PANEL No. LP

BUS: 100A
PANEL RATING: 10 KAIC
SUPPLY VOLTAGE: 240V/120V
SERVICE: 1 PHASE, 3 WIRE

LOCATION: BREAK ROOM
MOUNTING: SURFACE
DRAWING No.: E1

WIRE	COND	DESCRIPTION	VA ØA	VA ØB	POLE	A	CKT NO	CKT NO	POLE	A	VA ØA	VA ØB	DESCRIPTION	COND	WIRE
2#12, 1#12G	3/4"	LTS – BREAK ROOM	256		1	20	1	2	1	20	480		MECH – BOILER B-1	3/4"	2#12, 1#12G
2#12, 1#12G	3/4"	LTS – OFFICE & STORAGE		320	1	20	3	4	1	15		430	MECH – PUMP P-1 (1/8 HP)	3/4"	2#12, 1#12G
2#12, 1#12G	3/4"	LTS – BATHROOM	64		1	20	5	6	1	15	400		MECH – PUMP P-2 (1/9 HP)	3/4"	2#12, 1#12G
2#12, 1#12G	3/4"	RECP – BREAK ROOM		900	1	20	7	8	1	20		300	MECH – PUMP P-3 & P-4 (1/35HP)	3/4"	2#12, 1#12G
2#12, 1#12G	3/4"	RECP – STORAGE RMS	720		1	20	9	10	1	20	300		MECH – PUMP P-5 & P-6 (1/35HP)	3/4"	2#12, 1#12G
2#12, 1#12G	3/4"	RECP – OFFICE		900	1	20	11	12	1	15		280	MECH – PUMP P-7 (1/15 HP)	3/4"	2#12, 1#12G
2#12, 1#12G	3/4"	RECP – GARAGE	1440		1	20	13	14	1	20	100		MECH – FAN F-1 (1/100 HP)	3/4"	2#12, 1#12G
2#12, 1#12G	3/4"	LTS – GARAGE		182	1	20	15	16	1	20		670	MECH – FAN F-2 (1/4 HP)	3/4"	2#12, 1#12G
2#12, 1#12G	3/4"	LTS – EXTERIOR	808		1	20	17	18	1	20	500		MECH – HV CONTROLS	3/4"	2#12, 1#12G
2#12, 1#12G	3/4"	EQUP – TIMECLOCK		500	1	20	19	20	1	20		670	MECH – FUEL OIL PUMP	3/4"	2#12, 1#12G
		SPARE			1	20	21	22	1	20	1500		STANDBY GEN. HEATER	3/4"	2#12, 1#12G
		SPACE					23	24	1	20		200	STANDBY GEN. BATT. CHARGER	3/4"	2#12, 1#12G
		SPACE					25	26	1	20			SPARE		
2#10, 1#10G	1"	PUMP STATION (1 HP)		910	2	20	27	28					SPACE		
			910				29	30					SPACE		
		TOTAL 1	3288	2812				TOTAL 2			3280	2550			
		TOTAL 2	3280	2550											
		TOTAL 1 + 2	6568	5362											
		CONN. LOAD TOTAL	11930												
		AMPERES	50												

MAIN BREAKER: N/A
FEEDER ENTRANCE: TOP/BOTTOM
FEEDER SIZE: SEE RISER
SOURCE: SEE RISER
PANEL TYPE: BOLT-ON

MAIN LUGS: 100A
ENCLOSURE TYPE: NEMA 1
ACCESSORIES:
PANEL SHALL BE EQUAL TO SQ. D TYPE NQOD
DOOR-IN-DOOR COVER

PANEL No. MDP

BUS: 100A
PANEL RATING: 22 KAIC
SUPPLY VOLTAGE: 240V/120V
SERVICE: 1 PHASE, 3 WIRE

LOCATION: GARAGE WALL
MOUNTING: SURFACE
DRAWING No.: E1

WIRE	COND	DESCRIPTION	VA ØA	VA ØB	POLE	A	CKT NO	CKT NO	POLE	A	VA ØA	VA ØB	DESCRIPTION	COND	WIRE
2#12,1#12G	3/4"	RECP – GARAGE	1440		1	20	1	2	2	60	6568		PANEL 'LP'		SEE RISER
2#12,1#12G	3/4"	RECP – TELEPHONE		360	1	20	3	4				5362			
2#12,1#12G	3/4"	RECP – AT OH DOORS	1260		1	20	5	6	1	20	1360		LTS – BACK ROW	3/4"	2#12, 1#12G
2#12,1#12G	3/4"	RECP – AT OH DOORS		720	1	20	7	8	1	20		1460	LTS – FRONT ROW	3/4"	2#12, 1#12G
2#12,1#12G	3/4"	EQUP – CEILING FANS	1440		1	20	9	10	1	20	150		LTS – EXIT & EMERGENCY	3/4"	2#12, 1#12G
		SPARE			1	20	11	12	2	20		565	RECP – OVERHEAD DOOR	3/4"	3#12, 1#12G
		SPARE			1	20	13	14			565				
2#10,1#10G	1"	EQUP – FUEL PUMP		1130	1	20	15	16	2	20		565	RECP – OVERHEAD DOOR	3/4"	3#12, 1#12G
2#10,1#10G	1"	EQUP – FUEL PUMP	1130		1	20	17	18			565				
2#10,1#10G	1"	RECP – STORAGE SHED		360	1	20	19	20	2	20		565	RECP – OVERHEAD DOOR	3/4"	3#12, 1#12G
2#10,1#10G	1"	LTS – STORAGE SHED	400		1	20	21	22			565				
2#10,1#10G	1"	LTS – FUEL ISLAND PUMP		240	1	20	23	24	2	20		565	RECP – OVERHEAD DOOR	3/4"	3#12, 1#12G
2#10,1#10G	1"	LTS – SALT SHEDS	800		1	20	25	26				565			
3#10,1#10G	1"	WELL PUMP		1335	2	30	27	28					SPARE		
			1335				29	30					SPARE		
		TOTAL 1	5670	2610				TOTAL 2			9773	9082			
		TOTAL 2	9773	9082											
		TOTAL 1 + 2	15443	11892											
		CONN. LOAD TOTAL	27335												
		AMPERES	114												

MAIN BREAKER: 100A
FEEDER ENTRANCE: TOP/BOTTOM
FEEDER SIZE: SEE RISER
SOURCE: SEE RISER
PANEL TYPE: BOLT-ON

MAIN LUGS: N/A
ENCLOSURE TYPE: NEMA 1
ACCESSORIES:
PANEL SHALL BE EQUAL TO SQ. D TYPE NQOD
DOOR-IN-DOOR COVER

ELECTRICAL LEGEND:

- PANELBOARD. MTD @ 6'-6" TO TOP OF PANEL.
- LIGHT FIXTURE (LETTER DENOTES TYPE, SEE FIXTURE SCHEDULE).
- BQ DENOTES LIGHT FIXTURE WITH QUARTZ STANDBY.
- S SINGLE POLE SWITCH MTD @ +48". Ⓢ SPEED SWITCH.
- S_3 THREE-WAY SWITCH MTD @ +48".
- OCCUPANCY SENSOR WALL SWITCH MTD @ +48" AFF.
- S_{OB} OIL BURNER SWITCH FOR FURNACE. RED FACEPLATE MTD @ 16" AWAY FROM LIGHT SWITCH, TYPICAL.
- DUPLEX CONVENIENCE OUTLET MTD @ +48".
- QUADPLEX CONVENIENCE OUTLET MTD @ COUNTER HEIGHT.
- TELEPHONE OUTLET MOUNTED @ 24" AFF. SEE SPEC'S FOR TYPE LETTER DENOTES – STYLE OF OUTLET
- OHD MOTOR AND CONTROLLER FOR OVERHEAD DOOR OPERATOR (PROVIDED BY OTHERS).
- PUSHBUTTON STATION SUPPED BY OVERHEAD DOOR SUPPLIER.
- OHD 20A, 230V, NEMA 20-R RECEPTACLE, CEILING MOUNTED. EXACT LOCATION TO BE COORDINATED WITH OVERHEAD DOOR OPERATOR.
- FLEXIBLE CONDUIT.
- HOMERUN TO PANELBOARD OR AS NOTED.

The Design Studio of LineSync Architecture
14 Castle Hill Wilmington Vermont 05363 9745 USA
t.802.464.2526 / f.2428 www.LineSync.com

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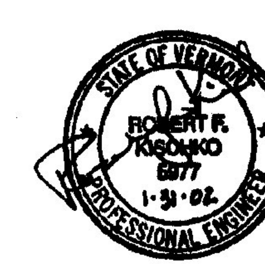
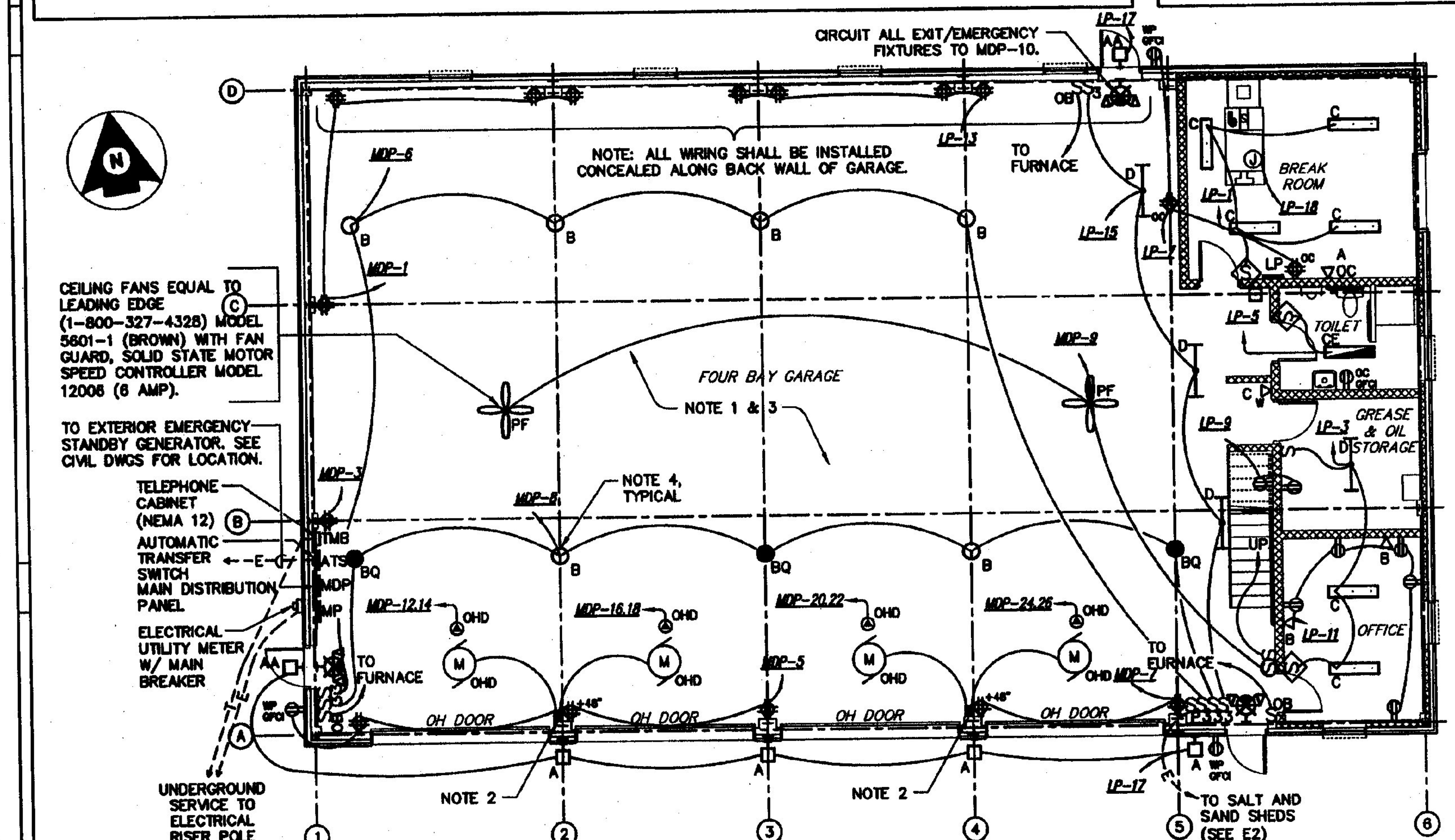
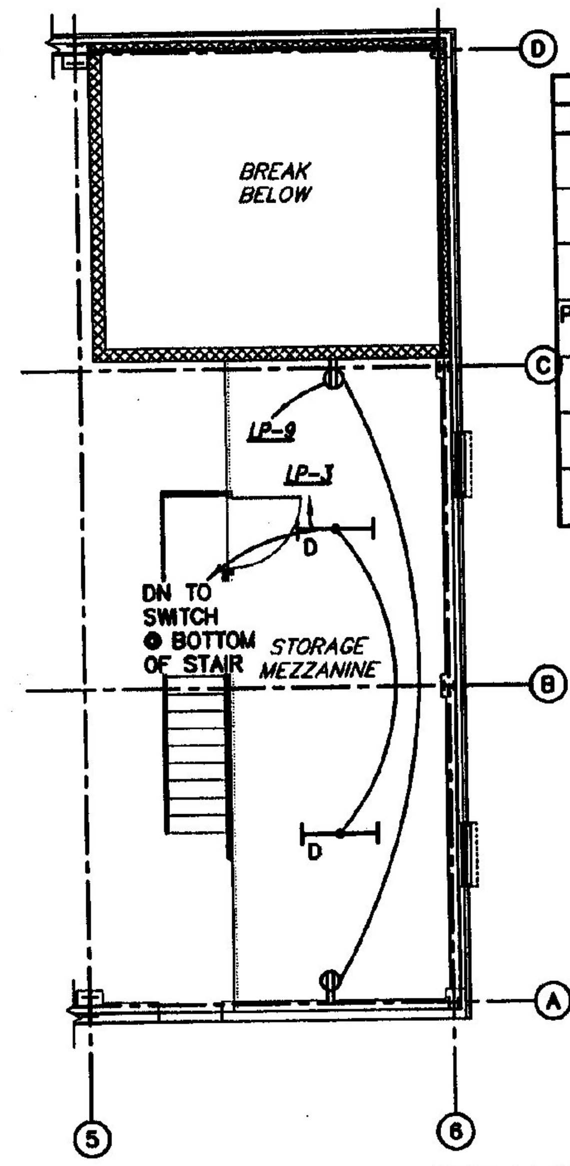
Dufresne-Henry
North Springfield, Vermont
Tel. (802) 886-2261 • FAX (802) 886-2260
www.dufresne-henry.com





FIRST FLOOR LIGHTING AND POWER PLAN

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



GARAGE STORAGE MEZZANINE LIGHTING AND POWER PLAN

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

MECHANICAL EQUIPMENT – ELECTRICAL REQUIREMENTS SCHEDULE

MECHANICAL EQUIPMENT		ELECTRICAL EQUIPMENT	
EQUIPMENT	DESCRIPTION	DISCONNECT	FEEDER
B-1	BOILER 1 120V, 4A, 1P, 60HZ	1P, NEMA 1, 120V, 1 HP RATED SWITCH (FURNISH & INSTALLED BY DIV 16)	LP-2
P-1	PUMP 1 1/8HP, 120V, 1P, 60HZ	1P, NEMA 1, 120V, 1 HP RATED SWITCH (FURNISH & INSTALLED BY DIV 16)	LP-4
P-2	PUMP 2 1/9HP, 120V, 1P, 60HZ	1P, NEMA 1, 120V, 1 HP RATED SWITCH (FURNISH & INSTALLED BY DIV 16)	LP-6
P-3,4,5, & 6	PUMPS 1 THROUGH 6 1/35HP, 120V, 1P, 60HZ	1P, NEMA 1, 120V, 1 HP RATED SWITCH (FURNISH & INSTALLED BY DIV 16)	LP-8 & 10
P-7	PUMP 7 1/15HP, 120V, 1P, 60HZ	1P, NEMA 1, 120V, 1 HP RATED SWITCH (FURNISH & INSTALLED BY DIV 16)	LP-12
F-1	FAN 1 1/100HP, 120V, 1P, 60HZ	1P, NEMA 1, 120V, 1 HP RATED SWITCH (FURNISH & INSTALLED BY DIV 16)	LP-14
F-2	FAN 2 1/4HP, 120V, 1P, 60HZ	1P, NEMA 1, 120V, 1 HP RATED SWITCH (FURNISH & INSTALLED BY DIV 16)	LP-16

NOTES REFERING TO MECHANICAL EQUIPMENT:

1. PROVIDE PROPERLY SIZED FUSES (MATCH EQUIPMENT NAMEPLATE) TYP. FOR EACH DISCONNECT.
2. SEE MECHANICAL DRAWINGS FOR EXACT MECHANICAL EQUIPMENT LOCATIONS.
3. ALL MECHANICAL EQUIP. SHALL HAVE HACR TYPE BREAKERS.
4. CONTROL WIRING FOR MECHANICAL EQUIPMENT FURNISHED AND INSTALLED BY DIV. 15.
5. ELECTRICAL EQUIPMENT CONTROLS FURNISHED BY DIV. 15, INSTALLED BY DIV. 16.

PANEL No. MP

BUS: 225A
PANEL RATING: 22 KAIC
SUPPLY VOLTAGE: 240V/120V
SERVICE: 1 PHASE, 3 WIRE

LOCATION: GARAGE WALL
MOUNTING: SURFACE
DRAWING No.: E1

WIRE	COND	DESCRIPTION	VA ØA	VA ØB	POLE	A	CKT NO	CKT NO	POLE	A	VA ØA	VA ØB	DESCRIPTION	COND	WIRE
		FUTURE AIR COMPRESSOR			2	30	1	2	2	100	15443		PANEL 'MDP'		SEE RISER
							3	4				11892			
		SPARE			2	40	5	6					SPACE		
							7	8					SPACE		
		SPACE					9	10					SPACE		
		SPACE					11	12					SPACE		
		TOTAL 1						TOTAL 2			15443	11892			
		TOTAL 2	15443	11892											
		TOTAL 1 + 2	15443	11892											
		CONN. LOAD TOTAL	27335												
		AMPERES	114												

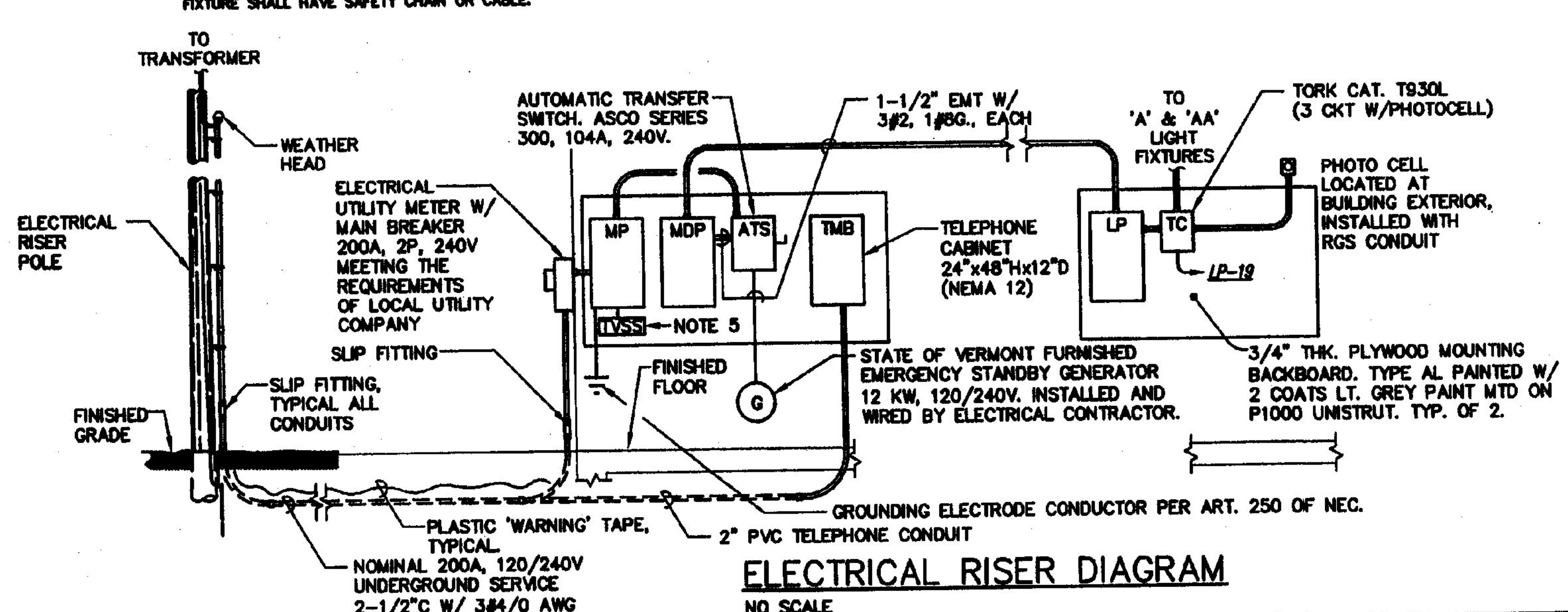
MAIN BREAKER: 200A
FEEDER ENTRANCE: TOP/BOTTOM
FEEDER SIZE: SEE RISER
SOURCE: SEE RISER
PANEL TYPE: BOLT-ON

MAIN LUGS: N/A
ENCLOSURE TYPE: NEMA 1
ACCESSORIES:
PANEL SHALL BE EQUAL TO SQ. D TYPE NQOD
DOOR-IN-DOOR COVER

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	TYPE	COLOR	MOUNTING	VOLTAGE	LAMPS	REMARKS	TOTAL WATTS
A	GARDCO	106FT 150HPS	HPS	BRONZE	WALL	120V	LU150D		170
AA	GARDCO	106WT 50HPS	HPS	BRONZE	WALL	120V	LU50D		64
B	GENERAL ELECTRIC	V202BP0A-4EAS-SFC-0/SFC3-B/HOP250	MH	WHITE	PENDANT	120V	MH32-250W MH	SEE NOTE 1	340
BQ	GENERAL ELECTRIC	SAME AS FIXTURE B EXCEPT 'B' OPTION	MH	WHITE	PENDANT	120V	MH32 W/ QUARTZ LAMP	W/ QUARTZ TIME DELAY. SEE NOTE 1	440
C	DAYBRITE	SW2332120DD	FLUOR	WHITE	CEILING	120V	(2)F32	W/ ELECTRONIC BALLAST	64
CE	SAME AS 'C' EXCEPT W/ EMERGENCY BALLAST		FLUOR	WHITE	CEILING	120V	(2)F32		64
D	DAYBRITE	S2232120DD	FLUOR	SILVER	CEILING	120V	(2)F32		64
EXIT	McPHILBEN	NLRDW/WG6 W/SD	EXIT	WHITE	SURFACE	120V	W/ UNIT		

NOTE REFERRING TO LIGHTING SCHEDULE:
1. SUPPLIED WITH HOOK/CORD/PLUG – CONTRACTOR SHALL PROVIDE 120V SINGLE RECEPTACLE (TWIST LOCK) AT EACH FIXTURE FOR POWER CONNECTION. FIXTURE SHALL HAVE SAFETY CHAIN OR CABLE.



ELECTRICAL RISER DIAGRAM

NO SCALE

NOTES:

1. RUN ALL CONDUITS EXPOSED EXCEPT REAR WALL OF GARAGE AS NOTED ON PLAN. NO UNDERGROUND CONDUITS WILL BE ALLOWED EXCEPT SERVICE ENTRANCE CONDUITS AND GENERATOR CONDUITS ON EXTERIOR OF THE BUILDING.
2. PROVIDE CONDUIT, WIRING AND INSTALLATION FOR OVERHEAD DOOR OPERATORS AND CONTROLS AS REQUIRED BY MANUFACTURER, INCLUDING CONDUIT AND WIRING FOR 'EDGE SENSORS' FOR EVERY DOOR.
3. ALL ELECTRICAL WIRING SHALL BE INSTALLED ABOVE 24" AFG. NOTE THAT AREA BELOW 18" AFG IS CONSIDERED A CLASS I, DIVISION 1 LOCATION BY NEC.
4. MOUNT LIGHT FIXTURES TO COORDINATE WITH OVERHEAD DOORS.
5. SURGE SUPPRESSER EQUAL TO APT TYPE TE/1HP/SC FOR 120/240V SYSTEM.

ABBREVIATIONS

- AFF – ABOVE FINISHED FLOOR
- AFG – ABOVE FINISHED GRADE
- EB – EMERGENCY BATTERY PACK
- EMT – ELECTRICAL METALLIC TUBING
- GFCI – GROUND FAULT CIRCUIT INTERRUPTER
- HPS – HIGH PRESSURE SODIUM
- MH – MOUNTING HEIGHT
- MTG – MOUNTING
- MTD – MOUNTED
- OC – OVER COUNTER
- OHD – OVERHEAD DOOR
- RGS – RIGID CONDUIT
- TC – TIME CLOCK
- TMB – TELEPHONE MOUNTING BOARD
- UC – UNDER COUNTER
- UON – UNLESS OTHERWISE NOTED
- W – WALL MOUNTED
- WP – WEATHERPROOF

GENERAL NOTES:

1. THE SCOPE OF WORK IS TO PROVIDE ALL LABOR, MATERIALS, SERVICES, SUPPLIES, TOOLS, EQUIPMENT, TRANSPORTATION, AND FACILITIES NECESSARY TO FURNISH AND INSTALL COMPLETE ELECTRICAL WORK AS CALLED FOR ON THE DRAWINGS, SPECIFIED, OR AS MAY REASONABLY BE IMPLIED AS BEING INCIDENTAL TO THIS WORK.
2. ALL WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (N.E.C.) LATEST EDITION.
3. SECURE AND PAY COSTS OF PERMITS, CERTIFICATES, LICENSES, INSPECTIONS, AND APPROVALS. ANY POWER OUTAGE SHALL BE SCHEDULED AND APPROVED BY THE OWNER.
4. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF WORK. BASIC DESIGN CONCEPTS INDICATED ARE MINIMAL AND MUST BE EITHER FOLLOWED OR BETTERED. WORK IS NOT SHOWN IN DETAIL BUT IS INTENDED TO INCLUDE ITEMS NECESSARY FOR PROPER OPERATION AND COMPLETION. DO NOT SCALE DRAWINGS. FIELD VERIFY ALL LOCATIONS, ELEVATIONS, AND DIMENSIONS.
5. EXECUTE ALL WORK IN A NEAT AND WORKMANLIKE MANNER IN CONFORMANCE WITH BEST MODERN TRADE PRACTICE, BY COMPETENT, EXPERIENCED MECHANICS, PRESENTING A NEAT APPEARANCE WHEN COMPLETED. REPLACE WORK NOT APPROVED BY OWNER WITHOUT ADDITIONAL CHARGE.
6. ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, AND ALL CODES, REGULATIONS AND REQUIREMENTS OF ALL MUNICIPAL, STATE, FEDERAL AND OTHER PUBLIC OR PRIVATE AUTHORITIES WHICH HAVE JURISDICTION. IN EACH CASE, CODES ARE MINIMUM REQUIREMENTS.
7. COORDINATE ALL SWITCH, RECEPTACLE AND LIGHTING FIXTURE LOCATIONS AND ARCHITECTURAL APPURTENANCES WITH ARCHITECT. ALL DEVICE PLATES SHALL BE BRUSHED STAINLESS STEEL.
8. ALL LIGHTING AND POWER SHALL BE RUN IN CONDUIT AND SHALL BE #12 WITH GROUND (TYPICAL) WITH NUMBER OF CONDUCTORS AS REQUIRED. GARAGE SHALL BE WIRED WITH EMT & COMPRESSION FITTINGS. PVC UNDERGROUND, RGS IN SALT SHEDS AND STORAGE BUILDING AND ALL EXTERIOR LOCATIONS.
9. CONTRACTOR TO LIMIT 20A, 120V BRANCH CIRCUITS TO A MAXIMUM 1920VA LOAD AND 15A, 120V BRANCH CIRCUIT TO A MAXIMUM 1440VA LOAD.
10. WHERE WIRING CAN NOT BE ROUTED CONCEALED IN FINISHED SPACES (OFFICES ONLY) UTILIZE WIRE MOLD SURFACE RACEWAY TYPE 200/500/700 (WITH ALL NECESSARY FITTINGS/HARDWARE AND ATTACHMENTS) WITH #12AWG TYPE THHN/ THWN CONDUCTOR.
11. INSTALL A SEPARATE GREEN GROUND WIRE IN ALL POWER AND RECEPTACLE CIRCUITS.
12. WHERE EXISTING ELECTRICAL DEVICES AND FIXTURES ARE INDICATED THOSE LOCATIONS ARE APPROXIMATE AND NOT ALL ELECTRICAL DEVICES AND FIXTURES MAY BE INDICATED (FIELD VERIFY ALL CONNECTIONS TO ELECTRICAL ITEMS WHERE POSSIBLE).
13. EACH OUTLET OR JUNCTION IN ANY OF THE WIRING SYSTEMS SHALL BE MADE IN AN APPROVED, METALLIC JUNCTION BOX. SUCH BOX SHALL BE SUITABLE FOR THE SIZE AND NUMBER OF CONDUCTORS AND DEVICES TO BE INSTALLED, AS WELL AS THE CONDITION ENCOUNTERED. ALL SPLICES SHALL BE MADE WITH APPROVED, MECHANICAL CONNECTORS.
14. DURING ROUGH IN AND FINISHED STAGES OF CONSTRUCTION, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT AND KEEP CLEAN ALL ELECTRICAL EQUIPMENT, PANELS, FIXTURES AND DEVICES.
15. AS THERE MAY BE VARIOUS CONDITIONS AT THE SITE WHICH DO NOT SHOW ON THE ACCOMPANYING DRAWINGS, OR WHICH ARE AT VARIANCE WITH THE CONDITIONS INDICATED ON THE DRAWINGS, IT IS IMPORTANT THAT EACH BIDDER VISIT THE SITE AND ACQUAINT HIMSELF WITH EXISTING CONDITIONS AND TAKE THESE CONDITIONS INTO CONSIDERATION WHEN PREPARING HIS BID. EACH BIDDER SHALL OBTAIN INFORMATION OR MAKE ANY MEASUREMENT DESIRED. LACK OF KNOWLEDGE RELATIVE TO EXISTING SITE CONDITIONS WILL NOT BE ALLOWED AS A BASIS FOR EXTRA COMPENSATION.
16. THE FINISHED INSTALLATION SHALL BE COMPLETE IN EVERY RESPECT AND DETAIL, TESTED AND LEFT READY IN PERFECT OPERATING CONDITION FOR THE OWNER'S USE.
17. MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS' LABORATORIES AND SHALL BE INSTALLED IN ACCORDANCE WITH SUCH LISTINGS.
18. THE CONTRACTOR SHALL GUARANTEE THAT MATERIALS, EQUIPMENT AND WORKMANSHIP PROVIDED BY HIM SHALL BE FREE FROM DEFECTS IN MATERIALS OR WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF THE WORK DONE UNDER THIS CONTRACT, AND SHALL REPLACE PARTS FOUND TO BE DEFECTIVE WITHIN THE PERIOD COVERED BY SUCH GUARANTEE, WITHOUT COST TO THE OWNER.

BID DOCUMENTS
DO NOT REVISE
January 31, 2002

NO.	REVISION	DATE
1	REVISED PER VTRANS COMMENTS	1/24/2002

READSBORO HIGHWAY GARAGE PROJECT
READSBORO, VERMONT

FIRST FLOOR PLAN
SHEET TITLE

BAR = ONE INCH

MLC SRM
DRAWN BY
QC

0000
PROJECT NUMBER

25 OCTOBER 2001
DRAWING DATE

E1
SHEET DESIGNATION