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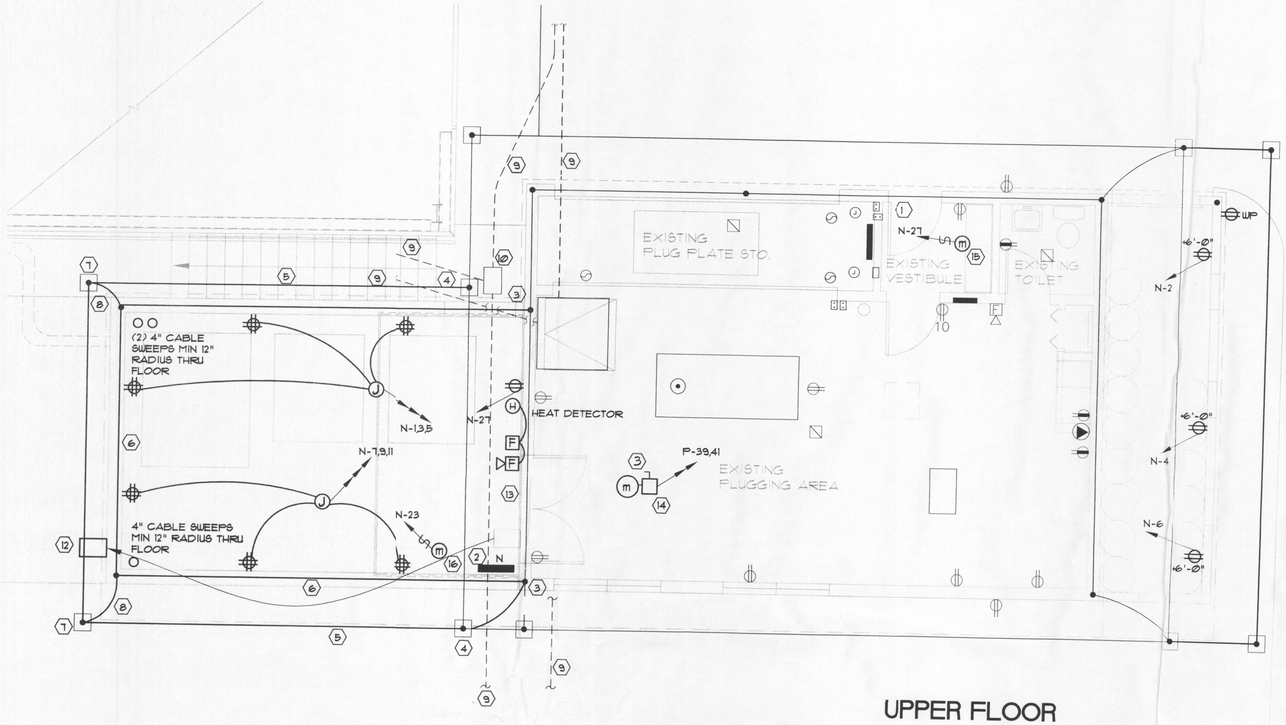
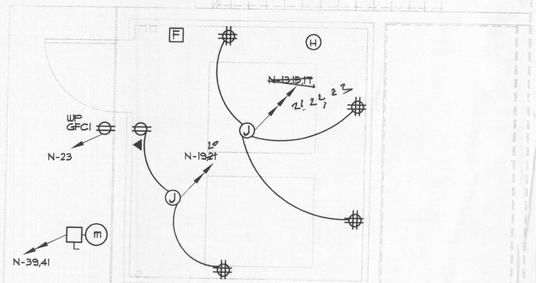


UPPER FLOOR



LOWER FLOOR

KEYED POWER PLAN NOTES

1. EXISTING PANEL 8B LOCATED HERE.
2. PROPOSED LOCATION OF NEW PANEL N.
3. EXISTING LIGHTNING ROD WITH DOWNLEAD TO COUNTERPOISE. NEW LIGHTNING PROTECTION CONDUCTOR TO BE CONNECTED HERE.
4. EXISTING DOWNLEAD CONNECTION TO COUNTERPOISE AND TO 18"x18" COPPER PLATE THOMPSON #233 OR EQUIVALENT. PLATE IS BURIED 36" DEEP.
5. 4/0 CU COUNTERPOISE BURIED 36" DEEP.
6. #2 CU LIGHTNING PROTECTION CONDUCTOR.
7. NEW EXOTHERMIC WELDED CONNECTION FROM DOWNLEAD TO COUNTERPOISE, AND TO 18"x18" COPPER PLATE, THOMPSON #233 OR EQUIVALENT.
8. LIGHTNING PROTECTION SYSTEM AIR TERMINAL 18". WITH #2 COPPER LIGHTNING DOWNLEAD.
9. NUMEROUS EXISTING UTILITIES EXIST IN THE AREA OF NEW CONSTRUCTION. THE CONTRACTOR MUST WORK WITH THE OWNER TO LOCATE AND WHEN NECESSARY, RELOCATE FACILITIES TO NOT DISTRUPT THE FUNCTION OF THE SITE.
10. EXISTING PULLBOX FOR EXISTING UTILITIES. SEE #9 ABOVE.
11. NEW HEAT PUMP WITH DISCONNECT AND WP GFCI MAINTENANCE RECEPTACLE ADJACENT. PROVIDE SUFFICIENT CONDUIT FOR MECHANICAL TO INSTLL LOW VOLTAGE CONTROL WIRING.
12. RELOCATE VIDEO CAMERA TO NEW EXTERIOR WALL.
13. CONNECT FIRE ALARM DEVICES TO EXISTING FIRE ALARM PANEL.
14. HEAT PUMP IN ATTIC OF EXISTING BLDG. - PROVIDE DISCONNECTED MAINTENANCE RECEPTACLE.
15. 1/4 HP WATER PUMP. SEE MECH PLANS SPECIFIC INFORMATION.
16. FRACTIONAL HP EXHAUST FAN. SEE MECHANICAL PLANS FOR SPECIFIC INFORMATION.

SERVICE ENTRANCE / ONE LINE DIAGRAM NOTES

1. EXISTING 4-500 CU THHN/THWN WITH #2 GROUND. NO CHANGE.
2. EXISTING 120/208 VOLT 400 AMP PANEL 8B.
3. ADD A 150/3 BREAKER TO FEED NEW PANEL N.
4. 4-1/0 CU THHN/THWN WITH #6 GROUND IN 2" CONDUIT.
5. NEW 120/208 VOLT 200 AMP M.L.O. PANEL N. SEE PANEL SCHEDULE FOR SPECIFIC INFORMATION.
6. EXISTING GROUNDING. NO CHANGE.

LOAD SUMMARY

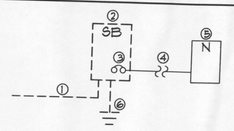
PANEL LOAD
EXISTING LOAD PER PLANS 83,880VA/233 AMPS
NEW LOAD37,440VA/104 AMPS

TOTAL BUILDING LOAD 121,320VA/334 AMPS

FAULT CURRENT CALCULATIONS

150 KVA 120/208 VOLT TRANSFORMER 2.5%Z
150/(.208x1.732) = 416 AMPS
416/.025 = 16,640 AMPS FAULT CURRENT
BECAUSE OF FEEDER IMPEDANCE FAULT CURRENTS ARE REDUCED TO LESS THAN 10 K.A. NEW GEAR MUST MATCH EXISTING AIC RATINGS.

SERVICE ENTRANCE / ONE LINE DIAGRAM



ELECTRICAL LEGEND

- LIGHT FIXTURE, CEILING MT'D
- LIGHT FIXTURE, WALL MT'D
- LIGHT FIXTURE, RECESSED
- LIGHT FIXTURE, PORCELAIN SOCKET (PS)
- FULL SPECTRUM FLUORESCENT LAMPS, LAY-IN CEILING TYPE.
- EMERGENCY LIGHTING
- EXIT SIGN
- CEILING FAN W/LIGHT
- CEILING FAN NO LIGHT
- FLUORESCENT FIXTURE 8'-0" CHAIN HUNG AT 10'-0" HEIGHT
- DUPLEX, CONVENIENCE OUTLET
- DUPLEX, GFCI OUTLET (GFCI)
- DUPLEX,WEATHEROOF OUTLET (WP)
- 4-PLEX CONVENIENCE OUTLET
- FLOOR OUTLET
- JUNCTION BOX (J)
- SWITCH, SINGLE POLE
- 3-WAY SWITCH
- WALL MOUNTED THERMOSTAT (T)
- EXHAUST FAN
- TELEVISION / HI-FI
- TELEPHONE/ DATA
- HEAT DETECTOR (H)
- FIRE ALARM MAUAL PULL STATION (F)
- FIRE ALARM HORN STROBE (F)

1. VERIFY MOUNTING HT. OF ALL WALL MOUNTED DEVICES WITH OWNER.
2. COORDINATE WITH MECHANICAL FOR ADDITIONAL REQUIREMENTS.
3. #44 INDICATES SPECIAL MTG. HEIGHT IN INCHES ABOVE FLOOR TO CENTER.

PANELBOARD SCHEDULE

PANEL: N LOCATION:
SERVICE: 120/208 VOLTS, 3 PHASE, 4 WIRE SN. 200 AMP M.L.O.

CIRCUIT DESCRIPTION	WATTS A	WATTS B	WATTS C	P	WIRE SIZE				WIRE SIZE	WATTS A	WATTS B	WATTS C	CIRCUIT DESCRIPTION
ET ENCLOSURE QUAD				20	1	12	1	2	12 20 1				LN2 RECEPTACLE
							3	4					LN2 RECEPTACLE
							5	6					LN2 RECEPTACLE
							7	8					LN2 RECEPTACLE
							9	10					LN2 LIGHTING
							11	12					
							13	14					
							15	16					
							17	18					
ET DUPLEX							19	20					
ET WPGFCI							21	22					
ET LIGHTING							23	24					
WATER PUMP							25	26					
							27	28					
							29	30					
							31	32					
							33	34					
							35	36					
							37	38					
HVAC					15		39	40					
"						2	41	42					
TOTAL WATTS "A"													
TOTAL WATTS "B"													
TOTAL WATTS "C"													
TOTAL													

APACHE POINT OBSERVATORY
SDSS BLDG EXPANSION

PREPARED FOR
ASTROPHYSICAL RESEARCH CONSORTIUM
SUNSPOT
NEW MEXICO

DATE	PHASE
7/13/07	PERMIT

JAMES C. TESTER NEW MEXICO 10000 REGISTERED PROFESSIONAL ENGINEER
7/13/07

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SCHEMATIC POWER PLAN

SCALE 1/4" = 1'-0"

SHEET E2

D961E2