ELECTRICAL SYMBOLS

GE0023

- SHEET NOTE IDENTIFIER
- LIGHTING FIXTURE IDENTIFIER
- FEEDER SIZE IDENTIFIER
- GFI # — DUPLEX RECEPTACLE (# INDICATES CIRCUIT, TYPICAL) GFI TYPE
- D — DUPLEX RECEPTACLE D = DEDICATED
- U — OUTLET CONNECTED TO UPS
- E — OUTLET CONNECTED TO EMERGENCY PANEL
- FOURPLEX RECEPTACLE
- ISOLATED GROUND DUPLEX RECEPTACLE PROVIDE (1) #12 AWG. INSULATED, ISOLATED GROUND (IG) WIRE IN ADDITION TO EQUIPMENT GROUND WIRE
- L — SPECIAL RECEPTACLE L = TWIST LOCK
- J — JUNCTION BOX
- J — WALL MOUNTED JUNCTION BOX
- SX — SWITCH, SINGLE POLE (LETTER INDICATES SWITCH LEG)
- S3 — SWITCH, 3-WAY (LETTER INDICATES SWITCH LEG, TYPICAL)
- SD — DIMMER SWITCH
- S4 — SWITCH, 4-WAY
- ST — TIME SWITCH (LETTER INDICATES SWITCH LEG)
- SM — MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION
- SS — SWEEPING SWITCH (SENTRY SWITCH)
- SLV — LOW VOLTAGE SWITCH
- N, E, L — TRANSFER SWITCH
- HP-RATED MANUAL DISCONNECT SWITCH
- F — HP-RATED MANUAL DISCONNECT SWITCH, FUSED
- COMBINATION MOTOR STARTER NEMA SIZE AS INDICATED
- MOTOR STARTER
- POWER POLE
- DATA/TELEPHONE OUTLET
- 4 — DATA COM JACK 4 PORT WITH RING AND PULL STRING
- TEMPERATURE MONITORING/ALARM OUTLET
- CEILING MOUNTED LIGHT FIXTURE
- CEILING MOUNTED LIGHT FIXTURE (EMERGENCY CIRCUIT)
- UPLIGHT FIXTURE
- UPLIGHT FIXTURE (EMERGENCY CIRCUIT)
- WALL MOUNTED LIGHT FIXTURE (EMERGENCY CIRCUIT)
- FLUORESCENT STRIP FIXTURE
- 2' x 4' FLUORESCENT FIXTURE ON EMERGENCY
- OR UNSWITCHED "NIGHT LIGHT" CIRCUIT
- FLUORESCENT FIXTURE
- FLUORESCENT FIXTURE ON EMERGENCY CIRCUIT
- 2' x 2' FLUORESCENT FIXTURE ON EMERGENCY
- OR UNSWITCHED "NIGHT LIGHT" CIRCUIT
- CEILING MOUNTED EXIT LIGHT DARKENED SEGMENT INDICATES FACE OF SIGN. ARROWS AS INDIDATED
- WALL MOUNTED EXIT LIGHT DARKENED SEGMENT INDICATES FACE OF SIGN. ARROWS AS INDICATED
- FACP — FIRE ALARM CONTROL PANEL

- # — BRANCH CIRCUIT HOMERUN
- WIRES IN CONDUIT, CONCEALED UNDER FLOOR OR UNDERGROUND
- WIRES IN CONDUIT, CONCEALED ABOVE CEILING OR IN WALLS
- EXISTING CONDUIT/WIRING TO BE REMOVED
- E — EMERGENCY CIRCUIT
- FA — FIRE ALARM SYSTEM
- T — TELEPHONE SYSTEM CONDUIT
- S — SECURITY SYSTEM
- G — GROUND WIRING
- WW — WIREMOLD
- CONDUIT SEAL
- CONDUIT RUN DROP
- CONDUIT RUN RISE
- CONDUIT STUB OUT
- T — FLOOR MOUNTED TRANSFORMER, UON
- H — HVAC SHUTDOWN MANUAL PULL STATION. PROVIDE RED ENGRAVED LAMACOID IDENTIFICATION "FOR HVAC SHUTDOWN"
- S — SEISMIC SWITCH
- G — TOXIC GAS SHUTDOWN MANUAL PULL STATION
- GS — GAS MONITORING SENSOR
- OS — CEILING-MOUNTED OCCUPANCY SENSOR
- PP — POWER PACK FOR USE W/OCCUPANCY SENSOR
- OS — WALL SWITCH OCCUPANCY SENSOR
- M — MAGNETIC DOOR HOLD OPEN DEVICE
- PB — PUSHBUTTON STATION
- CR — CARD READER
- H — HEAT DETECTOR - AREA
- FIRE ALARM MANUAL PULL STATION
- FIRE ALARM STROBE (ONLY)
- B — FIRE ALARM BELL - GONG
- FIRE ALARM HORN
- FIRE ALARM HORN WITH STROBE
- G — LIFE SAFETY ALARM HORN WITH STROBE
- G — LIFE SAFETY STROBE ONLY
- FSD — FIRE/SMOKE DAMPER
- D — SMOKE DETECTOR - DUCT
- S — FIRE SENSOR
- A — SMOKE DETECTOR - AREA
- R — SMOKE DETECTOR WITH RELAY BASE
- WF — WATER FLOW SWITCH
- TS — WATER FLOW TAMPER SWITCH
- PIV — POST INDICATOR VALVE
- # — MOTOR OUTLET (# INDICATES MOTOR HP)
- A — AMMETER
- G — GENERATOR
- T — THERMOSTAT
- V — VOLTMETER
- GROUNDING ELECTRODE
- COPPERWELD GROUND ROD
- GROUND ROD AND INSPECTION WELL
- THERMAL OVERLOAD
- X — RELAY COIL (X INDICATES RELAY DESIGNATION)
- X NO / X NC — RELAY CONTACT (X INDICATES RELAY DESIGNATION)
- XXX/X — CIRCUIT BREAKER (TRIP AMPS/FRAME SIZE AMPS)
- CIRCUIT BREAKER WITH COMPLETE DRAWOUT ASSEMBLY
- SWITCH
- FUSE

GENERAL NOTES

GE0029A

1. ALL ELECTRICAL WORK SHALL COMPLY WITH 2005 NATIONAL ELECTRICAL CODE, AS AMENDED BY 2007 CALIFORNIA ELECTRICAL CODE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE ELECTRICAL CODE REQUIREMENTS WITH THE AUTHORITY HAVING JURISDICTION.
2. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, PERMITS, FEES AND EQUIPMENT SPECIFIED, INDICATED OR IMPLIED IN THESE DOCUMENTS TO ACCOMPLISH THE CONSTRUCTION IN A PROFESSIONAL, WORKMANLIKE MANNER. ANY DISCREPANCIES BETWEEN THE CONSTRUCTION TASKS INDICATED AND BOD AND LOCAL CODES AND/OR ORDINANCES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF OWNER'S REPRESENTATIVE FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK AT ISSUE.
3. ANY WORK INSTALLED INCORRECTLY, OR BEFORE APPROVAL HAS BEEN OFFICIALLY GRANTED FOR THOSE ITEMS AT ISSUE, SHALL BE CORRECTED BY THE ELECTRICAL CONTRACTOR AT NO CHARGE AND BEFORE SUBSEQUENT WORK SHALL PROCEED.
4. ALL MATERIALS AND EQUIPMENT FURNISHED BY THE CONTRACTOR SHALL BE NEW AND COMPLETELY SERVICEABLE UNLESS OTHERWISE SPECIFIED.
5. CONTRACTOR SHALL COORDINATE ROUGH-IN AND FINAL CONNECTION REQUIREMENTS WITH THE OWNER, USER, EQUIPMENT SUPPLIERS, AND OTHER BUILDING BUILDING TRADES. BEFORE PROCEEDING WITH ANY FURTHER RELATED WORK. INSTALLATIONS SHALL BE IN FULL ACCORDANCE WITH EQUIPMENT MANUFACTURER'S RECOMMENDATIONS AND REQUIRED CODES. CONFLICTS AND INTERFERENCES SHALL BE RESOLVED IMMEDIATELY.
6. CONTRACTOR SHALL VERIFY FINAL PLACEMENT AND CONNECTION REQUIREMENTS PRIOR TO ROUGHING-IN EQUIPMENT UTILITIES.
7. FINAL ACCEPTANCE OF WORK IN PLACE SHALL BE SUBJECT TO APPROVAL BY OWNER'S REPRESENTATIVE. INSTALLATION APPROVAL SHALL BE BASED ON APPROVED BOD AND LOCAL INSPECTION.
8. THE FINAL CORRECTED RECORD DRAWINGS, O&M MANUALS, GUARANTEES & WARRANTIES, AND INDOCTRINATION OF OWNER'S REPRESENTATIVE SHALL BE COMPLETED WITHIN TWO WEEKS AFTER THE FINAL JOB WALK-THRU.
9. CONTRACTOR SHALL KEEP PREMISES OF WORK AREA CLEAN DAILY, BROOM CLEAN AT PROJECT COMPLETION, AND SHALL REMOVE ALL REFUSE FROM SITE. ALL REMOVED MATERIALS, REFUSE, AND DEBRIS SHALL BE PROPERLY DISPOSED OF. COORDINATE WITH OWNER'S REPRESENTATIVE BEFORE HAULING FROM SITE.
10. THE CONTRACTOR SHALL INSPECT JOB SITE TO VERIFY FIELD CONDITIONS PRIOR TO THE START OF WORK. NOT ALL EXISTING CONDITIONS ARE INDICATED ON PLANS. CONCEALED CONDITIONS SHALL BE ADDRESSED WITH DUE CAUTION SUCH THAT UTILITIES AND ARE PROTECTED.
11. CONTRACTOR SHALL CUT AND PATCH HOLES IN EXISTING CONSTRUCTION AS REQUIRED WITH DUE CAUTION SUCH THAT STRUCTURAL INTEGRITY IS MAINTAINED. OBTAIN DIRECTION FROM STRUCTURAL ENGINEER PRIOR TO SAW CUTTING OR BORING HOLES IN CONCRETE WALLS AND FLOORS AND OTHER STRUCTURAL MEMEBERS.
12. CONTRACTOR SHALL WARRANTY ALL NEW WORK FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE AND SHALL REPAIR OR REPLACE ANY DEFECTIVE WORK INCLUDING MATERIAL, LABOR AND EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER DURING THIS TIME IF SAME IS FOUND TO BE DEFECTIVE.
13. ALL WORK SHOWN ON DRAWINGS IS IN PART SCHEMATIC, INTENDED TO CONVEY SCOPE OF WORK AND GENERAL LAYOUT. VERIFY ALL EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS REQUIRED.
14. COMPLY WITH OWNER'S PROCEDURE TO SCHEDULE POWER OUTAGE. SUCH REQUEST SHALL DELINEATE THE PARTICULAR CIRCUIT, EQUIPMENT IN QUESTION, TIME OF DAY AND THE NUMBER OF HOURS THE POWER SHALL BE OFF. THE DURATION OF OUTAGE SHALL BE KEPT TO A MINIMUM.
15. CONTRACTOR SHALL PROVIDE TYPED UPDATED/CORRECTED PANEL DIRECTORIES WITHIN EACH PANELBOARD PRIOR TO FINAL ACCEPTANCE OF WORK IN PLACE.
16. RESPONSE TO THE FINAL WALK-THRU PUNCH LIST SHALL BE PROVIDED WITHIN A WEEK AFTER THE WALK-THRU.
17. SYMBOLS AND ABBREVIATIONS ARE SHOWN FOR REFERENCE ONLY. NOT ALL OF THEM MAY BE USED OR SHOWN ON THE DRAWING.
18. LABEL ALL NEW WIRING DEVICES WITH PANEL BOARD AND CIRCUIT NUMBER ON COVER PLATE. USE FLEXIBLE LAMINATED TAPE WITH LETTER PRINTED ON TAPE BY MACHINE.
19. UNLESS OTHERWISE NOTED FOR ALL NEW WORK, ROUTE CONDUIT IN CEILING SPACES OR CONCEALED IN WALLS. WHERE APPROPRIATE, EXPOSED CONDUIT SHALL BE ROUTED AT RIGHT ANGLES, PLUMB AND PERPENDICULAR TO HORIZONTAL SURFACES, AND PARALLEL TO WALL LINES, DUCTS, FIXTURES, AND OTHER LINEAR EDGES AND OBJECTS.
20. FIELD DETERMINE EXACT ROUTING OF NEW CONDUIT AND PROVIDE PULL BOXES AS REQUIRED.
21. ALL NEW INTERIOR OUTLET, FOR ALL NEW WORK JUNCTION AND PULL BOXES SHALL BE METALLIC, SIZED PER CODE FOR THE NUMBER OF CONDUCTORS THEREIN. CIRCUIT NUMBERS/PANEL NUMBERS SHALL BE WRITTEN IN 1/4" HIGH LETTERS WITH INDELIBLE INK ON THE BOX COVER. USE PREPRINTED, ADHESIVE BACKED CLOTH MARKERS TO IDENTIFY EACH UNGROUNDED CIRCUIT CONDUCTOR AT EACH BOX OR PANEL LOCATION.
22. NEW WIRE SPLICES SHALL BE MADE WITH INSULATED, SPRING-TYPE CONNECTORS FOR COPPER CONDUCTORS #8 AWG AND SMALLER (3M "SCOTCHLOK", IDEAL "WING-NUT", OR APPROVED EQUAL).
23. ALL NEW CONDUCTORS FOR POWER AND LIGHTING BRANCH CIRCUITS SHALL BE #12 AWG MINIMUM.
24. SEAL ALL NEW PENETRATIONS THROUGH FIRE RATED CORRIDOR AND/OR ROOM WALLS, WITH SUITABLE FIRESTOP MATERIAL TO MATCH EXISTING FIRE RATING.
25. ALL MATERIAL EXPOSED TO THE WEATHER SHALL BE OF WEATHERPROOF CONSTRUCTION.
26. ALL BUILDING WIRE SHALL BE COPPER, STRANDED, INSULATED. INSULATION COLOR CODING SHALL MATCH EXISTING.
27. FIRE ALARM SYSTEM IS DESIGN-BUILD BY ELECTRICAL CONTRACTOR. THE FA SYSTEM TO INCLUDE BUT NOT LIMITED TO SMOKE DETECTORS, PULL STATIONS, HORN/STROBES AND OTHER DEVICES AS NEEDED. ALSO SEE HVAC, PLUMBING AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENT. SUBMIT ALL DRAWINGS AND CALCULATIONS TO THE CITY FIRE MARSHALL AND OBTAIN APPROVAL PRIOR TO CONSTRUCTION. PERFORM PERFOMANCE/ACCEPTANCE TEST AT COMPLETION.
28. MOUNTING HEIGHT OF DEVICES SUCH AS SWITCHES, WALL CONVENIENCE OUTLETS TO MATCH EXISTING.
29. A NATIONALLY RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH 05 NEC ARTICLE 113.3
30. ALL ELECTRICAL SWITCHBOARD AND PANELBOARD SHALL BE MARKED WARNING QUALIFIED PERSONNELS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. PER 05 NEC ART 110-16 AND NFPA-70E-2000. PROVIDE ARC FLASH CALCULATION.
31. DO NOT RUN CONDUITS IMMEDIATELY ABOVE LIGHT FIXTURES.
32. LOCATE CONDUITS IN CEILING SPACE AT MINIMUM 8" ABOVE TILES. COORDINATE WITH OTHER TRADES.
33. UPON TRACING OUT ALL CIRCUITS TO REMAIN, COORDINATE WITH DIVISION-15 & LABEL ALL CB'S CLEARLY INDICATING THE LOAD SERVED. DO NOT START DEMOLITION UNTIL THIS TASK IS COMPLETED. SUBMIT UPDATED ONE-LINE DIAGRAM FOR OWNER REVIEW.
34. ELECTRICAL RECEPTACLES AND SWITCHES SHALL BE AT 15' MINIMUM AND 48' BAXIMUM FROM FLOOR RESPECTIVELY PER CBC-1117B.6.
35. PROVIDE EQUIPMENT GROUNDINGS CONDUCTOR FOR ALL PANELS AND EQUIPMENT IN ACCORDANCE WITH CEC TABLE 250.122.

DRAWING INDEX

GE0022

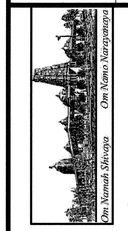
ELECTRICAL	
SHEET NO.	TITLE
E0.0	SYMBOLS AND GEN. NOTES
E-1	LIGHTING FLOOR PLAN
E-2	POWER FLOOR PLAN
E-3	ROOF POWER PLAN
E-4	SINGLE LINE & PANEL SCHEDULES

ABBREVIATIONS

NOT ALL ABBREVIATIONS HAVE BEEN USED

A	AMPERE
AC	ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
AMPS	AMPERES
AWG	AMERICAN WIRE GAGE
BCC	BARE COPPER CONDUCTORS
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CAC	CALIFORNIA ADMINISTRATIVE CODE
CB	CIRCUIT BREAKER
CEC	CALIFORNIA ELECTRICAL CODE
CH	CHAIN
CKT	CIRCUIT
CLG	CEILING
CO	CONDUIT ONLY
CT	CURRENT TRANSFORMER
CU	COPPER
DIAG	DIAGRAM
DIV	DIVISION
D	DEEP
<E>	EXISTING
EL	ELEVATOR
ELEC	ELECTRICAL
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EOL	END OF LINE
EPO	EMERGENCY POWER OFF
EQPT	EQUIPMENT
<F>	FUTURE
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS
FIXT	FIXTURE
FLA	FULL LOAD AMPERES
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRSC	GALVANIZED RIGID STEEL CONDUIT
HID	HIGH INTENSITY DISCHARGE
HOA	HAND/OFF/AUTO
HP	HORSE POWER
HVAC	HEATING VENTILATING & AIR CONDITIONING
ISC	INTERRUPTING SHORT CIRCUIT CAPACITY
JB	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVAR	KILOVOLT AMPERE REACTIVE
KW	KILOWATTS
M	MOTOR
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MCM	THOUSAND CIRCULAR MILLS (KCMIL)
MCS	MOLDED CASE SWITCH
MCP	MOTOR CIRCUIT PROTECTOR
MECH	MECHANICAL
MFG	MANUFACTURING
MFR	MANUFACTURER
MH	METAL HALIDE
MIN	MINIMUM
MLO	MAIN LUG ONLY
MTD	MOUNTED
MTG	MOUNTING
MTG HT	MOUNTING HEIGHT
<N>	NEW
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NECA	NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OAS	OR ACCEPTABLE SUBSTITUTE
OH	OVER HEAD
OSA	OFFICE OF STATE ARCHITECT
OSHPD	OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
PA	SPEAKER
PC	PHOTOCELL
PH	PHASE
PNL	PANEL
POC	POINT OF CONNECTION
PS	POWER SUPPLY
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE (CONDUIT)
RCPT	RECEPTACLE
<RE>	REMOVE EXISTING
<RL>	RELOCATE
REFR	REFRIGERATOR
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SAD	SEE ARCHITECTURAL DRAWING
SMD	SEE MECHANICAL DRAWING
SPD	SEE PLUMBING DRAWING
SSD	SEE STRUCTURAL DRAWING
SQ	SQUARE
SW	SWITCH
SWBD	SWITCHBOARD
TEL	TELEPHONE
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPERE
VAR	VOLT AMPERE REACTIVE
VDC	VOLTS DIRECT CURRENT
VFD	VARIABLE FREQUENCE DRIVE
W	WATT
WP	WEATHERPROOF
XFMR	TRANSFORMER
XFR	TRANSFER
XP	EXPLOSION PROOF

REVISIONS	BY
05-24-10 ISSUED FOR PLAN CHECK	SR



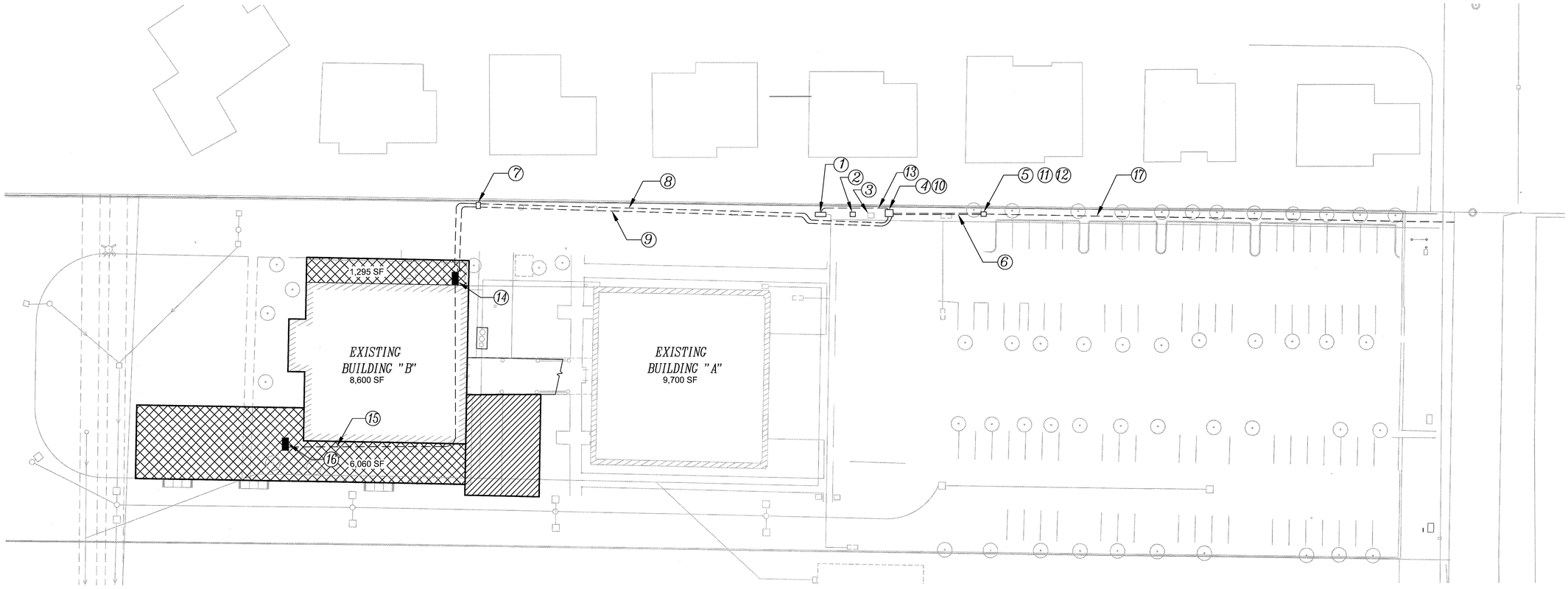
HINDU COMMUNITY and CULTURAL CENTER
1232 ARROWHEAD AVE. LIVERMORE, CA 94551

ELECTRICAL
SYMBOLS AND GEN. NOTES
PHASE 1A

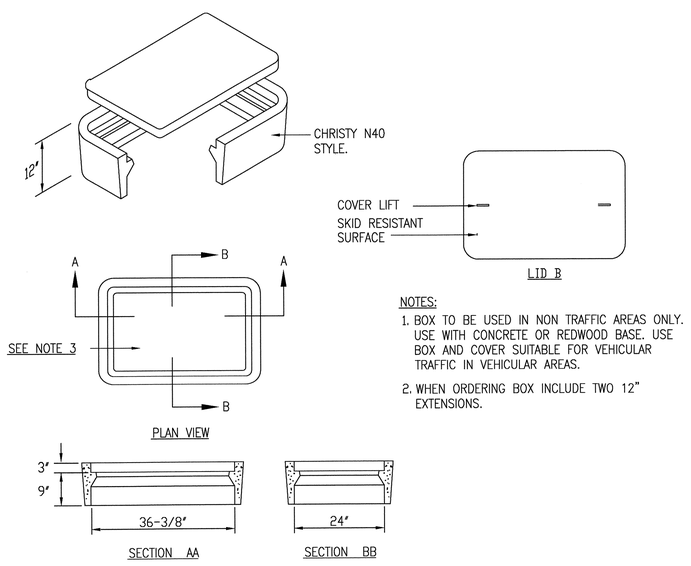
REGISTERED PROFESSIONAL ENGINEER
VISH RONNA YADAVE
NO. E6576
EXP. 9-30-11
ELECTRICAL
STATE OF CALIFORNIA

DATE
8/12/09
SCALE:
AS NOTED
DRAWN BY:
RL/ssm
PROJECT:
ARROWHEAD

E-0.0



1 ELECTRICAL SITE PLAN
1"= 30'-0"



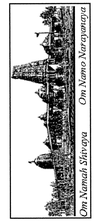
NOTES:
1. BOX TO BE USED IN NON TRAFFIC AREAS ONLY. USE WITH CONCRETE OR REDWOOD BASE. USE BOX AND COVER SUITABLE FOR VEHICULAR TRAFFIC IN VEHICULAR AREAS.
2. WHEN ORDERING BOX INCLUDE TWO 12" EXTENSIONS.

2 CONCRETE SITE BOX DETAIL
NOT TO SCALE

SHEET NOTES

1. (E) MAIN SWITCHBOARD "MSI".
2. (E) PG&E PAD MOUNTED TRANSFORMER.
3. (E) PG&E MANHOLE.
4. (N) MAIN SWITCHBOARD 1200A,120/208V 3PH.4W 22,000 AIC.
5. (N) PG&E PAD MOUNTED TRANSFORMER.
6. (4)-5" SCHEDULE 40 PVC UNDERGROUND CONDUITS WITH PULL ROPE PER PG&E REQUIREMENT.
7. (N) PULLBOX CHRISTY N40.
8. (2)-4" SCHEDULE 40 PVC UNDERGROUND CONDUITS, EACH WITH 4# 600 KCML THW & 1#1/0 GND. DEPTH OF CONDUITS SHALL BE 24" BELOW GRADE LEVEL.
9. (1)-4" SCHEDULE 40 PVC UNDERGROUND CONDUIT ONLY WITH PULL ROPE (SPARE)
10. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR CONCRETE PAD (FOR PROPOSED MAIN SWITCHBOARD INCLUDING STRUCTURAL DRAWING SIGNED BY STRUCTURAL ENGINEER.
11. CONTRACTOR SHALL VERIFY WITH PG&E REPRESENTATIVE TERRY MULLINGS @ 925-373-2603 & PROVIDE TRANSORMER CONCRETE PAD GROUNDING AS PER PG&E GREENBOOK REQUIREMENTS.
12. CONTRACTOR SHALL PROVIDE BOLLARDS AROUND PG&E TRASFORMER PAD AS PER PG&E UG-051122 REQUIREMENTS.
13. (2)-4" SCHEDULE 40PVC UNDERGROUND CONDUITS EACH WITH 4# 500 KCML THW & 1# 1/0 GND DEPTH OF CONDUITS SHALL BE 24" BELOW GRADE LEVEL.
14. (N) PANEL "B".
15. (N) 4" EMT WITH 4#500 KCML THW & 1#1/0 GND, RUN CONDUIT EXPOSED ALONG WALL & CEILING.
16. (N) PANEL "B1".
17. (N) (2)-4" 40PVC UNDERGROUND CONDUITS FOR PG &E PRIMARY FEEDER POINT OF CONNECTION.

REVISIONS	BY

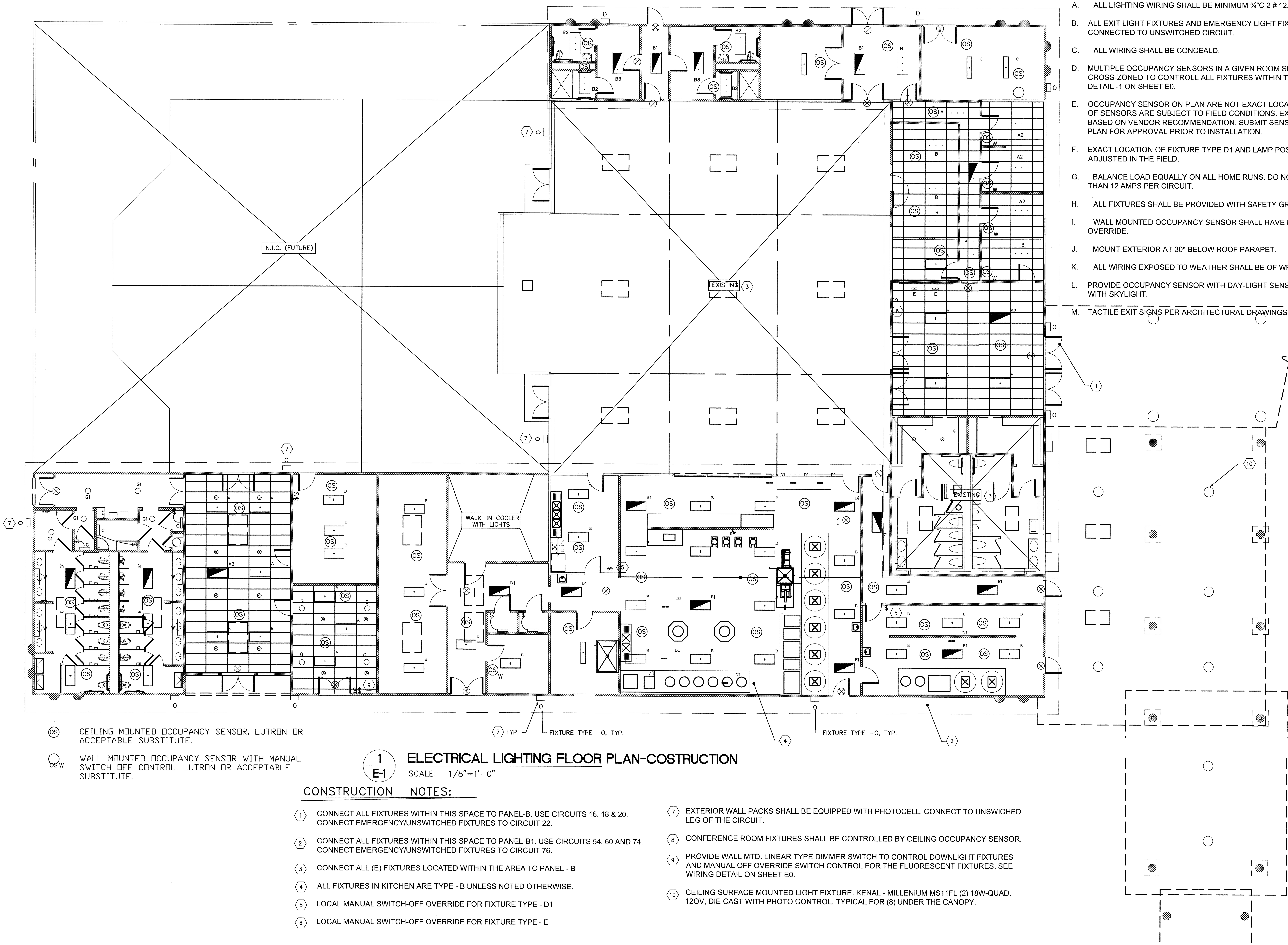


BUILDING "B"
HINDU COMMUNITY and CULTURAL CENTER
1200 ARROWHEAD AVE. LIVERMORE, CA 94551

ELECTRICAL SITE PLAN
AND DETAILS

DATE
03/12/10
SCALE:
DRAWN BY:
AM
PROJECT:
ARROWHEAD

E-0



(OS) CEILING MOUNTED OCCUPANCY SENSOR. LUTRON OR ACCEPTABLE SUBSTITUTE.

OS W WALL MOUNTED OCCUPANCY SENSOR WITH MANUAL SWITCH OFF CONTROL. LUTRON OR ACCEPTABLE SUBSTITUTE.

1 / E-1 ELECTRICAL LIGHTING FLOOR PLAN-COSTRUCTION

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

CONSTRUCTION NOTES:

1. CONNECT ALL FIXTURES WITHIN THIS SPACE TO PANEL-B. USE CIRCUITS 16, 18 & 20. CONNECT EMERGENCY/UNSWITCHED FIXTURES TO CIRCUIT 22.
2. CONNECT ALL FIXTURES WITHIN THIS SPACE TO PANEL-B1. USE CIRCUITS 54, 60 AND 74. CONNECT EMERGENCY/UNSWITCHED FIXTURES TO CIRCUIT 76.
3. CONNECT ALL (E) FIXTURES LOCATED WITHIN THE AREA TO PANEL - B
4. ALL FIXTURES IN KITCHEN ARE TYPE - B UNLESS NOTED OTHERWISE.
5. LOCAL MANUAL SWITCH-OFF OVERRIDE FOR FIXTURE TYPE - D1
6. LOCAL MANUAL SWITCH-OFF OVERRIDE FOR FIXTURE TYPE - E
7. EXTERIOR WALL PACKS SHALL BE EQUIPPED WITH PHOTOCELL. CONNECT TO UNSWICHED LEG OF THE CIRCUIT.
8. CONFERENCE ROOM FIXTURES SHALL BE CONTROLLED BY CEILING OCCUPANCY SENSOR.
9. PROVIDE WALL MTD. LINEAR TYPE DIMMER SWITCH TO CONTROL DOWNLIGHT FIXTURES AND MANUAL OFF OVERRIDE SWITCH CONTROL FOR THE FLUORESCENT FIXTURES. SEE WIRING DETAIL ON SHEET E0.
10. CEILING SURFACE MOUNTED LIGHT FIXTURE. KENAL - MILLENIUM MS11FL (2) 18W-QUAD, 12OV, DIE CAST WITH PHOTO CONTROL. TYPICAL FOR (8) UNDER THE CANOPY.

GENERAL NOTES:

A. ALL LIGHTING WIRING SHALL BE MINIMUM ¾"C 2 # 12, 1 # 12 GND.

B. ALL EXIT LIGHT FIXTURES AND EMERGENCY LIGHT FIXTURES SHALL BE CONNECTED TO UNSWITCHED CIRCUIT.

C. ALL WIRING SHALL BE CONCEALD.

D. MULTIPLE OCCUPANCY SENSORS IN A GIVEN ROOM SHALL BE CROSS-ZONED TO CONTROLL ALL FIXTURES WITHIN THAT ROOM. SEE DETAIL -1 ON SHEET E0.

E. OCCUPANCY SENSOR ON PLAN ARE NOT EXACT LOCATIONS. LOCATION OF SENSORS ARE SUBJECT TO FIELD CONDITIONS. EXACT LOCATION BASED ON VENDOR RECOMMENDATION. SUBMIT SENSOR LOCATION PLAN FOR APPROVAL PRIOR TO INSTALLATION.

F. EXACT LOCATION OF FIXTURE TYPE D1 AND LAMP POSITION TO BE ADJUSTED IN THE FIELD.

G. BALANCE LOAD EQUALLY ON ALL HOME RUNS. DO NOT EXCEED MORE THAN 12 AMPS PER CIRCUIT.

H. ALL FIXTURES SHALL BE PROVIDED WITH SAFETY GROUND PER CEC.

I. WALL MOUNTED OCCUPANCY SENSOR SHALL HAVE MANUAL OFF OVERRIDE.

J. MOUNT EXTERIOR AT 30" BELOW ROOF PARAPET.

K. ALL WIRING EXPOSED TO WEATHER SHALL BE OF WP CONSTRUCTION.

L. PROVIDE OCCUPANCY SENSOR WITH DAY-LIGHT SENSING FOR ROOMS WITH SKYLIGHT.

M. TACTILE EXIT SIGNS PER ARCHITECTURAL DRAWINGS.

REVISIONS	BY
05-24-10 ISSUED FOR PLAN CHECK	SR

Om Namah Shivaya — Om Namo Narayanaya

HINDU COMMUNITY and CULTURAL CENTER

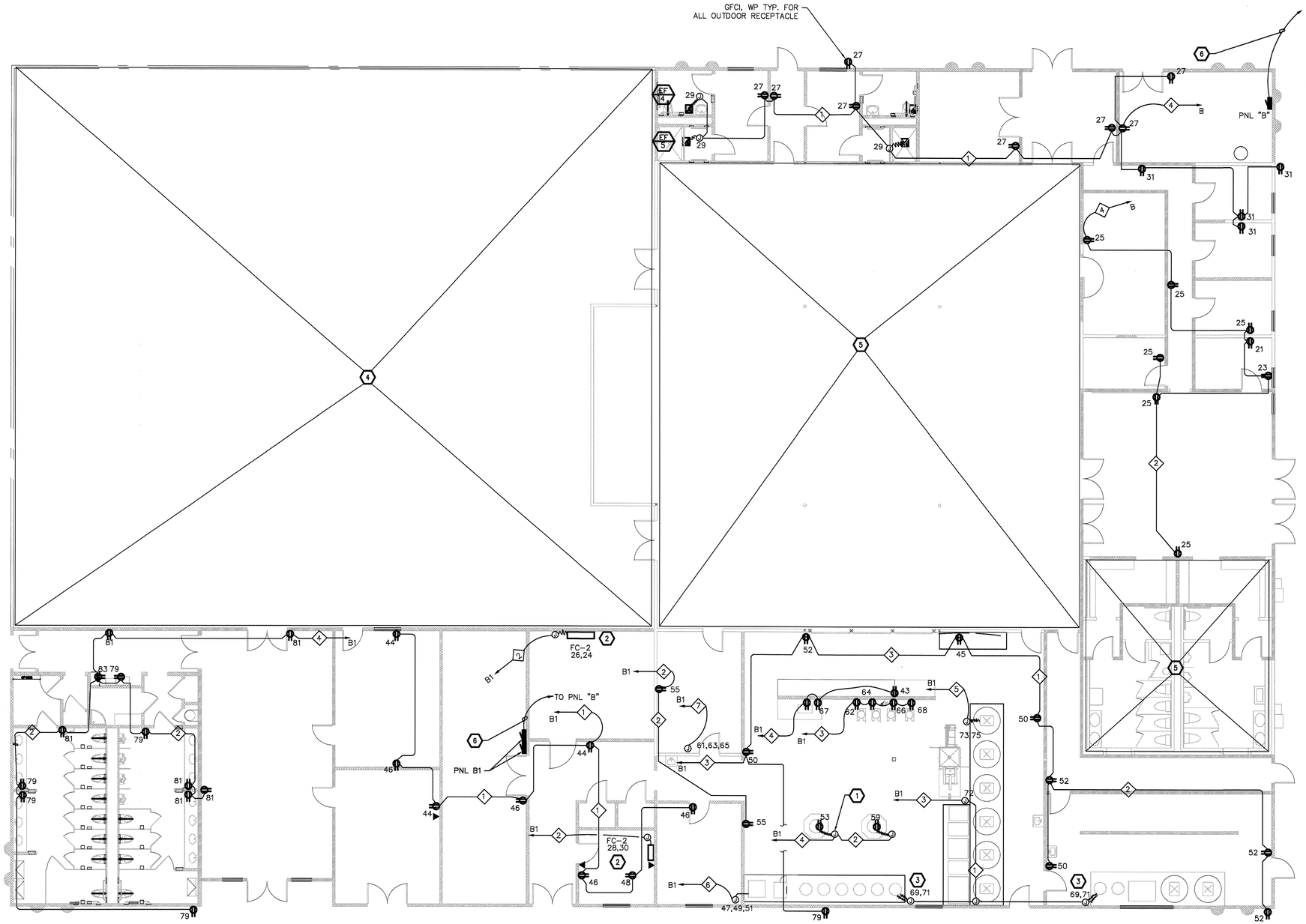
1232 ARROWHEAD AVE. LIVERMORE, CA 94551

REGISTERED PROFESSIONAL ENGINEER · VIGH PONNATHAPURA · NO. E12578 · EXP. 9-30-11 · ELECTRICAL · STATE OF CALIFORNIA

ELECTRICAL LIGHTING FLOOR PLAN PHASE 1A

DATE: 8/12/09
SCALE: AS NOTED
DRAWN BY: RL/ssm
PROJECT: ARROWHEAD

E-1



GENERAL NOTES:

A. REFER TO KITCHEN EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.

B. ALL CONVENIENCE OUTLETS LOCATED IN KITCHEN AND REST ROOMS SHALL BE GFI TYPE.

C. ALL WIRING SHALL BE CONCEALED UNLESS NOTED OTHERWISE.

D. ALL OUTDOOR RECEPTACLES SHOWN SHALL BE GFCI TYPE OF WEATHER PROOF CONSTRUCTION.

SHEET NOTES:

1. SEE DETAIL 1 ON SHEET-4 FOR PENDANT MOUNTED RECEPTACLE.
2. COORDINATE WITH DIV 15 CONTRACTOR FOR LOCATION OF UNIT AND POINT OF CONNECTION.
3. CONNECT TO HOOD LIGHTS AND POWER FOR FIRE EXTINGUISHING SYSTEM CONTROLS POWER. COORDINATE WITH THE HOOD INTALLER.
4. FUTURE CONSTRUCTION NOT IN CONTRACT.
5. CONNECT EXISTING ELECTRICAL OUTLETS TO PANEL B. MATERIAL AND METHOD TO MATCH EXISTING. USE EXISTING CONDUIT TO THE EXTENT POSSIBLE. PROVIDE NEW AS REQUIRED.
6. SEE ONE-LINE DIAGRAM ON SHEET E-4 FOR CONDUIT/WIRE INFORMATION.

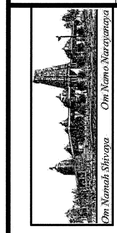
CONDUIT AND WIRE SCHEDULE:

1. 3/4" C, 3 # 12, 1 # 12 GND
2. 3/4" C, 2 # 12, 1 # 12 GND
3. 3/4" C, 5 # 12, 1 # 12 GND
4. 3/4" C, 4 # 12, 1 # 12 GND
5. 3/4" C, 2 # 10, 1 # 10 GND
6. 3/4" C, 3 # 10, 1 # 10 GND
7. 1" C, 3 # 8, 1 # 10 GND

1 E-2 **ELECTRICAL POWER FLOOR PLAN-COSTRUCTION**

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

REVISIONS	BY
05-24-10 ISSUED FOR PLAN CHECK	SR



HINDU COMMUNITY and CULTURAL CENTER

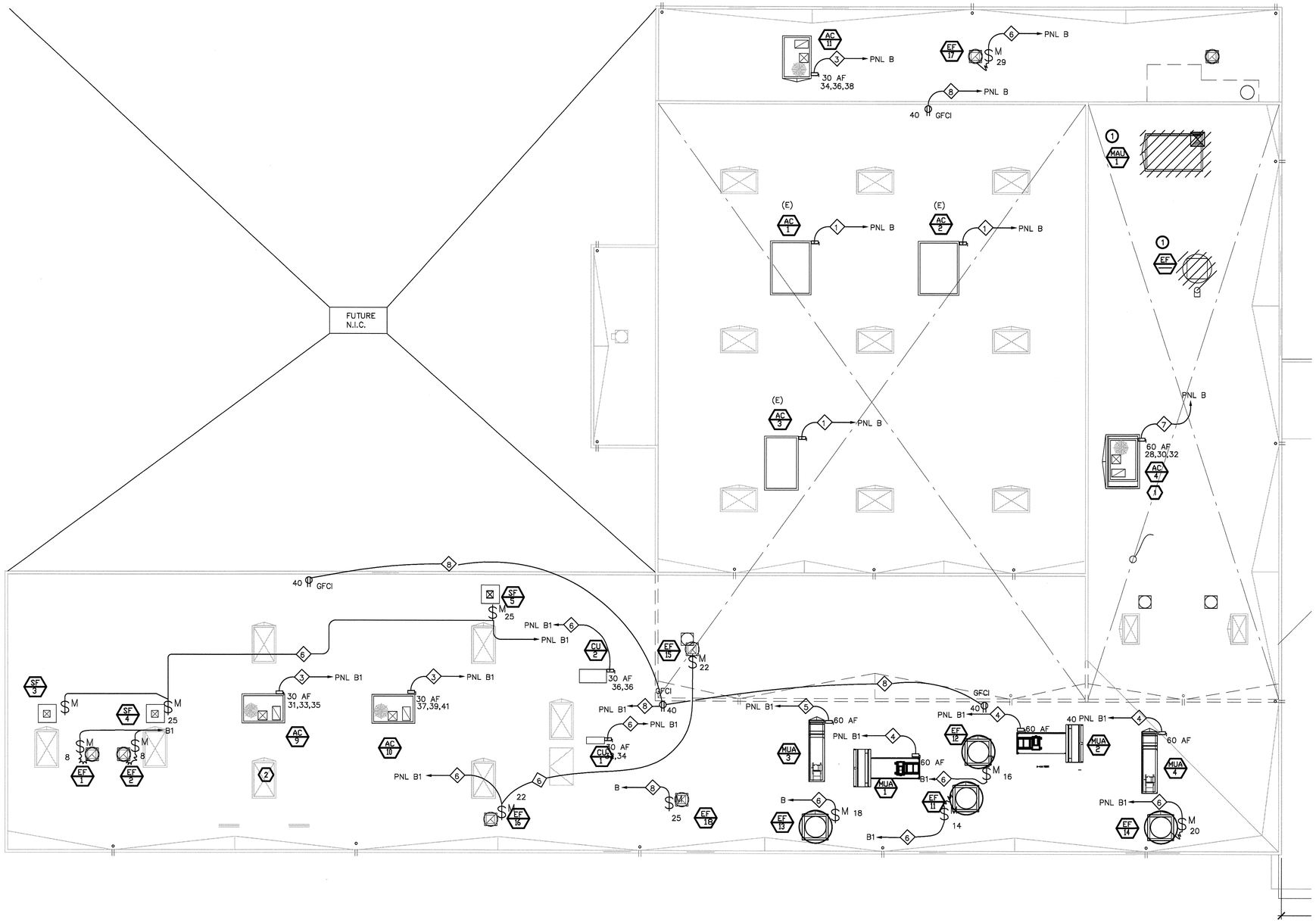
1232 ARROWHEAD AVE. LIVERMORE, CA 94551

REGISTERED PROFESSIONAL ENGINEER
VIJAY PONNAPPAGARI
NO. E6516
EXP. 9-30-11
ELECTRICAL
STATE OF CALIFORNIA

ELECTRICAL
POWER FLOOR PLAN
PHASE 1A

DATE
8/12/09
SCALE:
AS NOTED
DRAWN BY:
RL/ssm
PROJECT:
ARROWHEAD

E-2



GENERAL NOTES:

1. CONFIRM WITH MECHANICAL (DIVISION 15) FOR MOTOR H.P. AND MINIMUM CIRCUIT AMPS PRIOR TO ROUGH-IN.
2. PROVIDE MOTOR H.P. RATED DISCONNECT SWITCH AS NOTED IN ACCORDANCE WITH ART. 430-101 AND 113 OF CEC. PROVIDE FUSES.
3. LOCATE GFI OUTLET WITH IN 25' OF HVAC UNITS.
4. ALL WIRING AND EQUIPMENT EXPOSED TO WEATHER SHALL BE WEATHER PROOF CONSTRUCTION.

DEMOLITION NOTES:

(1) REMOVE ELECTRICAL POWER TO THE (E) MAKE-UP AIR UNIT AND EXAUST FAN. SCHEDULE THE REMOVAL OF POWER WITH CONSTRUCTION MANAGER.

(2) ALSO SEE DWG. S-1 FOR GENERAL DEMOLITION WORK AND NOTES.

CONSTRUCTION NOTES:

(1) REMOVE (E) UNIT AND REPLACE WITH (N) UNIT AS SCHEDULED ON DWG. M0.1.

(2) INSTALL (N) UNIT AS SCHEDULED ON DWG. M0.1. COORDINATE WITH ELECTRICAL PLANS FOR POWER AND STRUCTURAL/ARCHITECTURAL FOR EXACT LOCATION.

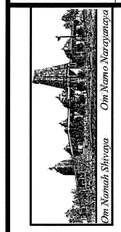
CONDUIT AND WIRE SCHEDULE:

(1) 1-1/2" C, 3 # 2, 1 # 6 GND
(2) 1-1/4" C, 3 # 4, 1 # 8 GND
(3) 1" C, 3 # 8, 1 # 10 GND
(4) 1" C, 2 # 4, 1 # 8 GND
(5) 1" C, 2 # 8, 1 # 10 GND
(6) 3/4" C, 2 # 10, 1 # 10 GND
(7) 3/4" C, 3 # 6, 1 # 10 GND
(8) 3/4" C, 2 # 12, 1 # 12 GND

1 / E-3 ELECTRICAL ROOF POWER PLAN-DEMOLITION AND COSTRUCTION

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

REVISIONS	BY
05-24-10 ISSUED FOR PLAN CHECK	SR

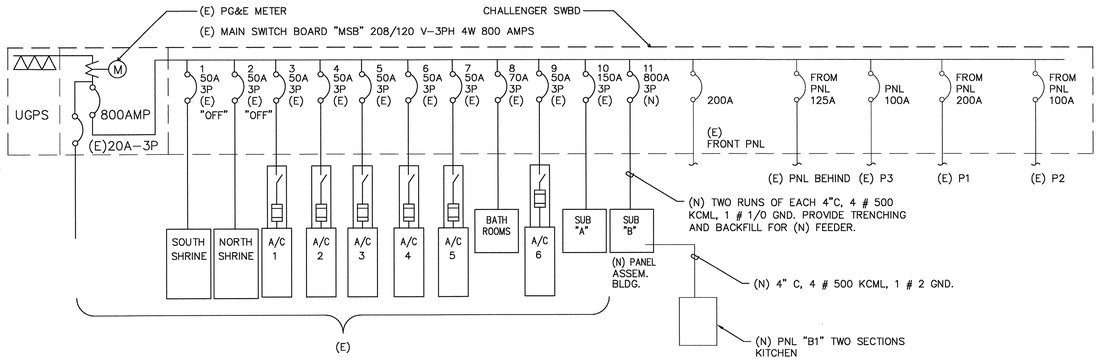


HINDU COMMUNITY and CULTURAL CENTER
1232 ARROWHEAD AVE. LIVERMORE, CA 94551

ELECTRICAL
ROOF POWER PLAN
PHASE 1A

DATE
8/12/09
SCALE:
AS NOTED
DRAWN BY:
RL/ssm
PROJECT:
ARROWHEAD

E-3



1 / E-4 **SINGLE LINE DIAGRAM**

SCALE: N.T.S.

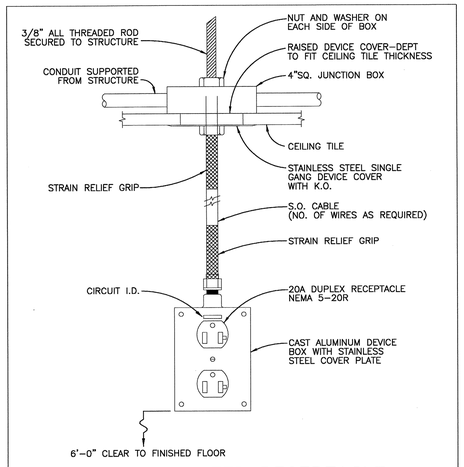
SITE SERVICE LOAD CALCULATION

HINDU COMMUNITY AND CULTURAL CENTER SERVICE 120/208V 800 AMPS

	110 KW	122	KVA	
EXISTING DEMAND FROM PG&E 12 MONTH RECORD:		31	KVA	
PER NEC ARTICLE 220.87 ADD 25%				
EXISTING ASSEMBLY BUILDING B DEMAND		27	KVA	*FROM DEMAND MONITORING 10/22/09 TO 10/27/09*
NEW LOADS INCL PANEL B1 DEMAND		100.8	KVA	
TOTAL PROJECTED DEMAND FOR THE SITE		281	KVA	
TOTAL PROJECTED MAXIMUM AMPS		780	AMPS	
EXISTING SERVICE MAIN		800	AMPS	

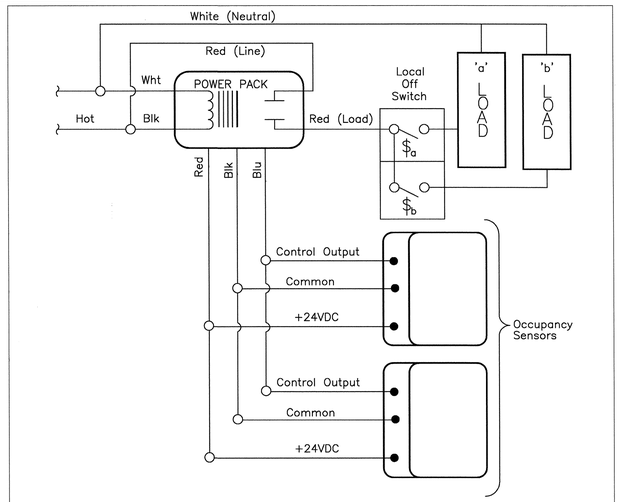
LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	DESCRIPTION OF FIXTURE	VOLTAGE	COMMENTS
A	MARK MD 24 2 LAMPS T8HO EBPR	120	NOTE 1
A1	MARK MD 24 2 LAMPS T8HO ADEZ	120	WITH DIMMING BALLAST
A2	MARK MD 24 3 LAMPS T8HO EBPR	120	NOTE 1
A3	SAME AS A EXCEPT WITH BATTERY PACK	120	NOTE 1
B	LITHONIA 2PSP8 3 LAMPS 32W T8 2'x4' A12125	120	LENSED FIXTURE WITH GASKET. ALSO SEE NOTE 1
B1	SAME AS B EXCEPT WITH EL 14 BATTERY PACK	120	LENSED FIXTURE WITH GASKET. ALSO SEE NOTE 1
B2	SAME AS B EXCEPT WITH EL 2 LAMPS	120	LENSED FIXTURE WITH GASKET. ALSO SEE NOTE 1
B3	SAME AS B2 EXCEPT WITH BATTERY PACK	120	LENSED FIXTURE WITH GASKET. ALSO SEE NOTE 1
C	LITHONIA SURFACE CEILING HUNG/WALL MTD WITH ACYLIC LENS L2-32 MVOLT-GEB-2 LAMPS-1015-SSR	120	WITH FROSTED BOROSILICATE GLASS. ALSO SEE NOTE 1
D1	MEDUSA ADJUSTABLE (4) 50W MR16	120	
E	PEACH TREE WALL WASHER 5"X9" W; (1) 26W PLT	120	
G	GOTHAM COMPACT FLUORESCENT DOWNLITE 6" ROUND LGF 1/26TRT 6RW T73	120	
G1	SAME AS G EXCEPT WITH BATTERY PACK	120	
O	SIERRA FULL CUTOFF WALL PACK SIFCM WB 100W MH WITH PHOTO CELL	120	MOUNT AT MIN 10' AFF AS DIRECTED
W	PRUDENTIAL 4' (1) T5 LAMP HCA D4W DISTRIBUTION WITH WALL BRACKET	120	SINGLE CIRCUIT. FINISH PER ARCHITECT. MOUNT ABOVE MIRROR AS DIRECTED.
X	EXIT FIXTURE UNIVERSAL MOUNT MATCH EXISTING	120	
NOTE 1	VERIFY CEILING TYPE PRIOR TO ORDER		
NOTE 2	PROVIDE BATTERY PACK.		



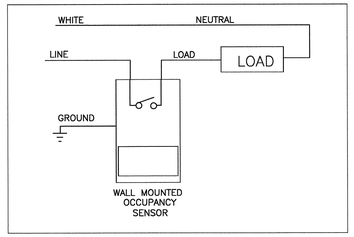
1 / E-4 PENDANT MOUNTED RECEPTACLE FOR GRID CEILING INSTALLATION

SCALE: NONE



2 / E-4 CEILING MOUNTED OCCUPANCY SENSORS

SCALE: NONE



3 / E-4 WALL MOUNTED OCCUPANCY SENSOR, SINGLE LEVEL SWITCHING WIRING DIAGRAM

SCALE: NONE

GENERAL NOTE:

1. VERIFY HVAC AND MECHANICAL EQUIPMENT POWER REQUIREMENTS PRIOR TO ORDERING PANEL BOARDS..
2. THE BATTERY PACK FOR LIGHT FIXTURES IN THE SCHEDULE ABOVE SHALL PROVIDE POWER FOR MINIMUM 90 MINUTES FROM BATTERIES AND THE ILLUMINATION SHALL MEET AN AVERAGE OF 1 F.C. AND MININUM OF 0.1 F.C.

PANEL B DIRECTORY

CIRC NO.	TRIP AMPS	NO. POLE	LOAD SERVED	PHASE LOAD VA A	B	C	LOAD SERVED	NO. POLE	TRIP AMPS	CIRC NO.
1	90	3	(E) AC-1	6720 / 800			(E) 20A CONV. OUTLETS	1	20	2
3	90	3	(E) AC-1		6720 / 800		(E) 20A CONV. OUTLETS	1	20	4
5	90	3	(E) AC-1			6720 / 800	(E) 20A CONV. OUTLETS	1	20	6
7	90	3	(E) AC-2	6720 / 1500			(E) R- STAGE	1	30	8
9	90	3	(E) AC-2		6720 / 1500		(E) R- STAGE	1	30	10
11	90	3	(E) AC-2			6720 / 1500	(E) R- SIDEWALL	1	30	12
13	70	3	(E) AC-3	5880 / 1500			(R) R - SIDEWALL	1	30	14
15	70	3	(E) AC-3		5880 / 1000		(E) LIGHTS	1	20	16
17	70	3	(E) AC-3			5880 / 1000	LIGHTS	1	20	18
19	20	1	(E) FANS- ASSY AREA	500 / 1000			LIGHTS	1	30	20
21	20	1	SERVER ROOM		400 / 600		EMER. FIXTURES	1	30	22
23	20	1	SERVER ROOM			400	SPARE	1	20	24
25	20	1	(E)CONV. OUTLETS	400			SPARE	1	20	26
27	20	1	(E) CONV. OUTLETS		400 / 3600		(E) AC-4	3	40	28
29	20	1	EX FANS 4, 5			400 / 3600	(E) AC-4	3	40	30
31	20	1	CON. OUTLETS	600 / 3600			(E) AC-4	3	40	32
33	20	1	SPARE		2500		AC-11	3	30	34
35	20	1	SPARE			2500	AC-11	3	30	36
37	400	3	SUB PNL B1	37001 / 2500			AC-11	3	30	38
39	400	3	SUB PNL B1		29655 / 400		ROOF CONV. OUTLETS	1	20	40
41	400	3	SUB PNL B1			24883				42
			TOTAL	67721	59175	54403				

100 % DIVERSITY

VOLTS 208 | PHASE 3 | WIRE 4 GND | RATED 800 A

(E) MAX DEMAND FOR PNL B 26988 VA 75 AMPS FROM DEMAND READING
(N) PNL B LOAD & PNL B1 DEMAND 100839 VA 280
MAIN BREAKER 600
MINIMUM AIC 10KA

MOUNTED SURFACE | LOCATED ELEC RM | FED FROM MSB

TOTAL DEMAND FOR PANEL B INCLUDES EXISTING DEMAND PLUS NEW LOADS (75+280) AMPS = 355 AMPS

PANEL B1 SEC- 1 DIRECTORY

CIRC NO.	TRIP AMPS	NO. POLE	LOAD SERVED	PHASE LOAD VA A	B	C	LOAD SERVED	NO. POLE	TRIP AMPS	CIRC NO.
1	40	3	SPARE	0 / 0			SPARE	3	30	2
3	40	3	SPARE		0 / 0		SPARE	3	30	4
5	40	3	SPARE			0 / 0	SPARE	3	30	6
7	60	2	MUA1	4300 / 600			EF1, EF2, EF3, EF6	1	20	8
9	60	2	MUA1		4300		SPARE	1	20	10
11	60	2	MUA2			4300 / 500	EF18	1	20	12
13	60	2	MUA2	4300 / 2300			EF11	1	30	14
15	40	2	MUA3		2730 / 2300		EF 12	1	30	16
17	40	2	MUA3			2730 / 1200	EF13	1	20	18
19	60	2	MUA4	4300 / 2300			EF14	1	30	20
21	60	2	MUA4		4300 / 600		EF15, EF16 & EF17	1	20	22
23	20	1	SPARE			80	FC1	2	20	24
25	20	1	SF-3, SF-4, SF-5	1200 / 80			FC1	2	20	26
27	30	1	SPARE		120		FC2	2	20	28
29	30	1	SPARE			120	FC2	2	20	30
31	30	3	AC-9	2520 / 866			CU1	2	20	32
33	30	3	AC-9		2520 / 866		CU1	2	20	34
35	30	3	AC-9			2520 / 1250	CU2	2	20	36
37	30	3	AC-10	2520 / 1250			CU2	2	20	38
39	30	3	AC-10		2520 / 600		ROOF CONV. OUTLETS	1	20	40
41	30	3	AC-10			2520				42
			TOTAL	26536	20256	16420				

100 % DIVERSITY

VOLTS 208 | PHASE 3 | WIRE 4 GND | RATED 400 A

3 PH DEMAND POWER 63212 VA 175 AMPS
3 PH CONNECTED LOAD 63212 VA 175
MAIN BREAKER MLO
MINIMUM AIC 10KA

MOUNTED SURFACE | LOCATED SEE PLAN | FED FROM B

PANEL B1 SEC -2 DIRECTORY

CIRC NO.	TRIP AMPS	NO. POLE	LOAD SERVED	PHASE LOAD VA A	B	C	LOAD SERVED	NO. POLE	TRIP AMPS	CIRC NO.
43	20	1	PROOF-HOT CABINET	1920 / 600			CON OUTLETS	1	20	44
45	20	1	REFRIG WORK TABLE		1500 / 600		CON OUTLETS	1	20	46
47	30	3	STEAMER			2760 / 500	OFFICE	1	20	48
49	30	3	STEAMER	2760 / 600			CON OUTLETS	1	20	50
51	30	3	STEAMER		2760 / 600		CON OUTLETS	1	20	52
53	20	1	RICE MIXER			1000 / 1300	LIGHTING	1	20	54
55	20	1	GARBAGE DISPOSER	960			OUTLETS KIT, OFFICE	1	20	56
57	20	1	FRYER		100		OUTLETS KIT, OFFICE	1	20	58
59	20	1	RICE MIXER			960 / 1300	LIGHTING	1	20	60
61	40	3	DISH WASHER	3600 / 600			PLANETARY MIXER	1	20	62
63	40	3	DISH WASHER		3600 / 600		PLANETARY MIXER	1	20	64
65	40	3	DISH WASHER			3600 / 600	PLANETARY MIXER			66
67	20	1	AUTO IDLI DISPOSER	960 / 600			PLANETARY MIXER			68
69	20	1	HOOD LIGHTS		600 / 600		PLANETARY MIXER			70
71	20	1	HOOD FIRE EXT SYSTEM			200 / 200	FRYER / HOOD	1	20	72
73	30	2	FLOOR TORTILLA MACHINE	2900 / 1300			LIGHTING	1	20	74
75	30	2	FLOOR TORTILLA MACHINE		2900 / 1300		EMERGENCY FIXTURES	1	20	76
77	20	1	ROOF OUTLETS			600	SPACE			78
79	20	1	RR'S & LOBBY	600			SPACE			80
81	20	1	RR'S & LOBBY		600		SPACE			82
83										84
			TOTAL	16100	14460	13020				

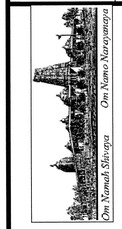
65 % DIVERSITY

VOLTS 208 | PHASE 3 | WIRE 4 GND | RATED 400 A

3 PH DEMAND POWER 28327 VA 79 AMPS PER NEC 210-88
3 PH CONNECTED LOAD 43580 VA 121
MAIN BREAKER MLO
MINIMUM AIC 10KA

MOUNTED SURFACE | LOCATED SEE PLAN | FED FROM B

REVISIONS	BY
05-24-10 ISSUED FOR PLAN CHECK	SR



HINDU COMMUNITY and CULTURAL CENTER

1232 ARROWHEAD AVE. LIVERMORE, CA 94551

ELECTRICAL
SINGLE LINE & PANEL SCHEDULES
PHASE 1A

DATE 8/12/09
SCALE: AS NOTED
DRAWN BY: RL/ssm
PROJECT: ARROWHEAD

E-4

A. PRODUCTS

1. MAIN SWITCHBOARD:
   - A MANUFACTURERS: SIEMENS, GENERAL ELECTRIC, SQUARE D OR CUTLER–HAMMER.
   - B MAIN BREAKERS: MOLDED CASE 42,000AIC MIN
   - C BRANCH BREAKERS: 22,000AIC MIN
   - D NEUTRAL BUS: COPPER FULL LENGTH WITH LUGS
   - E GROUND BUS: FULL SIZE
   - F OTHERS: 60HZ, 22,000AMP BUS BRACINGS

2. PANELBOARDS:
   - A MANUFACTURERS: SIEMENS, GENERAL ELECTRIC, SQUARE D OR CUTLER–HAMMER.
   - B BRANCH BREAKERS: 22,000AIC MIN
   - C NEUTRAL BUS: COPPER FULL LENGTH WITH LUGS
   - D GROUND BUS: FULL SIZE
   - E OTHERS: 60HZ, 22,000AMP BUS BRACINGS

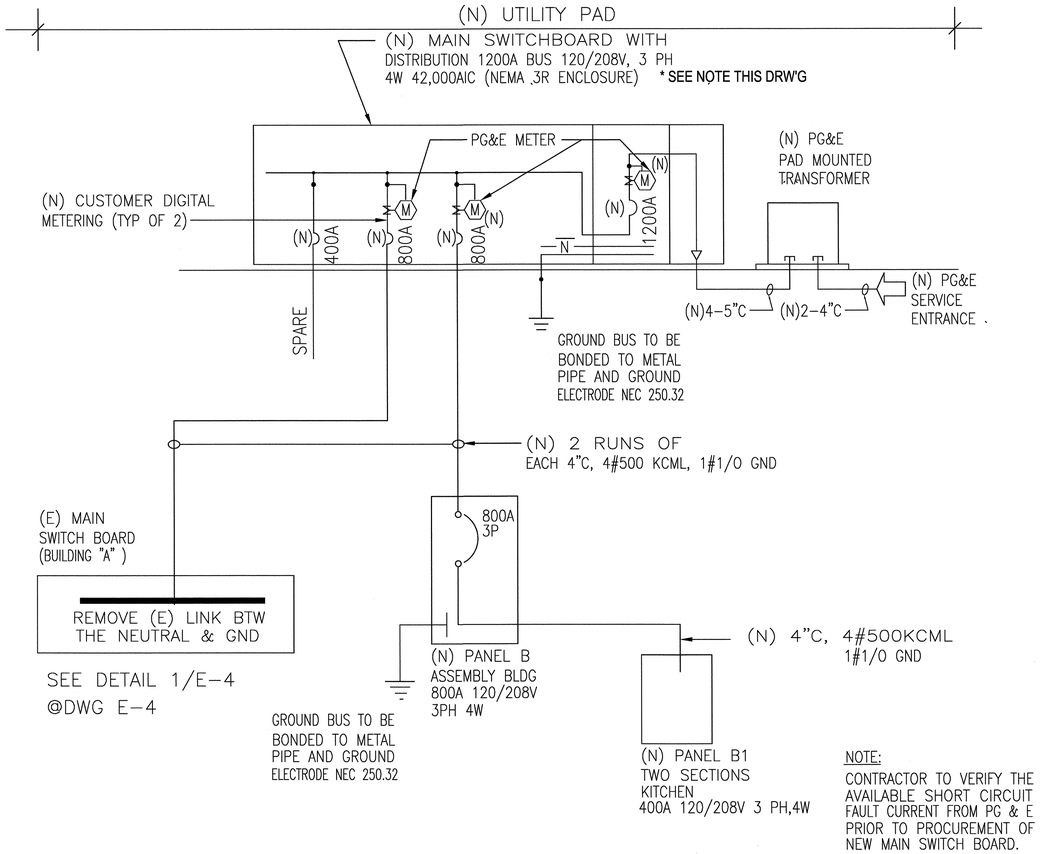
3. CONDUITS:
   - A MANUFACTURERS: ALLIED TUBE & CONDUIT CORP., TRIANGLE PWC INC., WHEATLAND TUBE CO., INC. OR APPROVED EQUAL.
   - B METALLIC TYPE: RSC, IMC, EMT AND FLEXIBLE.
   - C NON–METALLIC TYPE: PVC SCHEDULE 40.

4. CONDUCTORS: COPPER MINIMUM 75–DEG.C INSULATION (THW, THWN). MANUFACTURED BY ROME CABLE, GRAYBAR

4. METALLIC CLAD CABLE: ALUMINUM–CLAD, COPPER MINIMUM 75–DEG.C INSULATION (THW, THWN) MEETS UL STANDARD 1569 AND NEC 334. MANUFACTURED BY ALFLEX CORP.

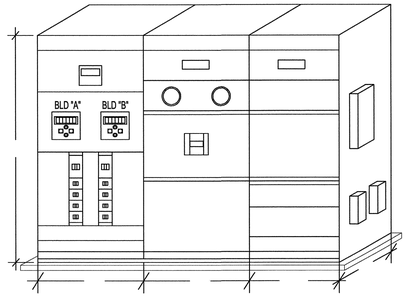
B. MATERIAL AND METHODS

1. ALL EQUIPMENT SHALL BE LISTED BY AN ACCEPTED TESTING LABORATORY AND SHALL BE INSTALLED PER LISTING OR LABELING.
2. CONDUIT ROUTING SHOWN IS DIAGRAMMATIC. CONTRACTOR SHALL LAY OUT RUNS TO SUIT FIELD CONDITIONS AND THE COORDINATION REQUIREMENTS OF OTHER TRADES.
3. PROVIDE A CODE SIZE GROUND WIRE IN ALL CONDUITS UNLESS OTHERWISE NOTED.
4. ALL OUTLETS AND JUNCTION BOXES MOUNTED IN RATED WALL SHALL BE FIRE RATED.



1 ELECTRICAL ONE-LINE DIAGRAM BUILDINGS " A & B"

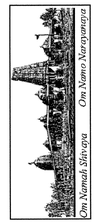
NOT TO SCALE



2 ELEVATION - MAIN SWITCHBOARD- BUILDING "A & B"

NOT TO SCALE

REVISIONS	BY



BUILDING "B"
HINDU COMMUNITY and CULTURAL CENTER
1200 ARROWHEAD AVE. LIVERMORE, CA 94551

ONE-LINE DIAGRAM BUILDING "A & B"
DETAIL & NOTES

DATE
03/12/10
SCALE:
DRAWN BY:
AM
PROJECT:
ARROWHEAD

E-4A

HVAC

SYMBOL	NAME
SD-44 / 4444 / 44x44	DIFFUSER NAME / CFM'S / NECK SIZE
	SUPPLY DIFFUSER
	RETURN REGISTER
	EXHAUST GRILL
	AIR FLOW DIRECTION ARROW
	VERTICAL ROUND DUCT
	ROUND DUCT BREAK
	VERTICAL SUPPLY DUCT
	VERTICAL RETURN/EXHAUST DUCT
	SHEET METAL DUCT
	ACOUST. LINED DUCT
	ELBOW WITH TURNING VANES
12"	ROUND DUCT (12" DIA.)
12X8	DUCT SIZE (WIDTH x HGHT)
	FLEX. DUCT CONNECTION
	ROUND BRANCH DUCT (SUPPLY OR RETURN)
	FLEXIBLE ROUND DUCT (TO CEILING GRILLE OR DIFFUSER)
SQUARE / RND	SQUARE TO ROUND TRANSITION
VD	VOLUME DAMPER RD=16 GA BLADE W/LOCKING QUADRANT RECT= OPPOSED BLADE TYPE
M	MOTORIZED DAMPER
VFD	VERTICAL FIRE DAMPER W/ ACCESS DOOR
FSD	VERTICAL FIRE/SMOKE DAMPER W/ ACCESS DOOR
BDD	BACKDRAFT DAMPER
H	HUMIDISTAT OR HUMIDITY SENSOR
T	THERMOSTAT OR TEMPERATURE SENSOR

PROJECT SPECIFICATIONS

MECHANICAL

BASIC MECHANICAL REQUIREMENTS

1.00 GENERAL

A. THIS SECTION APPLIES SPECIFICALLY TO ALL OTHER SECTIONS OF DIVISION 15.

1.01 SCOPE OF WORK

A. PROVIDE ALL LABOR, EQUIPMENT, AND MATERIALS THAT ARE REQUIRED TO PROVIDE A COMPLETE INSTALLATION AS INDICATED ON THE DRAWINGS AND AS DESCRIBED IN THESE SPECIFICATIONS INCLUDING THAT REASONABLY INFERRED FOR PROPER EXECUTION OF WORK AND SYSTEM OPERATION.

B. PROVIDE CUTTING AND PATCHING AS REQUIRED FOR EXECUTION OF WORK PERFORMED UNDER THIS SECTION UNLESS SPECIFICALLY PROVIDED FOR UNDER OTHER SECTIONS.

C. COORDINATE WITH WORK PERFORMED BY OTHER SECTIONS IN ORDER TO ACCOMMODATE THE REQUIREMENTS OF THIS SECTION AND TO ENSURE ADEQUATE SPACE AND PROPER LOCATION FOR ALL NECESSARY WORK ON THIS PROJECT WHETHER OR NOT WORK IS UNDER THIS SECTION. PROVIDE COORDINATION DRAWINGS AS NECESSARY.

D. PROVIDE ALL NECESSARY RIGGING, EQUIPMENT AND MANPOWER TO SET EQUIPMENT AND MATERIALS IN PLACE AND TO REMOVE DEMOLISHED EQUIPMENT AND MATERIALS FROM THE SITE.

E. PROVIDE ALL SEISMIC RESTRAINTS REQUIRED BY CODE AND THIS SPECIFICATION FOR ALL EQUIPMENT, DUCT, PIPE, AND MATERIALS FURNISHED UNDER THIS SECTION. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE RESTRAINTS AND FOR PROOF OF ADEQUACY OF THE RESTRAINTS AND SHALL SUBMIT SEISMIC CALCULATIONS PREPARED BY A REGISTERED CIVIL OR STRUCTURAL ENGINEER.

1.03 CODES AND STANDARDS

A. THE WORK INSTALLED UNDER THIS SECTION SHALL CONFORM TO ALL APPLICABLE CITY CODES, REGULATIONS AND STANDARDS AND THOSE APPLICABLE STATE AND FEDERAL CODES, REGULATIONS AND STANDARDS.

B. DO NOT CONSTRUE ANYTHING CONTAINED IN THESE SPECIFICATIONS OR DRAWINGS TO PERMIT WORK TO BE INSTALLED THAT DOES NOT CONFORM TO CODE. THE CODES SHALL GOVERN WHERE THEY REQUIRE HIGHER STANDARDS OR ARE VIOLATED BY THE DRAWINGS AND SPECIFICATIONS.

1.04 DRAWINGS AND SPECIFICATIONS

A. COMPLETE ACCURACY OF THE DRAWINGS AND SPECIFICATIONS CAN NOT BE GUARANTEED. WHILE REASONABLE EFFORT HAS BEEN MADE TO COORDINATE THE LOCATION OF EQUIPMENT AND MATERIALS WITH THE STRUCTURE AND OTHER TRADES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE EXACT REQUIREMENTS AND LOCATIONS AS GOVERNED BY ACTUAL JOB CONDITIONS. CHECK ALL INFORMATION AND REPORT ANY DISCREPANCIES TO THE ARCHITECT BEFORE FABRICATION AND IN TIME TO AVOID ANY UNNECESSARY WORK.

1.05 GUARANTEE AND WARRANTIES

A. ALL MATERIALS, PARTS, EQUIPMENT, MODIFICATIONS MADE, AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF WORK. SHOULD SUCH PARTS, MATERIALS, OR WORKMANSHIP BE FOUND TO BE DEFECTIVE DURING THIS PERIOD, THEY WILL BE RECTIFIED AT NO COST TO THE OWNER.

1.06 SUBMITTAL DATA

A. EIGHT (8) SETS OF COMPLETE SUBMITTAL DATA SHALL BE FURNISHED ON ALL ITEMS WHETHER AS SPECIFIED OR PROPOSED AS ALTERNATES. THE SUBMITTALS SHALL BE IN RIGID BINDERS AND SHALL BE TABBED AND INDEXED FOR EASY CHECKING.

B. EQUIPMENT, MATERIALS, AND PRODUCTS SPECIFICALLY IDENTIFIED, DESCRIBED OR SCHEDULED ON THE DRAWINGS AND NAMED FIRST IN THE SPECIFICATIONS IS THE BASIS OF DESIGN. THE OTHER MANUFACTURERS OR SUPPLIERS WHICH MAY BE NAMED IN THE SPECIFICATION ONLY INDICATE THE GENERAL ACCEPTABILITY OF THE MANUFACTURER OR SUPPLIER AND ARE CONSIDERED SUBSTITUTIONS.

C. THE CONTRACTOR ASSUMES FULL RESPONSIBILITY THAT ALTERNATIVE ITEMS SUBSTITUTED FOR THE FIRST NAMED MANUFACTURER WILL MEET THE JOB REQUIREMENTS AND IS RESPONSIBLE FOR THE COST OF REDESIGN AND MODIFICATIONS NECESSARY DUE TO THIS SUBSTITUTION.

1.07 RECORD DRAWINGS

A. RECORD OF JOB PROGRESS: KEEP AN ACCURATE DIMENSIONAL RECORD OF THE AS-BUILT LOCATIONS OF ALL WORK.

B. FINAL AS-BUILT REPRODUCIBLE DRAWINGS SHALL BE SUBMITTED PRIOR TO FINAL ACCEPTANCE.

1.08 OPERATING AND MAINTENANCE INSTRUCTIONS

A. FURNISH THREE (3) COMPLETE SETS OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT BOUND IN A HARDBOARD BINDER AND INDEXED.

1.09 SEISMIC RESTRAINTS

A. GENERAL: ALL EQUIPMENT, PIPING, DUCTWORK, AND MATERIALS SHALL BE FASTENED TO THE STRUCTURE WITH PROPERLY SIZED AND STRUCTURALLY ENGINEERED ANCHORS, BOLTS, AND RESTRAINTS TO PREVENT PERMANENT DISPLACEMENT IN ANY DIRECTION CAUSED BY LATERAL MOTION, OVERTURNING OR UPLIFT.

1.10 PIPE HANGERS, SUPPORTS AND PENETRATIONS

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND SIZING ALL DUCT SUPPORTS, HANGERS, AND ACCESSORIES INCLUDING ALL ATTACHMENTS TO THE STRUCTURE. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATNG WITH THE GENERAL CONTRACTOR ALL TEMPORARY PIPE SUPPORTS DURING THE DEMOLITION OF THE EXISTING CLEANROOM AND FITUP OF THE NEW CLEANROOM ENVELOPE. PIPESUPPORTS CURRENTLY SUPPORTED FROM THE BOTTOM OF THE ROOF DECK MAY NEED TEMPORARY SUPPORT WHILE THE GENERAL INSTALLS SHEETROCK TO THE BOTTOM OF THE EXISTING ROOF DECK.

B. USE CADMIUM PLATED OR GALVANIZED HANGERS. ATTACHMENTS, RODS, NUTS, BOLTS, AND OTHER ACCESSORIES.

2.00 MATERIALS

2.01 VOLUME DAMPERS

A. DAMPERS SHALL CONFORM TO SMACNA STANDARDS. DAMPERS SHALL BE OPPOSED BLADE TYPE, ALUMINUM OR GALVANIZED STEEL 2 GAUGE HEAVIER THAN DUCTS IN WHICH INSTALLED.

2.02 FIRE AND SMOKE DAMPERS

A. CONFORM TO NFPA-90A AND UL 555. FUSIBLE LINKS SHALL COMPLY WITH UL 33, AND SHALL SEPARATE AT 212F. ACCEPTABLE MANUFACTURER: RUSKIN OR APPROVED EQUAL.

2.03 DUCTWORK

A. FABRICATE DUCTS TO SIZE INDICATED ON THE DRAWING. ALL DUCT SHALL BE RIGID EXCEPT THE CONNECTING DUCT TO DIFFUSER OR RETURN GRILLES WILL BE FLEXIBLE DUCT.

B. CONSTRUCTION MATERIAL AND REINFORCEMENT SHALL CONFORM TO SMACNA (CURRENT EDITION) LOW PRESSUREDUCT CONSTRUCTION STANDARDS, AND NFPA-90A.

C. DUCTWORK SHALL BE OF GALVANIZED STEEL CONSTRUCTION. ALL FACTORY MADE AIR DUCTS, IF USED SHALL BE CLASS 1.

D. FLEXIBLE DUCT SHALL BE THERMAFLEX TYPE M-KC OR APPROVED EQUAL AND SHALL NOT EXCEED 6'-0" IN LENGTH. FLEXIBLE DUCT SHALL BE LISTED BY UL 181 WITH A FLAME SPREAD RATING NOT EXCEEDING 25 AND A SMOKE DEVELOPED RATING NOT EXCEEDING 50.

2.04 DUCTWORK INSULATION

A. INSULATE SUPPLY AND RETURN DUCT.

B. INSULATION SHALL 2" THICK, 1 PCF FLEXIBLE FIBERGLASS WITH FACTORY APPLIED FOIL KRAFT (FRK) JACKET, OWENS CORNING TYPE 100 AND FRK TAPE JOINT SEAL.INSULATION SHALL BE TESTED AS PER ASTM WITH A FLAME SPREAD RATING NOT EXCEEDING 25 AND A SMOKE DEVELOPED RATING NOT EXCEEDING 50. INSULATION SHALL COMPLY WITH CALIFORNIA TITLE 24 REQUIREMENTS.

3.00 EXECUTION

3.01 START- UP SERVICES

A. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER OPERATION OF ALL SYSTEMS, MINOR SUBSYSTEMS. AND SERVICES PROVIDED UNDER THIS DIVISION. CONTRACTOR SHALL COORDINATE START-UP PROCEDURES CALIBRATION. AND SYSTEM CHECKOUT WITH ALL SUBCONTRACTORS AND TRADES INVOLVED. ANY SYSTEM OPERATIONAL PROBLEMS SHALL BE DIAGNOSED AND ALL CORRECTIONAL PROCEDURES SHALL BE INITIATED WITH THE VARIOUS SUBCONTRACTORS AS REQUIRED TO BRING THE SYSTEM INTO COMPLIANCE WITH THE DESIGN INTENT.

B. THE CONTRACTOR SHALL CHECK ALL EXISTING EQUIPMENT DURING THE INITIAL START-UP TO ENSURE CORRECT OPERATION, ADEQUATE FLUIDS OR AIRFLOWS. NON-OVERLOADING ELECTRICAL CHARACTERISTICS. PROPER ALIGNMENT. AND VIBRATION ISOLATION. SYSTEMS SHALL BE CHECKED FOR AIR AND/OR WATER FLOWS THROUGHOUT WITHOUT BLOCKAGES. AIR HANDLING SYSTEMS SHALL BE CHECKED FOR PROPER DAMPER CONNECTIONS AND POSITIONS. ALIGNED AND ADJUSTED BELT DRIVES. PROPER LUBRICATION. AIR FILTERS INSTALLED. NONEXCESSIVE ELECTRICAL CHARACTERISTICS AND MINIMAL VIBRATION. OTHER MISCELLANEOUS EQUIPMENT SHALL BE STARTED AND OPERATED AS DESCRIBED ABOVE AS APPLICABLE.

C. A FINAL AND COMPLETE START-UP AND BALANCE REPORT SHALL BE SUBMITTED PRIOR TO FINAL ACCEPTANCE AND PAYMENT. THIS REPORT SHALL BE SIGNED BY EACH PERSON DOING THE START-UP TASK AND BY THE RESPONSIBLE FIELD PERSON. REPORT SHALL INCLUDE. BUT NOT BE LIMITED TO DATE OF TEST: INSTRU14ENT USED: DATE OF LAST CALIBRATION: TEMPERATURES HUMIDITIES: SET POINTS; RPM; VOLTAGE. AMPERAGE: PRESSURES: STABILITY; ETC.

GRILLES – REGISTERS – DIFFUSERS

TAG	MFR	MODEL NUMBER	TYPE	DAMPER	FRAME	INLET SIZE	FACE SIZE	MATERIAL	FINISH	NOTES
CG-1	TITUS	350ZFL	X	OBD	TYPE 1	–	–	ALUM	#26 WHITE	X
CD-1	TITUS	PDS	X	OBD	TYPE 3	–	24X24	ALUM	#26 WHITE	X
CD-2	TITUS	MCD	X	OBD	TYPE 1	–	24X24	ALUM	#26 WHITE	X
CR-1	TITUS	PDR	X	OBD	TYPE 3	–	24X24	ALUM	#26 WHITE	X
CE-1	TITUS	50FF	X	NONE	TYPE 3	–	–	ALUM	#26 WHITE	X

ROOFTOP PACKAGED UNITS

MARK NO.	MFR	AREA SERVED	CAT. NO. MODEL	OPERATING WEIGHT	ELEC AMPS/V/PH	EVAPORATOR BLOWER					FILTER TYPE	HEATING		COOLING	WEIGHT LBS.	NOTES
						TOTAL CFM	O. AIR CFM	E.S.P	HP	RPM		TYPE	INTPUT MBH	SEN. MBH		
AC-4	TRANE	LOBBY 101	YSC060	650	29.5/208/3	1800	1000	.4	1	868	1" THROWAWAY	GAS	48	43	700	(1)
AC-5	TRANE	162 MULTIP RM.	YSC060	650	29.5/208/3	1800	1000	.4	1	868	1" THROWAWAY	GAS	48	43	700	(1)(2)
AC-6	TRANE	162 MULTIP RM.	YSC060	650	29.5/208/3	1800	1000	.4	1	868	1" THROWAWAY	GAS	48	43	700	(1)(2)
AC-7	TRANE	162 MULTIP RM.	YSC060	650	29.5/208/3	1800	1000	.4	1	868	1" THROWAWAY	GAS	48	43	700	(1)(2)
AC-8	TRANE	162 MULTIP RM.	YSC060	650	29.5/208/3	1800	1000	.4	1	868	1" THROWAWAY	GAS	48	43	(1)	(1)(2)
AC-9	TRANE	132/136 LOBBY	YSC036	600	21.4/208/3	1200	200	.4	.75	868	1" THROWAWAY	GAS	48	34	(1)	(1)
AC-10	TRANE	162	YSC036	600	21.4/208/3	1200	200	.4	.75	868	1" THROWAWAY	GAS	48	34	(1)	(1)
AC-11	TRANE	162	YSC036	600	21.4/208/3	1200	200	.4	.75	868	1" THROWAWAY	GAS	48	34	(1)	(1)

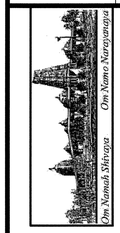
(1) FURNISH WITH ROOF CURB AND PROGRAMMABLE T-STAT.
(2) FOR FUTURE

EXHAUST FAN SCHEDULE

TAG	MANUFACTURER	AREA SERVED	MODEL NUMBER	FAN TYPE	CFM	S.P. "H20	RPM	MOTOR		WEIGHT (POUNDS)	NOTES
								HP	POWER		
EF-1	GREENHECK	WOMEN RR 132	G-120	CENTRIFUGAL ROOF	900	0.25	1140	1/6	120/1ø	40	(1)
EF-2	GREENHECK	MEN RR 133	G-120	CENTRIFUGAL ROOF	900	0.25	1140	1/6	120/1ø	40	(1)
EF-3	GREENHECK	WOMEN RR XXX	SP-A250	CENTRIFUGAL ROOF	246	0.125	1000	83 WATTS	120/1ø	25	(1)(2)
EF-4	GREENHECK	MEN RR XXX	SP-A250	CENTRIFUGAL ROOF	246	0.125	1000	83 WATTS	120/1ø	25	(1)(2)
EF-5	GREENHECK	RESTROOM 109	SP-A110	CENTRIFUGAL ROOF	107	0.125	950	49 WATTS	120/1ø	20	(1)(3)
EF-6	GREENHECK	SHOWER 108	SP-A110	CENTRIFUGAL ROOF	107	0.25	950	49 WATTS	120/1ø	20	(1)(3)
EF-7	GREENHECK	SHOWER 110	SP-A110	CENTRIFUGAL ROOF	107	0.25	950	49 WATTS	120/1ø	20	(1)(3)
EF-8	GREENHECK	RESTROOM 111	SP-A110	CENTRIFUGAL ROOF	107c c	0.25	950	49 WATTS	120/1ø	20	(1)(3)
EF-9	GREENHECK	STORAGE 152	GB-120	CENTRIFUGAL ROOF	1500	0.25	1350	1/4	120/1ø	40	(1)(2)
EF-10	GREENHECK	STORAGE 158	GB-120	CENTRIFUGAL ROOF	1500	0.25	1350	1/4	120/1ø	40	(1)
EF-11	GREENHECK	HOOD K-22	CUBE 360XP-30	CENTRIFUGAL ROOF	4100	2.0	960	3	120/1ø	40	(1)
EF-12	GREENHECK	HOOD K-23	CUBE 360XP-30	CENTRIFUGAL ROOF	4500	2.0	990	3	120/1ø	40	(1)
EF-13	GREENHECK	HOOD K-24	CUBE 360XP-15	CENTRIFUGAL ROOF	2400	2.0	1110	1-1/2	120/1ø	40	(1)
EF-14	GREENHECK	HOOD K-20	CUBE 360XP-30	CENTRIFUGAL ROOF	4500	2.0	990	3	120/1ø	40	(1)
EF-15	GREENHECK	WASH ROOM 126	GB-80	CENTRIFUGAL ROOF	300	0.25	1350	1/4	120/1ø	40	(1)
EF-16	GREENHECK	STORAGE 137	GB-90	ROOF	900	0.25	1410	1/4	120/1ø	40	(1)
EF-17	GREENHECK	STORAGE 112	GB-80	ROOF	300	0.25	1350	1/4	120/1ø	40	(1)
EF-18	GREENHECK	STORAGE 135	GB-80	ROOF	300	0.25	1350	1/4	120/1ø	40	(1)

(1) FURNISH WITH BACK DRAFT DAMPER
(2) FOR FUTURE
(3) CEILING MOUNTED

REVISIONS	BY
05-24-10 ISSUED FOR PLAN CHECK	SR



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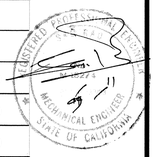
MECHANICAL SPECIFICATIONS AND
EQUIPMENT SCHEDULE
PHASE 1A



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8/12/09
SCALE:
AS NOTED
DRAWN BY:
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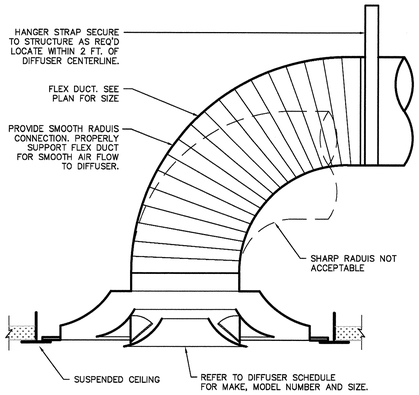
PROJECT:
ARROWHEAD

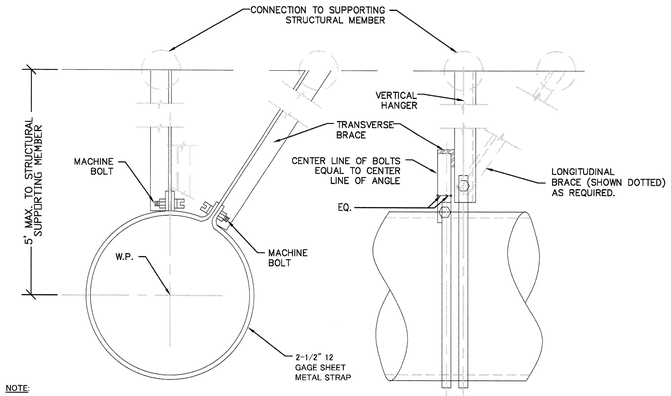
M-0.1



NOTE: SEISMICALLY SECURE PER SMACNA STANDARDS AND UBC STANDARDS SECTION 47-18.

1 M0.2 CEILING DIFFUSER CONNECTION

SCALE: NONE



NOTE:

1. REFER TO 1998 SEISMIC RESTRAIN MANUAL FOR GENERAL REQUIREMENTS OF VERTICAL HANGERS, BRACE ANGLES, CONNECTION TO SUPPORTING STRUCTURE AND SPACING OF SUPPORTS.
2. SEE 1998 SMACNA "SEISMIC RESTRAINT MANUAL" TABLE 5-6, 6-6, OR 7-6 FOR VERTICAL HANGERS, DIAGONAL AND HORIZONTAL BRACES, BOLT SIZE, CONNECTION TO SUPPORTING STRUCTURE, AND SPACING OF BRACING.
3. AS AN OPTION, CONTRACTOR CAN USE UNISTRUT P-1000 CHANNELS IN LIEU OF ANGLES FOR VERTIICAL HANGERS OR BRACE FRAMES.

2 M0.2 HANGER CONNECTION TO ROUND DUCT

SCALE: NONE

ROOFTOP MAKE UP AIR UNITS

MARK NO.	MFR	HOOD SERVED	CAT. NO. MODEL	ELEC AMPS/V/PH	FAN				FILTER TYPE	HEATING				COOLING		WEIGHT LBS.	NOTES
					TOTAL CFM	T.S.P	BHP/HP	RPM		TYPE	INTPUT MBH	OUTPUT MBH	EFFICIENCY MBH	TYPE	SEN. MBH		
MAU-1	GREENHECK	HOOD K-22	DG-112-H20	40.7/208/1	4090	2"	2.9/5.0	868	2" ALUM. MESH	GAS	384.1	353.38	92%	EVAP.	90	950	(1)
MAU-2	GREENHECK	HOOD K-23	DG-112-H20	40.7/208/1	4500	2"	3.5/5.0	1255	2" ALUM. MESH	GAS	400	368	92%	EVAP.	110	1000	(1)
MAU-3	GREENHECK	HOOD K-24	DG-109-H10	25.6/208/1	2400	2"	2.29/3.0	1742	2" ALUM. MESH	GAS	225	207	92%	EVAP.	55	700	(1)
MAU-4	GREENHECK	HOOD K-20	DG-112-H20	40.7/208/1	4500	2"	3.5/5.0	1255	2" ALUM. MESH	GAS	400	368	92%	EVAP.	110	1000	(1)

(1) FURNISH WITH SELF FLASHING ROOF CURB. INTERLOCK WITH EXHAUST FAN, FIRE PROTECTION SYSTEM AND GAS SHUT-OFF VALVE.

SUPPLY FAN SCHEDULE

TAG	MANUFACTURER	AREA SERVED	MODEL NUMBER	FAN TYPE	CFM	S.P. "H20	RPM	MOTOR		WEIGHT (POUNDS)	NOTES
								HP	POWER		
SF-1	GREENHECK	STORAGE RM. 152	RSFP-90	CENTRIFUGAL ROOF	1000	0.75	980	1/2	120/1ø	140	(1)
SF-2	GREENHECK	STORAGE RM. 158	RSFP-100	CENTRIFUGAL ROOF	1600	0.75	900	1	120/1ø	160	(1)
SF-3	GREENHECK	REST RM. 110	RSFP-90	CENTRIFUGAL ROOF	800	0..4	700	1/2	120/1ø	140	(1)
SF-4	GREENHECK	REST RM. 110	RSFP-90	CENTRIFUGAL ROOF	800	0.4	700	1/2	120/1ø	140	(1)
SF-5	GREENHECK	STORAGE RM 137	RSFP-90	CENTRIFUGAL ROOF	800	0.4	700	1/2	120/1ø	140	(1)

(1) FURNISH WITH BACK DRAFT DAMPER

DUCTLESS SPLIT AIR CONDITIONING SYSTEM

EVAPORATOR UNIT

MARK NO.	MFR	CAT. NO. MODEL	CAPACITY BTUH	ELEC V/PH	FAN FLA	MCA	MAX FUSE	OPERATING WEIGHT LBS.	REFRIG. PIPING SIZES		NOTES
									LIQUID	SUCTION	
FC-1	MITSUBISHI	MSZ-A09NA	9000	208V/1ø	0.76	1.0	–	30	1/4"	3/8"	(1)(2)
FC-2	THERMALRITE	–	–	208V/1ø	1/4HP						

1) PROVIDE WITH CONDENSATE PUMP
2 FACTORY WIRED FOR REMOTE 24V THERMOSTAT.

CONDENSING UNIT

MARK NO.	MFR	CAT. NO. MODEL	COOLING CAPACITY (TOTAL BTUh)	TITLE 24 INFORMATION		ELECTRICAL DATA						OPERATING WEIGHT LBS.	NOTES
				REQUIRED EFFICIENCY (SEER)	LISTED EFFICIENCY (SEER)	V/PH	MCA	MAX FUSE	FAN HP	FAN FLA	COMP RLA		
CU-1	MITSUBISHI	MUZ-A09NA	9,000	10.0	10.0	208V/1ø	12	15	1/4	.52	7.8	175	(1)
CU-2	THERMALRITE	MOH025	–	–	–	208V/1ø	12	–	2-1/2	–	–	–	(1)

1) PROVIDE WITH LOW AMBIENT CONTROLS.

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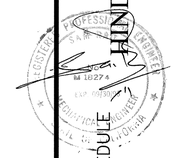


MECH. DETAILS & EQUIP. SCHEDULE
BUILDING B FLOOR PLAN
PHASE 1A

DATE 8/12/09
SCALE: AS NOTED
DRAWN BY: RL/ssm
PROJECT: ARROWHEAD

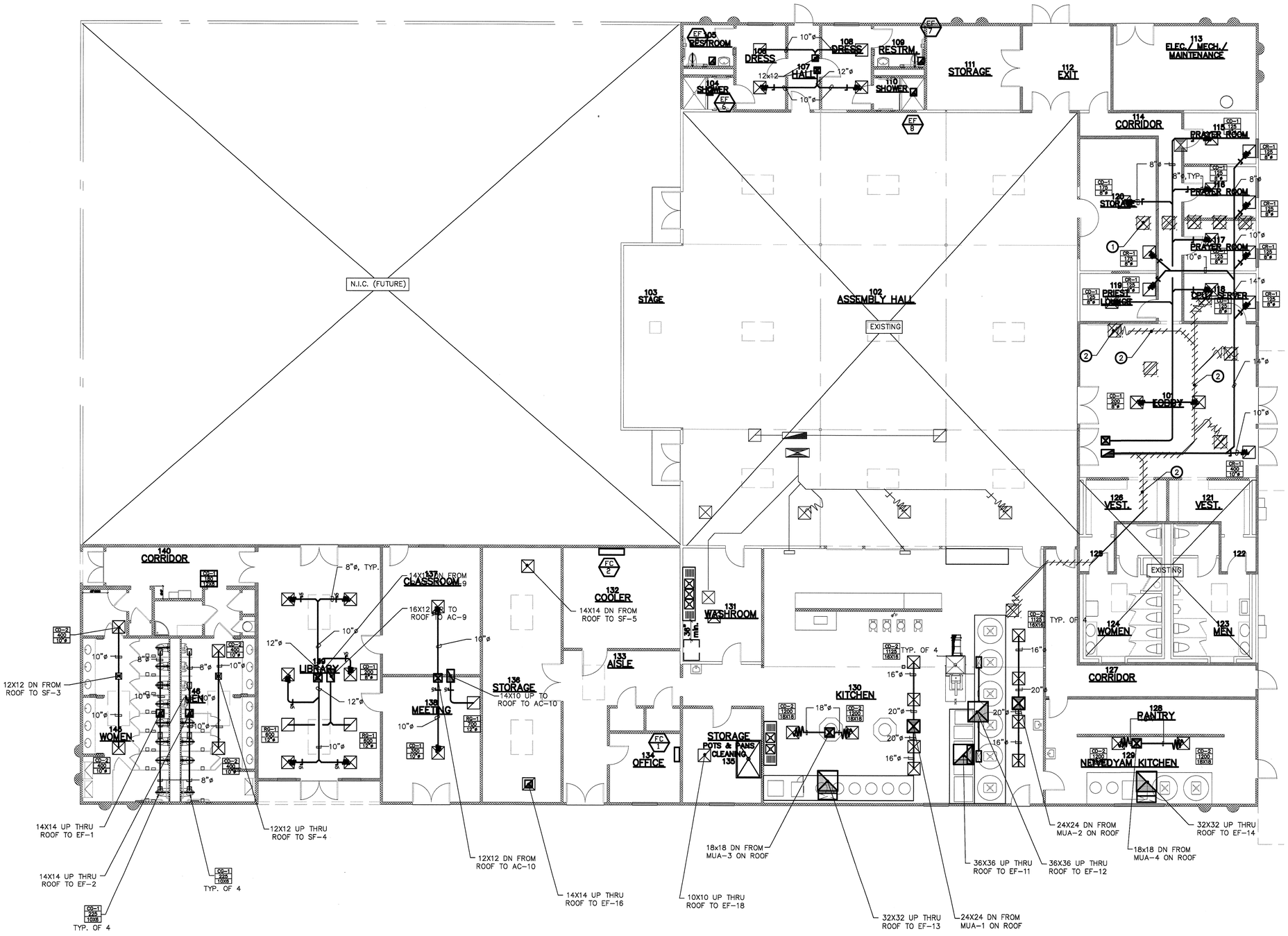
M-0.2

DEMOLITION NOTES:

1. REMOVE (E) DUCT AND GRILLES ASSOCIATED WITH (E) MAKE-UP AIR UNIT AND EXAUST FAN. SCHEDULE THE REMOVAL WITH CONSTRUCTION MANAGER. PATCH THE ROOF OPENINGS.
2. REMOVE (E) DUCT AND ASSOCIATED SUPPLY AND RETURN AIR DIFFUSERS.

CONSTRUCTION NOTES:

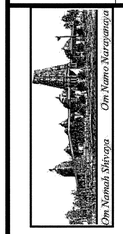
1. REMOVE (E) UNIT AND REPLACE WITH (N) UNIT AS SCHEDULED ON DWG. M0.1.
2. INSTALL (N) UNIT AS SCHEDULED ON DWG. M0.1 AND M0.2. COORDINATE WITH ELECTRICAL PLANS FOR POWER AND STRUCTURAL/ARCHITECTURAL FOR EXACT LOCATION.



1 M-1 MECHANICAL FLOOR PLAN-COSTRUCTION

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

REVISIONS	BY
05-24-10 ISSUED FOR PLAN CHECK	SR



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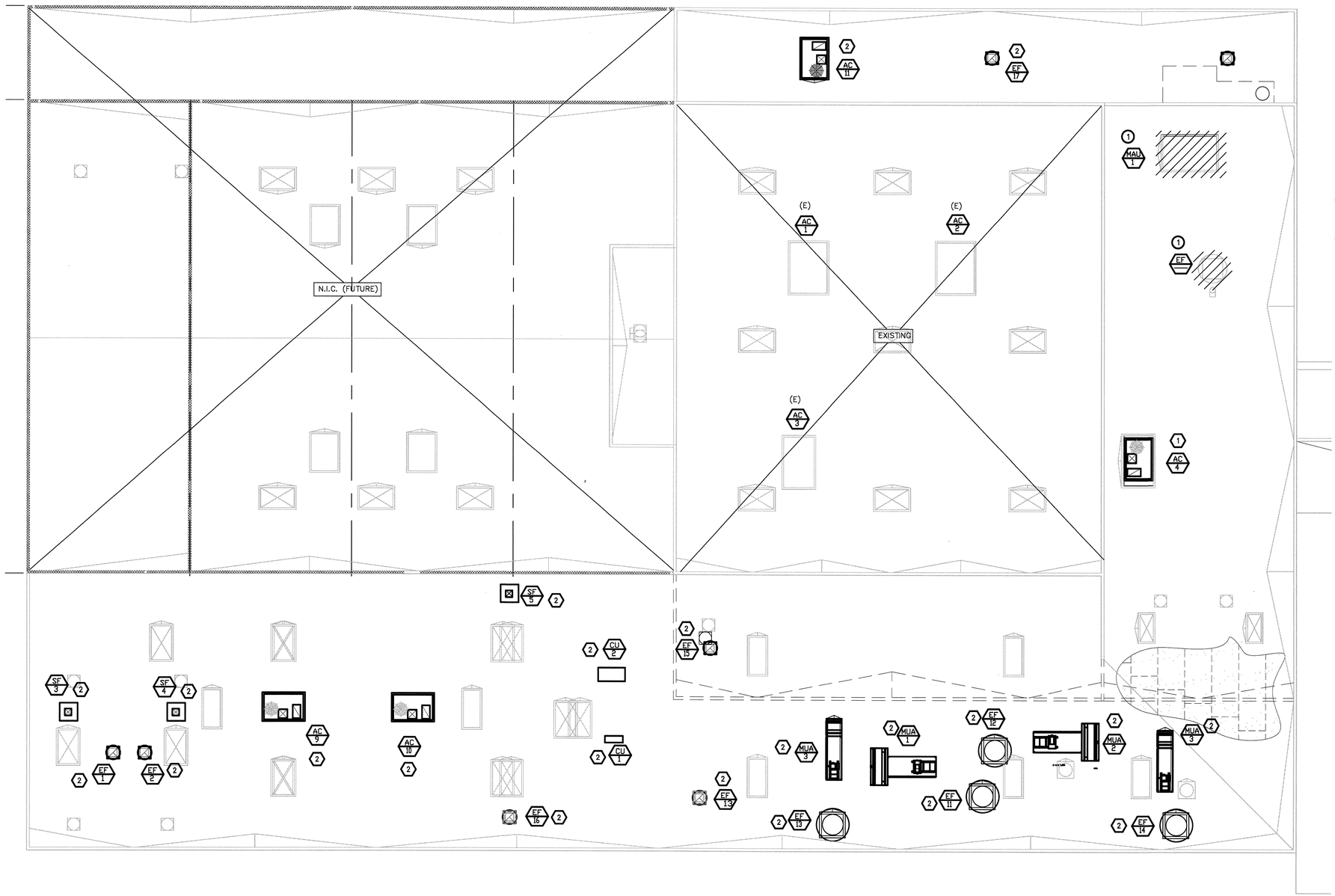
MECHANICAL
BUILDING B FLOOR PLAN
PHASE 1A

DATE 8/12/09
SCALE: AS NOTED
DRAWN BY: RL/ssm
PROJECT: ARROWHEAD

M-1



DEMOLITION NOTES:

1. REMOVE (E) MAKE-UP AIR UNIT AND EXAUST FAN. SCHEDULE THE REMOVAL WITH CONSTRUCTION MANAGER. PATCH THE ROOF OPENINGS.

CONSTRUCTION NOTES:

1. REMOVE (E) UNIT AND REPLACE WITH (N) UNIT AS SCHEDULED ON DWG. M0.1.
2. INSTALL (N) UNIT AS SCHEDULED ON DWG. M0.1 AND M0.2. COORDINATE WITH PLUMBING PLANS FOR CONDENSATE DRAIN, NAT. GAS, DOM. WATER FOR MAKE-UP AIR (MAU) UNITS, ELECTRICAL PLANS FOR POWER AND STRUCTURAL/ARCHITECTURAL DWGS. FOR EXACT LOCATION.

2/M-1 MECHANICAL ROOF PLAN-DEMOLITION AND COSTRUCTION

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

REVISIONS	BY
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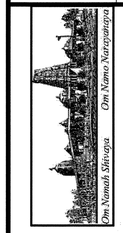

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MECHANICAL
BUILDING B ROOF PLAN
PHASE 1A

DATE
8/12/09
SCALE:
AS NOTED
DRAWN BY:
RL/ssm
PROJECT:
ARROWHEAD

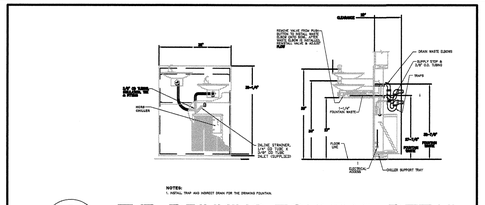
M-2

PLUMBING GENERAL NOTES

1. PLUMBING CONTRACTOR SHALL PROVIDE PLUMBING MATERIALS AS REQUIRED FOR BUILDING CONDITIONS FOR CONSTRUCTION. SEE SPECIFICATIONS FOR PLUMBING FIXTURE AND MATERIAL REQUIREMENTS.
2. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST APPLICABLE FEDERAL, STATE AND CITY OF LIVERMORE PLUMBING CODES, LAWS AND REGULATIONS.
3. CONTRACTOR SHALL SET PLUMBING FIXTURES AND DRAINS TO ELEVATIONS AND LOCATIONS SHOWN ON ARCHITECTURAL PLANS.
4. CONTRACTOR SHALL VISIT THE SITE AND CONFIRM ALL EXISTING CONDITIONS PRIOR TO SUBMITTING THE BIDS. DISCREPANCIES, IF ANY, MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/OWNER IMMEDIATELY FOR CLARIFICATION.
5. FOR EXACT SCOPE OF WORK AND PHASING REQUIREMENTS, SEE ARCHITECTURAL DRAWINGS.
6. PLUMBING MATERIALS SHALL BE IN COMPLIANCE WITH 2007 CPC. CONNECTION BETWEEN COPPER AND IRON AND STEEL PIPE SHALL BE MADE WITH DIELECTRIC ISOLATING FITTINGS, DIEELECTRIC UNIONS OR DIEELECTRIC FLANGES.
7. PROVIDE INSULATION FOR ALL DOMESTIC HOT WATER PIPING PER TITLE-24. INSULATE ALL HORIZONTAL COLD WATER PIPING AND PIPES SUBJECT TO FREEZING. INSULATION SHALL BE FIBERGLASS, RIGID MOLDED, NON-COMBUSTIBLE. PROTECT OUTDOOR INSULATION WITH HEAVY DUTY ALUMINUM JACKETTING.
8. PENETRATIONS THROUGH THE SLABS, FOUNDATION WALLS AND FOOTINGS SHALL BE SLEEVED AND COORDINATED WITH THE STRUCTURAL AND ARCHITECTURAL PLANS. IF CORE DRILLING OF FLOOR IS NECESARY, COORDINATE WITH THE STRUCTURAL ENGINEER AND VERIFY BY X-RAYING LOCATION OF REINFORCEMENT, EMBEDDED ELECTRICAL, TELEPHONE LINES AND OTHER UTILITIES TO PREVENT POSSIBLE CONFLICT BEFORE CORE DRILLING.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL THE OWNER FURNISHED EQUIPMENT, PROVIDING ALL THE REQUIRED UTILITIES SUPPORTS, INSULATION, GAGES, VALVING, ETC. PER THE RESPECTIVE EQUIPMENT MANUFACTURER AND APPLICABLE CODE REQUIREMENTS FOR A FULLY FUNCTIONING SYSTEM.
11. ON DIRECTION OF ARCHITECT/OWNER, PROVIDE PRODUCTS SAMPLES, MOCK-UPS AS REQUIRED. COORDINATE WITH GENERAL CONTRACTOR AND OTHER TRADE WORK AS NECESSARY TO PROVIDE THE FIELD MOCK-UP AND OBTAIN ARCHITECT/OWNER APPROVALS BEFORE PROCEEDING.
12. COORDINATE PLUMBING WORK WITH CIVIL/SITE WORK AND UTILITY COMPANY FOR PROPER INTERFACING OF THE UTILITY SIZES, PIPE INVERTS, CAPACITY, FLOW, PRESSURE, POINT-OF-CONNECTIONS, MATERIALS OF CONSTRUCTION, SUPPORTING AND CORROSION PROTECTION, ETC. MAKE ADJUSTMENTS TO PLUMBING WORK TO PROPERLY INTERFACE THE WORK WITH SITE UTILITIES.
13. ALL WORK SHALL BE WARRANTEED FOR 1-YEAR FROM THE PROJECT ACCEPTANCE BY THE ARCHITECT/OWNER, AFTER OBTAINING ALL THE OCCUPANCY PERMITS FROM THE CITY, UPON RECEIVING ALL THE OPERATING AND MAINTENANCE (O&M) MANUALS, AS-BUILT PLANS, COMPLETION OF ALL THE PUNCHLISTED ITEMS AND SUBMITTING THE WRITTEN WARRANTY FOR THE WORK.
14. REMOVE ALL CONSTRUCTION DEBRIS AND DISPOSE OFF, CLEAN ALL THE PLUMBING FIXTURES, SEWER ROD THE DRAINAGE LINES TO UNCLOG CONSTRUCTION DEBRIS, STERILIZE THE POTABLE WATER SYSTEM AND OBTAIN CERTIFICATION FROM THE LOCAL HEALTH DEPARTMENT, PRIOR TO THE PROJECT COMPLETION.

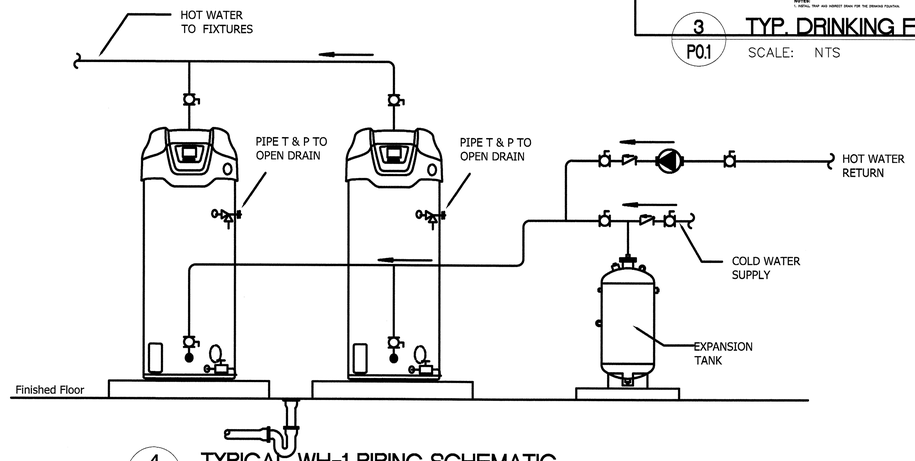
WATER HAMMER ARRESTOR SCHEDULE

CODE	J.R. SMITH FIG. NUMBER	PIPE SIZE	PDI SIZE	ALLOWABLE FIXTURE UNITS	REMARKS
WHA-A	5005	1"	A	1-11	PROVIDE WITH 8" X 8" S/S WALL MOUNTED ACCESS PANEL
WHA-B	5010	1"	B	12-32	PROVIDE WITH 8" X 8" S/S WALL MOUNTED ACCESS PANEL



3 P0.1 TYP. DRINKING FOUNTAIN DETAIL

SCALE: NTS

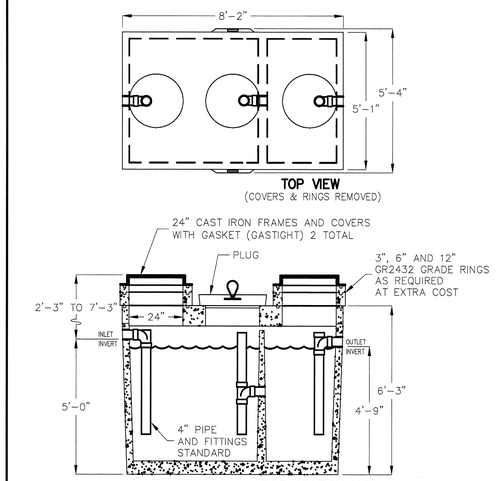


4 P-0.2 TYPICAL WH-1 PIPING SCHEMATIC

SCALE: NONE

GREASE INTERCEPTOR SIZE:

NUMBER OF MEALS PER PEAK HOUR:	150
WASTE FLOW RATE @ SINGLE SERVICE KITCHEN:	2
RETENTION TIME @ SINGLE SERVICE KITCHEN:	1.5
STORAGE FACTOR @ @ SINGLE SERVICE KITCHEN:	1.5
INTERCEPTOR SIZE REQUIRED:	150X2X1.5X1.5 = 675 GALLONS



1 P0.1 TYP. GREASE INTERCEPTOR DETAIL

SCALE: NTS

DRAIN AND CLEANOUT SCHEDULE

CODE	DESCRIPTION - FLOOR FINISH	J.R. SMITH FIG. NUMBER	CONN.	TOP GR. MATERIAL	GRATE SIZE	REMARKS
FD-1	FLOOR DRAIN - TILE	2005Y-B-P050	2"	NB	5" SQ	(1) SHOWERS & TOILET ROOMS
FD-2	FLOOR DRAIN - CONCRETE	2005C-B-P050	2"	NB	5" SQ	(1)
FCO-1	FLOOR CLEANOUT-TILE/CONC.	4100S-PB	2" - 4"	-	-	POLISHED BRONZE TOP
WCO-1	WALL CLEANOUT	-	3" & 4"	-	-	STAINLESS STEEL COVER

NOTES

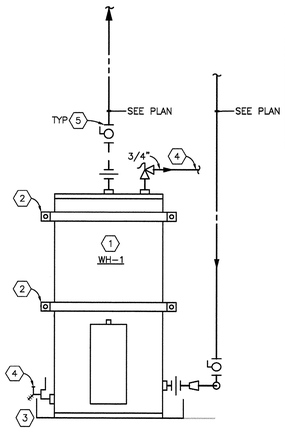
(1) PROVIDE P-TRAP WITH TRAP PRIMER CONNECTION

Fixture	Drainage Fixture Units (DFU)	Water Supply Fixture Units (WSFU)	Qty	Total Drainage Fixture Units (TDFU)	Total Water Supply Fixture Units (TWSFU)	Remarks
Rest Room 133-134						
Water Closet	8	4	12	96	245	
Urinal, Waterless	0.5	0	4	2	2	
Lav	2	1	12	24	12	
Floor Drain	2	0	1	2	0	
Hose Bib	0	2.5	1	0	2.5	
Drinking Fountain	.5	.5	1	.5	.5	
Total for Rest Room 133-134				***124.5***	***260***	***Water = 2"***

FIXTURE AND EQUIPMENT SCHEDULE

TAG	FIXTURE / EQUIPMENT	MFG.	MODEL NO.	SOIL WASTE	TRAP	VENT	CW	HW	SIZE / CAPACITY	TRIM / ACCESSORIES	REMARKS
U 1	URINAL	AMERICAN STANDARD	#6150.100 FLOWISE FLUSH FREE WATERLESS	2"	-	2"	-	-	-	WALL HUNG, INTEGRAL HOUSING AND DRAIN INSERT ODOR BARRIER LIQUID DRAIN INSERT, WHITE, ADA	(1)(4)(5)
WC 1	WATER CLOSET	AMERICAN STANDARD	3351.128 AFWALL FLOWISE ELONGATED	4"	-	2"	1-1/2"	-	1-1/2" TOP SPUD	OPEN FRONT SEAT MOD. 5905.100 WHITE, 1.28 GPF EXPOSED PUBLIC FLUSH VALVE SLOAN ROYAL 111-1.28 WITH VACUUM BREAKER FLUSH CONN'N.	(1)(4)(5)
L 1	LAVATORY (COUNTER MOUNT)	AMERICAN STANDARD	0495.221 'OVALYN' UNDERCOUNTER SINK	2"	1-1/4X1-1/2	1-1/2"	1/2"	1/2"	SINGLE CENTER HOLE	FOR PUBLIC USE TOILET ROOMS. UNDER COUNTER MOUNTED, ADA COMPLIANT. SLOAN HANDS FREE FAUCET #SF-2350 SERIES, BATTERY POWERED	(1)(4)
L 2	LAVATORY (WALL HUNG)	AMERICAN STANDARD	0954.000 MURRO UNIVERSAL DESIGN	2"	1-1/4X1-1/2	1-1/2"	1/2"	1/2"	SINGLE CENTER HOLE		(1)(4)
SH 1	SHOWER	AMERICAN STANDARD		-	-	-	1"	-			(3)
HB 1	HOSE BIB	CHICAGO FAUCETS	CHICAGO FAUCETS #932	-	-	2"	-	-	3/4" CW	FURNISH WITH VACUUM BREAKER	(1)(4)(5)
S 1	SERVICE SINK	AMERICAN STANDARD	AMERICAN STANDARD 7741.000 AND 7745.811 RIM GUARD	2"	-	2"	1/2"	1/2"	1/2" CW & 1/2"HW	FAUCET:8344.112 WITH VACUUM BREAKER,BUCKET HOOK,SCREW DRIVER STOPS AND 3/4" THREADED HOSE END SPOUT. 7721.038 FLAT GRID DRAIN.	(1)(4)(5)
GI 1	GREASE INTERCEPTOR	JENSEN PRECAST	JP1000EPE-G	4"	-	2"	-	-	1000 GAL.	-	(1)(4)(5)
DF 1	DRINKING FOUNTAIN	HAWS	H1011.8	2"	-	-	1/2"	-	8 GPH OF WATER AT 50° F FROM 80° F INLET WATER AT 90° F AMBIENT	MOD. SK3, CANE TOUCH SKIRT, 115 V, 370 WATTS, 5 FLA. R-134a REFRIGERANT.	(1)(5)
WH 1	WATER HEATER	AO SMITH	FSGH-30	-	-	-	3/4"	3/4"	30 GAL., 38,000 BTUH INPUT	TOTAL OF 1 WATER HEATERS	(1)(5)
WH 1	WATER HEATER	AO SMITH	BTH-300A	-	-	-	1-1/2"	1-1/2"	130 GAL., 300,000 BTUH INPUT	TOTAL OF 2 WATER HEATERS	(1)(5)

(1) SEE ARCH. FOR THE FIXTURES TO BE INSTALLED WITH A.D.A. COMPLIANCE.
(2) PROVIDE AND INSTALL TRAP PRIMER.
(3) SEE DWG FOR UNIT SIZE.
(4) WHITE
(5) ALL FIXTURES SHALL COMPLY TO TITLE 24 STANDARDS

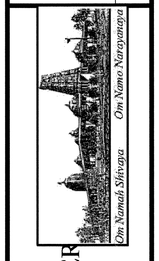


2 P-0.2 TYPICAL WH-1INSTALLATION

SCALE: NONE

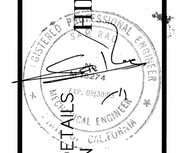
(1) DOMESTIC WATER HEATER SET OPERATING STAT TO DELIVER 110°F HOT WATER
(2) 2" WIDE x 14 GA. GSM STRAP. SECURE TO BLOCKING IN WALL
(3) LEAK CONTAINMENT TRAY
(4) TERMINATE T&P RELIEF VALVE TO OUTSIDE
(5) FULL PORT BALL VALVE

REVISIONS	BY
05-24-10 ISSUED FOR PLAN CHECK	SR



HINDU COMMUNITY and CULTURAL CENTER
1232 ARROWHEAD AVE. LIVERMORE, CA 94551

PLUMBING SCH., NOTES & DETAILS
BUILDING B FLOOR PLAN
PHASE 1A



DATE
8/12/09
SCALE:
AS NOTED
DRAWN BY:
RL/ssm
PROJECT:
ARROWHEAD

P0.1

P.G.& E. TOWERLINE and GAS LINE EASEMENT

(N) GRADE CLEAN OUT, TYP. (2)

(N) 4" SS (2)

(N) 6" NAT. GAS (2)

(N) 6" NAT. GAS (2)

(E) GREASE INTERCEPTOR TO REMAIN

EXISTING TEMPLE BUILDING FF 511.84

(E) TEMPLE

(2) (N) 4" SS

(N) 4" SS

(N) 4"SS

(E) SS

(N) GREASE INTERCEPTOR SEE DETAIL ON P0.1 (2)

(E) SAN. SEWER SEE CIVIL DWGS.

(E) SAN. SEWER SEE CIVIL DWGS. (1)

(N) 2-1/2" DOM. COLD WATER (2)

1214 519.56 G

1213 519.77 G

1212 519.62 G

1211 519.48 G

1210 519.49 G

1209 519.74 G

1208 519.63 G

(RACK CAL)

CONSTRUCTION NOTES:

(1) SEE DWG. P-1 FOR CONTINUATION.

(2) COORDINATE WITH CIVIL DRAWINGS.

1 P0.2 **PLUMBING SITE PLAN**

SCALE: 1/16"=1'-0"

REVISIONS	BY
1 PC COMMENTS	SR

Om Namo Narayanaya

Om Namah Shivaya

HINDU COMMUNITY and CULTURAL CENTER

1232 ARROWHEAD AVE. LIVERMORE, CA 94551

PLUMBING
BUILDING B SITE PLAN
PHASE 1A

DATE
8/12/09

SCALE:
AS NOTED

DRAWN BY:
RL/ssm

PROJECT:
ARROWHEAD

P-.02

PLUMBING SPECIFICATIONS:

I. GENERAL

1.01 CONDITIONS AND REQUIREMENTS:

A. PROJECT SHALL COMPLY WITH THE 2007 CALIFORNIA BUILDING, PLUMBING, MECHANICAL AND FIRE CODES AND THE 2007 CALIFORNIA ENERGY CODE.

B. THE GENERAL CONDITIONS AND GENERAL REQUIREMENTS OF THE CONTRACT DOCUMENT ARE HEREBY MADE A PART OF THIS SECTION AS FULLY AS IF REPEATED HEREIN.

1.02 DESCRIPTION OF WORK:

A. EXTENT OF PLUMBING SYSTEM WORK REQUIRED BY THIS SECTION IS INDICATED ON DRAWINGS, SCHEDULES AND BY REQUIREMENTS OF THIS SECTION.

B. TYPE OF WORK SPECIFIED INCLUDE THE FOLLOWING:

1. SANITARY DRAINAGE AND VENT SYSTEMS COMPLETE TO POINT OF CONNECTION, SEE CIVIL ENGINEER'S DRAWINGS FOR LOCATION.
2. POTABLE WATER SYSTEMS COMPLETE TO POINT OF CONNECTION, SEE CIVIL ENGINEER'S DRAWINGS FOR EXACT LOCATION.
3. DOMESTIC HOT WATER SYSTEMS AS SHOWN, INCLUDING WATER HEATERS, EXPANSION TANK, CIRCULATING PUMP, DISTRIBUTION AND INSULATION.
4. NATURAL GAS PIPING COMPLETE FROM POINT OF CONNECTION,
5. PLUMBING FIXTURES AND TRIM AS SPECIFIED HERE AND THE ARCHITECTURAL DRAWINGS INCLUDING ALL REQUIRED ACCESSORIES.
6. ACCESS PANELS AS REQUIRED FOR WALL, FLOOR AND GRADE CLEANOUTS AND VALVES.
7. SECURE AND PAY FEES FOR PERMIT, LICENSES, INSPECTIONS AND ROYALTIES REQUIRED FOR WORK OF THIS SECTION.
8. OTHER NECESSARY ITEMS REQUIRED AND INCIDENTAL TO COMPLETING ALL PLUMBING WORK AS INDICATED ON THE DRAWINGS AND DESIGNATED HEREIN.

C. TRENCHING AND BACKFILL REQUIRED IN CONJUNCTION WITH PLUMBING PIPING WITHIN 5 FEET OF BUILDING FOUNDATIONS IS INCLUDED AS WORK OF THIS SECTION.

D. FLASHING REQUIRED IN CONJUNCTION WITH WASTE, VENT AND WATER SYSTEMS ARE INCLUDED AS WORK OF THIS SECTION.

1.03 QUALITY ASSURANCE:

A. MANUFACTURER'S QUALIFICATIONS: FIRMS REGULARLY ENGAGED IN MANUFACTURE OF PLUMBING SYSTEMS, PRODUCTS, OF TYPE, MATERIALS AND SIZES REQUIRED, WHOSE PRODUCTS HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR NOT LESS THAN 5 YEARS.

B. INSTALLER'S QUALIFICATIONS: FIRM WITH AT LEAST 3 YEARS OF SUCCESSFUL INSTALLATION EXPERIENCE ON PROJECTS WITH PLUMBING SYSTEMS WORK SIMILAR TO THAT REQUIRED FOR THIS PROJECT.

1.04 SUBMITTALS:

A. OF ALL PLUMBING EQUIPMENT, PLUMBING FIXTURES CUT SHEETS AND PLUMBING MATERIALS FOR OWNER AND OR ARCHITECTS' APPROVAL.

B. PLUMBING PIPING SHOP DRAWINGS AT 1/4"=1'-0" SCALE MINIMUM.

II. PRODUCTS:

2.01 PIPING:

A. DOMESTIC WATER HOT AND COLD: TYPE "L" HARD DRAWN COPPER WITH 95/5 SOLDER JOINTS.

B. PROPANE GAS: BLACK STEEL THREADED MALLEABLE IRON, SCHEDULE 40. PIPING EXPOSED TO THE WEATHER SHALL BE GALVANIZED. ALL THREADS AND JOINTS SHALL BE EPOXY-COATED FOR WEATHER PROTECTION AGAINST RUST. OUTSIDE OF THE BUILDING BELOW GROUND: POLYETHYLENE PIPE: ASTM D-2513.

C. SOIL, WASTE AND VENT ABOVEGROUND: CAST IRON SOIL, PLAIN END (HUBLESS) SERVICE WEIGHT WITH NEOPRENE SLEEVE AND STAINLESS STEEL SHIELD JOINTS.

D. SOIL, WASTE AND VENT UNDERGROUND: CAST IRON SOIL, BELL AND SPIGOT, SERVICE WEIGHT WITH COMPRESSION TYPE NEOPRENE GASKET.

2.02 VALVES:

A. BALL VALVES: STOCKHAM S-217-BR-R-S, EPT SEAT. THREADED, STOCKHAM FIG. S-214-BR-R-T

B. EARTHQUAKE GAS VALVES: KOSO MODEL 303-LP, LOW PRESSURE OR APPROVED EQUAL.

C. CHECK VALVES: THREADED STOCKHAM FIG. B-319 SWEAT, STOCKHAM FIG. B-309

D. GAS COCKS: ROCKWELL, HOMESTEAD, MATCO OR APPROVED SUBSTITUTE - MATCO CATALOG #58S AGA.

E. WATER PRESSURE REDUCING VALVES: WATTS, AW CASH, CLAYTON OR APPROVED SUBSTITUTE. CASH FIGURE EB-24U. SET PRESSURE AT 60 PSI.

F. GAS REGULATORS-RESIDENTIAL TYPE: AMERICAN METER, OR APPROVED SUBSTITUTE. SERIES 1200 MODEL 1213B2 SET PRESSURE AT 11" W.C.

2.03 PIPING INSULATION:

A. GENERAL IN ACCORDANCE WITH TITLE 24 ENERGY REGULATIONS.

B. MANUFACTURER: OWEN-CORNING FIBERGLASS, ARMSTRONG, MANVILLE OR CETAIN-TEED.

C. PRE-MOLDED 1" FIBERGLASS WITH ASJ, R-4 MINIMUM.

2.04 BURIED PIPE WRAPPING AND COATING:

WRAP UNINSULATED, BURIED STEEL AND COPPER PIPING AS FOLLOWS:

A. CLEANING: REMOVE LOOSE SCALE, RUST, DIRT, OIL AND GREASE BEFORE WRAPPING. WIRE-BRUSH AS REQUIRED; USE SOLVENT FOR REMOVAL OF OIL AND GREASE.

B. COATING: JOHNS-MANVILLE #22 PRIMER ADHESIVE.

C. WRAPPINGS: JOHNS-MANVILLE VID-20, 20 MIL THICK POLYVINYL TAPE. STRETCH TAPE TIGHT DURING APPLICATION. OVERLAP TAPE SO AS TO RESULT IN DOUBLE THICKNESS.

2.05 DOMESTIC WATER HEATER:

A. MANUFACTURER: A.O. SMITH OR APPROVED SUBSTITUTE. SIZE AND CAPACITY AS SCHEDULED.

B. APPROVAL: U.L. LISTED IN CALIFORNIA ENERGY COMMISSION DIRECTORY OF CERTIFIED WATER HEATERS.

C. CONSTRUCTION: RESIDENTIAL STORAGE TYPE WITH GLASS LINED TANK AND GAS TANKLESS TYPE. PROVIDE ASME TEMPERATURE AND PRESSURE RELIEF VALVE.

D. CONTROL: ADJUSTABLE THERMOSTAT TEMPERATURE CONTROL, HIGH TEMPERATURE LIMIT CUT-OFF.

E. PROVIDE WATER HEATER DISCONNECT PROTECTION WITH BUILT-IN CIRCUIT BREAKER, SIZED AS REQUIRED.

2.06 DRAINAGE AND PIPING SPECIALTIES:

A. MANUFACTURERS: SMITH, JOSAM, WADE, JONESPEC OR ZURN. 100% USA MANUFACTURED COMPONENTS ONLY.

B. CLEANOUTS: PROVIDE WHERE SHOWN; TYPES AND SIZES AS SCHEDULED.

C. AIR CHAMBERS: PROVIDE ON ALL COLD AND HOT WATER CONNECTIONS WITHOUT A WATER HAMMER ARRESTOR, 18" HIGH AND DIAMETER SAME SIZE AS SUPPLY. NIBCO MODEL 620L.

D. TRAP PRIMER: INSTALL WHERE SHOWN OR REQUIRED BY CODE. PRECISION PLUMBING PRODUCTS OR MIFAB; TYPE AND SIZES AS SCHEDULED.

E. FLOOR DRAINS: PROVIDE WHERE SHOWN; TYPE AND SIZES AS SCHEDULED.

F. TRAPS; PROVIDE FOR DRAINS, SHOWERS AND SIMILAR TYPE FIXTURES. PROVIDE CLEAN-OUT PLUG IN ALL SINK P-TRAPS.

2.07 FIXTURE SUPPORTS:

A. GENERAL: PROVIDE PLUMBING FIXTURE CARRIERS, SUPPORTS, AND DEVICES TO CARRY LOADS INDEPENDENTLY OF WALLS OR PARTITIONS. SECURELY BOLT SUPPORTS TO FLOOR WITH POWDER-DRIVEN OR DRILLED INSERTS OR STUDS.

B. MANUFACTURER: JOSAM, J.R. SMITH, WADE OR ZURN. SELECTION BASED ON J.R. SMITH.

2.08 FLUES AND STACKS:

A. MANUFACTURERS: DURAVENT OR METALBESTOS. METALBESTOS SPECIFIED AS STANDARD.

B. CLASS B FLUE: 8" AND SMALLER, MODEL RV; DOUBLE WALL WITH AIR SPACE, UL LISTED GAS VENT, SUPPORTS, ROOF FLASHING, AND TOP. ERECT PER UL LISTING AND MANUFACTURER'S RECOMMENDATIONS.

2.09 ACCESS DOORS AND PANELS: (CEILINGS AND WALLS)

A. WHERE REQUIRED: WHEREVER A PIECE OF EQUIPMENT OR VALVE AND OPERATOR IS INACCESSIBLE AND REQUIRES ACCESS FOR MAINTENANCE, REPAIR OR ADJUSTMENT.

B. SIZE: SIZE IS DEPENDENT UPON THE RELATIONSHIP OF THE DOOR TO THE PRODUCT BEING SERVICED; THEREFORE, THE SIZE OF THE DOOR SHALL BE SELECTED TO PROVIDE CONVENIENT ACCESS TO ITS CONTENTS. SUBMIT SIZES FOR REVIEW.

C. MANUFACTURER: INRYCO/MILCOR, OR EQUAL BILCO, CESCO, KARP OR NYSTROM.

2.10 FIXTURE SUPPLIES AND STOPS:

A. LAVATORIES: SPEEDWAY CRSST-1912-A OR APPROVED SUBSTITUTE.

B. SINKS: SPEEDWAY CRSST-1912-K OR APPROVED SUBSTITUTE.

C. WALL MOUNTED FAUCETS: SCREWDRIVER STOPS OR FAUCETS MAY HAVE INTEGRAL STOPS IN LIEU OF SEPARATE STOPS.

D. TANK WATER CLOSETS: SPEEDWAY CRSST-1912-DL

2.11 FIXTURE FLOW CONTROLS: TO COMPLY WITH TITLE 24 AT EACH FIXTURE AS FOLLOWS: MODEL ARE FOR DOLE:

A. LAVATORIES: TYPE FMB, 0.5 GPM EXCEPT FAUCETS WITH 0.5 GPM FLOW.

B. SINKS: TYPE SR, 2.2 GPM.

C. SHOWERS: TYPE SR, 2.5 GPM.

2.12 PLUMBING FIXTURES:

A. GENERAL: PROVIDE FACTORY-FABRICATED FIXTURES OF TYPE, STYLE AND MATERIAL. FOR EACH TYPE FIXTURE, PROVIDE MANUFACTURER'S STANDARD TRIM, CARRIER, SEATS AND VALVES AS INDICATED BY THEIR PUBLISHED PRODUCT INFORMATION; EITHER AS DESIGNED AND CONSTRUCTED, OR AS RECOMMENDED BY THE MANUFACTURER, AND AS REQUIRED FOR A COMPLETE INSTALLATION. WHERE MORE THAN ONE TYPE IS INDICATED, SELECTION IS INSTALLER'S OPTION BUT ALL FIXTURE OF THE SAME TYPE MUST BE FURNISHED BY A SINGLE MANUFACTURER OR AS INSTRUCTED BY THE OWNER OR THE ARCHITECT.

B. OTHER MATERIALS:

ALL OTHER MATERIALS NOT SPECIFICALLY DESCRIBED BUT REQUIRED FOR A COMPLETE AND PROPER INSTALLATION SHALL BE NEW, FIRST QUALITY OF THEIR RESPECTIVE KINDS, AND SUBJECT TO THE APPROVAL OF THE ARCHITECT.

III. EXECUTION:

3.01 GENERAL:

A. INSPECTIONS:

1. PRIOR TO ALL WORK OF THIS SECTION, CAREFULLY INSPECT THE INSTALLED WORK OF ALL OTHER TRADES AND VERIFY THAT ALL SUCH WORK IS COMPLETE TO THE POINT WHERE THIS INSTALLATION MAY PROPERLY COMMENCE.
2. VERIFY THAT ALL PLUMBING MAY BE INSTALLED IN STRICT ACCORDANCE WITH ALL PERTINENT CODES AND REGULATIONS AND THE APPROVED SHOP DRAWINGS.

B. DISCREPANCIES:

1. IN THE EVENT OF DISCREPANCIES, IMMEDIATELY NOTIFY THE ARCHITECT.
2. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

C. COORDINATION:

1. COORDINATE WORK WITH RELATED TRADES TO PREVENT UNDUE DELAY IN JOB PROGRESS.
2. CONTRACTOR SHALL PROVIDE A PERSON TO BE RESPONSIBLE FOR MAINTAINING PROPER POSITIONING AND ALIGNMENT OF ALL ITEMS DURING CONCRETE POURING.
3. PROVIDE MATERIALS IN SUFFICIENT QUANTITIES ON JOB SITE TO COMPLETE THE WORK AND TO ACCOMMODATE MINOR UNFORESEEN CHANGES AND ADDITIONS IN THE SCOPE OF WORK.

3.02 PIPING:

A. GENERAL:

1. SYSTEM LAYOUTS AS INDICATED ON DRAWINGS ARE GENERALLY DIAGRAMMATIC, BUT SHALL BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION WILL PERMIT.

B. PIPING:

1. ANY SECTION OF PIPE FOR WHICH SIZE IS NOT SHOWN OR ANY INTERMEDIATE SECTION ERRONEOUSLY SHOWN OBVIOUSLY UNDERSIZED SHALL BE THE SAME SIZE AS THE LARGEST LINE CONNECTING TO IT.
2. INSTALL UNIONS AT CONNECTIONS TO EQUIPMENT, ON SERVICE SIDE OF VALVES AND ELSEWHERE AS REQUIRED OR SHOWN TO FACILITATE MAINTENANCE.
3. INSTALL DIELECTRIC INSULATING CONNECTIONS BETWEEN ALL DISSIMILAR METALS UNLESS OTHERWISE INDICATED.
4. ARRANGE PIPING AND HANGERS TO ALLOW FOR EXPANSION, CONTRACTION AND STRUCTURAL SETTLEMENT. DO NOT INSTALL PIPING IN CONTACT WITH THE BUILDING STRUCTURE.
5. UNLESS SPECIFICALLY INDICATED OTHERWISE, INSTALL PIPING CONCEALED ABOVE CEILINGS, BENEATH THE FLOORS OR IN WALLS.
6. SLOPING, VENTING AND DRAINAGE:

SLOPE PIPING AS INDICATED, TRUE TO LINE AND GRADE FREE OF TRAPS AND AIR POCKETS. UNLESS INDICATED OTHERWISE, SLOPE PING IN DIRECTION OF FLOW AS FOLLOWS:

SERVICE	INCLINATION	SLOPE
DOMESTIC WATER	LEVEL	
SANITARY VENT	UP	1/2" PER FT (MIN.)
SANITARY WASTE	DOWN	1/4" PER FT (MIN.)

7. RUN ALL PIPING GENERALLY LEVEL, FREE OF UNNECESSARY TRAPS AND BENDS, ARRANGE TO CONFORM TO THE BUILDING REQUIREMENTS AND TO SUIT NECESSITIES OF CLEARANCE FOR OTHER WORK.
8. DOMESTIC WATER: CONNECT COPPER TUBING TO FIXTURES WITH COPPER FITTINGS; CHROME PLATED WHERE EXPOSED. PROVIDE 12" HIGH AIR CHAMBERS AT FIXTURE CONNECTIONS. PREVENT DAMAGE TO FINISHED SURFACES.
9. NATURAL GAS: MAKE EQUIPMENT CONNECTIONS WITH GROUND JOINT UNIONS, 6" MINIMUM DIRT LEG AND GAS COCKS. PROVIDE ACCESSIBLE MAIN SHUT-OFF COCK AT ENTRANCE TO BUILDING.
10. COPPER: CRIMPING OF COPPER TUBING IS PROHIBITED. ISOLATE COPPER PIPE AND TUBING FROM CONTACT WITH STEEL.
11. THREADED JOINTS: APPLY TEFLON TAPE TO MALE THREADS.
12. SOLDERED JOINTS: CLEAN SURFACES TO BE JOINT OF OIL, GREASE, RUST AND OXIDES. CLEAN SOCKET OF FITTING AND END OF PIPE THOROUGHLY WITH EMERY CLOTH SO AS TO REMOVE RUST AND OXIDES. AFTER CLEANING, APPLY AND END OF PIPE THOROUGHLY WITH EMERY CLOTH SO AS FLUX TO JOINT SURFACE AND SPREAD EVENLY BEFORE ASSEMBLY OR HEATING.
13. DO NOT COVER OR ENCLOSE THE PIPING WORK BEFORE IT HAS BEEN TESTED, INSPECTED AND APPROVED.
14. SEAL ALL PIPING PENETRATING THE ROOF WITH 4 LB. SHEET LEAD FLASHING WITH 8" SKIRT AND COUNTER FLASHING RIM SEALED WITH A NON HARDENING MASTIC.

C. PIPE CLEANING:

1. DURING INSTALLATION, PIPING SHALL BE KEPT CLEAN AND DRY. THE PLUMBING CONTRACTOR SHALL PHYSICALLY PRE-CLEAN ALL WATER SYSTEM PIPING TO REMOVE DIRT, DEBRIS, GRASE, OIL AND CORROSION PRODUCTS THAT MAY HAVE ACCUMULATED DURING CONSTRUCTION

D. PIPE TESTING:

1. TEST PIPING AS NOTED BELOW WITH NO LEAK OR LOSS OF PRESSURE. EPAIR OR REPLACE DEFECTIVE PIPING UNTIL TESTS ARE ACCOMPLISHED SUCCESSFULLY.

TEST SCHEDULE:

SYSTEM	MEDIUM	PRESSURE	TEST TIME
DOMESTIC WATER	WATER	150 PSIG	4 HOURS
SANITARY VENT	WATER	15 FEET	2 HOURS
SANITARY WASTE	WATER	15 FEET	2 HOURS
NATURAL GAS	AIR	50 PSIG	1 HOUR

E. STERILIZATION OF DOMESTIC WATER PIPING:

1. AFTER PRELIMINARY PURGING, CLEANING, AND FLUSHING OF THE SYSTEM, CHLORINATE THE ENTIRE POTABLE DOMESTIC WATER SYSTEM IN ACCORDANCE WITH THE CURRENT RECOMMENDATIONS OF THE AMERICAN WATER WORKS ASSOCIATION AND IN ACCORDANCE WITH ALL PERTINENT STATE AND LOCAL HEALTH CODES AND REGULATIONS.
2. CHLORINATE ONLY WHEN PRESCHEDULED AND PROVIDE PROPER WARNING SIGNS AT OUTLETS.
3. UPON COMPLETION OF THE STERILIZATION, THOROUGHLY FLUSH THE ENTIRE POTABLE WATER SYSTEM AND IMMEDIATELY FILL THE SYSTEM.
4. WHEN STERILIZATION AND FLUSHING ARE COMPLETE, ARRANGE WITH PERTINENT AGENCIES FOR ALL REQUIRED TESTS ON MAINS AND SYSTEMS.

F. EXCAVATING, TRENCHING AND BACKFILLING:

1. GENERAL: LAY PIPE TO REQUIRED LINES AND GRADES. PLACE FITTINGS AND VALVES AT REQUIRED LOCATIONS AND PLUMB.
2. EXCAVATING AND TRENCHING: EXCAVATE AND TRENCHING FOR UNDERGROUND UTILITY LINE TO REQUIRED DEPTHS. TAMP BOTTOM OF TRENCHED HARD; GRADE TO SECURE REQUIRED FALL. EXCAVATE BELL HOLES SO PIPE WILL REST ON SOLID GROUND FOR ITS ENTIRE LENGTH.
3. BACKFILLING; PRIOR TO BACKFILLING, CLEAN TRENCHES AND PITS OF TRASH AND DEBRIS. COMPACT BACKFILL TO ORIGINAL DENSITY OR TO SAME DENSITY AS ADJACENT COMPACTED FILL AS APPLICABLE.

3.03 FIXTURE INSTALLATIONS AND CONNECTIONS:

A. GENERAL:

1. SET FIXTURES TO EQUAL HEIGHT, PLUMB OR AT RIGHT ANGLES TO WALL. CONNECT TO WASTE AND WATER SUPPLIES IN NEAT, UNIFORM AND FINISHED MANNER. PROVIDE NECESSARY TRIM AND APPURTENANCES FOR COMPLETE INSTALLATION. SEE ARCHITECTURAL DRAWINGS FOR FIXTURE HEIGHTS, SPACING, ARRANGEMENTS, ETC.

B. CLEANING AND PROTECTION:

1. CLEAN PLUMBING FIXTURES OF DIRT AND DEBRIS UPON COMPLETION OF INSTALLATION.
2. PROTECT INSTALLED FIXTURES FROM DAMAGE DURING THE REMAINDER OF CONSTRUCTION PERIOD.

C. FIELD QUALITY CONTROL:

1. UPON COMPLETION OF INSTALLATION OF PLUMBING FIXTURES AND AFTER UNITS ARE WATER PRESSURIZED, TEST FIXTURES TO DEMONSTRATE CAPABILITY AND COMPLIANCE WITH REQUIREMENTS. WHEN POSSIBLE, CORRECT MALFUNCTIONING UNITS AT SITE, THEN RE-TEST TO DEMONSTRATE COMPLIANCE; OTHERWISE REMOVE AND REPLACE WITH NEW UNITS AND PROCEED WITH RETESTING.
2. INSPECT EACH INSTALLED UNIT FOR DAMAGE TO FINISH. IF FEASIBLE, RESTORE AND MATCH FINISH TO ORIGINAL AT SIRE; OTHERWISE, REMOVE FIXTURE AND REPLACE WITH NEW UNIT. FEASIBILITY AND MATCH TO BE JUDGED BY THE ARCHITECT. REMOVE CRACKED OR DENTED UNITS AND REPLACE WITH NEW UNITS.

3.04 CLEANING UP:

A. PRIOR TO ACCEPTANCE OF THE BUILDINGS, THOROUGHLY CLEAN ALL EXPOSED PORTIONS OF THE PLUMBING INSTALLATION, REMOVING ALL LABELS AND ALL TRACES OF FOREIGN SUBSTANCE, USING ONLY A CLEANING SOLUTION APPROVED BY THE MANUFACTURER OF THE PLUMBING ITEM AND BEING CAREFUL TO AVOID ALL DAMAGE TO FINISHED SURFACES.

B. SUBMIT A SIGNED COPY OF ALL TEST REPORTS TO THE ARCHITECTS.

REVISIONS	BY
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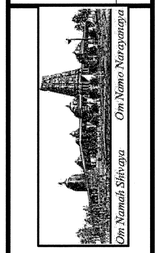

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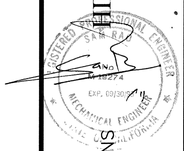

PLUMBING SPECIFICATIONS PHASE 1A

DATE 8/12/09
SCALE: AS NOTED
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PROJECT: ARROWHEAD

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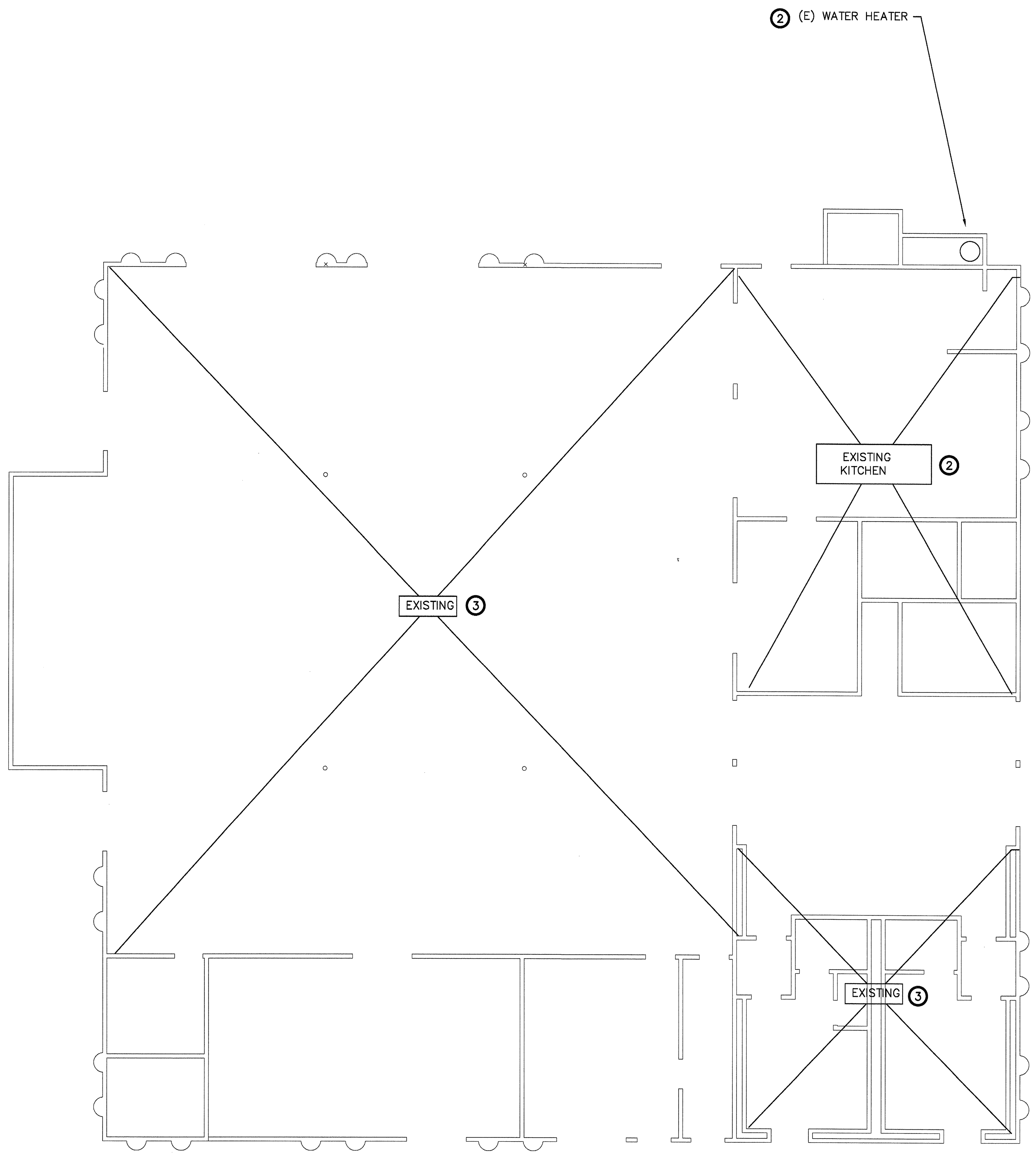

1 / PD-1 **PLUMBING FLOOR PLAN-DEMOLITION**

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

CONSTRUCTION NOTES:

(1) REMOVE ALL PLUMBING FIXTURES AND CONNECTED UTILITIES INCLUDING NAT. GAS, DOMESTIC COLD WATER, HOT WATER, SAN. DRAIN AND VENT. COORDINATE THE REMOVAL WITH THE CONSTRUCTION MANAGER.

(2) REMOVE ALL DOM. HOT WATER SUPPLY AND RETURN PIPING ASSOCIATED WITH (E) DOM. WATER HEATER. MODIFY AND CONNECT (N) SUPPLY AND RETURN PIPES AS PER DWG. P-1. COORDINATE THE REMOVAL WITH THE CONSTRUCTION MANAGER.

(3) EXISTING AND TO REMAIN AS IS.

REVISIONS	BY
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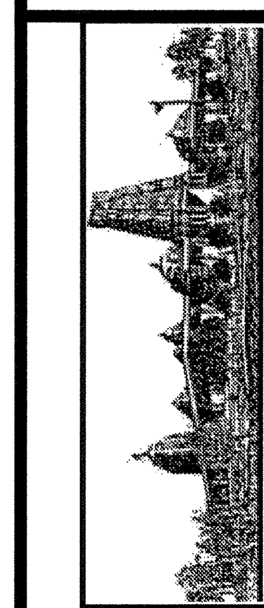

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PLUMBING DEMOLITION
BUILDING B FLOOR PLAN
PHASE 1A

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SCALE: AS NOTED
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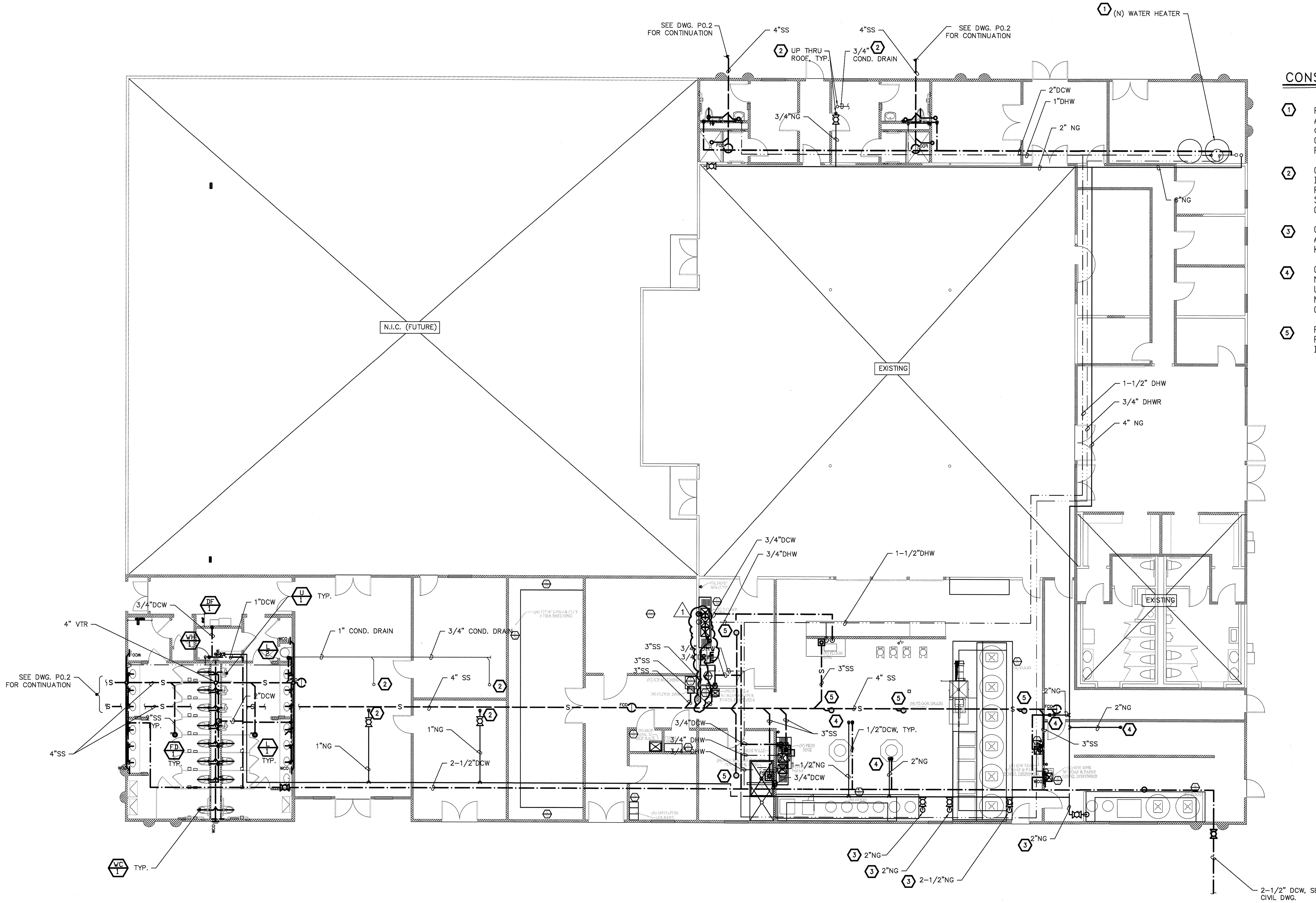
PROJECT: ARROWHEAD

PD-1



1 P-1 PLUMBING FLOOR PLAN-COSTRUCTION

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

CONSTRUCTION NOTES:

1. REMOVE ALL DOM. HOT WATER SUPPLY AND RETURN PIPING ASSOCIATED WITH (E) DOM. WATER HEATER. MODIFY AND CONNECT (N) SUPPLY AND RETURN PIPES.
2. CONNECT NAT. GAS AND CONDENSATE DRAIN TO ROOF TOP A.C. UNITS ON THE ROOF. TERMINATE COND. DRAIN IN JAN. SERVICE SINK OR FLOOR DRAIN. COORDINATE WITH MECH. CONTRACTOR.
3. CONNECT NAT. GAS TO THE KITCHEN APPLIANCE. SEE AND COORDINATE WITH KITCHEN DRAWINGS K-1 AND K-2.
4. CONNECT DOMESTIC COLD WATER AND NAT. GAS TO ROOF TOP MAKE-UP AIR UNITS ON THE ROOF AS PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE WITH MECH. CONTRACTOR.
5. PROVIDE FLOOR DRAIN WITH TRAP PRIMER AND CONNECT WITH (N) SAN. DRAIN.

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1 PC COMMENTS	SR

Om Namah Shivaya — Om Namo Narayanaya

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PLUMBING
BUILDING B FLOOR PLAN
PHASE 1A

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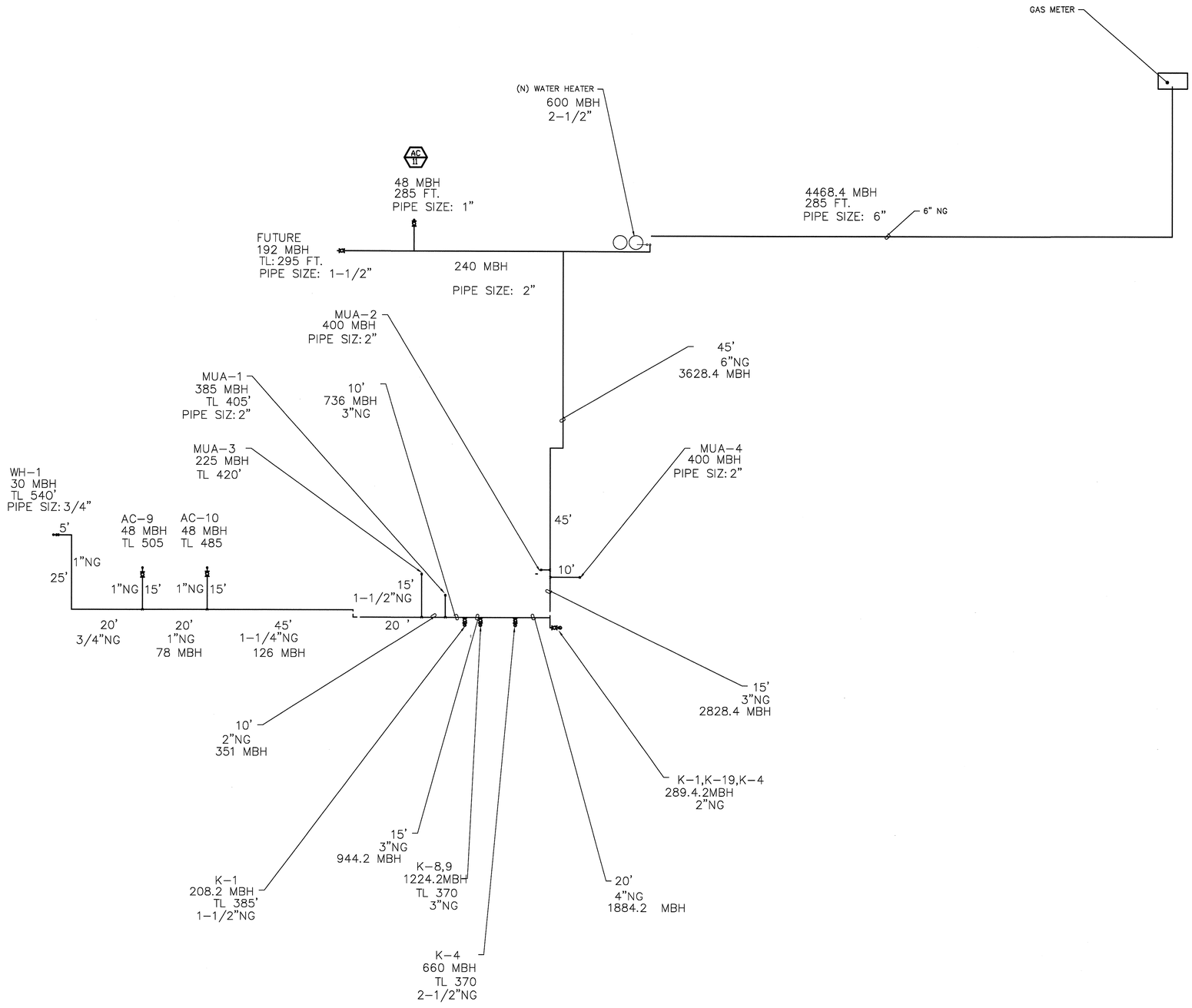
P-1

CONSTRUCTION NOTES:

1. MOST REMOTE APPLIANCE AT 540 FEET.
2. PIPE SIZES ARE BASED ON CPC 2010, TABLE 12-6 FOR THE 550 FEET.



1 P-04 **NATURAL GAS SCHEMATIC**

SCALE: NONE

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NATURAL GAS PIPING SCHEMATIC
BUILDING B FLOOR PLAN
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P04