

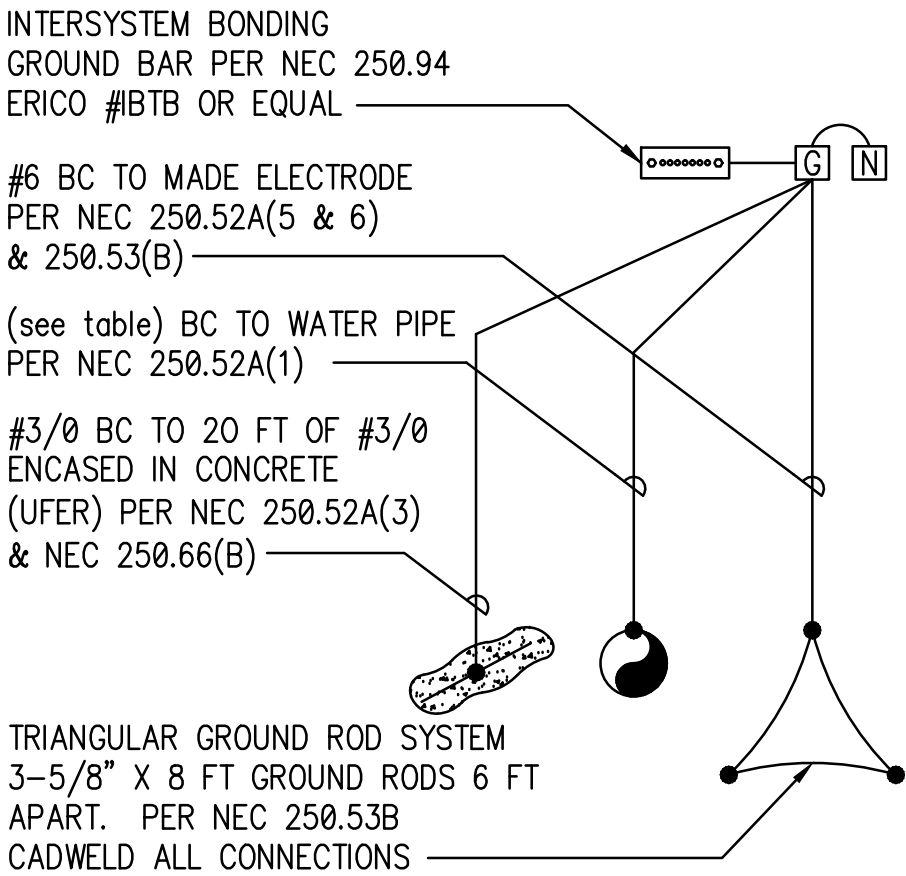
PANEL M											
VOLTAGE: 240 / 120 V				DIMENSION: PER NEC				LOCATION: EXTERIOR			
PANEL AMP RATING: 1000A WITH 1000 CB				MOUNTING: SURFACE				NEMA ENCLOSURE: 3R			
WIRES: 3 PHASE: 1 FEED: BOTTOM				TYPE: SQUARE D I-LINE TYPE HCP							
LOAD DESCRIPTION	PH	LOAD WATT	BKR AMPS	GKT NO	LOAD A	B	GKT NO	BKR AMPS	LOAD WATT	PH	LOAD DESCRIPTION
PANEL A	A		200	1	2727		2	30	2727	A	FURNACE F-1
	B				2727				2727	B	
PANEL B	A		200	3	5616		4	30	5616	A	FURNACE F-2
	B				5616				5616	B	
PANEL C	A		200	5	2727		6	60	2727	A	FURNACE F-3
(MECHANICAL)	B				2727				2727	B	
MAKE UP AIR	A	11208	125	7	13934		8	30	2727	A	FURNACE F-4
	B	11208			13934				2727	B	
BOILER B-1	A	15000	175	9	17727		10	30	2727	A	FURNACE F-5
	B	15000			17727				2727	B	
BOILER B-2	A	15000	175	11	17727		12	30	2727	A	FURNACE F-6
	B	15000			17727				2727	B	
BOILER B-3	A	20000	225	13	22727		14		2727	A	FURNACE F-7
	B	20000			22727				2727	B	
HOT TUB	A	4800	50	15	4800		16			A	BLANK
	B	4800			4800					B	
BLANK	A			17	0		18	30		A	SURGE SUPPRESSOR
	B				0					B	
FEEDER BREAKER		TOTAL LOAD PER PHASE-WATTS			87983	87983	FEED FROM:		C. T. ENCLOSURE		
RATING: 1000A		TOTAL LOAD PER PHASE-AMPS			734	734	PANEL ISC RATING 25,000		AVAILABLE ISC		
WIRE SIZE: 3 RUNS OF 3-350 KCMIL CU							CONDUIT SIZE: 3-2 1/2" C		21,222		

PANEL M IS SPECIFIED AS A SQUARE D TYPE HCP:
DIMENSIONS 42" WIDE 9.5" DEEP 68" HIGH

TABLE 250.66 FROM NEC	SIZE OF LARGEST UNGROUNDED SERVICE-ENTRANCE CONDUCTOR (AWG/KCMIL)	SIZE OF GROUNDING ELECTRODE CONDUCTOR (AWG/KCMIL)	MAX SERVICE SIZE
2 OR SMALLER	8	100A	
1 OR 1/0	6	150A	
2/0 OR 3/0	4	200A	
OVER 3/0 THROUGH 350	2	300A	
OVER 350 THROUGH 600	1/0	400A	
OVER 600 THROUGH 1100	2/0	500A	
OVER 1100	3/0	1000A	

FOR OVER 1100 KCMIL ALSO REFER TO NEC PARAGRAPH 250.24(C)(1) GROUNDED CONDUCTOR SHALL NOT BE SMALLER THAN 12-1/2% OF THE AREA OF THE LARGEST SERVICE CONDUCTOR

NOTE:
ALL CODE REFERENCES FROM NEC 2011 EDITION



GROUNDING SHALL BE COMPLETED TO ALL TYPES SHOWN
GROUNDING DETAIL
SCALE: NTS

FAULT CURRENT CALC NOTES

1. FAULT CURRENT BASED ON FAULT CALCULATIONS AT ASSUMED 167.5 KVA SINGLE PHASE TRANSFORMER LOCATED 150 FT FROM THE HOUSE. IF CHANGES ARE MADE TO THE SERVICE TRANSFORMER PLEASE CONTACT BRADLEY ENGINEERING AT 208-523-2862 TO REVIEW THE CHANGES TO SERVICE AND FAULT CURRENT CALCULATIONS.

AVAILABLE FAULT CURRENTS	
ESTIMATED AT 167.5 KVA TRANSFORMER	42,564 AMPS
PANEL M	21,222 AMPS
PANEL A	13,152 AMPS
PANEL B	13,152 AMPS
PANEL C	13,152 AMPS

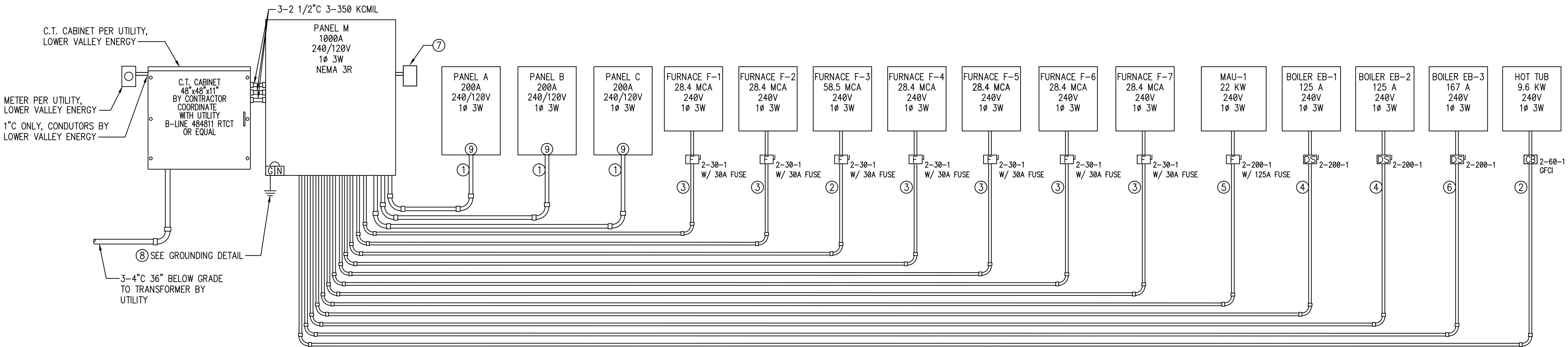
MORSE RESIDENCE ELECTRICAL LOAD ANALYSIS WITH ELECTRIC BOILER			
Voltage 240/120V single phase			
Dwelling Size			
Upper Level		3230 Sq ft	
Main Level		4880 Sq ft	
Lower Level		3575 Sq ft	
Garage		1150 Sq ft	
Total		12835	
Lighting and Receptacle Circuits at 3 wts / sq ft			
			38505 watts
Exhaust Fans EF-1 (7 ea)			147 watts
Range Hood			250 watts
Electric Boiler EB-1			30000 watts
Electric Boiler EB-2			30000 watts
Electric Boiler EB-3			40080 watts
Heating Water Pumps			660 watts
Glycol Feeder GF-1, GF-2			100 watts
Steam Humidifier (5 @3800W)			19000 watts
Make Up Air 92A 240V			22415 watts
Electronic Air Cleaner			336 watts
AHE-1, AHE-2			3268 watts
Furnace F-1			5453 watts
Furnace F-2			5453 watts
Furnace F-3			11232 watts
Furnace F-4			5453 watts
Furnace F-5			5453 watts
Furnace F-6			5453 watts
Furnace F-7			5453 watts
Condensing unit C-1			2832 watts
Condensing unit C-2			2832 watts
Condensing unit C-3			5664 watts
Condensing unit C-4			4008 watts
Condensing unit C-5			2832 watts
Condensing unit C-6			4224 watts
Condensing unit C-7			2832 watts
Wine Room Condensor			2400 watts
Wine Room Humidifier			1140 watts
Range			9600 watts
Fridge			1500 watts
Freezer			1500 watts
Dishwasher (2)			2800 watts
Microwave			1100 watts
Garbage Disposal			1176 watts
Garage door 1			1176 watts
Garage door 2			1176 watts
Garage door 3			1176 watts
Washer			1500 watts
Dryer			4500 watts
Water Heater (5 @ 4500 watts)			22500 watts
Hot Tub			9600 watts
Recirc Pump			132 watts
Water Softener			42 watts
Total			316778 watts
Max Service Size	316777.8 watts	240 volts	1320 amps
Derated per NEC 220.82 B and NEC 220.82 C.5			
A/C at 0%		0	
Heating at 100%		145859	
Heating derated 40%		26369	Furnaces
First 10 KVA of other loads at 100%		10000	
Remainder of other loads at 40%		43730	
Total derated Load		225958 wt	
Min Service Size	225958 wts/	240 Volt	941 amps
Install 1000 amp service			

GENERAL ELECTRICAL NOTES

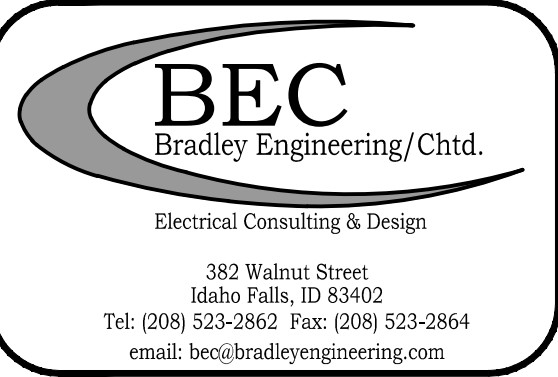
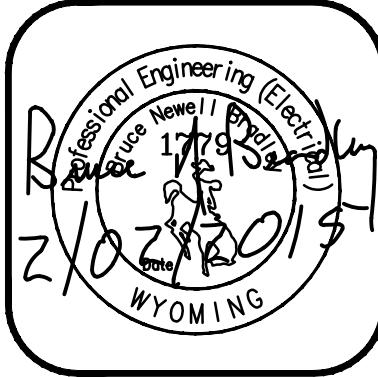
1. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL EQUIPMENT AND MATERIALS TO MAKE A COMPLETE INSTALLATION AS SHOWN ON THESE PLANS.
2. ALL WORK SHALL MEET THE NATIONAL ELECTRICAL CODE, NEC.
3. ALL EQUIPMENT SHALL BE UL LISTED.
4. THE "NECA STANDARDS OF INSTALLATION" SHALL BE THE STANDARD OF QUALITY FOR INSTALLATION.
5. RACEWAYS SHALL BE 1/2" MINIMUM AND USED AS FOLLOWS:
 - A. RIGID GALVANIZED STEEL (RGS) - SERVICE, FEEDERS, IN WET LOCATIONS AND HAZARDOUS AREAS.
 - B. INTERMEDIATE METAL CONDUIT (IMC) - SAME AS RGS.
 - C. PVC - UNDERGROUND, ON SERVICES, AND UNDER SLABS. INCLUDE GROUND WIRE PER NEC.
 - D. EMT - ALL OTHER LOCATIONS PER NEC.
 - E. FLEXIBLE METAL CONDUIT - LAST 12" ON MOTORS, FANS, ETC.
 - F. FITTINGS SHALL BE CAST FOR RGS AND IMC AND SET SCREWS ON EMT. OUTSIDE WALLS WATERTIGHT.
 - G. TYPE MC CABLE
 - H. TYPE NM CABLE
6. POWER CONDUCTORS SHALL BE NO 12 AWG CU TW OR THHN OR THWN MIN. NO 6 AWG WIRE AND LARGER SHALL HAVE THHN, THWN OR XHHW INSULATION. ALUMINUM WIRE MAY BE USED ON SERVICES AND FEEDERS WITH BURNDY "HYPLUG" ADAPTERS.
7. PANELS, DISCONNECT SWITCHES, AND OTHER POWER EQUIPMENT SHALL BE GE, SQUARE D, OR CUTLER HAMMER.
8. EQUIPMENT SHALL BE FURNISHED AS SPECIFIED. SUBSTITUTION OF EQUAL OR BETTER EQUIPMENT BY APPROVAL ONLY.
9. THE ELECTRICAL CONTRACTOR SHALL APPLY FOR, SECURE, AND PAY FOR ALL REQUIRED PERMITS, FEES, AND LICENSES TO ACCOMPLISH THE WORK.
10. ALL CIRCUITS IN THE RESIDENCE AND GARAGE SHALL BE PROVIDED WITH ARC FAULT OR GROUND FAULT INTERRUPTER PROTECTION AS REQUIRED BY ARTICLE 210 OF THE NEC.
11. ALL KITCHEN & BATHROOM CIRCUITS SHALL REQUIRE GROUND FAULT CIRCUIT PROTECTION (GFI).
12. ALL GARAGE CIRCUITS SHALL REQUIRE GROUND FAULT CIRCUIT PROTECTION (GFI).
13. ALL WORK SHALL BE GUARANTEED FOR ONE YEAR EXCEPT LAMPS.

POWER RISER KEY NOTES:

- ① 2°C 3#3/0 CU AND 1#6 CU GND
- ② 1°C 2#6 CU AND 1#8 CU GND
- ③ 3/4°C 2#10 CU AND 1#10 CU GND
- ④ 1 1/2°C 2#2/0 CU AND 1#6 CU GND
- ⑤ 1 1/4°C 2#2 CU & 1#6 CU GND
- ⑥ 2°C 2#3/0 CU & 1#6 CU GND
- ⑦ PROVIDE TVSS SURGE SUPPRESSOR. TVSS DEVICE SHALL BE EFT ELECTRONICS TITAN 180W 120/240 OR EQUAL.
- ⑧ SEE ARCHITECTURAL DRAWINGS FOR LOCATION OF PANELS & UFER GROUND SYSTEM. C.T ENCLOSURE SHALL BE PROVIDED WITH A HINGED COVER PER THE UTILITY.
- ⑨ PANELS A, B, AND C SHALL BE SQUARE D LOAD CENTERS. ELECTRICAL CONTRACTOR SHALL CIRCUIT LOADS AS REQUIRED. PANEL C IS DESIGNATED AS MECHANICAL EQUIPMENT POWER PANEL.



POWER RISER
SCALE: NTS



JOB NUMBER: 15-16

E1.0

ELECTRICAL PLANS

MORSE RESIDENCE

6030 W. LAZY H ROAD
TETON COUNTY, WYOMING

STRUCTURAL ENGINEERS:
DAN STEVENSON, P.E.
1560 JUDY WALKER DRIVE, SUITE 200
IDAHO FALLS, IDAHO 83402
(208)523-0818

MECHANICAL ENGINEERS:
CN ENGINEERS
P.O. BOX 4195
JACKSON, WY 83001
(307)733-8765

Date:
2/02/15
PERMIT SET
Revisions: