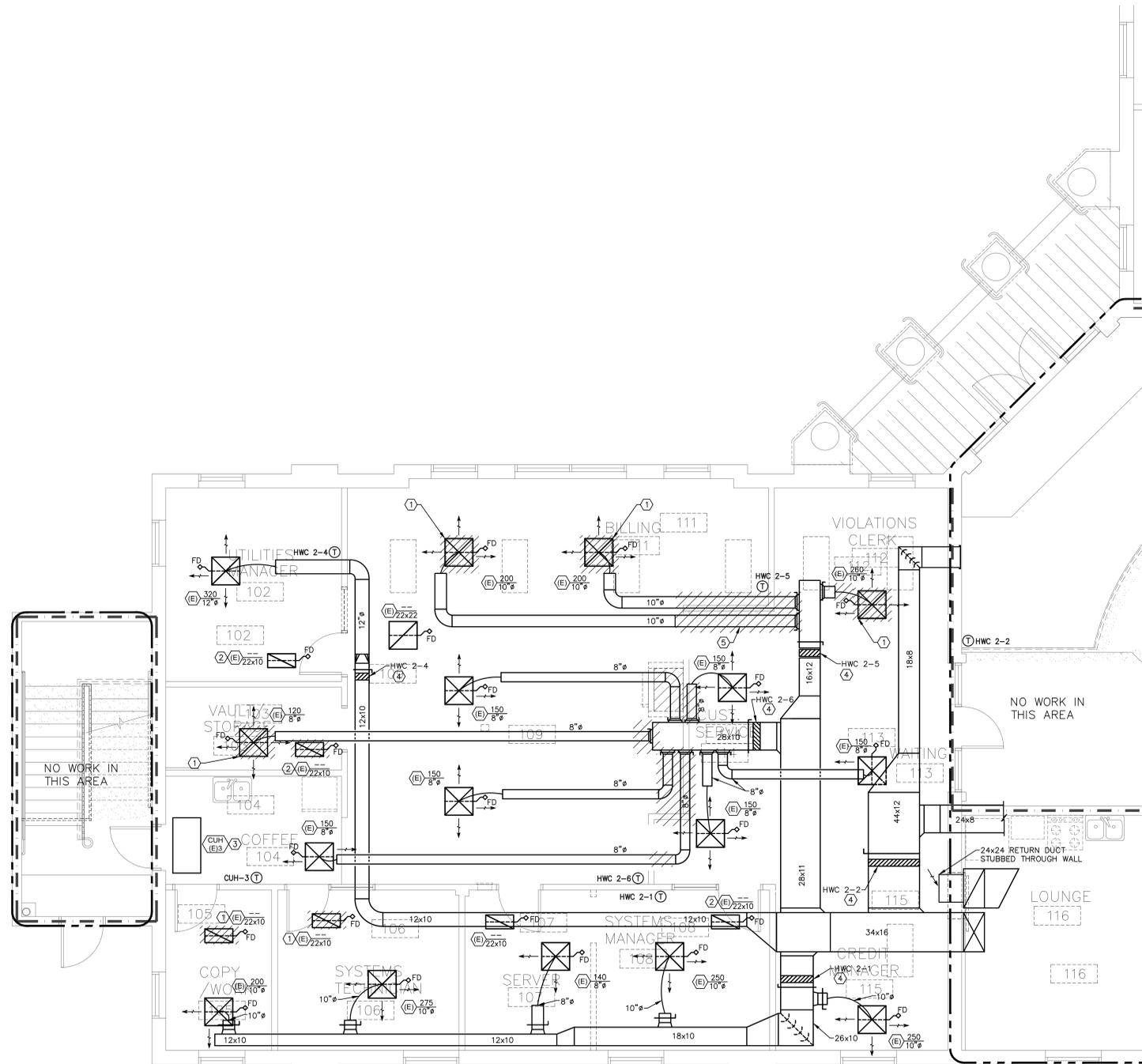
1.01 **GENERAL**
A. ALL PROVISIONS OF THE CONTRACT DOCUMENTS APPLY TO THE WORK OF THIS DIVISION.
B. ALL DIVISION 15 SECTION ARE SUBJECT TO THE PROVISIONS OF THIS SECTION.
1.02 **SUMMARY OF WORK**
A. WORK INCLUDED: PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTAL ITEMS NECESSARY FOR COMPLETELY FINISHED AND OPERATIONAL MECHANICAL SYSTEMS. EXAMINE DOCUMENTS OF OTHER TRADES FOR ANY ADDITIONAL WORK WHICH MAY BE REQUIRED OF THE MECHANICAL CONTRACTOR.
1.03 **DEFINITIONS**
A. EXPOSED: EXPOSED IN MECHANICAL ROOMS OR ROOMS WITH FINISHED WALLS OR CEILINGS.
B. CONCEALED: LOCATED IN PIPE CHASES, FURRED SPACES, ATTICS, CRAWL SPACES, ABOVE SUSPENDED CEILINGS, OR AT OTHER LOCATIONS NOT EXPOSED TO VIEW.
C. PROVIDE: FURNISHED AND INSTALL.
1.04 **DIVISION OF RESPONSIBILITY**
SPECIFICATION FORMATTING WHICH INDICATES A DIVISION IN THE MECHANICAL WORK IS FOR CONVENIENCE ONLY. IT IS NOT INTENDED TO DELINEATE LINES OF RESPONSIBILITY BETWEEN SUBCONTRACTORS AND/OR SUPPLIERS. SUCH DELINEATION RESTS ENTIRELY WITH THE CONTRACTOR.
1.05 **PLANS AND SPECIFICATIONS**
PLANS ARE DIAGRAMMATIC. THEY INDICATE GENERAL INTENT, DESIGN AND ARRANGEMENT OF SYSTEMS. PROVIDE ALL MINOR INCIDENTALS SUCH AS OFFSETS, FITTINGS, ETC., AS MAY BE REQUIRED EVEN THOUGH NOT SHOWN. PROVIDE ISOLATION VALVES AND UNIONS AS CALLED FOR IN THESE SPECIFICATIONS WHETHER OR NOT SHOWN ON DRAWINGS. DO NOT SCALE THE PLANS. TAKE DIMENSIONS FROM ACTUAL FIELD CONDITIONS.
1.06 **CODES AND REGULATIONS**
A. CONFORM TO CODES AND REGULATIONS APPLICABLE AT THE PROJECT SITE.
B. CALL FOR INSPECTIONS FROM LOCAL AUTHORITIES AS REQUIRED IF DISCREPANCIES OCCUR BETWEEN CONTRACT DOCUMENTS AND LOCAL REGULATIONS, THE MORE STRINGENT REQUIREMENT APPLIES.
1.07 **FEES AND PERMITS**
A. OBTAIN REQUIRED PERMITS.
B. PAY PERMIT FEES, CONSTRUCTION FEES, TAP FEES, INSPECTION FEES.
C. DEVELOPMENT FEES ARE PAID BY OWNER.

1.08 COORDINATION

A. COORDINATE WITH OTHER TRADES TO ASSURE ORDERLY PROGRESS OF THE WORK AND TO ASSURE PROPER FIT IN CONFINED SPACES.
B. REPORT TO THE OWNER ANY CONSTRUCTION DEFECTS WHICH AFFECT THE MECHANICAL WORK, PROCURED WITH MECHANICAL WORK ONLY AFTER DEFECTS HAVE BEEN CORRECTED.
1.09 **QUALITY ASSURANCE**
A. PERFORM WORK IN ACCORDANCE WITH GOOD TRADE PRACTICE AND IN A NEAT MANNER. COMPLY WITH OWNER'S DIRECTION CONCERNING FINISHED WORK.
B. ADHERE TO MANUFACTURER'S RECOMMENDATIONS.
1.10 **PROTECTION**
A. OF PEOPLE: ARRANGE BARRIERS, SIGNS, ETC. AS REQUIRED TO MINIMIZE THE HAZARD TO PEOPLE. COMPLY WITH APPLICABLE SAFETY AND HEALTH REGULATIONS.
B. OF WORK: TAKE ALL MEASURES NECESSARY TO PROTECT THE WORK BOTH BEFORE AND AFTER INSTALLATION, TO ASSURE THAT IT WILL BE IN CLEAN, UNDAAMAGED, UNFINISHED CONDITION WHEN TURNED OVER TO THE OWNER. REPAIR/REPLACE WORK DAMAGED DURING CONSTRUCTION.
C. OF EXISTING MECHANICAL: PROVIDE TEMPORARY FILTERS AT ALL EXISTING RETURN AIR DEVICES AND OPENINGS DURING CONSTRUCTION.
1.11 **SUBMITTALS**
A. SUBMIT PRODUCT DATA FOR THE FOLLOWING ITEMS:
1. GRILLES, REGISTERS, DIFFUSERS, SPIN-IN, FLEX, DUCT INSULATION, THERMOSTAT, HVAC EQUIPMENT AND OTHER MISC HVAC ITEMS.
2. ALL PLUMBING FIXTURES, ACCESSORIES AND PIPE INSULATION.
B. SUBMIT 3 COPIES THROUGH GENERAL CONTRACTOR TO OWNER. DO NOT SUBMIT DIRECTLY TO ENGINEER.

1.12 RECORD DOCUMENTS

A. MAINTAIN AT JOB SITE: CONTRACT DOCUMENTS, REVIEWED SUBMITTALS, FIELD TEST RECORDS.
B. AS-BUILT DRAWINGS: NEATLY REVISE THE DESIGN DRAWINGS TO REFLECT THE AS-BUILT CONDITION. DIMENSIONALLY LOCATE SITE UTILITIES AND UNDER SLAB WORK. DELIVER AS-BUILT DRAWINGS TO OWNER AT PROJECT COMPLETION.
1.13 **OPERATING & MAINTENANCE MANUALS**
A. FORMAT: 8-1/2"x11" LOOSE-LEAF, HARD COVER, PERMANENTLY LABELED. ALL CONTENTS TYPED OR NEATLY LETTERED.
B. CONTENTS: EACH SECTION SET OFF BY INDEX TABS. INCLUDE:
1. TABLE OF CONTENTS.
2. EXCERPTS OF WARRANTIES.
3. NAME, ADDRESS AND TELEPHONE NUMBER OF INSTALLING CONTRACTORS AND SUBCONTRACTORS, ALONG WITH BRIEF DESCRIPTION OF THEIR PROJECT RESPONSIBILITY.
4. NAME, ADDRESS AND TELEPHONE NUMBER OF MATERIAL AND EQUIPMENT SUPPLIERS, ALONG WITH LISTING OF ITEMS SUPPLIED.
5. EQUIPMENT TABS: MINIMUM TAB FOR EACH APPLICABLE DIVISION 15 SECTION, ARRANGED IN THE SAME ORDER AS THE SPECIFICATIONS. INCLUDE FOR ALL EQUIPMENT SUPPLIED:
a. REVIEWED SUBMIT



GENERAL NOTES

- A. CONTRACTOR SHALL CLEAN AND TOUCH-UP PAINT TO MATCH EXISTING SUPPLY DIFFUSERS AND RETURN GRILLES.
- B. ALL EXISTING AIR DEVICES HAVE RADIATION FIRE DAMPERS. THESE DAMPERS SHALL REMAIN IN SERVICE UNLESS THE AIR DEVICE IS DEMOLISHED. PROTECT AIR DEVICE AND DAMPER FROM DAMAGE DURING CONSTRUCTION AND RELOCATION.

KEYED NOTES

- ① CAREFULLY REMOVE EXISTING AIR DEVICE AND FIRE DAMPER. PROTECT FROM DAMAGE AND REINSTALL IN NEW LOCATION. REFER TO NEW MECHANICAL WORK.
- ② DEMOLISH AIR DEVICE AND FIRE DAMPER.
- ③ EXISTING CEILING UNIT HEATER TO REMAIN IN SERVICE.
- ④ EXISTING HOT WATER COILS TO REMAIN IN SERVICE.
- ⑤ REMOVE AND REPLACE.

DEMOLITION GENERAL NOTES

- ////// INDICATES DEMOLITION
- A. MECHANICAL EQUIPMENT SHOWN WITH HATCH IS TO BE REMOVED. ANY REMAINING PIPING SHOULD BE CAPPED AT SOURCE.
- B. VERIFY WITH THE OWNER IF ANY DEMOLISHED EQUIPMENT IS TO BE KEPT BY THE OWNER. THE OWNER MAINTAINS THE RIGHT TO RETAIN ANY MECHANICAL EQUIPMENT AND PIPING OR DUCTING REMOVED. THIS EQUIPMENT SHALL BE CAREFULLY REMOVED BY THE CONTRACTOR AND STORED ON THE PROPERTY AT A LOCATION DESIGNATED BY THE OWNER. ALL DEMOLISHED EQUIPMENT NOT KEPT BY THE OWNER SHALL BE LEGALLY DISPOSED OF OFF SITE BY THE CONTRACTOR.
- C. ANY FLOOR, WALL OR CEILING OPENINGS MADE DUE TO DEMOLITION OF MECHANICAL EQUIPMENT SHALL BE PROPERLY PATCHED AND FINISHED TO MATCH THE ADJACENT SURFACE. BLANK COVERPLATES MAY BE USED IN CONCRETE WALLS.
- D. NOT ALL EXISTING DUCTWORK, PIPING, AND ACCESSORIES ARE NECESSARILY SHOWN ON THESE DRAWINGS, BUT WHAT IS DEEMED NECESSARY TO SHOW INTENT OF WORK INVOLVED IN THIS PROJECT. REFER TO ALL PLANS, SCHEDULES, AND SPECIFICATIONS FOR COMPLETE SYSTEM REQUIREMENTS.
- E. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO DEMO WORK. DEVIATIONS FROM CONDITIONS SHOWN IN THESE PLANS SHALL BE REPORTED TO THE PROJECT MANAGER IMMEDIATELY AND NO WORK SHALL BE PERFORMED IN THIS AREA UNTIL A RESOLUTION HAS BEEN ESTABLISHED. SITE CONDITIONS DIFFERING FROM THOSE SHOWN ON THESE PLANS WILL NOT BE GENERALLY CONSIDERED A BASIS FOR CONTRACT MODIFICATION AS THE CONTRACTOR SHALL TAKE INTO ACCOUNT WORST CASE SITE CONDITIONS WHEREVER POSSIBLE.
- F. DRAWINGS ARE BASED ON RECORD DRAWINGS AND LIMITED FIELD OBSERVATIONS. CONTRACTOR SHALL VERIFY EXISTING SYSTEMS BEFORE COMMENCING WITH WORK.
- G. UNLESS NOTED OTHERWISE, EXISTING MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT SHALL REMAIN AND BE PROTECTED DURING CONSTRUCTION.
- H. REMOVE ALL HANGERS, ALL-THREAD RODS, UNI-STRUT AND OTHER SUPPORTS ASSOCIATED WITH EQUIPMENT INDICATED FOR DEMOLITION.
- I. WIRING FOR CONTROL SYSTEM COMPONENTS SHALL NOT BE ABANDONED IN PLACE. FOR DEMOLISHED EQUIPMENT, REMOVE CONTROL WIRING BACK TO THE CONTROL PANEL AND TERMINATE PROPERLY SUCH THAT REMAINING CONTROL SYSTEM COMPONENTS CONTINUE TO OPERATE.

MECHANICAL DEMOLITION PLAN
1/4" = 1'-0"

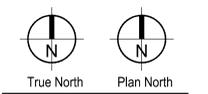
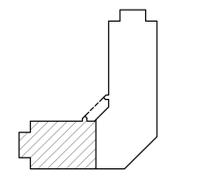


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Bid Documents Not for Construction

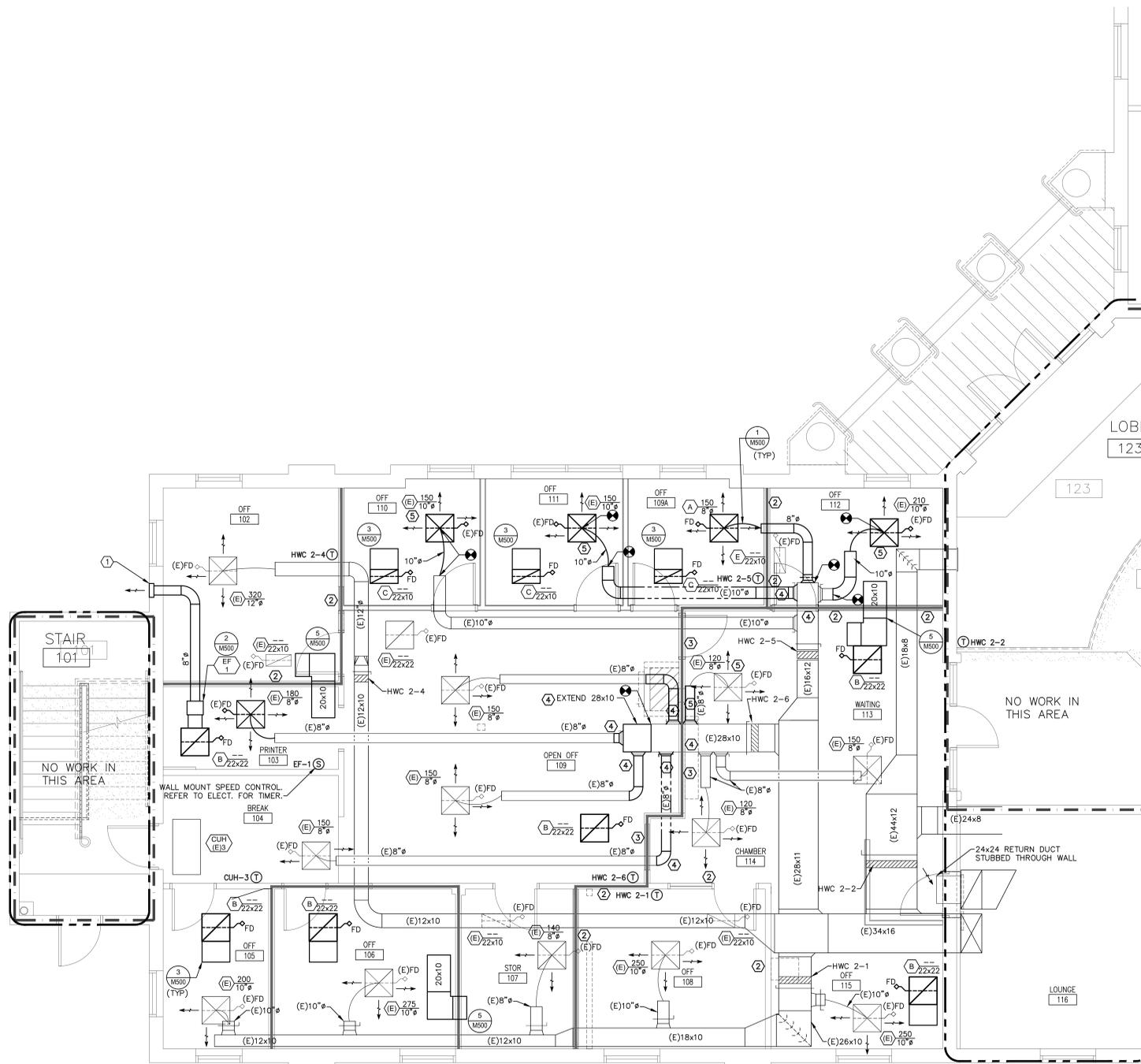
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Revised: _____

Area Key Plan



MECHANICAL DEMOLITION PLAN

MD111



GENERAL NOTES

- A. CONTRACTOR SHALL CLEAN (AND IF NECESSARY, PAINT TO MATCH) EXISTING SUPPLY DIFFUSERS AND RETURN GRILLES.
- B. ALL EXISTING AIR DEVICES HAVE RADIATION FIRE DAMPERS. THESE DAMPERS SHALL REMAIN IN SERVICE UNLESS THE AIR DEVICE IS DEMOLISHED. PROTECT AIR DEVICE AND DAMPER FROM DAMAGE DURING CONSTRUCTION AND RELOCATION.
- C. AIR DEVICES SHALL BE BALANCED TO PROVIDE THE AIRFLOW SPECIFIED ON THESE PLANS.
- D. REFER TO ARCHITECTURAL PLANS FOR LOCATION OF FULL HEIGHT WALL FRAMING. WHEN THE WALL FRAMING IS FULL HEIGHT, THE WALL SHALL HAVE OPENINGS SUFFICIENT TO ALLOW AIR IN THE RETURN PLENUM TO BE DRAWN INTO THE 24x24 RETURN DUCT STUBBED THROUGH THE WALL AT COLUMN LINE D.

KEYED NOTES

- ① INSTALL EXHAUST VENT IN EXISTING CMU WALL AT APPROX. 10'-0" AFF. COORDINATE LOCATION WITH ARCHITECTURAL DRAWINGS. SEAL LOUVER OPENING WATER-TIGHT.
- ② NEW WALL EXTENDS TO BOTTOM OF FLOOR ABOVE.
- ③ NEW WALL EXTENDS TO WITHIN 6" OF BOTTOM OF FLOOR ABOVE TO ALLOW FOR TRANSFER AIR AND SECURITY.
- ④ REMOVE AND REWORK EXISTING DUCT TO ALLOW FOR NEW WALL.
- ⑤ REMOVE AND REINSTALL.

MECHANICAL HVAC PLAN
1/4" = 1'-0"

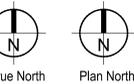
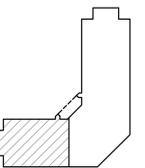


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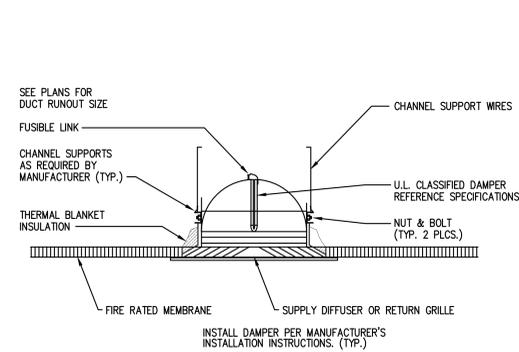
Area Key Plan



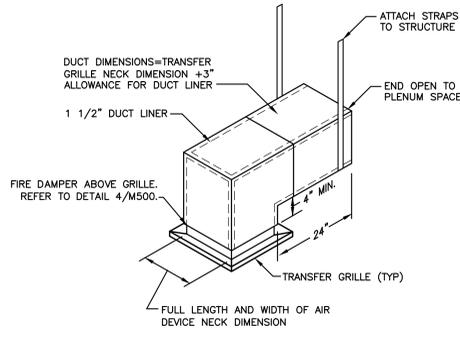
MECHANICAL HVAC PLAN

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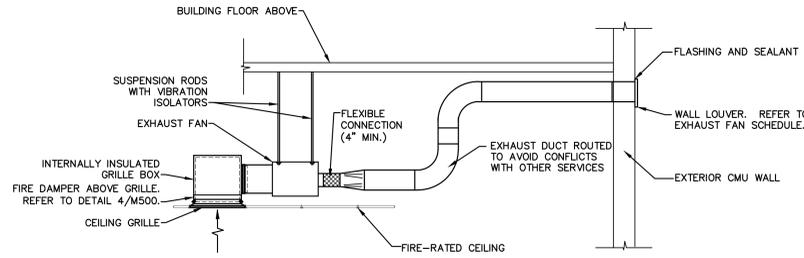
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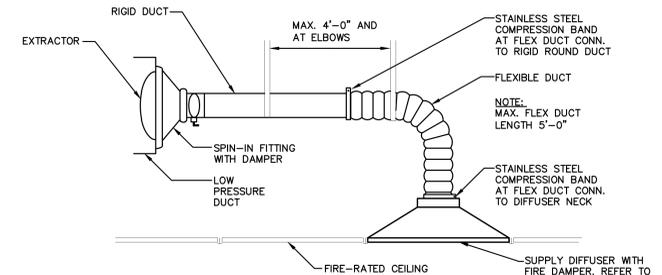
4 CEILING AIR DEVICE FIRE PROTECTION
NOT TO SCALE



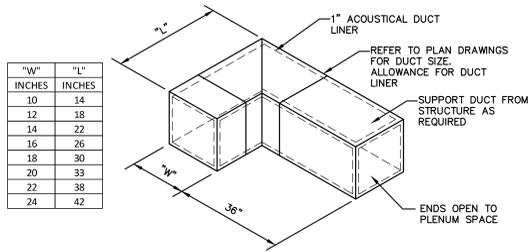
3 RETURN AIR BOOT DETAIL
NOT TO SCALE



2 CABINET FAN THROUGH WALL
NOT TO SCALE



1 DIFFUSER RUN OUT WITH FLEX DUCT
NOT TO SCALE



5 TYPICAL RETURN/TRANSFER DUCT
NOT TO SCALE

OUTSIDE AIR SCHEDULE

USING ASHRAE 62.1-2007, TABLE 6-1

HVAC UNIT DESIGNATION	ROOM NUMBER	ROOM NAME	OCCUPANCY CLASSIFICATION	AREA (SF)	PEOPLE OUTDOOR AIR RATE (CFM PER PERSON)	AREA OUTDOOR AIR RATE (CFM/SF)	OCCUPANT DENSITY (#/1000 SF)	BREATHING ZONE OUTDOOR AIRFLOW Vbz (CFM) REQUIRED	ZONE AIR DISTRIB. Ez	ZONE OUTDOOR AIRFLOW REQUIRED Voz (CFM) =Vbz/Ez
RTU-2	115	OFFICE	OFFICE SPACE	150	5	0.06	5	12.8	0.8	15.9
HWC 2-1	108	CONFERENCE ROOM	CONFERENCE/MEETING	150	5	0.06	50	48.5	0.8	58.1
	107	STORAGE	STORAGE ROOM	114	0	0.12	0	13.7	0.8	17.1
	106	OFFICE	OFFICE SPACE	162	5	0.06	5	13.8	0.8	17.2
	105	OFFICE	OFFICE SPACE	76	5	0.06	5	6.5	0.8	8.1
Subtotals								OA CFM REQUIREMENT:		116.5
								OA CFM PROVIDED:		220.0
RTU-2	102	OFFICE	OFFICE SPACE	189	5	0.06	5	16.1	0.8	20.1
HWC 2-4										
Subtotals								OA CFM REQUIREMENT:		20.1
								OA CFM PROVIDED:		65.0
RTU-2	110	OFFICE	OFFICE SPACE	150	5	0.06	5	12.8	0.8	15.9
HWC 2-5	111	OFFICE	OFFICE SPACE	150	5	0.06	5	12.8	0.8	15.9
	109A	OFFICE	OFFICE SPACE	114	5	0.06	5	9.7	0.8	12.1
	112	OFFICE	OFFICE SPACE	162	5	0.06	5	13.8	0.8	17.2
Subtotals								OA CFM REQUIREMENT:		61.2
								OA CFM PROVIDED:		130.0
RTU-2	103	PRINTER	OFFICE SPACE	85	5	0.06	5	7.2	0.8	9.0
HWC 2-6	104	COFFEE	OFFICE SPACE	104	5	0.06	5	8.8	0.8	11.1
	109	OPEN OFFICE	OFFICE SPACE	468	5	0.06	5	39.8	0.8	49.7
	114	CUSTOMER SERVICE	OFFICE SPACE	232	5	0.06	5	19.7	0.8	24.7
	113	WAITING	OFFICE SPACE	150	5	0.06	5	12.8	0.8	15.9
Subtotals								OA CFM REQUIREMENT:		110.4
								OA CFM PROVIDED:		180.0

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	CFM	ESP (in WC)	MOTOR HP / WATTS	RPM	VOLT / PHASE	DRIVE	AREA SERVED	WEIGHT (LBS.)	TYPE	NOTES
EF-1	GREENHECK	CSP-A290	200	0.375	--- / 81	966	115 / 1	DIRECT	PRINTER ROOM	30	CENTRIFUGAL	(1)(2)(3)(4)(5)

- NOTES:
 (1) PROVIDE SOLID STATE SPEED CONTROL.
 (2) PROVIDE BRICK VENT (PN: BVE808) WITH 1/4" WIRE MESH SCREEN.
 (3) PROVIDE ROUND DUCT ADAPTOR (PN: RDC-8).
 (4) PROVIDE ISOLATION KIT (PN: VI KIT-SP/CSP).
 (5) PROVIDE ALUMINUM WHEEL.

AIR DISTRIBUTION SCHEDULE

MARK	MANUF.	MODEL	TYPE	FACE SIZE	NECK SIZE	COLOR	FRAME	NOTES
A	TITUS	TD	LOUVERED SUPPLY DIFFUSER	24"x24"	AS INDICATED	WHITE	LAY-IN	(1)
B	TITUS	PAR	PERFORATED RETURN GRILLE	24"x24"	22"x22"	WHITE	LAY-IN	(2)
C	TITUS	PAR	PERFORATED RETURN GRILLE	24"x12"	22"x10"	WHITE	LAY-IN	(2)

- NOTES:
 (1) REFER TO DIFFUSER RUN OUT DETAIL.
 (2) REFER TO RETURN AIR BOOT DETAIL.

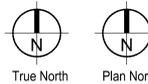
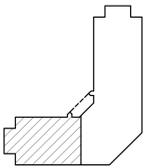


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Area Key Plan



MECHANICAL DETAILS

ELECTRICAL SYMBOL LEGEND		NOTE: ALL SYMBOLS SHOWN IN THIS LEGEND ARE NOT NECESSARILY USED ON PLANS IN A LIGHT LINE WEIGHT DENOTE EXISTING DEVICE	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
DIAGRAMS AND WIRING			
	CONCEALED BRANCH CIRCUIT WIRING. SHORT HATCHES DENOTE HOT OR SWITCH LEG CONDUCTORS. LONG HATCH INDICATES NEUTRAL CONDUCTOR. LONG HATCH WITH SINGLE BARB INDICATES EQUIPMENT GROUNDING CONDUCTOR. NO HATCHES INDICATES ONE HOT, ONE NEUTRAL AND ONE GROUNDING CONDUCTOR		
	UNDERGROUND RACEWAY		
	FUSED SWITCH, AMPERE SWITCH (AS) AND AMPERE FUSE (AF) RATING AS INDICATED		
	CIRCUIT BREAKER, 3 POLE (U.N.O.), AMPERE FRAME (AF) AND AMPERE TRIP (AT) RATING AS INDICATED		
	GROUNDING ELECTRODE		
	GROUNDING TO WATER ENTRANCE		
	MEDIUM VOLTAGE DRAW-OUT CIRCUIT BREAKER		
	LOW VOLTAGE DRAW-OUT CIRCUIT BREAKER		
	MEDIUM VOLTAGE SWITCH		
	LOW VOLTAGE SWITCH		
	MEDIUM VOLTAGE FUSE		
	LOW VOLTAGE FUSE		
	REACTOR		
	TRANSFORMER		
	CURRENT TRANSFORMER		
	POTENTIAL TRANSFORMER		
	INVERTER		
	BATTERY STRING		
	AUTOMATIC TRANSFER SWITCH		
	CAPACITOR		
	METER		
	TRANSIENT VOLTAGE SURGE SUPPRESSER		
	GROUND FAULT PROTECTOR		
	DIGITAL POWER METER		
ELECTRICAL DISTRIBUTION EQUIPMENT			
	EXISTING BRANCH CIRCUIT PANELBOARD		
	NEW BRANCH CIRCUIT PANELBOARD		
	MOTOR CONTROL CENTER		
	MAIN DISTRIBUTION PANEL		
	TRANSFORMER		
	CONTACTOR		
INTERIOR AND EXTERIOR LIGHTING			
	LIGHTING FIXTURE. UPPER CASE LETTER INDICATES TYPE, LOWER CASE LETTER INDICATES SWITCH LEG, NUMBER DENOTES CIRCUIT AND NL INDICATES NIGHT LIGHT. REFER TO LIGHTING FIXTURE SCHEDULE FOR DETAILS.		
	EGRESS LIGHT FIXTURE 1 LAMP CONNECTED TO EMERGENCY POWER SOURCE. EMERGENCY LAMPS WIRED AHEAD OF LOCAL SWITCHING.		
	EGRESS LIGHT FIXTURE CONNECTED TO EMERGENCY POWER SOURCE. WIRED AHEAD OF LOCAL SWITCHING.		
	POLE MOUNTED LUMINAIRE, SINGLE HEAD		
	POLE MOUNTED LUMINAIRE, DOUBLE HEAD		
	GROUND OR WALL MOUNTED FLOOD LIGHT		
	SELF-CONTAINED EMERGENCY LIGHTING UNIT WITH TWO HEADS.		
	EXIT SIGN, FACES AND DIRECTIONAL ARROWS AS INDICATED ON PLANS		
	EXIT SIGN WITH TWO EMERGENCY EGRESS HEADS, DIRECTIONAL ARROWS AS INDICATED ON PLANS		
LIGHTING CONTROLS			
	FLUSH MOUNTED SINGLE POLE SWITCH, LOWER CASE LETTER DESIGNATES WHICH LIGHTING FIXTURE SWITCH IS CONTROLLING		
	FLUSH MOUNTED THREE WAY SWITCH		
	FLUSH MOUNTED FOUR WAY SWITCH		
	FLUSH MOUNTED ADJUSTABLE DIMMER SWITCH		
	MOMENTARY CONTACT SWITCH		
	FLUSH MOUNTED KEY PROTECTED SWITCH		
	FLUSH MOUNTED SWITCH WITH PILOT LIGHT		
	OCCUPANCY SENSOR - WALL AND CEILING MOUNTED. SEE SPECIFICATIONS		
	DAYLIGHT SENSOR		
	DIGITAL LIGHTING CONTROLLER WITH SEVEN DAY TIME CLOCK AND LITHIUM BATTERY BACK UP POWER SUPPLY. TORK DGLC SERIES. VOLTAGE TO MATCH LIGHTING BEING CONTROLLED.		
	LIGHTING CONTACTOR, VOLTAGE TO MATCH LIGHTING BEING CONTROLLED.		
	PHOTO CELL		
POWER RECEPTACLES			
	FLUSH MOUNTED DUPLEX RECEPTACLE.		
	FLUSH MOUNTED DOUBLE DUPLEX RECEPTACLE		
	FLUSH CEILING MOUNTED DUPLEX RECEPTACLE		
	FLUSH FLOOR OR COUNTER MOUNTED DUPLEX RECEPTACLE		
	FLUSH MOUNTED, WEATHERPROOF, GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE.		
	FLUSH DUPLEX RECEPTACLE HORIZONTALLY MOUNTED ABOVE COUNTER BACKSPASH		
	FLUSH MOUNTED GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE		
	FLUSH MOUNTED SWITCHED DUPLEX RECEPTACLE.		
	FLUSH MOUNTED ISOLATED GROUND DUPLEX RECEPTACLE, ORANGE		
	PLUG MOLD OR WIRE MOLD WITH RECEPTACLES		
	SPECIAL EQUIPMENT RECEPTACLE		
	208V RECEPTACLE.		
	ELECTRICAL POWER POLE		
	JUNCTION BOX		
MECHANICAL EQUIPMENT & CONTROLS			
	MOTOR		
	DISCONNECT SWITCH OR SAFETY SWITCH		
	MOTOR STARTER		
	WALL HEATER		
	MOTOR AND DISCONNECT SWITCH		
	MOTOR, STARTER AND DISCONNECT SWITCH		
	FIRE SMOKE DAMPER		
	MOTOR SNAP SWITCH WITH THERMAL OVERLOAD		
	THERMAL OVERLOAD PILOT LIGHT SWITCH		
	HORSE POWER RATED MOTOR SNAP SWITCH WITHOUT THERMAL OVERLOAD PROTECTION.		
	PUSHBUTTON		
	2-WAY START AND STOP PUSHBUTTON		
	"OPEN-CLOSE-STOP" PUSH-BUTTON, FURNISHED WITH POWER OPERATED DOOR, INSTALLED BY CONTRACTOR, +42" AFF.		
TELECOMMUNICATIONS			
	VOICE ONLY OUTLET, PROVIDE 3/4" EMPTY CONDUIT FROM OUTLET BOX INTO CEILING CAVITY. SUBSCRIPT "H" DENOTES OUTLET SHALL BE HORIZONTALLY MOUNTED ABOVE COUNTER.		
	DATA ONLY OUTLET, PROVIDE 3/4" EMPTY CONDUIT FROM OUTLET BOX INTO CEILING CAVITY. SUBSCRIPT "H" DENOTES OUTLET SHALL BE HORIZONTALLY MOUNTED ABOVE COUNTER.		
	COMBINATION VOICE AND DATA OUTLET, PROVIDE 3/4" EMPTY CONDUIT FROM OUTLET BOX INTO CEILING CAVITY. SUBSCRIPT "H" DENOTES OUTLET SHALL BE HORIZONTALLY MOUNTED ABOVE COUNTER.		
	CABLE TV OR SATELLITE TV JACK. PROVIDE COAXIAL CABLE TO TV HEAD END.		
	WIRELESS INTERNET ACCESS POINT		
FIRE ALARM SYSTEM			
	FIRE ALARM CONTROL PANEL		
	FIRE ALARM ANNUNCIATOR PANEL		
	SEMI-FLUSH MOUNTED MANUAL PULL STATION		
	SEMI-FLUSH MOUNTED HORN AND STROBE UNIT, WP=WEATHERPROOF		
	SEMI-FLUSH MOUNTED STROBE UNIT		
	SEMI-FLUSH MOUNTED HORN UNIT		
	CEILING MOUNTED PHOTOELECTRIC SMOKE DETECTOR		
	SEMI-FLUSH MOUNTED SPEAKER AND STROBE UNIT, WP=WEATHERPROOF		
	DUCT DETECTOR REMOTE TEST SWITCH		
	PHOTOELECTRIC DUCT MOUNTED SMOKE DETECTOR		
	CEILING MOUNTED HEAT DETECTOR		
	MAGNETIC DOOR HOLDER		
	TAMPER SWITCH		
	FLOW SWITCH		
	ADDRESSABLE INTERFACE MODULE		
	FIRE ALARM WIRING. SQUARE INDICATES NETWORK CABLE, HATCHES INDICATE 24VDC.		
SECURITY SYSTEM			
	CLOSED CIRCUIT VIDEO SURVEILLANCE CAMERA P=PAN, T=TILT, Z=ZOOM		
	CARD READER		
	CARD READER WITH KEYPAD		
	BALANCED MAGNETIC SWITCH		
	PASSIVE INFRARED DETECTOR		
DEMOLITION			
	CEILING MOUNTED LIGHTING FIXTURE. SUBSCRIPT "R" DENOTES FIXTURE SHALL BE RELOCATED, SEE LIGHTING PLAN		
	WALL MOUNTED LIGHTING FIXTURE. SUBSCRIPT "R" DENOTES FIXTURE SHALL BE RELOCATED, SEE LIGHTING PLAN		
	2'x4' TROFFER LIGHTING FIXTURE. SUBSCRIPT "R" DENOTES FIXTURE SHALL BE RELOCATED, SEE LIGHTING PLAN		
	1'x4' SURFACE MOUNTED LIGHTING FIXTURE. SUBSCRIPT "R" DENOTES FIXTURE SHALL BE RELOCATED, SEE LIGHTING PLAN		
	2'x2' TROFFER LIGHTING FIXTURE. SUBSCRIPT "R" DENOTES FIXTURE SHALL BE RELOCATED, SEE LIGHTING PLAN		
	TELEPHONE OUTLET. SUBSCRIPT "R" DENOTES OUTLET SHALL BE RELOCATED, SEE SIGNAL PLAN		
	DATA OUTLET. SUBSCRIPT "R" DENOTES OUTLET SHALL BE RELOCATED, SEE SIGNAL PLAN		
	VOICE / DATA OUTLET. SUBSCRIPT "R" DENOTES OUTLET SHALL BE RELOCATED, SEE SIGNAL PLAN		
	RECEPTACLE FOR POWER. SUBSCRIPT "R" DENOTES RECEPTACLE SHALL BE RELOCATED, SEE POWER PLAN		
	WALL OR CEILING MOUNTED EXIT LIGHT. SUBSCRIPT "R" DENOTES LIGHT SHALL BE RELOCATED, SEE LIGHTING PLAN		
	WALL SWITCH. SUBSCRIPT "R" DENOTES SWITCH SHALL BE RELOCATED SEE LIGHTING PLAN		
	JUNCTION BOX. SUBSCRIPT "R" DENOTES JUNCTION BOX SHALL BE RELOCATED SEE PLANS		
	ELECTRICAL PANELBOARD. SUBSCRIPT "R" DENOTES PANEL SHALL BE RELOCATED SEE PLANS		
	MOTOR. SUBSCRIPT "R" DENOTES FIXTURE SHALL BE RELOCATED, SEE PLANS		
	DISCONNECT OR SAFETY SWITCH. SUBSCRIPT "R" DENOTES FIXTURE SHALL BE RELOCATED, SEE PLANS		

DIVISION 16 - ELEC. SPECIFICATIONS	
A. GENERAL:	
1. ALL ELECTRICAL PRODUCTS AND THEIR INSTALLATION SHALL BE UL LISTED AND COMPLY WITH THE 2011 NATIONAL ELECTRICAL CODE (NEC) AND 2009 INTERNATIONAL CODES, PERTINENT STATE AND LOCAL CODES AND ALL INSPECTION AUTHORITIES HAVING JURISDICTION.	
2. PROCURE ALL LICENSES AND CERTIFICATES AND PAY ALL FEES ASSOCIATED REQUIRED TO PERFORM THE DIVISION 16 WORK. COORDINATE THE ELECTRICAL WORK WITH THE WORK OF ALL OTHER TRADES. CLEAN AND REPLACE ANY DAMAGED PRODUCTS AT CONCLUSION OF WORK.	
B. BASIC METHOD AND MATERIALS:	
1. MATERIALS AND EQUIPMENT FURNISHED BY THE CONTRACTOR SHALL BE NEW.	
2. ALL WIRING SHALL BE INSTALLED IN A CONTINUOUS RACEWAY. WIRING SHALL BE RUN CONCEALED IN FINISHED ROOMS. IN UNFINISHED SPACES, EXPOSED CONDUIT SHALL BE ROUTED AT RIGHT ANGLES TO BUILDING CONSTRUCTION.	
C. RACEWAYS AND FITTINGS:	
1. EXPOSED EXTERIOR, INTERIOR WHERE SUBJECT TO DAMAGE: RIGID CONDUIT, HOT DIPPED GALVANIZED CONDUIT, MINIMUM 3/4", UNLESS OTHERWISE NOTED.	
2. INTERIOR: THIN WALL CONDUIT, GALVANIZED WITH COMPRESSION TYPE CONNECTORS AND FITTINGS.	
3. BOXES: CODE-GAUGE, GALVANIZED STEEL BOXES, 4-INCH OR LARGER AS REQUIRED. INCLUDE PLASTER-RINGS FOR RECESSED BOXES. PROVIDE CAST METAL BOXES WITH NEOPRENE GASKETS IN WET AND OUTSIDE LOCATIONS.	
D. CONDUCTORS:	
1. ALL CONDUCTORS SHALL BE 600V, COPPER, THHN/THWN IN DRY LOCATIONS AND THHN-2 IN DAMP/WET LOCATIONS.	
2. CONDUCTORS SHALL BE SOLID IN SIZES UP TO #10 AND STRANDED FOR SIZES #8 AND LARGER.	
3. MINIMUM WIRE SIZE SHALL BE #12 AWG UNLESS OTHERWISE NOTED.	
E. WIRING DEVICES:	
1. SWITCHES AND RECEPTACLES SHALL BE OF THE SPECIFICATION GRADE, 20A. COLOR SHALL BE IVORY.	
2. PROVIDE MATCHING COVERPLATES IN FINISHED AREAS AND GALVANIZED STEEL COVERPLATES IN UNFINISHED AREAS.	
3. PROVIDE PANEL AND CIRCUIT ID ON RECEPTACLE COVERPLATES AND SWITCHES SERVING REMOTE DEVICES.	
F. DISTRIBUTION EQUIPMENT:	
1. PROVIDE EQUIPMENT FROM ONE OF THE FOLLOWING MANUFACTURERS; GE, SIEMENS, SQUARE D OR CUTLER-HAMMER. ENCLOSURES SHALL BE NEMA RATED AS REQUIRED BY THE NEC FOR THE LOCATION INSTALLED. ALL ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH DISCONNECTS AS SHOWN ON THE DRAWINGS OR AS REQUIRED BY THE NEC.	
2. DISCONNECTS: HEAVY-DUTY TYPE, RATINGS AS INDICATED.	
G. GROUNDING:	
1. PROVIDE A GREEN GROUNDING CONDUCTOR IN ALL RACEWAYS.	
H. LIGHTING FIXTURES:	
1. LIGHTING CONTROLS: WATTSTOPPER DW-100 DUAL TECHNOLOGY LINE VOLTAGE WALL SWITCH OCCUPANCY SENSOR.	
I. LOW VOLTAGE ROUGH-IN-S:	
1. TELEPHONE/DATA: PROVIDE A TWO-GANG BACKBOX WITH SINGLE-GANG MUDRING, 3/4" STUBBED UP INTO ACCESSIBLE CEILING SPACE WITH INSULATED BUSHING AND CAT 5e CABLE. NUMBER OF CABLES INDICATED BY NUMBER ADJACENT TO DEVICE.	
2. TV: PROVIDE A TWO-GANG BACKBOX WITH SINGLE-GANG MUDRING, 3/4" STUBBED UP INTO ACCESSIBLE CEILING SPACE WITH INSULATED BUSHING AND PULLSTRING.	
3. SLEEVES: PROVIDE 2" WITH INSULATED BUSHINGS IN CEILING SPACE STUBBED FROM EACH ROOM INTO THE ADJACENT HALLWAY.	
J. FIRE ALARM:	
1. EXTEND EXIST HARD-WIRED NOTIFIER BY HONEYWELL SYSTEM.	
2. DEVICES: STROBE UNITS WITH CANDELA RATINGS AS INDICATED.	
K. DEMOLITION:	
1. DEMOLITION PLAN IS BASED ON CASUAL FIELD OBSERVATIONS. VERIFY FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS ARE AS SHOWN ON DRAWINGS. REPORT DISCREPANCIES TO OWNER BEFORE DISTURBING EXISTING INSTALLATION. BEGINNING OF DEMOLITION MEANS INSTALLER ACCEPTS EXISTING CONDITIONS.	
2. REMOVE CIRCUITS SERVING DEMOLISHED DEVICES BACK TO SOURCE OR NEAREST DEVICE TO REMAIN. EXTEND CIRCUITING AS REQUIRED TO MAINTAIN CONTINUITY TO DOWNSTREAM DEVICES TO REMAIN.	

ELECTRICAL ABBREVIATIONS	
SYMBOL	DESCRIPTION
A, AMP	AMPERES
AC	ALTERNATING CURRENT
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERES INTERRUPTING CAPACITY (SYMMETRICAL)
BFC	BELOW FINISHED CEILING
BWE	BAKED WHITE ENAMEL
C	CONDUIT
CC	CIRCUIT
CC	DIRECT CURRENT
(E), (EX), EX	EXISTING
EC	EMPTY CONDUIT
EMT	ELECTRICAL METALLIC TUBING
EPO	EMERGENCY POWER OFF
EXT.	EXTERIOR
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE METALLIC CONDUIT
FPN	FUSED PER NAMEPLATE
(F)	FUTURE
GRD	GROUND
GRC	GALVANIZED RIGID CONDUIT
HP	HORSEPOWER
IMP	INTERMEDIATE METALLIC CONDUIT
INT.	INTERIOR
J-BOX	JUNCTION BOX
KAIC	KILOAMPERES INTERRUPTING CAPACITY (SYMMETRICAL)
K.E.C.	KITCHEN EQUIPMENT CONTRACTOR
KV	KILOVOLTS
KVA	KILOVOLT-AMPS
KW	KILOWATT
MA	MINIMUM CIRCUIT AMPACITY
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MINIMUM CIRCUIT AMPACITY
MLO	MAIN LUGS ONLY
MM	MILLIMETER
MTD	MOUNTED
(N)	NEW
N	NEUTRAL CONDUCTOR (GROUNDED CIRCUIT CONDUCTOR)
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
P	PHASE OR POLE
PBL	PANELBOARD
P.O.S.	POINT OF SALE SYSTEM
PVC	POLYVINYL CHLORIDE CONDUIT (SCHEDULE 40)
(R)	RELOCATED
SEC	SECTION
T, XFMR	TRANSFORMER
UC	UNDER COUNTER
U.N.O.	UNLESS NOTED OTHERWISE
V	VOLTAGE OR VOLTS
W	WATTS
WP	WIRELESS ACCESS POINT
WP	WEATHERPROOF
WT	WRING TROUGH

ELECTRICAL SHEET INDEX	
Sheet Number	Sheet Title
E001	ELECTRICAL LEGEND AND SPECIFICATIONS
ED101	ELECTRICAL DEMOLITION PLAN
E100	ELECTRICAL SITE PLAN
E110	ELECTRICAL BASEMENT PLAN
E111	ELECTRICAL LIGHTING PLAN
E121	ELECTRICAL POWER AND SIGNAL PLAN
E500	ELECTRICAL ONE-LINE DIAGRAM
E600	ELECTRICAL PANEL SCHEDULES

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 City of Fountain
 116 S. Main Street
 Fountain, CO 80817

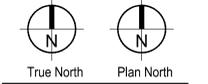
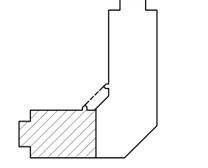


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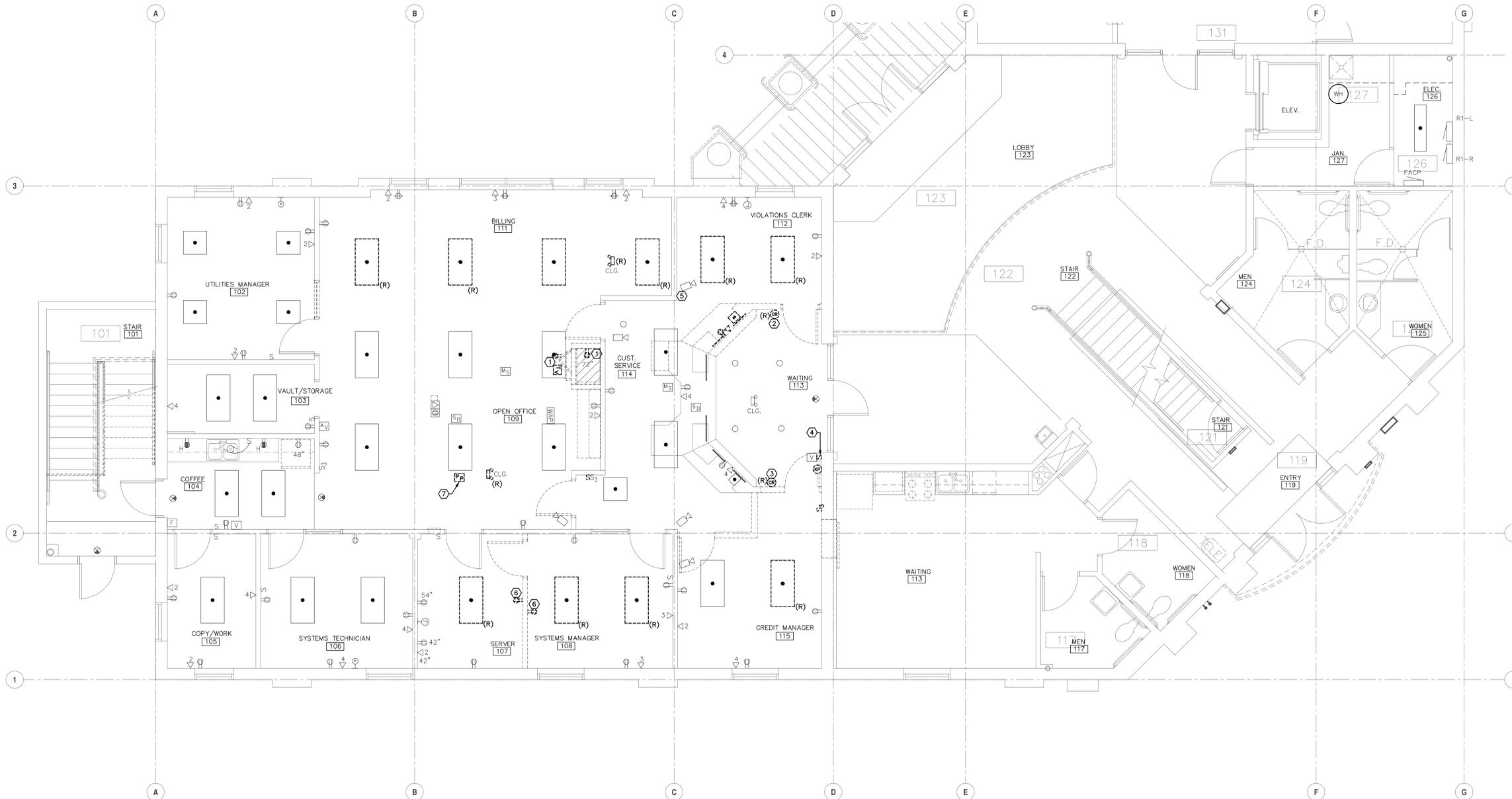
ELECTRICAL LEGEND AND SPECIFICATIONS
E001
 Project No. 15.009 PEC# 15027
 The LKA Partners Incorporated

GENERAL NOTES

- A. ELECTRICAL EQUIPMENT SHOWN BOLD/DASHED SHALL BE REMOVED. REMOVE EQUIPMENT AND ASSOCIATED CONDUCTORS BACK TO SOURCE OR TO NEAREST DEVICE ON THE SAME CIRCUIT TO REMAIN. EQUIPMENT SHOWN LIGHT IS EXISTING TO REMAIN. MAINTAIN CONTINUITY OF CONDUCTORS SERVING DEVICES TO REMAIN. IF NECESSARY DUE TO BUILDING DEMOLITION, REROUTE AND REINSTALL CONDUCTORS AND RACEWAYS SERVING DEVICES TO REMAIN.
- B. VERIFY WITH THE OWNER IF ANY DEMOLISHED EQUIPMENT IS TO BE KEPT BY THE OWNER. THE OWNER MAINTAINS THE RIGHT TO RETAIN ANY ELECTRICAL EQUIPMENT AND CONDUCTORS REMOVED. THIS EQUIPMENT SHALL BE CAREFULLY REMOVED BY THE CONTRACTOR AND STORED ON THE PROPERTY AT A LOCATION DESIGNATED BY THE OWNER. ALL DEMOLISHED EQUIPMENT NOT KEPT BY THE OWNER SHALL BE LEGALLY DISPOSED OF OFF SITE BY THE CONTRACTOR.
- C. ALL UNUSED WIRING AND RACEWAYS SHALL BE DEMOLISHED. RACEWAYS MAY BE ABANDONED IN PLACE ONLY IF THEY ARE LOCATED UNDER FLOOR SLABS OR ARE CONCEALED IN EXISTING INACCESSIBLE WALLS OR CEILINGS. REMOVE ANY EXISTING CONDUCTORS. CUT RACEWAYS TO BE CONCEALED WHERE THEY PASS THROUGH INACCESSIBLE LOCATIONS.
- D. FIELD VERIFY ALL EXISTING CIRCUITS PRIOR TO BEGINNING DEMOLITION. NOTIFY ENGINEER IF DISCREPANCIES ARE FOUND.
- E. REFER TO MECHANICAL DEMOLITION DRAWINGS. DEMOLISH ALL ASSOCIATED CONDUIT, CONDUCTORS, CONTROLS, DISCONNECTS, ETC.
- F. REMOVE ALL ABANDONED LOW VOLTAGE WIRING INCLUDING TELEPHONE / DATA NETWORK CABLING, CATV CABLING, AND SECURITY SYSTEM CABLING.

KEYED NOTES

- ① MAINTAIN CIRCUIT CONTINUITY WHEN DEVICE IS REMOVED.
- ② TO BE RELOCATED TO CUSTOMER SERVICE 111 NEW JUNCTION BOX ON NEW BACK WALL. SEE SHEET E121.
- ③ TO BE RELOCATED TO JUNCTION BOX ON SECOND FLOOR STAIR 201 BY THE ENTRANCE DOOR TO COFFEE 205. SEE SHEET E121.
- ④ RE-USE EXISTING BOX AND CONDUIT, FOR NEW 3-WAY SWITCH, AS MUCH AS PRACTICAL. SEE SHEET E111.
- ⑤ EXISTING TO REMAIN AND TO BE RELOCATED BY OWNER IF NECESSARY.
- ⑥ EXISTING RECEPTACLE SHALL BE REMOVED. EXTEND EXISTING BRANCH CIRCUIT TO NEW RECEPTACLE(S) IN ROOM. MAINTAIN CIRCUIT CONTINUITY WITH EXISTING RECEPTACLES TO REMAIN.
- ⑦ EXISTING POWER POLE SHALL BE REMOVED. EXISTING DATA CABLING MAY BE REUSED AS MUCH AS POSSIBLE AND REROUTED TO NEW DATA OUTLETS.



ELECTRICAL DEMOLITION PLAN
1/4" = 1'-0"

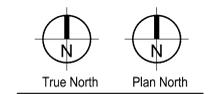
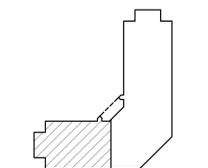


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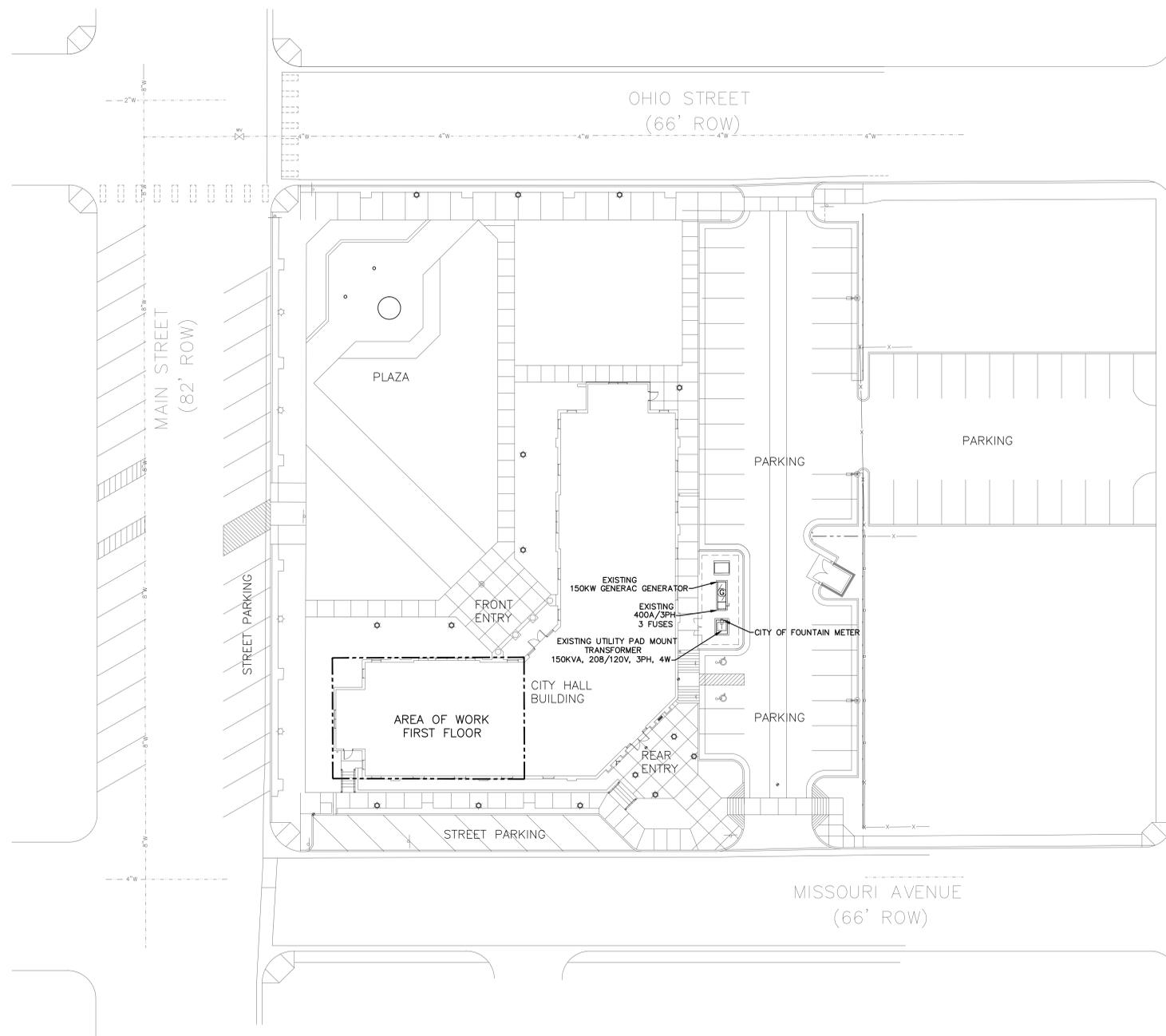


ELECTRICAL DEMOLITION PLAN

ED101

GENERAL NOTES

- A. ALL ELECTRIC UTILITY WORK SHALL BE COORDINATED WITH THE CITY OF FOUNTAIN UTILITIES.
- B. ALL WORK SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE, NFPA 70, EDITION 2011.



ELECTRICAL SITE PLAN
1" = 20'-0"

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PLANT
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Fountain, CO 80817

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**Fountain City Hall First Floor
Remodeling**

City of Fountain
116 S. Main Street
Fountain, CO 80817

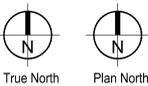
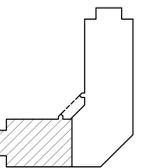


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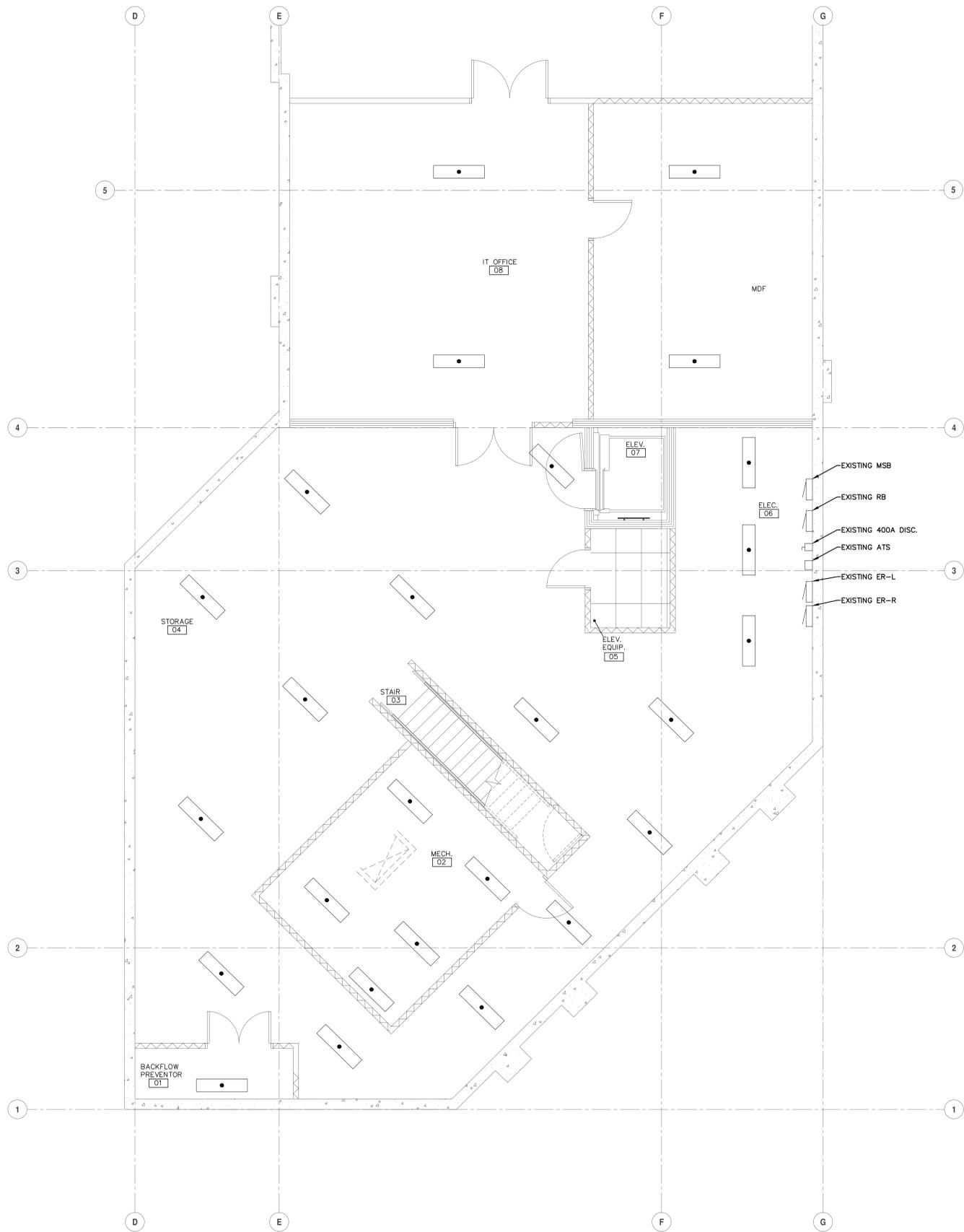
Area Key Plan



**ELECTRICAL
SITE PLAN**

E100

Project No. 15.009 PEC# 15027
The LKA Partners Incorporated



GENERAL NOTES

A. EQUIPMENT SHOWN LIGHT INDICATES EXISTING EQUIPMENT TO REMAIN.

ELECTRICAL BASEMENT PLAN
1/4" = 1'-0"

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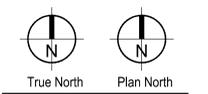
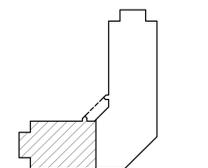


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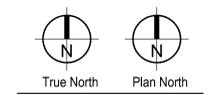
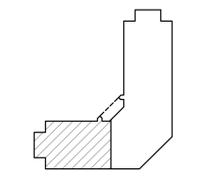
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ELECTRICAL BASEMENT PLAN
E110
Project No. 15.009 PEC# 15027
The LKA Partners Incorporated

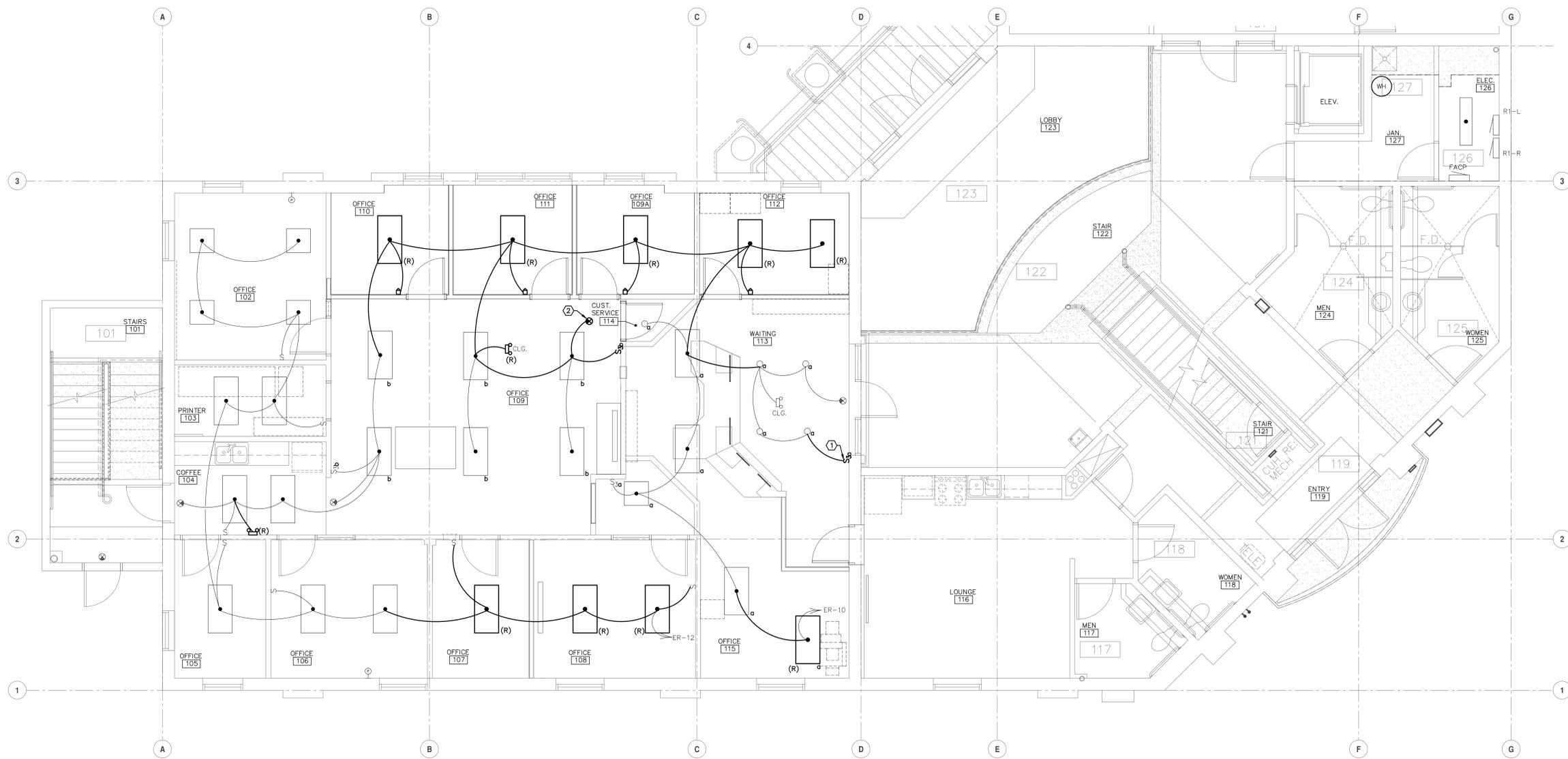


GENERAL NOTES

- A. EQUIPMENT SHOWN BOLD INDICATES NEW WORK. EQUIPMENT SHOWN LIGHT INDICATES EXISTING EQUIPMENT TO REMAIN. MAINTAIN CIRCUIT CONTINUITY WITH EQUIPMENTS TO REMAIN.
- B. THE CEILING SPACE IS USED AS AN AIR HANDLING PLENUM. ALL WIRING MATERIALS METHODS SHALL COMPLY WITH NEC REQUIREMENTS FOR PLENUMS.

KEYED NOTES

- ① RE-USE EXISTING BOX AND CONDUIT AS MUCH AS POSSIBLE.
- ② PROVIDE NEW EXIT LIGHT LITHONIA LQM-S-W-3-R-120/277-SD OR EQUAL, COMPATIBLE WITH THE EXISTING EXIT LIGHTS.



ELECTRICAL FIRST FLOOR LIGHTING PLAN
1/4" = 1'-0"

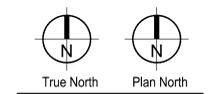
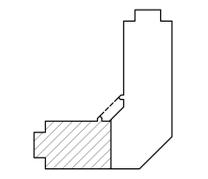


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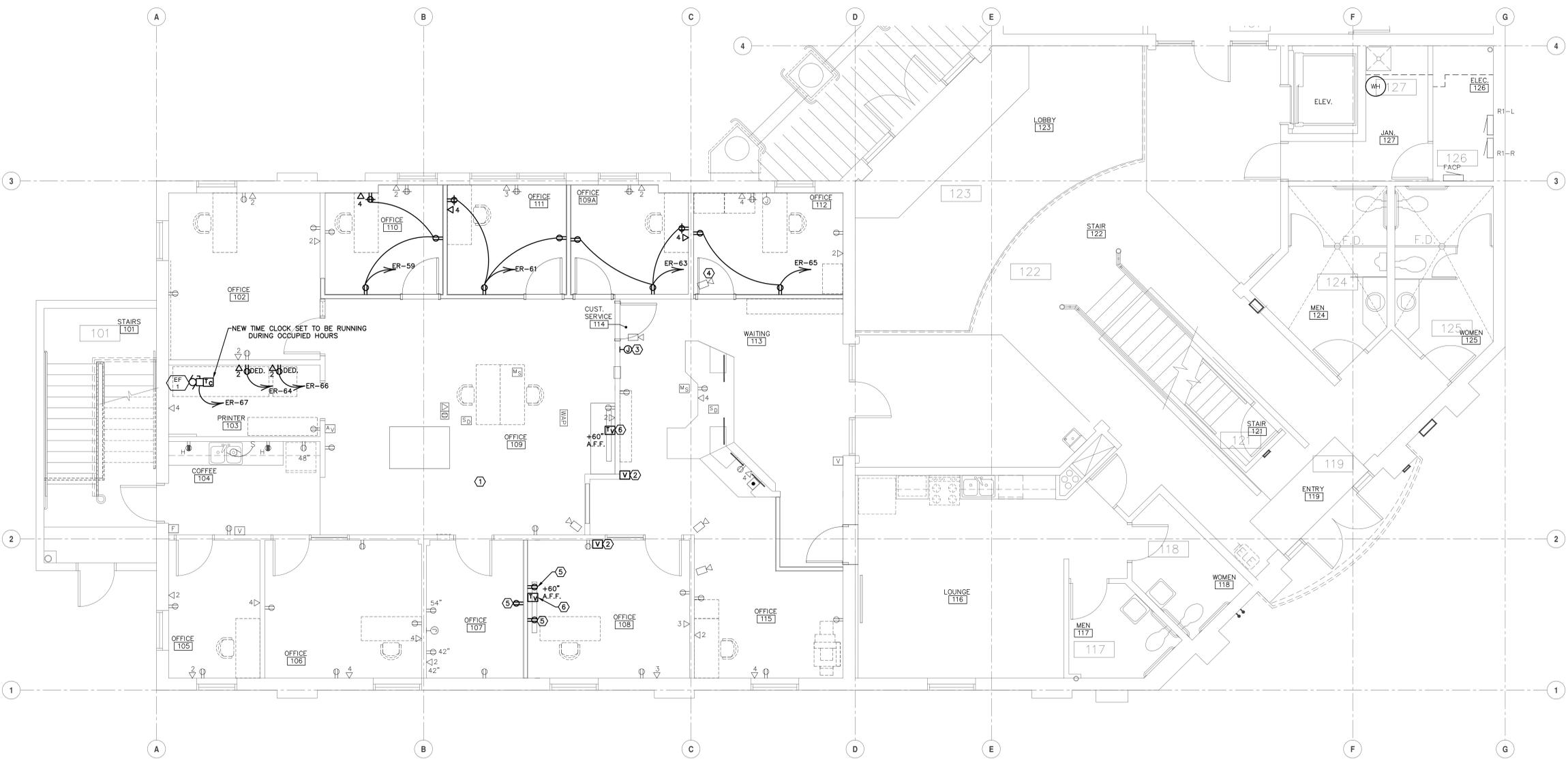
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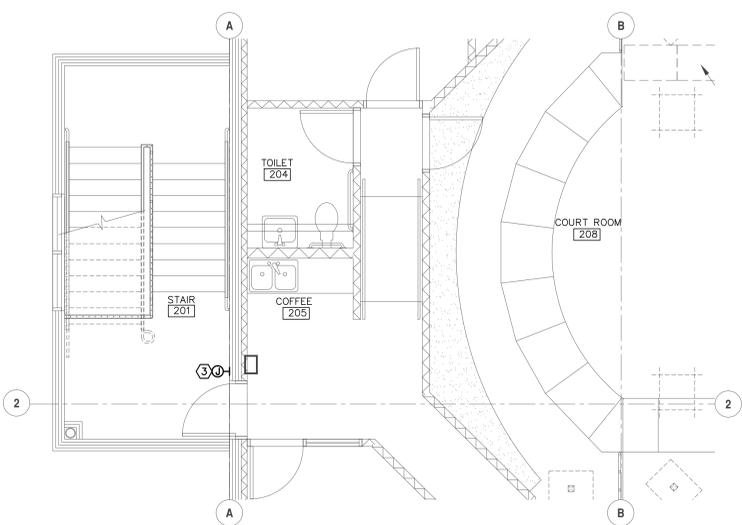
ELECTRICAL POWER AND SIGNAL PLAN
E121
 Project No. 15.009 PEC# 15027
 The LKA Partners Incorporated



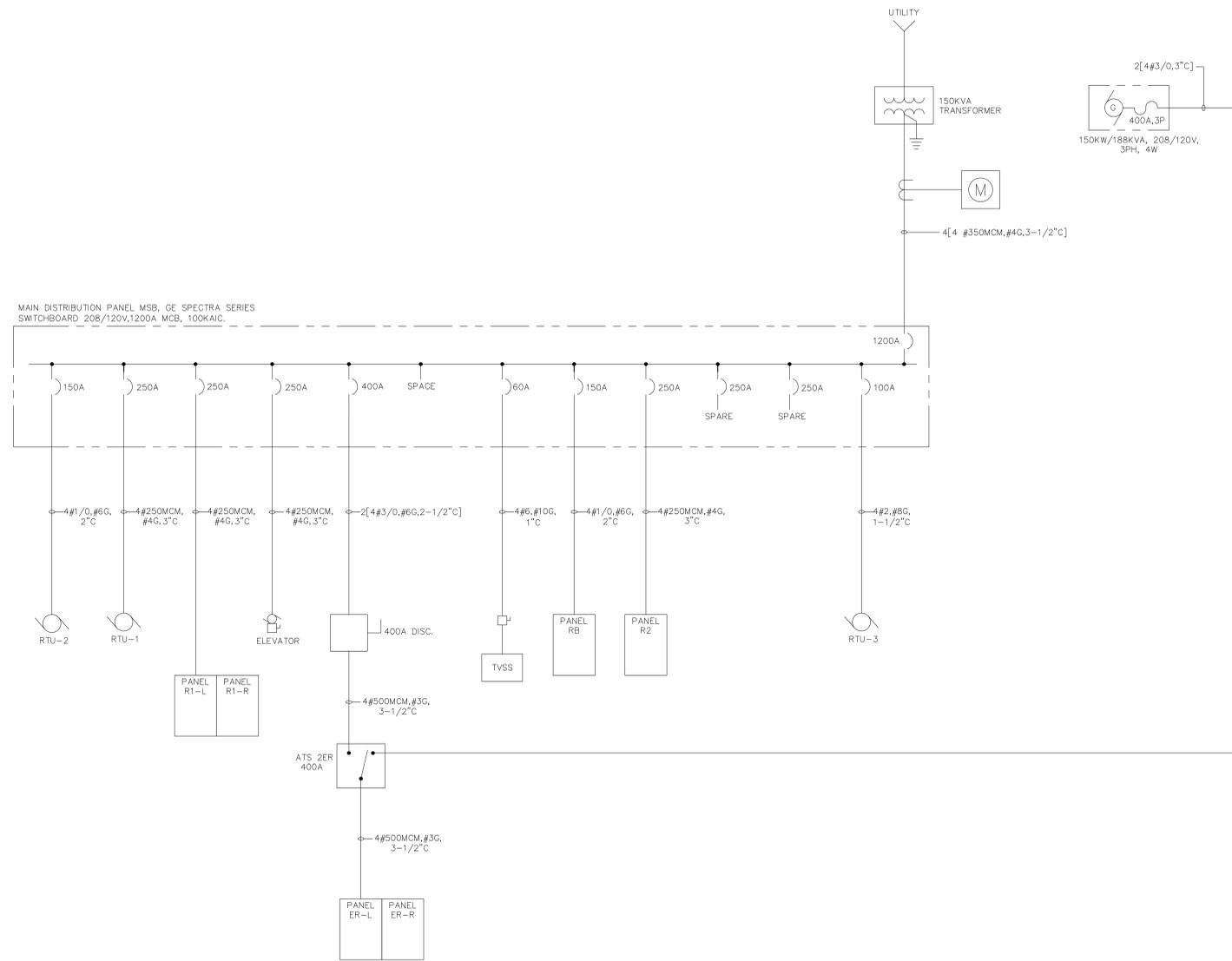
- GENERAL NOTES**
- EQUIPMENT SHOWN BOLD INDICATES NEW WORK. EQUIPMENT SHOWN LIGHT INDICATES EXISTING DEVICES OR EQUIPMENT TO REMAIN. MAINTAIN CIRCUIT CONTINUITY WITH EQUIPMENTS TO REMAIN.
 - THE CEILING SPACE IS USED AS AN AIR HANDLING PLENUM. ALL WIRING MATERIALS METHODS SHALL COMPLY WITH NEC REQUIREMENTS FOR PLENUMS.
 - UNO, FOR ALL COMMUNICATIONS PORT LOCATIONS, CONTRACTOR WILL INSTALL ALL OUTLET BOXES, 3/4" CONDUITS WITH PULL CORD AND BUSHINGS TO ACCESSIBLE CEILING SPACES. COMMUNICATIONS WIRING, PORT DEVICES, WALL PLATES, TESTING, AND TERMINATIONS BY GENERAL CONTRACTOR.

- KEYED NOTES**
- EXISTING POWER POLE SHALL BE REMOVED. EXISTING DATA CABLING MAY BE REUSED AS MUCH AS POSSIBLE AND REROUTED TO NEW DATA OUTLETS.
 - PROVIDE NEW FIRE ALARM STROBE DEVICE COMPATIBLE WITH EXISTING FIRE ALARM SYSTEM. CONNECT TO EXISTING FIRE ALARM SYSTEM.
 - PROVIDE WALL MOUNTED JUNCTION BOX AT 42" A.F.F., AND 3/4" CONDUIT WITH PULL CORD FOR ACCESS CARD READER. USE EXISTING CARD READER DEVICE IN WAITING ROOM 113. COORDINATE WITH IT DEPARTMENT FOR EXACT LOCATION OF THE DEVICE.
 - CAMERA TO BE RELOCATED BY OWNER IF NECESSARY.
 - EXTEND EXISTING BRANCH CIRCUIT TO NEW RECEPTACLE(S) IN THIS ROOM. MAINTAIN CIRCUIT CONTINUITY WITH EXISTING RECEPTABLES TO REMAIN.
 - CONNECT TO EXISTING TV CABLING SYSTEM.

ELECTRICAL FIRST FLOOR POWER AND SIGNAL PLAN
 1/4" = 1'-0"



ELECTRICAL SECOND FLOOR SIGNAL PLAN
 1/4" = 1'-0"



ELECTRICAL ONE-LINE DIAGRAM

NO SCALE

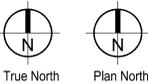
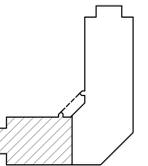


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ELECTRICAL ONE-LINE DIAGRAM E500



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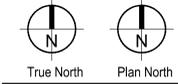
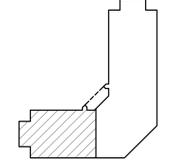


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ELECTRICAL PANEL SCHEDULES
E600

Project No. 15.009 PEC# 15027
 The LKA Partners Incorporated

PANELBOARD ER (E)																
PROJECT: FOUNTAIN CITY HALL 208/ 120 V, 3 PHASE, 4 WIRE										GENERAL NOTES:						
PROJECT NO: 15041 400 A BUS										A. THIS PANEL IS GE PANEL OF TYPE A--SERIES.						
BY: PB A MBE										B. BOLD INDICATES MODIFICATIONS MADE TO THE PANEL.						
FILE NAME: Panel ER (E) 10000 AIG RATING SURFACE MOUNTING										C.						
CCT.	BRK.	DESCRIPTION	LIGHTING	RECEPT.	MOTOR	OTHER	APPLIANCE	PH	APPLIANCE	OTHER	MOTOR	RECEPT.	LIGHTING	DESCRIPTION	BRK.	CCT.
1	20/A	ELEVATOR CAB LIGHTS	1000					A				360		ELEVATOR SUMP PUMP	20/A	2
3	20/A	ELEVATOR EQUIP. ROOM LIGHTS	100					B				300		LIGHTS STAIRWELL	20/A	4
5	15/A	ELEVATOR EQUIP. RM. RECEPTS.		520				C				200		EXIT LIGHTS	20/A	6
7	20/A	BOILER #2			1600			A						SPARE	20/A	8
9	30/A	SP-1			2700			B				1839		LIGHTS	20/A	10
11	30/A	SP-2			2700			C				884		LIGHTS	20/A	12
13	30/A	SP-3			2700			A				1700		LIGHTS #119	20/A	14
15	20/A	FACP				50		B	1000					CURT. T.2,3,4	20/A	16
17	20/A	FLOOR + WALL RECEPT RM 109		540				C						SPARE	20/A	18
19	20/A	COPIER #109		360		1200		A						SPARE	20/A	20
21	20/A	FLOOR RECEPT RM 109		360				B	360					BATTERY CHARGER	15/A	22
23	20/A	RECEPTS. #102		720				C						RESCUE ASST.	20/A	24
25	20/A	RECEPTS. #107		540				A			900			PUMP 3	30/A	26
27	20/A	RECEPTS. #107		360				B			900					28
29	20/A	RECEPTS. #107		360				C			900					30
31	20/A	RECEPTS. #111		1260				A			600			PUMP 2	20/A	32
33	20/A	RECEPTS. #112		540				B			600					34
35	20/A	RECEPT. COUNTER		540				C			600					36
37	20/A	RECEPT. #108		720				A	1000					COFFEE RECEPT. #104	20/A	38
39	20/A	RECEPT. #106		720				B						SPARE	20/A	40
41	20/A	DIMMING CAB.			100			C						SPARE	20/A	42
43	20/A	EXTERIOR LIGHTS	1000					A		2700				SERVER ROOM AC UNIT	90/A	44
45	100/	UPS				4300		B		2700						46
47	2					4300		C		2700						3 48
49	20/A	ANTENNA RECEPT.				50		A		1800				SERVER ROOM COND. UNIT	60/A	50
51	20/A	ANTENNA RECEPT.				50		B		1800						52
53		SPACE						C		1800						3 54
55	20/A	SPACE						A			720			WP RECEPT.	20/A	56
57	20/A	AIR COMPRESSOR			1400			B		6720				SUBPANEL ERS	100/A	58
59	201	NEW OFFICE 110		720				A			3840					60
61	201	NEW OFFICE 111		720				A			3840					3 62
63	201	NEW OFFICE 109A		720				B			1200			PRINTER ROOM 103	201	64
65	201	NEW OFFICE 112		360				C			1200			PRINTER ROOM 103	201	66
67	151	NEW EX. FAN ROOM 103		360	81			A			360			NEW CONF. ROOM TV	201	68
69	151	TIME CONTROL				100		B						SPACE		70
71		SPACE						C						SPACE		72
73		SPACE						A						SPACE		74
75		SPACE						B						SPACE		76
77		SPACE						C						SPACE		78
79		SPACE						A						SPACE		80
81		SPACE						B						SPACE		82
83		SPACE						C						SPACE		84

LOAD SUMMARY									
LOAD TYPE:	PH A	PH B	PH C	TOTALS		DEMAND FACTOR	DEMAND KVA		
LIGHTING	3.70	2.24	1.06	7.02	KVA	ALL 7.02	1.25	8.78	
RECEPTACLES	8.52	10.62	8.80	27.94	KVA	1ST 18KVA 10.00 REMAINING 17.94	1.00 0.90	10.00 8.97	
MOTORS	5.88	5.60	4.20	15.68	KVA	LARGEST 6.10 REMAINING 9.58	1.25 1.00	10.13 7.58	
OTHER	5.75	10.36	8.90	25.01	KVA	ALL 25.01	1.25	31.26	
APPLIANCE	1.00	0.00	0.00	1.00	KVA	ALL 1.00	1.00	1.00	
TOTALS	24.85	28.82	22.96	76.65	KVA				

MINIMUM PANELBOARD AMPACITY: 373.92

LOAD SUMMARY - EXISTING MAIN DISTRIBUTION PANEL MSB	
EXISTING LOADS:	
UTILITY METERED 12 MO. PEAK DEMAND - PER UTILITY COMPANY	96.0 KW
CALCULATE AT 125% PER NEC PARAGRAPH 220.87:	120.0 KW
ASSUME .9 PF (ESTIMATED):	133.3 KVA
TOTAL EXISTING LOAD:	133.3 KVA
NEW LOADS:	
RECEPTACLES	6.0 KVA
MOTOR LOAD	0.1 KVA
TOTAL NEW LOADS:	6.1 KVA
TOTAL NEW CALCULATED LOAD:	139.4 KVA 167.7 AMPS