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2021 Edition

**TABLE 3E CODE INFORMATION FOR ADDITIONS, ALTERATIONS, OR CHANGE OF OCCUPANCY TO AN EXISTING STRUCTURE**

**TYPE OF PROJECT:**  
 Alteration (IEBC Chaps. 7, 8 & 9)     Addition (IEBC Chap. 11)     Change of Occupancy (IEBC Chap. 10)

**METHOD OF COMPLIANCE:**  
 (Check only one Option and all items that apply under that Option.)

Option 1: Prescriptive Compliance Method (IEBC Chapter 5)  
 Option 2: Work Area Compliance Method (IEBC Chaps. 6-12)  
 Alteration Level 1, minor including reroofing (IEBC Chap. 7)  
 Alteration Level 2, reconfigurations of space (IEBC Chap. 8)  
 Alteration Level 3, work area exceeds 50% (IEBC Chap. 9)  
 Aggregate area of building: 112,355 SF  
 Work area: 972 SF

Option 3: Performance Compliance Method (IEBC Chap. 13)

Original Building Code and Edition Applicable at time of Construction: 1975

Existing Sprinkler System?     Yes     No  
 Existing Fire Alarm System?     Manual     Auto  
 Seismic Evaluation Required?     Yes     No  
 Major Facility Project? (See §48-52-810(10)(a))     Yes     No  
 Change of Occupancy:     Yes     No  
 Existing Occupancy Classification(s): \_\_\_\_\_  
 New Occupancy Classification(s): \_\_\_\_\_

**Historic Building (IEBC Chapter 12):**  
 Preservation     Rehabilitation     Restoration     Reconstruction

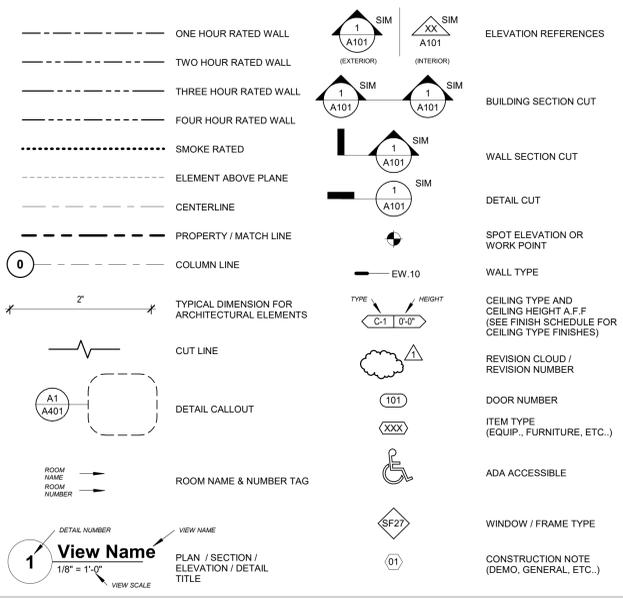
**APPLICABLE CODES**

INTERNATIONAL EXISTING BUILDING CODE (IEBC), 2018 EDITION  
 INTERNATIONAL FIRE CODE (IFC), 2018 EDITION  
 INTERNATIONAL MECHANICAL CODE (IMC), 2018 EDITION  
 INTERNATIONAL PLUMBING CODE (IPC), 2018 EDITION  
 NATIONAL ELECTRIC CODE (NEC) (NFPA 70), 2017 EDITION  
 2017 EDITION OF THE ICC A117.1 ACCESSIBLE AND USEABLE BUILDINGS AND FACILITIES  
 STATE FIRE MARSHAL RULES, REGULATIONS, AND POLICIES

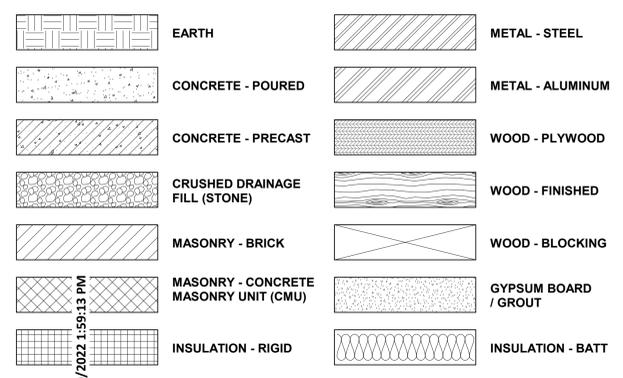
**COMMON ABBREVIATIONS**

A ACQUIS	ACOUSTICAL	M MAX	MAXIMUM
APC	ACOUSTICAL PANEL CEILING	MBM	METAL BUILDING MANUFACTURER
ADJ	ADJACENT OR ADJUSTABLE	MCJ	MASONRY CONTROL JOINT
AFB	ABOVE FINISHED FLOOR	MECH	MECHANICAL
AJC	ARCH. JOINT COVER	MEMB	MEMBRANE
AJSE	ARCH. JOINT SYS. FLOORS	MEZZ	MEZZANINE
AJSM	ARCH. JOINT SYS. GYPSUM WALLS, SOFFITS, ETC.	MFR, MFG	MANUFACTURED, MANUFACTURER
AJSM	ARCH. JOINT SYS. MASONRY WALLS	MG	MONOLITHIC FLOAT GLASS
ALT	ALTERNATE	MOT	MONOLITHIC FLOAT GLASS, TEMPERED
ALUM	ALUMINUM	MIN	MINIMUM
ARCH	ARCHITECT ARCHITECTURAL	MTD	MOUNTED
ASBY	ASSEMBLY	MTL, MET	METAL
@	AT		
A.V.	AUDIO VISUAL	N NA, N/A	NOT APPLICABLE
A.W.	ALUMINUM WINDOW	NOM	NOMINAL SIZE
AWP	ACOUSTICAL WALL PANEL	NTS	NOT TO SCALE
B BLDG	BUILDING	O OC	ON CENTER
BUR	BUILT UP ROOF, ROOFING	OPCI	OWNER PROVIDED, CONTRACTOR INSTALLED
C CFS	CONCRETE FLOOR SEALER	OPRO	OWNER PROVIDED, OWNER INSTALLED
CG	CORNER GUARD	OPT	OPTIONAL
CJ	CONSTRUCTION JOINT	P P	PAINT
CL, C.	CENTER LINE	P.C. / PC	POLISHED CONCRETE
CMU	CONCRETE MASONRY UNIT	PE	PROFESSIONAL ENGINEER
C.O.	CLEAN OUT	PLAM	PLASTIC LAMINATE
CONC	CONCRETE	PLYWD	PLYWOOD
CONSTR	CONSTRUCTION, CONSTRUCT	PL	PLATE
CONT	CONTINUOUS	PLUMB	PLUMBING
CRPT	CARPET	PRE-MFR	PRE-MANUFACTURED
CPCI	CONTRACTOR PROVIDED, CONTRACTOR INSTALLED	PSFH	PENETRATING SILICANT FLOOR HARDENER
CPOI	CONTRACTOR PROVIDED, OWNER INSTALLED	P.T	PORTLAND CEMENT TREATED
CTB	CERAMIC TILE BASE	PTB	PORCELAIN TILE BASE
CTF	CERAMIC TILE FLOOR	PTW	PORCELAIN TILE WALL
CTW	CERAMIC TILE WALL	Q QTY	QUANTITY
C.W.	CURTAIN WALL	QT	QUARRY TILE
D DEFS	DIRECT EXTERIOR FINISH SYSTEM	R RB	RUBBER BASE
DA	DIAMETER	REC	RECREATION
DS	DOWNSPOUT	R	RADIUS
DWG(S)	DRAWING, DRAWINGS	RD	ROOF DRAIN
E E.J., EXP. JT.	EXPANSION JOINT	REQD	REQUIRED
ELEC	ELECTRIC, ELECTRICAL	REINF	REINFORCING
EQ	EQUAL	RESIL	RESILIENT FLOORING
ERE	EPOXY RESINOUS FLOORING	RH	ROOF HATCH
EW	ELECTRIC WATER COOLER	RL, RDL	ROOF DRAIN LEADER
EXIST	EXISTING	RWB	RESILIENT WALL BASE
EXP	EXPANSION	RFG	ROOFING
EXT	EXTERIOR	RO	ROUGH OPENING
F FD	FLOOR DRAIN	S SB	SPLASH BLOCK
FIN	FINISHED	SC	SEALED CONCRETE
FF, EL, F.F.E.	FINISHED FLOOR ELEVATION	SCHED	SCHEDULE
FG	FLOOR	SCD	SOLID CORE WOOD DOOR
FEC	FIRE EXTINGUISHER CABINET	SF, SQ. FT.	SQUARE FOOT
FL, FLR	FLOOR	S.F.	STONEFRONT
FRG	FIRE RATED GLAZING	SFH	SILICANT FLOOR HARDENER
FSCW	FLUSH SOLID CORE WOOD	SHL	SHELF
G GA	GAUGE	STL	STEEL
GEN CONT	GENERAL CONTRACTOR	STOR	STORAGE
GWB, GYP BD	GYPSUM WALL BOARD, "SHEET ROCK"	STRUCT	STRUCTURAL
		SY, SQ. YD.	SQUARE YARD
H HCP	HANDICAPPED	T TLT, T	TOILET
HT	HEIGHT, HIGH	TOP	TOP OF FOOTING
H.M.M	HOLLOW METAL	TOS	TOP OF STEEL
HORIZ	HORIZONTAL	TRTD	TREATED
HPL	HIGH PRESSURE LAMINATE	TYP	TYPICAL
HVAC	HEATING VENTILATION and AIR CONDITIONING	U UC	UNDERCUT
HR	HOUR	U.N.O	UNLESS NOTED OTHERWISE
I IG	INSULATING GLASS	UR	UNLESS OTHERWISE NOTED URINAL
IGE	INSULATING GLASS, LOW-E, TEMPERED	V V	VENT
INSUL	INSULATION	VCT	VINYL COMPOSITION TILE
IPS	INTERIOR PANEL SIGN	VCIT	VINYL CUSHION TUFTED TEXTILE
ITIN	ITINERANT	VERT	VERTICAL
J JT	JOINT	VTR	VENT THROUGH ROOF
L L	LENGTH	VWC	VINYL WALL COVERING
LAV	LAVATORIES	W W/	WITH
LE INS	LOOSE FILL INSULATION	WC.O	WATER CLOSET
LL	LIVE LOAD	W	WALL, CLEAN OUT
LT GA	LIGHT GAUGE	WD	WOOD
LVT	LUXURY VINYL TILE	WG	WIRE GLASS
		WW, WWF	WELDED WIRE MESH OR FABRIC

**TYPICAL SYMBOLS LEGEND**



**TYPICAL MATERIALS LEGEND**



**ARCHITECTURAL**



1070 SOUTH LAKE DRIVE  
SUITE J  
LEXINGTON, SC 29073  
P: (803) 356-0507

**PLUMBING & MECHANICAL**



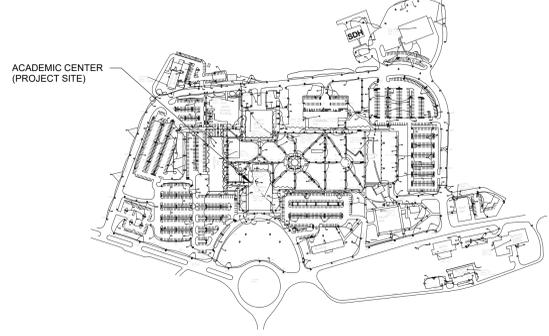
FELKEL & HASTINGS MECHANICAL  
ENGINEERS  
2725 CYPRESS STREET  
COLUMBIA, SC 29205  
P: (803) 771-0185

**ELECTRICAL**



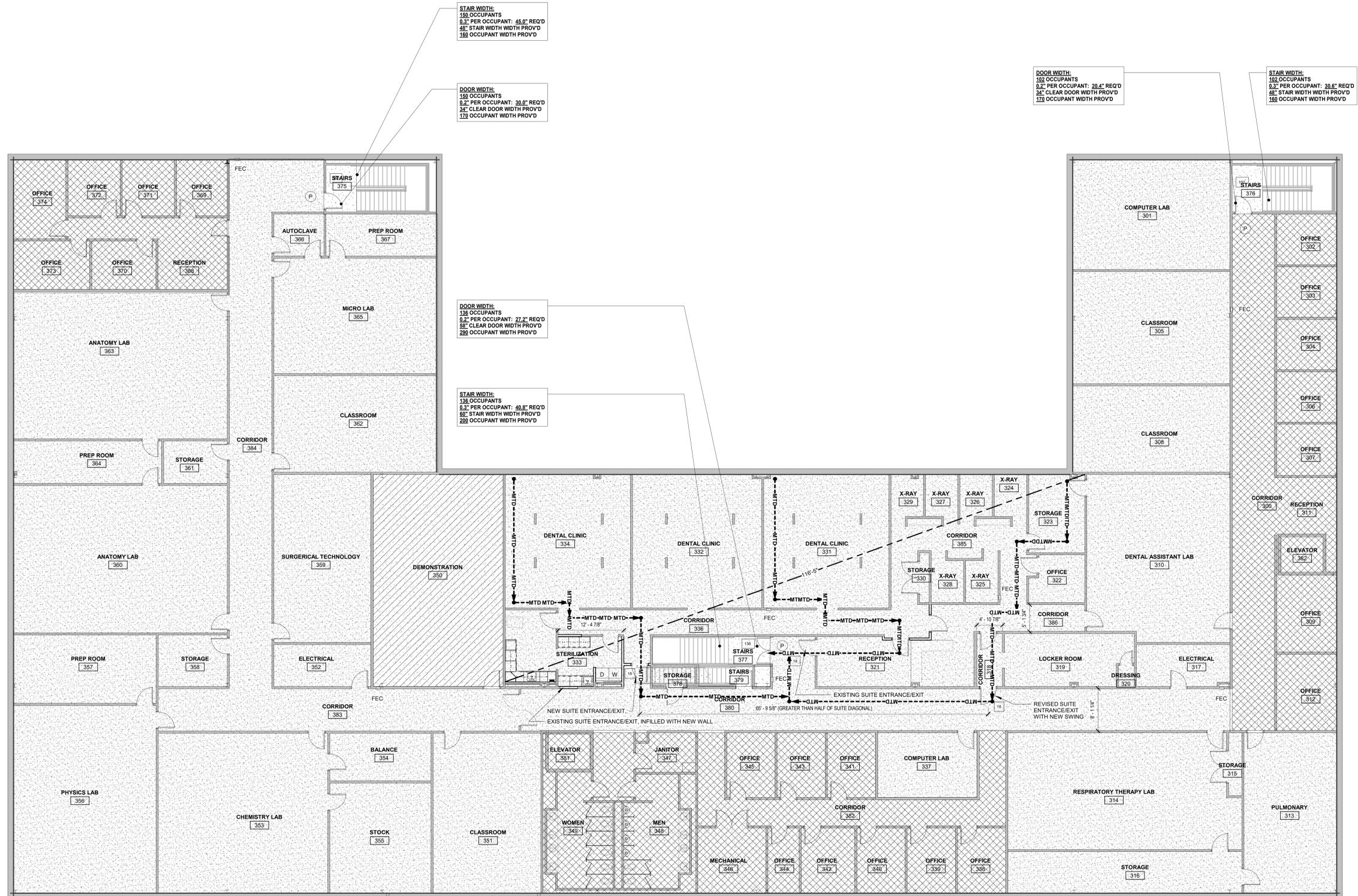
ETI ENGINEERING, LLC  
5725 BUSH RIVER ROAD  
COLUMBIA, SC 29212  
P: (803) 233-9396

**LOCATION MAP**



10/30/2022 1:59:13 PM

LIFE SAFETY SYMBOL LEGEND	
(P)	DOOR TO RECEIVE PANIC HARDWARE
(H)	DOOR TO RECEIVE HOLD OPEN DEVICE
[FEC]	FIRE EXTINGUISHER CABINET
---	1-HR RATED
---	2-HR RATED
→	EGRESS PATH TO EXIT
→ MTD	MAX TRAVEL DISTANCE TO EXIT
→ DF	MAX TRAVEL DISTANCE TO DRINKING FOUNTAIN
[Diagonal Hatching]	XX OCCUPANCY (XX)
[Cross-hatching]	XX OCCUPANCY (XX)
[Stippled]	XX OCCUPANCY (XX)



STAIR WIDTH:  
150 OCCUPANTS  
0.3' PER OCCUPANT: 45.0' REQ'D  
48" STAIR WIDTH WIDTH PROV'D  
180 OCCUPANT WIDTH PROV'D

DOOR WIDTH:  
150 OCCUPANTS  
0.2' PER OCCUPANT: 30.0' REQ'D  
34" CLEAR DOOR WIDTH PROV'D  
170 OCCUPANT WIDTH PROV'D

DOOR WIDTH:  
138 OCCUPANTS  
0.2' PER OCCUPANT: 27.2' REQ'D  
38" CLEAR DOOR WIDTH PROV'D  
200 OCCUPANT WIDTH PROV'D

STAIR WIDTH:  
138 OCCUPANTS  
0.3' PER OCCUPANT: 40.8' REQ'D  
60" STAIR WIDTH WIDTH PROV'D  
200 OCCUPANT WIDTH PROV'D

DOOR WIDTH:  
102 OCCUPANTS  
0.2' PER OCCUPANT: 20.4' REQ'D  
34" CLEAR DOOR WIDTH PROV'D  
170 OCCUPANT WIDTH PROV'D

STAIR WIDTH:  
102 OCCUPANTS  
0.2' PER OCCUPANT: 20.4' REQ'D  
42" STAIR WIDTH WIDTH PROV'D  
160 OCCUPANT WIDTH PROV'D



**MIDLANDS  
TECHNICAL COLLEGE  
DENTAL CLINIC  
RENOVATION  
AIRPORT CAMPUS**

PROJECT TITLE

OSE # -H59-N177-CL



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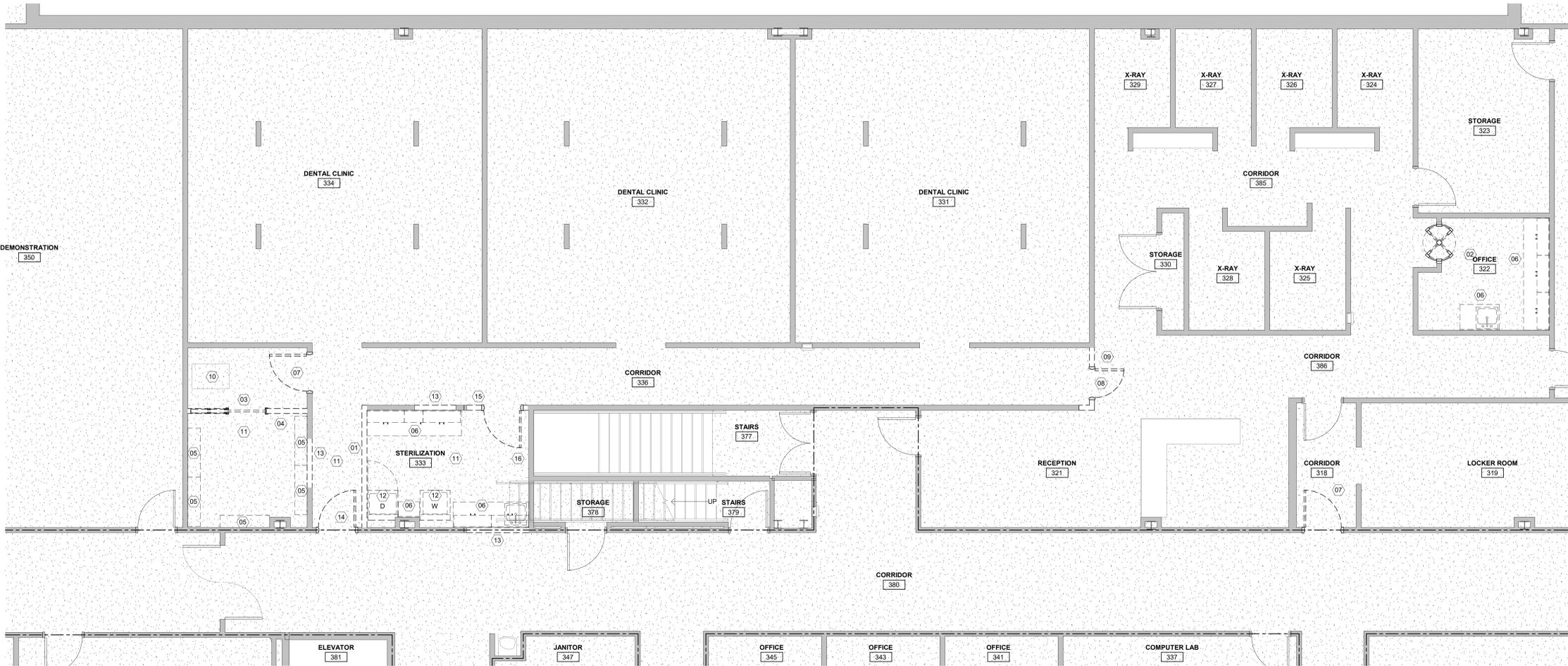
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REVISIONS		
NO.	DATE	DESCRIPTION

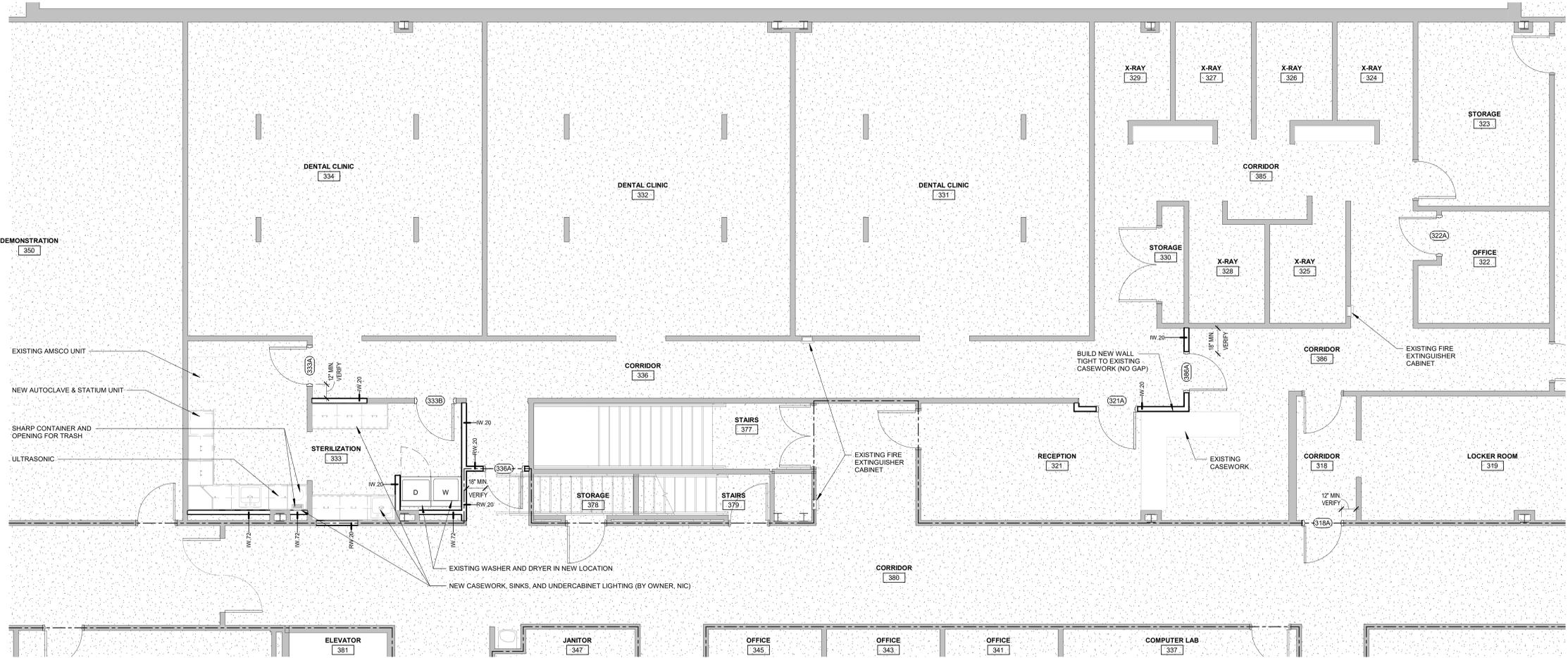
CD  
PROJECT PHASE  
**2217-10**  
BOOMERANG DESIGN PROJECT NUMBER  
**9.23.2022**  
DRAWING RELEASE DATE

**LIFE SAFETY PLAN**  
SHEET TITLE  
**G102**  
SHEET

**1 LIFE SAFETY PLAN - THIRD FLOOR**  
1/8" = 1'-0"



**2 THIRD FLOOR ENLARGED DEMOLITION FLOOR PLAN**  
1/4" = 1'-0"



**1 THIRD FLOOR ENLARGED RENOVATION FLOOR PLAN**  
1/4" = 1'-0"

**GENERAL DEMOLITION NOTES**

1. THE GENERAL CONTRACTOR SHALL COORDINATE DEMOLITION OF ALL WORK TO ENSURE SYSTEM INTEGRITY IS MAINTAINED FOR STRUCTURAL, FIRE PROTECTION, BUILDING SECURITY, AND PROTECTION FROM WEATHER ELEMENTS.
2. THE GENERAL CONTRACTOR SHALL COORDINATE ALL DEMOLITION ACTIVITIES WITH THE MECHANICAL AND PLUMBING DRAWINGS.
3. WHERE WALLS DESIGNATED TO REMAIN ARE DAMAGED DUE TO CONSTRUCTION ACTIVITIES, THE GENERAL CONTRACTOR IS TO PATCH THE DAMAGED AREAS PRIOR TO APPLICATION OF NEW WALL FINISHES AS DESCRIBED IN THE RENOVATION DRAWINGS.
4. WHERE WALLS ARE DESIGNATED AS "EXISTING TO BE REMOVED" (SEE LEGEND) REMOVE WALL IN ITS ENTIRETY UNLESS OTHERWISE NOTED. FIELD COORDINATE ALL DEMOLITION WORK WITH PLANS TO ELIMINATE ALL UNNECESSARY DEMOLITION. COORDINATE THE REMOVAL OR REROUTING OF ALL WALL MOUNTED OR WALL ENCASED DEVICES, PIPING, WIRING, ETC. WITH DRAWINGS OF ASSOCIATED TRADES. CARE TO BE TAKEN TO PROTECT ALL STRUCTURAL COLUMNS DURING THE DEMOLITION PROCESS.
5. WHERE DOORS, WINDOWS, CASEWORK, PIPING, EQUIPMENT, ETC. IS REMOVED, REPAIR AND REFACE THE WALL TO MATCH ADJACENT. PREPARE THE WALL TO RECEIVE NEW FINISH AS INDICATED IN THE FINISH SCHEDULE.
6. REPAIR ALL FLOORS DAMAGED BY DEMOLITION ACTIVITIES. LEVEL THE FLOOR WITH CEMENT UNDERLAYMENT AND PREPARE IT TO RECEIVE THE FLOOR FINISH INDICATED IN THE FINISH SCHEDULE.

**DEMOLITION KEYNOTES**

NO.	DESCRIPTION
01	REMOVE EXISTING WALL IN ITS ENTIRETY
02	REMOVE EXISTING DARK ROOM REVOLVING DOOR AND PREPARE OPENING FOR NEW HINGED DOOR AND FRAME (SEE DOOR SCHEDULE)
03	REMOVE EXISTING POCKET DOOR AND HARDWARE IN THEIR ENTIRETY
04	REMOVE EXISTING PARTIAL HEIGHT WALL IN ITS ENTIRETY
05	CAREFULLY REMOVE EXISTING SHELVING AND TURN OVER TO OWNER
06	REMOVE EXISTING COUNTERTOPS AND CASEWORK (COORDINATE CAPPING OF PLUMBING LINES WITH PLUMBING DRAWINGS)
07	REMOVE EXISTING DOOR, FRAME, AND HARDWARE IN THEIR ENTIRETY AND PREPARE OPENING FOR NEW DOOR, FRAME, AND HARDWARE (SEE DOOR SCHEDULE)
08	CAREFULLY REMOVE EXISTING DOOR AND HARDWARE AND SALVAGE FOR RELOCATION
09	REMOVE EXISTING WALL TO EXTENT SHOWN
10	EXISTING EQUIPMENT TO REMAIN IN PLACE
11	REMOVE EXISTING CEILING (SALVAGE ANY USEABLE CEILING TILES AND GRID AS REQUIRED), CEILING ITEMS, WALL BASE, AND FLOORING AND PREPARE FOR NEW
12	CAREFULLY REMOVE EXISTING APPLIANCES AND SALVAGE FOR INSTALLATION IN NEW LOCATION
13	REMOVE PORTION OF EXISTING WALL AS SHOWN (COORDINATE WITH RENOVATION PLAN)
14	REMOVE EXISTING DOOR, FRAME, AND HARDWARE IN THEIR ENTIRETY AND PREPARE OPENING TO BE INFILLED WITH SOLID WALL
15	REMOVE PORTION OF EXISTING WALL AS SHOWN (COORDINATE WITH RENOVATION PLAN) AND EXISTING DOOR, FRAME, AND HARDWARE IN THEIR ENTIRETY
16	RELOCATE EXISTING FAN COIL UNIT ABOVE CEILING (COORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS)

**GENERAL PLAN NOTES**

1. SEE SHEET A401 FOR DETAILED WALL TYPE DESCRIPTIONS.
2. SEE REFLECTED CEILING PLANS FOR CEILING HEIGHTS AND MATERIALS.
3. UNLESS NOTED OTHERWISE, ALL FURNITURE & EQUIPMENT SHOWN DASHED/GRAYED-OUT ARE FOR INFORMATIONAL PURPOSES ONLY. THEY ARE NOT TO BE BID AS PART OF THIS PROJECT. CASEWORK, UNDER CABINET LIGHTING, AND SINKS ARE BY OWNER, NOT IN CONTRACT.
4. SEE THE DOOR SCHEDULE ON SHEET A401 FOR DOOR HARDWARE INFORMATION.
5. ALL ITEMS INDICATED TO BE O.P.C.I. OR O.P.O.I. CONTRACTOR SHALL PROVIDE AND INSTALL ALL BLOCKING REQUIRED TO INSTALL ITEMS PER MANUFACTURERS RECOMMENDATIONS.

**WALL RATINGS LEGEND**

---	1 HOUR RATED
----	2 HOUR RATED
.....	SMOKE RATED

**WALL CONSTRUCTION LEGEND**

---	EXISTING
----	NEW INTERIOR WALL

**WALL SCHEDULE**

TYPE	DESCRIPTION	RATING	UL #
IW 20	3 5/8" MTL STUD TO DECK		
IW 72	3 5/8" MTL STUD CHASE		
RW 20	3 5/8" MTL STUD TO DECK	1 HR	U485

**boomerang DESIGN**  
rethink, repurpose, results

SHELBY  
201 S. Washington St., Suite 200  
Durham, NC 27601  
704/956-6000

CHARLOTTE  
1230 W. Morehead St., Suite 214  
Charlotte, NC 28208  
704/731-7000

LEXINGTON  
1010 S. Lake Dr., Suite J  
Lexington, NC 27297  
919/573-6600



**MIDLANDS TECHNICAL COLLEGE  
DENTAL CLINIC RENOVATION  
AIRPORT CAMPUS**

PROJECT TITLE

OSE # -H59-N177-CL



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**REVISIONS**

NO.	DATE	DESCRIPTION

CD  
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**THIRD FLOOR ENLARGED DEMOLITION AND RENOVATION PLANS**  
SHEET TITLE

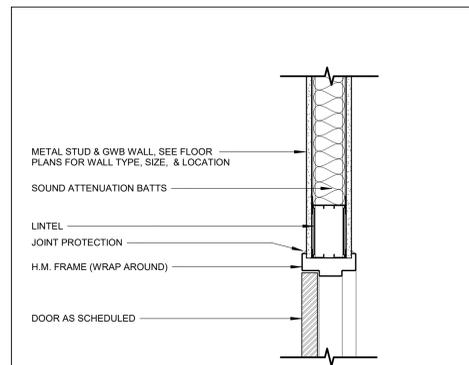
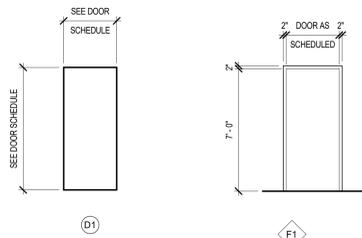
**A001**  
SHEET



DOOR SCHEDULE															
NO.	DESCRIPTION	DOOR				FINISH	GLASS TYPE	FRAME				ASSEMBLY RATING	HARDWARE SET	NOTES	
		WIDTH	HEIGHT	TYPE	MAT'L			TYPE	MAT'L	FINISH	HEAD				JAMB
318A	CORRIDOR FROM CORRIDOR	3'-0"	7'-0"	D1	FSCW	PREFINISHED	F1	HOLLOW METAL	PAINT	DH.13	DJ.13		45 MIN	2.0	NEW DOOR AND FRAME IN EXISTING WALL
321A	CORRIDOR TO RECEPTION	3'-0"	7'-0"	D1	FSCW	PREFINISHED	F1	HOLLOW METAL	PAINT	DH.13	DJ.13			3.0	
322A	CORRIDOR FROM OFFICE	3'-0"	7'-0"	D1	FSCW	PREFINISHED	F1	HOLLOW METAL	PAINT	DH.13	DJ.13			4.0	NEW DOOR AND FRAME IN EXISTING WALL
333A	CORRIDOR TO STERILIZATION	3'-0"	7'-0"	D1	FSCW	PREFINISHED	F1	HOLLOW METAL	PAINT	DH.13	DJ.13			1.0	NEW DOOR AND FRAME IN EXISTING WALL
333B	CORRIDOR TO STERILIZATION	3'-0"	7'-0"	D1	FSCW	PREFINISHED	F1	HOLLOW METAL	PAINT	DH.13	DJ.13			1.0	NEW DOOR AND FRAME IN EXISTING WALL
336A	CORRIDOR FROM CORRIDOR	3'-0"	7'-0"	D1	FSCW	PREFINISHED	F1	HOLLOW METAL	PAINT	DH.13	DJ.13		45 MIN	2.0	
386A	CORRIDOR FROM CORRIDOR	3'-0"	7'-0"	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	PAINT	DH.13	DJ.13		EXISTING	EXISTING DOOR, FRAME, AND HARDWARE IN NEW LOCATION

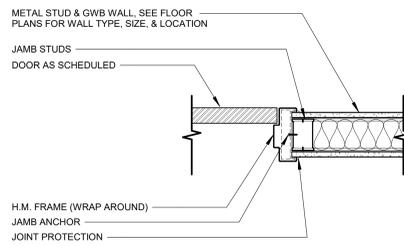
**GENERAL DOOR SCHEDULE NOTES:**

- SEE THE PROJECT MANUAL FOR GLASS TYPE DESIGNATIONS.
- ALL FRAMES TO BE INSTALLED A MINIMUM OF 4" FROM (HINGE SIDE OF DOOR) TO ADJACENT INTERSECTING WALL, U.N.O.
- DOOR DESCRIPTION REFERS TO NUMBER OF DOORS, WHERE INDICATED AS "PAIR", DOOR WIDTH IS FOR OVERALL OPENING WIDTH FOR A PAIR OF DOORS.
- PROVIDE REMOVABLE CENTER MULLIONS/ASTRAGAL.



NOTE: FRAME WIDTH EQUALS WALL THICKNESS PLUS 1 INCH. SEE FRAME ELEVATIONS FOR FRAME DEPTH. SEE SPECIFICATIONS FOR ADDITIONAL MATERIALS INFORMATION.

**DH.13**  
METAL STUD WALL WITH GYPSUM WALL BOARD  
HOLLOW METAL FRAME DOOR HEAD



NOTE: FRAME WIDTH EQUALS WALL THICKNESS PLUS 1 INCH. SEE FRAME ELEVATIONS FOR FRAME DEPTH. SEE SPECIFICATIONS FOR ADDITIONAL MATERIALS INFORMATION.

**DJ.13**  
METAL STUD WALL WITH GYPSUM WALL BOARD  
HOLLOW METAL FRAME DOOR JAMB

**THIRD FLOOR ROOM FINISH SCHEDULE**

NO.	ROOM NAME	FLOOR FINISH	BASE MATERIAL	WALL FINISH	NOTES
300	CORRIDOR	EXISTING	EXISTING	EXISTING	NO WORK HERE
301	COMPUTER LAB	EXISTING	EXISTING	EXISTING	NO WORK HERE
302	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
303	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
304	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
305	CLASSROOM	EXISTING	EXISTING	EXISTING	NO WORK HERE
306	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
307	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
308	CLASSROOM	EXISTING	EXISTING	EXISTING	NO WORK HERE
309	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
310	DENTAL ASSISTANT LAB	EXISTING	EXISTING	EXISTING	NO WORK HERE
311	RECEPTION	EXISTING	EXISTING	EXISTING	NO WORK HERE
312	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
313	PULMONARY	EXISTING	EXISTING	EXISTING	NO WORK HERE
314	RESPIRATORY THERAPY LAB	EXISTING	EXISTING	EXISTING	NO WORK HERE
315	STORAGE	EXISTING	EXISTING	EXISTING	NO WORK HERE
316	STORAGE	EXISTING	EXISTING	EXISTING	NO WORK HERE
317	ELECTRICAL	EXISTING	EXISTING	EXISTING	NO WORK HERE
318	CORRIDOR	EXISTING	EXISTING	EXISTING	NO WORK HERE
319	LOCKER ROOM	EXISTING	EXISTING	EXISTING	NO WORK HERE
320	DRESSING	EXISTING	EXISTING	EXISTING	NO WORK HERE
321	RECEPTION	EXISTING	RESILIENT BASE	PAINT	
322	OFFICE	EXISTING	RESILIENT BASE	PAINT	
323	STORAGE	EXISTING	EXISTING	EXISTING	NO WORK HERE
324	X-RAY	EXISTING	EXISTING	EXISTING	NO WORK HERE
325	X-RAY	EXISTING	EXISTING	EXISTING	NO WORK HERE
326	X-RAY	EXISTING	EXISTING	EXISTING	NO WORK HERE
327	X-RAY	EXISTING	EXISTING	EXISTING	NO WORK HERE
328	X-RAY	EXISTING	EXISTING	EXISTING	NO WORK HERE
329	X-RAY	EXISTING	EXISTING	EXISTING	NO WORK HERE
330	STORAGE	EXISTING	EXISTING	EXISTING	NO WORK HERE
331	DENTAL CLINIC	EXISTING	EXISTING	EXISTING	NO WORK HERE
332	DENTAL CLINIC	EXISTING	EXISTING	EXISTING	NO WORK HERE
333	STERILIZATION	LUXURY VINYL TILE	RESILIENT BASE	PAINT	
334	DENTAL CLINIC	EXISTING	EXISTING	EXISTING	NO WORK HERE
336	CORRIDOR	EXISTING, LVT IN NEW ALCOVE	RESILIENT BASE	PAINT	NO WORK HERE
337	COMPUTER LAB	EXISTING	EXISTING	EXISTING	NO WORK HERE
338	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
339	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
340	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
341	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
342	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
343	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
344	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
345	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
346	MECHANICAL	EXISTING	EXISTING	EXISTING	NO WORK HERE
347	JANITOR	EXISTING	EXISTING	EXISTING	NO WORK HERE
348	MEN	EXISTING	EXISTING	EXISTING	NO WORK HERE
349	WOMEN	EXISTING	EXISTING	EXISTING	NO WORK HERE
350	DEMONSTRATION	EXISTING	EXISTING	EXISTING	NO WORK HERE
351	CLASSROOM	EXISTING	EXISTING	EXISTING	NO WORK HERE
352	ELECTRICAL	EXISTING	EXISTING	EXISTING	NO WORK HERE
353	CHEMISTRY LAB	EXISTING	EXISTING	EXISTING	NO WORK HERE
354	BALANCE	EXISTING	EXISTING	EXISTING	NO WORK HERE
355	STOCK	EXISTING	EXISTING	EXISTING	NO WORK HERE
356	PHYSICS LAB	EXISTING	EXISTING	EXISTING	NO WORK HERE
357	PREP ROOM	EXISTING	EXISTING	EXISTING	NO WORK HERE
358	STORAGE	EXISTING	EXISTING	EXISTING	NO WORK HERE
359	SURGICAL TECHNOLOGY	EXISTING	EXISTING	EXISTING	NO WORK HERE
360	ANATOMY LAB	EXISTING	EXISTING	EXISTING	NO WORK HERE
361	STORAGE	EXISTING	EXISTING	EXISTING	NO WORK HERE
362	CLASSROOM	EXISTING	EXISTING	EXISTING	NO WORK HERE
363	ANATOMY LAB	EXISTING	EXISTING	EXISTING	NO WORK HERE
364	PREP ROOM	EXISTING	EXISTING	EXISTING	NO WORK HERE
365	MICRO LAB	EXISTING	EXISTING	EXISTING	NO WORK HERE
366	AUTOCLAVE	EXISTING	EXISTING	EXISTING	NO WORK HERE
367	PREP ROOM	EXISTING	EXISTING	EXISTING	NO WORK HERE
368	RECEPTION	EXISTING	EXISTING	EXISTING	NO WORK HERE
369	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
370	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
371	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
372	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
373	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
374	OFFICE	EXISTING	EXISTING	EXISTING	NO WORK HERE
375	STAIRS	EXISTING	EXISTING	EXISTING	NO WORK HERE
376	STAIRS	EXISTING	EXISTING	EXISTING	NO WORK HERE
377	STAIRS	EXISTING	EXISTING	EXISTING	NO WORK HERE
378	STORAGE	EXISTING	EXISTING	EXISTING	NO WORK HERE
379	STAIRS	EXISTING	EXISTING	EXISTING	NO WORK HERE
380	CORRIDOR	EXISTING, LVT IN NEW ALCOVE	EXISTING, RESILIENT BASE IN NEW ALCOVE	EXISTING, PAINT IN NEW ALCOVE	NO WORK HERE
381	ELEVATOR	EXISTING	EXISTING	EXISTING	NO WORK HERE
382	ELEVATOR	EXISTING	EXISTING	EXISTING	NO WORK HERE
382	CORRIDOR	EXISTING	EXISTING	EXISTING	NO WORK HERE
383	CORRIDOR	EXISTING	EXISTING	EXISTING	NO WORK HERE
384	CORRIDOR	EXISTING	EXISTING	EXISTING	NO WORK HERE
385	CORRIDOR	EXISTING	EXISTING	EXISTING, PAINT AROUND NEW DOOR	
386	CORRIDOR	EXISTING	RESILIENT BASE	PAINT	

**ROOM FINISH SCHEDULE NOTES:**

- SEE C101 FOR ARCHITECTURAL MATERIALS LEGEND & ABBREVIATIONS.
- SEE THE PROJECT MANUAL FOR MATERIAL DEFINITIONS, PAINT TYPES, HIGH PERFORMANCE COATINGS, & ADDITIONAL COLOR INFORMATION NOT NOTED ON FINISH SCHEDULE.
- SEE REFLECTED CEILING PLANS FOR ACTUAL CEILING HEIGHTS AND MATERIAL CONFIGURATIONS.
- SEE SHEET A401 FOR FRAME ELEVATIONS & FRAME SCHEDULE.
- INSTALL A FLOOR TRANSITION MATERIAL AS INDICATED ON THE ROOM FINISH SCHEDULE & WHEREVER A FLOORING MATERIAL CHANGE OCCURS. REFER TO THE PROJECT MANUAL FOR FLOORING TRANSITION TYPES NOT CALLED OUT IN THE DRAWINGS.
- WHERE APC IS NOTED FOR THE CEILING MATERIAL, THE MFR'S STANDARD FINISH SHALL REMAIN U.N.O.
- CONTRACTOR TO ALLOW FOR UP TO 3 COLORS FOR PAINT THROUGHOUT THE PROJECT.
- FOR ALL H.M. DOOR FRAMES, ALLOW FOR TWO COLORS PER FRAME.



SHAFFER  
201 S. Washington St., Suite 200  
Durham, NC 27601  
704/946-6000

CHARLOTTE  
1230 W. Morehead St., Suite 214  
Charlotte, NC 28208  
704/731-7000

RALEIGH  
6133 Falls of the Roanoke, Suite 204  
Raleigh, NC 27609  
919/775-6400

LEXINGTON  
1070 S. Lake Dr., Suite J  
Lexington, NC 27297  
800/556-0027



**MIDLANDS  
TECHNICAL COLLEGE  
DENTAL CLINIC  
RENOVATION  
AIRPORT CAMPUS**

PROJECT TITLE

OSE # -H59-N177-CL



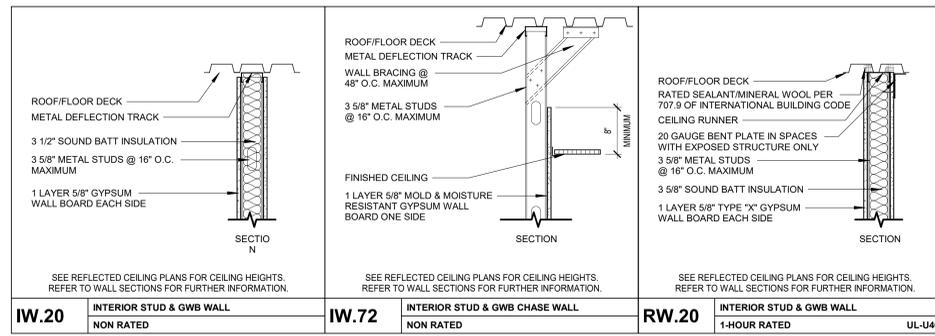
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- DO NOT SCALE OFF DIMENSIONS.

REVISIONS		
NO.	DATE	DESCRIPTION

CD  
PROJECT PHASE  
**2217-10**  
BOOMERANG DESIGN PROJECT NUMBER  
**9.23.2022**  
DRAWING RELEASE DATE

**DOOR AND ROOM  
FINISH SCHEDULES  
AND WALL ASSEMBLY  
TYPES**  
SHEET TITLE

**A401**  
SHEET



PLUMBING FIXTURE SCHEDULE					
SYMBOL	FIXTURE	CONNECTIONS			SPECIFICATIONS
		CW	HW	WASTE	
P-1	STERILIZATION SINK	1/2"	1/2"	1 1/2"	GENERAL CONTRACTOR TO FURNISH CABINERY WITH SINK AND FAUCET. PLUMBING CONTRACTOR SHALL INSTALL USING THE FOLLOWING: EBC 58BH HEAVY CAST BRASS STRAINER, DISHWASHER FITTING, EBC TA 2 190 F-TRAP, LA2K HEAVY DUTY STOPS AND SUPPLIES.
P-2	LAB SINK	1/2"	1/2"	1 1/2"	GENERAL CONTRACTOR TO FURNISH CABINERY WITH SINK AND FAUCET. PLUMBING CONTRACTOR SHALL INSTALL USING THE FOLLOWING: EBC 58BH HEAVY CAST BRASS STRAINER, EBC TA 2 190 F-TRAP, STREAM POINT-OR-USE-SIDE-ACCESS SOLIDS INTERCEPTOR, LA2K HEAVY DUTY STOPS AND SUPPLIES.
P-3	WASHING MACHINE BOX	1/2"	1/2"	2"	SYMMONS "LAUNDRY-MATE" MODEL W-602-X, FURNISHED WITH SERVICE STOPS AND 2" DRAIN.

PLUMBING SYMBOLS	
	SOIL OR WASTE PIPING
	VENT PIPING
	COLD WATER PIPING
	HOT WATER PIPING
	CLEANOUT IN WALL
	CLEANOUT IN FLOOR OR TO GRADE
	BALL VALVE

### PLUMBING SPECIFICATIONS

**1.01 SCOPE**  
 THESE SPECIFICATIONS TOGETHER WITH THE ACCOMPANYING PLUMBING DRAWINGS ARE INTENDED TO PROVIDE COMPLETE PLUMBING INSTALLATION FOR THE NEW BUILDING AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS.

**1.02 GENERAL**  
 ALL WORK SHALL BE PERFORMED BY SKILLED AND CAPABLE WORKMEN UNDER COMPETENT SUPERVISION, EMPLOYING LATEST AND BEST PRACTICES OF THE TRADE. WORK SHALL BE INSTALLED ACCORDING TO THE ADOPTED LOCAL PLUMBING CODE, AND SHALL MEET WITH PLUMBING INSPECTOR'S APPROVAL IN EVERY RESPECT. LOCAL CODES SHALL APPLY WHERE SUCH CODE EXCEEDS REQUIREMENTS OF THIS SPECIFICATION. IN ABSENCE OF CODE OR AUTHORITIES, INSTALL ALL WORK ACCORDING TO THE 2018 INTERNATIONAL PLUMBING CODE.

PLUMBING CONTRACTOR SHALL OBTAIN ALL PERMITS AND LICENSES, AT HIS OWN EXPENSE, AND SHALL PAY ALL SERVICE CHARGES REQUIRED FOR PROSECUTION OF THIS WORK.

PLUMBING DRAWINGS ARE DIAGRAMMATIC ONLY, AND DO NOT SHOW ALL OFFSETS, FITTINGS, ETC. COORDINATE WORK WITH OTHER TRADES, FURNISHING AND INSTALLING ALL FITTINGS, OFFSETS, ETC., REQUIRED AT NO ADDITIONAL COST TO OWNER.

**2.01 MATERIALS**

- SOIL, WASTE & VENT PIPING: CAST IRON WITH FOUR BAND NO-HUB CONNECTIONS.
- WATER PIPING: TYPE "K" BELOW FLOOR SLAB TYPE "L" COPPER ABOVE SLAB.
- PIPE INSULATION: DOWENS CORNING ASJ-25 WITH JACKET OR ARMAFLEX CLOSED CELL WITH GULED JOINTS.
- DEIONIZED WATER: PEX PIPE AND FITTINGS.

**2.02 PIPE HANGERS AND SUPPORTS**  
 PIPING SHALL BE INSTALLED WITHOUT UNDUCE STRESS OR STRAIN ON JOINTS AND EQUIPMENT. HANGERS SHALL BE SECURELY ANCHORED TO BUILDING STRUCTURE. PIPE HANGERS SHALL BE INSTALLED AROUND THE INSULATION WHERE PIPES ARE INSULATED. INSTALL HANGER WITH SHEET METAL SADDLES TO PROTECT THE PIPE INSULATION TO KEEP THE INSULATION FROM CRUSHING.

MAKESHIFT, FIELD DEVISED METHODS OF PLUMBING PIPE SUPPORT, SUCH AS THE USE OF SCRAP FRAMING MATERIALS, ARE NOT ALLOWED. SUPPORT AND POSITIONING OF PIPING SHALL BE BY MEANS OF ENGINEERED METHODS THAT COMPLY WITH IAPMO PS 42-96. THESE SHALL BE HUBBARD ENTERPRISES/HUBBARD SUPPORT SYSTEMS OR ENGINEER-APPROVED EQUIVALENT.

**2.03 FIXTURES**  
 ALL FIXTURES SHALL BE NEW, FIRST QUALITY, AND FREE FROM DEFECTS. FIXTURES SHALL BE FURNISHED COMPLETE WITH SUPPLY PIPES, STOP VALVES, TRAPS, FAUCETS, ESCUTCHEONS, HANGERS, SUPPORTS, ETC. ALL EXPOSED PIPING SHALL BE CHROME PLATED.

WHERE FIXTURES ARE INSTALLED IN CONTACT WITH WALLS OR FLOORS, SEAL THE SPACES AT THE OUTER EDGES OF FIXTURES IN CONTACT WITH WALLS OR FLOORS USING A NON-HARDENING BATHUB CALK, "SILASTIC" BY DOW-CORNING, OR APPROVED EQUAL.

ALL WALL MOUNTED FIXTURES SHALL BE EITHER MOUNTED ON HEAVY DUTY CONCEALED CARRIERS, HEAVY DUTY WALL MOUNTING BRACKETS WITH THRU WALL BOLTS AND BACK PLATES, OR HEAVY DUTY BRACKETS MOUNTED DIRECTLY TO CONCRETE-FILLED BLOCK WORK WITH STRUCTURAL FASTENERS OF THE "RED-HEAD" TYPE FASTENED INTO THE CONCRETE FILL. STANDARD LIGHT-WEIGHT PRESSED STEEL MOUNTING BRACKETS WITH SCREWS AND ORDINARY SHIELDS INTO THE SURFACE OF THE BLOCK WILL NOT BE ACCEPTABLE.

**3.01 CLEANING, PAINTING, AND ADJUSTING**  
 AT THE COMPLETION OF THE WORK, ALL PARTS OF THE INSTALLATION SHALL BE THOROUGHLY CLEANED. ALL EQUIPMENT, PIPE, VALVES, AND FITTINGS SHALL BE CLEANED OF ALL GREASE, METAL CUTTINGS, AND SLUDGE WHICH MAY HAVE ACCUMULATED BY OPERATION OF THE SYSTEM FOR TESTING. ANY STOPPAGE, DISCOLORATION, OR OTHER DAMAGE TO PARTS OF THE BUILDING, ITS FINISH OR FURNISHINGS, DUE TO THE CONTRACTOR'S FAILURE TO PROPERLY CLEAN THE PIPING SYSTEM, SHALL BE REPAIRED BY THE PLUMBING CONTRACTOR WITHOUT COST TO THE OWNER. ALL FLUSH VALVES AND OTHER PARTS OF THE SYSTEM SHALL BE ADJUSTED FOR QUIET AND PROPER OPERATION.

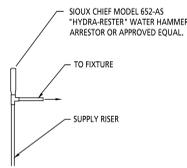
FIXTURES SHALL BE TESTED FOR SOUNDNESS, STABILITY OF SUPPORT, AND SATISFACTORY OPERATION OF ALL COMPONENT PARTS.

**3.02 INSTRUCTION BOOKLETS**  
 CONTRACTOR SHALL FURNISH THE OWNER TWO COMPLETE SETS OF INSTRUCTION BOOKLETS REGARDING THE OPERATION AND MAINTENANCE OF ALL PLUMBING ITEMS OF EQUIPMENT INSTALLED UNDER THIS CONTRACT. BOOKLETS SHALL INCLUDE A COMPLETE PARTS LIST AND TECHNICAL DATA, INCLUDING PREVENTATIVE MAINTENANCE INSTRUCTIONS FOR ALL ITEMS OF EQUIPMENT.

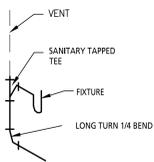
EACH SET OF INSTRUCTION BOOKLETS SHALL BE NEATLY BOUND INTO A SINGLE UNIT AND PRESENTED TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF THE JOB.

**3.03 GUARANTEES AND WARRANTIES**  
 CONTRACTOR SHALL SERVICE AND MAINTAIN ALL EQUIPMENT INSTALLED BY HIM UNDER THIS CONTRACT FOR A LIKE PERIOD OF 12 MONTHS FROM THE DATE THE CERTIFICATE OF SUBSTANTIAL COMPLETION IS ISSUED, PERFORMING ALL REQUIRED SEASONAL MAINTENANCE.

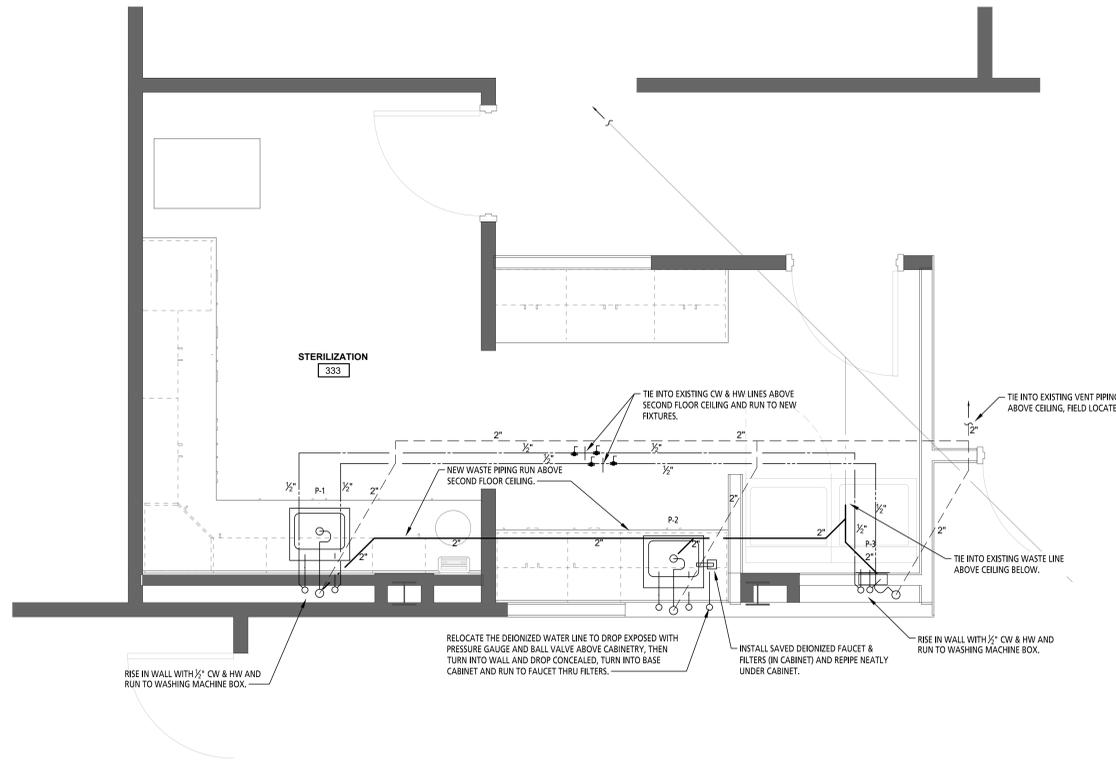
CONTRACTOR SHALL GUARANTEE MECHANICAL SYSTEMS AS INSTALLED BY HIM TO OPERATE QUIETLY, SAFELY, AND EFFICIENTLY.



### WATER HAMMER ARRESTOR DETAIL

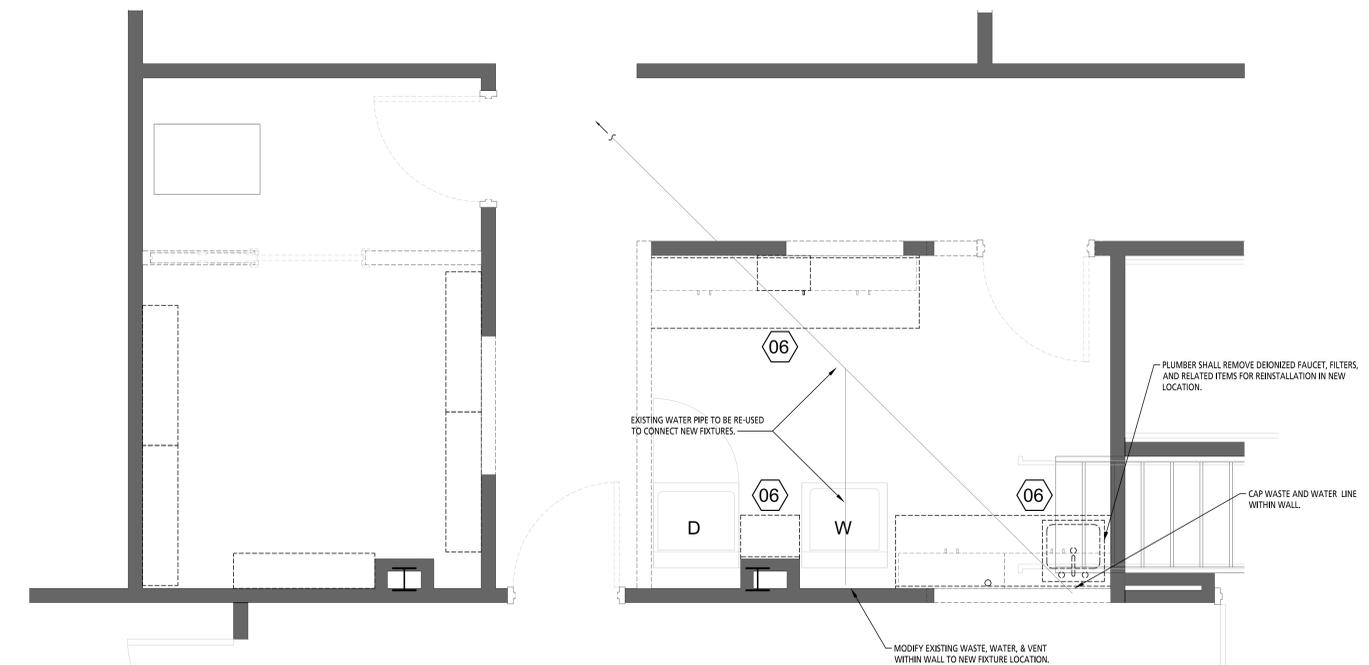


### ROUGHING DIAGRAM



### 2 THIRD FLOOR EXISTING PLUMBING PARTIAL PLAN - RENOVATION

1/2" = 1'-0"



### 1 THIRD FLOOR EXISTING PLUMBING PARTIAL PLAN - DEMOLITION

1/2" = 1'-0"



### MIDLANDS TECHNICAL COLLEGE DENTAL CLINIC RENOVATION AIRPORT CAMPUS

PROJECT TITLE

OSE # - H59-N177-CL



FELKEL & HASTINGS  
 Mechanical Engineers  
 2725 Cypress Street  
 Columbia, SC 29205  
 Comm. No.: 22-40b Date: 8-17-22

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NO.	DATE	DESCRIPTION

CD  
 PROJECT PHASE

2217-10  
 BOOMERANG DESIGN PROJECT NUMBER

9.23.2022  
 DRAWING RELEASE DATE

### THIRD FLOOR PLUMBING ENLARGED DEMOLITION & RENOVATION PLANS, FIXTURE SCHEDULE, DETAILS, & SPECIFICATIONS

SHEET TITLE

# P101

VENTILATING EQUIPMENT SCHEDULE																
SYMBOL	MFR.	MODEL NO.	FAN				MOTOR			CAPACITY		SPACES SERVED	TYPE FAN	CONTROLS	WEIGHT (LBS)	REMARKS
			TYPE	DIA.	RPM	MAX. SPEEDS	NO. OF SPEEDS	HP OR AMPS	VOLTAGE CHAR.	CFM	S.P. (IN)					
DVF-1	FANTECH	DBF 110	CENT.	--	2175	--	1	0.54 AMPS	120-1-60	170 MAX	0.75	CLOTHES DRYER	INLINE	PRESS. SWITCH	9	--

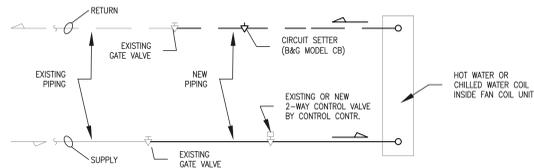
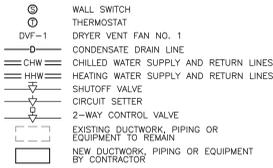
**OUTLINE SPECIFICATIONS**

- ALL WORK SHALL COMPLY WITH THE 2009 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE, THE 2018 EDITIONS OF THE INTERNATIONAL BUILDING CODE, INTERNATIONAL MECHANICAL CODE, INTERNATIONAL PLUMBING CODE, INTERNATIONAL FUEL GAS CODE AND OTHER REQUIREMENTS OF NFPA, EPA AND ALL OTHER AUTHORITIES HAVING JURISDICTION OVER THIS WORK.
- THE CONTRACTOR SHALL PAY ALL FEES AND SECURE ALL LICENSES AND PERMITS REQUIRED FOR THE WORK INDICATED ON THE MECHANICAL DRAWINGS.
- ALL ROTATING PIECES OF MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH VIBRATION ISOLATORS SUITABLE FOR THE SPECIFIC APPLICATION. ISOLATORS MAY BE EITHER INTERNAL OR EXTERNAL AND EITHER SUPPLIED BY THE CONTRACTOR OR EQUIPMENT MANUFACTURER.
- ALL MECHANICAL EQUIPMENT AND DUCTWORK SHALL BE RESTRAINED TO RESIST SEISMIC FORCES. RESTRAINT DEVICES SHALL BE DESIGNED AND SELECTED FOR THE SPECIFIC APPLICATION TO MEET THE SEISMIC REQUIREMENTS AS DEFINED IN THE CURRENTLY ADOPTED ISSUE OF THE INTERNATIONAL BUILDING CODE. SHOP DRAWINGS, SIGNED AND SEALED BY A REGISTERED ENGINEER, ARE REQUIRED FOR ALL SEISMIC RESTRAINT CALCULATIONS. ALL EQUIPMENT, DUCT, PIPING, ETC. SHALL HAVE AN I<sub>p</sub> OF 1.5.
- DRYER VENTS SHALL BE CONSTRUCTED OF 20 GA GALVANIZED STEEL WITH A SMOOTH INTERIOR FINISH. DUCTS SHALL NOT BE INSTALLED WITH SHEET METAL SCREWS OR OTHER FASTENERS THAT WILL OBSTRUCT THE EXHAUST FLOW. AT OVERLAP DUCT JOINTS, THE MALE END OF THE DUCT SHALL EXTEND IN THE DIRECTION OF AIR FLOW. ALL DRYER VENTS SHALL TERMINATE OUTSIDE THE BUILDING AND BE EQUIPPED WITH A BACKDRAFT DAMPER (NOT UNIT SCREEN). THE FLEXIBLE DUCT USED FOR THE DRYER VENT CONNECTION SHALL BE SEMI-RIGID ALUMINUM FLEXIBLE DUCTWORK AS APPROVED FOR THIS USAGE (WHITE VINYL SPIRAL BOUND FLEX IS NOT ALLOWED) AND SHALL BE LIMITED TO A SINGLE 4 FT. LENGTH. THE FLEXIBLE DUCTWORK CONNECTIONS TO THE DRYER VENT BOX AND DRYER SHALL BE MADE USING STAINLESS STEEL WORM GEAR CLAMPS. DO NOT CONCEAL THE CONNECTION DUCT WITHIN THE WALL CONSTRUCTION. PROVIDE A 4-INCH RECESSED DRYER VENT BOX BY IN-O-WATE OR EQUAL.
- HEATING AND CHILLED WATER PIPING SHALL BE SEAMLESS SCHEDULE 40 BLACK STEEL PIPING, ASTM A-106A WITH SCREWED OR WELDED ASTM A105 3000# FITTINGS AT THE OPTION OF THE CONTRACTOR. AT THE CONTRACTOR'S OPTION, HEATING AND CHILLED WATER PIPING MAY BE TYPE "L" HARD DRAWN ROOD COPPER PIPE WITH SOLDERED WROUGHT COPPER FITTINGS, USING 95-5 SOLDER.
- ABOVE GRADE CONDENSATE DRAIN PIPING SHALL BE TYPE "L" HARD DRAWN COPPER OR SCHEDULE 40 PVC.
- THE PIPE INSULATION THICKNESS LISTED BELOW IS BASED ON A THERMAL CONDUCTIVITY NOT EXCEEDING 0.27 BTU-INCH/HR-FITZ-F. ADJUST THICKNESS PER CODE FORMULA WHEN INSULATION TO BE USED HAS A HIGHER THERMAL CONDUCTIVITY VALUE.  
ABOVE GRADE CONDENSATE DRAIN PIPING SHALL BE INSULATED WITH 1" THICK FIBERGLASS OR 1" THICK ARMAFLEX.  
CHILLED WATER PIPING LESS THAN 5" SHALL BE INSULATED WITH 1-1/2" THICK FIBERGLASS.  
HEATING WATER PIPING LESS THAN 1-1/2" SHALL BE INSULATED WITH 1" THICK FIBERGLASS.
- CONTROLS SHALL BE BY TRANE CO. THE CONTROLS CONTRACTOR SHALL PROVIDE 2-WAY VALVES FOR THE HEATING AND CHILLED WATER SERVING THE EXISTING FAN COIL UNIT. THE CONTROLS CONTRACTOR SHALL MOVE THE EXISTING CONTROL DEVICES AND SHALL RE-INTEGRATE THE FAN COIL UNIT INTO THE BUILDING CONTROL SYSTEM TO THE SAME LEVEL AS AT THE START OF WORK.
- ALL CONTROL ITEMS AND PIECES OF EQUIPMENT SHALL BE PERMANENTLY LABELED.
- AS-BUILT PRINTS SHALL BE PROVIDED TO THE OWNER AT PROJECT CLOSEOUT.
- A TEST AND BALANCE REPORT FOR THE FAN COIL UNIT SHALL BE PROVIDED TO THE OWNER PRIOR TO PROJECT CLOSEOUT.
- CONTRACTOR SHALL PROVIDE 2 COPIES OF THE OPERATIONS AND MAINTENANCE MANUALS TO THE OWNER PRIOR TO PROJECT CLOSEOUT.
- CONTRACTOR SHALL PROVIDE 1 YEAR GUARANTEE ON ALL EQUIPMENT AND WORK.

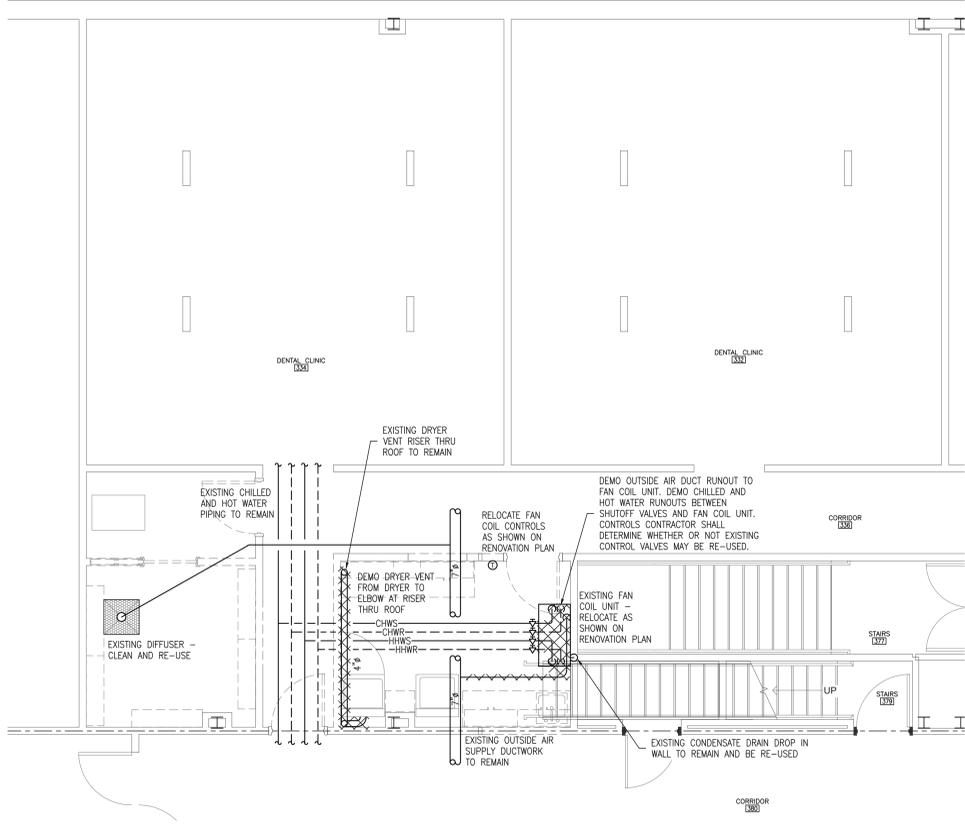
**HVAC GENERAL NOTES**

- REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS FOR THE EXACT PLACEMENT OF ALL CEILING MOUNTED AIR DISTRIBUTION DEVICES. IF A PARTICULAR ITEM IS NOT SHOWN ON THE REFLECTED CEILING PLANS, COORDINATE ITS LOCATION WITH ALL DISCIPLINES.
- COORDINATE WITH THE GENERAL CONTRACTOR THE EXACT LOCATION OF ALL WALL PENETRATIONS. AVOID PENETRATING ANY STRUCTURAL MEMBERS UNLESS NOTED ON THE ARCHITECTURAL PLANS. WHERE CONFLICTS ARISE, THE MECHANICAL CONTRACTOR SHALL SUBMIT A DRAWING TO THE ENGINEER SHOWING HIS PROPOSED SOLUTION.
- REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL BUILDING CONFIGURATION, DIMENSIONS, ETC.
- IF EQUIPMENT TO BE SUPPLIED BY CONTRACTOR IS DIFFERENT THAN THAT SPECIFIED IN PLANS OR SPECIFICATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL DISCIPLINES ANY CHANGES NEEDED BECAUSE OF UNIT SIZE, ROOF OPENING SIZE, WEIGHT, LOCATION, ELECTRICAL SERVICE, ETC.
- COORDINATE VOLTAGE OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL CONTRACTOR BEFORE SUBMITTING SHOP DRAWINGS OR ORDERING EQUIPMENT. ALL CONTROL WIRING TO DAMPER MOTORS AND ALL OTHER CONTROL COMPONENTS IS TO BE PROVIDED BY THE MECHANICAL CONTRACTOR. IT IS HIS RESPONSIBILITY TO COORDINATE WITH HIS SUBCONTRACTORS TO ENSURE THAT THIS PRICE IS INCLUDED IN THE OVERALL MECHANICAL PRICE.
- COORDINATE IN THE FIELD TO DETERMINE IF DUCT ROUTING AND SIZE AS PROPOSED IS FEASIBLE GIVEN THE EXISTING CONDITIONS. IF NOT, THE MECHANICAL CONTRACTOR SHALL SUBMIT HIS SUGGESTED CHANGE PRIOR TO ANY DUCT FABRICATION.

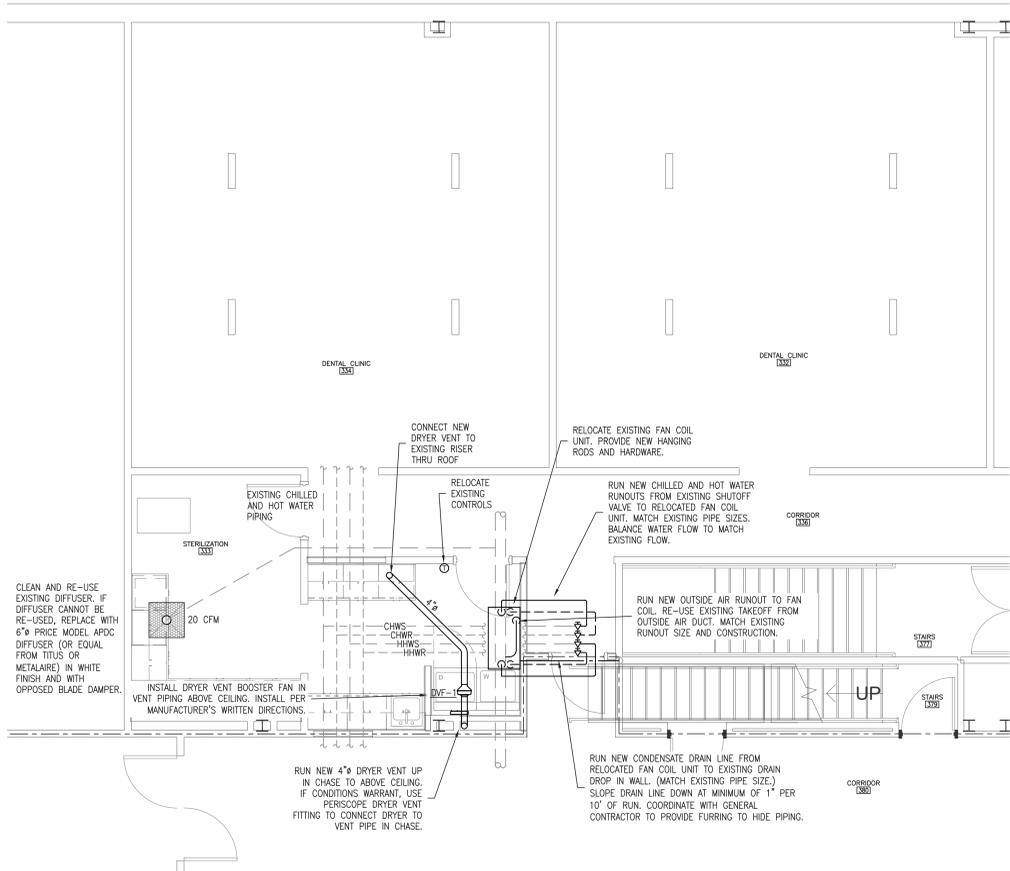
**HVAC LEGEND**



**FAN COIL UNIT COIL PIPING DETAIL**  
NOT TO SCALE



**1 HVAC DEMOLITION FLOOR PLAN - DENTAL LAB RENOVATION**  
1/4" = 1'-0"



**2 HVAC FLOOR PLAN - DENTAL LAB RENOVATION**  
1/4" = 1'-0"

**MIDLANDS TECHNICAL COLLEGE DENTAL CLINIC RENOVATION AIRPORT CAMPUS**  
PROJECT TITLE

OSE # -H59-N177-CL



**FELKEL & HASTINGS**  
Mechanical Engineers  
2725 Cypress Street  
Columbia, S.C. 29205  
Comm. No.: 22-40b Date: 09-15-22

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**REVISIONS**

NO.	DATE	DESCRIPTION
1	07/20/2018	NEW ROOM DATA LTD.
2	12/10/2018	GAS METER LOCATION & FUEL VENT

**CD**  
PROJECT PHASE  
**2217-10**  
BOOMERANG DESIGN PROJECT NUMBER  
**9.23.2022**  
DRAWING RELEASE DATE

**ENLARGED HVAC FLOOR PLANS**  
SHEET TITLE  
**M101**  
SHEET

ELECTRICAL SYMBOL SCHEDULE - GENERAL	
GENERAL	
	BRANCH CIRCUIT RACEWAY, RUN CONCEALED IN CEILING OR WALLS. ARROWHEAD DENOTES HOMERUN TO PANEL. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE TO BE INSTALLED. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN. INSTALL GROUND WIRE IN ALL RACEWAYS. #12 AWG MINIMUM AND AS PER CODE.
	BRANCH CIRCUIT RACEWAY, RUN IN OR UNDER SLAB OR FLOOR. ARROWHEAD DENOTES HOMERUN TO PANEL. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE TO BE INSTALLED. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN. INSTALL GROUND WIRE IN ALL RACEWAYS. #12 AWG MINIMUM AND AS PER CODE.

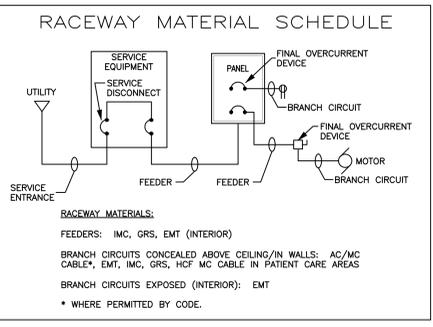
ELECTRICAL SYMBOL SCHEDULE - LIGHTING SYSTEMS AND ACCESSORIES	
LIGHTING	
	CEILING MOUNTED LIGHT FIXTURE. REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE AND MOUNTING. SEE RECESSED LAY-IN FIXTURE DETAIL FOR LAY-IN FIXTURES MOUNTED IN CEILING GRID. LETTER DENOTES FIXTURE TYPE.
	LED EXIT SIGN, WALL OR CEILING MOUNTED. STEM DENOTES WALL MOUNTED. FACES AS INDICATED BY DARKENED AREAS. ARROWS DENOTE CHEVRONS INDICATING DIRECTION OF EXIT AS INDICATED ON DRAWINGS. REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE.
	120V, 20A SINGLE POLE LIGHT SWITCH, HEAVY DUTY TYPE. PROVIDE NEUTRAL CONDUCTOR TO ALL SWITCH LOCATIONS.
	120V, 20A 3-WAY LIGHT SWITCH, HEAVY DUTY TYPE. PROVIDE NEUTRAL CONDUCTOR TO ALL SWITCH LOCATIONS.
	120V, 20A 4-WAY LIGHT SWITCH, HEAVY DUTY TYPE. PROVIDE NEUTRAL CONDUCTOR TO ALL SWITCH LOCATIONS.
	120V, 20A, 1HP @ 120V MOTOR RATED TOGGLE SWITCH, HEAVY DUTY TYPE. PROVIDE NEUTRAL CONDUCTOR TO ALL SWITCH LOCATIONS. 30A/2HP RATED WHERE INDICATED ON DRAWINGS.
	CEILING MOUNTED LOW VOLTAGE 360° COVERAGE OCCUPANCY SENSOR, DUAL TECHNOLOGY UNLESS OTHERWISE NOTED ON DRAWINGS. WATTSTOPPER DT-300/305 OR EQUIVALENT. "P" DENOTES PASSIVE INFRARED TYPE (WATTSTOPPER CI-300/305), "U" DENOTES ULTRASONIC TYPE (WATTSTOPPER WT SERIES). PROVIDE QUANTITY OF POWER PACKS AS REQUIRED TO SUIT LOAD. PROVIDE SIGNAL CABLES AS REQUIRED TO LINK MULTIPLE SENSORS/POWER PACKS SERVING COMMON AREA OR LIGHTING ZONE.

- GENERAL NOTES ALL DRAWINGS:
- DO NOT SCALE DRAWINGS. LOCATE OUTLETS, EQUIPMENT AND OTHER ELECTRICAL DEVICES AS INDICATED AND COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE EXACT LIGHTING FIXTURE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
  - MINIMUM SIZE CONDUCTOR FOR POWER SHALL BE #12 AWG. PROVIDE DEDICATED NEUTRAL FOR EACH MULTI-WIRE BRANCH CIRCUIT IN COMPLIANCE WITH NEC.
  - ALL FUSES SHALL BE DUAL-ELEMENT TYPE, "FUSETRON" BY BUSSMAN, "ECON" BY ECONOMY, OR FERRAZ SHAWMUT.
  - BRANCH CIRCUIT SIZES ARE #12 AWG, 1/2" C, UNLESS OTHERWISE NOTED IN PANELBOARD SCHEDULES OR ON DRAWINGS.
  - ALL BRANCH CIRCUIT LOADS SHALL BE BALANCED ACROSS PANELBOARD BUSES TO OBTAIN MINIMUM NEUTRAL CURRENT.
  - ALL FLEXIBLE CONDUIT SHALL CONTAIN A GREEN WIRE BONDED TO RIGID RACEWAY, BOX OR FIXTURE AT EACH END OF FLEX. SIZE GROUND PER NEC TABLE 250-122.
  - PROVIDE PULL STRING IN ALL EMPTY RACEWAYS.
  - COORDINATE WITH OTHER TRADES TO CONCEAL ELECTRICAL WORK AND PROVIDE OUTLETS IN CORRECT LOCATIONS.
  - DO NOT FLUSH MOUNT JUNCTION BOXES BACK TO BACK, STAGGER TO REDUCE SOUND TRANSMISSION BETWEEN ROOMS.
  - CONCEAL OUTLETS FOR ALL EQUIPMENT IN FINISHED AREAS. OBTAIN ROUGHING DIAGRAMS FOR ALL EQUIPMENT AND INSTALL ELECTRICAL WORK ACCORDING TO DIAGRAMS.
  - MOUNT BRACKET TYPE LIGHTING FIXTURES AT HEIGHTS SHOWN OR SCHEDULED ON DRAWINGS OR AS DIRECTED ON JOB BY ARCHITECT UNLESS NOTED OTHERWISE.
  - SEAL ALL PENETRATIONS THROUGH RATED WALLS AND CEILINGS WITH UL LISTED FIREPROOFING SYSTEM. THIS IS TO INCLUDE BUT IS IN NO WAY LIMITED TO CONDUCTOR, RACEWAY AND DEVICE PENETRATIONS. SUBMIT SYSTEM AND INSTALLATION DETAILS AS PART OF SHOP DRAWING SUBMITTAL.
  - WHERE NOT INDICATED OTHERWISE, EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED PER NEC TABLE 250-122.
  - ALL METAL CONDUITS 1" AND LARGER SHALL HAVE A GROUNDING BUSHING BONDING CONDUIT TO ENCLOSURE.
  - REMOVE DRYWALL DUST AND MUD FROM THE INTERIOR OF BOXES BEFORE INSTALLING DEVICES.
  - AT SUBSTANTIAL COMPLETION CLEAN ALL LIGHT FIXTURES AND CLEAN ALL DEVICES IN THE CONSTRUCTION AREAS. REPLACE DAMAGED DEVICES AND DEVICE PLATES AS NEEDED.
  - VERIFY ALL MECHANICAL EQUIPMENT LOCATIONS AND ELECTRICAL REQUIREMENTS WITH MECHANICAL PLANS. IF MECHANICAL EQUIPMENT BEING PROVIDED DOES NOT MATCH DESIGN NOTIFY ENGINEER IMMEDIATELY.
  - CONCEAL ALL CONDUIT AND RACEWAY. IF CONDITIONS REQUIRE CONDUIT OR RACEWAY TO BE RUN EXPOSED COORDINATE ROUTING WITH ARCHITECT AND PAINT AS REQUIRED BY ARCHITECT.
  - ALL RACEWAYS TRANSITIONING BETWEEN CONDITIONED AND UNCONDITIONED SPACES AND RACEWAYS EXITING BUILDING SHALL BE SEALED IN ACCORDANCE WITH NEC. USE POLYWATER FST DUCT SEALANT SYSTEM OR EQUIVALENT.
  - ELECTRICAL WORK SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES, REQUIREMENTS AND ORDINANCES.
  - ALL BACKBOXES SHALL BE MINIMUM 4" SQUARE.
  - ALL EMT FITTINGS SHALL BE STEEL COMPRESSION TYPE WITH INSULATED THROAT.
  - PROVIDE PLASTIC ENGRAVED NAMETAGS FOR ALL ELECTRICAL GEAR, INCLUDING DISCONNECT SWITCHES. INDICATE EQUIPMENT NAME, EQUIPMENT SERVED (WHERE APPLICABLE), FEEDER SOURCE AND CIRCUIT, VOLTAGE. LETTERING SHALL BE 3/8" IN HEIGHT, WHITE ON BLACK BACKGROUND.
  - PROVIDE LABELS INDICATING CIRCUIT NUMBER AND SOURCE FOR ALL 120V AND GREATER DEVICES. LABELS SHALL BE THERMAL TRANSFER TYPE, 3/8" WITH 1/4" LETTERING. WHITE BACKGROUND FOR BLACK DEVICES, CLEAR BACKGROUND OTHERWISE.
  - ELECTRICAL INSTALLATION SHALL COMPLY WITH NEC 517 IN ALL PATIENT CARE AREAS AND ADJACENT TO PATIENT CARE AREAS.
  - IF REQUIRED BY THE FIRE CODE OFFICIAL PER 2018 IFC 1103.2, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE IN THE PROPOSAL OR BID THE COST OF AN INITIAL SITE SURVEY AND COST FOR THE COMPLETE DESIGN AND INSTALLATION OF A UL 2524 LISTED NFPA 72, NFPA 1221 AND IFC COMPLIANT BI-DIRECTIONAL AMPLIFIER SYSTEM (BDA) FOR THE FACILITY COMPATIBLE WITH THE REQUIREMENTS OF THE TWO-WAY COMMUNICATIONS SYSTEM(S) UTILIZED BY THE LOCAL JURISDICTION. THE SYSTEM SHALL BE STAND ALONE IN THE ABSENCE OF A BUILDING FIRE ALARM SYSTEM OR SHALL INTEGRATE WITH THE BUILDING FIRE ALARM SYSTEM. THE COST OF THE SYSTEM SHALL BE PROVIDED AS A SEPARATE LINE ITEM SO THAT IF THE SYSTEM IS DETERMINED NOT TO BE REQUIRED AFTER THE PRICE PROPOSAL OR BID HAS BEEN ACCEPTED THE SYSTEM COST CAN BE REMOVED FROM THE PROJECT.
  - PRIOR TO ROUGHING-IN RACEWAYS, ELECTRICAL CONTRACTOR SHALL INSTALL AND LABEL BACKBOXES FOR ALL ELECTRICAL DEVICES (POWER, COMMUNICATIONS, ETC). ELECTRICAL CONTRACTOR SHALL SCHEDULE A TIME WITH THE GENERAL CONTRACTOR FOR THE ARCHITECT AND OWNER REPRESENTATIVE TO WALK THROUGH AND APPROVE LOCATIONS.

ELECTRICAL SYMBOL SCHEDULE - POWER	
POWER	
	120V, 20A DUPLEX RECEPTACLE, NEMA 5-20R, WALL MOUNTED, REFER TO TYPICAL MOUNTING HEIGHTS DETAIL. REFER TO ADDITIONAL NOTATIONS BELOW WHERE INDICATED ON DRAWINGS.
	120V, 20A DUPLEX RECEPTACLE, NEMA 5-20R, WALL MOUNTED AT 42" AFF OR MINIMUM 6" ABOVE COUNTERTOP BACKSPLASH UNLESS OTHERWISE NOTED. REFER TO ADDITIONAL NOTATIONS BELOW WHERE INDICATED ON DRAWINGS. "V" INDICATES MOUNT ADJACENT TO CAVY OUTLET.
	208V (OR 240V), 1Ø RECEPTACLE, WALL MOUNTED. TYPE AND RATING AS INDICATED ON DRAWINGS OR AS REQUIRED BY EQUIPMENT BEING INSTALLED. COORDINATE WITH EQUIPMENT BEING FURNISHED, COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL ELEVATIONS AND EQUIPMENT BEING INSTALLED.
WIRING DEVICE TYPICAL NOTATIONS	
	GROUND FAULT CIRCUIT INTERRUPTER TYPE RECEPTACLE.

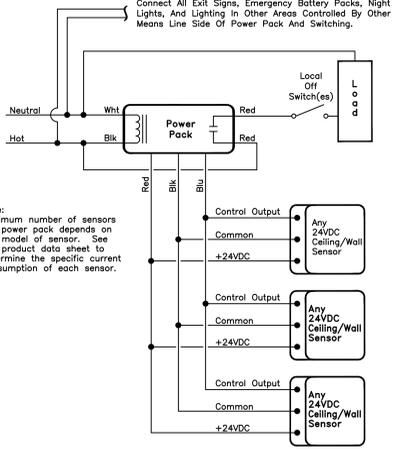
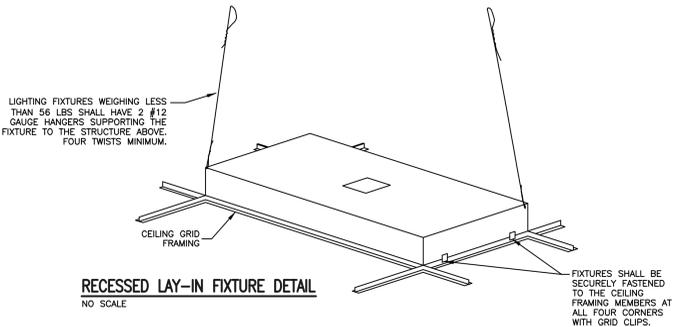
ELECTRICAL SYMBOL SCHEDULE - FIRE ALARM	
FIRE ALARM	
	15 FIRE ALARM HORN/STROBE, NUMBER INDICATES CANDELA RATING. SEE SPECIFICATIONS.
	15 FIRE ALARM STROBE ONLY, NUMBER INDICATES CANDELA RATING. SEE SPECIFICATIONS.
	15 FIRE ALARM CEILING MOUNTED STROBE ONLY - EXISTING.
	15 CEILING MOUNTED SMOKE DETECTOR - EXISTING.

ABBREVIATIONS	
A	AMPERE
AF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFI	ARC FAULT CIRCUIT INTERRUPTER
BKR	BREAKER
C	CONDUIT
CATV	CABLE TELEVISION
CKT	CIRCUIT
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EMT	ELECTRICAL METALLIC TUBING
FCU	FAN COIL UNIT
GC	GENERAL CONTRACTOR
GFIC	GROUND FAULT CIRCUIT INTERRUPTER
GRS	GALVANIZED RIGID STEEL CONDUIT
HID	HIGH INTENSITY DISCHARGE
IG	INTERMEDIATE METALLIC CONDUIT
J	JUNCTION BOX
JIB or J-BOX	KILOVOLT AMPERES
KVA	KILOVOLT AMPERES
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MDF	MAIN DISTRIBUTION PANEL
MIN	MINIMUM
MFR	MANUFACTURER
NMC	NONMETALLIC-SHEATHED CABLE
NFPA	NATIONAL ELECTRICAL CODE, (NFPA 70)
NSD	NON-SHADED
SWBD	SWITCHBOARD
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
WC	WATER COOLER
XFMR	TRANSFORMER



LIGHT FIXTURE SCHEDULE					
TYPE	DESCRIPTION	CATALOG NUMBER	LAMPS	WATTAGE	NOTES
A30	2'X4' LED FLAT PANEL, FIELD SELECTABLE LUMEN & CCT, 3000 LUMEN	ELITE LIGHTING #14-TR-B-LED-3000/4000/5000L -DIM10-1WOL1--85-(3000L) EMERGENCY: -0-EMG-LED-10W	LED BY MFR.	30.0W (49.0W MAX)	
	LED EXIT LIGHT, 90 MINUTE MINIMUM BATTERY BACKUP, HOUSING AND LETTERING COLOR AS DIRECTED BY ARCHITECT.	MATCH EXISTING	BY MFR.	0.7W	CONNECT TO LINE SIDE OF ANY SWITCHING VIA LIGHTING CIRCUIT SERVING SAME AREA.

- OTHER MANUFACTURERS ACCEPTABLE WITH PRIOR APPROVAL OF ENGINEER.
- HALF SHADED FIXTURES AND/OR LABELED "ES" SHALL BE EQUIPPED WITH 90 MINUTE MINIMUM EMERGENCY BATTERY PACK CONNECTED LINE SIDE OF ANY SWITCHING, RELAY, OR OTHER CONTROL DEVICE - EMERGENCY FUNCTION SHALL BE CONNECTED TO NORMAL LIGHTING CIRCUIT SERVING SAME AREA.
- LAMPING COLOR TEMPERATURE PER ARCHITECT AND OWNER REQUIREMENTS.



- NOTE 1: SCHEMATIC IS REPRESENTATIVE OF WATTSTOPPER DT-300/305. CONNECTION REQUIREMENTS AND LOW VOLTAGE TOPOLOGY MAY DIFFER BETWEEN MANUFACTURERS. FOLLOW MANUFACTURERS INSTALLATION INSTRUCTIONS.
- NOTE 2: WHERE APPLICABLE, CONNECT EXIT SIGNS, BATTERY PACKS FOR EGRESS LIGHTING, AND NIGHT LIGHTS LINE SIDE OF AUTOMATIC WALL SWITCH SENSORS.
- NOTE 3: PROVIDE QUANTITY OF POWER PACKS AS REQUIRED TO SERVE LOADS AS INDICATED ON DRAWINGS. WHERE MULTIPLE BRANCH CIRCUITS SERVE THE SAME AREA, PROVIDE SEPARATE POWER PACKS FOR EACH BRANCH CIRCUIT AND PHASE.



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TECHNICAL COLLEGE  
DENTAL CLINIC  
RENOVATION  
AIRPORT CAMPUS

PROJECT TITLE  
OSE # -H59-N177-CL

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REVISIONS		
NO.	DATE	DESCRIPTION

CD  
PROJECT PHASE  
2217-10  
BOOMERANG DESIGN PROJECT NUMBER  
9.23.2022  
DRAWING RELEASE DATE

ELECTRICAL LEGEND,  
NOTES, DETAILS &  
SCHEDULES

SHEET TITLE

E000

## ELECTRICAL SPECIFICATIONS

### 1. GENERAL PROVISIONS

A. Work included in these specifications and included on the drawings shall include furnishing all labor, materials, supplies, and equipment to perform all work required including cutting, channeling, chasing, excavating and backfilling, to install a complete and working electrical system(s) in accordance with these sections of the specifications and the accompanying drawings. This shall include all required preparation work, raceways, coordination, etc. required to install the electrical system.

B. The electrical work shall include, but in no way be limited to the following:

1. Raceways (To include raceways for conductors and cables, but also empty for designated signal systems and future uses.)
2. Electrical Distribution System.
3. Interior Lighting Systems.
4. Interior Power Systems.
5. Wiring Devices.
6. Connection and installation of Equipment Furnished Under Other Divisions of the Specification.
7. Fire Alarm System Extension.
8. Electrical Demolition.

C. The contractor is responsible for including any and all work related to the electrical that is noted in any part of the specifications or any part of the drawings, including Divisions 1, 15 and any other sections. The contractor will supply power to equipment at the voltage indicated on the drawings. The contractor will be held responsible for coordinating the equipment voltages, control equipment, wiring, and locations and type of terminations/connections and/or disconnects required to comply with the National Electrical Code, International Building Code, International Energy Conservation Code, all local codes, and the equipment manufacturer's requirements.

D. Electrical Drawings are diagrammatic in nature except where specific dimensions, or specific details are shown on the electrical, mechanical, or architectural drawings. The contractor shall refer to other drawings for exact locations of equipment, building dimensions, architectural details and conditions affecting the electrical work; however, field measurements take precedence over dimensioned drawings. The Electrical Contractor shall provide all labor and materials and all incidental elements: junction and pull boxes, filters, pull wires, connectors, support materials, fuses, disconnect switches, lamps, and labels, to install, connect, start-up and result in a complete and working system in accordance with the drawings and specifications. The contractor is responsible for coordinating the installation of all electrical work with the work of other contractors and/or trades. The electrical drawings are such that the electrical service to equipment furnished and installed under other sections of the contract documents (examples, include but are not limited to: HVAC equipment, water heaters, fans, pumps, motors, etc.) is coordinated for the specified equipment only. If the equipment installed under other divisions of the contract documents is not the specified equipment it is the responsibility of the contractor to coordinate the electrical service/interface requirements with the electrical contractor.

E. Provide all wiring, connectors, fittings, connections, and all accessories for the complete installation of, and final connections to, equipment furnished under other divisions of the specifications and where indicated on the drawings or otherwise specified.

F. All safety disconnect switches shall be provided under Division 16 unless specifically noted on drawings. The electrical contractor shall furnish and install fuses that are sized in accordance to the equipment nameplate of the equipment served.

G. The contractor is responsible for obtaining all required permits and complying with all National (NEC, IBC, NFPA), State, County, and Municipal codes and regulations. This shall include, but not be limited to, the following:

1. Federal Occupational Safety and Health Act (OSHA)
2. NFPA 70 (National Electrical Code)
3. NFPA 101 (Life Safety Code)
4. Americans with Disabilities Act (ADA).
5. International Building Code (IBC).
6. International Fire Code (IFC).
7. NFPA 72.
8. International Energy Conservation Code (IECC).

H. The contractor shall keep a set of construction drawings during the length of the project on which he shall note any and all changes from the original drawings. This record set of drawings shall be updated daily.

I. Electrical Subcontractor shall submit for review by the Engineer detailed shop drawings of all material listed below. All submittal data shall be submitted at one time through the Architect. No material or equipment for which Engineer's review is required shall be delivered to the job site or installed until the Electrical Contractor has in his possession the reviewed and approved shop drawings for the particular material and/or equipment. The Electrical Contractor shall assemble, organize, prepare and review for correctness shop drawings on all materials, equipment, fixtures and devices to be used. If material submitted is the result of "value engineering" or "prior approval" changes, the submittal must contain supporting documentation of the approved changes, otherwise it will be reviewed against the specified products on these plans. The Electrical contractor shall furnish the number of copies specified by the Architect or one (1) PDF copy of shop drawings if no number is specified by the Architect. Shop drawings that are incorrectly submitted, contain errors or omissions, or not in the form and sequence specified shall be rejected as unapproved.

Shop drawings shall contain as cover page a letter by the supplying Vendor stating that the Vendor has received full contract documents and that to the best of his or her knowledge the submittal is in compliance with the contract documents and design intent including all ancillary parts and pieces required for a complete job.

Review of shop drawings in no way relieves the Contractor of his responsibility of quantity, dimensions, weights, means and methods, safety, or coordination with others.

Failure of the Contractor to submit shop drawings to the Engineer with reasonable time for review shall not entitle the Contractor to an extension of contract time. Reasonable review time is fifteen working days unless otherwise specified.

At minimum shop drawings shall be submitted for

1. Lighting fixtures
2. Lighting control systems including relay panel and automatic switches
3. Safety switches
4. Fire Alarm System Extension
5. Basic materials; wire, conduit, fittings, wiring devices
6. Fuses

J. Requests for Substitution

Submit requests for substitution to Engineer through Architect in PDF format no fewer than ten (10) working days prior to bid time. Requests shall contain cutsheets, catalog numbers, etc. Any approval will be in writing by the Engineer. Prior approval submittals for lighting shall include adequate photometric and energy use documentation for comparison to specified.

Substituted items will not result in an increase in cost to the Owner.

K. Catalog numbers and names that appear in the specifications or on the plans may be incomplete or obsolete and are for descriptive purposes only. As such they may not indicate all of the parts, pieces and systems required for a complete and operating installation. It is the responsibility of the Electrical Contractor, the Vendor and the Supplier to review the plans, specifications and applications to determine the correct item(s) required to include all installation and support materials and systems for a complete and working installation.

### 2. FIRE SPREAD PREVENTION MATERIAL

A. The work shall include the requirement to install fire spread prevention material wherever the electrical contractor installs or penetrates a material (wall, etc.) to install electrical equipment or materials.

B. Fire Resistance Rating: Whenever a fire rated wall, floor, floor-ceiling or roof-ceiling assembly is shown with through-penetrations, provide materials and application procedures which have been tested and classified by UL and approved by FA for the assembly.

C. Installation shall be in accordance with the printed instructions as supplied by the manufacturer.

### 3. RACEWAYS/CONDUITS AND ASSOCIATED EQUIPMENT

A. The work shall include all raceways, conduits, fittings, and all other equipment required to install a raceway system. This shall include, but not limited to the following:

1. Rigid metal conduit and fittings.
2. Electrical metallic tubing and fittings.
3. Flexible metal conduit and fittings.
4. Liquid tight flexible metal conduit and fittings.
5. Non-metallic conduit and fittings.

B. Except where otherwise permitted on drawings route all conductors in conduit.

C. All signal systems shall have their wiring installed in conduit/raceways to above accessible ceiling. All cabling exposed above ceiling shall be plenum rated.

Conduit routing and device wiring for signal system components is not shown on the drawings. The contractor shall coordinate with the signal system manufacturer to determine the conduit (size and routing) and wiring requirements to circuit the equipment shown on the drawings.

D. Specified products and their areas of use shall be as described on drawings.

E. Fittings shall be steel compression type, concrete tight for all EMT raceways. For PVC raceways, use slip fittings with glue joints. For rigid galvanized steel and IMC, fittings shall be threaded galvanized iron, heavy steel, concrete tight.

F. Size conduit for conductor type installed; 1/2 inch minimum size.

G. For all empty raceways, furnish and install a nylon pull cord. The nylon pull cord shall be rated for a 200 pound force pull strength.

### 4. WIRE AND CABLE – 600 VOLTS AND LESS

A. Work shall include the furnishing and installing of all required wire and cable to complete the wiring and electrical system. This shall include, but not be limited to the following:

1. Building wire.
2. Wiring connections and terminations.
4. Fire alarm system extension cabling.

B. Feeders and Branch Circuits 6 AWG and Smaller: Copper conductor, 600 volt insulation, THHN. 6 and 8 AWG, stranded conductor; smaller than 8 AWG, solid conductor. MINIMUM SIZE SHALL BE #12 FOR ALL WIRING ABOVE 48 VOLTS. All conductors in damp or wet locations (including below grade) shall be listed for that use, THWN-2 or equivalent.

C. All cables shall be color coded. Color coding shall be as follows:

120/208 Volt	Phase	277/480 Volt
Black	A	Brown
Red	B	Orange
Blue	C	Yellow
White	Neutral	Gray
Green	Ground	Green

D. Each wire or cable in a feeder at its terminal points, and in each pull-box, junction box, and panel gutter through which it passes shall be identified to show the circuit number of the breaker that it connects to. Each common wire, common circuit to common loop of a system, sound system, or any signal system conductor, shall be identified.

E. All installation shall be in accordance with the NEC. All splices shall be in junction boxes and shall be electrically and mechanically secure. Where a circuit home run is shown on the plans without any conductor or raceway identification, it shall be a minimum of 2 # 12, 1 # 12 Ground, 1/2 Conduit. Place an equal number of conductors for each phase of a circuit in same raceway or cable. Splice only in junction or outlet boxes. Neatly train and face wiring inside boxes, equipment, and panelboards. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

### 5. WIRING DEVICES

A. The shall include the furnishing and installing of any and all wiring devices required to make a complete and functioning wiring system. See the drawings for symbols and descriptions of devices. Devices specified are to establish a level of quality. All devices shall be best specification grade. Equipment devices by Pass and Seymore or Levton are acceptable.

Color of devices shall be per Architect.

B. Duplex receptacle shall be 20 ampere, 120 volt, 2-Pole, 3-Wire, NEMA 5-20R. Unit shall be HBL #5362 or HBL #5362TR (where required).

C. Ground Fault receptacle shall be HBL #GF53625\*.

D. Light switches other than sweep switches and low voltage button stations shall be 20 ampere, 120-277 volt. Unit shall be HBL #1221 for SPST, HBL #1223 for three-way, and HBL #1224 for Four-Way.

E. Installation shall be per NEC. Include ground wire and connection with all receptacle circuits. Quadplex receptacles shall be two duplex receptacles installed in a two gang box. Install wall switches OFF position down. Install convenience receptacles grounding pole on top. Install devices and wall plates flush and level. Provide GFCI receptacle within 6' of any water source. GFCI receptacles shall not be used to protect non-GFCI receptacles.

F. Wiring Device Plates:

1. Provide over-sized Thermostat type cover plates for all flush mounted devices. Color shall match existing or provide at minimum selection of white, ivory, brown or gray.
2. Plates for surface mounted devices in unfinished areas shall be steel, galvanized types with beveled edges.
3. Screws securing the plate shall have flush mounted heads (when installed) with finish to match that of the plate.
4. Weather-proof plates shall be constructed with cast aluminum base plates and covers. Hinge pins, springs and screws shall be constructed of stainless steel. Covers shall comply with appropriate UL and NEC requirements for use in wet locations.

### 7. SECONDARY GROUNDING

A. Work included shall include power system grounding, communication system grounding, and electrical equipment and raceway grounding and bonding. Ground electrical work in accordance with NEC Article 250, local codes as specified herein, and as shown on the drawings.

B. Install equipment grounding conductors in raceway with feeder and branch circuit conductors. Ground interior lighting fixtures with grounding conductor to rigid metal raceways serving them. Flexible metal conduit shall have a ground wire installed with the power conductors. Where connections are made to motors or equipment with flexible metal conduit, grounding conductor shall be stranded copper conductor within the conduit, bonded to the equipment and to the rigid metal raceway system. At each convenience outlet, install a grounding clip attached to the outlet box and leave a sufficient length of #12 wire with green colored insulation to connect to the grounding terminal of the receptacle.

### 8. FIRE ALARM SYSTEM EXTENSION

A. Include extension of existing fire alarm detection and notification system as indicated on plans. Provide all required devices, materials, hardware, software, programming, labor, etc for a complete and operable system.

B. Submittals

Provide submittals on battery calculations, voltage drop calculations, decibel level calculations to show horn sound pressure 15 dB above ambient, device layout and point to point wiring diagram on building floor plans, conductor type and sizes, riser showing all devices and connections, interface of fire safety control functions, information on all equipment including model numbers to Engineer and AHJ for approval.

C. Equipment and Material

1. All components shall be by manufacturer of and compatible with existing system.
2. Smoke Detectors shall be photoelectric type.
3. Signal devices: Candelas as indicated on drawings. All alarm signal devices shall have clear strobe cover and the word "FIRE" lettered on visible portion of device. Minimum 88dB at 10ft. Color as directed by Architect.
4. All conductors, enclosures and devices shall be listed for the purpose in which they are being used.
5. Include in bid any required power extender panels for fire alarm system expansion. provide dedicated 120V/20A circuit for power extender panel, label and provide locking provisions for circuit breaker per NFPA 72. Install in electrical room, protect panel with smoke detector.
6. Provide document box per NFPA 72 with memory stick containing copy of programming and all record drawings and approved submittals.

D. Execution

1. Finished system shall comply with all applicable NFPA, IBC, IFC and local codes as well as requirements of local AHJ.
2. Provide synchronization of strobes including any synchronization hardware as required by the existing system.
3. Include in bid any required power extender panels for fire alarm system expansion. Provide dedicated 120V/20A circuit for power extender panel, label and provide locking provisions for circuit breaker per NFPA 72. Install in electrical room, protect panel with smoke detector.
5. Coordinate with door hardware and access control system (provided by others) and provide necessary provisions to release doors upon activation of the fire alarm system.
6. Provide the service of a factory-trained engineer or technician authorized manufacturer to technically supervise and participate during all adjustments and tests for the system. The manufacturer-trained technician shall demonstrate that the system functions properly in every respect to the Engineer, Owner or Owner's representative prior to final acceptance
7. Provide Record of Completion to Engineer and Owner described by NFPA 72.



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## MIDLANDS TECHNICAL COLLEGE DENTAL CLINIC RENOVATION AIRPORT CAMPUS

PROJECT TITLE

OSE # -H59-N177-CL

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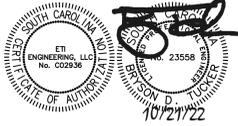
REVISIONS	NO.	DATE	DESCRIPTION
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CD  
PROJECT PHASE  
**2217-10**  
BOOMERANG DESIGN PROJECT NUMBER  
**9.23.2022**  
DRAWING RELEASE DATE

ELECTRICAL  
SPECIFICATIONS

SHEET TITLE

# E001



**MIDLANDS  
TECHNICAL COLLEGE  
DENTAL CLINIC  
RENOVATION  
AIRPORT CAMPUS**

PROJECT TITLE  
OSE # -H59-N177-CL

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**ELECTRICAL  
DEMOLITION PLAN**

SHEET TITLE  
**E100**

**GENERAL DEMOLITION NOTES:**

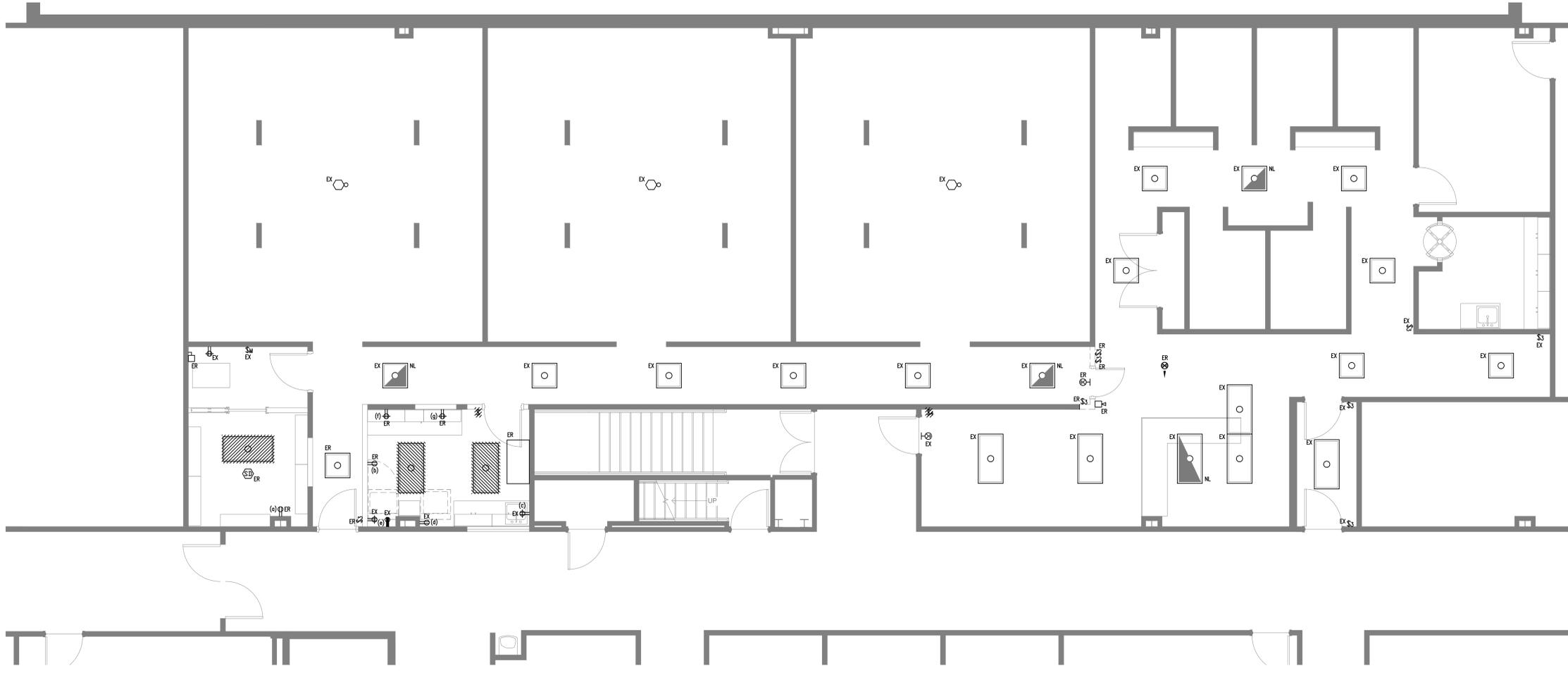
- ELECTRICAL DEMOLITION GENERALLY INCLUDES REMOVAL OF EXISTING ELECTRICAL DEVICES FROM WALLS AND CEILINGS BEING DEMOLISHED INCLUDING BACKBOXES, CONDUITS, AND CONDUCTORS BACK TO SOURCE PANEL. WHERE ONLY PART OF A CIRCUIT IS BEING REMOVED, REWORK CIRCUITS BY EXTENSION AND RECONNECTION TO CONTINUE REMAINING CIRCUIT IN SERVICE BEYOND THE DEMOLITION AREA.
- PROVIDE ALL NEW WORK AND WORK REQUIRED TO MODIFY EXISTING CONDITIONS WHERE TO CONTINUE IN OPERATION.
- PROVIDE REVISED CIRCUIT DIRECTORIES IN EXISTING PANELBOARDS TO INDICATE ALL LOADS, NEW AND MODIFIED.
- CAREFULLY REVIEW ARCHITECTURAL DEMOLITION PLANS. EXAMINE WORK TO BE DONE AND PROVIDE ALL ELECTRICAL WORK REQUIRED FOR DEMOLITION, THIS INCLUDES RELOCATION, REROUTING, ETC. OF ELECTRICAL CIRCUITS WHETHER SPECIFICALLY INDICATED ON ELECTRICAL PLANS OR NOT. CONTRACTOR IS CAUTIONED TO VISIT SITE PRIOR TO BID AND INCLUDE IN BID RELOCATION OF ALL EXISTING ELECTRICAL WORK AS REQUIRED FOR THE NEW ADDITION.
- REMOVE ALL ELECTRICAL DEVICES FROM WALLS BEING DEMOLISHED.
- REMOVE ALL LIGHT FIXTURES IN AREAS WHERE NEW LIGHTING IS PROVIDED INCLUDING CONDUIT, BOXES AND CONDUCTORS.
- INDICATE ON RECORD DRAWINGS CIRCUITS FOR ALL ELECTRICAL DEVICES (INCLUDING LIGHTS) IN RENOVATION AREA.
- CONTRACTOR SHALL COORDINATE WITH RENOVATION DRAWINGS FOR IDENTIFICATION OF EXISTING DEVICES AND FIXTURES TO BE RELOCATED. ALL RELOCATED DEVICES AND FIXTURES SHALL BE DENOTED WITH "EX" ON RENOVATION DRAWINGS.

**DEMOLITION LEGEND:**

- EXISTING ELECTRICAL SYSTEM ELEMENT BEING DEMOLISHED DENOTED BY HATCHING. REMOVE DEVICE, BOX, CONDUCTOR AND CONDUIT TO SOURCE U.N.O.. FOR SWITCH LOCATIONS RE-USE EXISTING LOCATION FOR NEW SWITCHING INDICATED ON RENOVATION PLANS, WHERE NO NEW SWITCH IS INDICATED PROVIDE BLANK PLATE.
- EX EXISTING TO REMAIN
- ER EXISTING TO BE RELOCATED. SEE RENOVATION PLANS FOR NEW LOCATION (EN)
- (a) LOWER CASE LETTERING SHOWN TO ASSIST IN RELOCATION OF EXISTING DEVICES

**DEMOLITION KEYNOTES:**

- Ⓢ REMOVE ALL LIGHTING IN THIS AREA AND SAVE EXISTING CIRCUIT FOR RECONNECTION TO NEW LIGHTING PER RENOVATION PLAN.



**1** ELECTRICAL DEMOLITION PLAN  
E100 APPROXIMATE SCALE: 1/4" = 1'-0"



**MIDLANDS  
TECHNICAL COLLEGE  
DENTAL CLINIC  
RENOVATION  
AIRPORT CAMPUS**

PROJECT TITLE

OSE # -H59-N177-CL

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**ELECTRICAL  
RENOVATION PLANS**

SHEET TITLE

**E200**

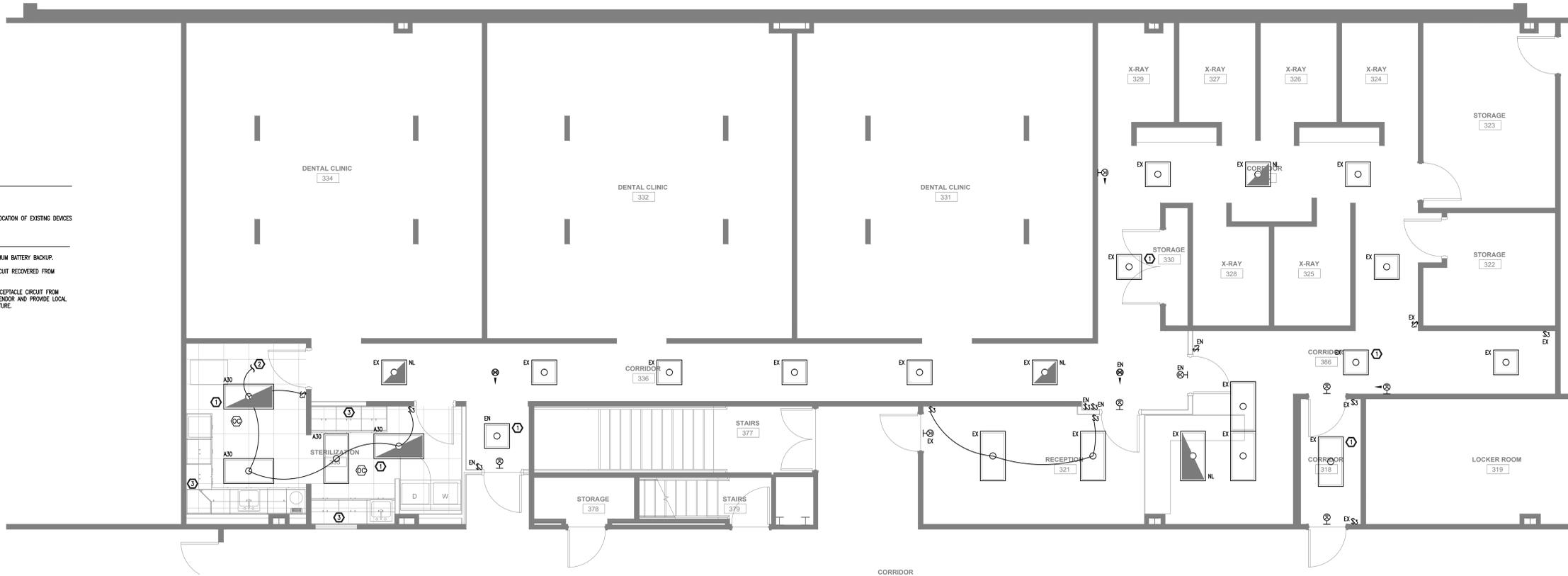
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**RENOVATION LEGEND:**

- EX EXISTING TO REMAIN
- EN EXISTING NEW LOCATION
- (A) LOWER CASE LETTERING SHOWN TO ASSIST IN RELOCATION OF EXISTING DEVICES

**LIGHTING KEYNOTES:**

- 1 PROVIDE EXISTING FIXTURE WITH 90 MINUTE MINIMUM BATTERY BACKUP.
- 2 EXTEND AND CONNECT TO EXISTING LIGHTING CIRCUIT RECOVERED FROM DEMOLITION.
- 3 CONNECT CASEWORK PROVIDED LIGHTING WITH RECEPTACLE CIRCUIT FROM COUNTER BELOW. COORDINATE WITH CASEWORK VENDOR AND PROVIDE LOCAL SWITCHING AT COUNTER IF NOT PROVIDED AT FIXTURE.



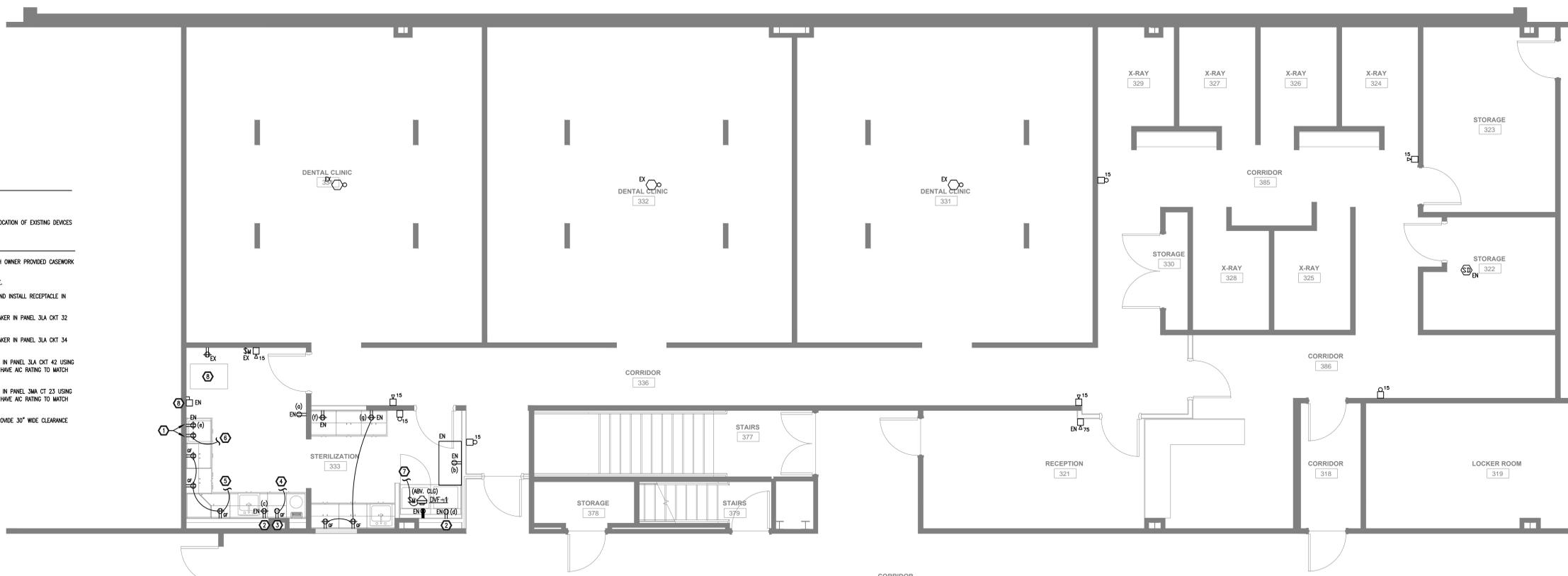
**1 LIGHTING RENOVATION PLAN**  
E100 APPROXIMATE SCALE: 1/4" = 1'-0"

**RENOVATION LEGEND:**

- EX EXISTING TO REMAIN
- EN EXISTING NEW LOCATION
- (A) LOWER CASE LETTERING SHOWN TO ASSIST IN RELOCATION OF EXISTING DEVICES

**POWER KEYNOTES:**

- 1 COORDINATE RECEPTACLE MOUNTING HEIGHTS WITH OWNER PROVIDED CASEWORK PRIOR TO INSTALLATION.
- 2 REPLACE RELOCATED RECEPTACLE WITH GFCI TYPE.
- 3 COORDINATE WITH OWNER PROVIDED CASEWORK AND INSTALL RECEPTACLE IN BOTTOM CABINET TO POWER ULTRASONIC.
- 4 EXTEND AND CONNECT TO EXISTING 20A/1P BREAKER IN PANEL 3JA CKT 32 USING 2#12, #12 GND - 1/2".
- 5 EXTEND AND CONNECT TO EXISTING 20A/1P BREAKER IN PANEL 3JA CKT 34 USING 2#12, #12 GND - 1/2".
- 6 EXTEND AND CONNECT TO NEW 20A/1P BREAKER IN PANEL 3JA CKT 42 USING 2#12, #12 GND - 1/2". NEW BREAKER SHALL HAVE AIC RATING TO MATCH EXISTING.
- 7 EXTEND AND CONNECT TO NEW 20A/1P BREAKER IN PANEL 3MA CT 23 USING 2#12, #12 GND - 1/2". NEW BREAKER SHALL HAVE AIC RATING TO MATCH EXISTING.
- 8 ADJUST LOCATION OF EXISTING EQUIPMENT TO PROVIDE 30" WIDE CLEARANCE FOR EXISTING DISCONNECT.



**2 POWER & COMMUNICATIONS RENOVATION PLAN**  
E100 APPROXIMATE SCALE: 1/4" = 1'-0"