

**ELECTRIC/MECH. NOTES:**

DRAWINGS ARE DIAGRAMMATIC ONLY FOR THE PURPOSE OF SHOWING FIXTURE AND OUTLET LOCATIONS.

ELECTRICAL CONTRACTOR TO VERIFY SERVICE SIZE BY CALCULATION BASED UPON ACTUAL NAME PLATE RATINGS OF SELECTED EQUIPMENT.

VERIFY LOCATION OF SERVICE ENTRANCE WITH POWER COMPANY. PROVIDE USER GROUND IN BUILDING FOUNDATION AT SERVICE ENTRANCE LOCATION.

PROVIDE A MIN. OF 20 FEET OF ONE #4 BARE COPPER USER WIRE EMBEDDED IN CONCRETE FOOTING AT THE SERVICE ENTRANCE LOCATION WHERE APPROVED BY LOCAL SERVICE PROVIDER.

PROVIDE A BONDING CONDUCTOR CONSISTING OF A MINIMUM OF ONE #2 BARE COPPER WIRE CONNECTING THE BUILDING'S METAL WATER PIPING SYSTEM TO THE SERVICE EQUIPMENT ENCLOSURE GROUNDING.

FIXTURES, FITTINGS, BOXES, RECEPTACLES SWITCHES AND OTHER ELECTRICAL EQUIPMENT LOCATED IN DAMP OR WET LOCATIONS SHALL BE LISTED AS SUITABLE FOR SUCH LOCATIONS.

NO PARTS OF CHORD CONNECTED FIXTURES, HANGING FIXTURES, LIGHTING TRACK, PENDANTS, OR CEILING SUSPENDED (PADDOLE) FANS SHALL BE LOCATED WITHIN A ZONE MEASURED 3 FEET HORIZONTALLY AND 8 FEET VERTICALLY FROM THE TOP OF THE BATH-TUB RIM OR SHOWER STALL THRESHOLD. THIS ZONE IS ALL ENCOMPASSING AND INCLUDES THE ZONE DIRECTLY OVER THE TUB OR SHOWER STALL.

PROVIDE INTERCONNECTED SMOKE ALARMS IN EACH SLEEPING ROOMS, OUTSIDE EACH SLEEPING ROOM ON EACH STORY, IN THE HALL OR ADJACENT ROOM WHERE THE CEILING HEIGHT OF A ROOM OPEN TO THE HALL EXCEEDS THE HALL BY 24". SMOKE ALARMS SHALL BE PERMANENTLY HARD WIRED WITH BATTERY BACKUP.

FIRE WIRE FOR SECURITY SYSTEM, TC, CABLE AND PHONE AS PER OWNER/CONTRACTOR.

RECEPTACLE OUTLETS FOR RANGES AND CLOTHES DRYERS SHALL BE A THREE POLE WITH GROUND TYPE. FOUR WIRE GROUNDING-TYPE FLEXIBLE CORDS WILL BE REQUIRED FOR CONNECTION OF RANGES AND CLOTHES DRYERS. THE BONDING JUMPER SHALL NOT BE CONNECTED BETWEEN NEUTRAL TERMINAL AND THE FRAME OF THE APPLIANCE.

TWO OR MORE 20 AMP SHALL APPLIANCE CIRCUITS SHALL BE PROVIDED TO SERVE THE KITCHEN BREAKFAST NOOK, AND DINING ROOM. SUCH CIRCUITS SHALL HAVE NO OTHER OUTLETS.

PROVIDE (1) 20 AMP CIRCUIT FOR BATHROOM GFI'S WITH NO OTHER OUTLETS.

ALL RECEPTACLES WITHIN 6' OF A WET BAR SINK OR KITCHEN SINK TO SERVE COUNTER TOP SURFACES MUST BE GFCI. ON KITCHEN COUNTERS 12" OR WIDER NO POINT ALONG THE WALL SHALL BE MORE THAN 2' FROM A RECEPTACLE. ALL RECEPTACLES WITHIN 6' OF KITCHEN SINK AND AT ALL KITCHEN COUNTERS MUST BE GFCI. AT LEAST ONE GFCI RECEPTACLE SHALL BE INSTALLED IN THE BATHROOM ADJACENT TO EACH BATH.

ISLAND OR PENINSULA COUNTERTOPS 12" OR WIDER SHALL HAVE AT LEAST ONE RECEPTACLE FOR EACH 4 FEET OF COUNTERTOP.

PROVIDE WATERPROOF FIXTURES IN ALL HIGH MOISTURE AREAS (EXTERIOR, SHOWER AND TUB CEILING ETC.)

FIXTURES INCLUDING CEILING FANS THAT ARE LOCATED IN DAMP LOCATIONS SHALL BE LISTED TO BE SUITABLE FOR SUCH LOCATIONS

PROVIDE ONE (1) SWITCHED OUTLET • ALL BEDROOMS AND DEN.

ALL CEILING FANS TO BE PROVIDED WITH (2) SWITCHES. (1) SWITCH TO CONTROL FAN OPERATION AND (1) SWITCH TO TURN LIGHT ON AND OFF.

BOXES FOR CEILING FANS TO BE UL LISTED FOR FAN MOUNTING.

CEILING FANS NOT EXCEEDING 35 LBS. (WITH OR WITHOUT ACCESSORIES MAY BE SUPPORTED BY OUTLET BOXES PROVIDED THE OUTLET BOXES ARE IDENTIFIED FOR SUCH USE

PROVIDE DEDICATED CIRCUITS TO EACH BATH, DEN, FAMILY ROOM, BEDROOM, LOFT, KITCHEN REFRIGERATOR, KITCHEN FREEZER, DISHWASHER, AND ANY AREA/ITEM SPECIFIED BY OWNER.

ELECTRICAL OUTLET BOXES ON OPPOSITE SIDES OF FIRE RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24".

LIGHT FIXTURES IN CLOSETS MUST MAINTAIN 12" CLEARANCE FROM SHELVES TO INCANDESCENT FIXTURES WITH A 6" CLEARANCE FOR RECESSED AND FLUORESCENT FIXTURES.

INCANDESCENT FIXTURES WITH OPEN OR PARTIALLY ENCLOSED LAMPS, PENNANT FIXTURES, AND LAMP HOLDERS ARE NOT PERMITTED IN CLOSETS.

RECEPTACLES MUST BE PROVIDED IN HALLWAYS 10'-0" OR MORE IN LENGTH.

FOR A ONE FAMILY DWELLING AND EACH OF A TWO FAMILY DWELLING THAT IS AT GRADE LEVEL, AT LEAST ONE UP-GFCI RECEPTACLE OUTLET ACCESSIBLE AT GRADE LEVEL, AND NOT MORE THAN 6'-6" ABOVE GRADE SHALL BE INSTALLED AT THE FRONT AND BACK OF THE DWELLING.

ALL WORKMANSHIP AND MATERIALS TO CONFORM WITH THE NEC.

MECHANICAL EQUIPMENT SHALL HAVE A PRIMARY CONDENSATE DRAIN LINE TERMINATING IN AN APPROVED LOCATION SUCH AS TO THE EXTERIOR OF THE BUILDING OR TO A LAVATORY TAILPIECE. DRAIN LINES OF PVC EXPOSED TO DAYLIGHT SHALL BE PAINTED TO PROTECT THE PIPE FROM DEGRADATION.

HEAT PUMPS, AIR HANDLERS, SUPPLY DUCTS, CEILING DEUSERS, REGISTERS, AND AIR RETURNS TO BE SIZED BY MECHANICAL SUB-CONTRACTOR.

HEATING TO PROVIDE A MIN. OF 70 DEGREES F AT 3'-0" ABOVE FINISHED FLOOR.

EXHAUST FANS PROVIDED AT LAUNDRY ROOM, BATHROOMS, AND TOILET ROOMS TO PROVIDE A MIN. FIVE (5) AIR CHANGES PER HOUR FOR THE ROOMS THEY ARE LOCATED.

THE CLOTHES DRYER EXHAUST DUCT SHALL BE AT LEAST THE DIAMETER OF THE APPLIANCE OUTLET AND SHALL TERMINATE ON THE OUTSIDE OF THE BUILDING. IT SHALL NOT EXCEED 25' IN LENGTH WITH REDUCTIONS FOR BENDS. THE DUCT SHALL TERMINATE NOT LESS THAN 3 FEET FROM ANY PROPERTY LINE.

DUCT MUST BE A MINIMUM OF 4" IN DIAMETER AND OF SMOOTH INTERIOR SURFACE.

ALL WORKMANSHIP AND MATERIALS TO CONFORM WITH THE U.M.C.

A 125-VOLT, SINGLE-PHASE, 15 OR 20 AMPERE-RATED RECEPTACLE OUTLET SHALL BE INSTALLED AT AN ACCESSIBLE LOCATION FOR THE SERVICING OF HEATING, AIR CONDITIONING, AND REFRIGERATION EQUIPMENT. THE RECEPTACLE SHALL BE LOCATED ON THE SAME LEVEL AND WITHIN 25 FEET OF THE HEATING, AIR CONDITIONING, AND REFRIGERATION EQUIPMENT. THE RECEPTACLE OUTLET SHALL NOT BE CONNECTED TO THE LOAD SIDE OF THE EQUIPMENT DISCONNECTING MEANS (210.63).

ALL BRANCH CIRCUITS THAT SUPPLY 125 VOLTS SINGLE PHASE 15 AND 20 AMPS OUTLETS INSTALLED IN DWELLING UNIT BEDROOMS SHALL BE BY AN ARC FAULT CIRCUIT INTERRUPTER LISTED TO PROVIDE PROTECTION OF THE ENTIRE BRANCH CIRCUIT.

SMOKE ALARMS SHALL INTERCONNECT IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE UNIT. THE ALARM SHALL BE CLEARLY AUDIBLE IN ALL BEDROOMS.

PROVIDE MINIMUM 12 SEER FOR AIR CONDITIONING EQUIPMENT.

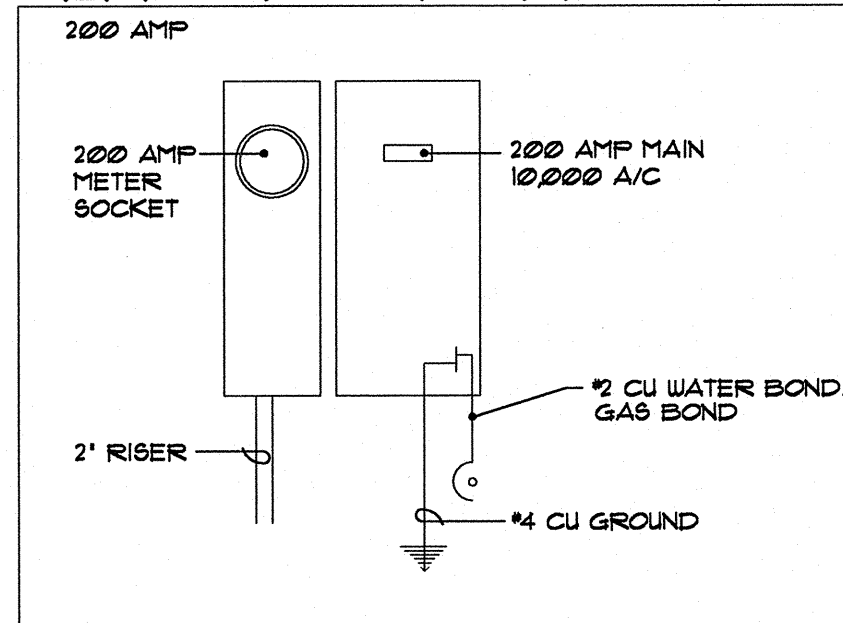
DUCT INSULATION WHEN LOCATED IN CONDITIONED SPACE MINIMUM R-5 AND OUTSIDE CONDITIONED SPACE MINIMUM R-8.

**ELECTRICAL CALC'S**

2106 SQUARE FEET X 3W =	6318
(4) - SMALL APPLIANCE CIRCUITS	6000
LAUNDRY CIRCUITS	1500
OVEN	1200
MICROWAVE	1200
FREEZER	1200
REFRIGERATOR X 2	2400
CENTRAL VA	1500
DISPOSAL	750
DISHWASHER	1500
DRYER	3000
COOK TOP	1200
WATER HEATER	5500
<b>SUBTOTAL:</b>	<b>56668</b>
1st 10,000W X 100% =	10000
REMAINING X 40% =	18141
<b>SUBTOTAL:</b>	<b>28141</b>
HEATING & AIR COND. (5.0 TON MAX)	11920
<b>TOTAL:</b>	<b>40061</b>
TOTAL LOAD DIVIDED BY 240V =	170

CONCLUSION: 200 AMP SERVICE TO BE USED  
(CONTRACTOR TO VERIFY HEATING/AC TONNAGE)

**ELECTRICAL SERVICE**



**CIRCUITS**

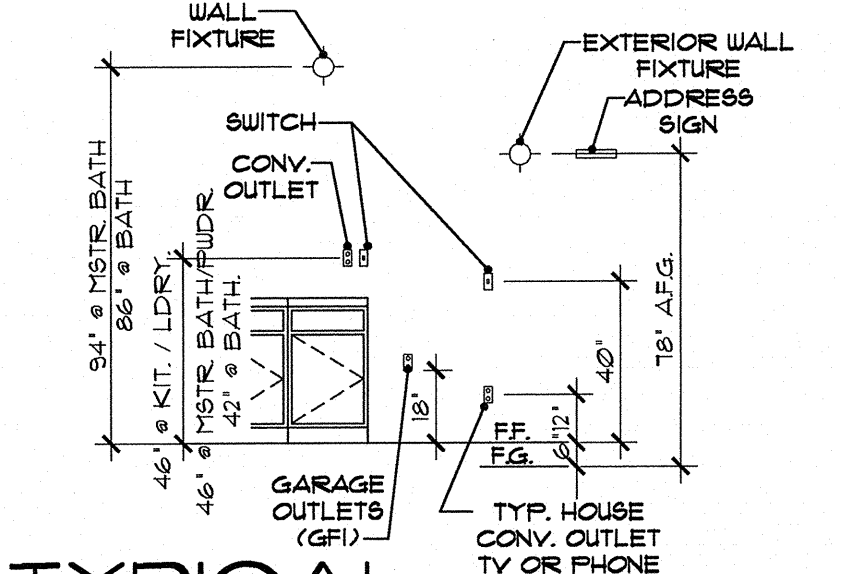
CIRCUITS	VOLT	AMP	WIRE
OVEN	220	50	#6
RANGE	220	50	#6
COOK TOP	220	50	#6
HEATING/AIR COND.	220	40	#6
DRYER	220	30	#10
WATER HEATER	220	30	#10
GFI OUTLETS	110	20	#12
KITCHEN OUTLETS	110	20	#12
REFRIGERATOR	110	20	#12
FREEZER	110	20	#12
DISHWASHER/ G. DISPOSAL	110	20	#12
DINING ROOM	110	20	#12
GARAGE & STORAGE	110	20	#12
GENERAL LIGHTING	110	15	#14
SMOKE DETECTORS	110	15	#14

**GROUNDING NOTES**

ALL INTERIOR METALLIC WATER PIPING WHICH MAY BECOME ENERGIZED SHALL BE BONDED TOGETHER AND MADE ELECTRICALLY CONTINUOUS. A BOND OF BARE #4 COPPER WIRE SHALL BE MADE BETWEEN THE BONDED PIPING SYSTEM AND THE ELECTRODE CONDUCTOR.

20'-0" MINIMUM BARE WIRE CONDUCTOR (#4 MIN) ENCASED BY 2" MIN. OF CONCRETE AT THE BOTTOM OF A FOOTING WHICH IS IN DIRECT CONTACT WITH THE ADJACENT EARTH.

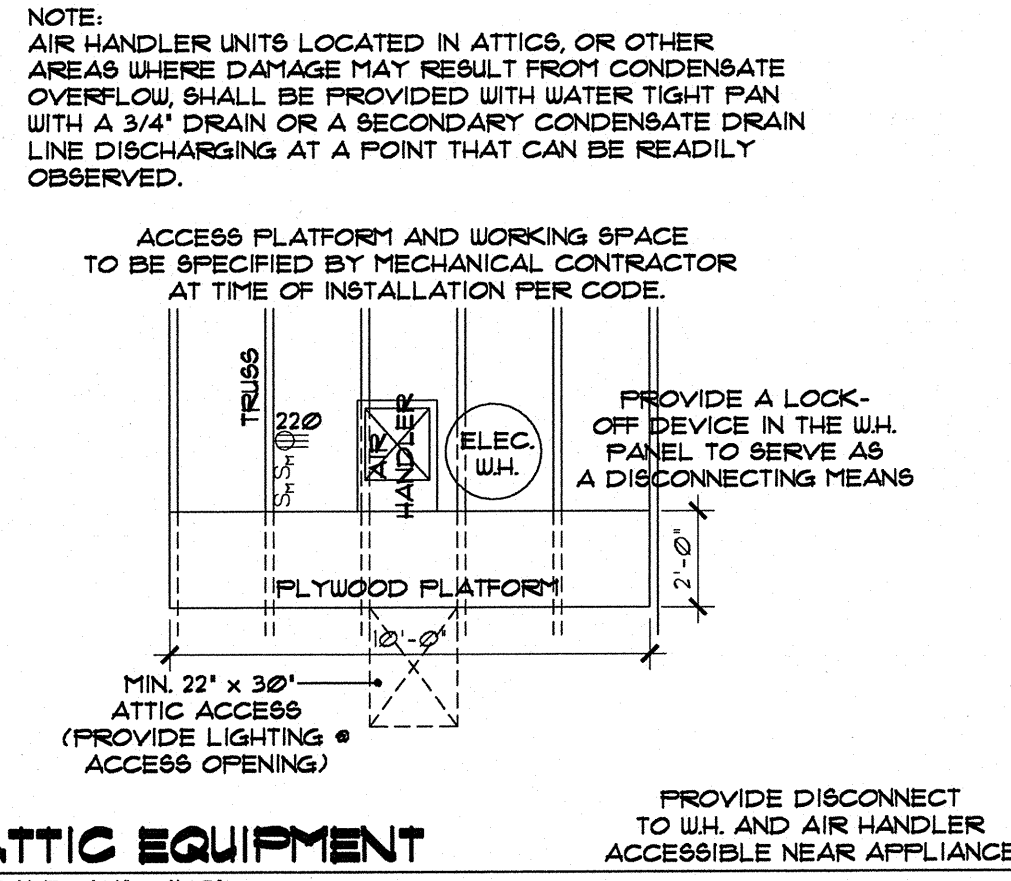
THE INTERIOR METAL COLD WATER PIPING SYSTEM IS TO BE BONDED TO THE SERVICE EQUIPMENT ENCLOSURE. THE GROUNDING CONDUCTOR AT THE SERVICE, THE GROUNDING ELECTRODE OR TO ONE OR MORE GROUNDING ELECTRODES USED.



**TYPICAL INSTALL HEIGHT (UNO)**

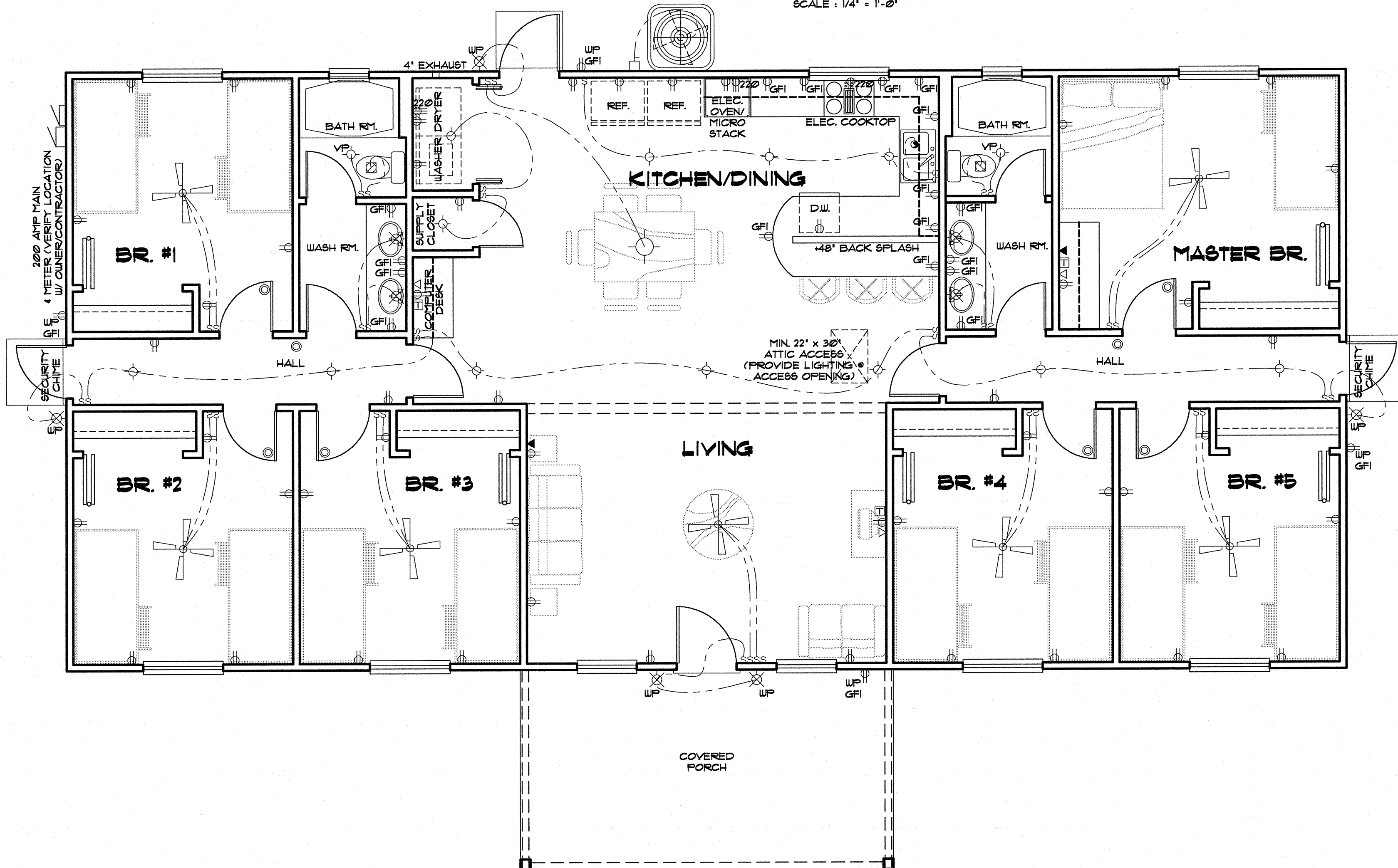
SCALE: N.T.S.

RECEPTACLE OUTLETS SHALL BE PERMITTED TO BE MOUNTED NOT MORE THAN 12 INCHES BELOW COUNTERTOP IN CONSTRUCTION DESIGNED FOR PHYSICALLY IMPAIRED AND FOR ISLAND AND PENINSULA COUNTERTOPS WHERE THE COUNTERTOP IS FLAT ACROSS ITS ENTIRE SURFACE AND THERE ARE NO MEANS TO MOUNT A RECEPTACLE WITHIN 18 INCHES ABOVE THE COUNTERTOP, SUCH AS IN AN OVERHEAD CABINET. RECEPTACLES MOUNTED BELOW THE COUNTERTOP IN ACCORDANCE WITH THIS EXCEPTION SHALL NOT BE LOCATED WHERE THE COUNTERTOP EXTENDS MORE THAN 6" BEYOND ITS SUPPORT BASE.



**ATTIC EQUIPMENT**

SCALE: 1/4" = 1'-0"



**LEGEND**

- ⊗ WALL MOUNTED INCANDESCENT
- ⊕ SURFACE MOUNTED INCANDESCENT
- ⊗ RECESSED EXHAUST FAN VENTED TO THE EXTERIOR
- ⊗ CEILING FAN/LIGHT COMBO (2 SWITCHES UNO)
- ⊕ DUPLEX OUTLET
- ⊕ CEILING MOUNTED DUPLEX OUTLET
- ⊕ 220V OUTLET
- ⊕ TELEPHONE OUTLET
- ⊕ DATA OUTLET
- ⊕ TELEVISION OUTLET
- ⊕ GARBAGE DISPOSAL
- ⊕ DISCONNECT (250V 15 3W @2A FUSE PER MANUFACTURER REQ.)
- S. MOTOR RATED SWITCH
- S SWITCH
- ⊕ 110 VOLT SMOKE DETECTOR (SEE 'GENERAL NOTES' FOR OTHER SPEC'S)

**ELECTRICAL/MECHANICAL PLAN**

SCALE: 1/4" = 1'-0"



MICHAEL C. DALY DESIGN CONSULTANTS, LLC  
1031 955-6500  
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MAIN FLOOR	1920 SQ. FT.
COVERED AREA	186 SQ. FT.
FOOTPRINT	2106 SQ. FT.

PREPARED EXCLUSIVELY FOR:  
**Dormitory Building**  
PAPUA NEW GUINEA

