

**DEMOLITION NOTES**

- 01. REMOVE EXISTING CEILING TILES AND GRID AS REQUIRED TO PREPARE FOR NEW HANG FIRE SUPPRESSION SYSTEM THROUGHOUT PROJECT TRIMM SPACE AND ALL ADJACENT AREAS AS REQUIRED.
- 02. REMOVE EXISTING FLOOR FINISHES AND BASE AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION.
- 03. DISCONNECT ALL EXISTING POWER AND DATA OUTLETS AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION.
- 04. CAREFULLY REMOVE EXISTING DIVISION PARTITIONS, DOOR FRAMES, WINDOW FRAMES, AND EQUIPMENT AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION.
- 05. REMOVE EXISTING LIGHT FIXTURES AND PREPARE FOR INSTALLATION OF NEW LED FIXTURES. REMOVE ALL ALL UNUSED WIRING AND CONDUITS BACK TO PANEL.
- 06. REMOVE EXISTING SUPPLY & RETURN AIR GRILLES AND OFF BACK ALL ASSOCIATED DAMPED DISCONNECTS. AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION CAP REMAINING SYSTEM.

**WALL LEGEND**

- ===== EXISTING TO REMAIN
- EXISTING TO BE REMOVED

LOWER LEVEL DEMOLITION PLAN  
SCALE 1/4" = 1'-0"



**PRIME DESIGN SYSTEMS, INC.**  
ARCHITECTURE  
PLANNING  
INTERIORS  
2311 107 10TH ROAD  
MUSKEGON, MICHIGAN 49651  
PHONE: 336-59-5100  
FAX: 336-59-5100  
E-MAIL: PDS@PDSMICH.COM

PROPOSED RENOVATION  
GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
1600 16TH AVENUE SE  
GRAND RAPIDS, MICHIGAN 49508  
PROJECT  
H/1548  
DATE  
06/04/2020  
REVISIONS

*Glenn P. Simeone, AIA*

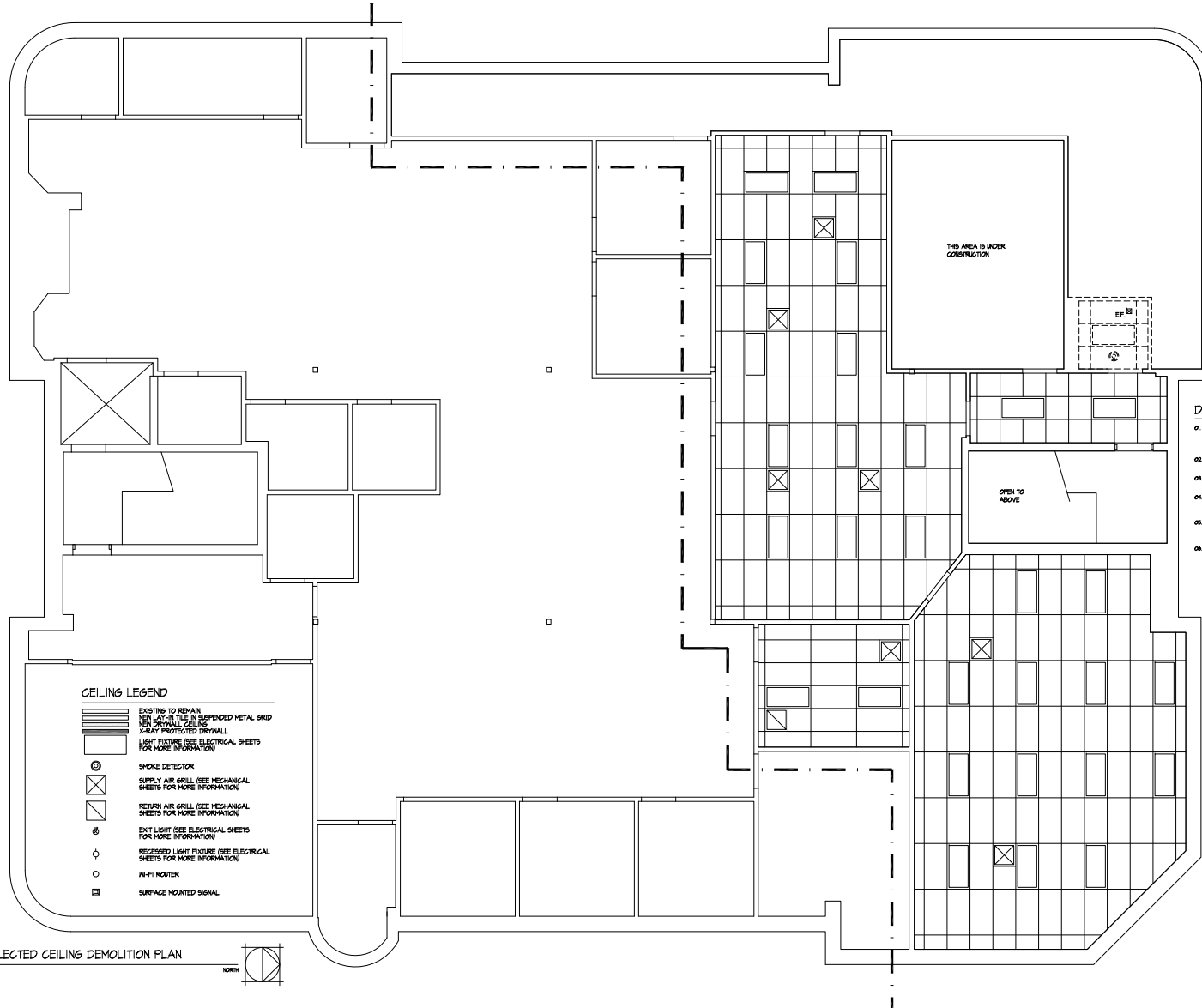


LICENSE NUMBER: 1313030329  
SIGNED & SEALED: 06/04/2020  
EXPIRES: 05/31/2025

SHEET

01.01





**CEILING LEGEND**

- EXISTING TO REMAIN
- NEW LAY-IN TILE IN SUSPENDED METAL GRID
- NEW OPTICAL CEILING
- X-RAY PROTECTED DRYWALL
- LIGHT FIXTURE (SEE ELECTRICAL SHEETS FOR MORE INFORMATION)
- SMOKE DETECTOR
- SUPPLY AIR GRILL (SEE MECHANICAL SHEETS FOR MORE INFORMATION)
- RETURN AIR GRILL (SEE MECHANICAL SHEETS FOR MORE INFORMATION)
- EXT LIGHT (SEE ELECTRICAL SHEETS FOR MORE INFORMATION)
- RECESSED LIGHT FIXTURE (SEE ELECTRICAL SHEETS FOR MORE INFORMATION)
- HI-FI ROUTER
- SURFACE MOUNTED SIGNAL

LOWER LEVEL REFLECTED CEILING DEMOLITION PLAN  
SCALE 1/4" = 1'-0"



**DEMOLITION NOTES**

01. REMOVE EXISTING CEILING TILES AND GRID AS REQUIRED TO PREPARE FOR NEW LAY-IN TILE. PREPARE AND ALL ADJACENT AREAS AS REQUIRED.
02. REMOVE EXISTING FLOOR FINISHES AND BASE AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION.
03. DISCONNECT ALL EXISTING POWER AND DATA CABLES AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION.
04. CAREFULLY REMOVE EXISTING DRYWALL, PARTITIONS, DOOR FRAMES, WINDOW FINISHES, AND EQUIPMENT AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION.
05. REMOVE EXISTING LIGHT FIXTURES AND PREPARE FOR REINSTALLATION OF NEW LED FIXTURES. REMOVE ALL ALL WIRING AND CONDUITS BACK TO PANEL.
06. REMOVE EXISTING SUPPLY & RETURN AIR GRILLS AND C/F BASE. ALL ASSOCIATED WIRING, DUCTWORK, AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION CAP REMAINING SYSTEM.

**PRIME DESIGN SYSTEMS, INC.**  
ARCHITECTURE  
PLANNING  
INTERIORS  
GRAPHICS  
2311 OLD FISH HOOK  
MUSKEGON, MICHIGAN 49829  
TEL: 336-595-5100  
E-MAIL: PRIMEDESIGN.COM



PROPOSED RENOVATION  
GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
18000 PARKWAY CENTER, MUSKEGON, MICHIGAN 49828  
PROJECT  
H/1948  
DATE  
08/09/2020  
REVISIONS

*Glenn P. Skoche*














LICENSE NUMBER: 1313030329  
SHEET: 08/09/2020  
DWG: 08/09/20

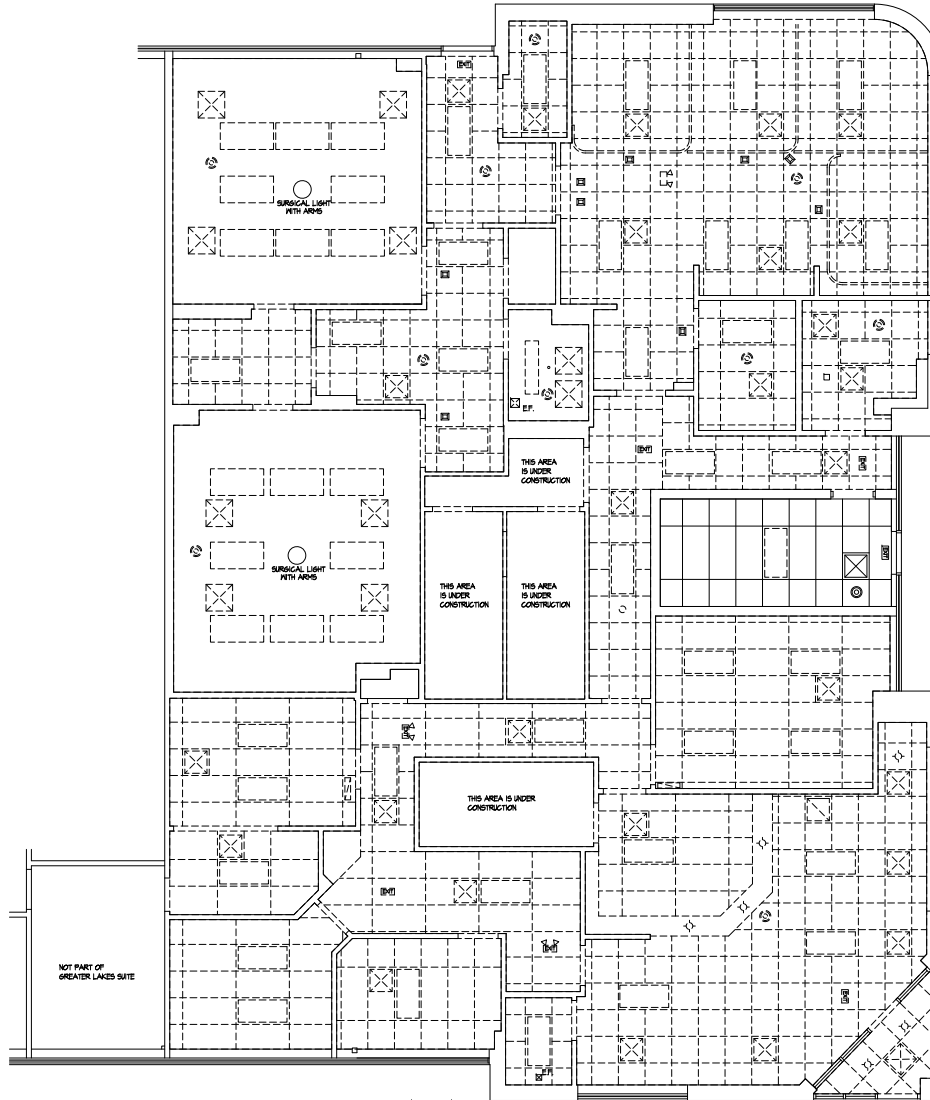
SHEET  
**002.01**

**DEMOLITION NOTES**

01. REMOVE EXISTING CEILING TILES AND GRID AS REQUIRED TO PREPARE FOR NEW HVAC & FIRE SUPPRESSION SYSTEM THROUGHOUT PROJECT SCOPE AND ALL ADJACENT AREAS AS REQUIRED.
02. REMOVE EXISTING FLOOR FINISHES AND BASE AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION.
03. DISCONNECT ALL EXISTING POWER AND DATA OUTLETS AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION.
04. CAREFULLY REMOVE EXISTING PARTITIONS, DOOR FRAMES, HARDWARE, FIXTURES, AND EQUIPMENT AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION.
05. REMOVE EXISTING LIGHT FIXTURES AND PREPARE FOR REINSTALLATION OF NEW LED FIXTURES. REMOVE ALL ALL BASED WIRING AND CONDUITS BACK TO PANEL.
06. REMOVE EXISTING SUPPLY & RETURN AIR GRILLS AND SET BACK ALL ASSOCIATED HARDWARE/EQUIPMENT AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION (SEE REMOVAL SCHEDULE).

**CEILING LEGEND**

- |   |   |
|---|---|
|  | EXISTING TO REMAIN  |
|  | EXISTING TO BE REMOVED  |
|  | X-RAY PROTECTED DRYWALL   |
|  | LIGHT FIXTURE (SEE ELECTRICAL SHEETS FOR MORE INFORMATION)          |
|  | SMOKE DETECTOR  |
|  | SUPPLY AIR GRILL (SEE MECHANICAL SHEETS FOR MORE INFORMATION)       |
|  | RETURN AIR GRILL (SEE MECHANICAL SHEETS FOR MORE INFORMATION)       |
|  | EXIT LIGHT (SEE ELECTRICAL SHEETS FOR MORE INFORMATION)             |
|  | RECESSED LIGHT FIXTURE (SEE ELECTRICAL SHEETS FOR MORE INFORMATION) |
|  | IN-FI ROUTER  |
|  | SURFACE MOUNTED SIGNAL  |



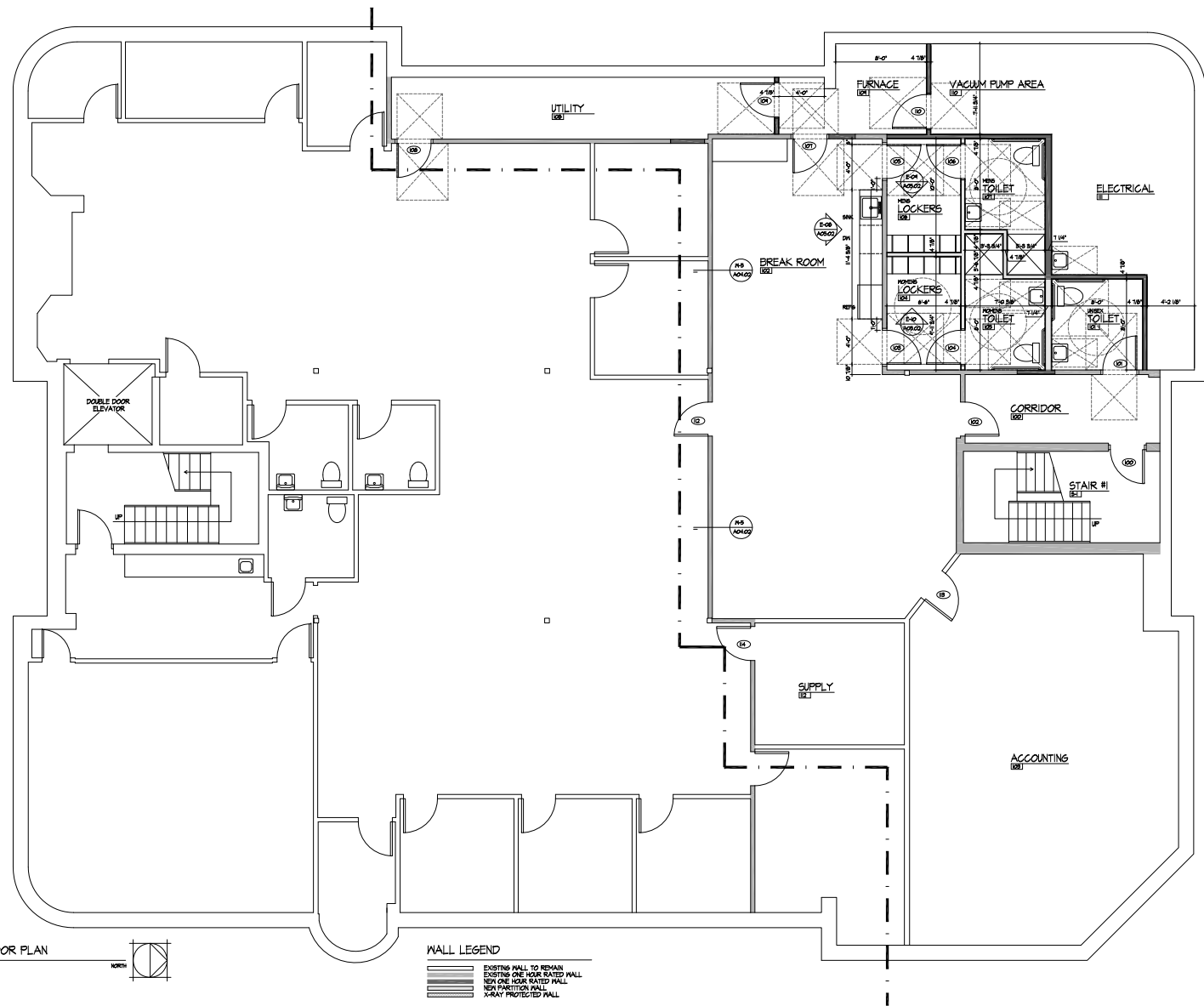
GROUND LEVEL REFLECTED CEILING DEMOLITION PLAN  
SCALE 1/4" = 1'-0"



*Glenn P. DeShane, AIA*



LICENSE NUMBER: 1313030329  
SHEET # 0001 OF 0002  
DATE: 06/06/2020

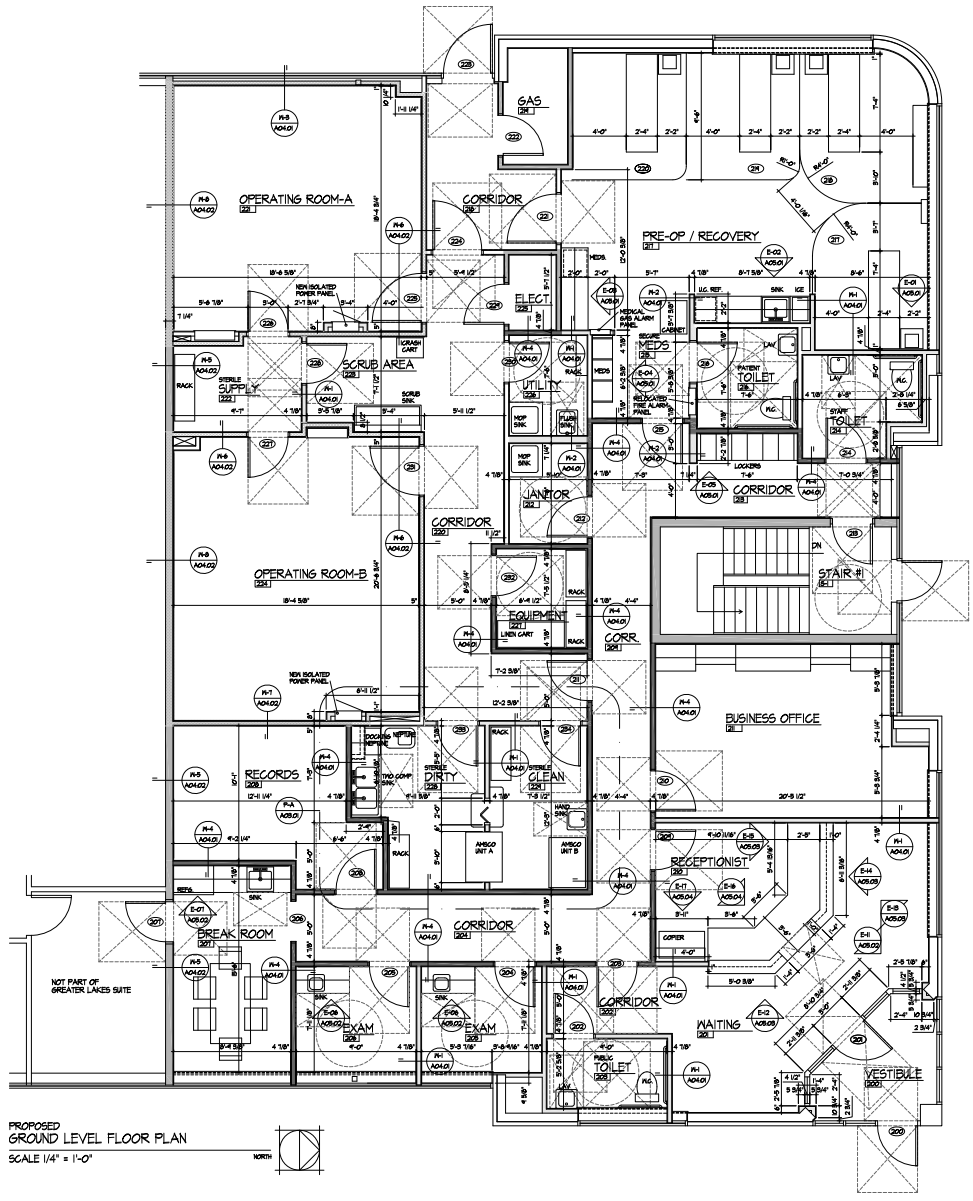


PROPOSED  
 LOWER LEVEL FLOOR PLAN  
 SCALE 1/4" = 1'-0"



**MALL LEGEND**

- EXISTING WALL TO REMAIN
- EXISTING ONE HOUR RATED WALL
- NEW ONE HOUR RATED WALL
- NEW PARTITION WALL
- X-RAY PROTECTED WALL



**WALL LEGEND**

- EXISTING WALL TO REMAIN
- EXISTING ONE HOUR RATED WALL
- NEW ONE HOUR RATED WALL
- NEW PARTITION WALL
- NEW PROTECTED WALL

PROPOSED  
GROUND LEVEL FLOOR PLAN  
SCALE 1/4" = 1'-0"

**PRIME DESIGN SYSTEMS, INC.**  
ARCHITECTURE  
2311 OLD FISH HOOK  
MUSKEGON, MICHIGAN 49651  
PHONE: 336-595-5100  
FAX: 336-595-5100  
E-MAIL: PDS@PRIMEDS.COM



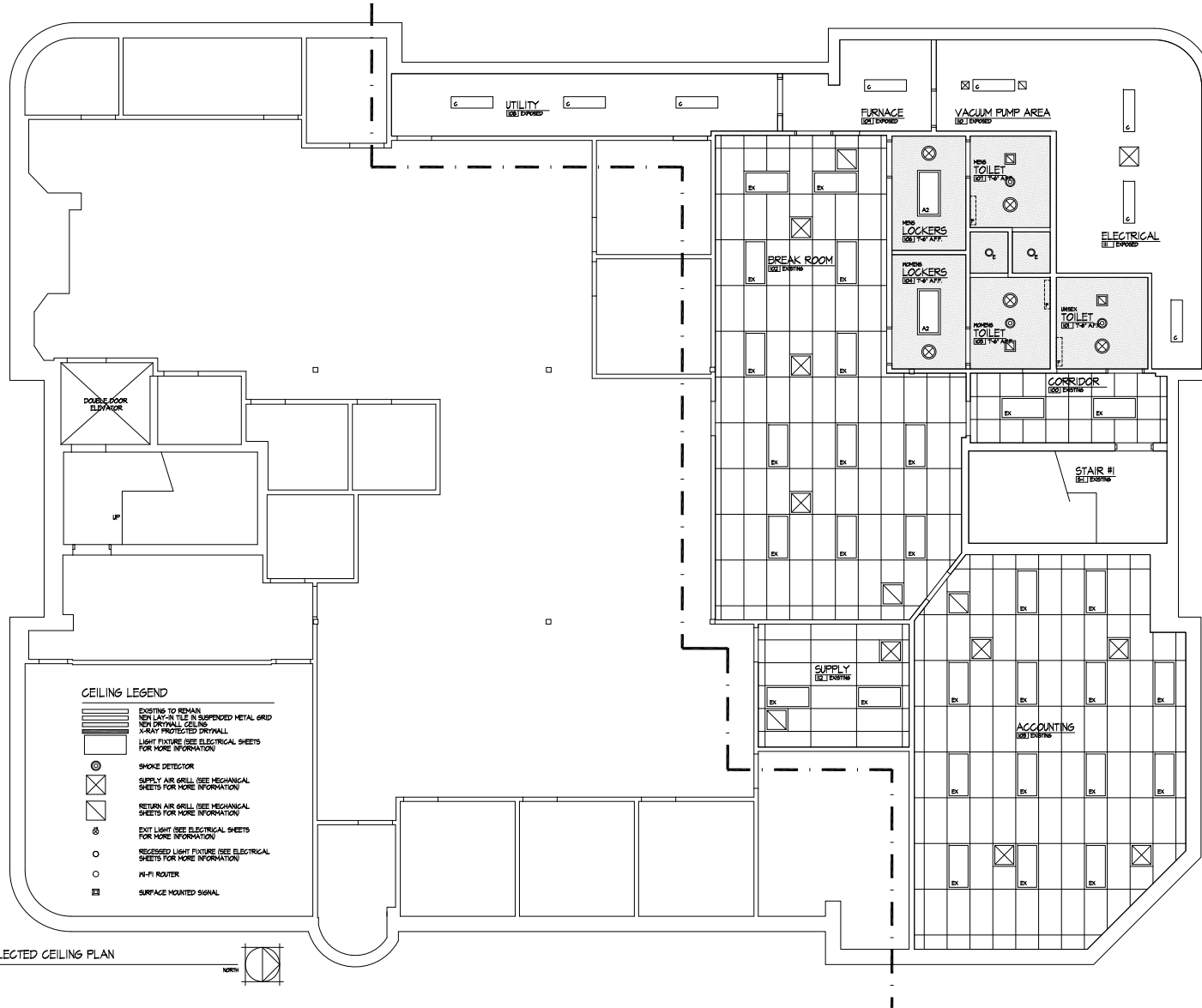
PROPOSED RENOVATION  
GREATER LAKES AMBULATORY SURGICAL CENTER, LLC.  
5900 W. 100th Avenue, Grand Rapids, Michigan 49508  
PROJECT  
14/1948  
DATE  
04/04/2020  
REVISIONS

*Glenn P. Dineen*



LICENSE NUMBER: 1313030329  
SIGNED & SEALED: 04/04/2020  
EXPIRES: 03/31/2025

SHEET  
A01.02



PROPOSED  
LOWER LEVEL REFLECTED CEILING PLAN  
SCALE 1/4" = 1'-0"



**PRIME DESIGN SYSTEMS, INC.**  
ARCHITECTURE  
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2371 OLD FISH LAKE  
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E-MAIL: PDS@PDSMICH.COM



PROPOSED RENOVATION  
GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
15000 POND CREEK DR. MUSKEGON, MICHIGAN 49658  
PROJECT  
H/1545  
DATE  
08/04/2020  
REVISIONS

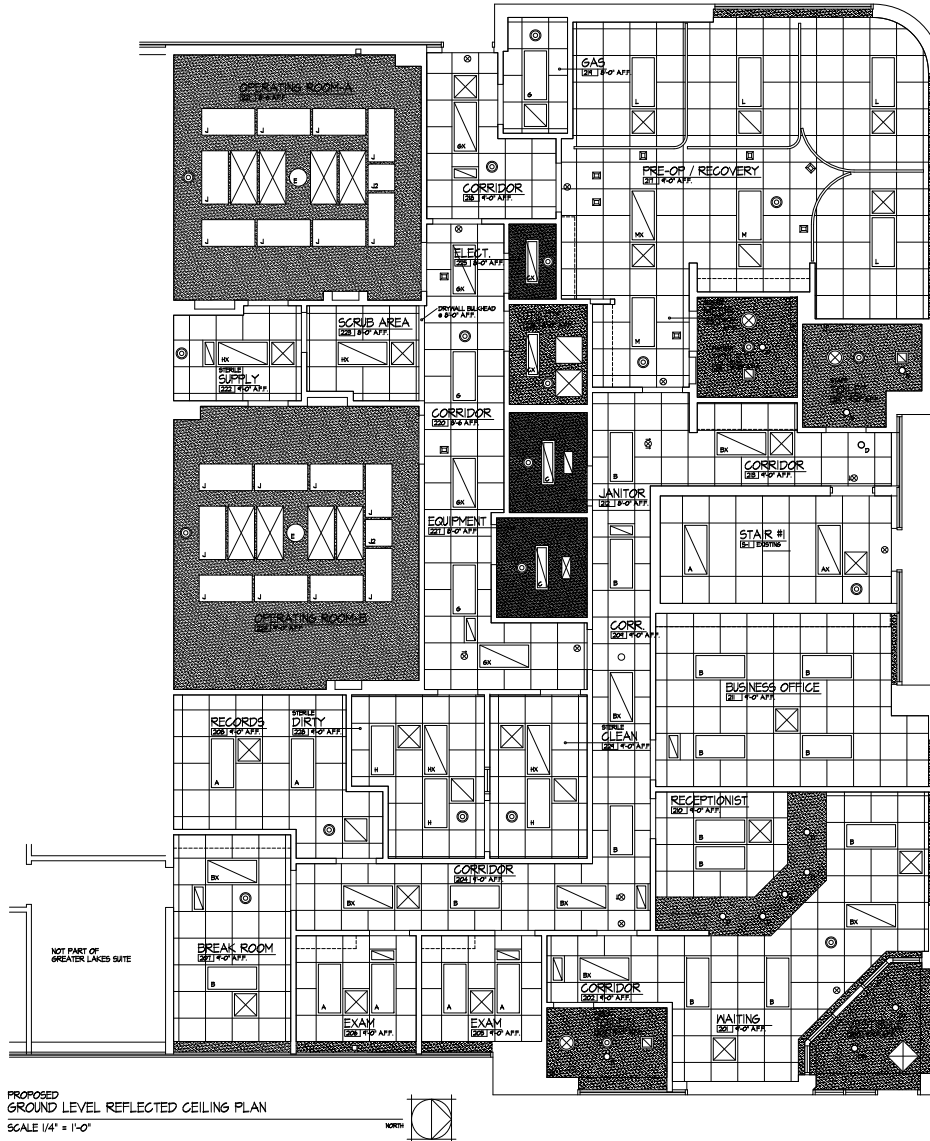
*Glenn P. Smith*
















LICENSE NUMBER: 1313030329  
SHEET # 5/23 08/04/2020  
DWG# 08/02/20

SHEET  
A02.01



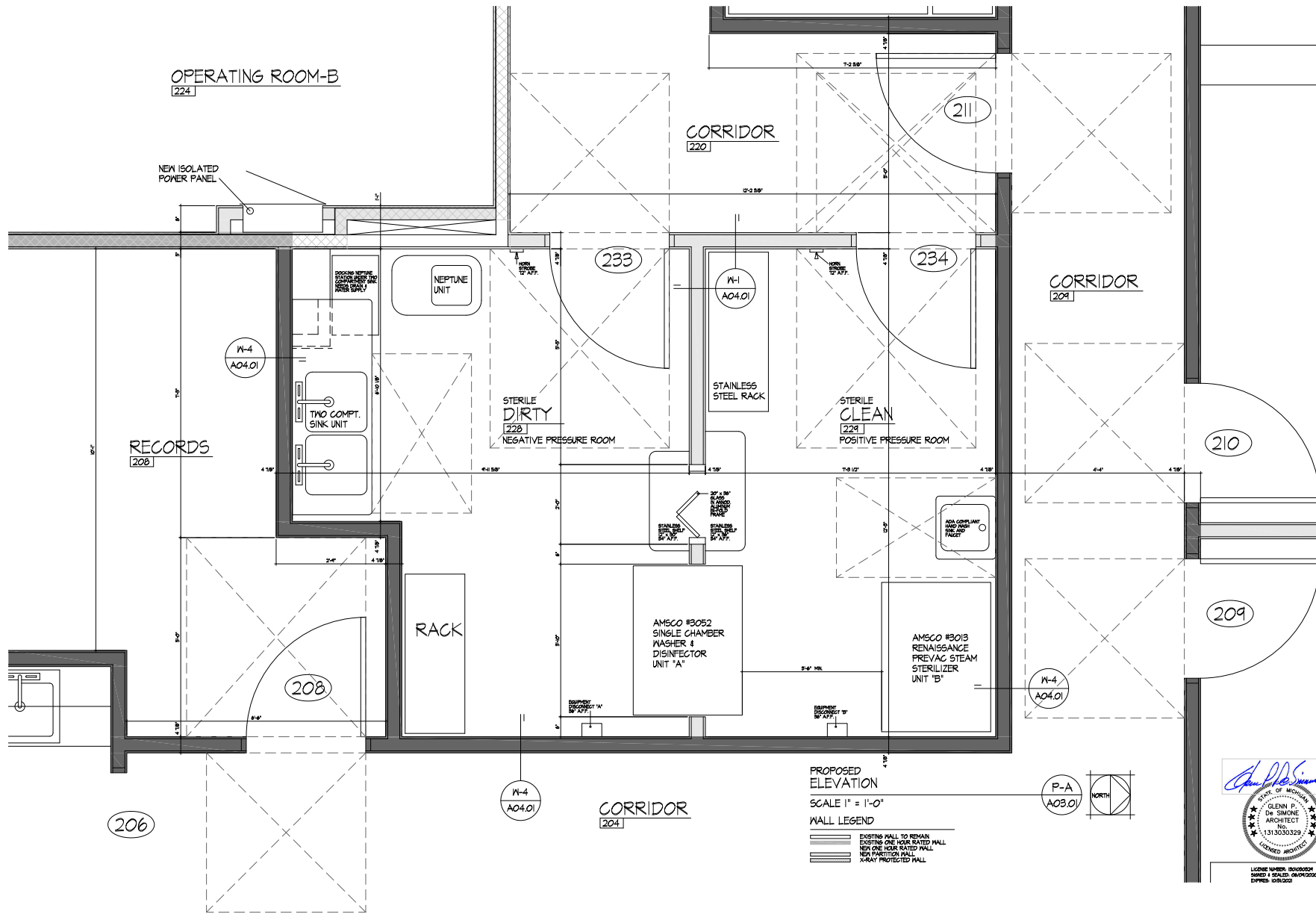


**CEILING LEGEND**

-  EXISTING TO REMAIN
-  NEW LAY-IN TILES IN SUSPENDED METAL GRID
-  NEW DRYWALL CEILING
-  NEW ONE HOUR RATED DRYWALL CEILING
-  2 LAYERS OF 5/8" TYPE "X" DRYWALL ON 1/2" H-FLR METAL STUDS @ 16" O.C.
-  LIGHT FIXTURE (SEE ELECTRICAL SHEETS FOR MORE INFORMATION)
-  SMOKE DETECTOR
-  SUPPLY AIR GRILL (SEE MECHANICAL SHEETS FOR MORE INFORMATION)
-  RETURN AIR GRILL (SEE MECHANICAL SHEETS FOR MORE INFORMATION)
-  EXIT LIGHT (SEE ELECTRICAL SHEETS FOR MORE INFORMATION)
-  RECESSED LIGHT FIXTURE (SEE ELECTRICAL SHEETS FOR MORE INFORMATION)
-  M-FI ROUTER
-  SURFACE MOUNTED SIGNAL

PROPOSED  
GROUND LEVEL REFLECTED CEILING PLAN  
SCALE 1/4" = 1'-0"





OPERATING ROOM-B  
224

NEW ISOLATED  
POWER PANEL

CORRIDOR  
220

211

233

234

CORRIDOR  
209

W-4  
AO4.01

RECORDS  
208

STERILE  
DIRTY  
223  
NEGATIVE PRESSURE ROOM

W-1  
AO4.01

STAINLESS  
STEEL RACK

STERILE  
CLEAN  
221  
POSITIVE PRESSURE ROOM

210

209

RACK

208

AMSCO #3052  
SINGLE CHAMBER  
WASHER &  
DISINFECTOR  
UNIT 'A'

AMSCO #3013  
RENAISSANCE  
PREVAC STEAM  
STERILIZER  
UNIT 'B'

W-4  
AO4.01

206

W-4  
AO4.01

CORRIDOR  
204

PROPOSED  
ELEVATION

SCALE 1" = 1'-0"

WALL LEGEND

- EXISTING WALL TO REMAIN
- EXISTING ONE HOUR RATED WALL
- NEW ONE HOUR RATED WALL
- NEW PARTITION WALL
- NEW PROTECTED WALL

P-A  
AO3.01



LICENSE NUMBER: 1313030329  
SIGNED: GLENN F. DESHANE  
DATE: 05/20/2020

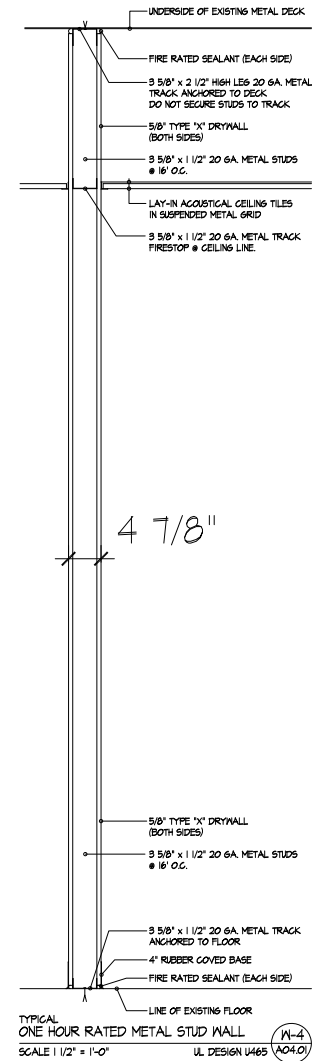
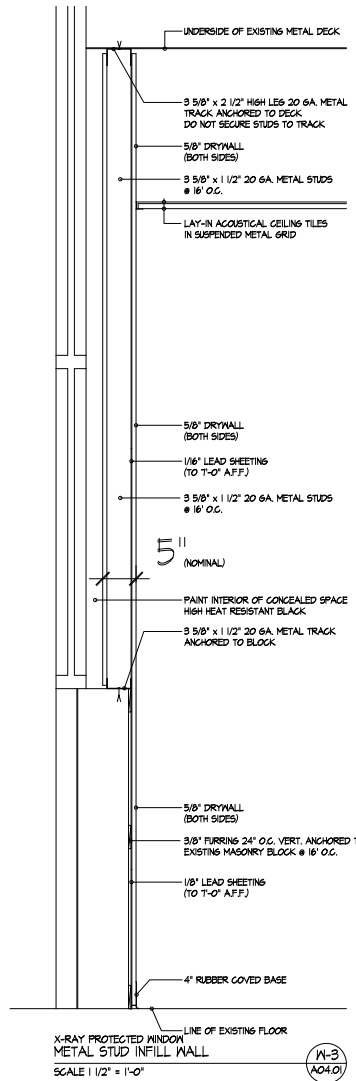
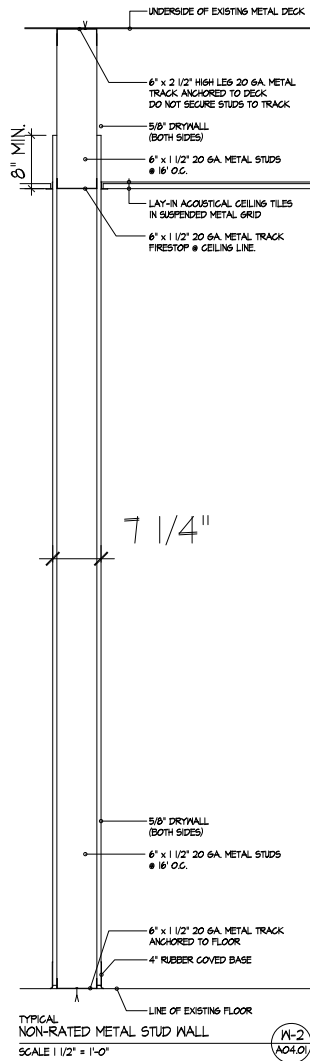
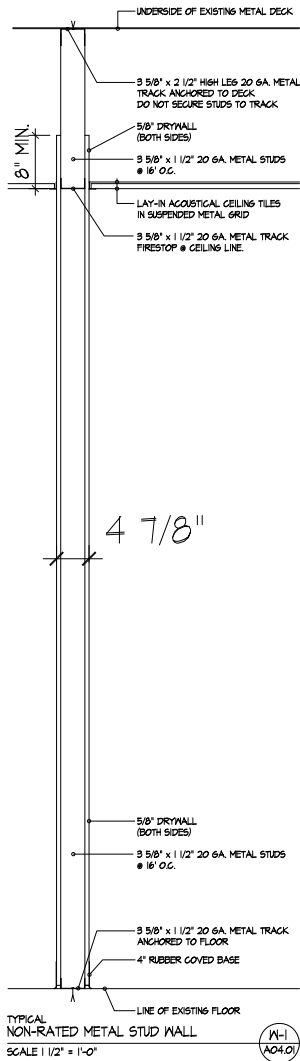
PRIME DESIGN SYSTEMS, INC.  
ARCHITECTURE  
2311 OLD FORT ROAD  
MUSKEGON, MICHIGAN 49631  
PHONE: 336-595-5100  
FAX: 336-595-4465  
E-MAIL: PRIME@PDS.COM

PROPOSED RENOVATION  
GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
PROJECT  
14/15/18  
DATE  
06/04/2020

REVISIONS

SHEET

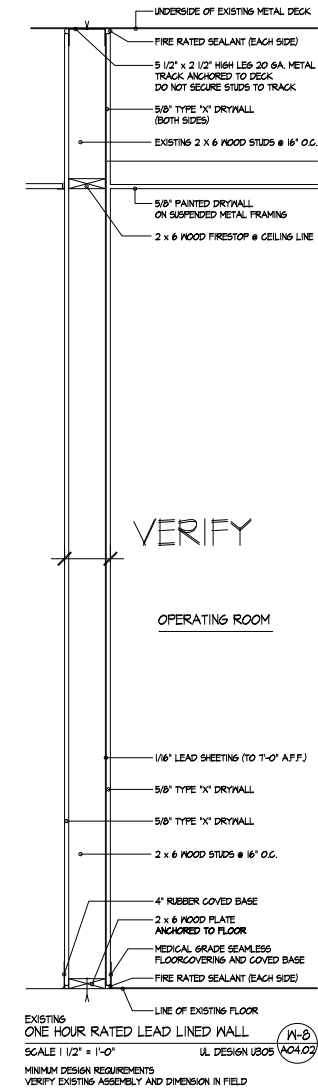
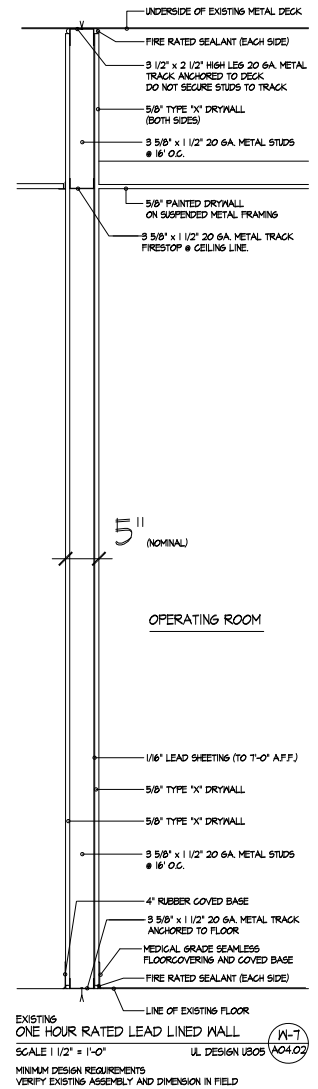
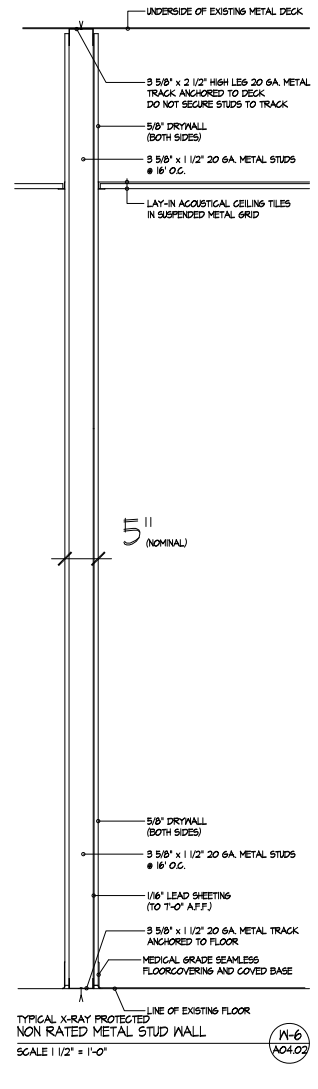
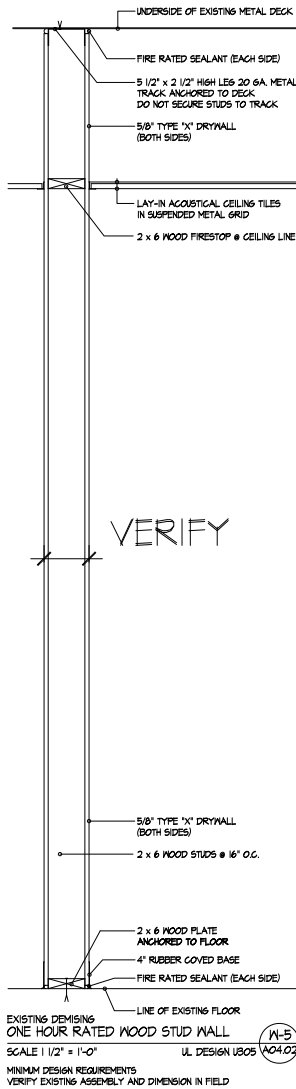
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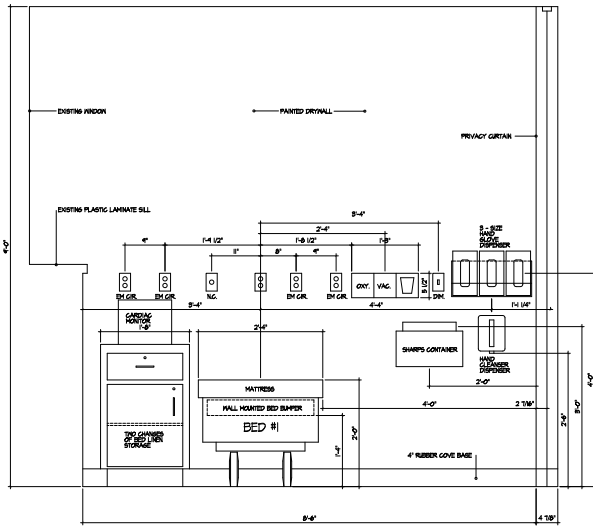


**PRIME DESIGN SYSTEMS, INC.**  
 ARCHITECTURE  
 2311 OLD FISH HOOK  
 MARQUETTE, MICHIGAN 49801  
 TEL: 336-595-5100  
 FAX: 336-477-4466  
 E-MAIL: PRIMEDS@PRIMEDS.COM

PROPOSED RENOVATION  
 GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
 1000 PLYMOUTH ROAD, GRAND RAPIDS, MICHIGAN 49508  
 PROJECT  
 14/1548  
 DATE  
 06/04/2020  
 REVISIONS

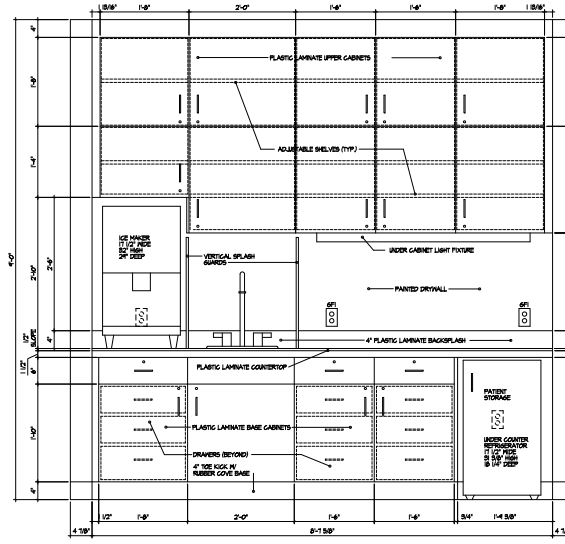
SHEET  
 A04.01





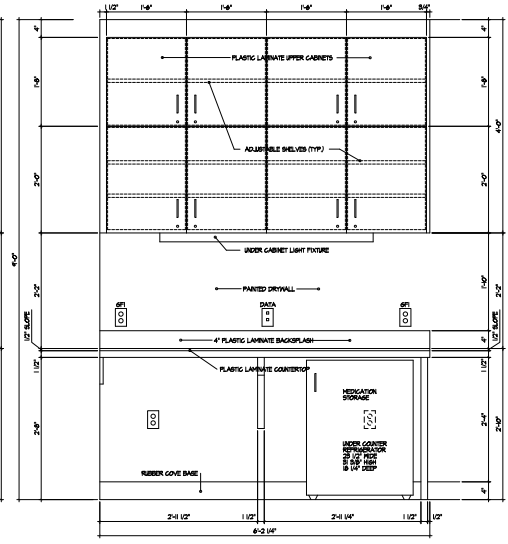
TYPICAL PRE-OP / RECOVERY BED SPACE  
ELEVATION  
SCALE 1" = 1'-0"

(E-01)  
A05.01



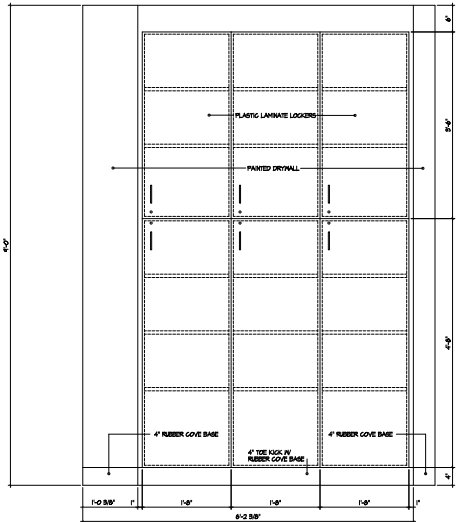
PRE-OP / RECOVERY  
ELEVATION  
SCALE 1" = 1'-0"

(E-02)  
A05.01



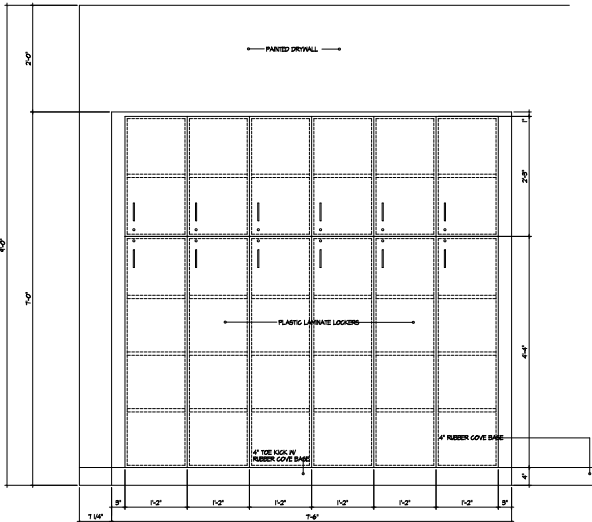
NURSES STATION  
ELEVATION  
SCALE 1" = 1'-0"

(E-03)  
A05.01



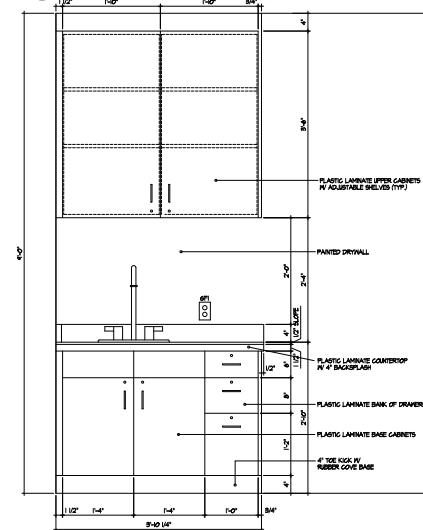
SECURE MEDICINE LOCKER  
ELEVATION  
SCALE 1" = 1'-0"

(E-04)  
A05.01



LOCKER  
ELEVATION  
SCALE 1" = 1'-0"

(E-05)  
A05.01



TYPICAL EXAM ROOM  
ELEVATION  
SCALE 1" = 1'-0"

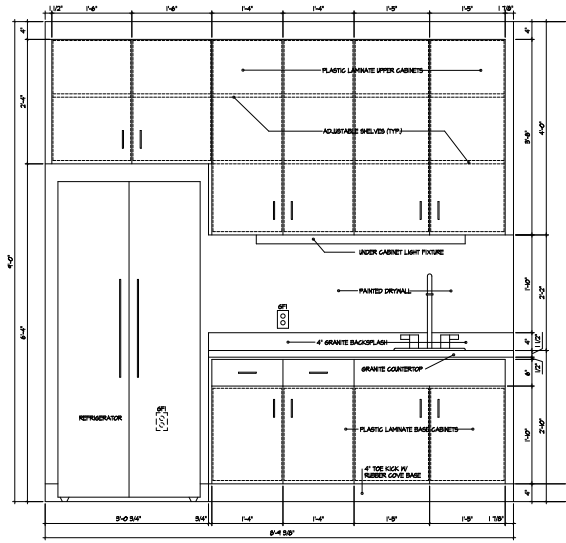
(E-06)  
A05.01

**PRIME DESIGN SYSTEMS, INC.**  
ARCHITECTURE INTERIORS GRAPHICS  
2311 OLD FORT ROAD BUREAU, MISSOURI 65011  
TEL: 316-595-5100 FAX: 316-477-4665 E-MAIL: PDS@PRIMEDSI.COM

PROPOSED RENOVATION  
GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
1000 POND CREEK DRIVE, HICKMAN, MISSOURI 64626  
PROJECT #191548  
DATE 08/09/2020  
REVISIONS

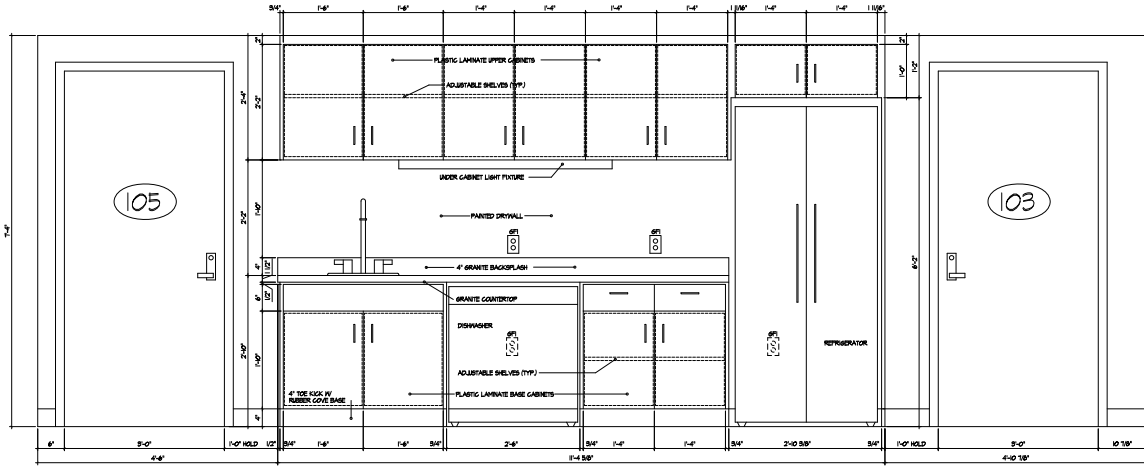


SHEET  
A05.01



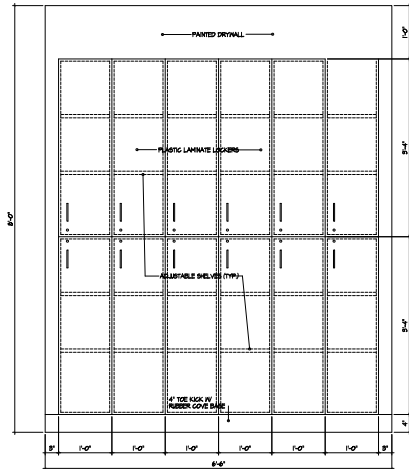
BREAK ROOM  
ELEVATION  
SCALE 1" = 1'-0"

E-01  
A05.02



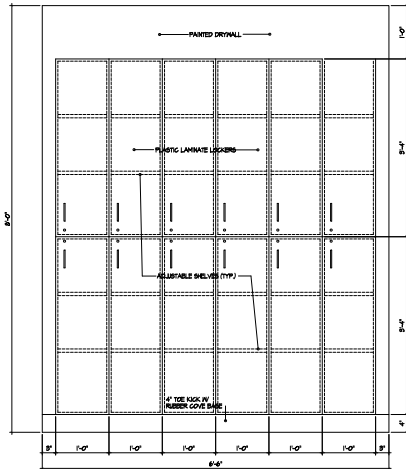
LOWER LEVEL BREAK ROOM  
ELEVATION  
SCALE 1" = 1'-0"

E-02  
A05.02



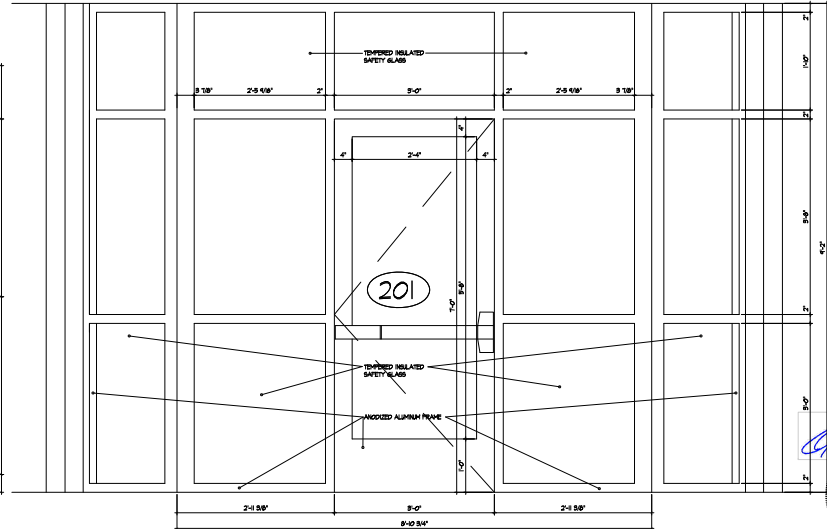
MEN'S LOCKER  
ELEVATION  
SCALE 1" = 1'-0"

E-04  
A05.02



WOMEN'S LOCKER  
ELEVATION  
SCALE 1" = 1'-0"

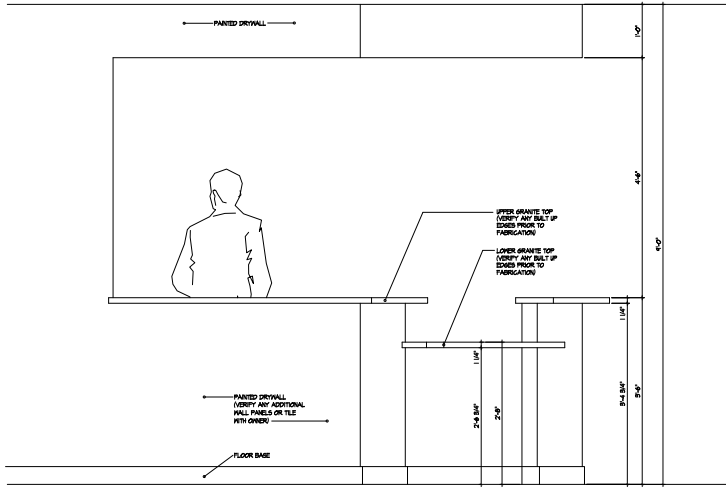
E-10  
A05.02



ENTRY VESTIBULE  
ELEVATION  
SCALE 1" = 1'-0"

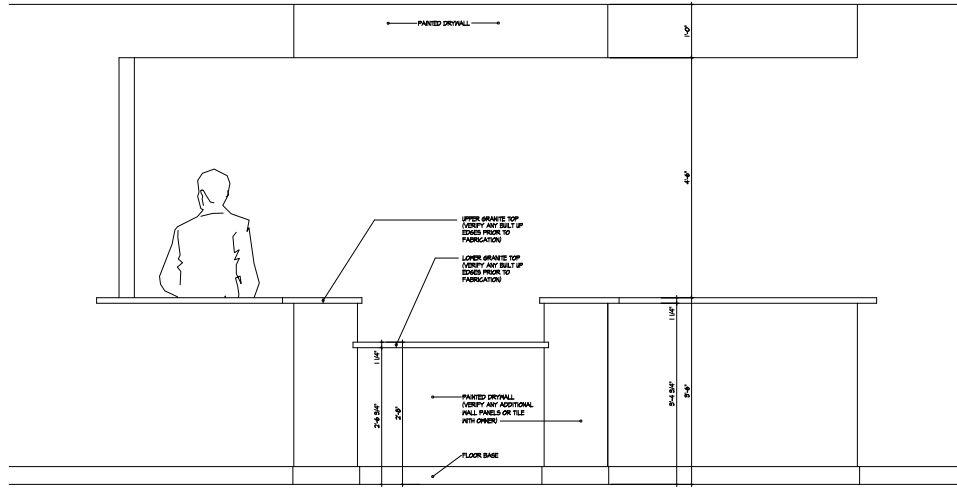
E-11  
A05.02





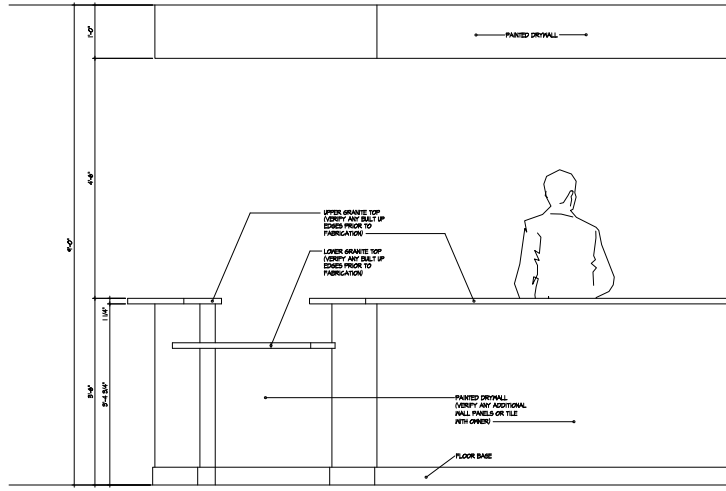
RECEPTION ELEVATION  
SCALE 1" = 1'-0"

E-12  
A05.03



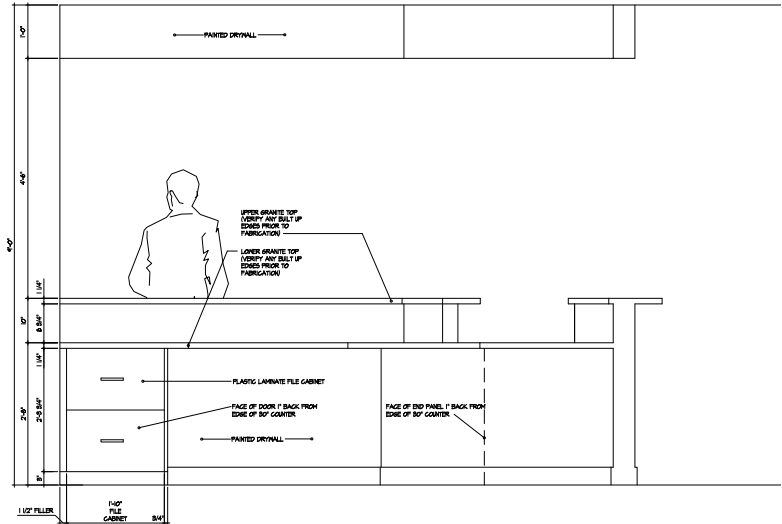
RECEPTION ELEVATION  
SCALE 1" = 1'-0"

E-13  
A05.03



RECEPTION ELEVATION  
SCALE 1" = 1'-0"

E-14  
A05.03



RECEPTION ELEVATION  
SCALE 1" = 1'-0"

E-15  
A05.03

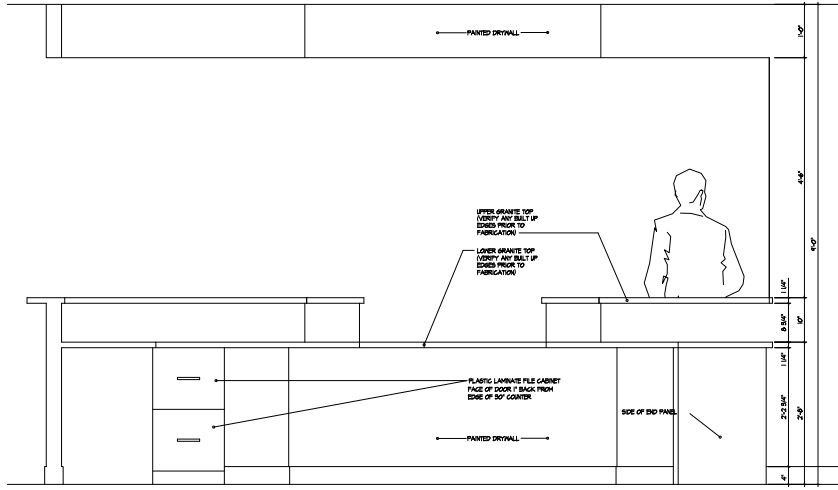
**PRIME DESIGN SYSTEMS, INC.**  
ARCHITECTURE  
2311 OLD FORT ROAD  
MUSKEGON, MICHIGAN 49631  
PHONE: 336-59-1100  
FAX: 336-59-1100  
E-MAIL: PDS@PRIMEDSI.COM

PROPOSED RENOVATION  
GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
5000 WOOD CENTER CENTER, HIGHLAND 48038  
PROJECT  
14/1548  
DATE  
06/04/2020  
REVISIONS



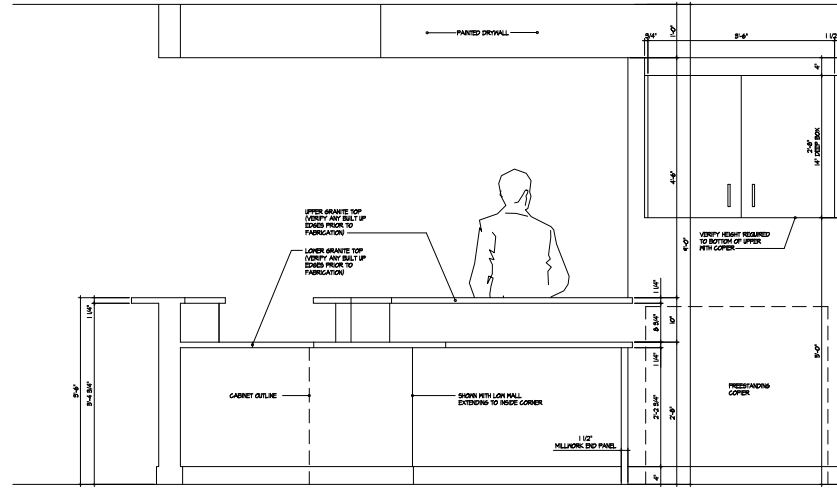
LICENSE NUMBER: 1313030329  
SIGNED & SEALED: 06/04/2020  
EXPIRES: 05/31/2022

SHEET  
A05.03



RECEPTION  
ELEVATION  
SCALE 1" = 1'-0"

E-16  
A05.04



RECEPTION  
ELEVATION  
SCALE 1" = 1'-0"

E-17  
A05.04

**PRIME DESIGN SYSTEMS, INC.**  
ARCHITECTURE PLANNING GRAPHICS  
INTERIORS  
2311 OLD FISH HOOK  
MUSKOGEE, MISSISSIPPI 39561  
TEL: 336-595-5100 FAX: 336-477-4655 E-MAIL: PDS@PRIMESYSTEMS.COM

PROPOSED RENOVATION  
GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
500 P. O. BOX 620000  
ANN ARBOR, MI 48106-4658  
PROJECT  
4/15/18  
DATE  
06/04/2020  
REVISIONS

*Glenn P. DeSandro*



LICENSE NUMBER: 1313030329  
SIGNED & SEALED: 06/04/2020  
EXPIRES: 05/31/2025

SHEET  
A05.04

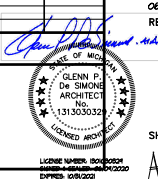


# DOORS AND FRAMES SCHEDULE

NUMBER	DOOR				FRAME								U.L. LABEL	HARDWARE			ACCESSORIES										REMARKS	NUMBER					
	FROM ROOM:	ROOM NO.	TO ROOM:	ROOM NO.	WIDTH	HEIGHT	THICKNESS	MATERIAL	TYPE	SHIMS	FINISH	WALL THICKNESS		MATERIAL	TYPE	JAMB	TYPE	LOCK	KEYING	GLASS	INT. CONTROLLER	AUTOMATIC	KEY CARD	DOOR STOP	LEAD LINED	INTERCOM			REINFORCED	GLASS BLOCK	GLASS W/ WIRE	GLASS BLOCK	GLASS BLOCK
LOWER LEVEL																																	
100	CORRIDOR	100	STAIR #1	5-1																											EXISTING TO REMAIN, NEEDS NEW PANIC HARDWARE	100	
101	CORRIDOR	100	UNISEX TOILET	101	8'-0"	8'-8"	1.54"	SGN	DB-A	RT	PAINT	4'-7/8"	HM	FB-A	J																EXISTING TO REMAIN, NEEDS NEW PANIC HARDWARE	101	
102	BREAK ROOM	102	CORRIDOR	100																											EXISTING TO REMAIN, NEEDS NEW PANIC HARDWARE	102	
105	BREAK ROOM	102	WOMENS LOCKERS	104	8'-0"	8'-8"	1.54"	SGN	DB-A	RT	PAINT	4'-7/8"	HM	FB-A	J																EXISTING TO REMAIN, NEEDS NEW PANIC HARDWARE	105	
104	WOMENS TOILET	105	WOMENS LOCKERS	104	8'-0"	8'-8"	1.54"	SGN	DB	LT	PAINT	4'-7/8"	HM	FB	J																EXISTING TO REMAIN, NEEDS NEW PANIC HARDWARE	104	
105	BREAK ROOM	102	MENS LOCKERS	106	8'-0"	8'-8"	1.54"	SGN	DB-A	LT	PAINT	4'-7/8"	HM	FB-A	J																EXISTING TO REMAIN, NEEDS NEW PANIC HARDWARE	105	
106	MENS TOILET	107	MENS LOCKERS	106	8'-0"	8'-8"	1.54"	SGN	DB	RT	PAINT	4'-7/8"	HM	FB	J																EXISTING TO REMAIN, NEEDS NEW PANIC HARDWARE	106	
107	FURNACE	104	BREAK ROOM	102	8'-0"	8'-8"	1.54"	SGN	DB-A	RT	PAINT	4'-7/8"	HM	FB-A	J																EXISTING TO REMAIN, NEEDS NEW PANIC HARDWARE	107	
106	UTILITY	106	ADJACENT SUITE		8'-0"	8'-8"	1.54"	SGN	DB-A	RT	PAINT	4'-7/8"	HM	FB-A	J																EXISTING TO REMAIN, NEEDS NEW PANIC HARDWARE	106	
104	FURNACE	104	UTILITY	106	8'-0"	8'-8"	1.54"	SGN	DB-A	RT	PAINT	4'-7/8"	HM	FB-A	J																EXISTING TO REMAIN, NEEDS NEW PANIC HARDWARE	104	
107	VACUUM PUMP	110	FURNACE	104	8'-0"	8'-8"	1.54"	SGN	DB-A	LT	PAINT	4'-7/8"	HM	FB-A	J																EXISTING TO REMAIN, NEEDS NEW PANIC HARDWARE	107	
11	ELIMINATED																														ELIMINATED	11	
112	BREAK ROOM	102	ADJACENT SUITE																												EXISTING TO REMAIN	112	
18	BREAK ROOM	102	ACCOUNTING	103																											EXISTING TO REMAIN	18	
14	SUPPLY	112	ADJACENT SUITE																												EXISTING TO REMAIN	14	
GROUND LEVEL																																	
200	VESTIBULE	200	EXTERIOR																												EXISTING TO REMAIN	200	
201	WAITING	201	VESTIBULE	200	8'-0"	7'-0"	1.54"	AA	D4	LT	AA	4'-1/2"	AA	F4	J2																EXISTING TO REMAIN	201	
202	CORRIDOR	202	PUBLIC TOILET	203	8'-0"	7'-0"	1.54"	SGN	D1	LT	PAINT	4'-7/8"	HM	F1	J1																EXISTING TO REMAIN	202	
203	CORRIDOR	204	CORRIDOR	202	8'-0"	7'-0"	1.54"	SGN	DB-A	RT	PAINT	4'-7/8"	HM	F1-A	J1																EXISTING TO REMAIN	203	
204	CORRIDOR	204	EXAM	205	8'-0"	7'-0"	1.54"	SGN	D1-A	LT	PAINT	4'-7/8"	HM	F1-A	J1																EXISTING TO REMAIN	204	
205	CORRIDOR	204	EXAM	206	8'-0"	7'-0"	1.54"	SGN	D1-A	LT	PAINT	4'-7/8"	HM	F1-A	J1																EXISTING TO REMAIN	205	
206	BREAK ROOM	207	CORRIDOR	204	8'-0"	7'-0"	1.54"	SGN	D1-A	LT	PAINT	4'-7/8"	HM	F1-A	J1																EXISTING TO REMAIN	206	
207	BREAK ROOM	207	ADJACENT SUITE		8'-0"	7'-0"	1.54"	HM	D1-A	RT	PAINT	1'-1/4"	HM	F1-A	J1																EXISTING TO REMAIN	207	
208	CORRIDOR	204	RECORDS	208	8'-0"	7'-0"	1.54"	SGN	D1-A	RT	PAINT	4'-7/8"	HM	F1-A	J1																EXISTING TO REMAIN	208	
204	CORRIDOR	204	RECEPTIONIST	210	8'-0"	7'-0"	1.54"	SGN	D1-A	LT	PAINT	4'-7/8"	HM	F1-A	J1																EXISTING TO REMAIN	204	
210	CORRIDOR	204	BUSINESS OFFICE	211	8'-0"	7'-0"	1.54"	SGN	D1-A	RT	PAINT	4'-7/8"	HM	F1-A	J1																EXISTING TO REMAIN	210	
211	CORRIDOR	204	CORRIDOR	220	8'-0"	7'-0"	1.54"	SGN	DB-A	RT	PAINT	4'-7/8"	HM	F1-A	J1																	EXISTING TO REMAIN	211
212	CORRIDOR	204	JANITOR	212	8'-0"	7'-0"	1.54"	SGN	D1-A	LT	PAINT	4'-7/8"	HM	F1-A	J1																	EXISTING TO REMAIN	212
218	CORRIDOR	218	STAIR #1	5-1																											EXISTING TO REMAIN	218	
214	CORRIDOR	218	STAFF TOILET	214	8'-0"	7'-0"	1.54"	SGN	D1-A	LT	PAINT	4'-7/8"	HM	F1-A	J1																EXISTING TO REMAIN	214	
216	MEDS	218	CORRIDOR	218	8'-0"	7'-0"	1.54"	SGN	DB-A	LT	PAINT	4'-7/8"	HM	F1-A	J1																EXISTING TO REMAIN	216	
216	MEDS	218	PATIENT TOILET	216	8'-0"	7'-0"	1.54"	SGN	D1	LT	PAINT	1'-1/4"	HM	F1	J1																EXISTING TO REMAIN	216	
217	PRE-OP / RECOVERY	217	PATIENT BED #1		-	-	-	FABRIC	D6	CURTAIN	-	-	-	-																	CEILING MOUNTED CURTAIN RAIL	217	
218	PRE-OP / RECOVERY	217	PATIENT BED #2		-	-	-	FABRIC	D6	CURTAIN	-	-	-	-																	CEILING MOUNTED CURTAIN RAIL	218	
214	PRE-OP / RECOVERY	217	PATIENT BED #3		-	-	-	FABRIC	D6	CURTAIN	-	-	-	-																	CEILING MOUNTED CURTAIN RAIL	214	
220	PRE-OP / RECOVERY	217	PATIENT BED #4		-	-	-	FABRIC	D6	CURTAIN	-	-	-	-																	CEILING MOUNTED CURTAIN RAIL	220	
221	PRE-OP / RECOVERY	217	CORRIDOR	218	8'-8"	7'-0"	1.54"	SGN	DB	LT	PAINT	4'-7/8"	HM	F2	J1																EXISTING TO REMAIN	221	
222	CORRIDOR	218	GAS	214	8'-0"	7'-0"	1.54"	SGN	D1-A	RT	PAINT	4'-7/8"	HM	F1-A	J1																EXISTING TO REMAIN	222	
228	CORRIDOR	218	EXTERIOR																												EXISTING TO REMAIN	228	
224	CORRIDOR	220	CORRIDOR	218	8'-8"	7'-0"	1.54"	SGN	DB	LT	PAINT	4'-7/8"	HM	F2	J1																EXISTING TO REMAIN	224	
228	CORRIDOR	220	OPERATING ROOM-A	221	8'-8"	7'-0"	1.54"	SGN	D2-B	LT	PAINT	4'-7/8"	HM	F2	J1																EXISTING TO REMAIN	228	
228	STERILE SUPPLY	222	OPERATING ROOM-A	221	8'-0"	7'-0"	1.54"	SGN	D1-B	LT	PAINT	8'	HM	F1	J1																EXISTING TO REMAIN	228	
227	STERILE SUPPLY	222	OPERATING ROOM-B	224	8'-0"	7'-0"	1.54"	SGN	D1-B	RT	PAINT	8'	HM	F1	J1																EXISTING TO REMAIN	227	
228	STERILE SUPPLY	222	SCRUB AREA	225	8'-0"	7'-0"	1.54"	SGN	DB-C	LT	PAINT	4'-7/8"	HM	F1	J1																EXISTING TO REMAIN	228	
221	ELECTRICAL	228	CORRIDOR	220	8'-0"	7'-0"	1.54"	SGN	D1-A	LT	PAINT	4'-7/8"	HM	F1-A	J1																EXISTING TO REMAIN	221	
280	CORRIDOR	220	UTILITY	226	8'-0"	7'-0"	1.54"	SGN	D1	LT	PAINT	4'-7/8"	HM	F1	J1																EXISTING TO REMAIN	280	
281	CORRIDOR	220	OPERATING ROOM-B	224	8'-8"	7'-0"	1.54"	SGN	D2-B	RT	PAINT	8'	HM	F2	J1																EXISTING TO REMAIN	281	
282	CORRIDOR	220	EQUIPMENT	227	8'-0"	7'-0"	1.54"	SGN	D1-A	LT	PAINT	4'-7/8"	HM	F1-A	J1																EXISTING TO REMAIN	282	
285	CORRIDOR	220	STERILE DIRTY	228	8'-0"	7'-0"	1.54"	SGN	DB-C	LT	PAINT	4'-7/8"	HM	F1	J1																EXISTING TO REMAIN	285	
284	CORRIDOR	220	STERILE CLEAN	224	8'-0"	7'-0"	1.54"	SGN	DB-C	LT	PAINT	4'-7/8"	HM	F1	J1																EXISTING TO REMAIN	284	

## NOTES:

- CONTRACTOR TO VERIFY ALL SITE CONDITIONS PRIOR TO ORDERING DOORS (I.E. EXISTING WALL THICKNESSES, ETC.)
- CONTRACTOR TO VERIFY WITH OWNER ANY DOORS IN INVENTORY ON SITE CURRENTLY PRIOR TO ORDERING (I.E. NEW LEAD DOORS ARE ALREADY PURCHASED)
- CONTRACTOR TO VERIFY WITH OWNER TO REPLACE ANY HARDWARE ON EXISTING DOORS TO REMAIN
- CONTRACTOR TO VERIFY ANY DOORS AND FRAMES TO BE REDUCED IN THE FIELD
- CONTRACTOR TO VERIFY ALL LOCKING TYPES WITH OWNER



### JAMB TYPES

HOLLOW METAL WELDED FRAME DOOR JAMB PLUS 1/4" EQUALS ROUGH OPENING (VERIFY EXISTING JAMB IN FIELD)

ANODIZED ALUMINUM FINISH FRAME (COORDINATE FRAME FINISH WITH FINISH SUPPLIER)

ANODIZED ALUMINUM DOOR FRAME ALIGNED TO STUDS AND GASKETS REQUIRED MATCH EXISTING FINISH AND WIDTH

ANODIZED ALUMINUM FRAME

SEE MFG SPECS FOR ALL SPECIFIC DETAILS

### HARDWARE TYPES

H1 LATCH

H2 ONE POINT PANG HARDWARE

H3 HOSPITAL PUSH / PULL

B HINGES

7"-0" HIGH WOOD DOORS RECEIVE (B) HINGES OWNER TO VERIFY ALL LOCKSETS AND KEYING AND CARD READER LOCATIONS

### ABBREVIATIONS

AA = ANODIZED ALUMINUM  
 HM = HOLLOW METAL  
 LS = LOCK SET  
 LH = LEFT HAND SWING  
 OH = OVER HEAD DOOR  
 PS = PASSAGE SET  
 RF = REDI-FRAME  
 RH = RIGHT HAND SWING  
 SCW = SOLID CORE WOOD

### DOOR TYPES

D1 FULL DOOR  
 D2 FULL DOOR 60 MIN RATED  
 D3 FULL DOOR LEAD LINED  
 D4 NARROW GLASS  
 D5 NARROW GLASS 60 MIN RATED  
 D6 NARROW GLASS 1/4" GLASS  
 D7 FULL GLASS  
 D8 PATIENT CURTAIN

### FRAME TYPES

F1 HOLLOW METAL  
 F2 HOLLOW METAL 60 MIN RATED  
 F3 HOLLOW METAL  
 F4 HOLLOW METAL 60 MIN RATED  
 F5 ANODIZED ALUMINUM (VERIFY SIZE IN FIELD)

**PRIME DESIGN SYSTEMS, INC.**  
 ARCHITECTURE  
 INTERIORS  
 2311 OLD FISH HOOK  
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PROPOSED RENOVATION  
 GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
 6000 WOODLAND CENTER DRIVE, TULSA, OKLAHOMA 74106  
 PROJECT  
 14/1545  
 DATE  
 06/04/2020

REVISIONS

STATE OF MICHIGAN  
 GLENN F. DESHANE  
 ARCHITECT  
 No. 1313030329  
 LICENSED ARCHITECT

SHEET  
 A06.02

ROOM FINISH SCHEDULE

ROOMS		FLOOR			BASE		NORTH WALL		EAST WALL		SOUTH WALL		WEST WALL		CEILING		REMARKS	ROOM No.	
ROOM No.	ROOM NAME	HOLD DOWN	MATERIAL	COLOR CODE	MATERIAL	COLOR CODE	MATERIAL	COLOR CODE	MATERIAL	COLOR CODE	MATERIAL	COLOR CODE	MATERIAL	COLOR CODE	MATERIAL	COLOR CODE			HEIGHT
LOWER LEVEL																			
100	CORRIDOR	-	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	7'-4" A.F.F.	100
101	UNISEX TOILET	-	EXISTING	EXISTING	EXISTING	EXISTING	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	EXISTING	EXISTING	EXISTING	7'-4" A.F.F.	101
102	BREAK ROOM	-	EXISTING	EXISTING	EXISTING	EXISTING	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	EXISTING	EXISTING	EXISTING	7'-4" A.F.F.	102
103	ACCOUNTING	-	EXISTING															EXISTING - REPAIR DRYWALL AS REQUIRED	103
104	WOMENS LOCKERS	-	VCT	MATCH EXSTG	RSB	MATCH EXSTG	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	DRYWALL	DRYWALL	8'-0" A.F.F.	OWNER TO VERIFY IF PT IS DESIRED OVER VGT	104
105	WOMENS TOILET	-	VCT	MATCH EXSTG	RSB	MATCH EXSTG	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	DRYWALL	DRYWALL	8'-0" A.F.F.	OWNER TO VERIFY IF PT IS DESIRED OVER VGT	105
106	MENS LOCKER	-	VCT	MATCH EXSTG	RSB	MATCH EXSTG	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	DRYWALL	DRYWALL	8'-0" A.F.F.	OWNER TO VERIFY IF PT IS DESIRED OVER VGT	106
107	MENS TOILET	-	VCT	MATCH EXSTG	RSB	MATCH EXSTG	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	DRYWALL	DRYWALL	8'-0" A.F.F.	OWNER TO VERIFY IF PT IS DESIRED OVER VGT	107
108	UTILITY	-	EXISTING	EXISTING	RSB	MATCH EXSTG	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	7'-4" A.F.F.	108
109	FURNACE	-	EXISTING	EXISTING	RSB	MATCH EXSTG	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	7'-4" A.F.F.	109
110	VACUUM PUMP AREA	-	EXISTING	EXISTING	RSB	MATCH EXSTG	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	7'-4" A.F.F.	110
111	ELECTRICAL	-	EXISTING	EXISTING	RSB	MATCH EXSTG	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	7'-4" A.F.F.	111
112	SUPPLY	-	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	7'-4" A.F.F.	112
GROUND LEVEL																			
5-1	STAIR #1		EXISTING															EXISTING - REPAIR DRYWALL AS REQUIRED	5-1
200	VESTIBULE	-	GT	TBD	GT	MATCH FLOOR	EXISTING	PAINT	EXISTING	PAINT	6PB/P	PAINT	6PB/P	PAINT	DRYWALL	PAINT	4'-0" A.F.F.	CLEAN AND REPAIR EXISTING GLASS & ANOD. ALUMINUM FRAMES	200
201	WAITING	-	GT	TBD	GT	MATCH FLOOR	EXISTING	PAINT	EXISTING	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-02	4'-0" A.F.F.	CLEAN AND REPAIR EXISTING GLASS & ANOD. ALUMINUM FRAMES	201
202	CORRIDOR	-	GT	TBD	GT	MATCH FLOOR			6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-02	4'-0" A.F.F.		202
203	PUBLIC TOILET	-	GT	TBD	GT	MATCH FLOOR	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	DRYWALL	PAINT	4'-0" A.F.F.	CLEAN AND REPAIR EXISTING GLASS & ANOD. ALUMINUM FRAMES	203
204	CORRIDOR	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-02	4'-0" A.F.F.		204
205	EXAM	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-01	4'-0" A.F.F.	CLEAN AND REPAIR EXISTING GLASS & ANOD. ALUMINUM FRAMES	205
206	EXAM	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-01	4'-0" A.F.F.	CLEAN AND REPAIR EXISTING GLASS & ANOD. ALUMINUM FRAMES	206
207	BREAK ROOM	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-02	4'-0" A.F.F.	CLEAN AND REPAIR EXISTING GLASS & ANOD. ALUMINUM FRAMES	207
208	RECORDS	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-02	4'-0" A.F.F.		208
209	CORRIDOR	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-02	4'-0" A.F.F.		209
210	RECEPTIONIST	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-02	4'-0" A.F.F.		210
211	BUSINESS OFFICE	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-02	4'-0" A.F.F.	CLEAN AND REPAIR EXISTING GLASS & ANOD. ALUMINUM FRAMES	211
212	JANITORS CLOSET	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-02	4'-0" A.F.F.		212
213	CORRIDOR	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-02	4'-0" A.F.F.		213
214	STAFF TOILET	-	PT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	DRYWALL	PAINT	4'-0" A.F.F.		214
215	MEDS	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-01	4'-0" A.F.F.		215
216	PATIENT TOILET	-	PT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	DRYWALL	PAINT	4'-0" A.F.F.		216
217	PRE-OP / RECOVERY	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-01	4'-0" A.F.F.	CLEAN AND REPAIR EXISTING GLASS & ANOD. ALUMINUM FRAMES	217
218	CORRIDOR	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-01	4'-0" A.F.F.		218
219	GAS	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-01	4'-0" A.F.F.		219
220	CORRIDOR	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-01	4'-0" A.F.F.		220
221	OPERATING ROOM A	-	MGV	TBD	ICB	MATCH FLOOR	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	DRYWALL	PAINT	4'-0" A.F.F.		221
222	STERILE SUPPLY	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-01	4'-0" A.F.F.		222
223	SCRUB AREA	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-01	4'-0" A.F.F.		223
224	OPERATING ROOM B	-	MGV	TBD	ICB	MATCH FLOOR	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	DRYWALL	PAINT	4'-0" A.F.F.		224
225	ELECTRICAL	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	DRYWALL	PAINT	4'-0" A.F.F.		225
226	UTILITY	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	DRYWALL	PAINT	4'-0" A.F.F.		226
227	EQUIPMENT	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-01	4'-0" A.F.F.		227
228	STERILE DIRTY	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-01	4'-0" A.F.F.		228
229	STERILE CLEAN	-	VGT	TBD	RSB	TBD	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	6PB/P	PAINT	ACT	ACT-01	4'-0" A.F.F.		229

FINISH NOTES:

- 1) CLEAN AND REPLACE / REPAIR EXISTING FINISHES TO REMAIN AS REQUIRED (I.E. FLOORING MATERIALS)
- 2) ALL MATERIALS TO MEET THE CURRENT "MINIMUM DESIGN STANDARDS FOR HEALTHCARE FACILITIES IN MICHIGAN"
- 3) ALL PAINT COLORS TO BE DETERMINED
- 4) TYPICALLY ADJUSTED ROOM SIZES TO HAVE EXISTING FLOOR MATERIALS FILLED IN, CLEANED AND REPAIRED AS REQUIRED

*Chris P. [Signature]*



**PRIME DESIGN SYSTEMS, INC.**  
 ARCHITECTURE  
 2311 OLD FISH LAKE RD  
 WARREN, MICHIGAN 48091  
 INTERIORS 586-47-4665  
 PLANNING 586-59-5100  
 GRAPHICS 586-59-5100  
 F-MAIL: PRIME@PRIMESYS.COM

PROPOSED RENOVATION  
 GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
 800 W. WELLS CHURCH LANE, WARREN, MICHIGAN 48093  
 ROOM FINISH SCHEDULE  
 PROJECT #19198  
 DATE 04/14/2020  
 REVISIONS

SHEET  
A01.01

LICENSED PROFESSIONAL ARCHITECT  
 STATE OF MICHIGAN  
 LICENSE NO. 1313030328  
 EXPIRES 09/30/2020

FINISH MATERIALS			
COLOR CODE	ITEM	LOCATION	DESCRIPTION
ACT-01	ACOUSTIC CEILING TILE (24"x24" HEALTHCARE GRADE)	205 EXAM	MANUFACTURER: US6
		206 EXAM	STYLE: MARS HEALTHCARE PANELS CLIMA PLUS PERFORMANCE SMOOTH - TEXTURED PANEL CLASS 100 # 560M
		215 MEDS	COLOR: WHITE SIZE: 24" X 24" X 7/8" SQUARE EDGE
		217 PRE-OP / RECOVERY	
		218 CORRIDOR	NOTE: THIS IS A FIRECODE PRODUCT AND IS DESIGNED TO MEET LIFE-SAFETY CODES
		219 GAS	
		220 CORRIDOR	
		222 STERILE SUPPLY	GRID MANUFACTURER: US6
		223 SCRUB AREA	GRID STYLE: GE ACOUSTICAL SUSPENSION SYSTEM - 15/16" TEE SYSTEM HEAVY DUTY 12" MAINS #DXCE26, 2 FT TEES # DXCE224, 4 FT TEES # DXCE424, WALL MOLDINGS # MICE, HOLD DOWN CLIPS LIS
		224 STERILE DIRTY	NOTE: THIS MEETS 2014 GUIDELINES FOR HEALTHCARE FACILITIES
		(GRID AT 4' AFF TYPICAL UNLESS NOTED OTHERWISE)	
ACT-02	ACOUSTIC CEILING TILE (24"x24")	201 WAITING	MANUFACTURER: US6
		202 CORRIDOR	STYLE: FROST-HIGH NRC/HIGH-CAC ACOUSTICAL PANELS CLIMAPLUS PERFORMANCE # 484
		204 CORRIDOR	COLOR: WHITE SIZE: 24" X 24" X 7/8" EDGE PROFILE SLB
		207 BREAK ROOM	
		209 RECORDS	NOTE: MEETS HEALTHCARE (HIPAA REQUIREMENTS)
		204 CORRIDOR	
		210 RECEPTION	GRID MANUFACTURER: US6
		211 BUSINESS OFFICE	GRID STYLE: DONN BRAND DX/DXL ACOUSTICAL SUSPENSION SYSTEM -15/16" TEE SYSTEM
		212 JANITORS CLOSET	HEAVY DUTY 12" MAINS # DX/DXL 26, 2 FT TEES # DX/DXL 216, 4 FT TEES DX/DXL # 424, WALL MOLDING # MT
		213 CORRIDOR	
		(GRID AT 4' AFF TYPICAL UNLESS NOTED OTHERWISE)	

ABBREVIATIONS	
ACT	ACOUSTICAL CEILING TILE
AL	ALUMINUM
AWC	ACOUSTICAL WALLCOVERING
ARFR	ABUSE RESISTANT FIBEROCK
DIA PL	DIAMOND PLATE
C	COVERED
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
GPT	CARPET BROADLOOM
GPTT	CARPET TILE
CT	CERAMIC TILE
EXPO	EXPOSED CONSTRUCTION
EXIST	EXISTING
EPX	EPOXY PAINT
FFIN	FACTORY FINISH
FNC	FABRIC WALLCOVERING
FP	FOLDING PARTITION
GL	GLASS
GFB	GYPSPUM BOARD
ICE	INTEGRAL COVERED BASE
IMP	INSULATED METAL PANEL
IMS	INSULATED METAL SIDING
INP	INSULATED WINDOW PANEL
LH	LIQUID HARDENER
LVP	LUXURY VINYL PLANK
MG	METAL GRATE
M6V	MEDICAL GRADE SEAMLESS VINYL
MMP	MOVEABLE METAL PARTITION
P	PAINT
PC	PROTECTIVE COATING
PLAM	PLASTIC LAMINATE
PT	PORCELAIN TILE
PLYND	PLYWOOD
QT	QUARRY TILE
R	RESINOUS
RAF	RAISED ACCESS FLOOR
RBT	RUBBER TILE
RSB	RESILIENT SHEET BASE
S	SEALER
STL	STEEL
STN	STONE
SST	STAINLESS STEEL
SR	SHEET RESILIENT-HOMOGENEOUS
TBD	TO BE DETERMINED
TS6	TEMPERED SAFETY GLASS
TNC	TEXTILE WALLCOVERING
TP	TRANSLUCENT PANEL
U	URETHANE (CLEAR)
UNF	UNFINISHED
VGT	VINYL COMPOSITION TILE
VNC	VINYL WALLCOVERING
WMP	WIRE MESH PARTITION
WD	WOOD (3" HIGH OAK BASE TYP)
WV	WOOD VENEER

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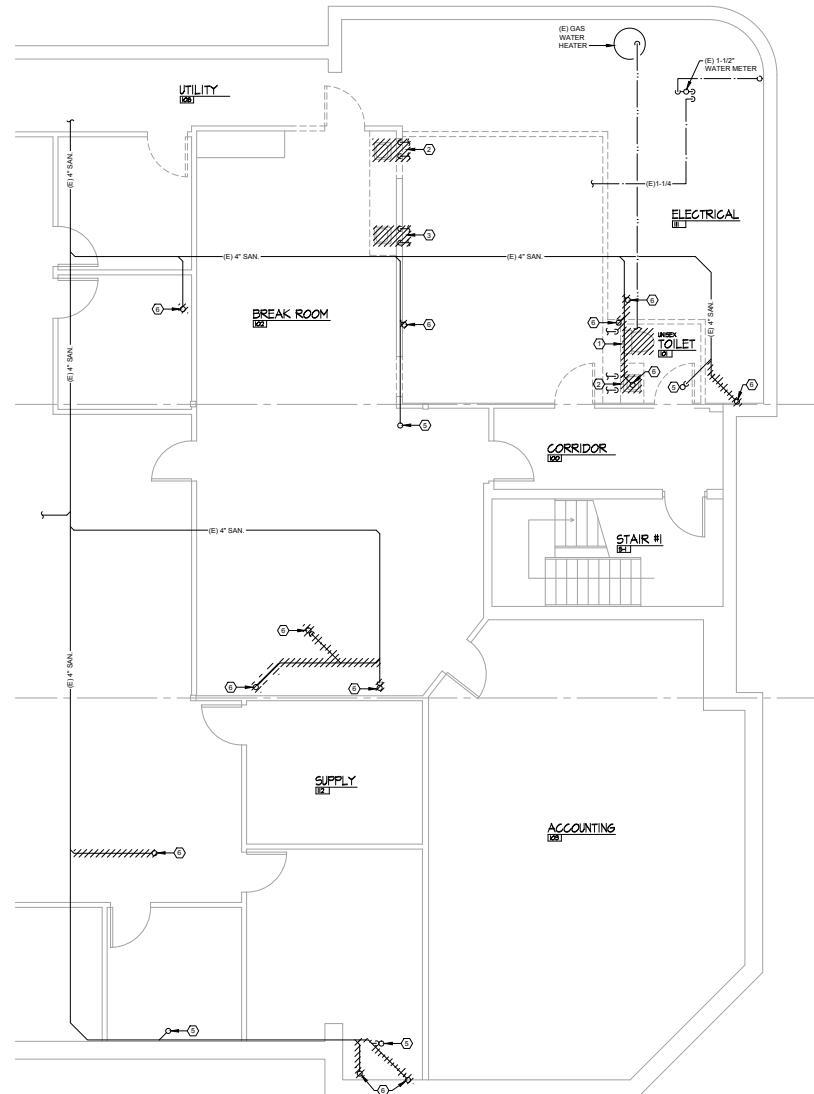
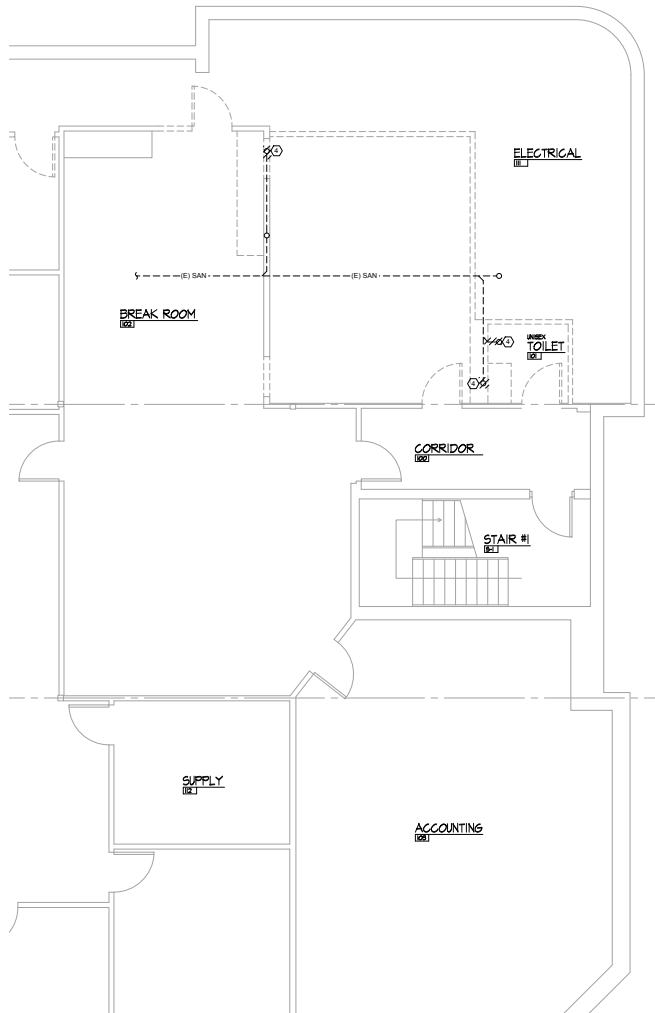
PROPOSED RENOVATION  
 GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
 8000 W. LEBLANC CANTON CENTER, MICHIGAN 48858  
 ROOM FINISH SCHEDULE  
 PROJECT #191948  
 DATE 06/04/2020  
 REVISIONS

*Glenn P. DeShane*



LICENSÉ NUMBER: 1313030329  
 STATE OF MICHIGAN  
 ARCHITECT  
 EXPIRES: 03/31/2025

SHEET  
**A01.02**



- KEYED NOTES:**
1. REMOVE EXISTING WATER CLOSET AND ALL ASSOCIATED PLUMBING.
  2. REMOVE EXISTING HAND SINK AND ALL ASSOCIATED PLUMBING.
  3. REMOVE EXISTING HAND SINK AND ALL ASSOCIATED PLUMBING.
  4. CAP EXISTING SANITARY PIPING BELOW GRADE.
  5. EXISTING SANITARY UP TO PLUMBING FIXTURE ABOVE.
  6. CAP EXISTING SANITARY PIPING FROM FIXTURE THAT WAS REMOVED ABOVE.

**PRIME DESIGN SYSTEMS, INC.**  
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PROPOSED RENOVATION  
 GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
 16000 N HALE ROAD TONAWANDA, MICHIGAN 48068  
 PROJECT 191918  
 DATE 06/09/2020  
 REVISIONS

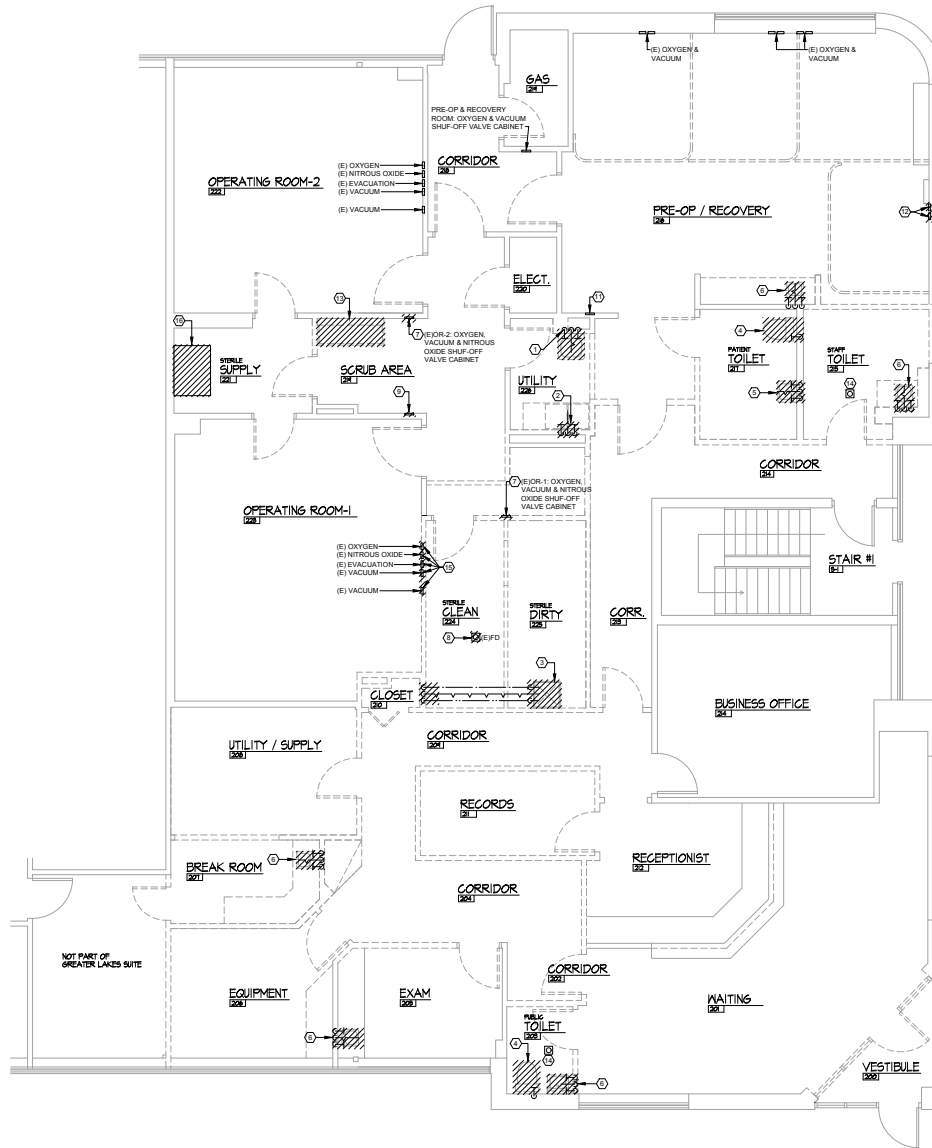
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LOWER LEVEL - PLUMBING DEMOLITION PLAN  
 SCALE 1/4" = 1'-0"

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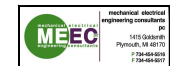
THIS SEAL IS VALID FOR THE STATE OF MICHIGAN ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ALL WORK SHOWN ON THIS PLAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS FROM THE APPROPRIATE AGENCIES.

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



**KEYED NOTES:** (C)

1. REMOVE EXISTING SERVICE SINK AND ASSOCIATED PLUMBING, CAP SANITARY PIPING BELOW THE FLOOR.
2. REMOVE AND RELOCATE EXISTING 3-COMPARTMENT SINK & ASSOCIATED PLUMBING, CAP SANITARY PIPING BELOW THE FLOOR.
3. REMOVE THE EXISTING SERVICE SINK & ASSOCIATED PLUMBING, CAP SANITARY PIPING BELOW THE FLOOR.
4. REMOVE THE EXISTING WATER CLOSET & ASSOCIATED PLUMBING, CAP SANITARY PIPING BELOW THE FLOOR.
5. REMOVE THE EXISTING SINK & ASSOCIATED PLUMBING, CAP SANITARY PIPING BELOW THE FLOOR.
6. REMOVE THE EXISTING HAND SINK, ASSOCIATED PLUMBING, CAP SANITARY PIPING BELOW THE FLOOR.
7. EXISTING BEACON MEDAES VALVE BOX TO BE REMOVED AND REPLACED WITH A NEW 4-VALVE BOX. REFER TO PD1.02 FOR MORE INFORMATION.
8. REMOVE EXISTING FLOOR DRAIN AND CAP SANITARY PIPING BELOW FLOOR.
9. REMOVE AND RELOCATE EXISTING BEACON MEDAES MEGA3 MEDICAL GAS ALARM PANEL.
10. EXISTING COUNTERTOP EXAM ROOM SINK TO REMAIN.
11. EXISTING MEDICAL GAS ALARM PANEL TO REMAIN.
12. EXISTING OXYGEN AND VACUUM MEDICAL GAS OUTLET TO BE REMOVED AND RELOCATED.
13. EXISTING SURGICAL SCRUB SINK TO BE REMOVED AND RELOCATED. CAP PLUMBING ABOVE CEILING AND SANITARY BELOW FLOOR.
14. CLEAN EXISTING FLOOR DRAIN AND INSTALL NEW TRAP SEAL WITHIN DRAIN.
15. EXISTING MEDICAL GAS OUTLETS TO BE REMOVED AND RELOCATED TO OPPOSITE WALL OF ROOM.
16. EXISTING STERILIZER TO BE REMOVED AND RELOCATED. DISCONNECT WATER AND DRAIN LINES AND CAP IN THE LOWER LEVEL CEILING SPACE.

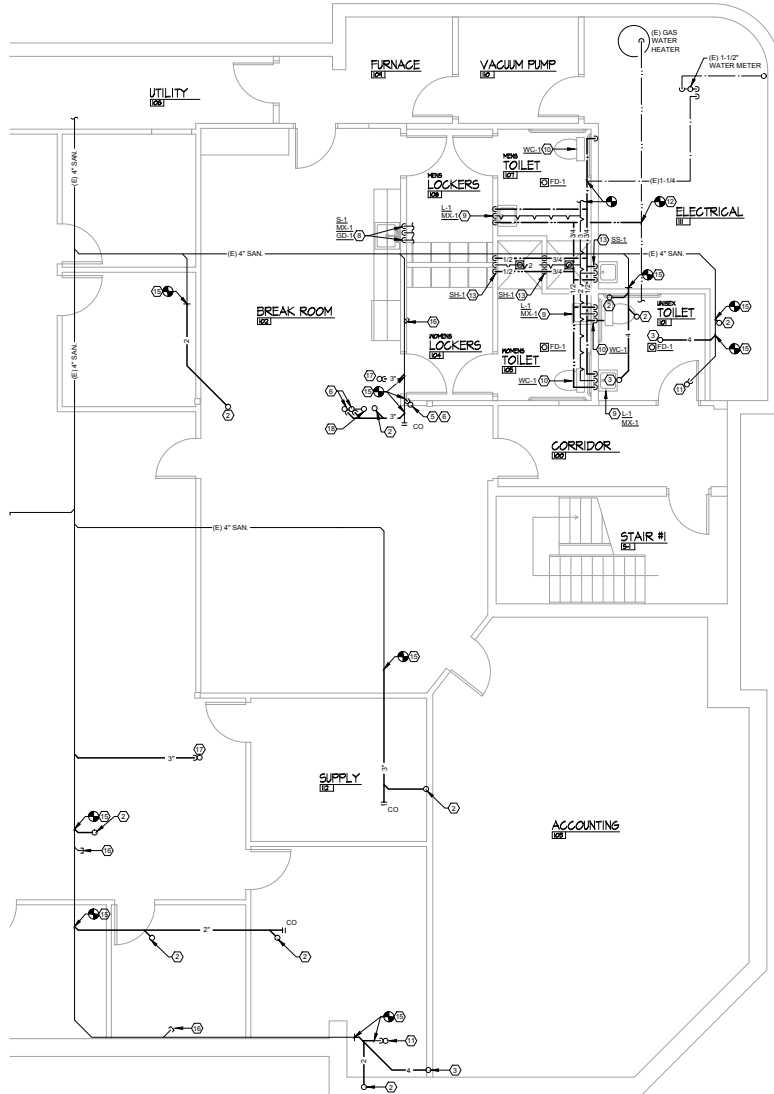
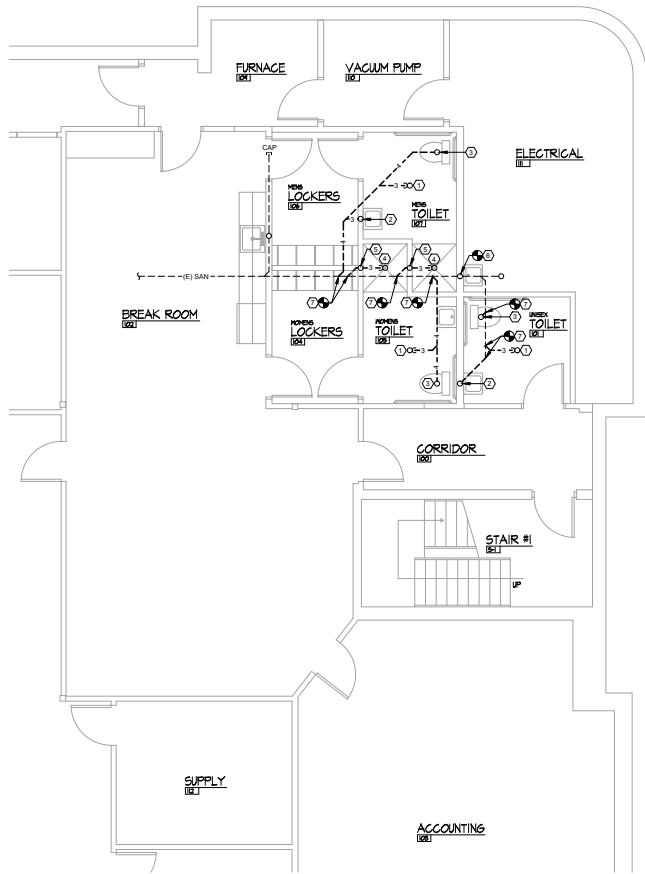


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PROPOSED RENOVATION  
GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
16000 H HILL ROAD CLINTON TOWNSHIP, MICHIGAN 48868  
PROJECT  
14/1918  
DATE  
06/09/2020  
REVISIONS

PRIME DESIGN SYSTEMS, INC.  
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PD01.02

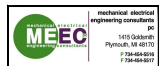


**KEYED NOTES:**

1. 3" SANITARY WITH P-TRAP UP TO FLOOR DRAIN.
2. 2" SANITARY UP TO LAVATORY / SINK ABOVE.
3. 4" SANITARY UP TO FLOOR MOUNTED WATER CLOSET.
4. 3" SANITARY WITH P-TRAP UP TO SHOWER DRAIN.
5. 1-1/2" SANITARY VENT UP IN WALL ABOVE.
6. 3" SANITARY WITH P-TRAP UP TO SERVICE SINK DRAIN.
7. CONNECT NEW SANITARY PIPING TO EXISTING SANITARY PIPING IN THIS AREA. VERIFY EXACT TIE-IN LOCATION IN FIELD.
8. CONNECT NEW SINK TO EXISTING SANITARY. HOT AND COLD WATER FROM EXISTING SINK THAT WAS REMOVED IN THIS AREA.
9. 1/2" HOT AND COLD WATER AND 1-1/2" SANITARY AND VENT TO WALL MOUNTED LAVATORY.
10. 1/2" COLD WATER TO 1/4" TURN ANGLE VALVE FOR TANK TYPE WATER CLOSET. PROVIDE S.S. BRAIDED HOSE TO CONNECT WATER CLOSET.
11. EXISTING SANITARY UP TO PLUMBING FIXTURE ABOVE.
12. CONNECT NEW HOT COLD AND VENT PIPING TO EXISTING PIPING IN CEILING SPACE IN THIS AREA. VERIFY FINAL TIE-IN LOCATION IN FIELD.
13. 1/2" HOT AND COLD WATER DOWN TO SHOWER MIXING VALVE. 1-1/2" VENT DOWN TO UNDERGROUND. OFFSET AS REQUIRED IN WALL TO AVOID MIXING VALVE AND WATER PIPING.
14. 1/2" HOT AND COLD WATER AND 2" VENT DOWN TO THE SERVICE SINK.
15. CONNECT NEW SANITARY TO EXISTING SANITARY IN CEILING SPACE IN THIS LOCATION.
16. CAP EXISTING SANITARY PIPING IN CEILING SPACE.
17. 3" SANITARY WITH P-TRAP UP TO FLOOR SINK ABOVE.
18. 2" VENT UP WITHIN WALL.

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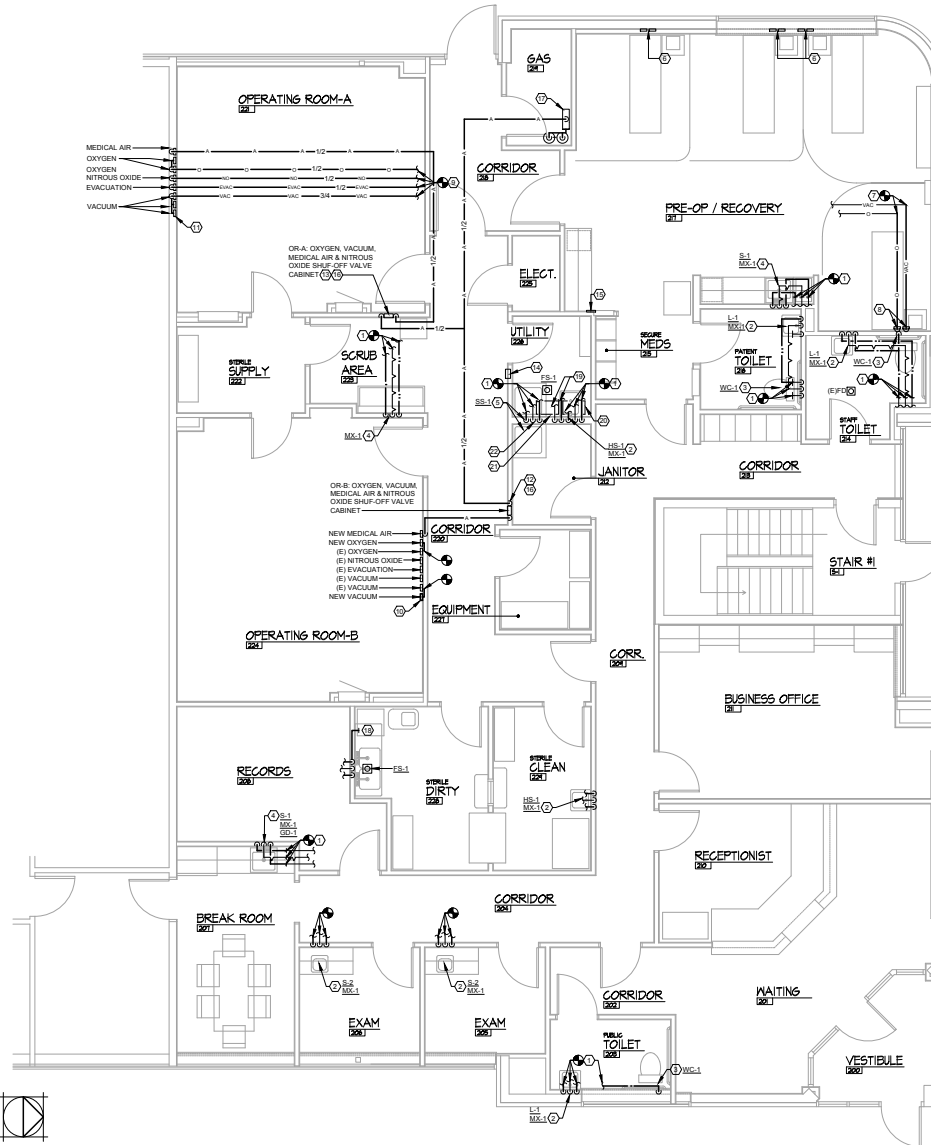
PROPOSED RENOVATION  
 GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
 16000 N HIE ROAD CLINTON TOWNSHIP MICHIGAN 48028  
 PROJECT 191918  
 DATE 06/09/2020  
 REVISIONS  
 LOWER LEVEL - PLUMBING NEW WORK PLAN



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SHEET  
 P01.01

LOWER LEVEL - PLUMBING NEW WORK PLAN  
 SCALE 1/4" = 1'-0"  
 NORTH



GROUND LEVEL - PLUMBING NEW WORK PLAN  
SCALE 1/4" = 1'-0"



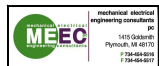
**KEYED NOTES:**

- CONNECT NEW HOT & COLD WATER AND VENT TO EXISTING ABOVE CEILING PLUMBING IN THIS AREA. VERIFY FINAL TIE-IN LOCATION IN FIELD.
- 1/2" HOT AND COLD WATER AND 1-1/2" SANITARY AND VENT TO WALL MOUNTED LAVATORY / HAND SINK.
- 1/2" COLD WATER TO 1/4" TURN ANGLE VALVE FOR TANK-TYPE WATER CLOSET. PROVIDE S.S. BRACED HOSE TO CONNECT WATER CLOSET.
- 1/2" HOT AND COLD WATER & 1-1/2" VENT DOWN TO SINK. (RELOCATED SINK)
- 1/2" HOT AND COLD WATER DOWN WALL MOUNTED SERVICE SINK FAUCET.
- EXISTING OXYGEN & VACUUM OUTLET TO REMAIN.
- CONNECT NEW 1/2" OXYGEN & 1/2" VACUUM TO EXISTING PIPING FROM RELOCATED OXYGEN & VACUUM WALL OUTLETS.
- RELOCATED OXYGEN AND VACUUM WALL OUTLETS. COORDINATE FINAL LOCATION WITH OWNER.
- EXTEND MEDICAL GAS PIPING FROM EXISTING WALL DROP IN THIS LOCATION OVER TO OPPOSITE WALL AS INDICATED.
- NEW BEACON MEDAES "TYPE B" MED GAS WALL OUTLETS (OPERATING ROOM A):
  - (1) OXYGEN - O<sub>2</sub>
  - (2) VACUUM - VAC
- NEW BEACON MEDAES "TYPE B" MED GAS WALL OUTLETS (OPERATING ROOM B):
  - (1) OXYGEN - O<sub>2</sub>
  - (2) NITROUS OXIDE - N<sub>2</sub>O
  - (3) VACUUM - VAC
  - (4) EVACUATION - EVAC
  - (5) MEDICAL AIR
- REINSTALL THE EXISTING MEDICAL GAS LINES (OXYGEN, NITROUS OXIDE AND VACUUM) INTO THE NEW 4-VALVE BOX IN THIS LOCATION.
- EXTEND THE EXISTING MEDICAL GAS LINES (OXYGEN, NITROUS OXIDE AND VACUUM) TO THE NEW VALVE BOX LOCATION.
- BEACON MEDAES MEGA3 MEDICAL GAS AREA ALARM PANEL. RELOCATED FROM WALL BEHIND SCRUB SINK. ADD MEDICAL GAS ALARM MODULE IN EMPTY SPACE.
- EXISTING MEGA3 MASTER MEDICAL GAS ALARM PANEL TO REMAIN.
- PROVIDE NEW 4-VALVE MEDICAL GAS SHUT-OFF VALVE CABINET IN THIS LOCATION TO ACCOMMODATE MEDICAL AIR AND THE EXISTING OXYGEN, VACUUM & NITROUS OXIDE.
- 1/2" MEDICAL AIR DOWN TO (2) 3/8 CU FT. 2500 PSIG HIGH PRESSURE MEDICAL AIR CYLINDERS. PROVIDE PIPING MANIFOLD WITH 100 PSI PRESSURE REGULATOR TO CONNECT TO ONE CYLINDER WITH ONE CYLINDER TO FUNCTION AS A RESERVE. COORDINATE CYLINDER LOCATION AND WALL SUPPORT WITH OWNER & ARCHITECT. ROUTE MASTER ALARM SIGNAL WIRING TO NURSE STATION EXISTING MEGA3 ALARM PANEL.
- WATER SUPPLY TO NEPTUNE UNIT DRAINING ROUTE DISCHARGE TO FLOOR SINK. COORDINATE WATER AND DRAIN REQUIREMENTS WITH MANUFACTURER INSTALLATION INSTRUCTIONS.
- HOT AND COLD WATER DOWN TO STERILIZERS. ROUTE DISCHARGE TO FLOOR SINK. COORDINATE WATER AND FLOOR SINK INSTALLATION REQUIREMENTS WITH MANUFACTURER INSTALLATION INSTRUCTIONS.
- RELOCATED HUMIDIFIER. RELOCATE ASSOCIATED COLD & HOT WATER PIPING AS REQUIRED.
- NEW HUMIDIFIER H-1. SEE SCHEDULE.
- 2" VENT FROM BELOW.

**GENERAL MED GAS NOTES:**

- PIPING LAYOUT IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION AND COORDINATING ACTUAL LOCATION WITH ALL OTHER TRADES.
- SIZES SHOWN ARE NOMINAL DIAMETERS. ALL PRESSURE GAS PIPING SHALL BE HAND-DRAWN SEAMLESS TYPE "K" OR "L" (TYPE "K" MUST BE USED FOR NITROGEN SYSTEMS). COPPER TUBING (ASTM B-819) AND BEAR ONE OF THE FOLLOWING MARKINGS: OXY, MED, OXYMED, ACRYLOYL, OR ACRIMED. ALL VACUUM PIPING SHALL BE HAND-DRAWN SEAMLESS TYPE "M" COPPER TUBING (ASTM B88) OR TYPE "L" COPPER MEDICAL GAS TUBING (ASTM B-819).
- PIPE DROPS TO MEDICAL GAS AND VACUUM OUTLETS SHALL BE 1/2" NOMINAL FOR PRESSURE GASES AND 3/4" NOMINAL FOR VACUUM.
- INTERVALS OF PIPE SUPPORTS:
 

PIPE SIZE	MAXIMUM SUPPORT SPACING
1/2"	5ft
3/4"	7ft
1"	8ft
1-1/4"	9ft
1-1/2" OR LARGER	10ft
- ALL FLOOR AND WALL PENETRATIONS SHALL BE FIRE STOPPED AS REQUIRED TO PRESERVE THE FIRE RESISTANCE RATING OF THE PENETRATED ASSEMBLY.
- EQUIPMENT INSTALLATION AND TESTING OF THE MEDICAL GAS, MEDICAL AIR AND VACUUM SYSTEMS SHALL COMPLY WITH NFPA 99 (2005 EDITION), EXCEPT AS NOTED, AND ALL STATE AND LOCAL CODES AND ORDINANCES.
- MEDICAL GAS AND VACUUM PIPING SHALL BE BRAZED UTILIZING A NITROGEN PURGE IN ACCORDANCE WITH NFPA 99. ONLY NFPA 99 QUALIFIED BRAZERS SHALL PERFORM INSTALLATION WORK.
- ZONE VALVE BOXES SHALL BE INSTALLED WHERE THEY ARE VISIBLE AND ACCESSIBLE AT ALL TIMES. VALVES SHALL BE LABELED TO REFLECT THE AREA SERVED.
- ALL SERVICE VALVES SHALL BE TAGGED AND LOCKED OPEN TO PREVENT ACCIDENTAL CLOSING.



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PROPOSED RENOVATION  
GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
16007 HILE ROAD CLINTON TOWNSHIP, MICHIGAN 48038  
PROJECT  
1/19/19  
DATE  
06/09/2020  
REVISIONS

SHEET  
P01.02



PLUMBING FIXTURE SCHEDULE									
MARK	ITEM	ADA	DESCRIPTION	ACCESSORIES	PIPE CONNECTION SIZES				NOTES
					W	V	CV	HW	
WC-1	FLOOR MOUNTED TANK TYPE WATER CLOSET	X	Mansfield Summit Elongated ADA 1.6 Gpf Two Piece Tank Type Toilet Model 384286 Right Height 16-3/4" High Low Consumption Two Piece Tank Toilet #8022014	Seat: Bemis 31555SCT Supply: McGuire #H172BV Flange 1/4 turn angle valve	4"	2"	12"	—	2
L-1	WALL MOUNTED LAVATORY	X	Mansfield 20"RHENS-4 Wall Mounted Lavatory With Backsplash	Faucet: American Standard #7385.05AVA.002 Aerator: American Standard #V05 Drain: McGuire #155A Supply: McGuire #H170BV-LR 1/4 turn p-Trap: McGuire #82722-TT 1-1/2" Chrome Plated Brass Carrier: Jay R. Smith #6700-Z	1-1/2"	1-1/2"	12"	12"	1
SS-1	SERVICE SINK		FIAT Map Sink #MSB2424	Faucet: FIAT #B30-AA with Integral Check Valves Bracket: FIAT #B32-AA Mop Hanger: FIAT #889-CC Drain Gasket: FIAT #600C-2 Splash Panel: FIAT #M9G	3"	—	12"	12"	
S-1	STAINLESS STEEL SINK (18 ga)		Elkay #R1910 with Elkay #UKQ2422H two level faucet, 8" tubular swing-spout aerator, 3/8" O.D. Copper tube inlets, 3-hole installation	3-1/2" drain outlet, conical strainer plate with moveable tilt knob, neoprene stopper, c.p. brass 1-1/2" O.D. tailpiece	1-1/2"	1-1/2"	12"	12"	
S-2	STAINLESS STEEL (SERIES) SINK		Elkay #D115191 Dayton Single Bowl Drop-in with Elkay #UKQ2422H two level faucet, 8" tubular swing-spout aerator, 3/8" O.D. Copper tube inlets, 3-hole installation	3-1/2" drain outlet, conical strainer plate with moveable tilt knob, neoprene stopper, c.p. brass 1-1/2" O.D. tailpiece	1-1/2"	1-1/2"	12"	12"	
HS-1	STAINLESS STEEL HAND SINK	X	Advance Tabco Model 7-PS-40 Side Splash Unit	Faucet: Model K-316 Sensor Drain: XIS Supply: Brasscraft RCT 1/4 turn ball stop p-Trap: Strassler 1-1/2" Chrome Plated Brass	1-1/2"	1-1/2"	12"	12"	1
GD-1	GARBAGE DISPOSER		IN-SINKERATOR EVOLUTION "PRO ES" SERIES	3/4 HP 110V/10 - 8.1 Amps Integral Dishwasher Connection, Auto-Reversal Gird System Soundseal & MultiGrind Technology	1-1/2"	—	—	—	
MX-1	THERMOSTATIC MIXING VALVE		WATTS LFUSG-8-M2	ASSE 1070 Thermostatic Mixing Valve	—	—	12"	12"	
SH-1	SHOWER VALVE		SYMMONS ORIGINS #S-8933-PLR	Concealed valve with chrome plated handle, wall/hand shower head, in-line vacuum breaker, flexible metal hose and 3/8" side bar	—	—	12"	12"	

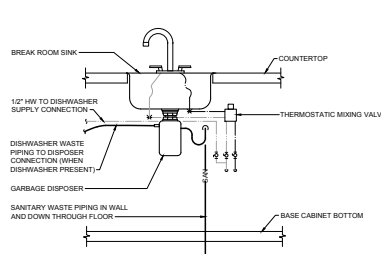
APPROVED PLUMBING FIXTURE MANUFACTURERS: AMERICAN STANDARD, MANSFIELD, CRANE, TOTO, ELKAY, KOHLER, ZURN, SLOAN, FIAT, FLORESTONE, MUSTEE.  
 APPROVED PLUMBING HARDWARE MANUFACTURERS: MOEN, AMERICAN STANDARD, DELTA, KOHLER, CHICAGO, SLOAN, ZURN, T&S, ACCORN, TOTO.  
 (FIXTURES TO BE INSTALLED IN ACCORDANCE WITH ADA REQUIREMENTS)

NOTES:  
 1. PROVIDE PLASTIC TYPE PIPE COVERS EQUAL TO TRIEBOLD "AV QUARDY" ON ALL ACCESSIBLE LAVATORIES AND SINKS.  
 2. ALL TANK TYPE WATER CLOSETS SHALL BE ORDERED WITH HANDLES ON THE OPEN SIDE (ADJACENT TO THE LAVATORY) PER CODE.

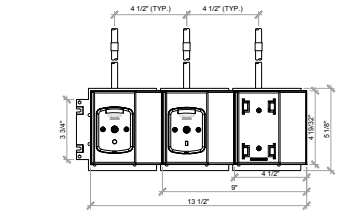
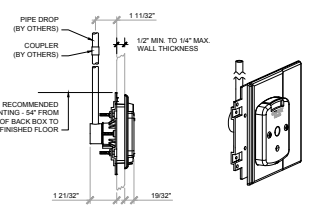
FLOOR DRAIN / FLOOR SINK SCHEDULE									
MARK	MANUFACTURER	MODEL NUMBER	LOCATION	BODY MATERIAL	GRATE		ACCESSORY	PIPE SIZE (IN.)	NOTES
					TYPE	FINISH			
FD-1	ZURN	ZN415-6B	SEE PLAN	DUCO CAST IRON	6" Ø	NICKEL BRONZE	-	3"	1
FS-1	ZURN	ZN1910-2	SEE PLAN	DUCO CAST IRON	1/2 GRATE	NICKEL BRONZE	BOTTOM DOME	3"	-

(APPROVED EQUAL: ZURN, JOSAM, JAY R. SMITH, MIFAB)  
 NOTES:  
 1. PROVIDE "SURESEAL" IN LINE TRAP SEAL.

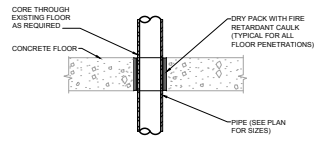
MINIMUM PIPE INSULATION THICKNESS				
FLUID OPERATING TEMPERATURE RANGE AND USAGE (F°)	INSULATION CONDUCTIVITY (BTU IN/FT2 F°)	NOMINAL PIPE OR TUBE SIZE (INCHES)		
		< 1	1 TO < 1-1/2	1-1/2 TO < 4
141-200	0.25-0.29	1.5	1.5	2.0
105-140	0.21-0.28	1.0	1.0	1.5
40-60	0.20-0.26	0.5	0.5	1.0



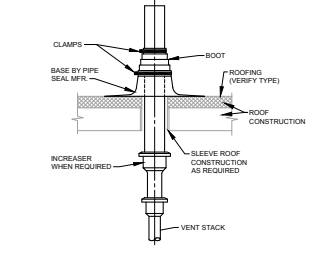
BREAK ROOM SINK PIPING DETAIL  
N.T.S.



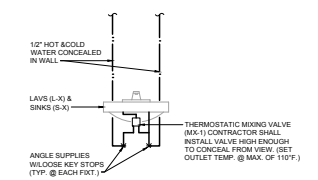
TYPICAL MED GAS OUTLET (RECESSED)  
N.T.S.



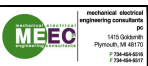
PIPE SLEEVE THROUGH FLOOR DETAIL  
N.T.S.



VENT THROUGH ROOF DETAIL  
N.T.S.



THERMOSTATIC MIXING VALVE DETAIL  
N.T.S.



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**PLUMBING SPECIFICATIONS**

**GENERAL NOTES: PLUMBING**

- PROVIDE MATERIALS AND EQUIPMENT AND EXECUTE THE WORK, INCLUDING ALL TESTING AND INSPECTIONS, IN COMPLIANCE WITH THE APPLICABLE PROVISIONS OF FEDERAL, STATE AND LOCAL GOVERNMENT LAWS, ORDINANCES, REFERENCED CODES AND STANDARDS CURRENT AS OF THE ISSUE DATE OF THESE DRAWINGS. ALL MORE STRINGENT REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL MODIFY, SUPPLEMENT AND SUPERSEDE APPLICABLE PORTIONS OF GOVERNING LAWS, ORDINANCES, CODES AND STANDARDS.
- CONTRACTOR SHALL PRESENT CERTIFICATE TO THE OWNER THAT ALL APPLICABLE BUILDING PERMITS HAVE BEEN SECURED PRIOR TO STARTING ANY WORK, AND PROVIDE THE OWNER WITH ALL REQUIRED CERTIFICATES OF FINAL APPROVAL FROM THE GOVERNING JURISDICTIONS AT COMPLETION OF THE WORK. PROVIDE ALL SHOP DRAWINGS AS REQUIRED IN FOLLOWING SECTIONS.
- MAKE ALL CONNECTIONS TO EXISTING SYSTEMS DURING DESIGNATED PERIODS UPON APPROVAL OF THE OWNER AND AT AN INCREASE IN CONTRACT SUM.
- EXISTING FACILITIES:
  - DO NOT INTERRUPT EXISTING UTILITIES UTILIZED BY THE OWNER EXCEPT AS SPECIFIED OR WHEN APPROVED IN WRITING, AND THEN ONLY AFTER TEMPORARY UTILITY SERVICES HAVE BEEN APPROVED AND PROVIDED. INTERRUPTIONS MUST BE SCHEDULED TO SUIT THE OWNER'S REQUIREMENTS.
  - VERIFY ALL EXISTING WORK, WHERE EXISTING CONNECTIONS ARE PARTIAL, PROVIDE ALL NECESSARY MATERIALS, LABOR AND EQUIPMENT REQUIRED TO MODIFY EXISTING WORK. IN ADDITION, MAINTAIN INTEGRITY OF THE EXISTING SYSTEMS. RECTIFY ANY CONTAMINATION, DEGRADATION OF CLEANLINESS OR DAMAGE TO THE EXISTING SYSTEMS TO THE SATISFACTION OF THE OWNER. PROVIDE ALL WORK SO REQUIRED AT NO INCREASE IN THE CONTRACTOR'S ORIGINAL PROPOSAL.
- COORDINATE EXACT LOCATION OF CONSTRUCTION TO PRECLUDE ANY INTERFERENCES BETWEEN PIPING, WIRING, LIGHTING FIXTURES, DUCTWORK, BUILDING EQUIPMENT, PROCESS EQUIPMENT AND OTHER CONSTRUCTION.
- PROVIDE LABOR INCLUDING FIELD ERECTION AND SUPERVISION, MATERIALS, EQUIPMENT AND ANCHLAGES, AND COORDINATE, PROCURE, FABRICATE, DELIVER, ERECT OR INSTALL, INTERFACE WITH EXISTING WORK, START, DEBUG AND TEST ALL SYSTEMS AS NECESSARY TO PROVIDE THE OWNER WITH A COMPLETE, OPERATING FACILITY IN CONFORMANCE WITH THE CONSTRUCTION BID DOCUMENTS.
- ALL CUTTING AND PATCHING THAT MAY BE NECESSARY FOR THE INSTALLATION OF THE MECHANICAL CONTRACTOR'S WORK SHALL BE PERFORMED AND REPAIR BY THE TRADE WHOM NORMALLY PERFORMS THAT WORK AND PAID FOR BY THE PLUMBING CONTRACTOR. NO CUTTING OF THE BUILDING STRUCTURAL SYSTEM SHALL BE PERFORMED WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT BEING PREVIOUSLY OBTAINED.
- THE PLUMBING CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING HIS BID TO FAMILIARIZE HIMSELF WITH THE ACTUAL PROJECT CONDITIONS AND TO CHECK FOR ANY INTERFERENCES BETWEEN HIS WORK AND THAT OF THE OTHER TRADES, AND/OR ANY APPARENT VIOLATIONS OF LOCAL OR STATE CODES AND REGULATIONS. IF ANY INTERFERENCES OR VIOLATIONS APPEAR, INTERFERENCES APPEAR AND DEPARTURE FROM THE DESIGN INTENT OF THE CONTRACT DOCUMENTS IS REQUIRED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO ENTERING INTO A CONTRACT WITH THE OWNER. FAILURE TO PROVIDE THE ARCHITECT WITH THE AFORESAID NOTIFICATION SHALL RESULT IN THE CONTRACTOR BEING HELD RESPONSIBLE TO COMPLETE ALL WORK TO MEET THE INTENT OF THE CONTRACT DOCUMENTS WITH NO ADDITIONAL EXPENSES BEING INCURRED BY THE OWNER.
- THE DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL LOCATIONS AND ARRANGEMENTS OF ALL THE EQUIPMENT AND PIPING. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS BUILDING CONSTRUCTION AND ALL OTHER WORK WILL PERMIT. DO NOT SCALE DRAWINGS FOR EXACT MEASUREMENTS.
- DEMOLITION OF PLUMBING EQUIPMENT SHALL INCLUDE ALL EXISTING PIPING, VALVES, CONTROLS, SUPPORTS, FLUES AND EQUIPMENT WHERE SUCH ITEMS ARE NOT REQUIRED FOR THE PROPER OPERATION OF THE REVISED SYSTEM. REMOVE, RECONNECT, CAP, PLUG AND REPLACE EXISTING PIPING.

**GENERAL NOTES: PLUMBING AND PIPING**

- ALL PIPING SHALL BE CONCEALED UNLESS OTHERWISE NOTED. EXPOSING OF ANY PIPING MUST HAVE APPROVAL OF THE ARCHITECT.
- PROVIDE BRANCH-LINE SHUT-OFF VALVES ON DOMESTIC WATER PIPING AT EACH PLUMBING FIXTURE.
- THE PLUMBING AND PIPING SYSTEMS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL STATE AND LOCAL PLUMBING CODES. THE PLUMBING AND PIPING CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY ALL FEES, AND ARRANGE FOR ALL INSPECTIONS FOR HIS WORK. AT THE COMPLETION OF THE PROJECT, THE PLUMBING CONTRACTOR SHALL FURNISH THE OWNER WITH CERTIFICATES OF FINAL INSPECTIONS AND APPROVALS.
- PIPING SHALL BE AS FOLLOWS:
  - SANITARY AND VENT PIPING:**
    - ALL 1-1/2" AND LARGER WASTE AND VENT PIPING ABOVE AND BELOW GROUND SHALL BE STANDARD WEIGHT CAST IRON SOIL PIPE WITH NO-HUB FITTINGS AND HEAVY DUTY COUPLINGS. COUPLINGS SHALL BE HUSKY HD 4000, CLAMP ALL 80 OR MISSION HW. SOLID CORE SCHEDULE 40 PVC PIPE WITH GEMENTED FITTINGS IS APPROVED WHERE LOCAL CODE PERMITS. ABOVE GROUND PVC PIPING SHALL NOT BE INSTALLED WITHIN ANY RETURN AIR FLEMUR SPACE.
    - RUN ALL UNDERGROUND SANITARY 3-1/2" OR LESS AT 1/4" PER FOOT MINIMUM PITCH UNLESS NOTED OTHERWISE. SANITARY PIPING 3" OR LARGER SHALL BE PITCHED AT 1/8" PER FOOT MINIMUM UNLESS NOTED OTHERWISE.
    - ALL CONNECTIONS AND CHANGES IN DIRECTION OF THE SANITARY DRAINAGE SYSTEM SHALL BE MADE WITH APPROVED DRAINAGE FITTINGS PER LOCAL CODE REQUIREMENTS.
  - DOMESTIC WATER PIPING:**
    - ALL ABOVE GROUND DOMESTIC WATER PIPING SHALL BE TYPE "C" HARD DRAWN COPPER TUBING WITH WROUGHT COPPER OR CAST RED BRONZE FITTINGS OR PEX-A PIPING EQUAL TO SPOONER AQUATEX PEX WITH ASTM F1960 PEX EXPANSION FITTINGS. ALL SOLDERED FITTINGS SHALL BE MADE WITH SIL-FOS SOLDER OR AN APPROVED NON-TOXIC SOLDER. MECHANICAL TYPE FITTINGS EQUAL TO VEGA "PROGRESS" APOLLO "EXPRESS" OR MUELLER "STREAMLINE" FOR COPPER PIPING ARE APPROVED IN LIEU OF SOLDERED FITTINGS.
    - ALL UNDERGROUND PIPING SHALL BE TYPE "K" COPPER OR PEX. PIPE FITTINGS ARE NOT ALLOWED BELOW FLOOR SLAB.

**C. GAS PIPING:**

- GAS PIPING SHALL BE SCHEDULE 40, BLACK STEEL WITH THREADED OR WELDED FITTINGS AS REQUIRED. PROVIDE SHUT-OFF COCKS ON ALL OUTLETS WHERE SHOWN.
- GAS PIPING EXPOSED TO THE EXTERIOR SHALL BE PRIMED AND PAINTED YELLOW.
- VALVES SHALL NOT BE LOCATED IN ANY AIR FLEMUR PORTIONS OF A GAS PIPING SYSTEM INSTALLED IN CONCEALED LOCATIONS SHALL NOT HAVE UNIONS, TUBE FITTINGS, OR RUNNING THIRDS.
- CORRUGATED STAINLESS STEEL TUBING MAY ALSO BE USED WHERE APPROVED BY LOCAL CODE. CONTRACTOR SHALL SUPPLY COMPLETE SYSTEM DESIGN INCLUDING DRAPING LAYOUT, PIPE SIZING, PRESSURE DROP CALCULATIONS AND A COPY OF THE CURRENT MANUFACTURER'S INSTALLATION GUIDE. CORRUGATED STAINLESS STEEL TUBING SHALL BE MANUFACTURED FROM ASTM A240, TYPE 304 STAINLESS STEEL, WITH A MINIMUM WALL THICKNESS OF 0.010". THE SYSTEM SHALL COMPLY WITH ANSI LCC-1. FITTINGS SHALL BE MANUFACTURED FROM 302 BRASS ASTM B316 AND INCORPORATE A DOUBLE WALL FLARE FOR GAS TIGHT SEAL. TUBING SHALL HAVE A UV RESISTANT POLYETHYLENE CONDUCTIVE JACKET THAT ALSO MEETS ASTM E84 FOR SMOKE AND FLAME. TUBING SYSTEM SHALL BE INSTALLED PER LOCAL CODE BY A MANUFACTURER CERTIFIED INSTALLER.

**D. OXYGEN & NITROUS OXIDE PIPING:**

- PIPING FOR OXYGEN AND NITROUS OXIDE SHALL BE SEAMLESS COPPER TUBE TYPE "L" OR "K" FOR MEDICAL GAS PIPING, ASTM B88. PIPING SHALL BE CLEANED AND IDENTIFIED BY THE MANUFACTURER AS MEDICAL GAS PIPING. FITTINGS SHALL BE WROUGHT COPPER BRASS, COMPLYING WITH ASME B16.22. INSTALLATION SHALL BE PER NFPA 99 FOR LEVEL 3 MEDICAL GAS PIPING SYSTEMS.
- MEDICAL AIR PIPING:**
  - AIR PIPING SHALL BE HARD DRAWN SEAMLESS COPPER ASTM B88 TYPE "L" OR "K" WATER TUBE WITH BRAZED WROUGHT COPPER FITTINGS COMPLYING WITH ASME B16.22. INSTALLATION SHALL BE PER NFPA 99 FOR LEVEL 3 GAS POWERED DEVICE SUPPLY SYSTEMS.

**F. VACUUM PIPING:**

- VACUUM PIPING SHALL BE SCHEDULE 40 PVC WITH SOLVENT-CEMENTED PVC PRESSURE FITTINGS IN ACCORDANCE WITH ASTM D2858. INSTALLATION SHALL BE PER NFPA 99 FOR LEVEL 3 VACUUM SYSTEMS.

**G. VALVES:**

- BALL VALVES SHALL BE TWO PIECE FULL PORT BRONZE BALL VALVES WITH STAINLESS STEEL TRIM. THE SEATS WITH STAINLESS BALL AND STEEL THREADED BODY PACK NUT DESIGN WITH ADJUSTABLE STEM PACKING WITH THREADED OR SOLDERED ENDS. RATED FOR 300 PSIG AND 150°F.
- CHECK VALVES SHALL BE SWING CHECK WITH BRONZE DISC, CLASS 150, ASTM B52 Y PATTERN DESIGN WITH THREADED OR SOLDERED ENDS. RATED FOR 300 PSIG CWP.
- GAS VALVE SHALL BE LUBRICATED FULLY TYPE CAST IRON OR UL LISTED TWO-PIECE BRONZE BALL VALVE WITH RPTFE SEALS AND SEAT.

**H. PIPING INSULATION:**

- DOMESTIC HOT, COLD & HOT WATER RETURN WATER PIPING SHALL BE INSULATED WITH MINIMUM 1" THICK FIBERGLASS INSULATION WITH A FIRE RETARDANT JACKET, HAVING AN AVERAGE R VALUE OF 3.45. COLD WATER PIPING INSULATION SHALL BE PROVIDED WITH A VAPOR BARRIER. PROVIDE PERFORMANCE SECTIONS WITH PVC COVERS AT ALL FITTINGS.
- PIPE INSULATION SHALL HAVE A FLAME SPREAD AND SMOKE DENSITY RATING NOT EXCEEDING 25/50, AS TESTED PER ASTM STANDARD E-84.
- PIPING SHALL BE SUPPORTED FROM HANGERS AT AN ADEQUATE DISTANCE WITH SUPPORTING HANGER RODS FASTENED TO THE BUILDING FRAMING WHENEVER POSSIBLE. SUPPORT SPACING SHALL NOT EXCEED THE HANGER SPACING REQUIREMENTS PER SECTION 308 OF THE LOCAL PLUMBING CODE.
- ISOLATE PIPING AND EQUIPMENT FROM THE BUILDING STRUCTURE WITH INSULATING HANGERS AND FITTINGS AS REQUIRED TO PREVENT GALVANIC CORROSION OF THE BUILDING PIPING SYSTEMS.
- ALL SERVICES SHALL BE PROPERLY SLEEVED WHEN ROUTED THROUGH FLOORS AND WALLS. CONTRACTOR TO PROVIDE FIRE RESISTANT ROPE PACKING FOR ALL PIPES PENETRATING FIRE RATED WALLS. CONTRACTOR SHALL OBTAIN A COPY OF THE ARCHITECTURAL DRAWINGS TO IDENTIFY FIRE RATED WALLS. CONTRACTOR SHALL PROVIDE A WATERPROOF SEAL FOR PIPING PENETRATING EXTERIOR WALLS AND SHALL PROVIDE A WATER TIGHT SEAL, SIMILAR TO TANK SEAL, FOR ALL PIPING PENETRATING BASEMENT WALLS.

- FURNISH AND INSTALL ISOLATION VALVES AT ALL SERVICE POINTS OR EQUIPMENT CONNECTIONS. PROVIDE VACUUM BREAKERS (ASSE, 1011, CSA B94.4, CSA B94.11) AND ANTI-SIPHON FITTINGS ON WATER PIPING SYSTEMS BEFORE EQUIPMENT CONNECTIONS AND AT ALL HOSE END SPIGOTS AND HOSE CONNECTIONS, ETC. INSTALL REDUCED PRESSURE BACKFLOW PREVENTERS (ASSE, 1013, AWWA C511, CSA B94.4, CSA B94.4 (1) OR ALL MAKE-UP WATER LINES TO MECHANICAL EQUIPMENT AND ON BUILDING DOMESTIC WATER SERVICE WHERE LOCAL CODE REQUIRES. THE INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH LOCAL CODES AND/OR AUTHORITIES FOR THE PROTECTION OF THE WATER SUPPLY SYSTEM. INSTALL STRAINER UP STREAM OF REDUCED PRESSURE BACKFLOW PREVENTER.

**I. CLEANING OF WATER PIPING**

- BEFORE BEING PLACED IN SERVICE, ALL NEW DOMESTIC WATER DISTRIBUTION LINES SHALL BE CALORINATED. AFTER THE PRESSURE TEST AND BEFORE CALORINATION, ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED BY A THOROUGH FLUSHING WITH CLEAN POTABLE WATER THROUGH THE LINES, DISCHARGING THE FLOW FROM THE END OF THE LINES UNTIL DIRTY WATER DOES NOT APPEAR AT THE POINTS OF OUTLET.
- THE SYSTEM SHALL BE THOROUGHLY STERILIZED USING THE PROCEDURE REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.

**10. IDENTIFICATION:**

- LABEL ALL PIPING SYSTEMS WITH MANUFACTURED SELF ADHESIVE OR PRE-TENSIONED PIPE MARKERS. MARKERS SHALL INDICATE SERVICE AND DIRECTION OF FLOW. MARK PIPE FITTINGS, VALVES, BRANCH CONNECTIONS, PENETRATIONS, ACCESS DOORS AND NEAR MAJOR PIECES OF EQUIPMENT MARKER SPACING SHALL NOT EXCEED 50'

11. THE PLUMBING AND PIPING CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PITCH OF PIPE FOR DRAINAGE AND AIR VENTING OF PIPING SYSTEMS AND SHALL PROVIDE DRAINS TO RECEIVE THE PIPING SYSTEMS' CONTENTS OF INDIRECT WASTE AND CONDENSATE DRAINAGE FROM ALL MECHANICAL TRAPES.

12. THE PLUMBING AND PIPING CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND PROVIDE ROUGHINGS FOR ALL EQUIPMENT FURNISHED BY OTHER CONTRACTORS. AFTER ALL EQUIPMENT HAS BEEN INSTALLED BY OTHER CONTRACTORS, THE PLUMBING AND PIPING CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS AND SHALL INCLUDE IN HIS BASE BID ALL VALVES, UNIONS, COUPLINGS, VACUUM BREAKERS, ETC., THAT ARE REQUIRED TO MAKE FINAL CONNECTIONS.

13. THE PLUMBING AND PIPING CONTRACTOR SHALL OBTAIN OTHER TRADES' DRAWINGS AND COORDINATE HIS WORK WITH THE TOTAL PROJECT AS IT RELATES TO ALL TRADES AND VISIT THE PROJECT SITE PRIOR TO SUBMITTING HIS BID TO FAMILIARIZE HIMSELF WITH THE ACTUAL PROJECT CONDITIONS AND TO CHECK FOR ANY INTERFERENCES BETWEEN HIS SCOPE OF WORK AND THAT OF THE OTHER TRADES. AND/OR ANY APPARENT VIOLATIONS OF LOCAL OR STATE BUILDING CODES, LAWS, ORDINANCES, AND REGULATIONS. IF ANY INTERFERENCES OR VIOLATIONS APPEAR, AND DEPARTURE FROM THE INTENT DESIGN INTENT OF THE CONSTRUCTION BID DOCUMENTS IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO ENTERING INTO A CONTRACT WITH THE OWNER. FAILURE TO PROVIDE THE ARCHITECT WITH THE AFORESAID NOTIFICATION SHALL RESULT IN THE CONTRACTOR BEING HELD RESPONSIBLE TO COMPLETE ALL WORK TO MEET THE INTENT OF THE CONSTRUCTION BID DOCUMENTS WITH NO ADDITIONAL COSTS BEING INCURRED BY THE OWNER.

14. THE CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT FURNISHED BY THIS CONTRACTOR WITH THE ELECTRICAL CONTRACTOR.

15. FURNISH AND INSTALL AN INDIVIDUAL COMBINATION PRESSURE BALANCING AND THERMOSTATIC CONTROL VALVE THAT CONFORMS TO A.S.E. # 100 WITH TEMPERED WATER PIPING CONNECTIONS FOR ALL ACCESSIBLE PLUMBING FIXTURES. SET THE VALVE FOR A MAXIMUM OF 110°F.

16. THE CONTRACTOR SHALL SUBMIT EQUIPMENT SHOP DRAWINGS TO THE ARCHITECT FOR REVIEW PRIOR TO INSTALLATION OF ANY OF THE FOLLOWING EQUIPMENT:

- PLUMBING FIXTURES
- PLUMBING VALVES, HANGERS & ACCESSORIES
- PLUMBING INSULATION
- MEDICAL GAS OUTLETS, VALVES, CABINETS, ETC.
- FLOOR DRAINS, CLEANOUTS, ROOF DRAINS, ETC.

17. THE CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED UNDER THIS CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER THE ACCEPTANCE OF THE BUILDING BY THE OWNER, AND SHOULD DEFECTS OCCUR WITHIN THIS PERIOD, REPAIR AND/OR REPLACE DEFECTIVE ITEMS AND ANY DAMAGE RESULTING FROM FAILURE OF THESE ITEMS, AT NO EXPENSE TO THE OWNER.

18. THE CONTRACTOR SHALL COORDINATE LOCATIONS OF HIS EQUIPMENT AND WORK WITH OTHER BUILDING TRADES TO AVOID ANY INTERFERENCES BETWEEN HIS WORK AND THE WORK OF OTHER TRADES.

19. ANY CUTTING AND/OR PATCHING THAT MAY BE REQUIRED FOR THE INSTALLATION OF THE PLUMBING AND PIPING SYSTEMS, SHALL BE PERFORMED BY THE ARCHITECTURAL TRADES AND PAID FOR BY THE CONTRACTOR. NO CUTTING OF THE BUILDING STRUCTURAL SYSTEM SHALL BE PERFORMED WITHOUT WRITTEN APPROVAL OF THE ARCHITECT BEING OBTAINED.

20. WATER HAMMER ARRESTORS SHALL BE INSTALLED ON BOTH COLD AND HOT WATER LINES, INSTALL IN AN UPRIGHT POSITION AT ALL QUICK CLOSING VALVES, SOLVENTS, AND PLUMBING FIXTURES. MANUFACTURED WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE 1010, EQUAL TO SIOUX CHIEF 85690, SERIES PISTON TYPE, LOCATED, SIZED, AND INSTALLED IN ACCORDANCE WITH PLUMBING AND DRAINAGE INSTITUTE STANDARD NO W4021.

21. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF ALL NEW PLUMBING FIXTURES.

22. COORDINATE ALL NEW LOCATIONS, SIZES AND ELEVATIONS OF SLEEVES THROUGH WALL SLABS AND FOUNDATIONS WITH STRUCTURAL DRAWINGS AND EXISTING FIELD CONDITIONS.

23. SEAL ALL PENETRATIONS THROUGH WALLS AND FLOORS AIR AND WATER TIGHT. COORDINATE LOCATIONS AND ELEVATIONS OF ALL NEW UNDERGROUND UTILITIES WITH CIVIL SITE PLANS PRIOR TO START OF CONSTRUCTION.

24. CONTRACTOR SHALL MAINTAIN ADEQUATE CLEARANCES (PER I.E.C. ABOVE AND AROUND ANY NEW ELECTRICAL PANELS, EQUIPMENT AND TRANSFORMERS) WHEN ROUTING OVERHEAD DOMESTIC WATER AND STORM PIPING.

25. CONTRACTOR SHALL PROVIDE PROTECTION FOR PIPING INSTALLED IN CONCEALED SPACES TO PREVENT DAMAGE FROM FASTENERS.

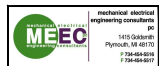
- PLUMBING FIXTURES:
- DRINKING FOUNTAINS SHALL CONFORM TO ASME A112.19.1CSA B45.2 OR ASME A112.19.2CSA B45.1 AND WATER COOLERS SHALL CONFORM TO AHRF 1010, DRINKING FOUNTAINS AND WATER COOLERS SHALL CONFORM TO NSF 61, SECTION 9.
  - FLOOR DRAINS SHALL CONFORM TO ASME A112.3.1, ASME A112.3.3 OR CSA B79.
  - LAVATORIES SHALL CONFORM TO ANSI Z124.3, ASME A112.19.1CSA B45.2, ASME A112.19.2CSA B45.1 OR ASME A112.19.3CSA B45.4.
  - SINKS SHALL CONFORM TO ANSI Z124.4, ASME A112.19.1CSA B45.2, ASME A112.19.2CSA B45.1 OR ASME A112.19.3CSA B45.4.
  - WATER CLOSETS SHALL CONFORM TO ANSI Z124.4, ASME A112.19.2CSA B45.1, ASME A112.19.3CSA B45.4 OR CSA B45.5.
  - FAUCETS SHALL CONFORM TO ASME A112.18.1CSA B125.1, DRINKING WATER FAUCETS SHALL ALSO CONFORM TO NSF 61, SECTION 9.
  - SHOWER VALVES SHALL CONFORM TO ASSE 1016 OR ASME A112.18.1CSA B125.1
  - FAUCETS AND PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE AND COMPLY WITH LOCAL ENERGY CODE STANDARDS.

**ABBREVIATIONS**

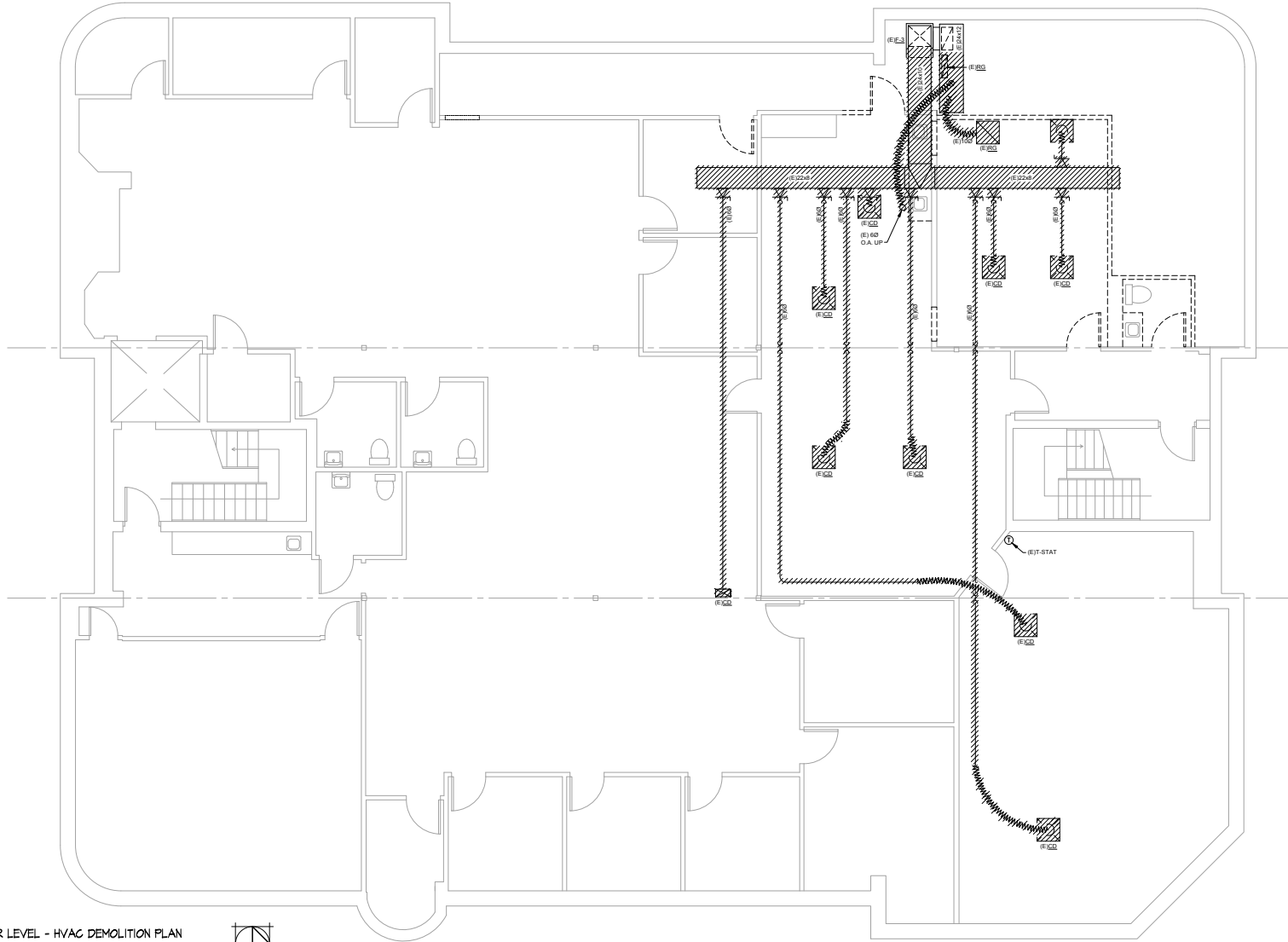
A	MEDICAL AIR
A.A.V.	AIR ADMITTANCE VALVE
C.O.	CLEAN OUT
C.W.D.	COLD WATER (DOMESTIC)
DM / D	DIAMETER
(E)	EXISTING
EW#	ELECTRIC WATER HEATER
FM#	FLOOR DRAIN
GPD	GALLONS PER MINUTE
HW	HOT WATER
HW R	HOT WATER RETURN
L#	LAVATORY
MX#	THERMOSTATIC MIXING VALVE
NO	NITROUS OXIDE
O	OXYGEN
PVC	POLYVINYL CHLORIDE
S#	SINK
SS#	SERVICE SINK
(TYP)	TYPICAL
V	VENT
VAC	VACUUM
V.T.R.	VENT-THRU-ROOF
WC#	WATER CLOSET
WH#	WATER HEATER

**PLUMBING SYMBOLS**

SYMBOL	DESCRIPTION
	BALL VALVE
	CHECK VALVE
	PLUG VALVE
	UNION
	PIPE TURNED UP
	PIPE TURNED DOWN
	PIPE OUT TOP
	PIPE OUT BOTTOM
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	MEDICAL AIR PIPING
	OXYGEN PIPING
	EVACUATION OXYGEN PIPING
	NITROUS OXIDE PIPING
	MEDICAL VACUUM PIPING
	VENT PIPING
	NATURAL GAS PIPING
	SANITARY PIPING
	DEMOLISH / REMOVE



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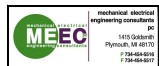
LOWER LEVEL - HVAC DEMOLITION PLAN  
 SCALE 1/4" = 1'-0"



**PRIME DESIGN SYSTEMS, INC.**  
 ARCHITECTURE INTERIORS PLANNING GRAPHICS  
 297 07 001 1000 WISNES, MICHIGAN 48091 FAX 360-477-4955  
 E-MAIL: PDS@PRIMESYSTEMS.COM

PROPOSED RENOVATION  
 GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
 16000 HILE ROAD CLINTON TOWNSHIP, MICHIGAN 48028  
 DATE 06/09/2020  
 REVISIONS

PROJECT 1/1/19  
 DATE 06/09/2020  
 REVISIONS



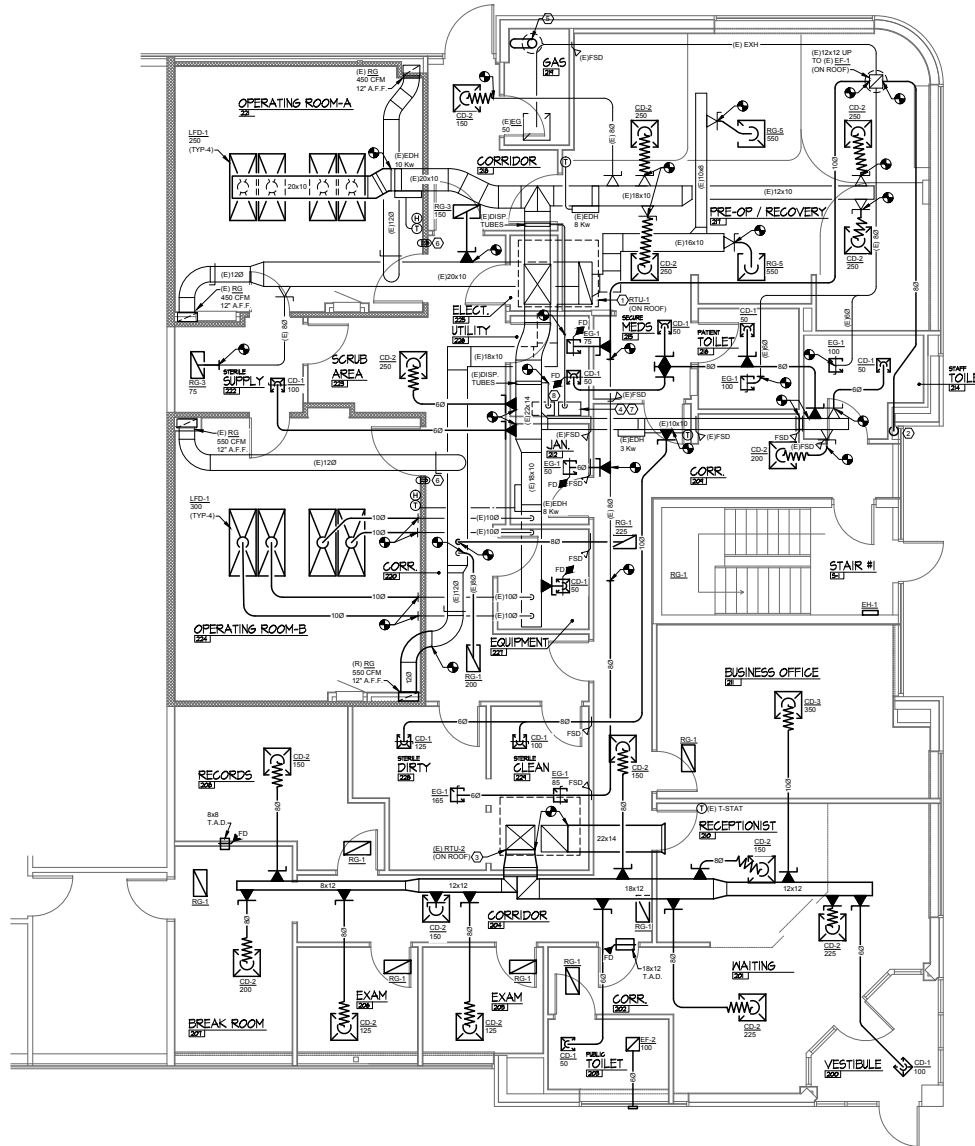
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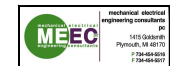


EXISTING  
GROUND LEVEL - HVAC NEW WORK PLAN  
SCALE 1/4" = 1'-0"



**KEYED NOTES:**

1. INSTALL NEW ROOFTOP UNIT ON EXISTING FILTERED ROOF CURB. PROVIDE ADAPTER CURB AS REQUIRED.
2. 8" EXHAUST DUCT DOWN IN CHASE TO LOWER LEVEL.
3. EXISTING 22"x22" SUPPLY AND RETURN AIR UP TO (E)121.2 (ON ROOF). CONNECT NEW SUPPLY AND RETURN AIR DUCTWORK AS INDICATED.
4. EXISTING HUMIDIFIER RELOCATE TO OPPOSITE WALL. EXTEND DISPERSION TUBE PIPING AS REQUIRED.
5. 8" O.D. OUTDOOR AIR DUCT UP THROUGH ROOF TO INTAKE AIR HOOD (A-1). COORDINATE DUCT ROUTING IN FIELD.
6. INSTALL POSITIVE BALL IN THE WALL VISUAL INDICATOR (A-1) (A-1) P. ADJACENT TO DOOR @ 7'2" A.F.F.
7. CONTRACTOR TO RE-BALANCE THE EXISTING HUMIDIFIER IN SUCH A MANNER TO ACCOMMODATE ONLY OPERATING ROOM A.
8. NEW HUMIDIFIER, H-1 REFER TO SCHEDULE.

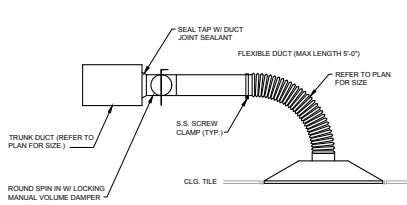


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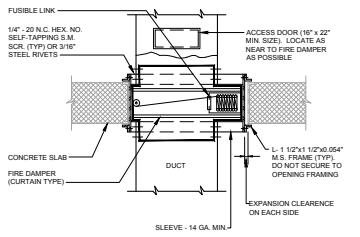
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PROPOSED RENOVATION  
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PROJECT  
04/19/18  
DATE  
06/09/2020  
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12/26/2014

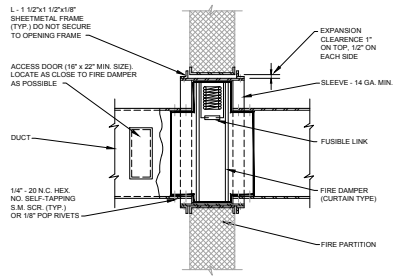
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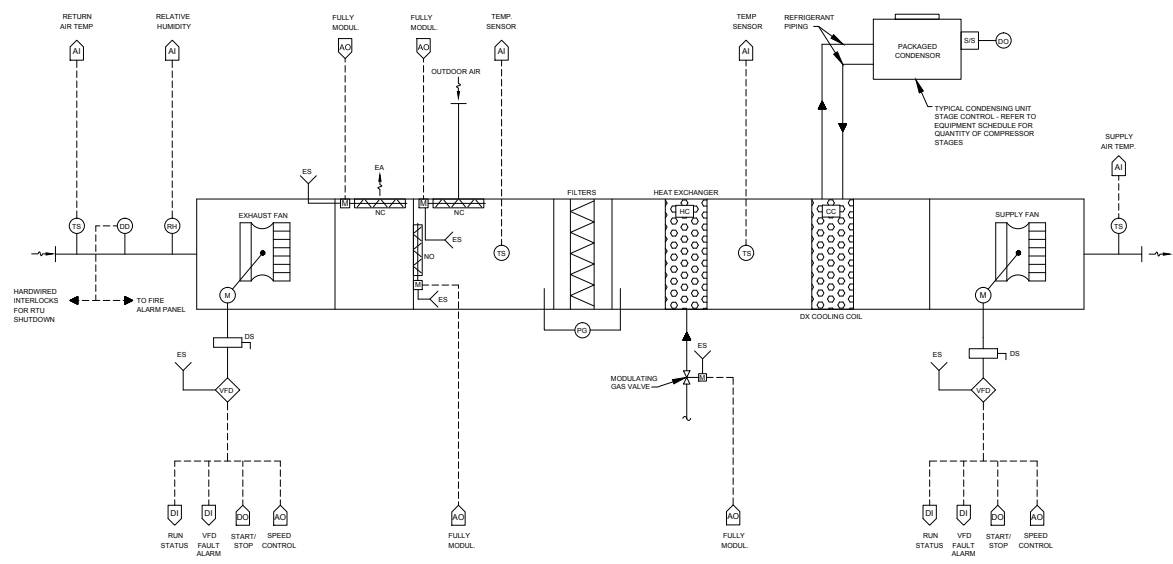
**SPIN-IN AND CEILING DIFFUSER DETAIL**  
N.T.S.



**TYPICAL CURTAIN TYPE HORIZONTAL FIRE DAMPER DETAIL**  
N.T.S.



**TYPICAL CURTAIN TYPE VERTICAL FIRE DAMPER DETAIL**  
N.T.S.



**SEQUENCE OF OPERATIONS**

**ROOFTOP UNIT - TYPICAL**

NOTE: ALL SETPOINTS AND TIME INTERVALS SETPOINTS DESCRIBED IN SEQUENCE SHALL BE ADJUSTABLE BY SYSTEM OPERATORS (CREATE REQUIRED VIRTUAL POINTS). APPROPRIATE DEADBANDS AND TIME DELAYS SHALL BE USED TO PREVENT SHORT CYCLING SITUATIONS.

THE SUPPLY FAN VARIABLE FREQUENCY DRIVE IS FOR BALANCING PURPOSES ONLY. THE SUPPLY FAN SHALL RUN CONTINUOUSLY PER THE OCCUPANCY SCHEDULE AS PROGRAMMED THROUGH DDC. THE SUPPLY FAN SHALL BE BALANCED TO THE SCHEDULED AIRFLOW.

THE EXHAUST FAN VARIABLE FREQUENCY DRIVE IS FOR BALANCING PURPOSES ONLY. THE EXHAUST FAN SHALL BE INTERLOCKED WITH THE SUPPLY FAN AND SHALL RUN CONTINUOUSLY. THE EXHAUST FAN SHALL BE BALANCED TO THE SCHEDULED AIRFLOW.

DURING "OCCUPIED MODE" THE SUPPLY AIR DISCHARGE TEMPERATURE SHALL BE MAINTAINED AT 55°F (ADJUSTABLE). DURING "UNOCCUPIED MODE" THE ROOFTOP UNIT SUPPLY AND EXHAUST FANS SHALL REMAIN OPERATIONAL AND THE DISCHARGE AIR TEMPERATURE SHALL BE RESET TO 80°F (ADJUSTABLE IN THE SUMMER AND 60°F (ADJUSTABLE) IN THE WINTER.

DDC SHALL MONITOR OPERATING STATUS OF EACH FAN VFD AND UPON ANY FAN FAILURE, DDC SHALL ACTIVATE AN ALARM. THE DISCHARGE AIR TEMPERATURE SENSOR (THROUGH DDC) SHALL MODULATE IN SEQUENCE THE CONDENSING UNIT STAGES, THE MIXED AIR AND RELIEF AIR DAMPERS AND THE HEAT EXCHANGER MODULATING GAS VALVE.

THE MIXED AIR TEMPERATURE SENSOR (THROUGH DDC) SHALL OVERRIDE ALL OTHER CONTROL TO PREVENT THE MIXED AIR TEMPERATURE FROM FALLING BELOW A LOW LIMIT OF 45°F (ADJUSTABLE) BY MODULATING THE OUTSIDE AND RELIEF DAMPERS CLOSED AND THE RETURN DAMPER OPEN.

WHEN OUTSIDE AIR DRY BULB TEMPERATURE EXCEEDS RETURN AIR DRY BULB TEMPERATURE, THE OUTSIDE AIR, MIXED AIR AND RELIEF AIR DAMPERS SHALL MODULATE TO MAINTAIN MINIMUM OUTSIDE AIR SETPOINT. MINIMUM OUTSIDE AIRFLOW SHALL BE CONTROLLED BASED ON THE ENTHALPY OF THE AIRFLOWS.

WHEN OUTSIDE AIR TEMPERATURE IS LESS THAN RETURN AIR TEMPERATURE AND DISCHARGE AIR TEMPERATURE IS ABOVE SETPOINT, DDC SHALL MODULATE OUTSIDE AIR, MIXED AIR AND RELIEF AIR DAMPERS ABOVE MINIMUM OUTSIDE AIR POSITION IN SEQUENCE WITH DDX CONDENSING UNIT STAGES TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SETPOINT.

WHEN OUTSIDE AIR TEMPERATURE IS LESS THAN RETURN AIR TEMPERATURE AND DISCHARGE AIR TEMPERATURE IS BELOW SETPOINT, DDC SHALL MODULATE OUTSIDE AIR, MIXED AIR AND RELIEF AIR DAMPERS TO MINIMUM OUTSIDE AIR POSITION AND HEAT EXCHANGER MODULATING GAS VALVE SHALL BE SEQUENCED TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SETPOINT.

IF SMOKE IS DETECTED IN THE AIRSTREAM BY THE RETURN AIR SMOKE DETECTOR, THE SUPPLY AND EXHAUST FANS SHALL BE DE-ENERGIZED.

WHEN THE SUPPLY FANS ARE DE-ENERGIZED, THE OUTSIDE AIR DAMPER, THE RELIEF DAMPER AND THE CONDENSING UNIT SHALL BE DE-ENERGIZED, AND THE RETURN AIR DAMPER SHALL OPEN FULLY.

THE FOLLOWING ALARMS SHALL BE SENT TO THE CONTROLLER:

- A. ROOFTOP UNIT GENERAL FAULT / FAILURE.
- B. DISCHARGE AIR TEMPERATURE HIGH / LOW.

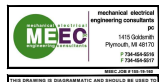
**TYPICAL ROOF TOP UNIT CONTROL DIAGRAM**











I hereby certify that I am a duly Licensed Professional Engineer in the State of Michigan, and I am the author of the design work on the construction plans, specifications, and reports herein. I am not providing any design services to any other party, and I am not providing any design services to any other party. I am not providing any design services to any other party.

**HVAC SPECIFICATIONS**

- GENERAL NOTES: MECHANICAL**
- PROVIDE MATERIALS AND EQUIPMENT AND EXECUTE THE WORK, INCLUDING ALL TESTING AND INSPECTIONS, IN COMPLIANCE WITH THE APPLICABLE PROVISIONS OF FEDERAL, STATE AND LOCAL GOVERNMENT LAWS, ORDINANCES, REFERENCED CODES AND STANDARDS CURRENT AS OF THE ISSUE DATE OF THESE DRAWINGS. ALL MORE STRINGENT REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL MODIFY, SUPPLEMENT AND SUPERSEDE APPLICABLE PORTIONS OF GOVERNING LAWS, ORDINANCES, CODES AND STANDARDS.
  - CONTRACTOR SHALL PRESENT CERTIFICATE TO THE OWNER THAT ALL APPLICABLE BUILDING PERMITS HAVE BEEN SECURED PRIOR TO STARTING ANY WORK, AND PROVIDE THE OWNER WITH ALL REQUIRED CERTIFICATES OF FINAL APPROVAL FROM THE GOVERNING JURISDICTIONS AT COMPLETION OF THE WORK. PROVIDE ALL SHOP DRAWINGS AS REQUIRED IN FOLLOWING SECTIONS.
  - MAKE ALL CONNECTIONS TO EXISTING SYSTEMS DURING DESIGNATED PERIODS UPON APPROVAL OF THE OWNER AND AT NO INCREASE IN CONTRACT SUM.
  - EXISTING FACILITIES
    - DO NOT INTERRUPT EXISTING UTILITIES UTILIZED BY THE OWNER EXCEPT AS SPECIFIED OR WHEN APPROVED IN WRITING, AND THEN ONLY AFTER TEMPORARY UTILITY SERVICES HAVE BEEN APPROVED AND PROVIDED. INTERRUPTIONS MUST BE SCHEDULED TO SUIT THE OWNER'S REQUIREMENTS.
    - VERIFY ALL EXISTING WORK, WHERE EXISTING CONNECTIONS ARE PARTIAL, PROVIDE ALL NECESSARY MATERIALS, LABOR AND EQUIPMENT REQUIRED TO MODIFY EXISTING WORK. IN ADDITION, MAINTAIN INTEGRITY OF THE EXISTING SYSTEMS. RECTIFY ANY CONTAMINATION, DEGRADATION OR CLEANLINESS OR DAMAGE TO THE EXISTING SYSTEMS TO THE SATISFACTION OF THE OWNER. PROVIDE ALL WORK SO REQUIRED AT NO INCREASE IN THE CONTRACTOR'S ORIGINAL PROPOSAL.
  - COORDINATE EXACT LOCATION OF CONSTRUCTION TO PRECLUDE ANY INTERFERENCES BETWEEN PIPING, WIRING, LIGHTING FIXTURES, DUCTWORK, BUILDING EQUIPMENT, PROCESS EQUIPMENT AND OTHER CONSTRUCTION.
  - PROVIDE LABOR INCLUDING FIELD DIRECTION AND SUPERVISION, MATERIALS, EQUIPMENT AND ANCILLARIES, AND COORDINATE, PREPARE, FABRICATE, DELIVER, ERECT OR INSTALL, INTERFACE WITH EXISTING WORK AND TEST ALL SYSTEMS AND REGULATIONS. SHOULD ANY VIOLATIONS OR INTERFERENCES APPEAR AND DEPARTURE FROM THE DESIGN INTENT OF THE CONTRACT DOCUMENTS IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO ENTERING INTO A CONTRACT WITH THE OWNER. FAILURE TO PROVIDE THE ARCHITECT WITH THE AFORESAID NOTIFICATION SHALL RESULT IN THE CONTRACTOR BEING HELD RESPONSIBLE TO COMPLETE ALL WORK TO MEET THE INTENT OF THE CONTRACT DOCUMENTS WITH NO ADDITIONAL EXPENSES BEING INCURRED BY THE OWNER.
  - THE MECHANICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING HIS BID TO FAMILIARIZE HIMSELF WITH THE ACTUAL PROJECT CONDITIONS AND TO CHECK FOR ANY INTERFERENCES BETWEEN HIS WORK AND THAT OF THE OTHER TRADES AND/OR ANY APPARENT VIOLATIONS OF LOCAL OR STATE CODES LAWS, ORDINANCES AND REGULATIONS. SHOULD ANY VIOLATIONS OR INTERFERENCES APPEAR AND DEPARTURE FROM THE DESIGN INTENT OF THE CONTRACT DOCUMENTS IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO ENTERING INTO A CONTRACT WITH THE OWNER. FAILURE TO PROVIDE THE ARCHITECT WITH THE AFORESAID NOTIFICATION SHALL RESULT IN THE CONTRACTOR BEING HELD RESPONSIBLE TO COMPLETE ALL WORK TO MEET THE INTENT OF THE CONTRACT DOCUMENTS WITH NO ADDITIONAL EXPENSES BEING INCURRED BY THE OWNER.
  - THE DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL LOCATIONS AND ARRANGEMENTS OF ALL THE EQUIPMENT AND PIPING. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS BUILDING CONSTRUCTION AND ALL OTHER WORK WILL PERMIT. DO NOT SCALE DRAWINGS FOR EXACT MEASUREMENTS.
  - DEMOLITION OF MECHANICAL EQUIPMENT SHALL INCLUDE ALL EXISTING PIPING, VALVES, CONTROLS, SUPPORTS, FLUES AND EQUIPMENT WHERE SUCH ITEMS ARE NOT REQUIRED FOR THE PROPER OPERATION OF THE REVISED SYSTEM. REMOVE, RECONNECT, CAP, PLUG AND REPLACE EXISTING PIPING AND DUCTWORK.
- GENERAL NOTES: HVAC SYSTEM**
- EXISTING HVAC UNITS, MAKEUP AIR UNITS, DUCTWORK, DIFFUSERS, GRILLES, REGISTERS, ETC. SHALL REMAIN UNLESS OTHERWISE NOTED.
  - SHEET METAL DUCTWORK CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "SMACNA" STANDARDS, NFPA 90A AND 96, AND THE LATEST EDITION OF THE ASHRAE GUIDE AND DATA BOOKS. ALL DUCTWORK SIZES INDICATED ON THE PLANS ARE THE INTERNAL DIMENSIONS AND DUCTWORK SIZES SHALL BE INCREASED ACCORDING SHOULD DUCTWORK BE INTERNALLY LINED WITH INSULATION. ALL DUCTWORK SHALL BE SEALED AIR TIGHT AND SHALL NOT ALLOW MORE THAN 10% AIR LEAKAGE THROUGHOUT THE ENTIRE SYSTEM.
  - ALL DUCTWORK SHALL BE CONCEALED, EXPOSING OF ANY DUCTWORK MUST HAVE PRIOR APPROVAL OF THE ARCHITECT.
  - THE CONTRACTOR HAS THE OPTION OF REVISING DUCTWORK SIZES TO OTHERS OF EQUIVALENT CROSS-SECTIONAL AREA SHOULD SPACE PERMIT.
  - PROVIDE VOLUME DAMPERS IN THE DUCT SYSTEMS WHERE SHOWN ON PLANS AND WHERE REQUIRED TO INSURE PROPER SYSTEM BALANCING. SPIN-IN FITTINGS WITH MANUAL VOLUME DAMPERS MAY BE USED, WHERE DAMPERS ARE CONCEALED. CABLEREATED REMOTE CONTROLLED DAMPERS SIMILAR TO YOUNG REGULATOR MODEL "83ACC" OR "83ACC5" FOR RECTANGULAR DUCTS AND "80DC" OR "80DC5" FOR ROUND DUCTS SHALL BE USED.
  - PROVIDE FLEXIBLE DUCT CONNECTORS ON ALL DUCT CONNECTIONS TO AIR HANDLING EQUIPMENT.
  - THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT A COMPLETE AIR BALANCE REPORT OF ALL AIR HANDLING SYSTEMS. THE REPORT SHALL INCLUDE FAN RPM, TOTAL STATIC PRESSURE, MOTOR RATED AMPS, MOTOR OPERATING AMPS, EXISTING AND DISCHARGE AIR TEMPERATURES, AIR QUANTITIES AT ALL DIFFUSERS AND GRILLES, A DIAGRAM OF THE AIR HANDLING SYSTEM INSTALLED, AND RECOMMENDATIONS TO CORRECT ANY DEFICIENCIES. THE AIR BALANCE REPORT SHALL BE PERFORMED BY AN INDEPENDENT N.E.B.B. CERTIFIED AIR BALANCE CONTRACTOR.
  - DUCTWORK INSULATION
    - ALL INSULATION SHALL BE JACKED WITH A UL LISTED INSULATION JACKING TAPE SIMILAR TO VENTURE TAPE 157CW OR APPROVED EQUAL. INSTALL ALL JACKING PER MANUFACTURER'S RECOMMENDATIONS.
    - DUCTWORK INSULATION SHALL HAVE A FLAME SPREAD/SMOKE DENSITY RATING NOT EXCEEDING 25/50 PER NFPA PAMPHLET 90A.
    - VIBRATION ABSORBING SUPPORTS SHALL BE INSTALLED AS REQUIRED ON ALL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION AND NOISE TO THE STRUCTURE. PROVIDE VIBRATION ISOLATION PER A.S.H.R.A.E. STANDARDS.
  - ALL MECHANICAL EQUIPMENT LOCATED ON THE ROOF SHALL BE PROPERLY SUPPORTED WITH PREFABRICATED CURBS, EQUIPMENT RAILS, OR OTHER MEANS AS APPROVED BY THE ARCHITECT.
  - HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS ARE DESIGNED ON THE FOLLOWING CONDITIONS:
 

WINTER:	INSIDE TEMP. 72°F,
	OUTSIDE TEMP. 1.4°F & 15 MPH WIND.
SUMMER:	INSIDE TEMP. 78°F, D.B. & 50% R.H.
	OUTSIDE TEMP. 90.3°F, D.B. & 73.8°F W.B.
  - SHEET METAL RUN-OUTS AND FLEX DUCT CONNECTIONS TO AIR DISTRIBUTION DEVICES SHALL BE THE SAME SIZE AS THE DEVICE NECK, UNLESS OTHERWISE NOTED.
  - DUCTS CONNECTING TO HVAC EQUIPMENT SHALL BE THE SAME SIZE AS EQUIPMENT DUCT CONNECTIONS UNLESS OTHERWISE NOTED.
  - FIRE DAMPERS SHALL BE DYNAMIC STYLE WITH TYPE-B BLADES COMPLETELY OUT OF THE AIRSTREAM. DAMPERS SHALL MEET ALL NFPA REQUIREMENTS AND BE UL-555 LISTED.
  - AIR DISTRIBUTION DEVICE LOCATIONS INDICATED ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL AIR DISTRIBUTION DEVICES WITH ARCHITECTURAL PLANS AND/OR ELECTRICAL PLANS PRIOR TO INSTALLATION. LIGHT FIXTURES AND SPRINKLER HEAD LOCATIONS SHALL TAKE PRECEDENCE OVER AIR DISTRIBUTION DEVICES, UNLESS OTHERWISE NOTED.
  - COMBINATION FIRE/SMOKE DAMPERS SHALL BE DYNAMIC STYLE. DAMPERS SHALL MEET ALL NFPA 90A REQUIREMENTS AND BE UL 555 AND UL 555S LISTED.
  - THE CONTRACTOR SHALL SUBMIT EQUIPMENT SHOP DRAWINGS TO THE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION OF ANY OF THE FOLLOWING:
    - HVAC UNITS
    - EXHAUST FANS
    - FIRE & FIRE/SMOKE DAMPERS
    - AIR DISTRIBUTION DEVICES
    - AIR DUCT ACCESSORIES
    - ELECTRIC DUCT HEATERS
- APPROVAL OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO CONFORM TO THE DESIGN INTENT OF THE BID DOCUMENTS.
- APPROVAL OF SHOP DRAWINGS IS INTENDED TO BE FOR GENERAL CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS ONLY. ANY EQUIPMENT THAT IS INSTALLED THAT WILL INVOLVE THE WORK OF OTHER TRADES SHALL BE COORDINATED WITH THOSE TRADES. REFER TO OTHER TRADE'S BID DOCUMENTS.
- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL AND INTERLOCK WIRING UNLESS OTHERWISE NOTED ON THE DRAWINGS. MECHANICAL CONTRACTOR SHALL PAY AND COORDINATE WITH THE ELECTRICAL CONTRACTOR ALL HIGH VOLTAGE WIRING THAT IS REQUIRED FOR INTERLOCKING OF CONTROLS.
  - CONTRACTOR SHALL PROVIDE BUILDING OWNER WITH OPERATING AND MAINTENANCE MANUALS FOR ALL H.V.A.C. EQUIPMENT UPON COMPLETION OF PROJECT.
  - MECHANICAL CONTRACTOR SHALL TEST ALL CONTROL ELEMENTS, VERIFY CALIBRATION OF ALL CONTROL DEVICES AND MAKE ADJUSTMENTS AS REQUIRED AT COMPLETION OF PROJECT.
  - COORDINATE NEW DUCTWORK WITH BUILDING STRUCTURAL CONDITIONS, EQUIPMENT MANUFACTURER'S RECOMMENDATIONS AND ALL OTHER TRADES TO AVOID INTERFERENCES.
  - PROVIDE ACCESS AROUND ALL NEW EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
  - ALL MECHANICAL RELATED CORING THROUGH WALLS AND FLOORS SHALL BE BY MECHANICAL CONTRACTOR. SEAL ALL PENETRATIONS THROUGH RATED WALLS AND FLOORS WITH U.L. RATED CAULK SEALANT IN ACCORDANCE WITH THE SPECIFICATION REQUIREMENTS.
  - ALL DUCTWORK SHALL BE ROUTED AS HIGH AS POSSIBLE ABOVE CEILING OR IN ARCHITECTURAL SOFFITS, WHERE INDICATED ON DRAWINGS.
  - COORDINATE ROUTING WITH ARCHITECTURAL AND STRUCTURAL TRADES TO AVOID INTERFERENCES.
  - ALL FLEXIBLE DUCTWORK SHALL BE LIMITED TO 2'-0" MAXIMUM LENGTH FROM HARD DUCT CONNECTION TO ROUND NECK SUPPLY AIR DIFFUSERS. FLEX DUCT APPROVED ABOVE ACCESSIBLE CEILING OR
  - CONTRACTOR SHALL MAINTAIN ADEQUATE CLEARANCES (PER N.E.C.) ABOVE AND AROUND ANY ELECTRICAL PANELS, EQUIPMENT AND TRANSFORMERS WHEN ROUTING DUCTWORK.

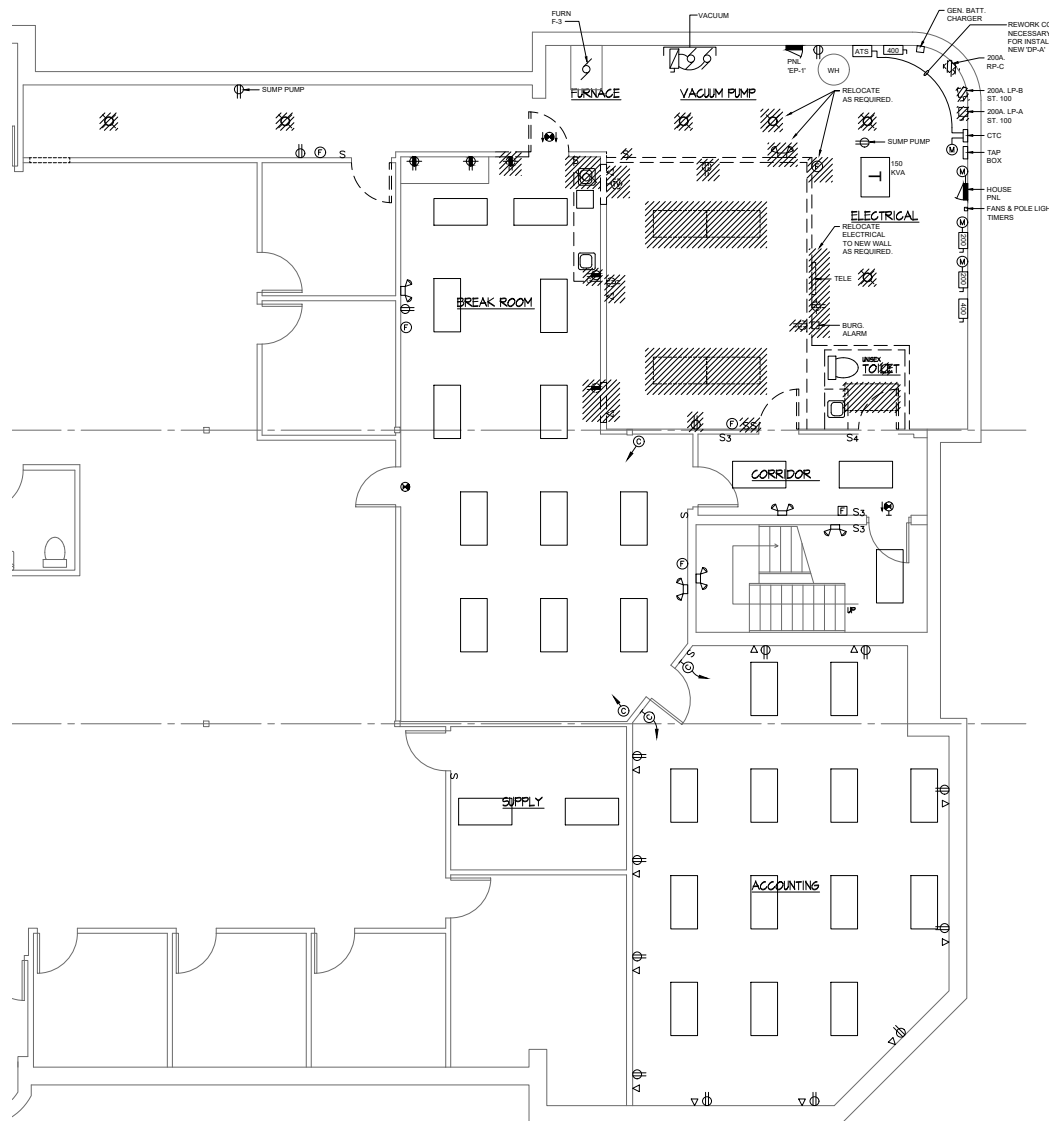
**HVAC SYMBOLS**

NOTE: ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT

SYMBOL	DESCRIPTION
	RETURN AIR GRILLE
	SUPPLY AIR DIFFUSER
	HORIZONTAL FIRE DAMPER
	VERTICAL FIRE DAMPER
	VOLUME DAMPER
	VERTICAL FIRE / SMOKE DAMPER
	HUMIDISTAT
	THERMOSTAT OR SENSOR
	CONNECT NEW TO EXISTING
	SUPPLY AIR ELBOW UP DIMENSION DESCRIPTION: 1ST FIGURE "S" SIDE SHOWN 2ND FIGURE "R" SIDE NOT SHOWN ALL SIZES IN INCHES
	SUPPLY AIR ELBOW DOWN
	EXHAUST/RETURN AIR ELBOW UP
	EXHAUST/RETURN AIR ELBOW DOWN
	DOUBLE SIDE TRANSITION TRANSITION SLOPE SPECIFICATION: MINIMUM SLOPE = 1% MAXIMUM SLOPE = 4% ALL SIZES IN INCHES
	SINGLE SIDE TRANSITION
	TOP TRANSITION (SLOPE ON TOP)
	RECTANGULAR TO ROUND TRANSITION
	ELBOW UP DIMENSION DESCRIPTION: 1ST "R" ROUND DUCT 2ND "F" FLAT Oval DUCT
	ELBOW DOWN
	ELBOW - RADIUS (R) = 1.5 TIMES DIAMETER OF DUCT

**ABBREVIATIONS**

AI	ANALOG INPUT
AO	ANALOG OUTPUT
AF	ABOVE FINISHED FLOOR
ALL	ACROSS DUCT LINER
S.O.D.	BOTTOM OF DUCT
CD#	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
D.B.	DRY BULB TEMPERATURE
DAI	DIAMETER
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
EXH	EXISTING
EA	EXHAUST AIR
EDH	ELECTRIC DUCT HEATER
EF#	EXHAUST FAN
EG#	EXHAUST GRILLE
EH#	EXHAUST HEATER
F#	FURNACE
FD	FIRE DAMPER
FSD	FIRE/SMOKE DAMPER
HA#	INTAKE AIR HOOD
ID	INSIDE DIAMETER
KW	KILOWATT
N.T.S.	NOT TO SCALE
OA	OUTSIDE AIR
O.E.D.	OPEN ENDED DUCT
RA	RETURN AIR
RG#	RETURN AIR GRILLE
R.H.	RELATIVE HUMIDITY
RPM	REVOLUTIONS PER MINUTE
RTU#	ROOF TOP UNIT
SG#	SUPPLY AIR GRILLE
SA	SUPPLY AIR
T.A.D.	TRANSFER AIR DUCT
TAG#	TRANSFER AIR GRILLE
T-STAT	THERMOSTAT
TYP.	TYPICAL
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB TEMPERATURE



- GENERAL NOTES:**
1. ALL ELECTRICAL IS EXISTING TO REMAIN, UNLESS OTHERWISE NOTED.
  2. CROSS-HATCHING INDICATES THE REQUIRED DEMOLITION WORK. REFER TO SHEET E001-01 FOR APPLICABLE NOTES.

LOWER LEVEL FLOOR PLAN - ELECTRICAL DEMOLITION  
 SCALE 1/4" = 1'-0"



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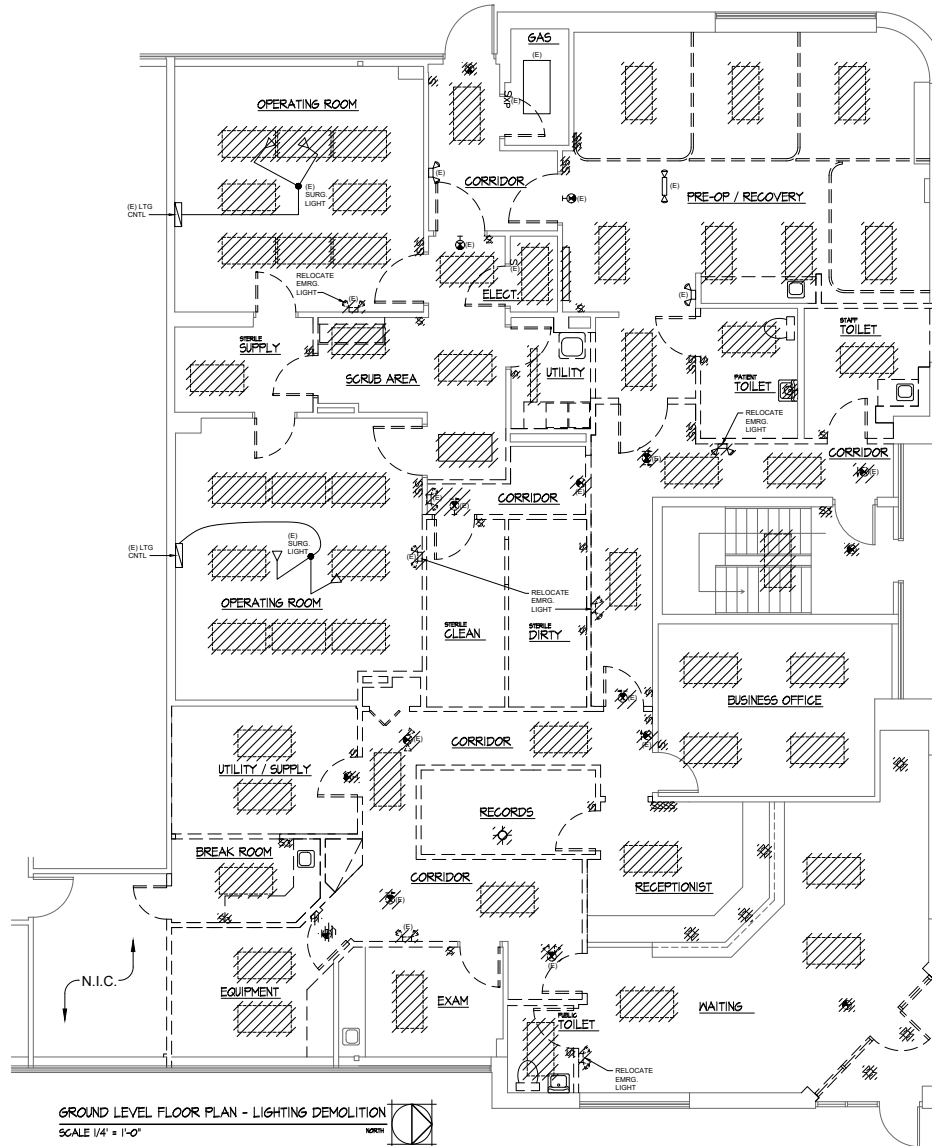
PROPOSED RENOVATION  
 GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
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 PROJECT  
 14/1948  
 DATE  
 06/04/2020  
 REVISIONS

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 E001-01





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 PROJECT  
 14/1948  
 DATE  
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**ELECTRICAL SYMBOL LIST**

	24\"/>
	24\"/>
	WALL MOUNTED LUMINAIRE, HEIGHT AS NOTED
	SINGLE FACE EXIT SIGN, ARROWS AS INDICATED
	DOUBLE FACE EXIT SIGN, ARROWS AS INDICATED
	EMERGENCY LIGHT
	SURFACE OR RECESSED MOUNTED LIGHT FIXTURE
	PENDANT MOUNTED LIGHT FIXTURE
	WALL SCONCE LUMINAIRE, HEIGHT AS NOTED
	OUTDOOR LIGHTING POLE & LUMINAIRE
	SINGLE POLE TOGGLE SWITCH - 48\"/>
	THREE-WAY TOGGLE SWITCH - 48\"/>
	LED DIMMER WITH ON/OFF SWITCH, EITHER TRAILING EDGE OR 0-10V AS REQUIRED
	MANUAL MOTOR STARTER TOGGLE SWITCH 48\"/>
	DUPLEX RECEPTACLE 120V, 20A, GROUNDING TYPE: (1) 15\"/>
	DUPLEX RECEPTACLE, GFCI TYPE, 120V, 20A, GROUNDING TYPE - 48\"/>
	DOUBLE DUPLEX RECEPTACLE, 120V, 20A, GROUNDING TYPE - 1P A.F.F. OR AS NOTED
	DOUBLE DUPLEX RECEPTACLE 120V, 20A, GROUNDING TYPE - 48\"/>
	COMBINATION 120V, 20A, GROUNDING TYPE DUPLEX RECEPTACLE WITH 50\"/>
	WEATHERPROOF RECEPTACLE - 2\"/>
	FLUSH FLOOR MOUNTED RECEPTACLE WITH BRASS CONCRETE
	FLUSH FLOOR MOUNTED 120V, 20A, CONVENIENCE RECEPTACLE - HARBELL 48\"/>
	FLUSH FLOOR MOUNTED TELEDATA OUTLET - HARBELL 48\"/>
	CEILING MOUNTED RECEPTACLE
	SPECIAL RECEPTACLE, TYPE & MOUNTING HEIGHT AS NOTED
	TELEVISION OUTLET, MOUNTING HEIGHT TO MATCH ADJACENT OUTLETS, OUTLET TO INCLUDE EMPTY 1\"/>
	DATACOM OUTLET, MOUNTING HEIGHT TO MATCH ADJACENT OUTLETS, OUTLET TO INCLUDE EMPTY 1\"/>
	PUSHBUTTON - 48\"/>
	JUNCTION BOX - CEILING MOUNTED
	JUNCTION BOX - WALL MOUNTED, HEIGHT AS NOTED
	FUSIBLE DISCONNECT SWITCH - UPPER NUMERAL DENOTES SWITCH SIZE, LOWER NUMERAL DENOTES FUSE SIZE
	NON-FUSIBLE DISCONNECT SWITCH - NUMERAL DENOTES SWITCH SIZE, SIZE AT 3/4\"/>
	MAGNETIC MOTOR STARTER
	COMBINATION MOTOR STARTER
	MOTOR CONNECTION
	LIGHTING PANELBOARD
	POWER PANELBOARD
	DISTRIBUTION PANELBOARD
	MAIN SWITCHBOARD
	TRANSFORMER
	CONTROL PANEL
	DUTY STATION
	CODE LABEL STATION
	CEILING MOUNTED SPEAKER ASSEMBLY, BY OTHERS
	WALL MOUNTED SPEAKER ASSEMBLY
	CEILING MOUNTED SECURITY CAMERA
	WALL MOUNTED SECURITY CAMERA
	NURSE CALL DOME LIGHT OUTLET
	FIRE ALARM MANUAL PULL STATION - 48\"/>
	FIRE ALARM STROBE/VOICE COMMUNICATION DEVICE - 48\"/>
	FIRE ALARM VISUAL DEVICE - 48\"/>

	AUTOMATIC DOOR OPERATOR
	DOOR HOLD OPEN DEVICE
	DUCT SMOKE DETECTOR
	SINGLE SMOKE DETECTOR
	SPRINKLER SYSTEM TAMPER SWITCH
	SPRINKLER SYSTEM WATER FLOW
	FIRE ALARM REMOTE ANNUNCIATOR PANEL
	CARD READER FOR DOOR OPERATOR
	SURGE PROTECTION DEVICE
	DUCT DETECTOR REMOTE INDICATOR
	ACCESS CONTROL KEY PAD
	CONDUIT RUN IN WALL OR ABOVE CEILING
	CONDUIT RUN BELOW GRADE OR CONCRETE SLAB
	BRANCH CIRCUIT HOMERUN
	LOW VOLTAGE WIRING FOR LIGHTING CONTROL
	BRANCH CIRCUIT HOMERUN WITH 110V CONDUCTORS: (1) NEUTRAL CONDUCTOR, (2) SAFETY GROUND CONDUCTOR & (3) ISOLATED GROUND CONDUCTOR
	CIRCUIT ON EMERGENCY ELECTRIC SYSTEM
	TELEPHONE RACEWAY
	DATA SYSTEM RACEWAY
	PRIMARY UNDERGROUND DUCT

**ELECTRICAL ABBREVIATIONS**

AC	ALTERNATING CURRENT
AC	ABOVE COUNTERTOP
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFB	ABOVE FINISHED FLOOR TO CENTERLINE
AGC	ABOVE FINISHED GRADE TO CENTERLINE
C	CONDUIT
CTICRC	CIRCUIT CURRENT TRANSFORMER CABINET
DP	DISTRIBUTION PANEL
EX	EXISTING
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EW	ELECTRIC WATER COOLER
FUR	FURNACE
GRD	GROUNDING
HWH	HOT WATER HEATER
MDP	MAIN DISTRIBUTION PANEL
PP	POWER PANEL
RU	ROOFTOP UNIT
UC	UNDER COUNTER
UNL	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF
MW	MICROWAVE
EX	EXISTING

**AUTOMATIC LIGHTING CONTROL LEGEND**

	1. CEILING MOUNTED DUAL TECHNOLOGY OCC. SENSOR, 360\"/>
	2. ON-OFF, RAISE-LOWER DIMMING CONTROL, IRPDM 0X NUGHT
	3. POWER RELAY PACK WITH 0-10V DIMMING-MANUAL ON BY DEFAULT, IFFTRD/NIGHT
	4. WALL DUAL TECHNOLOGY OCCUPANCY SENSOR WITH RAISE-LOWER DIMMING CONTROL, IWSX 1X 0X NUGHT
	5. CEILING MOUNTED EXTENDED RANGE DUAL TECHNOLOGY OCCUPANCY SENSOR, 360\"/>
	6. EMERGENCY OPERATION POWER/RELAY PACK WITH 0-10V DIMMING AUTOMATIC FULL ON UPON LOSS OF NORMAL, POWER IFFTRD/NIGHT
	7. 0-10V WALL DIMMER / PADDLER SWITCH WITH SLIDER LUTRON DV1A
	8. WALL SWITCH WITH PADDLER SWITCH LUTRON DV1A
	9. AUTOMATIC DIMMING CONTROL, PHOTOCELL, ICM ADCC (RUB) NUGHT
	10. WALL MOUNTED OCCUPANCY SENSOR, SENSORSWITCH W5X
	11. POWER RELAY PACK, AUTO-ON, AUTO-OFF, IFFTR/NIGHT

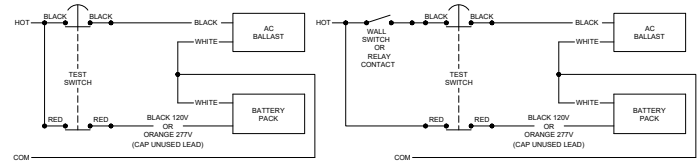
- NOTES:**
1. ALL OCCUPANCY SENSORS SHALL BE MOUNTED TO A VIBRATION-FREE SURFACE, WITH SENSORS FACING THE AREA OF COVERAGE. PLACE AT LEAST 48\"/>
  2. ALL CONTROL TYPES INDICATED MAY NOT NECESSARILY BE USED ON THIS PROJECT.
  3. SET TIME DELAY OF EACH SENSOR TO 15 MINUTES.
  4. PRODUCTS BY ALTERNATE MANUFACTURERS OF EQUAL QUALITY AND PERFORMANCE ARE ACCEPTABLE.

**GENERAL NOTES:**

1. THE CONTRACTOR SHALL ABIDE BY ALL FEDERAL, STATE, AND/OR LOCAL CODES. IF A DISCREPANCY BETWEEN CODES OCCURS, THE MOST STRINGENT SHALL PREVAIL.
2. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF ANY WORK. SHOULD DISCREPANCIES BE DISCOVERED, THE CONTRACTOR SHALL VERIFY INTENT WITH THE ENGINEER/OWNER BEFORE PROCEEDING.
3. COORDINATE LOCATIONS OF ALL CEILING MOUNTED DEVICES WITH OTHER TRADES PRIOR TO INSTALLATION.
4. COORDINATE ALL ROUGH-IN REQUIREMENTS FOR OWNER FURNISHED EQUIPMENT WITH THE OWNER PRIOR TO BEGINNING WORK. THESE DRAWINGS ARE BASED ON THE BEST INFORMATION AVAILABLE DURING THE DESIGN PHASE OF THE PROJECT.
5. COORDINATE WITH MILLWORK CONTRACTOR TO DETERMINE THE EXACT LOCATION OF OUTLETS BEING PLACED IN MILLWORK.
6. ALL DEVICES ARE TO BE FLUSH MOUNTED UNLESS NOTED OTHERWISE.
7. DEVICES NOTED 'OFF' SHALL INCLUDE GROUND FAULT INTERRUPTING DEVICES.
8. DEVICES NOTED 'WP' SHALL BE WEATHERPROOF, 'WHILE-IN-USE' TYPE WHERE APPLICABLE.
9. DEVICES NOTED 'NL' SHALL BE NIGHT LIGHTS. PROVIDE UN-SWITCHED BRANCH CIRCUIT CONDUCTORS TO EACH FIXTURE.
10. ELECTRICAL CONTRACTOR SHALL PROVIDE SAFETY DISCONNECT SWITCHES FOR ALL MECHANICAL AND PLUMBING EQUIPMENT.
11. MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE APPROVED FOR THIS PROJECT. PROVIDE DEDICATED NEUTRAL CONDUCTORS FOR ALL BRANCH CIRCUITS.
12. DEDICATED NEUTRAL CONDUCTORS SHALL BE CONSIDERED CURRENT-CARRYING CONDUCTORS. HOMERUNS CONTAINING MORE THAN THREE CURRENT-CARRYING CONDUCTORS SHALL BE DERATED IN ACCORDANCE WITH THE 2017 NEC.
13. BRANCH CIRCUIT HOMERUN CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE 2017 NEC. THE MAXIMUM ALLOWABLE VOLTAGE DROP ON A FEEDER IS 3% AND THE MAXIMUM ALLOWABLE VOLTAGE DROP ON A BRANCH CIRCUIT IS 3%. PROVIDE BRANCH CIRCUIT CONDUCTORS SIZED TO ENSURE THE TOTAL VOLTAGE DROP FROM THE SOURCE TO THE POINT OF UTILIZATION IS LESS THAN OR EQUAL TO 5%.
14. ELECTRIC HEATERS ARE TO BE SUPPLIED BY MECHANICAL CONTRACTOR, WIRING BY ELECTRICAL CONTRACTOR.
15. FIRESTOPPING PROVIDED BY ELECTRICAL CONTRACTOR.
16. CONCRETE PADS PROVIDED BY GENERAL CONTRACTOR.

**GENERAL NOTES - DEMOLITION**

1. CERTAIN AREAS IN THE EXISTING BUILDING SHALL BE DEMOLISHED TO SUIT THE NEW REQUIREMENTS. THESE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO INDICATE THE SCOPE OF WORK REQUIRED TO COMPLETE A SAFE REMOVAL OF THE ELECTRICAL SYSTEMS AS INDICATED BY THE NOTES ON THIS DRAWING.
2. WORK IN THE AREA SHALL INCLUDE THE DISCONNECTION, REMOVAL, RELOCATION, AND RECONNECTION COMPLETE IN ALL RESPECTS OF ALL ITEMS REQUIRED TO SUIT THE DESIGN INTENT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE PROJECT SITE TO CORRECTLY ASCERTAIN THE SCOPE OF SERVICES AND TO INCLUDE ALL PERTINENT COSTS IN HIS BID. NO EXTRAS WILL BE ALLOWED.
3. ALL ELECTRICAL WORK INTERFERING WITH AND REQUIRING MODIFICATION FOR THE NEW REQUIREMENTS SHALL BE RELOCATED AS DIRECTED BY BUILDING MANAGEMENT PERSONNEL AND REINSTATEMENT AND REWIRING AS NECESSARY TO THE SATISFACTION OF THE BUILDING OWNER.
4. PROVIDE ALL EQUIPMENT, MATERIALS, LABOR AND SUPERVISION NECESSARY TO PROVIDE A SAFE ELECTRICAL INSTALLATION. ALL ELECTRICAL DEVICES AND SYSTEMS THAT ARE INDICATED AS EXISTING TO REMAIN SHALL BE IN SAFE WORKING ORDER.
5. OBTAIN NECESSARY PERMITS FROM THE LOCAL AUTHORITY HAVING JURISDICTION BEFORE PROCEEDING WITH ANY WORK IN THE FIELD.
6. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, OSHA AND OTHER ELECTRICAL SAFETY STANDARDS AND REGULATIONS CONFORM TO ALL STATE AND LOCAL CODES AND STANDARDS.
7. ALL EQUIPMENT AND WIRING NOT IN RENOVATION AREAS BUT AFFECTED BY WORK IN RENOVATION AREAS SHALL BE RECONNECTED AS REQUIRED FOR A COMPLETE WORKING SYSTEM.
8. ABANDONED AND INACTIVE CONDUITS, WIRE, DEVICES, EQUIPMENT, ETC., SHALL BE REMOVED IN THEIR ENTIRETY. IN ADDITION TO THESE ITEMS, THIS CONTRACTOR SHALL REMOVE ALL ITEMS AS INDICATED ON THE PLANS, OR AS REQUIRED TO CLEAN UP THE ENTIRE AREA OF UNUSED, ABANDONED, OR INACTIVE MATERIALS. CONDUIT AND WIRING FEEDING DEVICES AND EQUIPMENT TO BE REMOVED SHALL ALSO BE REMOVED UP TO THE NEXT ACTIVE PULLBOX, JUNCTION BOX, OR PANELBOARD. HANGERS, MESSENGER CABLE, BRACKETS, ETC. SUPPORTING ITEMS TO BE REMOVED SHALL ALSO BE UNFASTENED AND REMOVED. OPEN HOLES IN DUCTS, BOXES, PANELBOARDS, AND ANCHORS SHALL BE CLOSED WITH SUITABLE SNAP PLUGS OR FILLER PLATES.
9. THE CONTRACTOR SHALL REMOVE AND DELIVER TO A PLACE DESIGNATED BY THE OWNER ALL EXISTING ELECTRICAL EQUIPMENT NO LONGER INTENDED FOR USE. THIS EQUIPMENT REMAINS THE PROPERTY OF THE OWNER.
10. ANY EQUIPMENT, DEVICES, MATERIALS, ETC., THE OWNER ELECTS NOT TO RETAIN SHALL BE LEGALLY DISPOSED OF BY THE CONTRACTOR OFF THE OWNER'S PREMISES.
11. AT COMPLETION OF ALL ELECTRICAL WORK, UPDATE CIRCUIT DIRECTORIES IN PANELS AFFECTED BY NEW WORK WITH NEW TYPEWRITTEN CIRCUIT DESCRIPTIONS. CIRCUIT DIRECTORIES SHALL BE MOUNTED ON INSIDE OF FRONT PANEL COVER IN A CLEAR PLASTIC ENCLOSURE.
12. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AND IN ACCORDANCE WITH THEIR LISTING OR LABELING REQUIREMENTS. ANY PENETRATIONS THROUGH FIRE RATED ASSEMBLIES THAT ARE CREATED BY THE ELECTRICAL DEMOLITION, SHALL BE SEALED AND RESTORED IN ACCORDANCE WITH THE UL FIRE RESISTANCE DIRECTORY.
13. WHERE CONDUIT AND/OR OUTLET BOXES INDICATED FOR DEMOLITION ARE EMBEDDED IN CONCRETE OR BELOW CONCRETE SLAB, ABANDON IN PLACE. CUT BACK AND SEAL EXPOSED CONDUIT. PROVIDE BLANK COVERS FOR ABANDONED BOXES. REMOVE ALL ASSOCIATED WIRING BACK TO SOURCE.



**UN-SWITCHED LUMINAIRE (NL/EM)**

**SWITCHED LUMINAIRE**

**TYPICAL WIRING DIAGRAM FOR EMERGENCY LIGHTING BATTERY POWER OPERATION**

N.T.S.



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## LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	LAMPING			
"A"	Z X 4 RECESSED LENSED LUMINAIRE WITH HI-EFFICIENCY LED LIGHT EMITTING DIODE LIGHT SOURCE. LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. PRISMATIC ACRYLIC PATTERN LENS WITH FLUSH STEEL DOOR FRAME. METALUX #24GR-LD5-42-F1-UNV-L840-CD1	4294 LUMEN OUTPUT 4000K LED ARRAY 35-WATT	"JZ"	Z X 2 RECESSED FLANGED OPERATING ROOM GENERAL LIGHTING LED LUMINAIRE PROVIDING SUPPLEMENTAL ASYMMETRIC/SYMMETRIC LIGHTING. ONE-PIECE ASYMMETRIC/SYMMETRIC ACRYLIC LENS. RFI 3/8" SQUARE METALIZED GRID, GROUNDED TO HOUSING. CAPTIVE S.S. COUNTERSUNK SCREWS TO MATCH DOOR FINISH SECURING DOOR FRAME TO THE HOUSING. DOOR FRAME TO LENS, DOOR FRAME TO HOUSING AND HOUSING TO DRYWALL CLOSED-CELL GASKETING. LED DRIVER SHALL DELIVER FULL RANGE (1% - 100%) DIMMING FROM 0-10 VOLT SOURCE. ANTI-MICROBIAL MATTE WHITE PAINTED FINISH. FAIL-SAFE #ORFL-24-2-INS-ASR-LD4-2STD-40-120-EDD1-1-90-DFCL-2424-AMW-U	3115 LUMEN OUTPUT 4000K LED ARRAY 34 WATT
"AZ"	Z X 4 RECESSED LENSED LUMINAIRE WITH HI-EFFICIENCY LED LIGHT EMITTING DIODE LIGHT SOURCE. LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. PRISMATIC ACRYLIC PATTERN LENS WITH FLUSH STEEL DOOR FRAME. DRYWALL KIT FOR MOUNTING IN HARD CEILING. METALUX #24GR-LD5-42-F1-UNV-L840-CD1-DE24W	4294 LUMEN OUTPUT 4000K LED ARRAY 35-WATT	"K"	24" LONG UNDERCABINET LED LIGHTING FIXTURE WITH COLD ROLLED STEEL HOUSING WITH MATTE WHITE ANTI-MICROBIAL PAINTED FINISH. PATTERN 12 ACRYLIC 0.156" THICK BOTTOM LENS. 90CR. FAIL-SAFE #UCL-2-LD4-40-EDC1-UNV-AM-90	1622 LUMEN OUTPUT 4000K LED ARRAY 18-WATT
"AX"	Z X 4 RECESSED LENSED LUMINAIRE WITH HI-EFFICIENCY LED LIGHT EMITTING DIODE LIGHT SOURCE. LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. PRISMATIC ACRYLIC PATTERN LENS WITH FLUSH STEEL DOOR FRAME AND WITH BATTERY. METALUX #24GR-LD5-42-F1-UNV-L840-CD1-EL14W	4294 LUMEN OUTPUT 4000K LED ARRAY 35-WATT	"L"	Z X 4 RECESSED COMBINATION EXAM AND GENERAL LIGHTING LUMINAIRE PROVIDING AMBIENT LIGHTING FOR PATIENT ROOM AND TWO SIDED PATIENT EXAMINATION LIGHTING SOURCES. FIXTURE TO INCLUDE HI-EFFICIENCY LED LIGHT SOURCES AND ANTI-MICROBIAL PAINTED FINISH. A LINEAR RIBBED ACRYLIC SIDE LENSES AND LINEAR RIBBED LENS FOR AMBIENT LIGHTING. WHITE LIGHT FINISHED SIDE REFLECTOR. ANTI-MICROBIAL WHITE PAINT FINISH. SYSTEM TO CONCEAL LED IMAGES AND PROVIDE EVEN ILLUMINATION. LONG-LIFE LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. LED DRIVER SHALL DELIVER FULL RANGE DIMMING FROM 0-10 VOLT SIGNAL. FAIL-SAFE #MAE-G-4-LD4-2STD-HI-40-UNV-EDD1-2-FA-GLA-AMMSC4-PK	5712 LUMEN OUTPUT CENTER LIGHT AND 7095 LUMEN OUTPUT EXAM 4000K LED ARRAYS 168-WATT
"B"	Z X 4 RECESSED VOLUMETRIC LUMINAIRE WITH HI-EFFICIENCY LED LIGHT EMITTING DIODE LIGHT SOURCE. LINEAR RIBBED LENS WITH SIDE REFLECTORS SYSTEM TO CONCEAL LED IMAGES AND PROVIDE EVEN ILLUMINATION. LONG-LIFE LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. LED DRIVER SHALL DELIVER FULL RANGE DIMMING FROM 0-10 VOLT SIGNAL. METALUX #24GL-LD5-34-UNV-L840-CD1-L	3564 LUMEN OUTPUT 4000K LED ARRAY 26-WATT	"M"	Z X 4 RECESSED VOLUMETRIC LUMINAIRE PROVIDING AMBIENT LIGHTING FOR PATIENT ROOM LIGHTING. FIXTURE TO INCLUDE HI-EFFICIENCY LED LIGHT SOURCE AND ANTI-MICROBIAL PAINTED FINISH. A LINEAR RIBBED ACRYLIC LENS WITH WHITE FINISHED SIDE REFLECTOR SYSTEM TO CONCEAL LED IMAGES AND PROVIDE EVEN ILLUMINATION. LONG-LIFE LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. LED DRIVER SHALL DELIVER FULL RANGE DIMMING FROM 0-10 VOLT SIGNAL. FAIL-SAFE #MAO-G-4-LD4-18TD-40-UNV-EDD1-1-FA-GLA-AMMSC4-PK	3470 LUMEN OUTPUT 4000K LED ARRAY 37-WATT
"BX"	Z X 4 RECESSED VOLUMETRIC LUMINAIRE WITH HI-EFFICIENCY LED LIGHT EMITTING DIODE LIGHT SOURCE. LINEAR RIBBED LENS WITH SIDE REFLECTORS SYSTEM TO CONCEAL LED IMAGES AND PROVIDE EVEN ILLUMINATION. LONG-LIFE LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. LED DRIVER SHALL DELIVER FULL RANGE DIMMING FROM 0-10 VOLT SIGNAL. FIXTURE TO INCLUDE 1400 LUMEN EMERGENCY LIGHTING BATTERY PACK. PROVIDE AN UNSWITCHED HOT LEAD TO BATTERY PACK FOR VOLTAGE SENSING OF NORMAL POWER. REFER TO WIRING DETAIL. METALUX #24GL-LD5-34-UNV-L840-CD1-U-EL14W	3564 LUMEN OUTPUT 4000K LED ARRAY 26-WATT	"N"	Z X 4 RECESSED VOLUMETRIC LUMINAIRE PROVIDING AMBIENT LIGHTING FOR PATIENT AREA LIGHTING. FIXTURE TO INCLUDE HI-EFFICIENCY LED LIGHT SOURCE AND ANTI-MICROBIAL PAINTED FINISH. A LINEAR RIBBED ACRYLIC LENS WITH WHITE FINISHED SIDE REFLECTOR SYSTEM TO CONCEAL LED IMAGES AND PROVIDE EVEN ILLUMINATION. LONG-LIFE LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. LED DRIVER SHALL DELIVER FULL RANGE DIMMING FROM 0-10 VOLT SIGNAL. PROVIDE AN UNSWITCHED HOT LEAD TO BATTERY PACK FOR VOLTAGE SENSING OF NORMAL POWER. FAIL-SAFE #MAO-G-4-LD4-18TD-40-UNV-EDD1-1-FA-GLA-AMMSC4-PK	3470 LUMEN OUTPUT 4000K LED ARRAY 37-WATT
"C"	40" LONG SURFACE MOUNTED LED STRIP LUMINAIRE WITH ACRYLIC DIFFUSE LENS. 80CR. MULTI-VOLT DRIVER. LINEAR RIBBED CLEAR ROUND DIFFUSER. 0-10V DIMMING. METALUX #48WLED-LD5-34S-LN-UNV-L840-CD1-U	3463 LUMEN OUTPUT 4000K LED ARRAY 25-WATT	"O"	Z X 4 RECESSED VOLUMETRIC LUMINAIRE PROVIDING AMBIENT LIGHTING FOR PATIENT AREA LIGHTING. FIXTURE TO INCLUDE HI-EFFICIENCY LED LIGHT SOURCE AND ANTI-MICROBIAL PAINTED FINISH. A LINEAR RIBBED ACRYLIC LENS WITH WHITE FINISHED SIDE REFLECTOR SYSTEM TO CONCEAL LED IMAGES AND PROVIDE EVEN ILLUMINATION. LONG-LIFE LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. LED DRIVER SHALL DELIVER FULL RANGE DIMMING FROM 0-10 VOLT SIGNAL. PROVIDE AN UNSWITCHED HOT LEAD TO BATTERY PACK FOR VOLTAGE SENSING OF NORMAL POWER. METALUX #48WLED-LD5-34S-LN-UNV-L840-CD1-U-EL14W	3470 LUMEN OUTPUT 4000K LED ARRAY 37-WATT
"CX"	40" LONG SURFACE MOUNTED LED STRIP LUMINAIRE WITH ACRYLIC DIFFUSE LENS. 80CR. MULTI-VOLT DRIVER. LINEAR RIBBED CLEAR ROUND DIFFUSER. 0-10V DIMMING. LED MULTI-VOLT DRIVER. FIXTURE TO INCLUDE 1400 LUMEN EMERGENCY LIGHTING BATTERY PACK. PROVIDE AN UNSWITCHED HOT LEAD TO BATTERY PACK FOR VOLTAGE SENSING OF NORMAL POWER. METALUX #48WLED-LD5-34S-LN-UNV-L840-CD1-U-EL14W	3463 LUMEN OUTPUT 4000K LED ARRAY 25-WATT	"P"	RECESSED LIGHT EMITTING DIODE DOWNLIGHT WITH OPEN CLEAR ALZAK SEMI-SPECULAR REFLECTOR. 4" APERTURE WITH CLEAR SELF-FLANGED TRIM. LIGHT ENGINE AND DRIVER ACCESSIBLE FROM ABOVE OR BELOW CEILING. CLASS P, THERMALLY PROTECTED DRIVER. SINGLE FUSE. MEDIUM DISTRIBUTION. PORTFOLIO #LD481500D10E48-1020-90-404LB-M-1-H	2000 LUMEN OUTPUT 3500K LED ARRAY 21-WATT
"D"	RECESSED LIGHT EMITTING DIODE DOWNLIGHT WITH OPEN CLEAR ALZAK SEMI-SPECULAR REFLECTOR. 4" APERTURE WITH CLEAR SELF-FLANGED TRIM. LIGHT ENGINE AND DRIVER ACCESSIBLE FROM ABOVE OR BELOW CEILING. CLASS P, THERMALLY PROTECTED DRIVER. SINGLE FUSE. MEDIUM DISTRIBUTION. PORTFOLIO #LD481500D10E48-1020-90-404LB-M-1-H	1-1500 LUMEN OUTPUT 4000K LED ARRAY 16-WATT	"Q"	RECESSED LIGHT EMITTING DIODE DOWNLIGHT WITH OPEN CLEAR ALZAK SEMI-SPECULAR REFLECTOR. 4" APERTURE WITH CLEAR SELF-FLANGED TRIM. LIGHTING ENGINE AND DRIVER ACCESSIBLE FROM ABOVE OR BELOW CEILING. CLASS P, THERMALLY PROTECTED DRIVER. PORTFOLIO #LD481500D10E48-1020-90-354LB-M-1-H	4000 LUMEN OUTPUT 3500K LED ARRAY 42-WATT
"DX"	SAME AS TYPE "D" EXCEPT WITH 14W EMERGENCY BATTERY PACK. PROVIDE AN UNSWITCHED HOT LEAD TO BATTERY PACK FOR VOLTAGE SENSING. PORTFOLIO #LD481500D10E48-1020-90-404LB-M-1-H-EM14	1-1500 LUMEN OUTPUT 4000K LED ARRAY 16-WATT	"R"	UNIVERSAL MOUNT EXIT SELF-POWERED EXIT SIGN WITH RED LETTERS ON WHITE BACKGROUND. NICKEL CADMIUM BATTERY WITH CHARGING CIRCUIT. ARROWS WHERE INDICATED. LIGHTALARMS #QLXN500-RN	2.5 WATT, LED WITH (2) 1.5 WATT WP EXTERIOR HEADS
"E"	SEMI-RECESSED LED DOWNLIGHT WITH LOW-PROFILE APPEARANCE. FIXTURE TO BE INSTALLED IN 4 X 4 X 1/8" DEEP SQUARE JUNCTION BOX. FIXTURE TO BE OF DIE-CAST ALUMINUM FRAME AND TRIM RING. WHITE PAINTED TRIM RING. SHOWER RATED AND UL LISTED FOR WET LOCATIONS. HALO #SL212-540-WH	1000 LUMEN OUTPUT 4000K BICORL LED 15-WATT	"S"	UNIVERSAL MOUNT EXIT SELF-POWERED EXIT SIGN WITH REMOTE HEADS. RED LETTERS ON WHITE BACKGROUND. NICKEL CADMIUM BATTERY WITH CHARGING CIRCUIT. ARROWS WHERE INDICATED. LIGHTALARMS #QLXN500-RN-RID WITH SELF-6120LED	2.5 WATT, LED WITH (2) 1.5 WATT WP EXTERIOR HEADS
"EM"	2" HEAD LED EMERGENCY BATTERY BACK-UP LIGHTING UNIT. LIGHT ALARMS #LCA-2LED	(2) 3.6 WATT LED HEADS	"T"	UNIVERSAL MOUNT EXIT SIGN WITH COMBINATION EMERGENCY LIGHTING HEADS. RED LETTERS ON WHITE BACKGROUND. NICKEL CADMIUM BATTERY WITH CHARGING CIRCUIT. LIGHT ALARMS #QLXN500-RN-2LED	2.5 WATT, LED WITH (2) 4 WATT HEADS
"F"	24" LONG VANITY LUMINAIRE WITH WHITE ACRYLIC DIFFUSER WITH BRUSHED NICKEL HOUSING. MOUNTED OVER MIRROR. LITHONIA #FVCL-24IN-MVCLT-300K-90-BN	1304 LUMENS OUTPUT 3000K LED ARRAY 19-WATT			
"G"	Z X 4 RECESSED VOLUMETRIC LUMINAIRE PROVIDING AMBIENT LIGHTING FOR GENERAL OR ADMINISTRATIVE LIGHTING. FIXTURE TO INCLUDE HI-EFFICIENCY LED LIGHT SOURCE AND ANTI-MICROBIAL PAINTED FINISH. A LINEAR RIBBED ACRYLIC LENS WITH WHITE FINISHED SIDE REFLECTOR SYSTEM TO CONCEAL LED IMAGES AND PROVIDE EVEN ILLUMINATION. LONG-LIFE LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. LED DRIVER SHALL DELIVER FULL RANGE DIMMING FROM 0-10 VOLT SIGNAL. FAIL-SAFE #MAO-G-4-LD4-1L0-40-UNV-EDD1-1-FA-GLA-AMMSC4-PK	2588 LUMEN OUTPUT 4000K LED ARRAY 27-WATT			
"GX"	Z X 4 RECESSED VOLUMETRIC LUMINAIRE PROVIDING AMBIENT LIGHTING FOR GENERAL OR ADMINISTRATIVE LIGHTING. FIXTURE TO INCLUDE HI-EFFICIENCY LED LIGHT SOURCE AND ANTI-MICROBIAL PAINTED FINISH. A LINEAR RIBBED ACRYLIC LENS WITH WHITE FINISHED SIDE REFLECTOR SYSTEM TO CONCEAL LED IMAGES AND PROVIDE EVEN ILLUMINATION. LONG-LIFE LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. LED DRIVER SHALL DELIVER FULL RANGE DIMMING FROM 0-10 VOLT SIGNAL. FIXTURE TO INCLUDE 1400 LUMEN EMERGENCY LIGHTING BATTERY PACK. PROVIDE AN UNSWITCHED HOT LEAD TO BATTERY PACK FOR VOLTAGE SENSING OF NORMAL POWER. FAIL-SAFE #MAO-G-4-LD4-1L0-40-UNV-EDD1-1-FA-GLA-AMMSC4-PK-EL14W	2588 LUMEN OUTPUT 4000K LED ARRAY 27-WATT			
"H"	Z X 4 RECESSED VOLUMETRIC LUMINAIRE PROVIDING AMBIENT LIGHTING FOR GENERAL OR PATIENT ROOM LIGHTING. FIXTURE TO INCLUDE HI-EFFICIENCY LED LIGHT SOURCE AND ANTI-MICROBIAL PAINTED FINISH. A LINEAR RIBBED ACRYLIC LENS WITH WHITE FINISHED SIDE REFLECTOR SYSTEM TO CONCEAL LED IMAGES AND PROVIDE EVEN ILLUMINATION. LONG-LIFE LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. LED DRIVER SHALL DELIVER FULL RANGE DIMMING FROM 0-10 VOLT SIGNAL. FAIL-SAFE #MAO-G-4-LD4-1L0-40-UNV-EDD1-1-FA-GLA-AMMSC4-PK	6704 LUMEN OUTPUT 4000K LED ARRAY 74-WATT			
"HX"	Z X 4 RECESSED VOLUMETRIC LUMINAIRE PROVIDING AMBIENT LIGHTING FOR GENERAL OR PATIENT ROOM LIGHTING. FIXTURE TO INCLUDE HI-EFFICIENCY LED LIGHT SOURCE AND ANTI-MICROBIAL PAINTED FINISH. A LINEAR RIBBED ACRYLIC LENS WITH WHITE FINISHED SIDE REFLECTOR SYSTEM TO CONCEAL LED IMAGES AND PROVIDE EVEN ILLUMINATION. LONG-LIFE LEADS SHALL PROVIDE 50,000 HOUR LAMP LIFE. LED DRIVER SHALL DELIVER FULL RANGE DIMMING FROM 0-10 VOLT SIGNAL. FIXTURE TO INCLUDE 1400 LUMEN EMERGENCY LIGHTING BATTERY PACK. PROVIDE AN UNSWITCHED HOT LEAD TO BATTERY PACK FOR VOLTAGE SENSING OF NORMAL POWER. REFER TO WIRING DETAIL. FAIL-SAFE #MAO-G-4-LD4-2STD-40-UNV-EDD1-1-FA-GLA-AMMSC4-PK-EL14W	6704 LUMEN OUTPUT 4000K LED ARRAY 74-WATT			
"J"	Z X 4 RECESSED FLANGED OPERATING ROOM GENERAL LIGHTING LED LUMINAIRE PROVIDING SUPPLEMENTAL ASYMMETRIC/SYMMETRIC LIGHTING. ONE-PIECE ASYMMETRIC/SYMMETRIC ACRYLIC LENS. RFI 3/8" SQUARE METALIZED GRID, GROUNDED TO HOUSING. CAPTIVE S.S. COUNTERSUNK SCREWS TO MATCH DOOR FINISH SECURING DOOR FRAME TO THE HOUSING. DOOR FRAME TO LENS, DOOR FRAME TO HOUSING AND HOUSING TO DRYWALL CLOSED-CELL GASKETING. LED DRIVER SHALL DELIVER FULL RANGE (1% - 100%) DIMMING FROM 0-10 VOLT SOURCE. ANTI-MICROBIAL MATTE WHITE PAINTED FINISH. FAIL-SAFE #ORFL-24-2-INS-ASR-LD4-2H-40-120-EDD1-1-90-DFCL-2448-AMW-U	7519 LUMEN OUTPUT 4000K LED ARRAY 88-WATT			

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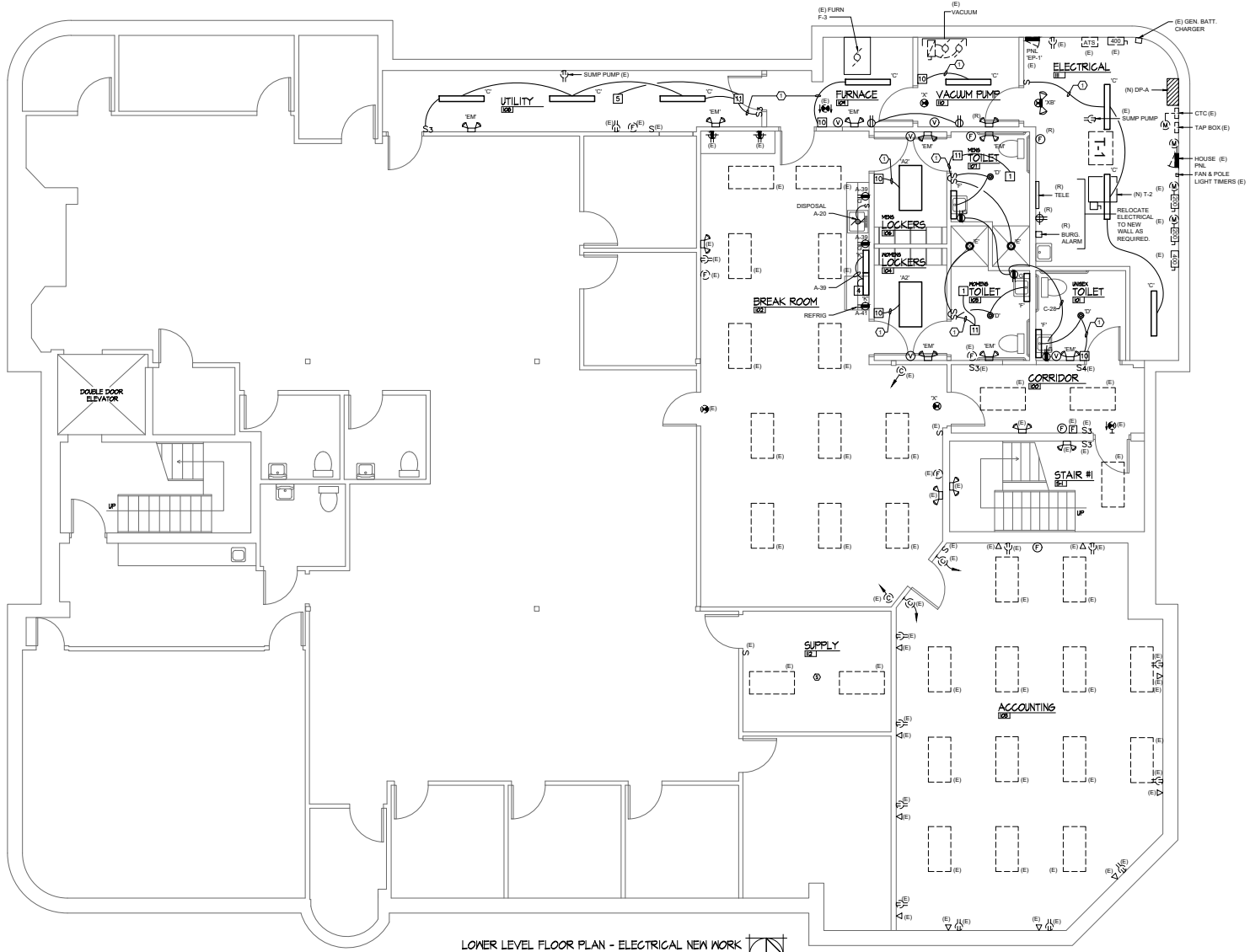


PROPOSED RENOVATION  
 GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
 1600 FT. HOSPITAL CENTER DR. NORTON, MICHIGAN 48068  
 LIGHT FIXTURE SCHEDULE

PROJECT  
 1/15/25  
 DATE  
 04/10/2020  
 REVISIONS



SHEET  
 E00.02



LOWER LEVEL FLOOR PLAN - ELECTRICAL NEW WORK  
 SCALE 1/4" = 1'-0"  
 NORTH

SHEET KEY NOTES ©  
 1. RECONNECT TO EXISTING BASEMENT LIGHTING CIRCUIT.

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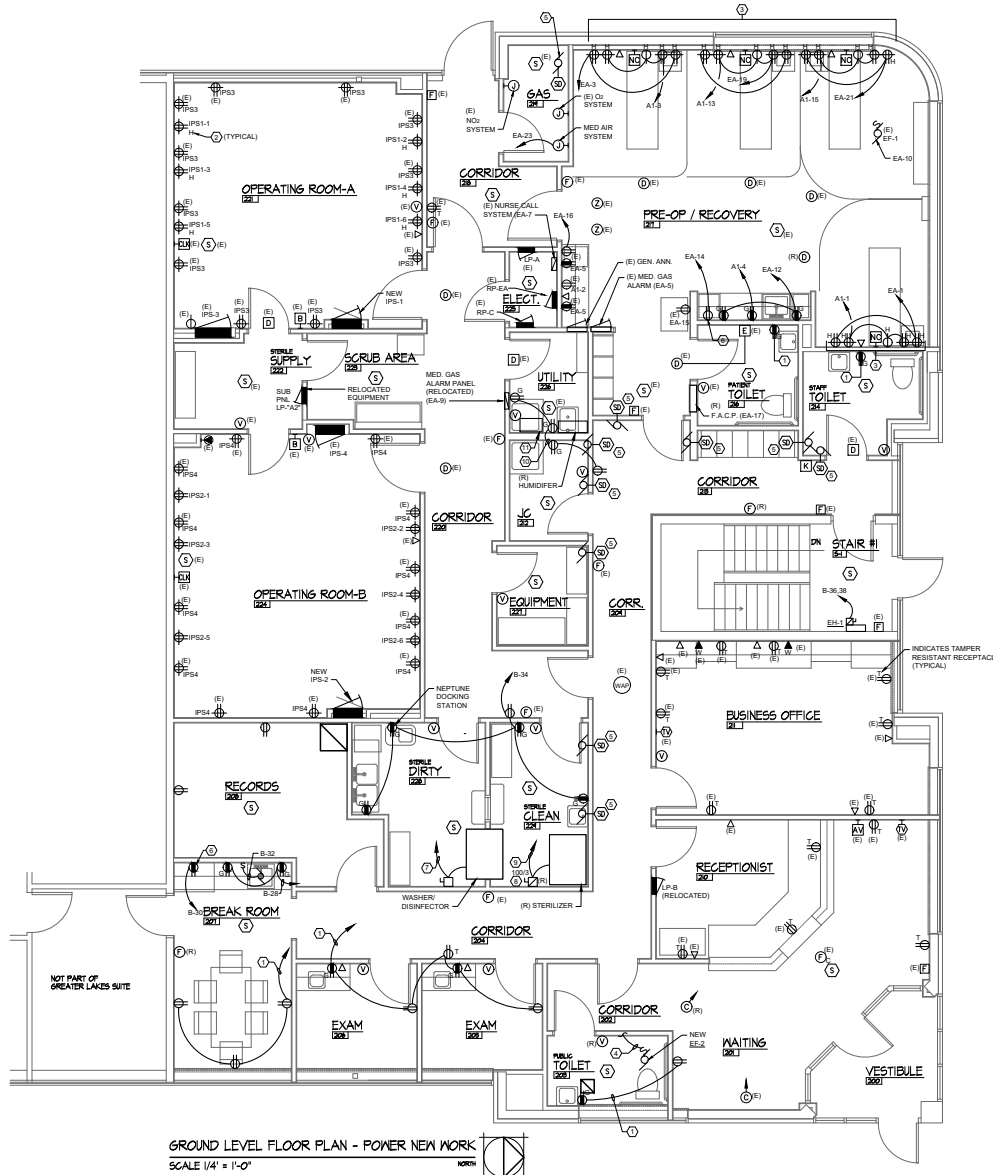
PROPOSED RENOVATION  
 GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
 1600 W. WOOD AVENUE, SUITE 100, MARSH, MISSOURI 65051  
 LOWER LEVEL FLOOR PLAN - ELECTRICAL NEW WORK  
 PROJECT #191545  
 DATE 06/04/2020  
 REVISIONS

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 E01.01





GROUND LEVEL FLOOR PLAN - POWER NEW WORK  
SCALE 1/4" = 1'-0"

**GENERAL NOTES:**

1. ALL EXISTING RECEPTACLES MARKED WITH A "T" SHALL BE REMOVED AND REPLACED WITH NEW TAMPER-RESISTANT TYPE, UNLESS OTHERWISE NOTED.
2. ALL NEW RECEPTACLES SHALL BE TAMPER RESISTANT TYPE, UNLESS OTHERWISE NOTED.
3. ALL RECEPTACLES MARKED WITH A "H" SHALL BE HOSPITAL-GRADE.
4. ALL RECEPTACLES CONNECTED TO NORMAL POWER SHALL BE WHITE AND ALL RECEPTACLES CONNECTED TO EMERGENCY POWER SHALL BE RED.
5. LABEL ALL DEVICES WITH SOURCE PANEL AND CIRCUIT NUMBER.
6. TEST ALL RECEPTACLES IN PATIENT CARE AREAS AFTER INSTALLATION, PER NFPA-99 REQUIREMENTS.

**SHEET KEY NOTES:**

1. RECONNECT TO EXISTING CIRCUIT MADE AVAILABLE BY DEMOLITION.
2. INDICATES HOSPITAL-GRADE RECEPTACLE (TYPICAL).
3. MOUNT DOUBLE-DUPLEX HOSPITAL-GRADE RECEPTACLES BETWEEN 36" AND 54" AFF. MOUNT SINGLE-POLE RECEPTACLE +18" AFF. COORDINATE WITH ARCHITECTURAL ELEVATION SHEET A05.01.
4. SWITCH WITH LIGHTS VIA OCCUPANCY SENSOR.
5. FIRE/SMOKE DAMPER PROVIDED BY OTHERS. PROVIDE AND INSTALL DUCT SMOKE DETECTORS AS REQUIRED. CONNECT TO EXISTING FIRE DAMPER CIRCUIT EA-4.
6. INSTALL REMOTE GFCI DEVICE ABOVE COUNTER AT SAME HEIGHT AS ABOVE-COUNTER RECEPTACLES.
7. REFER TO POWER RISER DIAGRAM, SHEET E02.01.
8. RELOCATE EXISTING DISCONNECT SWITCH, EXTENDING EXISTING CIRCUIT AND RECONNECT TO EXISTING CIRCUIT.
9. 1/2" C. 4 #8. #8G. TO LPA-2.4.6.
10. CONNECT TO EXISTING RECEPTACLE CIRCUIT.
11. NEW HUMIDIFIER (H-1) IN CEILING SPACE. PROVIDE JUMPS-UP DISCONNECT WITH 302.2 & #2 GND. 34" C. TO PANEL RP-C. CIRCUIT NUMBER C-23,25,27.

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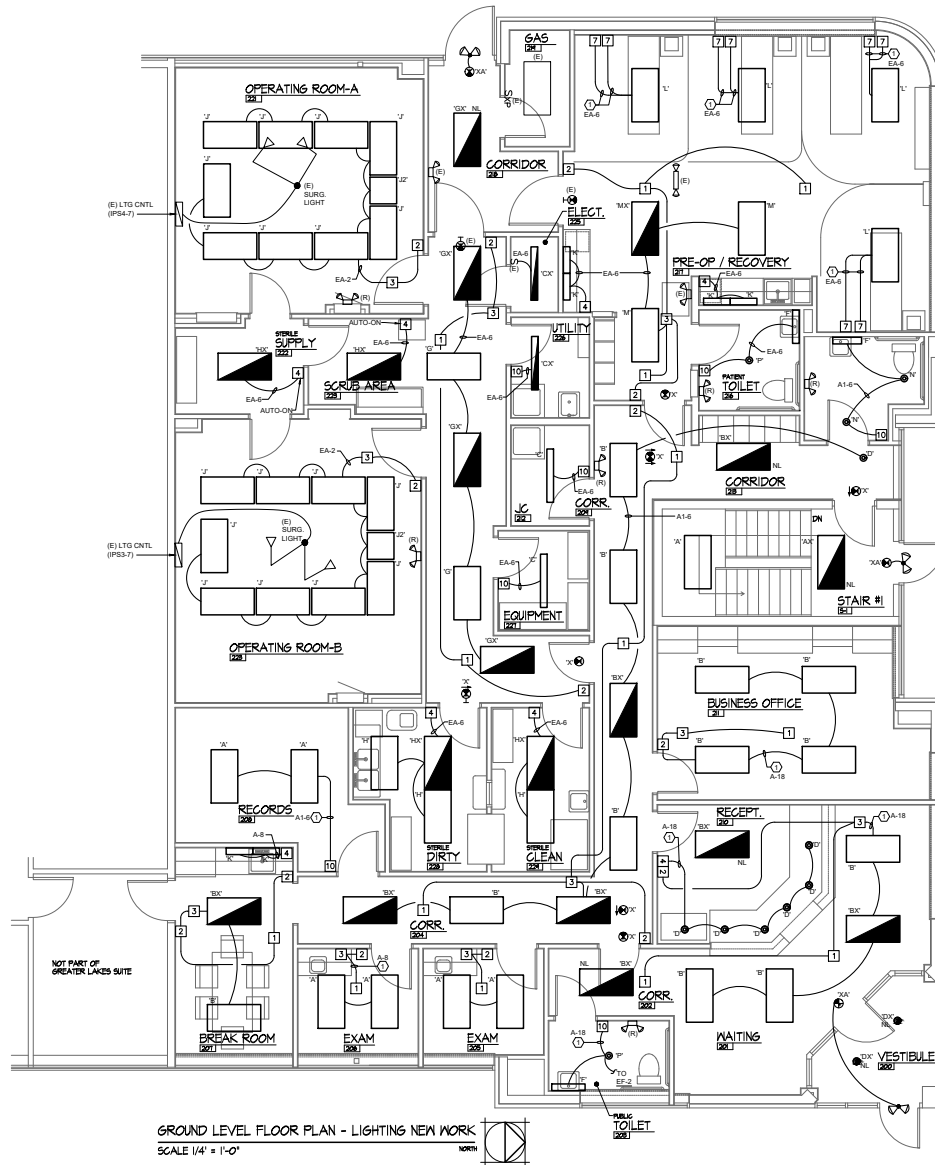
PROPOSED RENOVATION  
GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
4600 W. LEBANON ROAD, NICHOLS, MICHIGAN 48868  
PROJECT 14/1545  
DATE 06/04/2020  
REVISIONS



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SHEET  
E01.02



**GENERAL NOTES:**

1. CONNECT ALL EXIT AND EMERGENCY LIGHTS TO LOCAL LIGHTING CIRCUIT. AHEAD OF ALL SWITCHING.
2. CONNECT ALL NIGHT LIGHTS TO DEDICATED LOCK-ON CIRCUIT BREAKER, EA-8.

**SHEET KEY NOTES** Ⓞ

1. RECONNECT TO ROOM LIGHTING CIRCUIT.

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PROPOSED RENOVATION  
 GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
 4600 W. HALE ROAD, LINDEN PARK, MICHIGAN 49808  
 PROJECT 14/1949  
 DATE 06/04/2020  
 REVISIONS



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 E01.03



LOAD SERVED	LOAD -VA			VOLTAGE AND PHASE			SYM A I.C. MIN. EXISTING			MOUNTING SURFACE	LOAD SERVED
	A	B	C	CKT #	CKT #	CKT #	A	B	C		
	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #		
(E) HVAC	10,800	10,800	10,800	1	2	60	3,795	3,795	3,795	RP-4A	
(E) VACUUM PUMP	500	500	500	3	4	50	2,395	2,395	2,395	OPERATING ROOM (PS-3) ISO POWER SYSTEM	
SPARE	--	--	--	11	12	50	2,395	2,395	2,395	OPERATING ROOM (PS-4) ISO POWER SYSTEM	
(R) COND. PUMP ON FURNACE	--	--	--	20	15	18	40	3,000	3,000	AIR CONDITIONING	
(R) BASEMENT RECEP-TS - WEST	--	--	--	20	19	20	18	2,250	2,250	WATER HEATER	
(R) BASEMENT RECEP-TS - WEST	--	--	--	20	21	24	20	2,250	2,250	WATER HEATER	
(R) BSMT RECEP-TS - SOUTHWEST	--	--	--	20	23	24	20	--	--	(R) OFFICE RECEP-TS - EAST	
(R) BASEMENT BATH (GFCI)	--	--	--	20	25	26	20	--	--	(R) BASEMENT LIGHTS - EAST	
(R) RECEPT BSMT WORKSTATIONS	--	--	--	20	27	28	20	--	--	(R) OFFICE RECEP-TS - EAST	
SPARE ABOVE BATHROOM	--	--	--	20	29	30	20	1,176	1,176	MECH. ROOM SUMP	
(E) SERVER ROOM 1ST FLR	1,000	--	--	20	31	32	20	1,176	1,176	MECH. ROOM SUMP	
SPARE	--	--	--	20	33	34	20	1,176	1,176	MECH. ROOM SUMP	
SPARE	--	--	--	20	35	38	20	--	--	(R) EXISTING FURNACE	
(E) FIRE ALARM	1,000	--	--	20	37	38	50	1,080	1,080	(N) ISO POWER SYSTEM (PS-2)	
(N) ISO PWR SYSTEM (PS-1)	1,080	1,080	50	39	40	2	1,080	1,080	--		
LOAD DESCRIPTION	DEMAND FACTOR D.F.	CONNECTED			DEMAND			71,952	TOTAL DEMAND LOAD		
LIGHTING	1.0	3,651	3,651	913	25% LIGHTING LOAD						
RECEPTACLES	NEC	16,920	13,460	--	SPARE						
MOTORS	1.25 LARGEST	7,256	7,241	--	SPARE						
MISC. EQUIPMENT	1.0	8,500	8,500	72,865	DESIGN LOAD						
HVAC EQUIPMENT	NEC	38,400	202	202	DESIGN AMPS						
TOTAL		75,037	71,952								

(R) - RELOCATE EXISTING CIRCUIT FROM PANEL "EP-1" TO PANEL "LP-A" ON FLOOR ABOVE. LABEL CIRCUIT BREAKER IN PANEL "EP-1" AS "SPARE".  
 (E) - EXISTING LOCK-ON TAB.

LOAD SERVED	LOAD -VA			VOLTAGE AND PHASE			SYM A I.C. MIN. EXISTING			MOUNTING SURFACE	LOAD SERVED
	A	B	C	CKT #	CKT #	CKT #	A	B	C		
	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #		
RECEPTACLES	720	--	--	20	1	2	20	1,380	1,380	LIGHTS & EM	
RECEPTACLES	720	720	720	20	3	4	20	450	450	FIRE ALARM DAMPERS	
RECEPTACLES	360	360	360	20	5	6	20	1,411	1,411	LIGHTS & EM EXITS & FAN (NIGHT LIGHTS)	
NURSE CALL	500	--	--	20	7	8	20	146	146	EXHAUST FAN (E) (EP-1) (14 HP)	
(E) MED GAS	600	600	600	20	9	10	20	696	696	(N) (2) RECEPTACLES	
SPARE	--	--	--	20	11	12	20	360	360	(N) U.C. REFRIG.	
RECEPTACLES	360	360	360	20	15	16	20	696	696	(N) U.C. REFRIG.	
(E) FIRE ALARM	500	500	500	20	17	18	--	SPACE	SPACE		
(N) (4) RECEPTACLES	720	720	720	20	19	20	--	SPACE	SPACE		
(N) (4) RECEPTACLES	720	720	720	20	21	22	--	SPACE	SPACE		
(N) MED AIR	500	500	500	20	23	24	--	SPACE	SPACE		
LOAD DESCRIPTION	DEMAND FACTOR D.F.	CONNECTED			DEMAND			11,659	TOTAL DEMAND LOAD		
LIGHTING	1.0	2,937	2,937	734	25% LIGHTING LOAD						
RECEPTACLES	NEC	3,960	3,960	--	SPARE						
MOTORS	1.25 LARGEST	2,638	2,712	--	SPARE						
MISC. EQUIPMENT	1.0	2,000	2,000	12,343	DESIGN LOAD						
HVAC EQUIPMENT	NEC	--	--	34	DESIGN AMPS						
TOTAL		11,436	11,659								

(E) - LOCK-ON TAB (EP-1)

LOAD SERVED	LOAD -VA			VOLTAGE AND PHASE			SYM A I.C. MIN. EXISTING			MOUNTING SURFACE	LOAD SERVED
	A	B	C	CKT #	CKT #	CKT #	A	B	C		
	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #		
RECEPTACLES	1,080	1,080	1,080	20	1	2	70	7,800	7,800	STERILIZER	
LIGHTS - BASEMENT	1,200	1,200	1,200	20	3	4	3	7,800	7,800	STERILIZER	
GENERATOR HEATER	1,500	1,500	1,500	20	7	8	20	261	261	LIGHTS & EM	
RECEPTS - BASEMENT	720	720	720	20	9	10	20	300	300	PHONE RECEIPT	
SUB-PANEL "LP-A-1"	2,553	2,553	2,553	60	11	12	20	--	--	GENERATOR BATT. CHARGER	
PANEL RECEP-TS	360	360	360	20	15	16	20	1,000	1,000	CONTROL/STERILIZER	
(R) COND. PUMP/FURNACE	100	100	100	20	19	20	20	864	864	LIGHTS	
(R) BASEMENT RECEP-TS - WEST	1,080	1,080	1,080	20	21	22	--	SPACE	SPACE		
(R) BASEMENT RECEP-TS - WEST	1,080	1,080	1,080	20	23	24	--	SPACE	SPACE		
(R) BASEMENT RECEP-TS - SW	1,080	1,080	1,080	20	25	26	--	SPACE	SPACE		
(R) BASEMENT BATH (GFCI)	360	360	360	20	27	28	--	SPACE	SPACE		
(R) RCPT BSMT WORKSTATIONS	1,080	1,080	1,080	20	29	30	--	SPACE	SPACE		
(R) RECEPTACLES OFFICE - EAST	1,080	1,080	1,080	20	31	32	--	SPACE	SPACE		
(R) RECEPTACLES OFFICE - EAST	1,080	1,080	1,080	20	33	34	--	SPACE	SPACE		
(R) BASEMENT LIGHTS - EAST	1,000	1,000	1,000	20	35	36	--	SPACE	SPACE		
(R) FURNACE	1,176	1,176	1,176	20	37	38	--	SPACE	SPACE		
BASEMENT BREAK RM RCPTS	360	360	360	20	39	40	--	SPACE	SPACE		
BASEMENT REFRIGERATOR	1,176	1,176	1,176	20	41	42	--	SPACE	SPACE		
LOAD DESCRIPTION	DEMAND FACTOR D.F.	CONNECTED			DEMAND			45,868	TOTAL DEMAND LOAD		
LIGHTING	1.0	3,594	3,594	899	25% LIGHTING LOAD						
RECEPTACLES	NEC	15,480	12,740	--	SPARE						
MOTORS	1.25 LARGEST	3,216	3,216	--	SPARE						
MISC. EQUIPMENT	1.0	25,900	25,900	45,767	DESIGN LOAD						
HVAC EQUIPMENT	NEC	--	--	130	DESIGN AMPS						
TOTAL		48,290	45,868								

(R) - CIRCUIT RELOCATED FROM PANEL "EP-1". PROVIDE NEW CIRCUIT BREAKER IN PANEL "LP-A" FIELD VERIFY AND EXTEND CIRCUITS AS REQUIRED.

LOAD SERVED	LOAD -VA			VOLTAGE AND PHASE			SYM A I.C. MIN. EXISTING			MOUNTING SURFACE	LOAD SERVED
	A	B	C	CKT #	CKT #	CKT #	A	B	C		
	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #		
HVAC	4,440	4,440	4,440	50	1	2	20	--	--	SPARE	
EXAM RM (R) RECEP-TS	360	360	360	20	3	4	20	--	--	SPARE	
GENERAL RECEP-TS	720	720	720	20	7	8	20	--	--	SPARE	
GENERAL RECEP-TS	540	540	540	20	9	10	20	--	--	SPARE	
GENERAL RECEP-TS	1,080	1,080	1,080	20	13	14	20	720	720	RECEPTION/BASEMENT STONE	
GENERAL BREAKROOM RECEP-T	720	720	720	20	15	16	20	720	720	RECEPTION/BASEMENT STONE	
GENERAL BREAKROOM RECEP-T	1,080	1,080	1,080	20	17	18	20	720	720	RECEPTION/BASEMENT & EM	
GENERAL RECEP-TS	720	720	720	20	19	20	20	720	720	RECEPTION/BASEMENT STONE	
GENERAL RECEP-TS	640	640	640	20	21	22	100	5,000	5,000	X-RAY	
SIGN	1,200	1,200	1,200	20	23	24	2	--	--	SPARE	
GENERAL RECEP-TS - OFFICE	1,080	1,080	1,080	20	25	26	20	--	--	SPARE	
GENERAL RECEP-TS	1,200	1,200	1,200	20	27	28	20	864	864	(N) (2) BREAK RM RECEPTACLES	
GENERAL RECEP-TS	720	720	720	20	29	30	20	--	--	SPARE	
--	--	--	--	31	32	30	864	--	--	(N) DISPOSAL	
--	--	--	--	33	34	20	1,080	--	--	(N) (6) RECEPTACLES	
--	--	--	--	35	36	20	1,500	--	--	(N) EH-1	
--	--	--	--	39	40	20	--	--	--	SPARE	
--	--	--	--	41	42	20	--	--	--	SPARE	
LOAD DESCRIPTION	DEMAND FACTOR D.F.	CONNECTED			DEMAND			40,104	TOTAL DEMAND LOAD		
LIGHTING	1.0	13,680	11,840	--	25% LIGHTING LOAD						
RECEPTACLES	NEC	11,728	11,944	--	SPARE						
MOTORS	1.25 LARGEST	7,728	1,944	--	SPARE						
MISC. EQUIPMENT	1.0	13,000	13,000	40,104	DESIGN LOAD						
HVAC EQUIPMENT	NEC	13,320	13,320	112	DESIGN AMPS						
TOTAL		41,728	40,104								

LOAD SERVED	LOAD -VA			VOLTAGE AND PHASE			SYM A I.C. MIN. EXISTING			MOUNTING SURFACE	LOAD SERVED
	A	B	C	CKT #	CKT #	CKT #	A	B	C		
	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #	BRKR #		
RECEPTACLE	900	900	900	20	1	2	20	180	180	RECEPTACLE	
RECEPTACLE	900	900	900	20	3	4	20	180	180	RECEPTACLE	
SPARE	--	--	--	20	5	6	20	311	311	LIGHTS	
SPARE	--	--	--	20	7	8	20	--	--	SPARE	
SCRUB TUB	180	180	180	20	9	10	20	--	--	SPARE	
WARMER	500	500	500	20	11	12	2	--	--	SPARE	
(N) (5) RECEPTACLES	900	900	900	20	13	14	--	--	--	SPACE	
(N) (5) RECEPTACLES	900	900	900	20	15	16	--	--	--	SPACE	
LOAD DESCRIPTION	DEMAND FACTOR D.F.	CONNECTED			DEMAND			5,131	TOTAL DEMAND LOAD		
LIGHTING	1.0	311	311	78	25% LIGHTING LOAD						
RECEPTACLES	NEC	4,320	4,320	--	SPARE						
MOTORS	1.25 LARGEST	--	--	--	SPARE						
MISC. EQUIPMENT	1.0	500	500	5,009	DESIGN LOAD						
HVAC EQUIPMENT	NEC	--	--	14	DESIGN AMPS						
TOTAL		5,131	5,131								

LOAD SERVED	LOAD -VA			VOLTAGE AND PHASE			SYM A I.C. MIN. EXISTING			MOUNTING SURFACE	LOAD SERVED
	A	B	C	CKT #	CKT #	CK					

EXISTING ISOLATED POWER SYSTEM	EXISTING IBSL MAINS		VOLTAGE AND PHASE				SYM A I C MIN		MOUNTING FLUSH
	L1	L2	BRKR	#	#	BRKR	L1	L2	
LOAD SERVED	LOAD -VA	CKT	CKT	CKT	CKT	LOAD -VA			LOAD SERVED
RECEPTACLES	360	360	20	1	2	360	360		RECEPTACLES
RECEPTACLES	360	360	20	3	4	360	360		RECEPTACLES
RECEPTACLES	360	360	20	5	6	360	360		RECEPTACLES
SURGICAL LIGHT	235	235	20	7	8				SPARE
--	--	--	20	9	10				--
--	--	--	20	11	12				--
--	--	--	20	13	14				--
--	--	--	20	15	16				--
LOAD DESCRIPTION	DEMAND FACTOR	VOLT-AMPS				CONNECTED	DEMAND	4,790	TOTAL DEMAND LOAD
LIGHTING	1.0					470	118	25% LIGHTING LOAD	
RECEPTACLES	NEC					4,320	4,320	--	SPARE
MOTORS	1.25 LARGEST					--	--	4,908	DESIGN LOAD
KITCHEN EQUIPMENT	NEC					--	--	24	DESIGN AMPS
TOTAL						4,790	4,790		

EXISTING ISOLATED POWER SYSTEM	EXISTING IBSL MAINS		VOLTAGE AND PHASE				SYM A I C MIN		MOUNTING FLUSH
	L1	L2	BRKR	#	#	BRKR	L1	L2	
LOAD SERVED	LOAD -VA	CKT	CKT	CKT	CKT	LOAD -VA			LOAD SERVED
RECEPTACLES	360	360	20	1	2	360	360		RECEPTACLES
RECEPTACLES	360	360	20	3	4	360	360		RECEPTACLES
RECEPTACLES	360	360	20	5	6	360	360		RECEPTACLES
SURGICAL LIGHT	235	235	20	7	8				SPARE
--	--	--	20	9	10				--
--	--	--	20	11	12				--
--	--	--	20	13	14				--
--	--	--	20	15	16				--
LOAD DESCRIPTION	DEMAND FACTOR	VOLT-AMPS				CONNECTED	DEMAND	4,790	TOTAL DEMAND LOAD
LIGHTING	1.0					470	118	25% LIGHTING LOAD	
RECEPTACLES	NEC					4,320	4,320	--	SPARE
MOTORS	1.25 LARGEST					--	--	4,908	DESIGN LOAD
KITCHEN EQUIPMENT	NEC					--	--	24	DESIGN AMPS
TOTAL						4,790	4,790		

NEW ISOLATED POWER SYSTEM	IBSL MAINS		VOLTAGE AND PHASE				SYM A I C MIN		MOUNTING FLUSH
	L1	L2	BRKR	#	#	BRKR	L1	L2	
LOAD SERVED	LOAD -VA	CKT	CKT	CKT	CKT	LOAD -VA			LOAD SERVED
RECEPTACLES	180	180	20	1	2	180	180		RECEPTACLES
RECEPTACLES	180	180	20	3	4	180	180		RECEPTACLES
RECEPTACLES	180	180	20	5	6	180	180		RECEPTACLES
SPARE	--	--	20	7	8				SPARE
--	--	--	20	9	10				--
--	--	--	20	11	12				--
--	--	--	20	13	14				--
--	--	--	20	15	16				--
LOAD DESCRIPTION	DEMAND FACTOR	VOLT-AMPS				CONNECTED	DEMAND	2,160	TOTAL DEMAND LOAD
LIGHTING	1.0					--	--	25% LIGHTING LOAD	
RECEPTACLES	NEC					2,160	2,160	--	SPARE
MOTORS	1.25 LARGEST					--	--	2,160	DESIGN LOAD
KITCHEN EQUIPMENT	NEC					--	--	11	DESIGN AMPS
TOTAL						2,160	2,160		

NEW ISOLATED POWER SYSTEM	IBSL MAINS		VOLTAGE AND PHASE				SYM A I C MIN		MOUNTING FLUSH
	L1	L2	BRKR	#	#	BRKR	L1	L2	
LOAD SERVED	LOAD -VA	CKT	CKT	CKT	CKT	LOAD -VA			LOAD SERVED
RECEPTACLES	180	180	20	1	2	180	180		RECEPTACLES
RECEPTACLES	180	180	20	3	4	180	180		RECEPTACLES
RECEPTACLES	180	180	20	5	6	180	180		RECEPTACLES
SPARE	--	--	20	7	8				SPARE
--	--	--	20	9	10				--
--	--	--	20	11	12				--
--	--	--	20	13	14				--
--	--	--	20	15	16				--
LOAD DESCRIPTION	DEMAND FACTOR	VOLT-AMPS				CONNECTED	DEMAND	2,160	TOTAL DEMAND LOAD
LIGHTING	1.0					--	--	25% LIGHTING LOAD	
RECEPTACLES	NEC					2,160	2,160	--	SPARE
MOTORS	1.25 LARGEST					--	--	2,160	DESIGN LOAD
KITCHEN EQUIPMENT	NEC					--	--	11	DESIGN AMPS
TOTAL						2,160	2,160		

**PRIME DESIGN SYSTEMS, INC.**  
 ARCHITECTURE INTERIORS  
 2311 OLD FORD ROAD WAREHOUSING 4081  
 TEL: 306-759-1100 FAX: 306-477-4665  
 E-MAIL: PDS@PRIMEDSI.COM



PROPOSED RENOVATION  
 GREATER LAKES AMBULATORY SURGICAL CENTER, L.L.C.  
 8100 W. LITTLE ROCK AVENUE, SUITE 100, FARMINGTON, MINN 55025  
 ELECTRICAL PANEL SCHEDULED  
 PROJECT 14/1545  
 DATE 06/04/2020  
 REVISIONS



**MEEC**  
 mechanical electrical  
 engineering consultants  
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 Plymouth, MN 55108  
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SHEET  
**E03.02**

## ELECTRICAL SPECIFICATIONS

### 1. GENERAL CONDITION

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section. The Electrical Contractor shall assume all obligations contained therein that affect his work. The Electrical Engineer shall be consulted in case of any disputes and his decision shall be final.
- B. The Electrical Contractor shall examine the Architectural, Plumbing and Mechanical Drawings and Specifications and shall familiarize himself with all conditions of work affecting the contract. Size and capacity of all equipment shall be as on plans or as indicated herein.
- C. Furnish labor and materials to provide a complete electrical system as required by the plans and specifications.
- D. Any items appearing on the drawings and not in the specification or vice versa, and any items appearing in neither but necessary to accomplish the intent of these specifications, shall be furnished by the Electrical Contractor.
- E. Where equipment specifications or descriptions include a specific manufacturer and catalog number, any substituted equipment or equipment proposed to be provided by an alternative manufacturer shall functionally meet, or exceed, the requirements of the specified equipment in all respects. Alternate manufacturers shall refer to product literature published by the manufacturer of the equipment specified to determine equivalency of their proposed alternate product to be specified.

### 2. WORK INCLUDED

- A. These specifications and accompanying drawings contemplate the provisions by the Electrical Contractor of all labor and materials necessary to install a complete system of electrical work as indicated on the drawings and/or herein specified. Without restricting the generality of the foregoing, the following shall be included:
1. Modifications to existing main service equipment as indicated.
  2. Coordination with local utility company.
  3. Power and lighting panelboards, and feeders, transformers, safety switches, branch circuit wiring, outlets, and connections.
  4. Telecommunications outside and conduit system complete.
  5. Grounding of complete electrical system per Article 250 of N.E.C. and all specifications.
  6. Coordination of service entrance requirements with local utility companies.
  7. Emergency egress lighting and exit lighting systems as specified.
  8. Service and connections of equipment as specified.
  9. Lighting fixtures complete with lamps.
  10. Temporary electric service during construction.
  11. Automatic lighting control systems.
  12. Disconnect switches which are not an integral part of equipment.
  13. Motor starters which are not integral part of equipment.

### 3. WORK BY OTHERS

- A. The following work is specified under other sections of these specifications.
- B. All motor control equipment, including transformers, control wiring for motor operated mechanical equipment such as dampers and damper motors (unless noted otherwise) will be furnished by the Mechanical Contractor. Power wiring, motor starters, and disconnect switches shall be furnished and installed by the Electrical Contractor.
- C. **MICHIGAN ENERGY CODE COMPLIANCE**
- A. DRAWINGS: Within 30 days after the date of system acceptance, the electrical contractor shall submit record drawings of the actual electrical installation to the building owner, including:
1. A single line diagram of the building electrical distribution system and;
  2. Floor plans indicating location and area served for all distribution.
- B. MANUALS: An operating and maintenance manual shall be provided to the building owner. The manuals shall include, at a minimum, the following:
1. A complete narrative of how each system is intended to operate.
  2. Provide three-party commissioning for lighting control system per Michigan Energy Code.
- H. The Electrical Contractor shall deliver all required drawings and manuals to the owner before receiving his final payment.

### 4. ELECTRICAL SUBMITTALS

- A. Refer to the Conditions of the Contract (General and Supplementary) and Division 1 Section "SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES for Submittal Requirements, and Procedures.
- B. Submittal of shop drawings, product data, and samples will be accepted only when authorized by the Contractor. Data submitted from subcontractors and material suppliers directly to the Architect/Engineer will not be processed.
- C. When some errors in the shop drawings are detected and others are overlooked, this does not grant the contractor permission to proceed in error. Regardless of any information contained in the shop drawings, the requirements of the drawings and specifications must be followed and an not waived or superseded in any way by the shop drawing notes.
- D. The Electrical Contractor shall be responsible for final coordination of all electrical feeders and over current protection devices (circuit breakers and/or fuses) with the manufacturer's written data for each mechanical device to be submitted at any electrical equipment to be used. No additional compensation will be allowed for any changes to electrical feeders or over current protection devices required for any mechanical devices.
- E. Conform utility transfer size and impedance, and provide ENGINEER OF RECORD for short circuit evaluation.
- F. **SUBSTITUTIONS**
- A. Alternate manufacturer's electrical equipment shall be similar in performance, physical appearance and construction to be considered as equal to equipment specified.

- B. Alternate manufacturers electrical equipment proposed to be substituted by bidding contractor must be pre-approved during bidding. Contractor or equipment representative shall email all such requests with equipment data to Engineer at least one week prior to submitting bids. Engineer will review the proposed alternate equipment and either verbally accept or detail by written approval. VERBAL APPROVAL WILL NOT BE ACCEPTABLE.
- C. All equipment shop drawings, figures etc., submitted after award of contract for proposed substitution.
- D. In the event substitutions are refused to the Engineer after the Contractor has been awarded, the Engineer will record all time spent by him in evaluation of each proposed substitution.
- E. Whether or not the Engineer approves the proposed substitution, the Contractor agrees to promptly upon receipt of the Engineers billing, reimburse the Engineer at the rate of five and three-quarter times the direct cost to the Engineer for all time spent by him in the evaluation of the proposed substitution.

### 7. REGULATIONS

- A. All work shall be installed in accordance with the current version of the Michigan Electrical Code with Part 8 Amendments, NFAF-01, NFAF-10, the 2007 minimum design standards for health care facilities in Michigan, the requirements of the local utility companies, and the requirements and recommendations of the National Electrical Code.
- B. Where conflict exists between codes or utility company requirements and contract documents, the more stringent shall apply.
- C. **COORDINATION WITH LOCAL UTILITY COMPANIES**
- A. The electrical contractor shall verify the exact electric and telephone utility company service locations and coordinate the electric utilities primary and secondary conduit routings and length of run with the utility companies service planners prior to submitting his bid for the electrical work for this project.
- B. All work shall be done in accordance with the rules and regulations of the local utility companies providing services to the job.
- C. Before submitting his bid, the electrical contractor shall check with the utility companies and determine from them all of their requirements and charges. All such requirements and charges shall be included in the bid.
- D. The area of power company responsibilities as indicated in these specifications and drawings is presented as understood by the engineer. The electrical contractor is responsible to verify these requirements with the utility companies providing service to the project in detail, and obtain their specific requirements relative to new services. A meeting to discuss the utility terms discussed, and the results of the meeting shall be submitted to the engineer within 15 days following the meeting.
- E. Within 15 days following award of contract to the electrical contractor, the contractor shall arrange an onsite meeting with the utility companies.
- F. It is intended that this bid, and obtain their specific requirements relative to new services. A meeting to discuss the utility terms discussed, and the results of the meeting shall be submitted to the engineer within 15 days following the meeting.

### 9. TEMPORARY SERVICE

- A. The Electrical Contractor shall furnish and install temporary light and power in accordance with the progress schedule of the General Contractor.

### 10. STANDARDS OF MATERIAL AND WORKMANSHIP

- A. All work shall be done at such times and in such a manner as will least interfere with the maintenance and operation of all other building systems. All materials and equipment shall bear the label of approval of the National Board of Fire Underwriters Laboratories.
- B. The Electrical Contractor shall effectively protect all of his own expense, such of his work, materials or equipment as is liable to injury during the construction period.
- C. All openings into any part of the conduit system as well as associated fixtures, equipment, etc., both before and after being set in place, shall be securely covered or otherwise protected to prevent obstruction of the conduit, or injury due to carelessness or maliciously dropped tools or materials, dirt, oil, or any foreign matter. The Electrical Contractor shall be held responsible for all damage so done until his work is fully and finally accepted. Conduit ends shall be covered with capped bushings. All electrical equipment shall be grounded.
- D. It is intended that the drawings of this specification indicate or specify each piece of conduit, fittings, etc., required for the installation. Where items are required for the satisfactory operation of the installation and are not indicated on the drawings, they shall be considered to be both specified and indicated.
- E. General requirements and details of equipment are shown. Dimensions or scales shown are approximate and must be checked at prior to installation of equipment or any other gear for fabrication.
- F. The Electrical Contractor shall have competent foreman on the premises at all times to supervise and check and to call out all work, give information to General Contractor regarding changes and openings, and be responsible for such locations. This Contractor shall cooperate with other contractors, including engineers, pipe, foundations, etc., who are in proximity to the work of other trades and arrange the work to fit. This Contractor shall study where other trades have connections and outlets to be connected, so that all work and appliances shall be properly arranged for and connected ready for use.

### 11. PARTS RECEIPT

- A. Retain all complete and detachable portions of the installation such as keys, tools, manuals, etc., until the completion of the work and then turn them over to the Owner and obtain receipts therefor. These receipts shall be attached to the "Final Acceptance" for payment.

### 12. INSPECTION OF SITE

- A. The Contractor shall visit the site and verify the conditions under which his work must be conducted before submitting his proposal. The submitting of a proposal implies that the Contractor has visited the site, is conversant with all site conditions, including existing services and equipment, obstructions and all conditions, which will be encountered in the removal, relocation or installation of present materials and equipment, installation of new materials and outfitting and patching, etc., for a complete installation. If any discrepancies or omissions are noted, they shall be reported in the design intent of the bid documents is required, the Contractor shall notify the Architect prior to entering into contract with the Owner. The Contractor shall be held responsible for the aforementioned notification will result in the contractor being held responsible to complete all work to meet the design intent of the bid documents with no additional expense (EXTRAS) being incurred by the Owner, Architect or Engineer.
- B. The Owner reserves the right to inspect and test any portion of the equipment during the progress of the erection. The Contractor shall attend the Owner or Owner's representative every facility for evaluating the skill and competence of the mechanics and to examine the materials and installation. Consented work shall be inspected when so directed during his periodic visits.
- C. The Contractor shall notify the Architect or Engineer before any electrical work is concealed by a concrete pour, covering of a wall or installation of a ceiling. This notification shall be received from the Contractor at least 72 hours prior to concealment.

C. The Electrical Contractor shall test the entire system in the presence of the Owner or his representative when the work is finally completed to insure that all portions are free from short circuits and grounds and are in good and intended working condition. Power for final tests after all erections are completed will be furnished by the Owner. All equipment to be tested or tested after the above tests shall be furnished at the expense of the Electrical Contractor.

### 14. INSPECTION, TESTING AND START-UP

- A. Scope
1. Intent: The intent of the inspection, testing, and check-out work specified herein, or required to insure that all electrical workmanship and equipment, whether Owner furnished or Contractor furnished, is installed and performs in accordance with the design specifications, drawings, manufacturer's instructions and all applicable codes and requirements. Also, it is intended to provide, insure, to all applicable the following:
  2. If the equipment or installation has been subjected to damage during shipment or installation.
  3. If the equipment is in accordance with the purchase orders and specifications.
  4. Provide initial acceptance tests and recorded data that can be used as a bench mark for future routine maintenance and troubleshooting by Owner's maintenance forces.
  5. Insure a successful start-up with a minimum of last minute interruptions and problems.
  6. Determine the suitability of the equipment and systems for energization and placing into operating service.
  7. Provide assurance that each system component is not only installed satisfactorily but performs, and will continue to perform, its function in the system with reasonable reliability throughout the life of the project.
- B. Contractor Responsibility: The Contractor shall provide all necessary labor, materials, tools, test instruments or other equipment or service and expenses required to inspect, test, adjust, set, calibrate, conditionally and conditionally check all work components of the various electrical systems and utility shall include the installation.

### 15. CHARACTER OF MATERIALS AND EQUIPMENT

- A. All materials and equipment shall be new and conform to standards specified herein, defined to include conduits, cable, wiring materials and devices, panelboards, etc.
- B. All materials and equipment shall be of an approved design. Similarly specified shall be of one manufacturer wherever possible.
- C. All equipment offered under these specifications shall be limited to products regularly produced and recommended by service listings in accordance with manufacturers' catalogs, engineering data, or other comprehensive literature made available to the public and in effect at the date of opening bids.
- D. Equipment shall be installed in strict accordance with manufacturer's instructions for type, capacity and suitability of each piece of equipment used.
- E. The Electrical Contractor shall obtain the instructions which shall be considered as a part of these specifications.

### 16. MANUFACTURER'S DRAWING

- A. The Electrical Contractor shall submit to the Architect manufacturer's drawing of selected isolated power systems, lighting fixtures, switches, panelboards, 0y-type transformers, emergency generator, fire alarm system equipment, and any special electrical equipment to be installed on this job, for the approval before ordering same for installation.
- B. The Electrical Contractor shall be responsible for final coordination of all electrical feeders and over current protection devices (circuit breakers and/or fuses) with the manufacturer's written data for each mechanical device prior to submittal of any electrical equipment for review. No additional compensation will be allowed for any changes to electrical feeders or over current protection devices required for any mechanical devices.
- C. Failure of the contractor to submit shop drawings in ample time for checking shall not entitle him to an extension of contract time, and no claim for extension by reason of such default will be allowed.

### 17. AS-BUILT DRAWINGS

- A. The construction drawings shall be revised during construction to indicate the "as-built" condition. At the completion of the project, they shall serve as final "as-built" drawings. Submit to the Architect/Engineer the revised "as-built" drawings and one set of PDF files.

### 18. STRUCTURAL DIFFICULTIES

- A. Should any structural difficulties prevent setting of cabinets, running conductors, etc., at points shown on plans, the necessary minor deviations therefrom, as determined by the Architect, may be permitted and must be made without additional cost.

### 19. COOPERATION WITH OTHER CONTRACTORS

- A. The Electrical Contractor shall arrange all parts of his work in proper relation to the work of others and to the architectural finish.
- B. Where interferences occur, the Electrical Contractor shall, before installing the work, coordinate with the Architect as to the exact location and level of his work. The Architect's decision shall be final.
- C. The Electrical Contractor shall be responsible for the arrangement of his work, and equipment and maintenance of proper headroom under this work. Should work be installed in violation of the above, the Contractor shall be held responsible therefor, where conditions require changing of work, it shall be final.

D. If any portion of the Electrical Contractor is dependent for its proper execution on work of other contractors not executed by him, the Electrical Contractor shall examine such work and report in writing any defects thereon on conditions rendering it unsuitable. The Contractor shall be held responsible for any interference between electrical, utility and other trades, and any defects in his own work consequent shall be his responsibility.

E. The Electrical Contractor shall provide the General Contractor with the locations and details of all electrical services and penetrations for the coordination service shop drawing.

### 20. DRAWINGS AND SPECIFICATIONS

- A. The drawings as intended to show the general arrangement of outlets. Door swings shall be checked for final arrangement and switches installed on the knock side. The Electrical Contractor shall check all structural and mechanical plans and specifications so that they may coordinate his work with these trades.
- B. All outlets shall be located uniformly with respect to beams, partitions, duct openings, etc., and the general locations shall be checked with the plans and specifications and to examine the materials and installation. Consented work shall be inspected when so directed during his periodic visits.
- C. The Contractor shall notify the Architect or Engineer before any electrical work is concealed by a concrete pour, covering of a wall or installation of a ceiling. This notification shall be received from the Contractor at least 72 hours prior to concealment.

### 21. CODES, PERMITS AND FEES

- A. Obtain and pay for all permits, licenses, inspections, approvals and fees required and ensure that the entire electrical installation conforms to codes and regulations required by authority or agency having jurisdiction over the entire installation or construction of work indicated. All fees shall be included in the bid proposal.
- B. The Electrical Contractor shall, at his expense, have an inspection made by the local electrical inspection department of the complete electrical installation and shall obtain certification of approval of the complete work to the Owner before receiving his final payment.
- C. Whenever the requirements of these specifications and drawings exceed the requirements of governing codes, laws, regulations and ordinances, these specifications and drawings shall govern.
- D. Should any change in the drawings and specifications be required to conform to these codes, ordinances, laws or regulations, notify the Architect/Engineer at the time of submitting proposal. After entering into a contract, Contractor shall complete all work necessary to meet code, laws, regulations and ordinance requirements without extra expense to the Owner.

### 22. FLASHING

- A. Where the work included under the following sections of the specifications requires conduit to pass through the roof or any other waterproofing, the conduit shall be flashed under the section concerned, and the joint made waterproof in full conformance with waterproofing warranty requirements.

### 23. PAINTING AND CLEANING

- A. See "Finishing and Painting" in Architectural Specifications.
- B. Electrical metal conduit installed in earth or below vapor barrier shall be given two coats of black asphaltum. Conduit embedded in concrete need not be painted.
- C. Electrical luminaire support systems shall be painted with two coats of paint to match the surrounding area.
- D. Flashed joints as damaged shall be retouched or replaced to satisfaction of Architect and Engineer.

### 24. SLEEVES

- A. Sleeves
1. Conduits passing through masonry and concrete walls, high stress floor slabs and roof shall be provided with sleeves of steel pipe sleeves. Sleeves shall extend full length with top and bottom of the sleeve to be flush with the finished floor.
  2. Conduits passing through regular slab construction shall have sleeves of minimum #20 gauge galvanized steel. Sleeves shall be flush with finished floor. In exposed areas the sleeve shall be steel pipe extended 1 inch above finished floor.
  3. Sleeves in concrete slab or walls shall be fastened in place on forms before the concrete is poured. If sealed joint is pour, cutting shall be done in accordance with "Cutting and Patching" paragraph.
  4. Location of required openings shall be the responsibility of the Contractor installing conduit and appurtenances.

### 25. CUTTING AND PATCHING

- A. Cutting and patching of walls, floors, ceilings, roofs, etc., shall be done at the expense of the Contractor installing equipment and appurtenances, subject to the approval of the Engineer and Architect. Contractor shall be careful to prevent injury, materials, and damage to the work of other contractors. Structural members shall not be cut or out without obtaining written permission.
- B. Drilling and patching for expansion bolts, shields, hangers and other SUPPORTS shall be subject to approval of the architect. Labor and materials required to replace or reattach parts cut or injured shall be done at the expense of the contractor if any portion of the work is damaged by the Contractor's work.
- C. Chases and grooves installed in walls and partitions shall be determined in advance of building construction.
- D. Conduits passing through roofs or outside walls exposed to weather shall be carefully flashed and coated/finished.
- E. Conduit in finished areas shall be concealed: Contractor shall notify Architect before installing exposed conduit, piping, etc.
- F. Fire proofing of holes shall be provided and shall be of specified material, and approved by authority having jurisdiction.

### 26. CLEAN UP

- A. The Contractor shall keep the premises free of debris and unsuitable materials resulting from his work and immediately upon completion of this work, he shall remove such debris and materials from the Owner's property and he shall leave all floor broom clean in areas affected by his work.

### 27. GROUNDING

- A. Furnish and install a complete grounding system in accordance with the National Electrical Code and local codes and ordinances.
- B. Grounding path from circuits, equipment, and conductor enclosures shall be permanent and continuous. Have capacity to conduct safely any fault currents likely to be imposed on it, and shall have a resistance to ground of less than 5 ohms.
- C. All branch circuit conductors shall include a separate copper, insulated (green), equipment grounding conductor sized per Article 250 of the National Electrical Code.
- D. Piping systems and exposed structural steel that may become energized shall be grounded to the General Contractor's decision as to responsibility for the allocation of the grounding electrode conductor of any sufficient size, or to the one or more grounding electrodes as required by per NEC Art. 250.104.

E. Grounding of raceways, fixtures and electrical equipment in patient care areas shall comply with the requirements of the NEC article 517.13. All branch circuits serving patient care areas shall be provided with an effective ground-fault current path by installation in a metal raceway system, that shall itself qualify as an equipment grounding conductor per 250.119 and each branch circuit shall be provided with a green insulated equipment grounding conductor, sized per NEC. The equipment grounding conductor shall be directly connected to the following: the grounding terminal of all receptacles, metal boxes, and enclosures containing conductors, all non-current carrying conductive surfaces of fixed electrical equipment likely to be energized, and as required elsewhere in the NEC and the following paragraph regarding patient care areas:

### Patient Care Areas:

All wiring installed in patient care areas shall comply with the requirements of the NEC Article 517 and shall be installed in metal conduit. The use of metallic armored or shielded cables (MCAs) or cables shall not be allowed. As used on this project, wires are the MC cable is listed for Health Care Facility Assembly where the sheath meet quality as an equipment grounding conductor, per NEC.

Patient Care areas include any portion of the building wherein patients are intended to be examined or treated. Business Office, Corridors, Lounges or similar areas are not considered patient care areas. Patient Care areas include, but are not necessarily limited to: Exam Rooms, Operating Rooms, and Pre/Post Surgical Area.

F. The equipment grounding terminal buses of the normal and essential branch-circuit panelboards serving the same individual patient care facility shall be connected together with an insulated continuous copper conductor not smaller than AWG.

### 28. PENETRATIONS AND FIRE PROOFING

- A. All penetrations of rated fire and smoke walls shall be by conduit.
- B. All penetrations of floors shall be by conduit or metal sleeves.
- C. All penetration sleeves including open conduit not terminated in junction boxes shall be filled with Fire Stopping Material as manufactured by U. S. GYPSUM CO., or Architect approved equal for 2" in length from conduit end.

### 29. LIGHTING AND RECEPTACLE PANELBOARDS

- A. Panelboards for the control of general lighting and receptacles shall be dead front type with 4 wire mains and branches of the circuit breaker type providing normal and magnetic tripping. Circuit breakers shall be the molded case quick-make type, and shall be provided with branches as scheduled on the drawings.
1. All breakers shall be "bolt-on" type. Handle less shall not be permitted.
  2. Circuit breakers shall be Cutler-Hammer series B or 240/120 volt and series Q for 480/277 volt.
  3. Interrupting Rating:
    - a. Panelboards shall have fully rated interrupting ratings. Panelboards shall be labeled with the UL short-circuit rating.
    - b. Interrupting capacity for 480/277 volt panelboards and breakers shall be not less than the fault current indicated on the drawings and a minimum of 14,000 amperes at 480 volt. Interrupting capacity for 208/120 volt panelboards and breakers shall be not less than the fault current indicated on the drawings and a minimum of 10,000 amperes at 240 volt.
- A. All Bus - Bar shall be copper.
5. Panelboards shall be Cutler-Hammer type Power Line C, PRL-1, PRL-2, PRL-3 or PRL-4B, or equal by General Electric, Square D Company, or Siemens Energy and Automation.
6. Alternate manufacturer's equipment shall functionally meet, or exceed, the requirements of the specified equipment in all respects.

### 30) CABINETS

- A. Cabinets shall be made of code gauge sheet steel. Minimum gauge sheet shall be No. 16 gauge. Cabinets for panelboards shall provide space for all wire and connections.
- B. All cabinets shall be of standard make and shall bear the UL Inspection label and the manufacturer's nameplate.
- C. Lighting and power cabinets for surface mounting shall be equipped with sheet metal frames and hinged doors with catches and locks. Frames shall completely cover the wiring gutters.
- D. All cabinets shall have proper means of securing, supporting and adjusting the panelboards and fronts. On the inside of the door of each cabinet, provide a directory which will indicate the location of the equipment or outlets supplied by each circuit. The directory shall be mounted in a metal frame with non-breakable transparent cover and shall be legible.

### 31) LOCATION OF PANELS

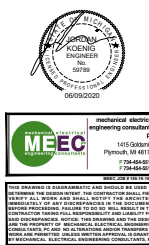
- A. Tops of panels shall be located 6 feet above the floor, unless otherwise indicated.

### 32) SURGICAL FACILITY PANELS

- A. QUALIFICATIONS
1. Manufacturer:
    - a. Surgical Facility Panels shall be Square D Company or equal.
    - b. Supplier asking consideration as an approved equal shall submit full guaranteed performance data on similar units in service for two (2) years.
    - c. Performance data to be submitted on each size required and received by the engineer no less than 60 days prior to bid due date in order to allow acceptance by addendum.
    - d. All bids are to be based on specified and show credit to be allowed to the vendor if an approved substitute is used.
- B. MANUFACTURERS
1. Manufacturer approved for the various components of a complete isolated power distribution system shall be as listed herein:
    - a. Transformer shall be a shunted load isolation transformer, specifically manufactured for the use in Hospital isolation systems, Class 7405 isolation Transformer manufactured by Square D.
    - b. Load isolation Monitor (LIM) shall be Square D ISO-GARD Line Isolation Monitor.
    - c. Circuit breakers shall be Type QO, QOC, QI, FAL, or KAL as manufactured by Square D.
  2. The surgical facility panels shall be located as indicated on the drawings. The LIM used in these units shall indicate alarm when the total hazard current exceeds 5 mA. The remote indicator alarm units shall be located in the operating room and connected to the panel supplying power to the circuits in that room. Location within the operating room as indicated on the drawings.

### C. COMPONENTS

The following components shall be provided by the manufacturer of the Surgical Facility panels as one integral unit.



PRIME DESIGN SYSTEMS, INC.  
ARCHITECTURE INTERIORS PLANNING GRAPHICS  
2311 103rd Ave. SE  
MAPLE, MICHIGAN 48061 586-477-4666  
FAX 586-295-1800



GREATER LAKES AMBULATORY SURGICAL CENTER, LLC.  
10000 WOODLAND AVENUE, WOODLAND, MI 48095  
ELECTRICAL SPECIFICATIONS

PROJECT 10/19/19  
DATE 04/04/2020  
REVISIONS

SHEET E04.01

**ELECTRICAL SPECIFICATIONS (CONTINUED)**

1. Isolation Transformer:  
 a. The Isolation Transformer shall be rated at 7.5 KVA. The isolation transformer shall be wound with an electrostatic shield between the primary and secondary windings which shall be grounded to the enclosure. The electrostatic shield will be of such design that will prevent shorting of the primary winding to the secondary winding and reduce the coupling of harmonic distortions between the primary circuit and secondary circuits. The total leakage current to ground from the transformer secondary winding shall not exceed values shown in Table 791.2 of UL 1047. Regulation to be certified not to exceed 2.6% at 0.8 PF at 200 C above the full load continuous operating temperature in accordance with NEMA-ANSI Standards. The transformer is to be single phase, 60 Hz, with primary voltage of 208 volts, and secondary voltage of 120 volts. Class H rated insulation shall be used in the manufacture of the transformer and the temperature rise will be limited to 55C above ambient under full load conditions when tested in accordance with NEMA-ANSI Standards.

b. Transformers must have a 2000 C UL recognized insulation system. The core and coil shall be vacuum impregnated and shall have a final wrap of insulating materials so as not to expose any bare conductor.  
 c. The core shall be of stacked design and securely clamped and bolted. The core and coils shall be internally isolated from the enclosure by means of a suitable vibration dampening system. The design sound level of the completed units shall not be in excess of 70 dB. Certified sound level reports shall be furnished for each individual unit upon the request of the Consulting Engineer.

2. Circuit Breakers: The panel shall be equipped with a 2-pole circuit breaker to protect the primary windings of the isolation transformer. The rating of the primary circuit breaker shall be in accordance with Article 450.3(B) of the National Electrical Code. The panel shall have at least four factory installed secondary branch circuit breakers rated at 20 amperes. All secondary branch breakers are to be 2-pole and shall attach a combination thermal and magnetic tripping mechanism. The panel shall be designed to allow field conversion for up to sixteen (16) 2-pole branch circuit breakers. The conversion shall not require the use of any special tools or punches. Refer to panelboard schedule on drawings for quantity and sizes of secondary branch circuit breakers.

3. Line Isolation Monitor (LIM):  
 a. The LIM shall be the Square D ISO-GARD Series D. The LIM shall use microprocessor-based digital signal processing to continually monitor the impedance from all secondary conductors of the isolated power systems to ground. The LIM shall be capable of measuring all combinations of capacitive and resistive faults including balanced, unbalanced and hybrid faults. LIMs which internally adjust balancing, unbalanced and hybrid faults shall not be accepted. The LIM shall not contribute more than 15uA to the total hazard current of the system being monitored.

b. The LIM shall have the following specifications:  
 Operating voltage 85 to 265 VAC  
 Accuracy 5% or better  
 Alarm Level 2 or 5 mA (selectable)  
 Alarm Bandwidth Zero (0)  
 Alarm Hysteresis (on/off) 50 uA  
 Mode Single or three-phase  
 Monitor Hazard Current 50 uA  
 Operating Frequency 50 or 60 Hz

c. All of the listed specifications shall be contained within one unit and be user selectable thus allowing the LIM to be interchanged from system to system.  
 d. The LIM shall incorporate a momentary test switch. When pressed, it shall check and recalibrate the unit. Additionally, the test switch shall perform a complete test of all inducting lamps and meters on the face of the LIM and at any remote inducting station.  
 e. The LIM shall use digital signal processing (DSP) to determine the hazard current of the system being monitored. The microprocessor with the LIM shall be MICROSHIELD as manufactured by Motorola. The algorithms used to determine the system hazard current shall be preprogrammed into the LIM's microprocessor. At least every 60 minutes, the unit shall conduct its calibration and recalibrate the system to original performance specifications. Additionally, by pressing the LIM's momentary test switch, an immediate check and recalibration of the LIM shall be performed.

f. Internal components are more than 30% out of original specifications because of aging or failure, the LIM shall notify the user by displaying a unique error code thus eliminating the need for periodic manual testing to determine the units integrity. LIMs which use analog signal processing technology and/or require manual testing or recalibration will not be accepted.  
 g. The LIM shall have an optical infrared LED type signal port on the face of the unit to transmitting pertinent LIM and isolation power system data directly to a personal computer (PC). The transmission of data shall not require any mechanical or direct electrical connection to the LIM. The protocol of data transmission shall be compatible with all Hewlett Packard palmtop personal computers including Hewlett Packard models HP95LX, HP95LX, and HP95LX.  
 h. The LIM shall provide both analog and digital indication of the isolated power system's hazard current. Digital indication shall be provided by a digital meter and analog indication shall be provided by an LED green type meter calibrated from 0 (zero) to 160% of the alarm setting of the LIM. LIMs with only analog or only digital indicating will not be accepted.

i. Internal components are more than 30% out of original specifications because of aging or failure, the LIM shall notify the user by displaying a unique error code thus eliminating the need for periodic manual testing to determine the units integrity. LIMs which use analog signal processing technology and/or require manual testing or recalibration will not be accepted.

4. Ground Jacks:  
 a. The Surgical Facility Panel shall contain a minimum of six 30 ampere ground jacks as manufactured by Handson catalog #RL3-3SE. The ground jacks are to be electrically connected to a copper ground bar attached to the 14 x 20 brass studs on the rear of the ground jacks. The ground jacks shall be UL Listed.  
 b. The Surge Facility Panel shall contain a ground bus to which the ground bar from ground jacks, and the ground wire from all receptacles and the ground wire from the LIM are connected. The ground bus bar is to serve as the reference ground for the open portion. The ground bus bar shall contain a sufficient number of points to allow termination of all internal ground wires and the termination of ground wires and the termination of all ground leads from permanently installed metal objects in the surgery area.

5. Enclosure:  
 a. The enclosures shall be 12 gauge steel which is degreased, phosphatized, primed and finish painted with a coat of baked enamel except for the front trim which is to be type 304 stainless steel with a No. 4 brushed finish. The enclosures will be semi-enclosed and shall be mounted on a steel base plate. Units shall have a maximum depth of 12 inches. The front trim shall be mounted on a continuous length piano-type hinge for access to field wiring compartments.  
 b. The front panel shall not contain any type of grille or louver for the purpose of isolation transformer ventilation. The panel and transformer shall be so designed that the heat generated by the transformer under full load conditions shall not affect the normal operation of the circuit breakers and ground detector. The maximum front panel temperature shall not exceed 300C rise under full load continuous operation. Certification of this temperature test shall be provided to the Consulting Engineer upon request.

6. Wiring within all panels shall be in accordance with applicable NEC Code Standards. Low leakage insulation shall be used on all wire. The total panel leakage shall not exceed 30 microamperes when energized and assembled. The manufacturer of the panel shall provide certified test data on each individual panel as to maximum leakage of each complete assembly.  
 b. The contractor shall wire all external receptacles to the panels using copper stranded conductor having a cross-linked polyethylene insulation or equivalent with a dielectric constant of 3.0 or less. Minimum insulation wall thickness shall be 364 inches for #10 and #12 AWG and 564 in for #8 AWG and larger conductor. Under no circumstances shall wire pulling compound be used when pulling the wire for isolated circuits. All #8 wire shall be color-coded in accordance with NEC and appropriate NFPA standards.

7. Ground Modules:  
 a. For the correct location and quantity of modules, refer to the drawings the module back box shall be fabricated of mild steel. Boxes shall be degreased, primed, and receive a final coat of baked enamel. The trim shall be 14 gauge, type 304 stainless steel with a No. 4 brushed finish.  
 b. The only exposed screws on the trim shall be the four screws holding the trim to the backbox. All receptacles shall be firmly attached with concealed fasteners that do not appear on the surface of the trim. The ground bus contained in these modules shall be of heavy copper bar, and shall contain links suitable for connection to the ground bus. These links shall be grounded to non-electrical conductive surfaces in the area, as well as to electrical ground at the ground bus. The ground bus shall be color-coded module or in the area. All wiring in the module shall be color-coded in compliance with the NEC and NFPA No. 99. The module shall be capable of containing 30 A green ground jacks.

8. Contractor shall furnish and install isolated distribution system panels for operating rooms as indicated on plans. Location of panels is indicated on the drawings and cannot be changed without written permission from the Consulting Electrical Engineer or Architect.  
 2. The panels shall be factory wired and tested and include a shielded low leakage isolation transformer, primary and secondary circuit breakers, and LIM.

9. The CONTRACTOR SHALL INCLUDE THE COST OF AND MAKE ALL ARRANGEMENTS FOR TESTING ALL UNDERGROUND ISOLATED SYSTEMS IN THE FACILITY BY A QUALIFIED FACTORY TECHNICIAN PROVIDED BY THE MANUFACTURER OF THE ISOLATION SYSTEMS. The testing shall include a complete inspection of all connections and materials used. The contractor shall be prepared to demonstrate to the factory technician that proper polarity was observed, and installation practices were in accordance with the drawings and specifications for these systems.

10. Where conduit is threaded in field, use conduit thread cutting die with taper.

11. The factory technician shall check and record system current leakage. The facility and visual alarms when connected to the isolated system of a magnitude high enough to bring the total system leakage, which the LIM detects, above the calibrated points, thus verifying correct operation of the LIM. The faults simulated shall be combinations of resistive and capacitive faults.

12. The factory technician shall check the resistance between the ground point of each receptacle and the reference point, and it shall be less than 0.1 ohms. The voltage potential difference between any exposed conductive parts in the patient vicinity shall be checked, the difference to be no more than 40 millivolts. These tests are required by NFPA No. 99, for new construction areas.

13. The factory technician shall instruct the Surgery Center maintenance staff in the use of the following:  
 a. The panel and LIM as a leakage measuring device  
 b. How instruments leakage areas can be measured and labeled  
 c. How to perform leakage tests

14. The technician shall also test the system impedance of the entire isolated power system to ensure compliance with the applicable sections of NFPA No. 99, Chapter 3. The measured system impedance shall become part of the permanent logbook records of each panel.

15. After all tests are completed, a letter shall be given to the hospital and the Consulting Engineer. The letter shall state that the system conforms with all codes, good installation practices, and specifications.

16. Upon completion of all tests, the factory technician shall write with Surgery Center medical and maintenance staff to thoroughly explain the operation of the equipment installed, and the need and procedure for periodically testing and logging test results. The technician shall furnish log books to the maintenance department, explain the first readings of all panels in these log books and clearly indicate the maintenance staff to enter future readings.

17. All questions from the Surgery Center staff shall be answered completely and thoroughly at this time. The Consulting Engineer shall be notified of the dates and times of all tests as the Consulting Engineer may witness any of the tests or meetings conducted by the factory technician.

18. Where conduit runs pass through interior fire-rated partitions or above grade concrete floors, provide fire-rated fittings.

19. Where conduit runs pass through exterior non-rated partitions or above grade concrete floors, install conduit in galvanized steel conduit sleeves.

20. Seal void between sleeve and conduit with approved fireproof compound.

21. Conduit in the concrete slab must be spaced such that the distance between conduit, centerline to centerline, is a maximum of three times the diameter of the largest conduit.

22. No conduit may be placed in a concrete slab which has an outside diameter greater than one third the total thickness of the concrete slab.

23. EMT used in building slabs or encased in concrete.

24. Do not install EMT in building slabs or encased in concrete.

25. Filings shall be steel, set-screw type.

26. Rigid nonmetallic conduit shall be Schedule 40, heavy wall type, polyvinyl chloride.

27. Filings shall be steel, set-screw type.

28. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded pipe and insulating wedging plug for non-armed electrical cables in rear conduits. Provide plug with number and size of conductor girding holes as required to suit individual risers. Construct body of metalite-iron casting with hot-dip galvanized finish.

29. U-Channel Strut Systems:  
 a. Provide U-channel strut system for supporting electrical equipment, 12-gauge hot-dip galvanized steel, of type and sizes indicated; construct with 3/8" dia. holes 8" o.c. on top surface.

30. Fabricated Supporting Devices:  
 a. Pipe Sleeves: Provide pipe sleeves of one of the following:  
 a.a. Sheet-Metal: Fabricate from galvanized sheet metal; round tube closed with snap-on joint, welded end caps, or welded longitudinal joint. Fabricate sleeves from the following gauge metal: 3" and smaller, 20-gauge; 4" to 6", 16-gauge; over 6", 14-gauge.  
 a.b. Steel-Pipe: Fabricate from Schedule 40 galvanized steel pipe; remove burrs.  
 a.c. Iron-Pipe: Fabricate from cast-iron or ductile-iron pipe; remove burrs  
 a.d. Plastic-Pipe: Fabricate from Schedule 80 PVC plastic pipe; remove burrs.

b. Sleeve Seals: Provide sleeve seals for girthing penetrations foundation walls below grade, or exterior walls. Calk between sleeve and pipe with non-toxic, UL-classified caulking material to ensure weather-tight seal.

31. Support Devices:  
 a. Codes and Standards  
 1. Methods of installation shall comply with the provisions of applicable sections of the latest editions of the National Electrical Code, the State of Michigan Building Code, the State of Michigan Electrical Code, the International Building Code, and the ICC Electrical Code, as applicable to construction and installation of electrical supporting devices.  
 b. Compliance: Comply with applicable MSS standard requirements, National Electrical Contractors Association's "Standard of Installation", UL, and Federal Specification FF-5760.  
 c. Provide supporting devices which comply with manufacturer's standard materials, design and construction in accordance with published product information, and as required for complete installation.

32. Sleeves and Seals: Provide sleeves and seals, of types, sizes and materials indicated with the following construction features:  
 a. Conduit Sealing Bushings: Factory-fabricated standard conduit sealing bushing assemblies suitable for sealing around conduit, or tubing passing through concrete floors and walls.  
 b. Conduit seals with steel sleeve, malleable iron body, neoprene sealing grommets or rings, metal pressure rings, pressure caps, and cap screws.  
 c. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded pipe and insulating wedging plug for non-armed electrical cables in rear conduits. Provide plug with number and size of conductor girding holes as required to suit individual risers. Construct body of metalite-iron casting with hot-dip galvanized finish.

33. U-Channel Strut Systems:  
 a. Provide U-channel strut system for supporting electrical equipment, 12-gauge hot-dip galvanized steel, of type and sizes indicated; construct with 3/8" dia. holes 8" o.c. on top surface.

34. Fabricated Supporting Devices:  
 a. Pipe Sleeves: Provide pipe sleeves of one of the following:  
 a.a. Sheet-Metal: Fabricate from galvanized sheet metal; round tube closed with snap-on joint, welded end caps, or welded longitudinal joint. Fabricate sleeves from the following gauge metal: 3" and smaller, 20-gauge; 4" to 6", 16-gauge; over 6", 14-gauge.  
 a.b. Steel-Pipe: Fabricate from Schedule 40 galvanized steel pipe; remove burrs.  
 a.c. Iron-Pipe: Fabricate from cast-iron or ductile-iron pipe; remove burrs  
 a.d. Plastic-Pipe: Fabricate from Schedule 80 PVC plastic pipe; remove burrs.

b. Sleeve Seals: Provide sleeve seals for girthing penetrations foundation walls below grade, or exterior walls. Calk between sleeve and pipe with non-toxic, UL-classified caulking material to ensure weather-tight seal.

35. Run of conduit between outlet and outlet, fitting, and fitting, or outlet and fitting shall not contain more than equivalent of three quarter bends (270 deg. total), including bends located immediately at outlet or fitting.

36. Conduit runs, including boxes, fittings, cabinet, and wireways, shall be electrically continuous throughout.

37. Install conduit entering boxes and cabinet with two locknuts, one inside and one outside, with bushing termination on inside.

38. Install conduit runs concealed within finished area.

39. Conduit expansion fittings in runs which cross building expansion joints.

40. Fasten and support conduit with malleable iron or galvanized steel conduit straps.

41. Attach hangers and SUPPORTS to dry wall construction with toggle bolts.

42. Attach hangers and SUPPORTS to concrete or masonry construction with expansion shields and covers or bolts.

43. Attach hangers and SUPPORTS to structural steel shapes with beam clamps and bolts.

44. Fasten and support group runs of raceways with prefabricated, noncorrosive, channel systems supported with threaded hanger rods.

45. Terminate conduit runs in main service switchboard with grounding type insulated bushings.

46. Where conduit runs pass through interior fire-rated partitions or above grade concrete floors, provide fire-rated fittings.

47. Where conduit runs pass through exterior non-rated partitions or above grade concrete floors, install conduit in galvanized steel conduit sleeves.

48. Seal void between sleeve and conduit with approved fireproof compound.

49. Flexible Metal Conduit:  
 1. Install 1/8 inch minimum length as final conduit connection to motors, rotating, and vibrating machinery and equipment, and dry type transformers.  
 2. Install separate grounding conductor on each length of flexible conduit and provide bonding at each end.  
 3. Fittings shall be squeeze type, malleable iron.

50. Flexible Metal Tubing:  
 1. Flexible metal tubing (FMT) may be used in 6 foot maximum length as final conduit connection to recessed lighting fixtures in plenums and furled spaces which are not subject to physical damage.  
 2. Install 4 foot minimum length as final conduit connection to recessed lighting fixtures in plenums and furled spaces which are not subject to physical damage.  
 3. Fittings shall be case machined type.

51. Liquidtight Flexible Conduit:  
 1. Install in place of flexible metal conduit in wet locations or where subject to oil, gasoline, or other materials having a deteriorating effect on rubber.  
 2. Install separate grounding conductor on outside of flexible conduit and fitting to provide bonding as required.  
 3. Fittings shall be steel or malleable iron with external grounding lug.

52. Aluminum Conduit:  
 1. The use of aluminum conduit shall not be allowed.

53. Underground Conduit Runs:  
 1. Construct conduit runs on thoroughly compacted earth and compacted backfill.  
 2. Slope conduits toward each end.  
 3. Space conduit accurately with plastic or precast concrete spacers held firmly in place.  
 4. Coat metal threads of metal conduit with white lead prior to assembly.  
 5. Rod and draw mandrel through conduit, follow by sweep to clear obstruction which may cause abrasions.

54. Conduit Expansion Fittings:  
 1. Install as required.  
 2. Install copper bonding jumper with each expansion fitting.

55. SUPPORTING DEVICES:  
 a. Codes and Standards  
 1. Methods of installation shall comply with the provisions of applicable sections of the latest editions of the National Electrical Code, the State of Michigan Building Code, the State of Michigan Electrical Code, the International Building Code, and the ICC Electrical Code, as applicable to construction and installation of electrical supporting devices.  
 b. Compliance: Comply with applicable MSS standard requirements, National Electrical Contractors Association's "Standard of Installation", UL, and Federal Specification FF-5760.  
 c. Provide supporting devices which comply with manufacturer's standard materials, design and construction in accordance with published product information, and as required for complete installation.

56. Sleeves and Seals: Provide sleeves and seals, of types, sizes and materials indicated with the following construction features:  
 a. Conduit Sealing Bushings: Factory-fabricated standard conduit sealing bushing assemblies suitable for sealing around conduit, or tubing passing through concrete floors and walls.  
 b. Conduit seals with steel sleeve, malleable iron body, neoprene sealing grommets or rings, metal pressure rings, pressure caps, and cap screws.  
 c. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded pipe and insulating wedging plug for non-armed electrical cables in rear conduits. Provide plug with number and size of conductor girding holes as required to suit individual risers. Construct body of metalite-iron casting with hot-dip galvanized finish.

57. U-Channel Strut Systems:  
 a. Provide U-channel strut system for supporting electrical equipment, 12-gauge hot-dip galvanized steel, of type and sizes indicated; construct with 3/8" dia. holes 8" o.c. on top surface.

58. Fabricated Supporting Devices:  
 a. Pipe Sleeves: Provide pipe sleeves of one of the following:  
 a.a. Sheet-Metal: Fabricate from galvanized sheet metal; round tube closed with snap-on joint, welded end caps, or welded longitudinal joint. Fabricate sleeves from the following gauge metal: 3" and smaller, 20-gauge; 4" to 6", 16-gauge; over 6", 14-gauge.  
 a.b. Steel-Pipe: Fabricate from Schedule 40 galvanized steel pipe; remove burrs.  
 a.c. Iron-Pipe: Fabricate from cast-iron or ductile-iron pipe; remove burrs  
 a.d. Plastic-Pipe: Fabricate from Schedule 80 PVC plastic pipe; remove burrs.

b. Sleeve Seals: Provide sleeve seals for girthing penetrations foundation walls below grade, or exterior walls. Calk between sleeve and pipe with non-toxic, UL-classified caulking material to ensure weather-tight seal.

59. Run of conduit between outlet and outlet, fitting, and fitting, or outlet and fitting shall not contain more than equivalent of three quarter bends (270 deg. total), including bends located immediately at outlet or fitting.

60. Conduit runs, including boxes, fittings, cabinet, and wireways, shall be electrically continuous throughout.

61. Install conduit entering boxes and cabinet with two locknuts, one inside and one outside, with bushing termination on inside.

62. Install conduit runs concealed within finished area.

63. Conduit expansion fittings in runs which cross building expansion joints.

64. Fasten and support conduit with malleable iron or galvanized steel conduit straps.

65. Attach hangers and SUPPORTS to dry wall construction with toggle bolts.

66. Attach hangers and SUPPORTS to concrete or masonry construction with expansion shields and covers or bolts.

67. Attach hangers and SUPPORTS to structural steel shapes with beam clamps and bolts.

68. Fasten and support group runs of raceways with prefabricated, noncorrosive, channel systems supported with threaded hanger rods.

69. Terminate conduit runs in main service switchboard with grounding type insulated bushings.

70. Where conduit runs pass through interior fire-rated partitions or above grade concrete floors, provide fire-rated fittings.

71. Where conduit runs pass through exterior non-rated partitions or above grade concrete floors, install conduit in galvanized steel conduit sleeves.

72. Seal void between sleeve and conduit with approved fireproof compound.

73. Conduit in the concrete slab must be spaced such that the distance between conduit, centerline to centerline, is a maximum of three times the diameter of the largest conduit.

74. No conduit may be placed in a concrete slab which has an outside diameter greater than one third the total thickness of the concrete slab.

75. EMT used in building slabs or encased in concrete.

76. Do not install EMT in building slabs or encased in concrete.

77. Filings shall be steel, set-screw type.

78. Rigid nonmetallic conduit shall be Schedule 40, heavy wall type, polyvinyl chloride.

79. Filings shall be steel, set-screw type.

80. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded pipe and insulating wedging plug for non-armed electrical cables in rear conduits. Provide plug with number and size of conductor girding holes as required to suit individual risers. Construct body of metalite-iron casting with hot-dip galvanized finish.

81. U-Channel Strut Systems:  
 a. Provide U-channel strut system for supporting electrical equipment, 12-gauge hot-dip galvanized steel, of type and sizes indicated; construct with 3/8" dia. holes 8" o.c. on top surface.

82. Fabricated Supporting Devices:  
 a. Pipe Sleeves: Provide pipe sleeves of one of the following:  
 a.a. Sheet-Metal: Fabricate from galvanized sheet metal; round tube closed with snap-on joint, welded end caps, or welded longitudinal joint. Fabricate sleeves from the following gauge metal: 3" and smaller, 20-gauge; 4" to 6", 16-gauge; over 6", 14-gauge.  
 a.b. Steel-Pipe: Fabricate from Schedule 40 galvanized steel pipe; remove burrs.  
 a.c. Iron-Pipe: Fabricate from cast-iron or ductile-iron pipe; remove burrs  
 a.d. Plastic-Pipe: Fabricate from Schedule 80 PVC plastic pipe; remove burrs.

b. Sleeve Seals: Provide sleeve seals for girthing penetrations foundation walls below grade, or exterior walls. Calk between sleeve and pipe with non-toxic, UL-classified caulking material to ensure weather-tight seal.

83. Run of conduit between outlet and outlet, fitting, and fitting, or outlet and fitting shall not contain more than equivalent of three quarter bends (270 deg. total), including bends located immediately at outlet or fitting.

84. Conduit runs, including boxes, fittings, cabinet, and wireways, shall be electrically continuous throughout.

85. Install conduit entering boxes and cabinet with two locknuts, one inside and one outside, with bushing termination on inside.

86. Install conduit runs concealed within finished area.

87. Conduit expansion fittings in runs which cross building expansion joints.

88. Fasten and support conduit with malleable iron or galvanized steel conduit straps.

89. Flexible Metal Conduit:  
 1. Install 1/8 inch minimum length as final conduit connection to motors, rotating, and vibrating machinery and equipment, and dry type transformers.  
 2. Install separate grounding conductor on each length of flexible conduit and provide bonding at each end.  
 3. Fittings shall be squeeze type, malleable iron.

90. Flexible Metal Tubing:  
 1. Flexible metal tubing (FMT) may be used in 6 foot maximum length as final conduit connection to recessed lighting fixtures in plenums and furled spaces which are not subject to physical damage.  
 2. Install 4 foot minimum length as final conduit connection to recessed lighting fixtures in plenums and furled spaces which are not subject to physical damage.  
 3. Fittings shall be case machined type.

91. Liquidtight Flexible Conduit:  
 1. Install in place of flexible metal conduit in wet locations or where subject to oil, gasoline, or other materials having a deteriorating effect on rubber.  
 2. Install separate grounding conductor on outside of flexible conduit and fitting to provide bonding as required.  
 3. Fittings shall be steel or malleable iron with external grounding lug.

92. Aluminum Conduit:  
 1. The use of aluminum conduit shall not be allowed.

93. Underground Conduit Runs:  
 1. Construct conduit runs on thoroughly compacted earth and compacted backfill.  
 2. Slope conduits toward each end.  
 3. Space conduit accurately with plastic or precast concrete spacers held firmly in place.  
 4. Coat metal threads of metal conduit with white lead prior to assembly.  
 5. Rod and draw mandrel through conduit, follow by sweep to clear obstruction which may cause abrasions.

94. Conduit Expansion Fittings:  
 1. Install as required.  
 2. Install copper bonding jumper with each expansion fitting.

95. SUPPORTING DEVICES:  
 a. Codes and Standards  
 1. Methods of installation shall comply with the provisions of applicable sections of the latest editions of the National Electrical Code, the State of Michigan Building Code, the State of Michigan Electrical Code, the International Building Code, and the ICC Electrical Code, as applicable to construction and installation of electrical supporting devices.  
 b. Compliance: Comply with applicable MSS standard requirements, National Electrical Contractors Association's "Standard of Installation", UL, and Federal Specification FF-5760.  
 c. Provide supporting devices which comply with manufacturer's standard materials, design and construction in accordance with published product information, and as required for complete installation.

96. Sleeves and Seals: Provide sleeves and seals, of types, sizes and materials indicated with the following construction features:  
 a. Conduit Sealing Bushings: Factory-fabricated standard conduit sealing bushing assemblies suitable for sealing around conduit, or tubing passing through concrete floors and walls.  
 b. Conduit seals with steel sleeve, malleable iron body, neoprene sealing grommets or rings, metal pressure rings, pressure caps, and cap screws.  
 c. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded pipe and insulating wedging plug for non-armed electrical cables in rear conduits. Provide plug with number and size of conductor girding holes as required to suit individual risers. Construct body of metalite-iron casting with hot-dip galvanized finish.

97. U-Channel Strut Systems:  
 a. Provide U-channel strut system for supporting electrical equipment, 12-gauge hot-dip galvanized steel, of type and sizes indicated; construct with 3/8" dia. holes 8" o.c. on top surface.

98. Fabricated Supporting Devices:  
 a. Pipe Sleeves: Provide pipe sleeves of one of the following:  
 a.a. Sheet-Metal: Fabricate from galvanized sheet metal; round tube closed with snap-on joint, welded end caps, or welded longitudinal joint. Fabricate sleeves from the following gauge metal: 3" and smaller, 20-gauge; 4" to 6", 16-gauge; over 6", 14-gauge.  
 a.b. Steel-Pipe: Fabricate from Schedule 40 galvanized steel pipe; remove burrs.  
 a.c. Iron-Pipe: Fabricate from cast-iron or ductile-iron pipe; remove burrs  
 a.d. Plastic-Pipe: Fabricate from Schedule 80 PVC plastic pipe; remove burrs.

b. Sleeve Seals: Provide sleeve seals for girthing penetrations foundation walls below grade, or exterior walls. Calk between sleeve and pipe with non-toxic, UL-classified caulking material to ensure weather-tight seal.

99. Run of conduit between outlet and outlet, fitting, and fitting, or outlet and fitting shall not contain more than equivalent of three quarter bends (270 deg. total), including bends located immediately at outlet or fitting.

100. Conduit runs, including boxes, fittings, cabinet, and wireways, shall be electrically continuous throughout.

101. Install conduit entering boxes and cabinet with two locknuts, one inside and one outside, with bushing termination on inside.

102. Install conduit runs concealed within finished area.

103. Conduit expansion fittings in runs which cross building expansion joints.

104. Fasten and support conduit with malleable iron or galvanized steel conduit straps.

105. Attach hangers and SUPPORTS to dry wall construction with toggle bolts.

106. Attach hangers and SUPPORTS to concrete or masonry construction with expansion shields and covers or bolts.

107. Attach hangers and SUPPORTS to structural steel shapes with beam clamps and bolts.

108. Fasten and support group runs of raceways with prefabricated, noncorrosive, channel systems supported with threaded hanger rods.

109. Terminate conduit runs in main service switchboard with grounding type insulated bushings.

110. Where conduit runs pass through interior fire-rated partitions or above grade concrete floors, provide fire-rated fittings.

111. Where conduit runs pass through exterior non-rated partitions or above grade concrete floors, install conduit in galvanized steel conduit sleeves.

112. Seal void between sleeve and conduit with approved fireproof compound.

113. Conduit in the concrete slab must be spaced such that the distance between conduit, centerline to centerline, is a maximum of three times the diameter of the largest conduit.

114. No conduit may be placed in a concrete slab which has an outside diameter greater than one third the total thickness of the concrete slab.

