SYMBOLS

SINGLE LINE DIAGRAM

- T1 45KVA — TRANSFORMER, DESIGNATION AND RATINGS AS NOTED
- Y GROUND
- 100AF 100AT — CIRCUIT BREAKER: 100AF = FRAME RATING IN AMPERES, 100AT = TRIP RATING IN AMPERES
- 800A — DRAWOUT CIRCUIT BREAKER: TRIP RATING AS SHOWN, 3 POLE UNO
- POTENTIAL TRANSFORMER WITH FUSES
- CURRENT TRANSFORMER
- GROUND
- 1R — MAGNETIC MOTOR STARTER: 1–NEMA SIZE, R–REDUCED VOLTAGE
- VFD — VARIABLE FREQUENCY DRIVE
- ½ OR M — 1ø OR 3ø MOTOR: NUMBER INSIDE SYMBOL INDICATES HORSEPOWER
- S_M — MANUAL MOTOR STARTER WITH THERMAL OVERLOAD – 1ø
- TVSS — GROUND FAULT PROTECTION
- GFP — GROUND FAULT PROTECTION
- EPM — POWER MODULAR METER

LIGHTING

- A — LIGHTING FIXTURE IDENTIFICATION SYMBOL: SEE LIGHTING FIXTURE SCHEDULE ON SHEET E–010
- 6"x4' PENDANT MOUNTED FLUORESCENT
- LINEAR WALL MOUNTED FLUORESCENT
- INDUSTRIAL OR STRIP FLUORESCENT – SURFACE MOUNTED OR CHAIN HUNG
- WALL MOUNTED FIXTURE
- SURFACE MOUNTED DOWNLIGHT
- RECESSED MOUNTED DOWNLIGHT
- EXIT SIGN: WALL MOUNTED, DARKENED AREA INDICATES FACE
- EXIT SIGN: CEILING MOUNTED, DARKENED AREA INDICATES FACE
- TRACK LIGHTING
- BOLLARD
- STEP LIGHT WALL RECESSED
- ACCENT LIGHTING GROUND SURFACE MOUNTED
- IN GROUND STEP LIGHT
- UNSWITCHED LIGHT FIXTURES ON INVERTER LIFE/SAFETY CIRCUITS

SWITCHES

INSTALL AT +48" UNO

- S — SINGLE POLE SWITCH, 20A, 120/277V
- S_2 — DOUBLE POLE SWITCH, 20A, 120/277V
- S_3 — THREE–WAY SWITCH, 20A, 120/277V
- S_4 — FOUR–WAY SWITCH, 20A, 120/277V
- S_a — SWITCH CONTROLS FIXTURE MARKED WITH SUBSCRIPT INDICATED
- S_D — DIMMER SWITCH: 1500 WATT FLUORESCENT TYPE UNO
- WALL MOUNTED OCCUPANCY SENSOR WITH LOCAL SWITCHING, MANUAL ON/AUTO OFF
- CEILING OR PENDANT MOUNTED OCCUPANCY SENSOR, AUTO ON/AUTO OFF
- S_M — MOTOR RATED SWITCH, 1ø
- MOTOR STARTER: MAGNETIC, SIZE AS NOTED
- DISCONNECT/COMBINATION MOTOR STARTER: SIZE AS NOTED
- DISCONNECT SWITCH: NON FUSED, SIZE AS NOTED, 600V–3ø
- F — DISCONNECT SWITCH: FUSED, SIZE AS NOTED, 600V–3ø
- TS — TIMER SWITCH
- PE — DAYLIGHT SENSOR
- LC — LIGHTING CONTROL SWITCH

MISCELLANEOUS

- D — AUTOMATIC DOOR OPERATOR (A)
- CR — CARD READER
- RE — REQUEST TO EXIT

PANELBOARDS AND POWER EQUIPMENT

- RECESSED MOUNTED PANELBOARD
- SURFACE MOUNTED PANELBOARD
- SWITCHBOARD OR DISTRIBUTION BOARD
- MCC: MOTOR CONTROL CENTER
- ½ OR M — MOTOR: HORSEPOWER AS INDICATED
- PUSHBUTTON STATION
- A / 01 — MECHANICAL EQUIPMENT IDENTIFICATION SYMBOL
- T — DRY TYPE TRANSFORMER

GROUNDING

- G — BURIED BARE COPPER GROUND WIRE, SIZE AS SHOWN
- G — EXPOSED BARE COPPER GROUND WIRE, SIZE AS SHOWN
- 3/4" DIAMETER X 10'–0" GROUND ROD
- GROUNDING TEST BOX WITH 3/4" DIAMETER X 10'–0" GROUND ROD
- CHEMICAL GROUND WELL
- AIR TERMINAL
- GROUND BAR

RECEPTACLE/OUTLETS

NOTE: ALL WALL MOUNTED OUTLETS AND RECEPTACLES SHALL BE RECESSED AT 18" ABOVE FINISHED FLOOR FROM CENTERLINE OF DEVICE, UNO

- SINGLE RECEPTACLE, NEMA 5–20R, GROUNDING TYPE
- GFI — DUPLEX RECEPTACLE, NEMA 5–20R, GROUNDING TYPE, GFI INDICATES GROUND FAULT INTERRUPTER TYPE
- DUPLEX RECEPTACLE FLOOR MOUNTED, NEMA 5–15R
- QUAD RECEPTACLE, NEMA 5–20R, GROUNDING TYPE
- QUAD RECEPTACLE, NEMA 5–20R, FLOOR MOUNTED
- DUPLEX RECEPTACLE, NEMA 5–20R, ISOLATED GROUND TYPE
- DUPLEX RECEPTACLE, FLOOR MOUNTED, ISOLATED GROUND TYPE
- SPECIAL RECEPTACLE TYPE AS NOTED
- J — JUNCTION BOX: RECESSED OR CEILING MOUNTED
- J — JUNCTION BOX: WALL MOUNTED
- TELEPHONE OUTLET: WALL MOUNTED AT +54"
- COMBINATION TELEPHONE/DATA OUTLET: WALL MOUNTED
- COMBINATION TELEPHONE/DATA OUTLET: FLOOR MOUNTED
- DATA OUTLET: WALL MOUNTED

CIRCUITING AND WIRING

- CIRCUIT/CONDUIT EXPOSED, 3/4"C, UNO
- CIRCUIT/CONDUIT CONCEALED IN WALL OR CEILING, 3/4"C MIN UNO
- CIRCUIT/CONDUIT BELOW SLAB OR GRADE
- LA1–2,4 / GROUND / ISOLATED GROUND — HOMERUN TO PANEL WITH CIRCUIT NUMBERS AS INDICATED. SHORT HASH MARKS INDICATE QUANTITY OF #12 CONDUCTORS IN CODE SIZE CONDUIT. LONG HASH MARK INDICATES NEUTRAL CONDUCTOR. NO HASH MARKS INDICATE 3#12 (2#12 & 1#12G.) IN 3/4" CONDUIT, TYP UNO
- CONDUIT STUB UP
- CONDUIT STUB DOWN
- CONDUIT STUB–OUT WITH CAP
- FLEXIBLE CONDUIT
- E — UNDERGROUND ELECTRICAL DUCT BANK
- T — TELEPHONE LINE
- PB — PULL BOX
- E — ELECTRICAL POWER MANHOLE
- C — COMMUNICATION MANHOLE
- H — HANDHOLE
- T — TRANSFORMER, PAD MOUNTED

PROJECT STATUS: BID SET 05/26/09

ISSUE			
MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	SYMBOL DESCRIPTION CHANGED	NZ

DRAWN	S. KANDA	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PRELIMER	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
R&DA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

ELECTRICAL SYMBOLS

SIZE	CAGE CODE		REV
D	25307	A232-0800- E001	A
SCALE		INDEX SHEET OF	

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ABBREVIATIONS

A	AMPERE
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERES INTERRUPTING CAPACITY (RMS SYMMETRICAL)
APPROX	APPROXIMATELY
AS	AMPERE SWITCH
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
BC	BARE COPPER
BKBD	BACKBOARD
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CCTV	CLOSE CIRCUIT TELEVISION
CIRC	CIRCULAR, CIRCUIT
CKT	CIRCUIT
℄	CENTERLINE
CLG	CEILING
CO	CONTRACTING OFFICER
COMM	COMMUNICATIONS
CONC	CONCRETE
CONT	CONTINUED
CONT'L	CONTROL
CONTR	CONTROLLER
COTR	CONTRACTING OFFICER TECHNICAL REPRESENTATIVE.
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
DDC	DIRECT DIGITAL CONTROL
DET	DETAIL
DF	DEMAND FACTOR
DIA	DIAMETER
DISC	DISCONNECT
DIST	DISTRIBUTION
DTC	DATA TERMINAL CABINET
DVR	DIGITAL VIDEO RECORDER
DWG	DRAWING
DWP	DEPARTMENT OF WATER AND POWER
E	EXISTING
E/G	EMERGENCY GENERATOR
ELEC	ELECTRICAL
EMH	ELECTRICAL MANHOLE
EPO	EMERGENCY POWER OFF
EPU	EMERGENCY POWER UNIT
EQUIP	EQUIPMENT
EES	EARTH ELECTRODE SYSTEM
EXIST	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
FL, FLR	FLOOR
FLUOR	FLUORESCENT
FO	FIBER OPTIC
FOT	FIELD OPERATIONAL TEST
FT	FEET
GFCI	GOVERNMENT FURNISHED, CONTRACTOR INSTALLED
GFE	GOVERNMENT FURNISHED EQUIPMENT
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRN	GREEN
HID	HIGH INTENSITY DISCHARGE
HH	HANDHOLE
HPF	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HT	HEIGHT
HV	HIGH VOLTAGE
HZ	HERTZ
IC	INTERCOM
IG	ISOLATED GROUND
IN	INCHES
INCAND	INCANDESCENT
J-BOX	JUNCTION BOX
KA	KILO AMPERE
kcmil	THOUSAND CIRCULAR MILLS
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWH	KILOWATT-HOUR
L	LAN
LAN	LOCAL AREA NETWORK
LP	LAN PRINTER, LIGHTNING PROTECTION
LT	LIGHT
LTG	LIGHTING
LC	LIGHTING CONTROL
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANELBOARD
MDS	MAIN DISTRIBUTION SWITCHBOARD
MECH	MECHANICAL
MH	METAL HALIDE, MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MT	MOUNT
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
N.C.	NORMALLY CLOSE
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD
PA	PUBLIC ADDRESS
PB	PULLBOX
PIR	PASSIVE INFRARED
PNL	PANEL
PP	POWER PACK
PT	POTENTIAL TRANSFORMER
PTZF	PAN TILT ZOOM FOCUS
PVC	POLY VINYL CHLORIDE
REC	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RM	ROOM
REQ'D	REQUIRED
SCE	SOUTHERN CALIFORNIA EDISON
SCH	SCHEDULE
SHD	SHIELDED
SHT	SHEET
SMFO	SINGLE MODE FIBER OPTIC CABLE
SRG	SIGNAL REFERENCE GRID
SRL	SOUTHERN REGIONAL LAB
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
T, TEL	TELEPHONE
TB	TELEPHONE BACKBOARD
TBD	TO BE DETERMINED
TC	TERMINAL CABINET
TMC	TRANSPORTATION MANAGEMENT CENTER
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
U/G	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
VT	VOLTAGE TRANSFORMER
W	WATT
W/	WITH
WP	WEATHERPROOF
XP	EXPLOSION PROOF
XFMR	TRANSFORMER

GENERAL NOTES:

1. DO NOT SCALE ELECTRICAL DRAWINGS FOR FIXTURES, DEVICES OR APPLIANCE LOCATIONS. USE FIGURED DIMENSIONS IF GIVEN OR CHECK MECHANICAL AND ARCHITECTURAL PLANS.
2. REVIEW AND VERIFY MECHANICAL DRAWINGS FOR ABBREVIATION LIST AND EQUIPMENT CALLOUT. COORDINATE AND PROVIDE ALL POWER WIRING AND DEVICES AS REQUIRED FOR MECHANICAL EQUIPMENT SHOWN ON MECHANICAL DRAWINGS BUT NOT SHOWN ON THE ELECTRICAL DRAWINGS.
3. REFER TO MECHANICAL DRAWINGS FOR ABBREVIATION LIST, EQUIPMENT CALLOUT AND EXACT EQUIPMENT LOCATIONS.
4. VERIFY EXACT LOCATION AND DIMENSION OF ALL EQUIPMENT, FIXTURE OR OUTLETS WITH OTHER TRADES AND MANUFACTURERS PRIOR TO ROUGH-IN.
5. VERIFY POINT AND METHOD OF CONNECTION TO MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR IN FIELD PRIOR TO ROUGH-IN.
6. COORDINATE ALL ROOF PENETRATIONS WITH MECHANICAL CONTRACTOR. ENTER ROOF MOUNTED UNITS THROUGH EQUIPMENT MOUNTING CURBS WHERE POSSIBLE.
7. FUSE RATINGS OF ALL HVAC EQUIPMENT SHALL BE ACCORDING TO NAMEPLATE OF EACH RESPECTIVE EQUIPMENT OR MANUFACTURER RECOMMENDATION.
8. COORDINATE ELECTRIC AND TELEPHONE SERVICE WITH UTILITY COMPANIES. PROVIDE ALL TRENCHING, CONDUITS, CONDUCTORS, METER SOCKETS AND ANY OTHER FACILITIES REQUIRED BY THE UTILITY COMPANIES.
9. TRENCHING AND BACKFILLING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS FOR UNDERGROUND SYSTEM. ALL SITE WORK SHALL BE STAKED OUT FOR APPROVAL BY THE NASA CO. NO SITE WORK SHALL START UNTIL STAKE-OUT IS APPROVED BY THE NASA CO.
10. VISIT THE JOB SITE AND VERIFY EXISTING CONDITIONS BEFORE BIDDING AND INCLUDE ALL NECESSARY COST TO CONSTRUCT THIS PROJECT IN ACCORDANCE WITH THE INTENT OF THE ELECTRICAL DRAWINGS, SPECIFICATIONS, AND ALL APPLICABLE CODES.
11. SPECIFIC CARE SHALL BE TAKEN TO INSTALL EXPOSED SYSTEM TO ENSURE A NEAT AND WORKMAN LIKE FINAL INSTALLATION WITH ALL CONDUITS ROUTED TIGHT TO THE STRUCTURE AND PARALLEL TO OR 90 DEGREES TO STRUCTURAL MEMBERS. AFTER INSTALLATION IS COMPLETE, PROPERLY CLEAN ALL CONDUIT FITTINGS, J-BOXES AND SUPPORT BRACKETS.
12. ALL ELECTRICAL MATERIAL SHALL BE NEW AND LISTED BY THE UNDERWRITERS LABORATORIES INC. (UL) IF THE RESPECTIVE STANDARDS HAVE BEEN ESTABLISHED IN UL PUBLICATIONS.
13. ALL CONDUIT PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS SHALL BE SEALED WITH APPROVED SEALANT TO MAINTAIN FIRE SEPARATION RATING.
14. PROVIDE COMPLETE FUNCTIONAL SYSTEMS FOR HVAC, LEAK DETECTION, FMCS, AND OTHER MECHANICAL SYSTEMS WITH ALL LOW VOLTAGE CONTROL WIRING, INCLUDING THE CONDUIT AND WIRES AS PER DIVISION 23 AND RELATED MECHANICAL DRAWINGS. (A)
15. DO NOT INSTALL ANY POWER OR TELEPHONE OUTLETS BACK TO BACK IN STUD WALLS. LOCATE OUTLETS SUCH THAT THEY ARE SEPARATED BY A WALL STUD.
16. COORDINATE THE INSTALLATION OF ALL RECESSED LIGHT FIXTURES WITH MECHANICAL DUCTWORK PRIOR TO INSTALLATION OF HVAC DUCTS AND SPRINKLER HEADS. ENSURE THAT THERE IS NO CONTACT BETWEEN DUCTS AND FIXTURES AND AVOID REFLECTOR VIBRATION IN PARABOLIC FIXTURES.
17. PROVIDE NYLON PULL WIRE NOT LESS THAN 1/4" IN ALL EMPTY CONDUITS AND INNER DUCTS INSTALLED WITHIN CONDUIT.
18. PROVIDE GROUND WIRE IN ALL BRANCH CIRCUIT AND LIGHTING CONDUITS WHETHER OR NOT SPECIFICALLY SHOWN. THE GROUND WIRE SHALL BE SIZED IN ACCORDANCE WITH NEC.
19. ALL CIRCUIT BREAKERS & DISCONNECT SWITCHES SHOWN ON DRAWINGS ARE THREE POLE, UNLESS OTHERWISE NOTED.
20. ALL BUILDING EXTERIOR MOUNTED EQUIPMENT AND DEVICES SHALL BE IN NEMA 3R ENCLOSURE.
21. THE ELECTRICAL INSTALLATION SHALL COMPLY WITH THE 2008 NATIONAL ELECTRICAL CODE, 2007 CALIFORNIA ELECTRICAL CODE, AND ALL OTHER GOVERNING CODES AND ORDINANCES.
22. FOR ALL ELECTRICAL SWITCHBOARD AND PANELBOARD THE SPACE EQUAL TO THE WIDTH AND DEPTH OF THE EQUIPMENT AND EXTENDING FROM THE FLOOR TO A HEIGHT OF 6FT ABOVE THE EQUIPMENT OR TO THE STRUCTURAL CEILING, WHICHEVER IS LOWER, SHALL BE DEDICATED TO THE ELECTRICAL INSTALLATION. NO PIPING, DUCT OR EQUIPMENT FOREIGN TO THE ELECTRICAL INSTALLATION SHALL BE LOCATED IN THIS ZONE, AS INDICATED IN NEC 110.26F.
23. IN THE EVENT OF DISCREPANCY BETWEEN LIGHTING PLANS AND ARCHITECTURAL REFLECTED CEILING PLANS, THE ELECTRICAL PLAN DRAWINGS SHALL GOVERN. DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE CO.
24. UNLESS SPECIFICALLY SHOWN ON THESE PLANS NO STRUCTURAL MEMBER SHALL BE CUT, NEITHER DRILLED NOR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE NASA CO.
25. OUTLET BOXES ON OPPOSITE SIDES OF FIRE-RESISTIVE WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF 24 INCHES (CBC SECTION 709.7 EXCEPT #1).
26. PROVIDE THROUGH PENETRATION FIRESTOP SYSTEM AT ALL CONDUITS TO MATCH FIRE RATING OF GYPBOARD WALL. THE FIRESTOP SHALL BE UL SYSTEM NO. W-L-1085.
27. PROVIDE THROUGH PENETRATION FIRESTOP SYSTEM AT ALL CONDUITS PENETRATING THE FLOOR CONCRETE SLAB. THE FIRESTOP SHALL BE UL SYSTEM NO. C-AJ-1053.
28. PROVIDE THROUGH PENETRATION FIRESTOP SYSTEM AT ALL CABLE RUNS IN CABLE TRAYS TO MATCH FIRE RATING OF GYPBOARD WALLS. THE FIRE STOP SHALL BE UL SYSTEM NO. W-L-3218.
29. PROVIDE THROUGH PENETRATION FIRESTOP SYSTEM AT ALL CABLE RUNS IN CABLE TRAYS PENETRATING THE FLOOR CONCRETE SLAB. THE FIRESTOP SHALL BE UL SYSTEM NO. C-AJ-4069.
30. THE SEISMIC ANCHORAGE OF MECHANICAL AND ELECTRICAL EQUIPMENT SHALL CONFORM TO C.C.R. TITLE 24, 2001 CBC, SECTION 1632A AND TABLE 16A.O. ANCHORAGE DETAILS FOR ROOF FLOOR MOUNTED EQUIPMENT SHALL BE SHOWN ON PLANS. WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, OR APPROVED DURING PLAN REVIEW, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE CO PRIOR TO INSTALLATION AND INSPECTION BY THE COTR.
31. CUTTING, BORING, SAWCUTTING OR DRILLING THROUGH THE NEW OR EXISTING STRUCTURAL ELEMENTS TO BE DONE ONLY WHEN SO DETAIL IN THE DRAWINGS OR ACCEPTED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD WITH THE APPROVAL OF CO. ALL WELDING SHALL BE SPECIALLY INSPECTED BY AN AWS-CWI QUALIFIED INSPECTOR. ALL BRACING OF DUCTS AND PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE SMACNA GUIDELINES. WHEN BRACING DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT, MECHANICAL ENGINEER AND FIELD ENGINEER. A COPY OF THE GUIDELINES PUBLISHED BY SMACNA SHALL PROVIDED BY THE CONTRACTOR AND KEPT ON THE JOB AT ALL TIMES. SEISMIC BRACING AND RESTRAINTS MUST CONFORM TO SMACNA:

    SHL C – FOR 1ST FLOOR APPLICATIONS
    SHL A – FOR 2ND FLOOR APPLICATIONS
    SHL AA – FOR LOW ROOF APPLICATIONS

32. PROVIDE A MINIMUM 3" HIGH HOUSEKEEPING PAD FOR ALL EXTERIOR FLOOR MOUNTED SWITCHGEAR, DISTRIBUTION BOARDS, TRANSFORMERS, MOTOR CONTROL CENTERS ETC FLUSH WITH THE FACE OF THE EQUIPMENT. PROVIDE A MINIMUM 3" HIGH HOUSEKEEPING PAD FOR ALL INTERIOR FLOOR MOUNTED SWITCHGEAR, DISTRIBUTION BOARDS, TRANSFORMERS, MOTOR CONTROL CENTERS, TRANSFER SWITCHES ETC LOCATED IN CENTRAL PLANT FLUSH WITH THE FACE OF THE EQUIPMENT. CONFIRM PAD DIMENSIONS WITH LOCAL INSPECTOR PRIOR TO FORMING PAD TO ENSURE ANY LOCAL CODE INTERPRETATIONS OR CONDITIONS REGARDING HOUSEKEEPING PADS ARE MET.
33. PROVIDE TEMPORARY CONSTRUCTION POWER. ROUTE CONNECTION THROUGH COMMON UNDERGROUND DUCT TO CONSTRUCTION SITE UNDER ARNOLD AVE. A MAXIMUM OF 350 AMPERES OR 300KVA EQUIVALENT IS AVAILABLE TO THE CONTRACTOR DURING CONSTRUCTION OF N232. OBTAIN THE POWER AT MAIN ELECTRICAL PANEL MDP, WHICH IS LOCATED OUTDOOR OF THE CHILD CARE FACILITY, N270. THE CONTRACTOR IS TO INSTALL A 350 AMPERES, 480V 3 PHASE BOLTED ON TYPE CIRCUIT BREAKER WITH GROUND FAULT INTERRUPTER IN THE SPACE OF MDP. AFTER PROJECT IS DONE, CIRCUIT BREAKER TO REMAIN IN MDP AND MARKED AS SPARE FOR FUTURE USE. CONDUCTORS IN UNDERGROUND DUCT USED FOR TEMPORARY POWER ARE TO BE REMOVED AFTER CONSTRUCTION AND REMAINING CONDUIT TO BE MARKED "SPARE".

PROJECT STATUS: BID SET 05/26/09

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A	05/26/09	NOTES CHANGED	NZ

DRAWN	S. KANDA	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PROJ.MGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
R&QA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

ABBREVIATIONS AND GENERAL NOTES

SIZE: D | CAGE CODE: 25307 | A232-0800- E002 | REV: A

SCALE | INDEX | SHEET OF

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Xrefs: "XBDR" "ArnoldAve-existing utilities

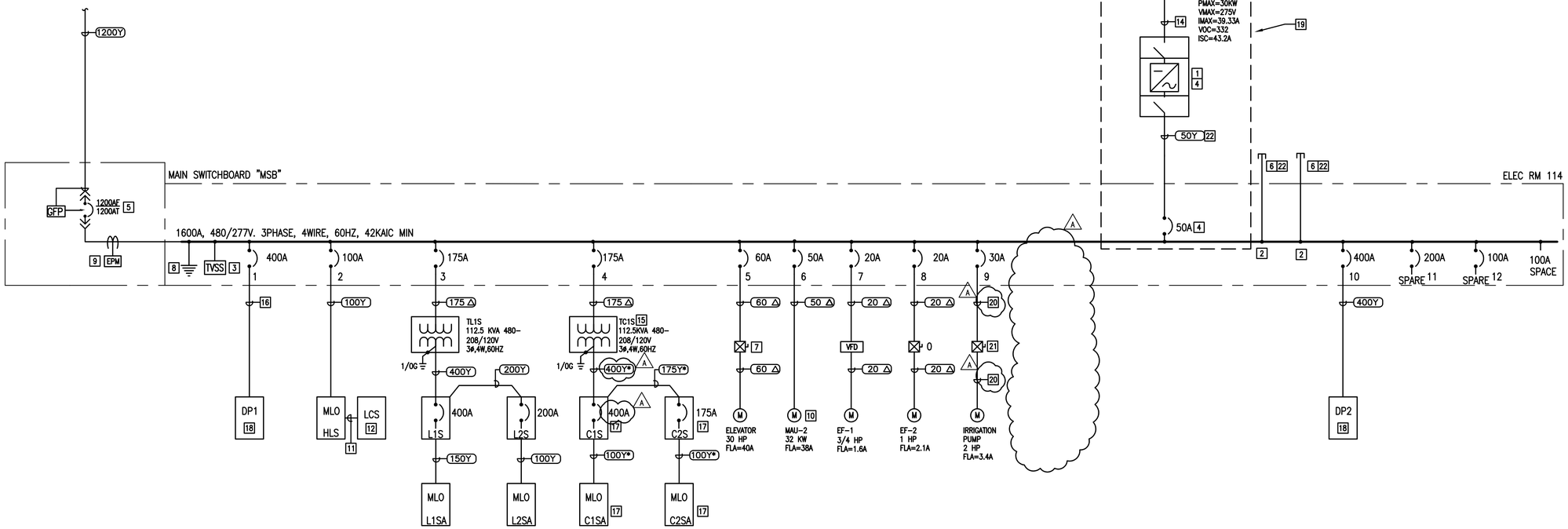
GENERAL NOTES:

1. SEE SHEET E001 AND E002 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
2. SEE SHEET E120 FOR FEEDER SCHEDULE.

PLAN NOTES:

1. PROVIDE SATCON OR APPROVED EQUAL 30KW INVERTER AT 3 PHASE, 480VAC OUTPUT WITH INTEGRAL GROUND-FAULT PROTECTION DEVICE, FUSED AC AND DC DISCONNECTS, AND OPTIONAL DC STRING COMBINER.
2. PROVIDE SPACE FOR 150A BREAKER FOR FUTURE INVERTER.
3. PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSION INTEGRAL WITH SWITCHBOARD AS PER SPEC SECTION 264313.
4. PHOTOVOLTAIC SYSTEM'S DISCONNECTING MEANS SHALL COMPLY WITH NEC 690 FOR WARNING LABELS INCLUDING WARNING LABEL TO READ "WARNING ELECTRICAL SHOCK HAZARD. DO NOT TOUCH TERMINALS ON BOTH THE LINE AND LOAD SIDES. MAY BE ENERGIZED IN OPEN POSITION." AND SHALL BE SERVICE RATED.
5. PROVIDE DRAWOUT MAIN BREAKER WITH DIGITRIP OR EQUIVALENT MICROPROCESSOR BASED PROTECTIVE RELAY WITH LSIG TRIP OPTIONS.
6. PROVIDE 2 1/2" CONDUIT TO ROOF FOR FUTURE INVERTER. CAP AND SEAL AT 6" ABOVE ROOF. SEE E431 AND E432 FOR LOCATION OF INVERTERS. (A)
7. PROVIDE BUSSMAN POWER MODULE SWITCH #PS6-T48-R1-K-G-A-F1 OR APPROVED EQUIVALENT.
8. SEE 6/E906 AND 1/E907 FOR GROUNDING DETAIL.
9. SOLID STATE MULTI-FUNCTION METER.
10. UNIT CONTROLLER AND DISCONNECT PROVIDED BY DIVISION 23.
11. PROVIDE POWER AND CONTROL WIRING FOR BRANCH CIRCUIT TO ADDRESSABLE BALLASTS AS SHOWN IN INSTALLATION GUIDE. SEE E905. (A)
12. LIGHTING CONTROL HUB. PROVIDE 120V POWER CONNECTION FROM LIFE SAFETY INVERTER IN ELEC RM 114. SEE E905.
13. CONNECT EVERY 5 SOLAR MODULES IN SERIES WITH A TOTAL OF 9 PARALLEL CIRCUITS.
14. PROVIDE (9) 3/4"C WITH 2#6 AND 1#10G THWN-2, 90°C. PROVIDE CONNECTION TO DC STRINGER COMBINER OF INVERTER.
15. PROVIDE K-13 RATED TRANSFORMER.
16. SEE KEYNOTE #4 ON E140. (A)
17. PROVIDE (2) GROUND BUS BARS. (1) FOR ISOLATED GROUND BUS BAR AND (1) FOR EQUIPMENT GROUND BUS BAR. FOR ISOLATED GROUND BUS BAR DO NOT BOND CONNECTION TO NEUTRAL BUS BAR . PROVIDE CONNECTION FROM ISOLATED GROUND BUS BAR DIRECTLY TO COMMON GROUNDING POINT OF SEPARATELY DERIVED SOURCE.
18. SEE E112 FOR DISTRIBUTION PANELBOARD SINGLE LINE.
19. PROVIDE AS BID OPTION #1. (A)
20. PROVIDE 3#10 AND 1#10 GROUND IN 1" PVC CONDUIT. SEE E140.
21. CONTROLLER WITH INTEGRAL DISCONNECT PROVIDED BY SYSTEM INSTALLER.
22. PROVIDE 1" CONDUIT TO INVERTER FOR REMOTE COMMUNICATION. PROVIDE CONNECTION TO NEAREST COMMUNICATION ROOM.

SEE E110 FOR CONTINUATION



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Ames Research Center
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N232 COLLABORATIVE SUPPORT FACILITY

SINGLE LINE DIAGRAM

SIZE	CAGE CODE		REV
D	25307	A232-0800- E111	A
SCALE		INDEX SHEET OF	

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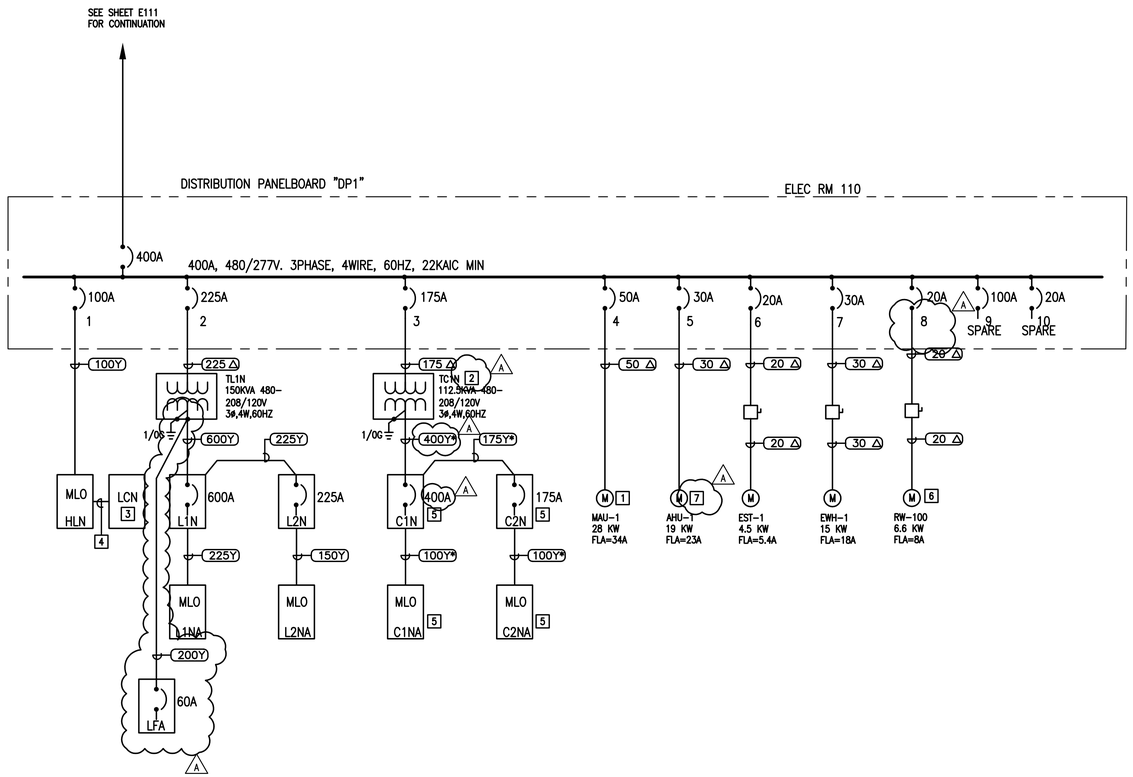
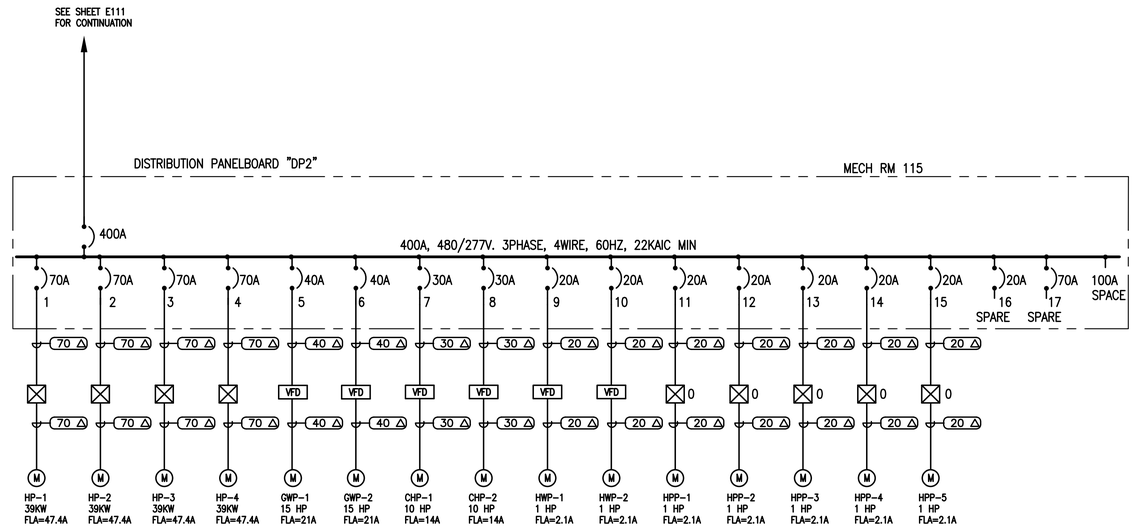
GENERAL NOTES:

1. SEE SHEET E001 AND E002 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
2. SEE SHEET E120 FOR FEEDER SCHEDULE.

PLAN NOTES:

1. UNIT CONTROLLER AND DISCONNECT PROVIDED BY DIVISION 23.
2. PROVIDE K-13 RATED TRANSFORMER.
3. LIGHTING CONTROL HUB. PROVIDE 120V POWER CONNECTION FROM LIFE SAFETY INVERTER IN ELEC RM 107. SEE E905.
4. PROVIDE POWER AND CONTROL WIRING FOR BRANCH CIRCUIT TO ADDRESSABLE BALLASTS AS SHOWN IN INSTALLATION GUIDE. SEE E905.
5. PROVIDE (2) GROUND BUS BARS. (1) FOR ISOLATED GROUND BUS BAR AND (1) FOR EQUIPMENT GROUND BUS BAR. FOR ISOLATED GROUND BUS BAR DO NOT BOND CONNECTION TO NEUTRAL BUS BAR . PROVIDE CONNECTION FROM ISOLATED GROUND BUS BAR DIRECTLY TO COMMON GROUNDING POINT OF SEPARATELY DERIVED SOURCE.
6. CONTROLLER PROVIDED BY DIVISION 23.
7. UNIT CONTROLLER AND DISCONNECT PROVIDED BY DIVISION 23.





PROJECT STATUS

BID SET 05/26/09

ISSUE

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	NOTES AND EQUIPMENT CHANGES	NZ

DRAWN	S. KANDA	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PROJMGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
RLGA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

SINGLE LINE DIAGRAM

SIZE	CAGE CODE			REV
D	25307	A232-0800-	E112	A

SCALE | INDEX | SHEET | OF

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Xrefs: "Xmoldive-existing utilities" "XBDR-SHORT

CONDUIT AND WIRE SCHEDULE

FEEDER NUMBER	PARALLEL FEEDER	WIRE QTY & SIZE	NEUTRAL SIZE	GROUND SIZE	CONDUIT SIZE
20 △	1	3#12		1#12	3/4"
30 △	1	3#10		1#10	3/4"
40 △	1	3#8		1#10	3/4"
50 △	1	3#6		1#10	3/4"
60 △	1	3#4		1#8	1"
70 △	1	3#4		1#8	1"
80 △	1	3#4		1#8	1 1/4"
150 △	1	3-1/0		1#6	1 1/2"
175 △	1	3-2/0		1#6	2"
225 △	1	3-4/0		1#4	2"
400 △	1	3-500KCMIL		1#2	4"
500 △	1	3-500KCMIL		1#2	4"
25Y	1	3#12	3#12	1#10	3/4"
50Y	1	3#8	3#8	1#10	3/4"
70Y	1	3#4	1#4	1#8	1 1/4"
90Y	1	3#2	1#2	1#8	1 1/4"
100Y	1	3#1	1#1	1#8	1 1/2"
100Y*	1	3#1	2#1	1#8	2"
150Y	1	3#-1/0	1#-1/0	1#6	2"
175Y	1	3#-2/0	1#-2/0	1#6	2"
175Y*	1	3#-2/0	2#-2/0	1#6	2"
200Y	1	3#-4/0	1#-4/0	1#6	2 1/2"
225Y	1	3#-4/0	1#-4/0	1#6	2 1/2"
300Y	1	3-350KCMIL	1-350KCMIL	1#4	3"
300Y*	1	3-350KCMIL	2-350KCMIL	1#4	4"
350Y	1	3-500KCMIL	1-500KCMIL	1#2	4"
350Y*	1	3-500KCMIL	2-500KCMIL	1#2	4"
400Y	1	3-500KCMIL	1-500KCMIL	1#2	4"
400Y*	1	3-500KCMIL	2-500KCMIL	1#2	4"
600Y	2	3-350KCMIL	1-350KCMIL	1#4	3"
1200Y	4	3-350KCMIL	1-350KCMIL	1#-3/0	4"

A

A

GENERAL NOTES:

1. SEE SHEET E001 AND E002 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

PROJECT STATUS

BID SET 05/26/09

ISSUE

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	ADDITION OF FEEDER SIZE	NZ

DRAWN	S. KANDA	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PROJMGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
RLQA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FEEDER SCHEDULE

SIZE	CAGE CODE			REV
D	25307	A232-0800-	E120	A

SCALE | INDEX | SHEET OF

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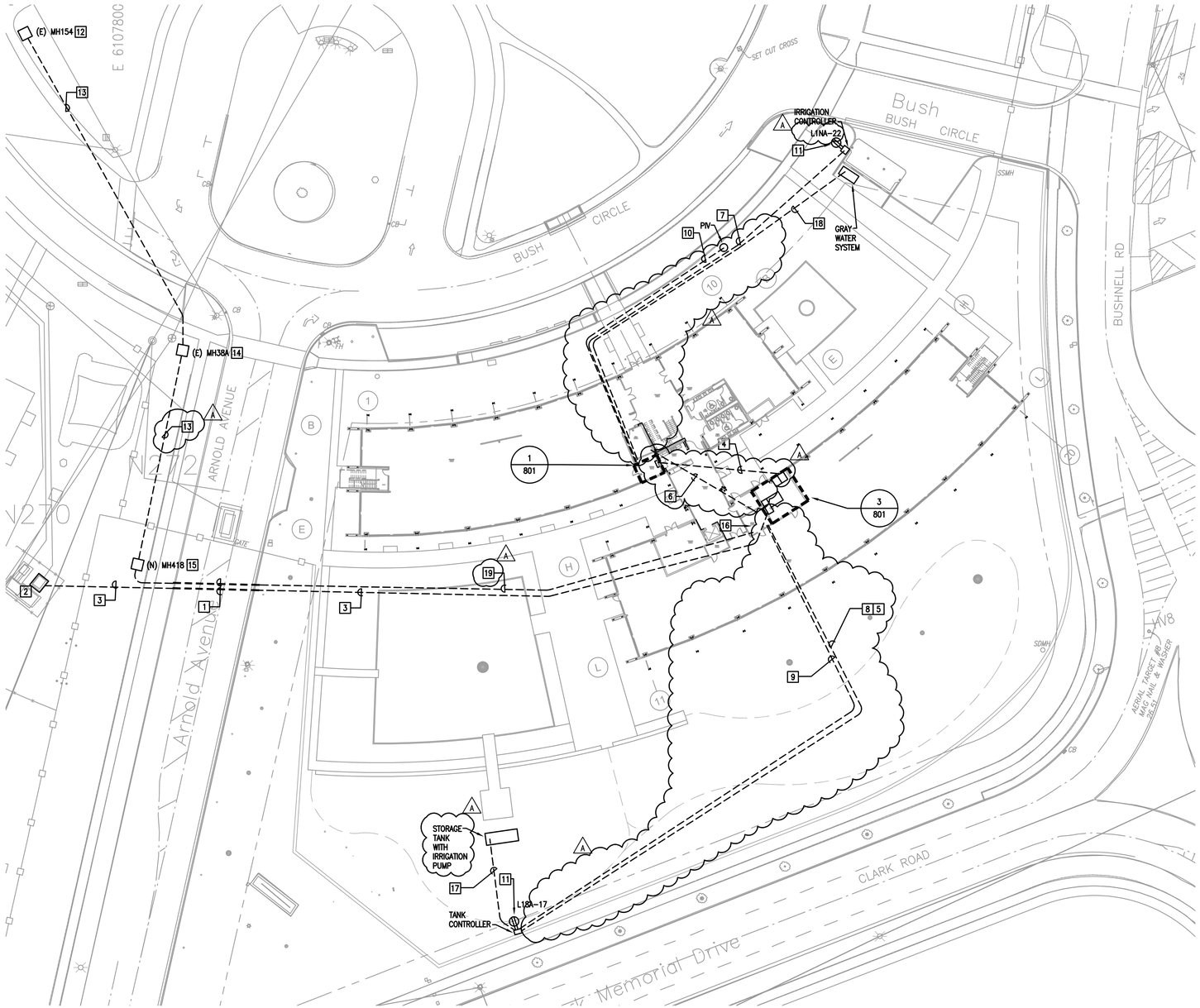

GENERAL NOTES:

1. SEE SHEET E001 AND E002 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
2. PROVIDE PULL WIRE IN SPARE CONDUITS.
3. EXISTING CONDUITS AND DUCT BANKS TO REMAIN UNLESS OTHERWISE NOTED.
4. COORDINATE NEW UTILITY WORK WITH ALL EXISTING UTILITY WORK.
5. PROTECT EXISTING ELECTRICAL AND COMMUNCATION CONDUITS DURING CONSTRUCTION.

PLAN NOTES:

1. PROVIDE JACKED RIGID STEEL CASING SLEEVES UNDER ACCESS ROAD FOR CONDUITS USING CORE DRILL. DO NOT DISTURB EXISTING ACCESS ROAD.
2. EXISTING SWITCH #691 MANHOLE 223.
3. PROVIDE (2) 4"CONDUIT CONCRETE INCASED DUCTBANK. (1) 4" CONDUIT CONTAINING 3-1/C #350MCM CABLE AT 15KV, EPR, AND 133% INSULATED AND (1) 4" CONDUIT FOR SPARE. SEE 3/E906.
4. PROVIDE (2) 4" PVC COATED RIGID GALVANIZED STEEL CONDUITS. PROVIDE (1) 4" CONDUIT WITH 4#500KCMIL CABLE AND 1#1 GROUND AND (1) 4" CONDUIT FOR SPARE. RUN CONDUIT BELOW STRUCTURAL FOOTINGS.
5. PROVIDE 1" PVC CONDUIT WITH 2#10 AND 1#10G FOR RECEPTACLE. CONNECT TO L1SA-17.
6. PROVIDE (2) 4" PVC COATED RIGID GALVANIZED STEEL CONDUITS FOR COMMUNICATION. RUN CONDUIT BELOW STRUCTURAL FOOTINGS.
7. PROVIDE 1" PVC CONDUIT WITH 2#10 AND 1#10 GROUND FOR IRRIGATION CONTROL SYSTEM. CONNECT TO IRRIGATION SYSTEM AND PROVIDE POWER CONNECTION TO L1NA-22. DIRECT BURY MINIMUM OF 18" BELOW FINISHED GRADE. COORDINATE EXACT LOCATION WITH SYSTEM INSTALLER. SEE L501.
8. PROVIDE 1" PVC CONDUIT WITH FOR IRRIGATION TANK PUMP CONTROLLER. DIRECT BURY MINIMUM OF 18" BELOW FINISHED GRADE. STUB AT LOCATION OF PUMP CONTROLLER PAD. COORDINATE EXACT LOCATION WITH SYSTEM INSTALLER. SEE E111 AND L502.
9. PROVIDE 1" PVC CONDUIT WITH TELEPHONE CONNECTION FOR IRRIAGTION PUMP MONITORING. DIRECT BURY MINIMUM OF 18" BELOW FINISHED GRADE. STUB AT LOCATION OF PUMP CONTROLLER PANEL. COORDINATE EXACT LOCATION WITH SYSTEM INSTALLER AND TELECOMMUNCATIONS INSTALLER. PROVIDE CONDUIT CONNECTION TO ROOM 113.
10. PROVIDE 1" PVC CONDUIT FROM FIRE ALARM CONTROL PANEL TO POST INDICATOR VALVE. PROVIDE FLEXIBLE CONNECTION FROM ABOVE GRADE WEATHERPROOF J-BOX TO POST INDICATOR VALVE. COORDINATE WITH CIVIL ENGINEER DRAWINGS FOR LOCATION AND EXACT CONNECTION.
11. PROVIDE GFI RECEPTACLE IN WEATHERPROOF ENCLOSURE. MOUNT ON POLE BELOW CONTROLLER.
12. EXISTING MH 154. CORE DRILL (6) 4" DIAMETER HOLES INTO MANHOLE WALL. COORDINATE HOLE LOCATIONS WITH THE CONTRACTING OFFICER.
13. PROVIDE (6) 4" CONDUITS, CONCRETE ENCASED DUCT BANK FOR COMMUNICATIONS.
14. REPLACE EXISTING 4'X4'X4' DEEP, MH 38A WITH A 3'-9"X 6'-9"X 3'-9" DEEP, PRECAST CONCRETE MANHOLE. CORE DRILL A TOTAL OF (12) 4" AND (4) 3" DIAMETER HOLES IN NEW MANHOLE. COORDINATE HOLE LOCATIONS WITH THE CONTRACTING OFFICER.
15. INSTALL A 3'-9" X 6'-9"X 3'-9" DEEP, PRECAST CONCRETE MANHOLE. CORE DRILL A TOTAL OF (8) 4" DIAMETER HOLES IN NEW MANHOLE. COORDINATE HOLE LOCATIONS WITH THE CONTRACTING OFFICER. NEW MANHOLE WILL BE MH 418.
16. INSTALL (2) 4" RISERS IN ROOM 113. EXACT LOCATION OF RISERS SHALL BE COORDINATED WITH THE CONTRACTING OFFICER.
17. PROVIDE 1" PVC CONDUIT FROM IRRIGATION TANK PUMP CONTROLLER TO STORAGE TANK FOR MOTOR CONNECTION. DIRECT BURY MINIMUM OF 18" BELOW FINISHED GRADE. CONNECT TO POLE MOUNTED CONTROLLER. COORDINATE EXACT LOCATION WITH SYSTEM INSTALLER. SEE E111 FOR SIZE OF CONDUCTORS AND L502 FOR SYSTEM DETAIL. CONNECTIONS FOR OTHER CONTROLS TO BE PROVIDED BY SYSTEM INSTALLER.
18. PROVIDE 1" PVC CONDUIT WITH 5#10 AND 1#10G FOR GRAY WATER SYSTEM EQUIPMENT DYT-1 AND AYF-1. DIRECT BURY MINIMUM OF 18" BELOW FINISHED GRADE. CONNECT TO PANEL L1NA CIRCUIT #32,34,36 FOR DYT-1 AND AND 38 FOR AYF-1 AND RECEPTACLE. COORDINATE EXACT LOCATION WITH SYSTEM INSTALLER.
19. PROVIDE (2) 4" CONDUIT CONCRETE ENCASED DUCT BANK FOR COMMUNICATIONS. SEE 7/E906.

KEY PLAN

NORTH ARROW

BLDG NORTH (TRUE NORTH)

1"=30'-0" (0, 15, 30, 60, 90)

PROJECT STATUS

BID SET 05/26/09

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	NOTES, CIRCUIT AND ROUTING CHANGES	NZ

		DATE
DRAWN	S. KANDA	
DESIGNED	N. ZECH	
CHECKED	D. KING	
PRELIMNR	J. GRANT	
REQUESTOR	R. SCHULER	
NASA		
SAFETY		
SUPERVISOR	S FRANKEL	

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

ELECTRICAL POWER AND COMMUNICATIONS SITE PLAN

SIZE	CAGE CODE		REV
D	25307	A232-0800- E140	A
SCALE		INDEX SHEET OF	

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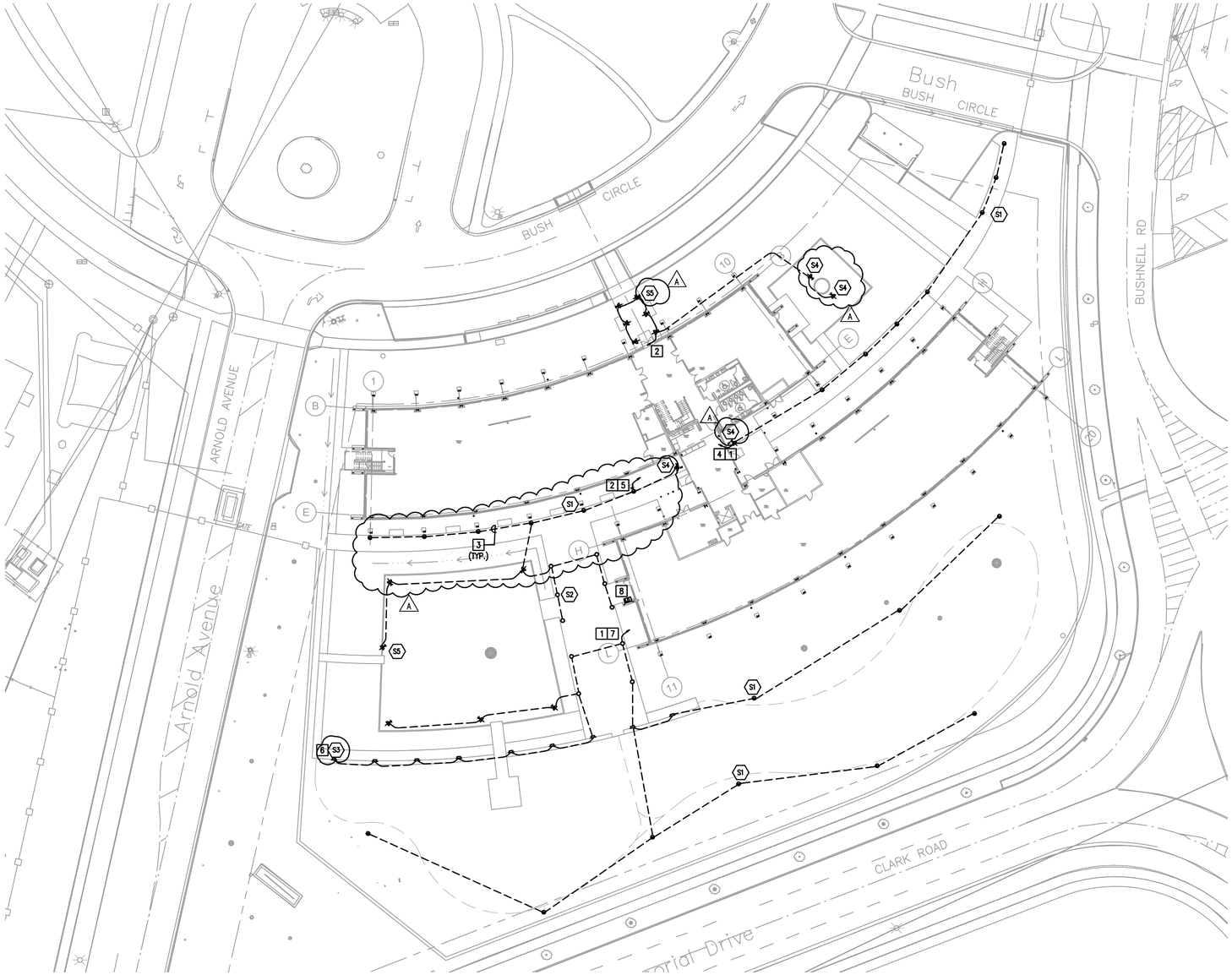


GENERAL NOTES:

1. SEE SHEET E001 AND E002 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

PLAN NOTES:

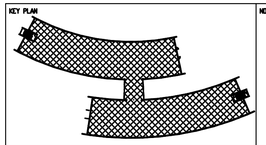
1. PROVIDE CONNECTION TO LIFE SAFETY INVERTER IN ELECTRICAL ROOM 114
2. PROVIDE CONNECTION TO LIFE SAFETY INVERTER IN ELECTRICAL ROOM 107
3. PROVIDE 1" CONDUIT WITH 2#10 AND 1#12G.
4. PROVIDE CONNECTION TO LCS AND PROGRAM TO BE ON ASTRONOMICAL CLOCK.
5. PROVIDE CONNECTION TO LCN AND PROGRAM TO BE ON ASTRONOMICAL CLOCK.
6. SEE LANDSCAPE DRAWINGS FOR RETAINER WALL DETAIL. INSTALL LIGHT FIXTURE PER MANUFACTURERS INSTALLATION INSTRUCTIONS. (A)
7. LIGHTS TO BE CONTROLLED BY SWITCH LOCATED AT SOUTH WING WEST ENTRANCE. SEE KEYNOTE #8.
8. PROVIDE LIGHT SWITCH IN WEATHERPROOF ENCLOSURE TO CONTROL SOUTH END LIGHTS. SEE KEYNOTE #7. PROVIDE CONNECTION TO LIGHTING CONTROL SYSTEM. (A)

SITE LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER, OR APPROVED EQUAL	MODEL NUMBER	BALLAST	INPUT WATTAGE	VOLTAGE	LAMP	MOUNTING	MOUNTING HEIGHT	NOTES
S1	ERCO MIDIPOLI BOLLARD	3333.023	LED DRIVER	10	120	LED	MOUNTED IN GROUND	GROUND LEVEL	SEE 2/E908
S2	ERCO FLOOR WASHLIGHT	33768.023	LED DRIVER	0.5	120	LED	MOUNTED RECESSED IN PAVEMENT	GROUND LEVEL	
S3	ERCO RETAINER WALL WASHLIGHT	33768.023	LED DRIVER	14	120	LED	RECESSED IN RETAINER WALL 10'-0" ON CENTER	12" AFF IN RETAINER WALL	
S4	ERCO GRASSHOPPER PROJECTOR	34022.023	ELECTRONIC	20	120	LED	MOUNTED GROUND LEVEL USING GROUND SPIKE	GROUND LEVEL	
S5	ERCO GRASSHOPPER PROJECTOR	34022.023	ELECTRONIC	20	120	LED	MOUNTED GROUND LEVEL USING GROUND SPIKE	GROUND LEVEL	PROVIDE SPHEROLIT REFLECTOR, SPOT.

NOTES:
PROVIDE ACCESSORIES AND CONTROL MODULES AS NECESSARY FOR LIGHT FIXTURES AND INSTALL PER MANUFACTURERS INSTALLATION GUIDE.

KEY PLAN



NORTH ARROW

1"=30'-0" 0 15 30 60 90

PROJECT STATUS

BID SET 05/26/09

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	NOTES AND FIXTURE LOCATION CHANGES	NZ

DRAWN	S. KANDA	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PRELIMER	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
R&DA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

ELECTRICAL LIGHTING SITE PLAN

SIZE	CAGE CODE		REV
D	25307	A232-0800- E141	A
SCALE		INDEX	SHEET OF

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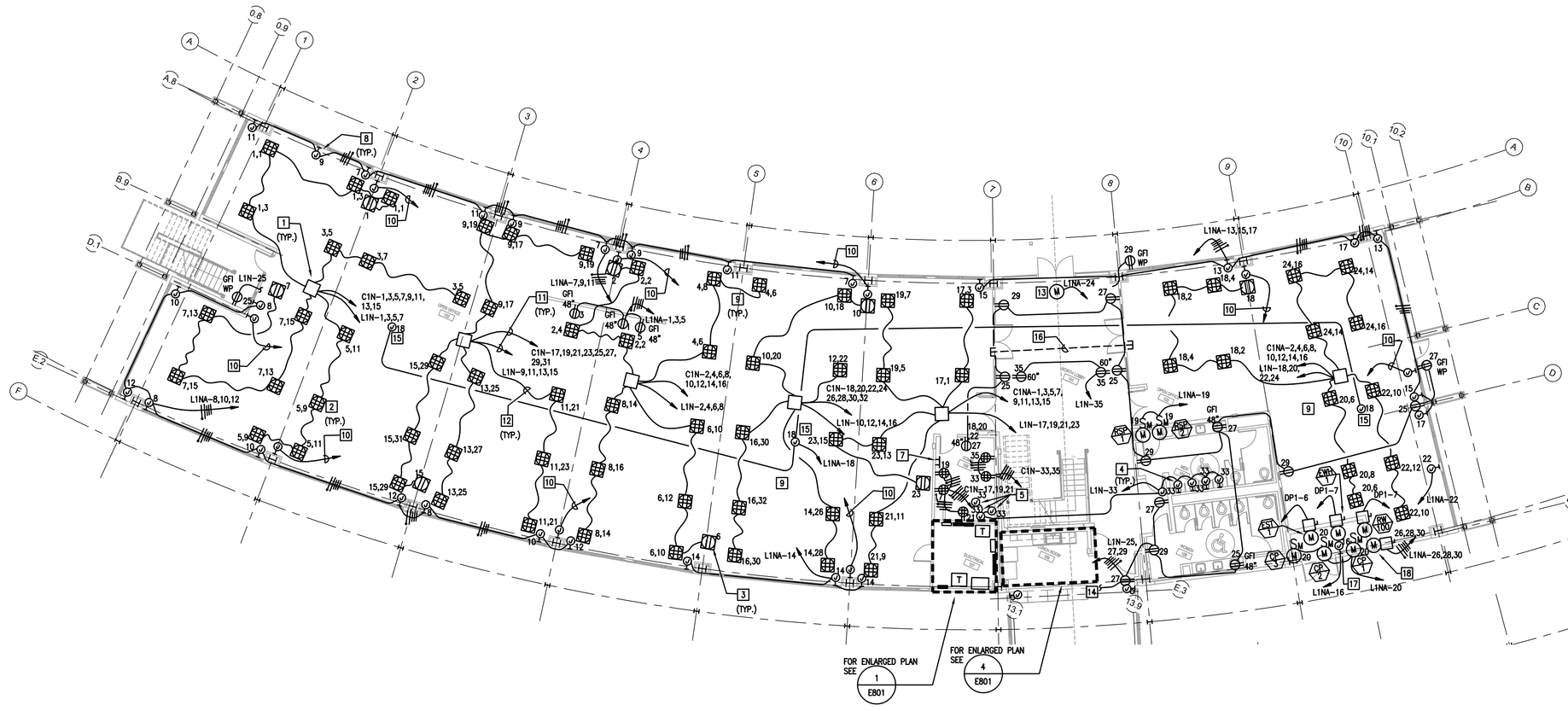

GENERAL NOTES:

1. SEE SHEET E001 AND E002 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
2. "C" PANELS ARE DEDICATED FOR COMPUTER LOADS AND "L" PANELS ARE FOR MISCELLANEOUS LOADS.

PLAN NOTES:

1. POWER DISTRIBUTION MODULE (PDM). SEE 3/E907.
2. PROVIDE RAISED FLOOR BOX WITH (3) DUPLEX RECEPTACLES AND (2) DATA AND (1) TELEPHONE JACK. SEE 4/E907. ONE DUPLEX RECEPTACLE TO BE MARKED AND PROVIDED FOR COMPUTER LOADS AND THE OTHER (2) TO BE PROVIDED FOR MISC. LOADS. SEE E511 FOR TELECOMMUNICATION CONNECTIONS.
3. PROVIDE RAISED FLOOR BOX WITH (1) DUPLEX RECEPTACLE.
4. PROVIDE 120V POWER TO URINAL ACTUATION VALVE SENSOR POWER SUPPLY BOX RECESSED IN WALL. COORDINATE WITH INSTALLER.
5. PROVIDE 120V POWER CONNECTION TO FIRE/SMOKE DAMPER. COORDINATE WITH DIVISION 23.
6. NOT USED.
7. GROUND BAR. COORDINATE LOCATION WITH EQUIPMENT. SEE 6/906.
8. PROVIDE 120V CONNECTION FOR MECHO SHADE B1 CONTROLLER AND MOTOR OR APPROVED EQUAL TO SHADE CONTROL SYSTEM. COORDINATE WITH SHADE INSTALLER.
9. PROVIDE GROUNDING TO UNDERFLOOR PEDESTAL SYSTEM IN AREAS WITH RAISED FLOOR PER MANUFACTURERS RECOMMENDATIONS. SEE 1/E906 FOR PEDESTAL BOND DETAIL.
10. PROVIDE 24VDC CONNECTION FOR FUNCTIONAL FENESTRATION RBO4 RELAY BOX OR APPROVED MOTORIZED WINDOW CONTROL SYSTEM FOR MOTORIZED WINDOWS. PROVIDE CONDUIT AND CONDUCTOR SIZE PER MANUFACTURERS RECOMMENDATIONS. PROVIDE CONNECTION TO ELECTRICAL ROOM 207. CONNECT TO POWER SUPPLY LOCATED IN POWER SUPPLY CABINET. SEE E802.
11. HOMERUN FOR PDM. SEE 6/E907.
12. ACCESS FLOOR BOX CONNECTOR. SEE 5/E907.
13. MOTORIZED DOOR OPENER.
14. SEE E801 FOR CONTINUATION OF CIRCUIT.
15. PROVIDE 120V CONNECTION TO FMCS FIELD PANEL LOCATED UNDERSIDE OF DECK. COORDINATE WITH FMCS INSTALLER. SEE M501.
16. PROVIDE (10) 4" CONDUITS BELOW CONCRETE SLAB SPACED 18 INCHES APART ON CENTER FOR FUTURE POWER. STUB UP AT BEGINNING OF RAISED FLOOR AREA.
17. PROVIDE 120V CONNECTION FOR OZONE CONTROL PANEL. VERIFY LOCATION WITH SYSTEM INSTALLER.
18. OZONE CIRCULATION PUMP. VERIFY LOCATION WITH SYSTEM INSTALLER.

PROJECT STATUS

BID SET 05/26/09

ISSUE			
MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	REVISED PLAN NOTE 16	HZ

KEY PLAN

NORTH ARROW

BLDG NORTH / TRUE NORTH

3/32"=1' 0 8 16 32 48

DRAWN	S. KANDA	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PRELIMGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
R&DA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRST FLOOR POWER PLAN NORTH WING

SIZE	CAGE CODE		REV
D	25307	A232-0800- E411	A
SCALE		INDEX SHEET OF	

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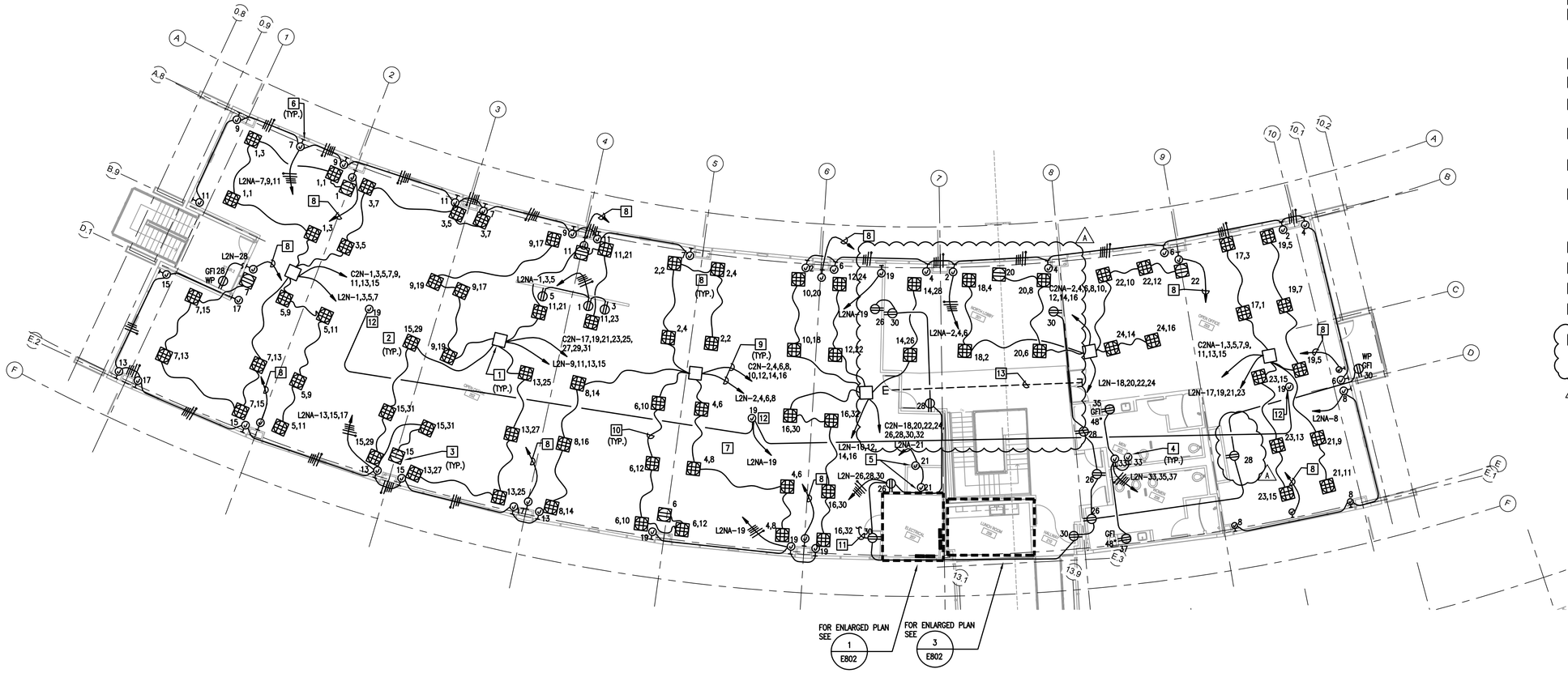


GENERAL NOTES:

1. SEE SHEET E001 AND E002 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
2. "C" PANELS ARE DEDICATED FOR COMPUTER LOADS AND "L" PANELS ARE FOR MISCELLANEOUS LOADS.

PLAN NOTES:

1. POWER DISTRIBUTION MODULE (PDM). SEE 3/E907.
2. PROVIDE RAISED FLOOR BOX WITH (3) DUPLEX RECEPTACLES AND (2) DATA AND (1) TELEPHONE JACK. SEE 4/E907. ONE DUPLEX RECEPTACLE TO BE MARKED AND PROVIDED FOR COMPUTER LOADS AND THE OTHER (2) TO BE PROVIDED FOR MISC. LOADS. SEE E521 FOR TELECOMMUNICATION CONNECTIONS.
3. PROVIDE RAISED FLOOR BOX WITH (1) DUPLEX RECEPTACLE.
4. PROVIDE 120V POWER TO URNIAL ACTUATION VALVE SENSOR POWER SUPPLY BOX RECESSED IN WALL. COORDINATE WITH INSTALLER.
5. PROVIDE 120V POWER CONNECTION TO FIRE/SMOKE DAMPER. COORDINATE WITH DIVISION 23.
6. PROVIDE 120V CONNECTION FOR MECHO SHADE B1 CONTROLLER AND MOTOR OR APPROVED EQUAL TO SHADE CONTROL SYSTEM. COORDINATE WITH SHADE INSTALLER.
7. PROVIDE GROUNDING TO UNDERFLOOR PEDESTAL SYSTEM IN AREAS WITH RAISED FLOOR PER MANUFACTURERS RECOMMENDATIONS. SEE 1/E906 FOR PEDESTAL BOND DETAIL.
8. PROVIDE 24VDC CONNECTION FOR FUNCTIONAL FENESTRATION RB24 RELAY BOX OR APPROVED MOTORIZED WINDOW CONTROL SYSTEM FOR MOTORIZED WINDOWS. PROVIDE CONDUIT AND CONDUCTOR SIZE PER MANUFACTURERS RECOMMENDATIONS. PROVIDE CONNECTION TO ELECTRICAL ROOM 207. CONNECT TO POWER SUPPLY LOCATED IN POWER SUPPLY CABINET. SEE E802.
9. HOMERUN FOR PDM. SEE 6/E907.
10. ACCESS FLOOR BOX CONNECTOR. SEE 5/E907.
11. SEE 1/E802 FOR CONTINUATION OF CIRCUIT.
12. PROVIDE 120V CONNECTION TO FMCS FIELD PANEL LOCATED UNDERSIDE OF DECK. COORDINATE WITH FMCS INSTALLER. SEE M501.
13. PROVIDE (5) 4" CONDUITS EMBEDDED IN CONCRETE SLAB SPACED 18 INCHES APART ON CENTER FOR FUTURE POWER. STUB AT BEGINNING OF RAISED FLOOR AREA.

A

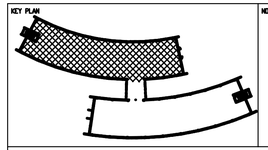
PROJECT STATUS

BID SET 05/26/09

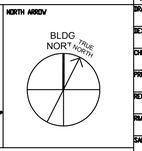
ISSUE

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	POWER CHANGES IN NORTH LOBBY	NZ

KEY PLAN



NORTH ARROW



3/32"=1' 0 8 16 32 48

DRAWN	S. KANDA	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PROJMGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
RLGA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

SECOND FLOOR POWER PLAN NORTH WING

SIZE	CAGE CODE			REV
D	25307	A232-0800-	E421	A

SCALE | INDEX | SHEET | OF

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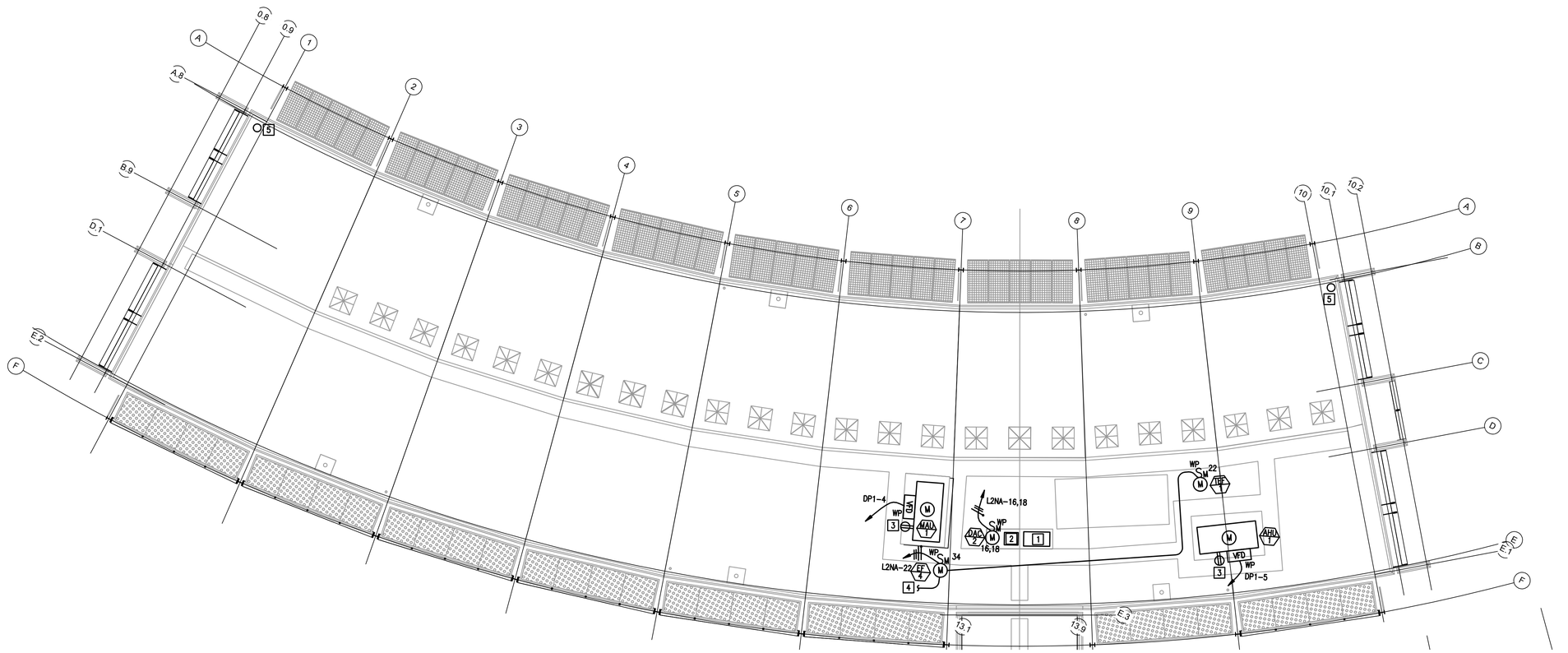


GENERAL NOTES:

1. SEE SHEET E001 AND E002 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

PLAN NOTES:

1. AREA FOR FUTURE INVERTER SYSTEM.
2. INVERTER LOCATION. SEE E111.
3. INTEGRAL WEATHERPROOF, GFI MAINTENANCE RECEPTACLE PROVIDED AND INSTALLED BY DIVISION 23.
4. PROVIDE POWER CONNECTION INDOOR UNIT LOCATED IN COMM ROOM 108.
5. PROVIDE (2) 3/4" CONDUIT PENETRATION AT ROOF LEVEL. RUN CONDUIT DOWN TO 2ND FLOOR UNDERFLOOR LEVEL AND DOWN TO FIRST FLOOR ROOM 107 FOR FUTURE CCTV CAMERAS. MOUNT 12"X12"X6" DEEP WEATHERPROOF ENCLOSURE ON TOP OF 3/4" CONDUITS, APPROXIMATELY 6" ABOVE FINISHED ROOF SURFACE. SPACE CONDUITS 6" MINIMUM TO ALLOW FOR ROOF FLASHING ANCHOR CONDUITS TO ROOF DECK TO RIGIDLY SUPPORT ENCLOSURE.

A

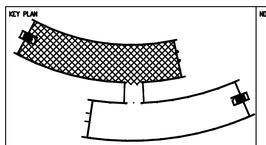
PROJECT STATUS

BID SET 05/26/09

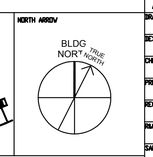
ISSUE

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	NOTE CHANGES	NZ

KEY PLAN



NORTH ARROW



3/32"=1' 0 8 16 32 48

DRAWN	S. KANDA	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PROJMGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
R&QA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

ROOF POWER PLAN NORTH WING

SIZE	CAGE CODE			REV
D	25307	A232-0800-	E431	A

SCALE 3/32" = 1'-0" INDEX SHEET OF

DWG: Q:\60048683 - NASA Ames CSF N232\500 CAD\E\Sheet\E431.dwg User: zechn
DATE: May 26, 2009 - 2:24:42 pm Images:
Xrefs: "xARP01" "XBDR-SHORT" "xEPWRRF" "xMRF01" "xgrid

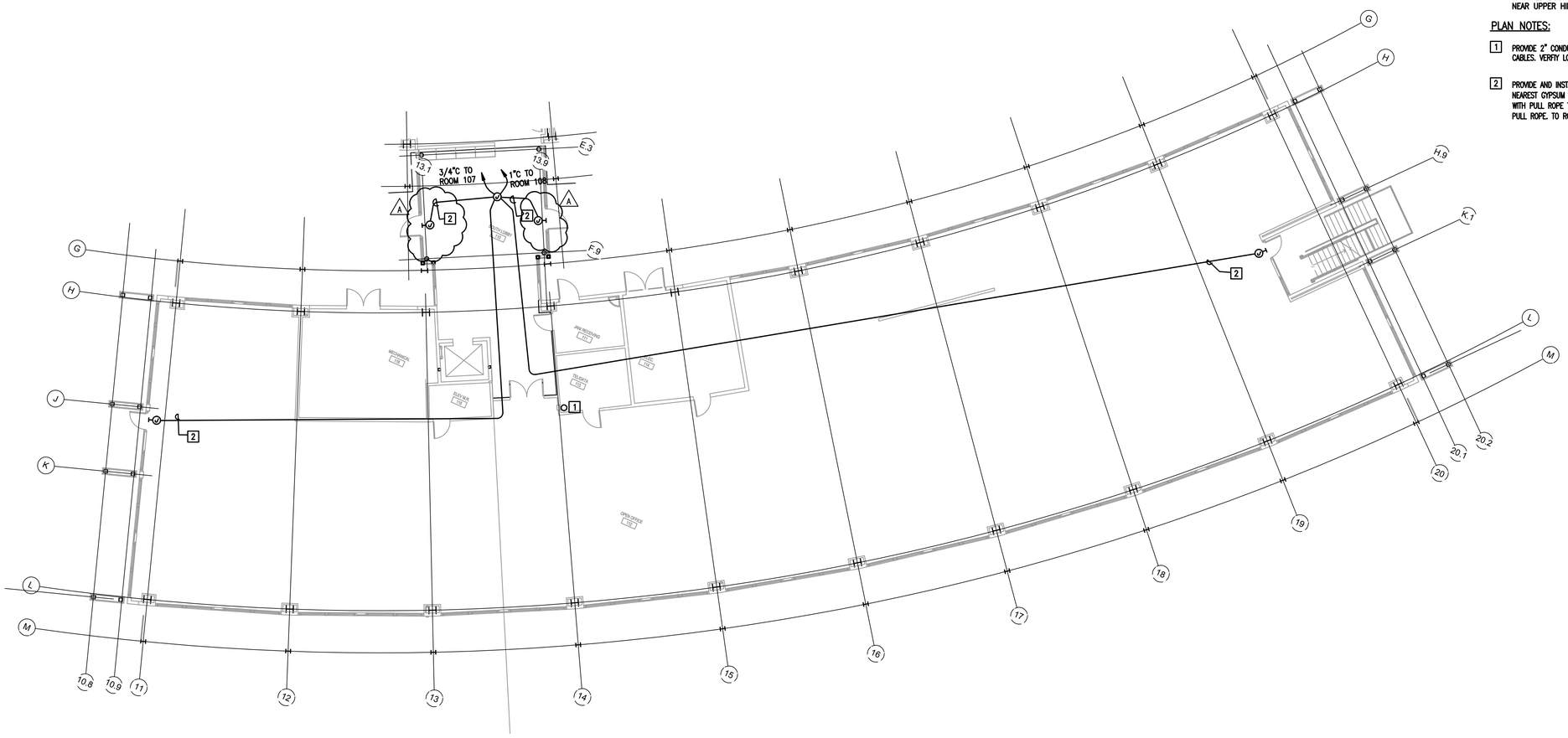
GENERAL NOTES:

1. SEE SHEET E001 AND E002 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
2. POWER TRANSFER HINGES SHALL BE MANUFACTURED BY MCKINNEY OR HAGER; RATED AT MINIMUM 1 AMP CONTINOUS AND 16 AMPS INTERMITTENT.
3. ARMORED DOOR CORDS SHALL BE SCHLAGE #798-18, MOUNT DOOR CORD NEAR UPPER HINGE OF THE DOOR TO AVOID ACCIDENTAL DAMAGE.

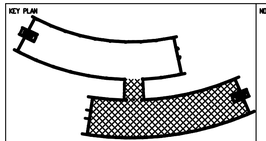
PLAN NOTES:

1 PROVIDE 2" CONDUIT PENETRATION TO RAISED FLOOR OF SECOND LEVEL FOR CCTV CABLES. VERFIY LOCATION WITH CCTV INSTALLER.

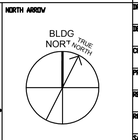
2 PROVIDE AND INSTALL 12"X12"X5" NEMA 1 PULLBOX SCREW COVER FLUSH MOUNT ON NEAREST GYPSUM BOARD WALL, MINIMUM 10'-6" AFF. RUN (1) 3/4" EMPTY CONDUIT WITH PULL ROPE TO ROOM 107 NEAR LINA PANEL. RUN (1) 1" EMPTY CONDUIT WITH PULL ROPE. TO ROOM 108. SEE 3/E908 FOR DETAILS.



KEY PLAN



NORTH ARROW



3/32"=1' 0 8 16 32 48

PROJECT STATUS

BID SET 05/26/09

ISSUE			

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	SYSTEM AND CONNECTION OF SYSTEM CHANGED	NZ

DRAWN	S. KANDA	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PRELIMER	J. GRANT	DATE
REQUESTER	R. SCHULER	DATE
RLGA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

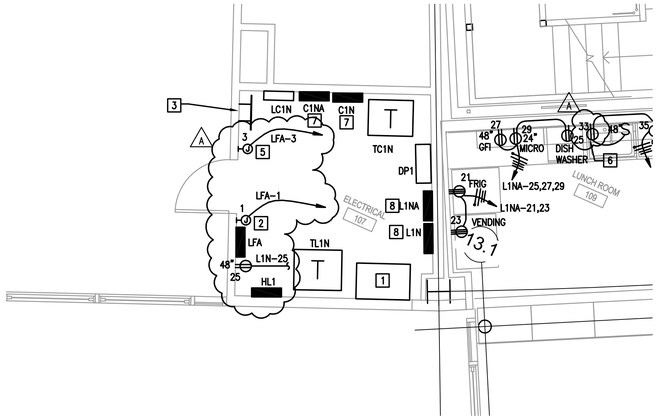
Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRST FLOOR SECURITY SYSTEMS PLAN SOUTH WING

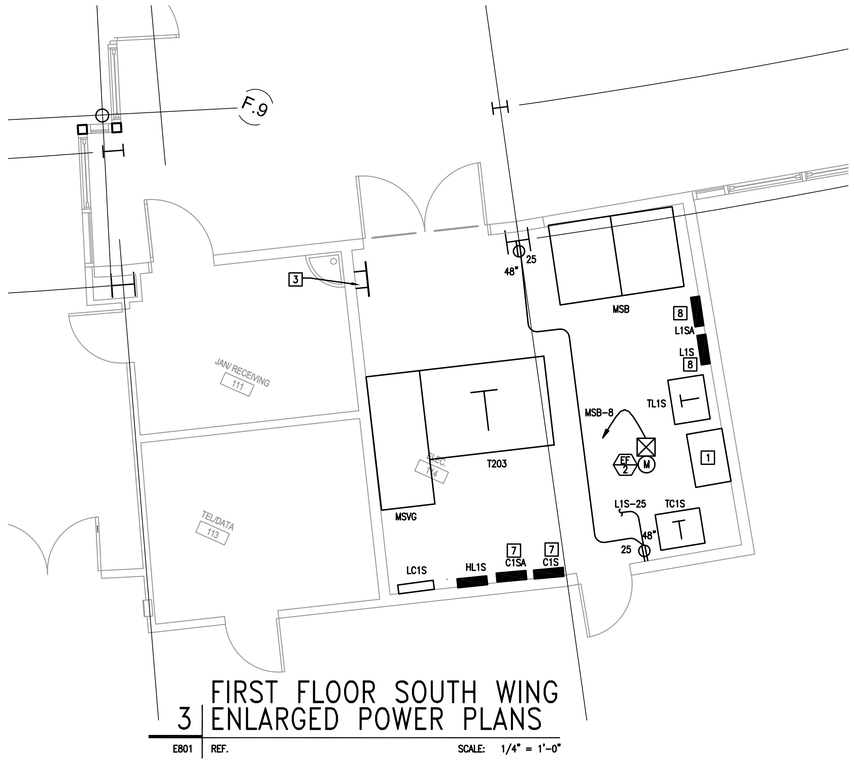
SIZE	CAGE CODE		REV
D	25307	A232-0800- E612	A
SCALE	INDEX	SHEET OF	

DWG: G:\60048663 - NASA Ames CSF N232\300 CAD\E\Sheet\E612.dwg User: zechn
DATE: May 26, 2009 22x10 cm Images
Xrefs: *xAP01* *xARC01* *xBDR-SHORT* *xSTS01* *xgrid



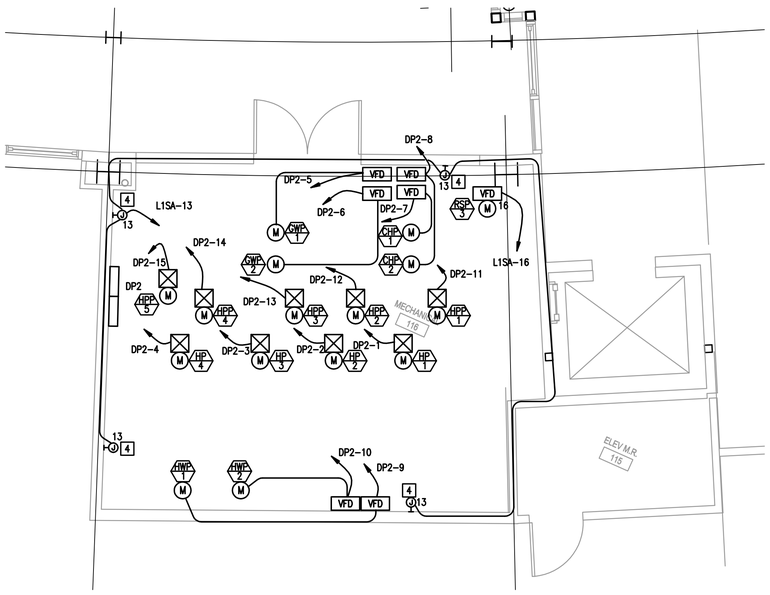
1 FIRST FLOOR NORTH WING ENLARGED POWER PLANS

E801 REF. SCALE: 1/4" = 1'-0"



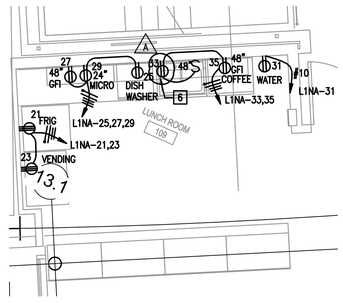
3 FIRST FLOOR SOUTH WING ENLARGED POWER PLANS

E801 REF. SCALE: 1/4" = 1'-0"



2 FIRST FLOOR SOUTH WING ENLARGED POWER PLANS

E801 REF. SCALE: 1/4" = 1'-0"



4 FIRST FLOOR NORTH WING ENLARGED POWER PLANS

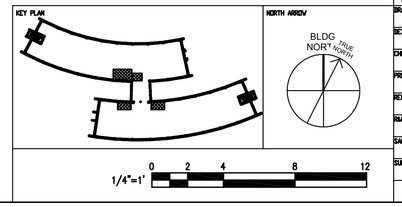
E801 REF. SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. SEE SHEET E001 AND E002 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

PLAN NOTES:

1. PROVIDE 5KW LIGHTING INVERTER FOR INTERIOR EMERGENCY LIGHTING AND EXTERIOR LIGHITNG. SEE E904 FOR OUTPUT BREAKERS.
2. PROVIDE POWER FOR FIRE ALARM SYSTEM. COORDINATE WITH FIRE ALARM INSTALLER.
3. GROUND BAR. COORDINATE LOCATION WITH EQUIPMENT. SEE 6/906.
4. PROVIDE 120V POWER FOR FMCS PANEL. SEE M113.
5. PROVIDE 120V POWER FOR FIRE ALARM TRANSCEIVER.
6. A PROVIDE 120V OUTLET FOR GARABAGE DISPOSAL. COORDINATE LOCATION WITH INSTALLER.
7. FOR EVERY (3) CIRCUT BREAKER SPARES/SPACES PROVIDE A 1" CONDUIT FROM PANEL DOWN INTO SLAB AND TO OPEN OFFICE NEAREST TO PANEL FOR FUTURE CONNECTION IN RAISED FLOOR.
8. FOR EVERY (4) CIRCUT BREAKER SPARES/SPACES PROVIDE A 1" CONDUIT FROM PANEL DOWN INTO SLAB AND TO OPEN OFFICE NEAREST TO PANEL FOR FUTURE CONNECTION IN RAISED FLOOR.



PROJECT STATUS

BID SET 05/26/09

ISSUE

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	ADDITION OF PANEL AND REVISION OF PLAN NOTE 6	NZ

DRAWN	S. KANDA	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PROJMGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
RLGA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY
FIRST FLOOR
ENLARGED POWER PLANS

SIZE	CAGE CODE			REV
D	25307	A232-0800-	E801	A

SCALE INDEX SHEET OF

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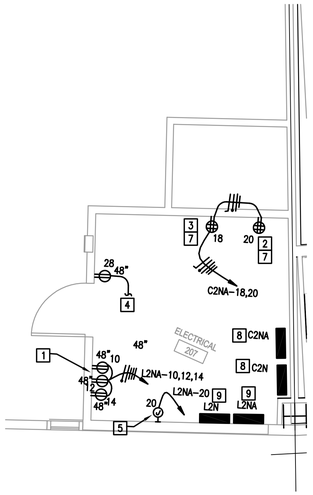
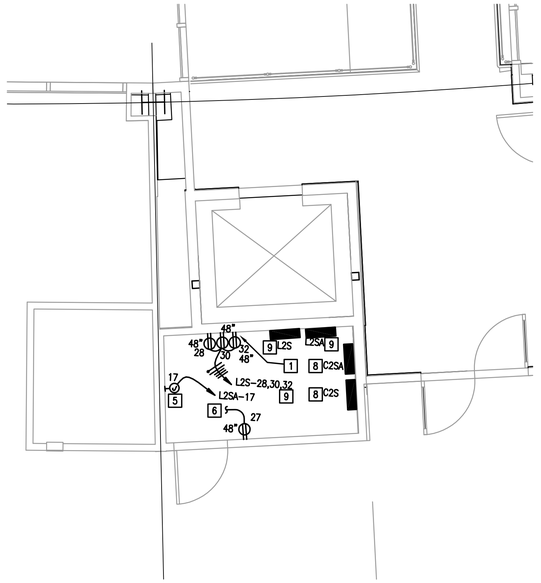
Xrefs: "xAFP01" "XBDR-SHORT" "xEPWE01" "xEEQP01



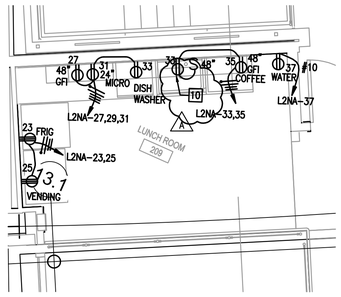
SECOND FLOOR NORTH WING
1 ENLARGED POWER PLANS

E802 | REF. | SCALE: 1/4" = 1'-0"



SECOND FLOOR SOUTH WING
2 ENLARGED POWER PLANS

E802 | REF. | SCALE: 1/4" = 1'-0"



SECOND FLOOR NORTH WING
3 ENLARGED POWER PLANS

E802 | REF. | SCALE: 1/4" = 1'-0"

GENERAL NOTES:

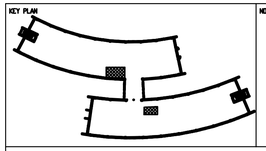
1. SEE SHEET E001 AND E002 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

PLAN NOTES:

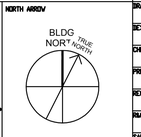
1. PROVIDE 36"H X 30"W X 19"D MINIMUM CORROSIVE RESISTANT WALL MOUNT STEEL CABINET WITH LOUVERED SIDE PANELS, ROOF MOUNTED FAN AT NO LESS THAN 250CFM AND WITH CABINET GROUND LUG FOR MOTORIZED WINDOW POWER SUPPLIES.
2. LOCATION FOR LUTRON QUANTUM CONTROL SYSTEM.
3. LOCATION FOR FOR MECHO SHADES SOLAR TRAC SYSTEM.
4. SEE E421 FOR CONTINUATION OF CIRCUIT.
5. PROVIDE 120V POWER FOR FMCS PANEL. SEE M113.
6. SEE E422 FOR CONTINUATION OF CIRCUIT.
7. PROVIDE UPRIGHT STEEL CABINET WITH LOUVERED SIDE PANELS FOR SERVER, KEYBOARD AND MONITOR. PROVIDE CORROSIVE RESISTANT FLOOR MOUNTED CABINET WITH SLIDE OUT TRAY FOR KEYBOARD.
8. FOR EVERY (3) CIRCUIT BREAKER SPARES/SPACES PROVIDE A 1" CONDUIT FROM PANEL DOWN INTO SLAB AND TO OPEN OFFICE NEAREST TO PANEL FOR FUTURE CONNECTION IN RAISED FLOOR.
9. FOR EVERY (4) CIRCUIT BREAKER SPARES/SPACES PROVIDE A 1" CONDUIT FROM PANEL DOWN INTO SLAB AND TO OPEN OFFICE NEAREST TO PANEL FOR FUTURE CONNECTION IN RAISED FLOOR.
10. PROVIDE 120V OUTLET FOR GARABAGE DISPOSAL. COORDINATE LOCATION WITH INSTALLER.

A

KEY PLAN



NORTH ARROW



1/4"=1' 0 2 4 8 12

PROJECT STATUS

BID SET 05/26/09

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	NOTES CHANGED	NZ

		DATE
DRAWN	S. KANDA	
DESIGNED	N. ZECH	
CHECKED	D. KING	
PRELIMER	J. GRANT	
REQUESTER	R. SCHULER	
R&DA		
SAFETY		
SUPERVISOR	S FRANKEL	

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

SECOND FLOOR
ENLARGED POWER PLANS

SIZE	CAGE CODE		REV
D	25307	A232-0800- E802	A
SCALE		INDEX	SHEET OF

DWG: G:\60048653 - NASA Ames CSF N232\500 CAD\E\Sheet\E802.dwg User: zechn
DATE: May 20, 2009 4:07:53 pm
Xrefs: *xAPP02* 7080R-SHORT* *XEPME02* *XEQIP02*

PANEL : HLS

Location: Elect Rm 114 | Main: LUGS ONLY | Bus Rating Amps: 100 | Volts: 480 / 277 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 22k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH–A	PH–B	PH–C	Ckt	P	CB	PH	CB	P	Ckt	PH–A	PH–B	PH–C	Type	Note	LOAD
OPEN OFFICE 112 LTGS		L	1,600			1	1	20	A	20	1	2	2,711			L		OPEN OFFICE 112 LTGS
LIFE SAFETY INVERTER		L		5,300		3	1	30	B	20	1	4		2,800		L		OPEN OFFICE 212 LTGS
CENTRAL AISLE OPEN OFFICE 112 LTGS		L			280	5	1	20	C	20	1	6			2,600	L		OPEN OFFICE 212 LTGS
RM 111, RM 113, RM 114, RM116		L	649			7	1	20	A	20	1	8	60			L		ELEVATOR ROOM
CENTRAL AISLE OPEN OFFICE 212 LTGS		L		300		9	1	20	B	20	1	10						SPARE
SPARE						11	1	20	C	20	1	12						SPARE
SPARE						13	1	20	A			14						SPACE
SPARE						15	1	20	B			16						SPACE
SPACE						17			C			18						SPACE
SPACE						19			A			20						SPACE
SPACE						21			B			22						SPACE
SPACE						23			C			24						SPACE
SPACE						25			A			26						SPACE
SPACE						27			B			28						SPACE
SPACE						29			C			30						SPACE
			2,249	5,600	280			A	B	C			2,771	2,800	2,600			
TOTAL/PHASE:								5,020	8,400	2,880								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	20,375	16,300
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	0	0
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	0	0
SUM			20,375	16,300
CALC'D AMPERES			24.5	

	NOTES
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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
D	DWELLING/RESIDENTIAL LOAD
	##FILENAME##

PANEL : L2S

Location: Elect Rm 214 | Main: 200 A | Bus Rating Amps: 225 A | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH–A	PH–B	PH–C	Ckt	P	CB	PH	CB	P	Ckt	PH–A	PH–B	PH–C	Type	Note	LOAD
OPEN OFFICE 212 RECEPTACLES		R	1,440			1	1	20	A	20	1	2	1,620			R		OPEN OFFICE 212 RECEPTACLES
OPEN OFFICE 212 RECEPTACLES		R		1,080		3	1	20	B	20	1	4		1,440		R		OPEN OFFICE 212 RECEPTACLES
OPEN OFFICE 212 RECEPTACLES		R			1,440	5	1	20	C	20	1	6			1,440	R		OPEN OFFICE 212 RECEPTACLES
OPEN OFFICE 212 RECEPTACLES		R	1,440			7	1	20	A	20	1	8	1,620			R		OPEN OFFICE 212 RECEPTACLES
OPEN OFFICE 212 RECEPTACLES		R		900		9	1	20	B	20	1	10		1,440		R		OPEN OFFICE 212 RECEPTACLES
OPEN OFFICE 212 RECEPTACLES		R			1,440	11	1	20	C	20	1	12			1,620	R		OPEN OFFICE 212 RECEPTACLES
OPEN OFFICE 212 RECEPTACLES		R	900			13	1	20	A	20	1	14	1,440			R		OPEN OFFICE 212 RECEPTACLES
OPEN OFFICE 212 RECEPTACLES		R		1,440		15	1	20	B	20	1	16		720		R		OPEN OFFICE 212 RECEPTACLES
OPEN OFFICE 212 RECEPTACLES		R			1,260	17	1	20	C	20	1	18			720	R		OPEN OFFICE 212 RECEPTACLES
OPEN OFFICE 212 RECEPTACLES		R	1,440			19	1	20	A	20	1	20	720			R		OPEN OFFICE 212 RECEPTACLES
OPEN OFFICE 212 RECEPTACLES		R		1,080		21	1	20	B	20	1	22		1,260		R		OPEN OFFICE 212 RECEPTACLES
OPEN OFFICE 212 RECEPTACLES		R			1,440	23	1	20	C	20	1	24			1,080	R		OPEN OFFICE 212 RECEPTACLES
OPEN OFFICE 212 RECEPTACLES		R	1,080			25	1	20	A	20	1	26	770			M		EF–3 & EF–5 ON ROOF
OPEN OFFICE 212 RECEPTACLES		R		1,080		27	1	20	B	20	1	28		1,260				MOTORIZED WINDOW POWER SUPPLY
OPEN OFFICE 212 RECEPTACLES		R			180	29	1	20	C	20	1	30			1,260			MOTORIZED WINDOW POWER SUPPLY
OPEN OFFICE 212 RECEPTACLES		R	180			31	1	20	A	20	1	32	1,260					MOTORIZED WINDOW POWER SUPPLY
OPEN OFFICE 212 RECEPTACLES		R		180		33	1	20	B	20	1	34						SPARE
SPARE						35	1	20	C	20	1	36						SPARE
L2SA			6,700			37	3	100	A			38						SPACE
L2SA				6,700		39	–	100	B			40						SPACE
L2SA					6,700	41	–	100	C			42						SPACE
			13,180	12,460	12,460			A	B	C			7,430	6,120	6,120			
TOTAL/PHASE:								20,610	18,580	18,580								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	963	770
RECEPTACLE LOAD	X	NEC	21,560	33,120
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	23,880	23,880
SUM			46,403	57,770
CALC'D AMPERES			128.8	

	NOTES
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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
D	DWELLING/RESIDENTIAL LOAD
	#REF!

PANEL : HLN

Location: Elect Rm 110 | Main: LUGS ONLY | Bus Rating Amps: 100 A | Volts: 480 / 277 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 22k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH–A	PH–B	PH–C	Ckt	P	CB	PH	CB	P	Ckt	PH–A	PH–B	PH–C	Type	Note	LOAD
OPEN OFFICE 102 LIGHTS		L	3,324			1	1	20	A	20	1	2	1,000			L		RM 101, RM 103, RM 105, RM 106 LTGS
LIFE SAFETY INVERTER		L		5,300		3	1	30	B	20	1	4						SPARE
RM 107, RM 108, RM 109 LTGS		L			200	5	1	20	C	20	1	6			264	L		CENTRAL AISLE OPEN OFFICE 202LTGS
OPEN OFFICE 202 LIGHTS		L	2,468			7	1	20	A	20	1	8	66			L		CENTRAL AISLE OPEN OFFICE 202LTGS
LOBBY LTGS		L		1,100		9	1	20	B	20	1	10						SPARE
SPARE						11	1	20	C	20	1	12						SPARE
SPARE						13	1	20	A	20	1	14						SPARE
SPARE						15	1	20	B			16						SPACE
SPACE						17			C			18						SPACE
SPACE						19			A			20						SPACE
SPACE						21			B			22						SPACE
SPACE						23			C			24						SPACE
SPACE						25			A			26						SPACE
SPACE						27			B			28						SPACE
SPACE						29			C			30						SPACE
			5,792	6,400	200			A	B	C			1,066	0	264			
TOTAL/PHASE:								6,858	6,400	464								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	17,153	13,722
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	0	0
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	0	0
SUM			17,153	13,722
CALC'D AMPERES			20.6	

	NOTES
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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
D	DWELLING/RESIDENTIAL LOAD
	#REF!

PANEL : L2SA

Location: Elect Rm 214 | Main: LUGS ONLY | Bus Rating Amps: 100 A | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH–A	PH–B	PH–C	Ckt	P	CB	PH	CB	P	Ckt	PH–A	PH–B	PH–C	Type	Note	LOAD
OPEN OFFICE 212 SHADES			1,548			1	1	20	A	20	1	2	1,548					OPEN OFFICE 212 SHADES
OPEN OFFICE 212 SHADES				1,032		3	1	20	B	20	1	4		1,548				OPEN OFFICE 212 SHADES
OPEN OFFICE 212 SHADES					1,548	5	1	20	C	20	1	6			1,548			OPEN OFFICE 212 SHADES
OPEN OFFICE 212 SHADES			1,548			7	1	20	A	20	1	8	1,032					OPEN OFFICE 212 SHADES
OPEN OFFICE 212 SHADES				1,548		9	1	20	B	20	1	10		863				DAC–1
OPEN OFFICE 212 SHADES					1,548	11	1	20	C	20	2	12			760			DAC–3
OPEN OFFICE 212 SHADES			1,548			13	1	20	A	20	1	14	760					DAC–3
OPEN OFFICE 212 SHADES				1,032		15	1	20	B	20	1	16		400				FMCS FIELD PANELS
FMCS PANEL					300	17	1	20	C	20	1	18						SPARE
SPARE						19	1	20	A	20	1	20						SPARE
SPARE						21	1	20	B			22						SPACE
SPARE						23	1	20	C			24						SPACE
SPACE						25			A			26						SPACE
SPACE						27			B			28						SPACE
SPACE						29			C			30						SPACE
			4,644	3,612	3,396			A	B	C			3,340	2,811	2,308			
TOTAL/PHASE:								7,984	6,423	5,704								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	0	0
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	20,111	20,111
SUM			20,111	20,111
CALC'D AMPERES			55.8	

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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
D	DWELLING/RESIDENTIAL LOAD
	#REF!

PANEL : L2N

Location: Elect Rm 114 | Main: 225 A | Bus Rating Amps: 225 | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH–A	PH–B	PH–C	Ckt	P	CB	PH	CB	P	Ckt	PH–A	PH–B	PH–C	Type	Note	LOAD
OPEN OFFICE 202 RECEPTACLE		R	1,620			1	1	20	A	20	1	2	1,440			R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R		1,440		3	1	20	B	20	1	4		1,440		R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R			1,440	5	1	20	C	20	1	6			1,620	R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R	1,620			7	1	20	A	20	1	8	1,080			R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R		1,440		9	1	20	B	20	1	10		720		R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R			1,260	11	1	20	C	20	1	12			720	R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R	1,440			13	1	20	A	20	1	14						SPARE
OPEN OFFICE 202 RECEPTACLE		R		1,620		15	1	20	B	20	1	16		1,440		R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R			720	17	1	20	C	20	1	18						SPARE
OPEN OFFICE 202 RECEPTACLE		R	1,080			19	1	20	A			20						SPARE
OPEN OFFICE 202 RECEPTACLE		R		720		21	1	20	B	20	1	22		900		R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R			1,080	23	1	20	C	20	1	24			720	R		OPEN OFFICE 202 RECEPTACLE
SPARE						25	1	20	A	20	1	26	720			R		OPEN OFFICE 202 RECEPTACLE
SPARE						27	1	20	B	20	1	28		900		R		OPEN OFFICE 202 RECEPTACLE
SPARE						29	1	20	C	20	1	30			900	R		OPEN OFFICE 202 RECEPTACLE
SPARE						31	1	20	A	20	1	32						SPARE
FLUSH ACTUATION VALVES				300		33	1	20	B	20	1	34						SPARE
REST ROOM RECEPTACLES		R			180	35	1	20	C	20	1	36						SPARE
REST ROOM RECEPTACLES		R	180			37	1	20	A	150	3	38	11,000					L2NA
SPARE						39	1	20	B	150	–	40		11,000				L2NA
SPARE						41	1	20	C	150	–	42			11,000			L2NA
			5,940	5,520	4,680			A	B	C			14,240	16,400	14,960			
TOTAL/PHASE:								20,180	21,920	19,640								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	19,220	28,440
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	33,300	33,300
SUM			52,520	61,740
CALC'D AMPERES			145.8	

	NOTES
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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
D	DWELLING/RESIDENTIAL LOAD
	##FILENAME##

PROJECT STATUS

BID SET 05/26/09

ISSUE			
MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	PANELBOARD SCHEDULE CHANGES	MZ

DRAWN	L. DICKENS	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PRELIMCR	J. GRANT	DATE
REVIEWSTOR	R. SCHULER	DATE
NASA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

PANEL SCHEDULES

SIZE	CAGE CODE		REV
D	25307	A232-0800- E901	A
SCALE		INDEX / SHEET OF	

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DATE: May 28, 2009 - 4:07:42 pm Images:
Xrefs: 2SBR

PANEL : C1S

Location: Elect Rm 114 | Main: 400 A | Bus Rating Amps: 400 A | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH–A	PH–B	PH–C	Ckt	P	CB	PH	CB	P	Ckt	PH–A	PH–B	PH–C	Type	Note	LOAD
OPEN OFFICE 112 RECEPTACLES		R	1,000			1	1	20	A	20	1	2	500			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		1,000		3	1	20	B	20	1	4		500		R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R			1,000	5	1	20	C	20	1	6			1,000	R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R	1,000			7	1	20	A	20	1	8	500			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		500		9	1	20	B	20	1	10		500		R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R			500	11	1	20	C	20	1	12			1,000	R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R	500			13	1	20	A	20	1	14	1,000			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		500		15	1	20	B	20	1	16		500		R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R			1,000	17	1	20	C	20	1	18			500	R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R	500			19	1	20	A	20	1	20	1,000			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		1,000		21	1	20	B	20	1	22		1,000		R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R			500	23	1	20	C	20	1	24			500	R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R	500			25	1	20	A	20	1	26	1,000			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		500		27	1	20	B	20	1	28		1,000		R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R			500	29	1	20	C	20	1	30			1,000	R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R	500			31	1	20	A	20	1	32	1,000			R		OPEN OFFICE 112 RECEPTACLES
SPARE						33	1	20	B	20	1	34						SPARE
SPARE						35	1	20	C	20	1	36						SPARE
C1SA			4,166			37	3	100	A	175	3	38	10,000					C2S
C1SA				4,166		39	–	100	B	175	–	40		10,000				C2S
C1SA					4,166	41	–	100	C	175	–	42			10,000			C2S
TOTAL/PHASE:			8,166	7,666	7,666			A	B	C			15,000	13,500	14,000			
								23,166	21,166	21,666								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	16,750	23,500
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	42,498	42,498
SUM			59,248	65,998
CALC'D AMPERES			164.5	

	NOTES
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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
	#REF!

PANEL : C1N

Location: Elect Rm 114 | Main: 400 A | Bus Rating Amps: 400 A | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH–A	PH–B	PH–C	Ckt	P	CB	PH	CB	P	Ckt	PH–A	PH–B	PH–C	Type	Note	LOAD
OPEN OFFICE 102 RECEPTACLES		R	1,000			1	1	20	A	20	1	2	1,000			R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R		1,000		3	1	20	B	20	1	4		500		R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R			1,000	5	1	20	C	20	1	6			1,000	R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R	500			7	1	20	A	20	1	8	500			R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R		1,000		9	1	20	B	20	1	10		1,000		R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R			1,000	11	1	20	C	20	1	12			500	R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R	1,000			13	1	20	A	20	1	14	1,000			R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R		1,000		15	1	20	B	20	1	16		500		R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R			1,000	17	1	20	C	20	1	18			500	R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R	1,000			19	1	20	A	20	1	20	500			R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R		1,000		21	1	20	B	20	1	22		500		R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R			500	23	1	20	C	20	1	24						SPARE
OPEN OFFICE 102 RECEPTACLES		R	1,000			25	1	20	A	20	1	26	500			R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R		500		27	1	20	B	20	1	28		500		R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R			1,000	29	1	20	C	20	1	30			1,000	R		OPEN OFFICE 102 RECEPTACLES
OPEN OFFICE 102 RECEPTACLES		R	500			31	1	20	A	20	1	32	500			R		OPEN OFFICE 102 RECEPTACLES
ROOM 108 RECEPTACLES		R		500		33	1	20	B	20	1	34				R		SPARE
ROOM 108 RECEPTACLES		R			500	35	1	20	C	20	1	36				R		SPARE
C2N			12,333			37	3	175	A	100	3	38	4,166			R		C1NA
C2N				12,333		39	–	175	B	100	–	40		4,166				C1NA
C2N					12,333	41	–	175	C	100	–	42			4,166			C1NA
TOTAL/PHASE:			17,333	17,333	17,333			A	B	C			8,166	7,166	7,166			
								25,499	24,499	24,499								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	19,583	29,166
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	45,331	45,331
SUM			64,914	74,497
CALC'D AMPERES			180.2	

	NOTES
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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR

PANEL : C1SA

Location: Elect Rm 114 | Main: 100 A | Bus Rating Amps: 100 A | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH–A	PH–B	PH–C	Ckt	P	CB	PH	CB	P	Ckt	PH–A	PH–B	PH–C	Type	Note	LOAD
OPEN OFFICE 112 RECEPTACLES		R	1,000			1	1	20	A	20	1	2	1,000			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		1,000		3	1	20	B	20	1	4		1,000		R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R			500	5	1	20	C	20	1	6			1,000	R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R	500			7	1	20	A	20	1	8	1,000			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		1,000		9	1	20	B	20	1	10		500		R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R			500	11	1	20	C	20	1	12			500	R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R	1,000			13	1	20	A	20	1	14	1,000			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		1,000		15	1	20	B	20	1	16		1,000		R		OPEN OFFICE 112 RECEPTACLES
ROOM 113 RECEPTACLES		R			500	17	1	20	C	20	1	18						SPARE
ROOM 113 RECEPTACLES		R	500			19	1	20	A	20	1	20						SPARE
ROOM 113 RECEPTACLES		R		500		21	1	20	B	20	1	22						SPARE
SPARE						23	1	20	C	20	1	24						SPARE
SPARE						25	1	20	A	20	1	26						SPARE
SPARE						27	1	20	B	20	1	28						SPARE
SPARE						29	1	20	C	20	1	30						SPARE
TOTAL/PHASE:			3,000	3,500	1,500			A	B	C			3,000	2,500	1,500			
								6,000	6,000	3,000								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	12,500	15,000
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	0	0
SUM			12,500	15,000
CALC'D AMPERES			34.7	

	NOTES
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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
	#REF!

PANEL : C1NA

Location: Elect Rm 114 | Main: 100 A | Bus Rating Amps: 100 A | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH–A	PH–B	PH–C	Ckt	P	CB	PH	CB	P	Ckt	PH–A	PH–B	PH–C	Type	Note	LOAD
OPEN OFFICE 102 RECEPTACLE		R	500			1	1	20	A	20	1	2	1,000			R		OPEN OFFICE 102 RECEPTACLE
OPEN OFFICE 102 RECEPTACLE		R		500		3	1	20	B	20	1	4		1,000		R		OPEN OFFICE 102 RECEPTACLE
OPEN OFFICE 102 RECEPTACLE		R			500	5	1	20	C	20	1	6			1,000	R		OPEN OFFICE 102 RECEPTACLE
OPEN OFFICE 102 RECEPTACLE		R	500			7	1	20	A	20	1	8	500			R		OPEN OFFICE 102 RECEPTACLE
OPEN OFFICE 102 RECEPTACLE		R		500		9	1	20	B	20	1	10		1,000		R		OPEN OFFICE 102 RECEPTACLE
OPEN OFFICE 102 RECEPTACLE		R			500	11	1	20	C	20	1	12			500	R		OPEN OFFICE 102 RECEPTACLE
OPEN OFFICE 102 RECEPTACLE		R	500			13	1	20	A	20	1	14	1,000			R		OPEN OFFICE 102 RECEPTACLE
OPEN OFFICE 102 RECEPTACLE		R		500		15	1	20	B	20	1	16		1,000		R		OPEN OFFICE 102 RECEPTACLE
ROOM 108 RECEPTACLES		R			500	17	1	20	C	20	1	18						SPARE
ROOM 108 RECEPTACLES		R	500			19	1	20	A	20	1	20						SPARE
ROOM 108 RECEPTACLES		R		500		21	1	20	B	20	1	22						SPARE
SPARE						23	1	20	C	20	1	24						SPARE
SPACE						25			A			26						SPACE
SPACE						27			B			28						SPACE
SPACE						29			C			30						SPACE
TOTAL/PHASE:			2,000	2,000	1,500			A	B	C			2,500	3,000	1,500			
								4,500	5,000	3,000								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	11,250	12,500
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	0	0
SUM			11,250	12,500
CALC'D AMPERES			31.2	

	NOTES
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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
	#REF!

PANEL : L2NA

Location: Elect Rm 114 | Main: LUGS ONLY | Bus Rating Amps: 225 | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH–A	PH–B	PH–C	Ckt	P	CB	PH	CB	P	Ckt	PH–A	PH–B	PH–C	Type	Note	LOAD
OPEN OFFICE 202 RECEPTACLE		R	500			1	1	20	A	20	1	2	1,548					OPEN OFFICE 202 SHADES
OPEN OFFICE 202 RECEPTACLE		R		500		3	1	20	B	20	1	4		1,548				OPEN OFFICE 202 SHADES
OPEN OFFICE 202 RECEPTACLE		R			500	5	1	20	C	20	1	6			1,548			OPEN OFFICE 202 SHADES
OPEN OFFICE 202 SHADES			1,548			7	1	20	A	20	1	8	1,548					OPEN OFFICE 202 SHADES
OPEN OFFICE 202 SHADES				1,548		9	1	20	B	20	1	10		1,260				MOTORIZED WINDOW POWER SUPPLY
OPEN OFFICE 202 SHADES					1,548	11	1	20	C	20	1	12			1,260			MOTORIZED WINDOW POWER SUPPLY
OPEN OFFICE 202 SHADES			1,548			13	1	20	A	20	1	14	1,260					MOTORIZED WINDOW POWER SUPPLY
OPEN OFFICE 202 SHADES				1,548		15	1	20	B	20	2	16		1,009				DAC–2
OPEN OFFICE 202 SHADES					1,548	17	1	20	C	20	–	18			1,009			DAC–2
FMCS FIELD PANELS			400			19	1	20	A	20	1	20	300					FMCS PANEL
FIRE SMOKE DAMPERS				100		21	1	20	B	20	1	22		1,000		M		TEF–1 & EF–4 ON ROOF
FRIG SECOND FLOOR		R			1,000	23	1	20	C	20	1	24						SPARE
VENDING SECOND FLOOR		R	500			25	1	20	A	20	1	26						SPARE
KITCHEN COUNTER RECEPTACLE		R		180		27	1	20	B	20	1	28						SPARE
MICROWAVE		R			1,000	29	1	20	C	20	1	30						SPARE
DISHWASHER			1,092			31	1	20	A									SPACE
GARABAGE DISPOSAL				1,000		33	1	20	B									SPACE
COFFEE		R			1,500	35	1	20	C									SPACE
WATER DISPENSER			2,100			37	1	25	A									SPACE
SPACE						39			B									SPACE
SPACE						41			C									SPACE
TOTAL/PHASE:			7,688	4,876	7,096			A	B	C			4,656	4,817	3,817			
								12,344	9,693	10,913								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	1,250	1,000
RECEPTACLE LOAD	X	NEC	5,680	5,680
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	26,270	26,270
SUM			33,200	32,950
CALC'D AMPERES			92.2	

	NOTES
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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
D	DWELLING/RESIDENTIAL LOAD
	##FILENAME##

PROJECT STATUS

BID SET 05/26/09

ISSUE			

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	PANELBOARD SCHEDULE CHANGES	NZ

DRAWN	L. DICKENS	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PRELIMCR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
NSQA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

PANEL SCHEDULES

SIZE	CAGE CODE		REV
D	25307	A232-0800- E902	A
SCALE		INDEX SHEET OF	

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DATE: May 28, 2009 - 4:07:33 pm Images:
Xrefs: XEBR

PANEL : L1N

Location: Elect Rm 114 | Main: 600 A | Bus Rating Amps: 600 | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES							VOLTAMPS					LOAD INFORMATION
LOAD	Note	Type	PH-A	PH-B	PH-C	Ckt	P	CB	PH	CB	P	Ckt	PH-A	PH-B	PH-C	Type	Note	LOAD
OPEN OFFICE 102, 103 RECEPTACLES		R	1,620			1	1	20	A	20	1	2	1,260			R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R		1,080		3	1	20	B	20	1	4		1,080		R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R			1,440	5	1	20	C	20	1	6			1,260	R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R	1,620			7	1	20	A	20	1	8	1,080			R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R		1,440		9	1	20	B	20	1	10		900		R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R			1,080	11	1	20	C	20	1	12			360	R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R	1,080			13	1	20	A	20	1	14	720			R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R		1,260		15	1	20	B	20	1	16		1,080		R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R			720	17	1	20	C	20	1	18			1,440	R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R	720			19	1	20	A	20	1	20	1,080			R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R		720		21	1	20	B	20	1	22		1,080		R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R			900	23	1	20	C	20	1	24			1,440	R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R	900			25	1	20	A	20	1	26						SPARE
OPEN OFFICE 102, 103 RECEPTACLES		R		1,080		27	1	20	B	20	1	28		500		R		OPEN OFFICE 102, 103 RECEPTACLES
OPEN OFFICE 102, 103 RECEPTACLES		R			720	29	1	20	C	20	1	30			500	R		OPEN OFFICE 102, 103 RECEPTACLES
SPARE						31	1	20	A	20	1	32	500			R		OPEN OFFICE 102, 103 RECEPTACLES
FLUSH ACTUATION VALVES				300		33	1	20	B	20	1	34		0				SPARE
NORTH LOBBY TV		R			360	35	1	20	C	20	1	36						SPARE
L1NA			15,333			37	3	225	A	225	3	38	18,000					L2N
L1NA				15,333		39	–	225	B	225	–	40		18,000				L2N
L1NA					15,333	41	–	225	C	225	–	42			18,000			L2N
			21,273	21,213	20,553			A	B	C			22,640	22,640	23,000			
TOTAL/PHASE:								43,913	43,853	43,553								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	20,510	31,020
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	100,299	100,299
SUM			120,809	131,319
CALC'D AMPERES			335.3	

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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
D	DWELLING/RESIDENTIAL LOAD
	##FILENAME##

PANEL : L1S

Location: Elect Rm 114 | Main: 400 A | Bus Rating Amps: 400 A | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES							VOLTAMPS					LOAD INFORMATION
LOAD	Note	Type	PH-A	PH-B	PH-C	Ckt	P	CB	PH	CB	P	Ckt	PH-A	PH-B	PH-C	Type	Note	LOAD
OPEN OFFICE 112 RECEPTACLES		R	1,440			1	1	20	A	20	1	2	900			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		1,440		3	1	20	B	20	1	4		1,080		R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R			720	5	1	20	C	20	1	6			1,080	R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R	1,260			7	1	20	A	20	1	8	1,080			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		1,080		9	1	20	B	20	1	10		1,260		R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R			1,080	11	1	20	C	20	1	12			1,080	R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R	720			13	1	20	A	20	1	14	1,440			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		720		15	1	20	B	20	1	16		1,620		R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R			1,620	17	1	20	C	20	1	18			1,440	R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R	1,440			19	1	20	A	20	1	20	900			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		720		21	1	20	B	20	1	22		1,080		R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R			1,620	23	1	20	C	20	1	24			1,440	R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R	900			25	1	20	A	20	1	26	500			R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R		900		27	1	20	B	20	1	28		500		R		OPEN OFFICE 112 RECEPTACLES
OPEN OFFICE 112 RECEPTACLES		R			900	29	1	20	C	20	1	30			500	R		OPEN OFFICE 112 RECEPTACLES
ELEVATOR MACHINE RM RECEPT		R	180			31	1	20	A	20	1	32						SPARE
ELEVATOR CAB LIGHTS/RECPTS				1,000		33	1	20	B	20	1	34						SPARE
ELEVATOR PIT LIGHT/RECEPT		R			220	35	1	20	C	20	1	36						SPARE
L2S			15,500			37	3	200	A	150	3	38	8,333					L1SA
L2S				15,500		39	–	200	B	150	–	40		8,333				L1SA
L2S					15,500	41	–	200	C	150	–	42			8,333			L1SA
			21,440	21,360	21,660			A	B	C			13,153	13,873	13,873			
TOTAL/PHASE:								34,593	35,233	35,533								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	21,430	32,860
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	72,499	72,499
SUM			93,929	105,359
CALC'D AMPERES			260.7	

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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
D	DWELLING/RESIDENTIAL LOAD
	#REF!

PANEL : L1NA

Location: Elect Rm 114 | Main: LUGS ONLY | Bus Rating Amps: 225 | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES							VOLTAMPS					LOAD INFORMATION
LOAD	Note	Type	PH-A	PH-B	PH-C	Ckt	P	CB	PH	CB	P	Ckt	PH-A	PH-B	PH-C	Type	Note	LOAD
OPEN OFFICE 102, 103 RECEPTACLES		R	500			1	1	20	A	20	1	2						SPARE
OPEN OFFICE 102, 103 RECEPTACLES		R		500		3	1	20	B	20	1	4						SPARE
OPEN OFFICE 102, 103 RECEPTACLES		R			500	5	1	20	C	20	1	6						SPARE
MOTORIZED SHADES 102			1,548			7	1	20	A	20	1	8	1,548					MOTORIZED SHADES 102
MOTORIZED SHADES 102				1,548		9	1	20	B	20	1	10		1,548				MOTORIZED SHADES 102
MOTORIZED SHADES 102					1,548	11	1	20	C	20	1	12			1,548			MOTORIZED SHADES 102
MOTORIZED SHADES 103			1,548			13	1	20	A	20	1	14	1,548					MOTORIZED SHADES 102
MOTORIZED SHADES 103				1,548		15	1	20	B	20	1	16		900				OZONE PANEL
MOTORIZED SHADES 103					1,548	17	1	20	C	20	1	18			400			FMCS FIELD PANELS
RSP–1, RSP–2			1,056			19	1	20	A	20	1	20	600					CP–1, CP–2, CP–3
FRIG 1ST FLOOR		R		1,000		21	1	20	B	20	1	22		1,000				IRRIGATION CONTROLLER
VENDING FIRST FLOOR		R			500	23	1	20	C	20	1	24			500			MOTORIZED DOOR
DISHWASHER FIRST FLOOR			1,092			25	1	20	A	20	3	26	959			M		OZONE PUMP
KITCHEN COUNTER RECEPTACLE		R		180		27	1	20	B	20	–	28		959		M		–
MICROWAVE FIRST FLOOR		R			1,000	29	1	20	C	20	–	30			959	M		–
WATER DISPENSER FIRST FLOOR			2,100			31	1	25	A	20	3	32						DYT–1
GARBAGE DISPOSAL				1,000		33	1	20	B	20	–	34						–
COFFEE		R			1,500	35	1	20	C	20	–	36						–
SPACE						37			A	20	1	38	1,000					ACF–1
SPACE						39			B	20	1	40						SPARE
SPACE						41			C	20	1	42						SPARE
			7,844	5,776	6,596			A	B	C			5,655	4,407	3,407			
TOTAL/PHASE:								13,499	10,183	10,003								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	3,596	2,877
RECEPTACLE LOAD	X	NEC	5,680	5,680
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	25,128	25,128
SUM			34,404	33,685
CALC'D AMPERES			95.5	

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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
D	DWELLING/RESIDENTIAL LOAD
	##FILENAME##

PANEL : L1SA

Location: Elect Rm 114 | Main: LUGS ONLY | Bus Rating Amps: 225 A | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES							VOLTAMPS					LOAD INFORMATION
LOAD	Note	Type	PH-A	PH-B	PH-C	Ckt	P	CB	PH	CB	P	Ckt	PH-A	PH-B	PH-C	Type	Note	LOAD
OPEN OFFICE 112 SHADES			1,548			1	1	20	A	20	1	2	1,548					OPEN OFFICE 112 SHADES
OPEN OFFICE 112 SHADES				1,548		3	1	20	B	20	1	4		1,548				OPEN OFFICE 112 SHADES
OPEN OFFICE 112 SHADES					1,548	5	1	20	C	20	1	6			1,548			OPEN OFFICE 112 SHADES
OPEN OFFICE 112 SHADES			1,548			7	1	20	A	20	1	8	1,548					OPEN OFFICE 112 SHADES
OPEN OFFICE 112 SHADES				1,548		9	1	20	B	20	1	10		1,548				OPEN OFFICE 112 SHADES
OPEN OFFICE 112 SHADES					1,548	11	1	20	C	20	1	12			1,548			OPEN OFFICE 112 SHADES
FCMS PANELS			1,200			13	1	20	A	20	1	14	1,548					OPEN OFFICE 112 SHADES
SPARE						15	1	20	B	20	1	16		528				RSP–3
RECEPTACLE AT TANK CONTROLLER		R			180	17	1	20	C	20	1	18			400			FMCS FIELD PANELS
LOBBY FLOOR RECEPTACLES		R	1,080			19	1	20	A	20	1	20	864				M	SP–1
SPARE						21	1	20	B	20	1	22						SPARE
SPARE						23	1	20	C			24						SPACE
SPACE						25			A			26						SPACE
SPACE						27			B			28						SPACE
SPACE						29			C			30						SPACE
			5,376	3,096	3,276			A	B	C			5,508	3,624	3,496			
TOTAL/PHASE:								10,884	6,720	6,772								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	1,080	864
RECEPTACLE LOAD	X	NEC	1,260	1,260
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	22,252	22,252
SUM			24,592	24,376
CALC'D AMPERES			68.3	

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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
D	DWELLING/RESIDENTIAL LOAD
	#REF!

PANEL : LFA

Location: Elect Rm 114 | Main: 60 A | Bus Rating Amps: 125 A | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES							VOLTAMPS					LOAD INFORMATION
LOAD	Note	Type	PH-A	PH-B	PH-C	Ckt	P	CB	PH	CB	P	Ckt	PH-A	PH-B	PH-C	Type	Note	LOAD
FACP			500			1	1	20	A	20	1	2						SPARE
MONACO TRANSCEIVER				500		3	1	20	B	20	1	4						SPARE
SPARE						5	1	20	C	20	1	6						SPACE
SPACE						7	1	20	A	20	1	8						SPACE
SPACE						9	1	20	B	20	1	10						SPACE
SPACE						11	1	20	C	20	1	12						SPACE
			500	500	0			A	B	C			0	0	0			
TOTAL/PHASE:								500	500	0								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	0	0
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	1,000	1,000
SUM			1,000	1,000
CALC'D AMPERES			2.8	

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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
	#REF!

PROJECT STATUS

BID SET 05/26/09

ISSUE			
MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	PANELBOARD SCHEDULE CHANGES	NZ

		DATE
DRAWN	L. DICKENS	
DESIGNED	N. ZECH	
CHECKED	D. KING	
PRELIMCR	J. GRANT	
REQUESTOR	R. SCHULER	
FLIGHT		
SAFETY		
SUPERVISOR	S FRANKEL	

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

PANEL SCHEDULES

SIZE	CAGE CODE		REV
D	25307	A232-0800- E903	A
SCALE		INDEX	SHEET OF

DWG: Q:\60048883 – NASA Ames CSF M232\500 CAD\E\Sheet\E903.dwg User: zechn
DATE: May 28, 2009 – 4:07:25 pm Images:
Xrefs: XBDR

PANEL : C2S

Location: Elect Rm 214 | Main: 175 A | Bus Rating Amps: 225 A | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH-A	PH-B	PH-C	Ckt	P	CB	PH	CB	P	Ckt	PH-A	PH-B	PH-C	Type	Note	LOAD
OPEN OFFICE 212 RECEPTACLE		R	1,000			1	1	20	A	20	1	2	1,000			R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R		1,000		3	1	20	B	20	1	4		1,000		R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R			1,000	5	1	20	C	20	1	6			1,000	R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R	500			7	1	20	A	20	1	8	1,000			R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R		1,000		9	1	20	B	20	1	10		1,000		R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R			1,000	11	1	20	C	20	1	12			1,000	R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R	1,000			13	1	20	A	20	1	14	1,000			R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R		1,000		15	1	20	B	20	1	16		1,000		R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R			500	17	1	20	C	20	1	18			1,000	R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R	500			19	1	20	A	20	1	20	1,000			R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R		1,000		21	1	20	B	20	1	22		1,000		R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R			1,000	23	1	20	C	20	1	24			1,000	R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R	500			25	1	20	A	20	1	26	1,000			R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R		500		27	1	20	B	20	1	28		1,000		R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R			1,000	29	1	20	C	20	1	30			500	R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R	1,000			31	1	20	A	20	1	32	500			R		OPEN OFFICE 212 RECEPTACLE
ROOM 211		R		500		33	1	20	B	20	1	34						SPARE
ROOM 211		R			500	35	1	20	C	20	1	36						SPARE
ROOM 211		R	500			37	1	20	A	100	3	38	3,166					C2SA
ROOM 211		R		500		39	1	20	B	100	–	40		3,166				C2SA
SPARE						41	1	20	C	100	–	42			3,166			C2SA
			5,000	5,500	5,000			A	B	C			8,666	8,166	7,666			
TOTAL/PHASE:								13,666	13,666	12,666								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	20,250	30,500
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	9,498	9,498
SUM			29,748	39,998
CALC'D AMPERES			82.6	

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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR

PANEL : C2N

Location: Elect Room | Main: 175 A | Bus Rating Amps: 225 | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH-A	PH-B	PH-C	Ckt	P	CB	PH	CB	P	Ckt	PH-A	PH-B	PH-C	Type	Note	LOAD
OPEN OFFICE 202 RECEPTACLE		R	1,000			1	1	20	A	20	1	2	1,000			R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R		1,000		3	1	20	B	20	1	4		1,000		R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R			1,000	5	1	20	C	20	1	6			1,000	R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R	1,000			7	1	20	A	20	1	8	1,000			R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R		1,000		9	1	20	B	20	1	10		1,000		R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R			1,000	11	1	20	C	20	1	12			1,000	R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R	1,000			13	1	20	A	20	1	14	1,000			R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R		1,000		15	1	20	B	20	1	16		500		R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R			1,000	17	1	20	C	20	1	18			500	R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R	1,000			19	1	20	A	20	1	20	500			R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R		1,000		21	1	20	B	20	1	22		500		R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R			500	23	1	20	C	20	1	24			500	R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R	1,000			25	1	20	A	20	1	26	500					OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R		1,000		27	1	20	B	20	1	28		500				OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R			1,000	29	1	20	C	20	1	30			1,000	R		OPEN OFFICE 202 RECEPTACLE
OPEN OFFICE 202 RECEPTACLE		R	1,000			31	1	20	A	20	1	32	1,000			R		OPEN OFFICE 202 RECEPTACLE
SPARE						33	1	20	B	20	1	34						SPARE
SPARE						35	1	20	C	20	1	36						SPARE
SPARE						37	1	20	A	100	3	38	3,000					C2NA
SPARE						39	1	20	B	100	–	40		3,000				C2NA
SPARE						41	1	20	C	100	–	42			3,000			C2NA
			6,000	5,000	4,500			A	B	C			8,000	6,500	7,000			
TOTAL/PHASE:								14,000	11,500	11,500								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	18,500	27,000
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	10,000	10,000
SUM			28,500	37,000
CALC'D AMPERES			79.1	

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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR

PANEL : C2SA

Location: Elect Rm 214 | Main: LUGS ONLY | Bus Rating Amps: 100 A | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH-A	PH-B	PH-C	Ckt	P	CB	PH	CB	P	Ckt	PH-A	PH-B	PH-C	Type	Note	LOAD
OPEN OFFICE 212 RECEPTACLE		R	1,000			1	1	20	A	20	1	2	500			R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R		500		3	1	20	B	20	1	4		500		R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R			1,000	5	1	20	C	20	1	6			500	R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R	1,000			7	1	20	A	20	1	8	500			R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R		1,000		9	1	20	B	20	1	10		1,000		R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R			1,000	11	1	20	C	20	1	12			500	R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R	1,000			13	1	20	A	20	1	14	1,000			R		OPEN OFFICE 212 RECEPTACLE
OPEN OFFICE 212 RECEPTACLE		R		1,000		15	1	20	B	20	1	16		500		R		OPEN OFFICE 212 RECEPTACLE
SPARE						17	1	20	C	20	1	18						SPARE
SPARE						19	1	20	A	20	1	20						SPARE
SPARE						21	1	20	B	20	1	22						SPARE
SPARE						23	1	20	C	20	1	24						SPARE
SPACE						25			A			26						SPACE
SPACE						27			B			28						SPACE
SPACE						29			C			30						SPACE
			3,000	2,500	2,000			A	B	C			2,000	2,000	1,000			
TOTAL/PHASE:								5,000	4,500	3,000								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	11,250	12,500
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	0	0
SUM			11,250	12,500
CALC'D AMPERES			31.2	

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7	#REF!

	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
D	DWELLING/RESIDENTIAL LOAD

PANEL : C2NA

Location: Elect Room | Main: Lugs Only | Bus Rating Amps: 100 | Volts: 208 / 120 | Phase/Wires: 3 / 4 | Mounting: SURFACE | AIC Rating: 10k

LOAD INFORMATION			VOLTAMPS			CB RATING/POLES						VOLTAMPS			LOAD INFORMATION		
LOAD	Note	Type	PH-A	PH-B	PH-C	Ckt	P	CB	PH	CB	P	Ckt	PH-A	PH-B	PH-C	Type	Note	LOAD
OPEN OFFICE 202 RECEPTACLES		R	500			1	1	20	A	20	1	2	500			R		OPEN OFFICE 202 RECEPTACLES
OPEN OFFICE 202 RECEPTACLES		R		500		3	1	20	B	20	1	4		500		R		OPEN OFFICE 202 RECEPTACLES
OPEN OFFICE 202 RECEPTACLES		R			1,000	5	1	20	C	20	1	6			500	R		OPEN OFFICE 202 RECEPTACLES
OPEN OFFICE 202 RECEPTACLES		R	500			7	1	20	A	20	1	8	500			R		OPEN OFFICE 202 RECEPTACLES
OPEN OFFICE 202 RECEPTACLES		R		500		9	1	20	B	20	1	10		500		R		OPEN OFFICE 202 RECEPTACLES
OPEN OFFICE 202 RECEPTACLES		R			500	11	1	20	C	20	1	12			500	R		OPEN OFFICE 202 RECEPTACLES
OPEN OFFICE 202 RECEPTACLES		R	500			13	1	20	A	20	1	14	500			R		OPEN OFFICE 202 RECEPTACLES
OPEN OFFICE 202 RECEPTACLES		R		1,000		15	1	20	B	20	1	16		500		R		OPEN OFFICE 202 RECEPTACLES
OPEN OFFICE 202 RECEPTACLES		R			500	17	1	20	C	20	1	18			1,000	R		RM 207 RECEPT FOR MECHOSHADES
SPARE						19	1	20	A	20	1	20	500			R		RM 207 RECEPT FOR QUANTUM SERVER
SPARE						21	1	20	B	20	1	22						SPARE
SPARE						23	1	20	C	20	1	24						SPARE
SPACE						25			A			26						SPACE
SPACE						27			B			28						SPACE
SPACE						29			C			30						SPACE
			1,500	2,000	2,000			A	B	C			2,000	1,500	2,000			
TOTAL/PHASE:								3,500	3,500	4,000								

Load Breakdown		DF	VAxDF	VA
CONTINUOUS LOAD	X	1.25	0	0
LARGEST MOTOR	X	1.25	0	0
RECEPTACLE LOAD	X	NEC	10,500	11,000
DWELLING TYPE LOADS	X	1.00	0	0
OTHER LOADS	X	1.00	0	0
SUM			10,500	11,000
CALC'D AMPERES			29.1	

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	Load Types
L	LIGHTING LOAD
R	RECEPTACLE LOAD
M	LARGEST MOTOR
D	DWELLING/RESIDENTIAL LOAD

INVERTER 1 OUTPUT CIRCUIT BREAKER SCHEDULE

INVERTER SIZE: 5 KW
INVERTER EFFICENCY: 98%
LOCATION: ELECTRICAL ROOM 107
SUPPLY CIRCUIT: HLN-3

RELAY	VOLTAGE	DESCRIPTION	LOAD (KVA)
1	120V	LCS PANEL	1800
2	277V	FIRST LEVEL NORTH WING	1100
3	277V	SECOND LEVEL NORTH WING	1100
4	277V	STAIRS NORTH SIDE	250
5	120V	SITE NORTH SIDE	160
6	120V	SITE NORTH SIDE	143
7			
8			
9			
10			
TOTAL (KVA)			4553

INVERTER 2 OUTPUT CIRCUIT BREAKER SCHEDULE

INVERTER SIZE: 5 KW
INVERTER EFFICENCY: 98%
LOCATION: ELECTRICAL ROOM 114
SUPPLY CIRCUIT: HLS-3

RELAY	VOLTAGE	DESCRIPTION	LOAD (KVA)
1	120V	LCS PANEL	1800
2	277V	FIRST LEVEL SOUTH WING	1050
3	277V	SECOND LEVEL SOUTH WING	1000
4	277V	STAIRS NORTH SIDE	360
5	120V	SITE NORTH SIDE	180
6	120V	SITE NORTH SIDE	250
7			
8			
9			
10			
TOTAL (KVA)			4640

PROJECT STATUS

BID SET 05/26/09

ISSUE

MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	PANELBOARD SCHEDULE CHANGES	NZ

DRAWN	L. DICKENS	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PRELIMGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
RAQA		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

PANEL SCHEDULES

SIZE	CAGE CODE		REV
D	25307	A232-0800- E904	A
SCALE		INDEX SHEET OF	

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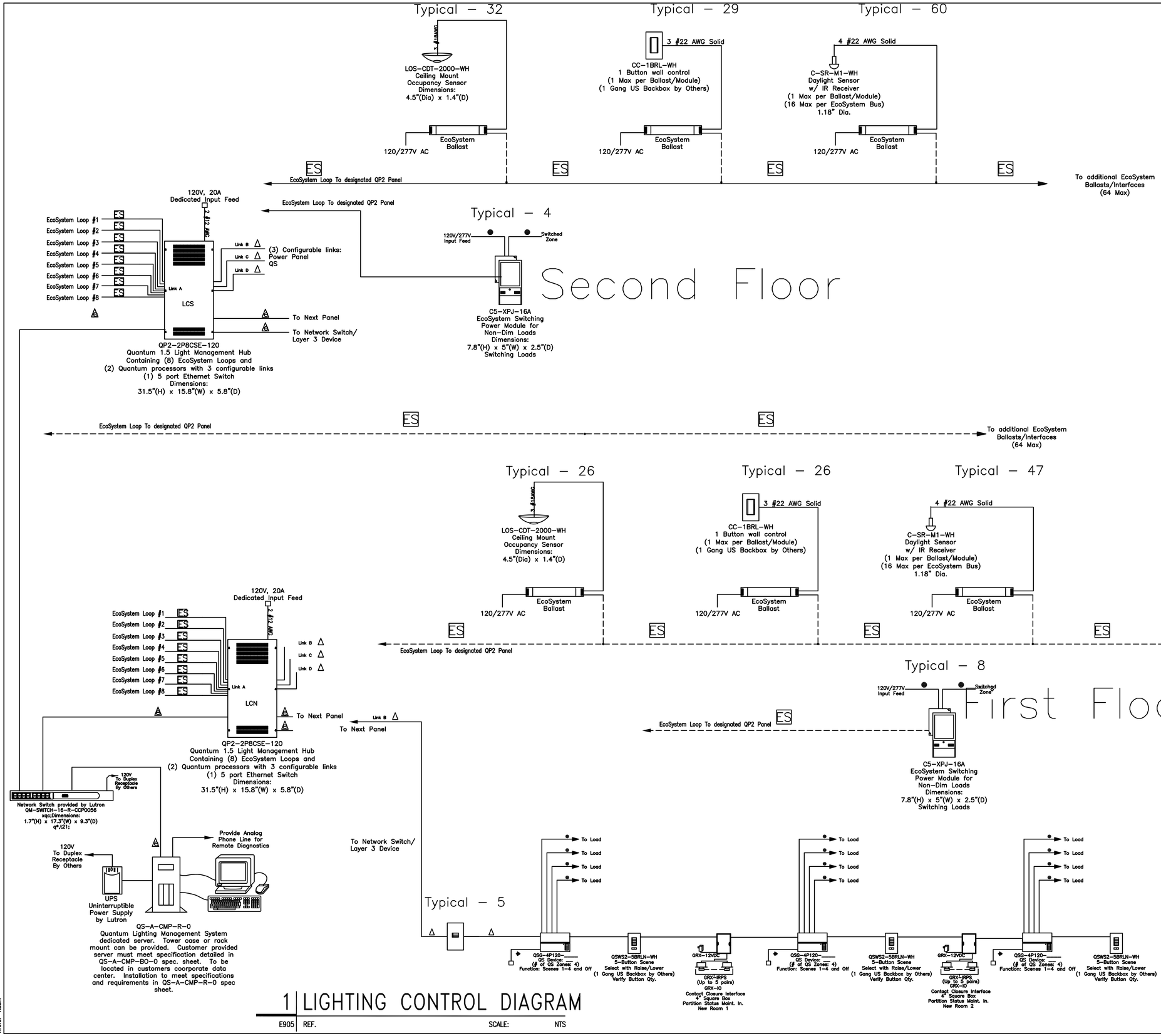
DATE: May 28, 2009 - 4:07:13 pm Images:
Xrefs: 7DBR



1 LIGHTING CONTROL DIAGRAM

E905 | REF. | SCALE: NTS

WIRING SYMBOLS

- Δ Lutron cable GRX–CBL–46L (5 Conductor Non–Plenum) or GRX–PCBL–46L (5 Conductor Plenum rated). Otherwise use 2 #12AWG (2.5mm²), 1 Belden #9461, and between panels add 1 #18AWG (1.0mm²) for emergency sensing.
- ES EcoSystem Bus: Lutron cable C–CBL–216–GR–1 (2 #16 (1.31mm²) Conductor Non–Plenum) or C–PCBL–216–CL–1 (2 #16 (1.31mm²) Conductor Plenum rated).
- A CAT5e or better cable for dedicated Lutron network terminated with RJ45 connectors (to be provided by others). 328 feet (100m) maximum run
- ● 2 #12AWG (2.5 mm²)
- ○ 3 #12AWG (2.5 mm²)
- □ Input Power

All dimming ballasts to be Lutron EcoSystem, Hi–Lume or Eco–10 type.

E.E. to confirm all circuiting requirements.

Architect to verify quantity, location & finish of all controls.

All faceplates, dimmers, switches, receptacles & cable/phone jacks to be Lutron NOVA T*.

Lutron Field Service commissioning included in all systems initiates an 8 year limited warranty. The electrical contractor must contact Lutron (800–523–9466) to set up visit with 10 days notice.

All conductors to be run in conduit A

PROJECT STATUS

BID SET 05/26/09

ISSUE			
MARK	DATE	DESCRIPTION	INITIAL
A	05/26/09	NOTES ADDED	NZ

DRAWN	S. KANDA	DATE
DESIGNED	N. ZECH	DATE
CHECKED	D. KING	DATE
PRELIMGR	J. GRANT	DATE
REQUESTOR	R. SCHULER	DATE
PM/A		DATE
SAFETY		DATE
SUPERVISOR	S FRANKEL	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

ELECTRICAL DETAILS

SIZE	CAGE CODE		REV
D	25307	A232-0800- E905	A
SCALE	INDEX	SHEET	OF

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