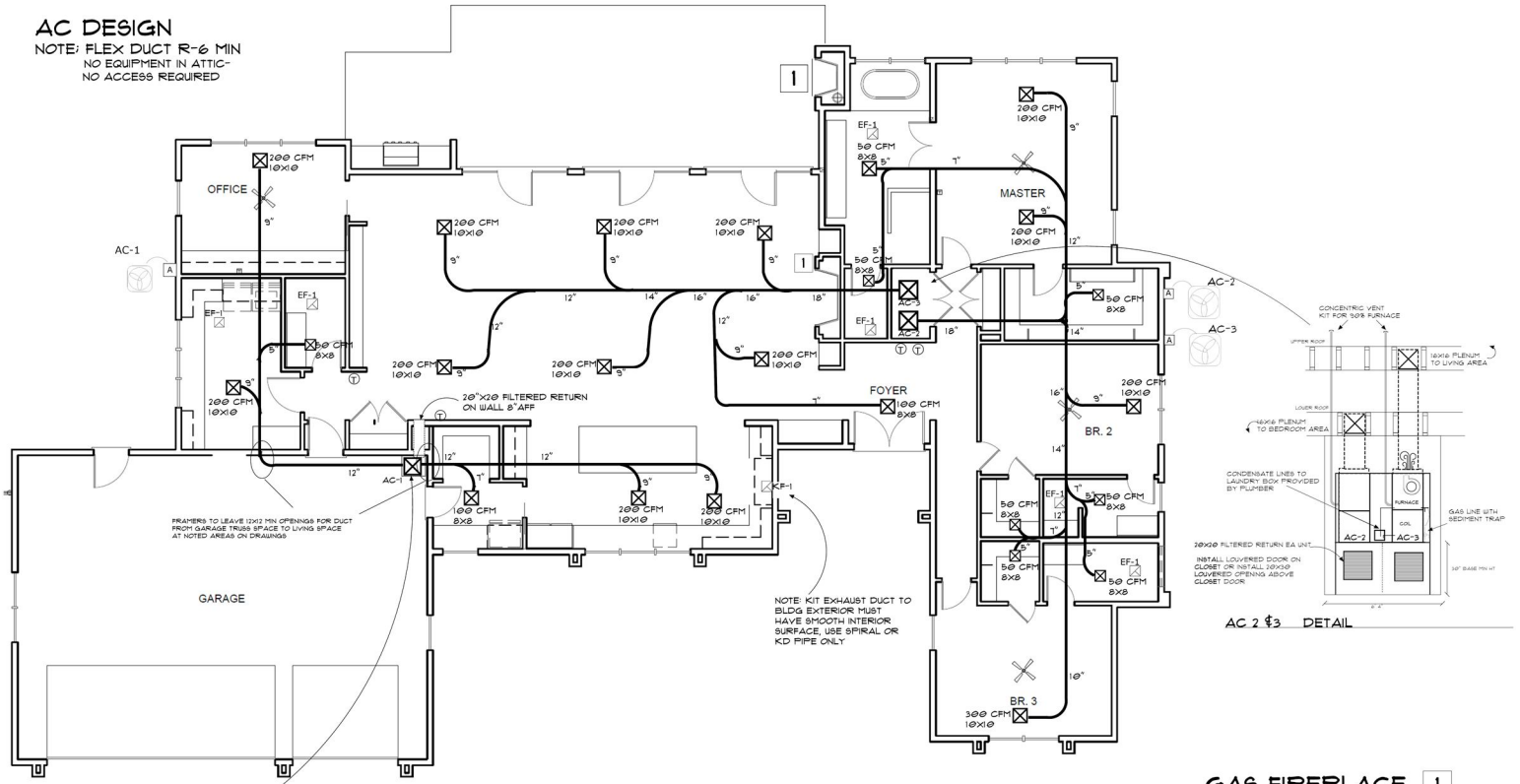
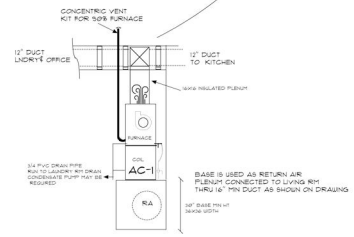
AC DESIGN

NOTE: FLEX DUCT R-6 MIN
NO EQUIPMENT IN ATTIC-
NO ACCESS REQUIRED



AC 2 & 3 DETAIL



AC1 DETAIL AC INSTALLED IN GARAGE

MECHANICAL PLAN

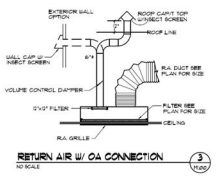
NTS

SYMBOL LEGEND

SYMBOL	ABBR.	DESCRIPTION
	SA	SUPPLY AIR
	RA	RETURN AIR
	EF	EXHAUST FAN
	BD	BYPASS DAMPER
	ZD	ZONE DAMPER
T	TSTAT	THERMOSTAT
S	SW	SWITCH
AC/ 22	--	AIR DEVICED TAG
	MVD	VOLUME DAMPER
	POC	POINT OF CONNECTION
	POD	POINT OF DISCONNECT
	AFF	ABOVE FINISHED FLOOR
— —	(E)	EXISTING

PROVIDE MAKE UP AIR

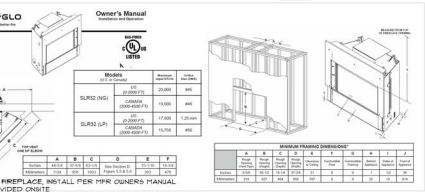
BEDROOMS 3+1=4X5= 20 CFM
LIVABLE AREA 2959 SQFTX 0.06= 177 CFM
GRAND TOTAL = 197 CFM



RETURN AIR W/ OA CONNECTION (3 M100) NO SCALE

AIR INTAKES SHALL CLOSE AUTOMATICALLY AND BE LOCATED MIN OF 10FT FROM VENTS, CHIMNEYS OR PLUMBING VENTS

GAS FIREPLACE 1



GAS FIREPLACE, INSTALL PER MFR OWNERS MANUAL PROVIDED ONSITE

ALL EQUIPMENT IS SIZED PER SENSIBLE LOAD FROM MANUAL J PER THE EXPANDED RATING FROM OEM SEE ELITE SOFTWARE REPORT PROVIDED

EQUIPMENT	QTY-	TONNAGE-	VOLT-	NAME
RUUD AC RA1424AJ1/URNL-W/ 90% FURNACE	1	2/850 CFM	230/1	AC1
RUUD AC RA1436AJ1/URNL-W/ 90% FURNACE	1	3/1200 CFM	230/1	AC2
RUUD AC RA1436AJ1/URNL-W/ 90% FURNACE	1	3/1200 CFM	230/1	AC2
VENT AIRE RANGE EXHAUST FAN	1	100CFM	110/1	KF
BROAN BATHROOM EXHAUST FAN	6	50CFM	110/1	EF

Project Title
6 ATHENS LOT

SHEET TITLE
MECHANICAL

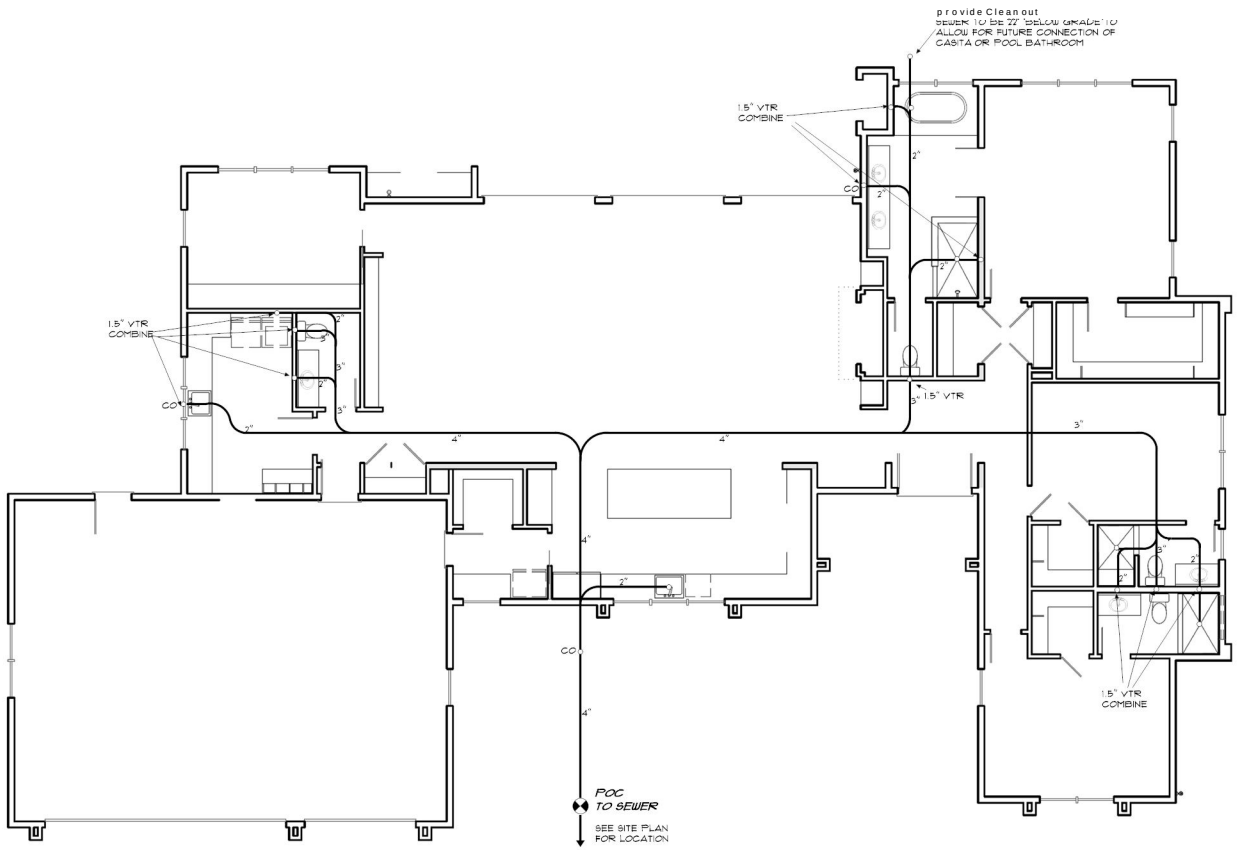
Issue Date

DRAWN BY

Project #

M-1

DWV Plan NTS



DFU CALC

TBL 702.1 UPC

WASTE FIXTURES			
FIXTURE	QTY	FU EA	TOTAL
WATER CLOSET	4	3	12
LAV	5	1	5
BATH TUB	1	2	2
SHOWERS	3	2	6
KIT SINK	1	2	2
WASHER	1	3	3
UTILITY SINK	1	2	2
TOTAL DFU'S			32
4IN SEWER 216 FU ALLOWED AT 1/4" PR/FT			

NOTES:
DEVELOPED LENGTH TO FURTHEST FIXTURE =130'
32" OF FALL REQUIRED

ALL DWV MATERIALS TO BE ABS OR PVC SCH 40

POINT OF CONNECTION TO SEWER AT FRONT OF HOUSE,

PLUMBER TO PROVIDE ATTACHMENT POINT AT REAR OF HOME FOR FUTURE ADDITION.

PLUMBING GENERAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC, MINOR DEVIATIONS TO PIPE MAY BE NECESSARY DUE TO STRUCTURAL CONDITIONS. ANY DEVIATIONS TO PIPE SIZING AS INDICATED SHALL BE TRANSMITTED TO ENGINEER FOR REVIEW, BEFORE STARTING ANY WORK.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE 2012 IPC PLUMBING CODE, AND THE LATEST EDITION OF THE APPLICABLE INTERNATIONAL RESIDENTIAL CODES, MECHANICAL, ELECTRICAL CODES AND FEDERAL, STATE AND LOCAL REGULATIONS.
3. PER 2012 IECC, ALL UNITS TO BE LABELS WITH THEIR INPUT RATING AND EFFICIENCY. ALL EQUIPMENT SHALL BE BALANCED, ADJUSTED AND TESTED TO PROVIDE SAFE, STABLE AND QUIET OPERATION.
4. CONTRACTOR SHALL:
   A). PROVIDE PRESSURE REGULATOR AND STRAINER, NOT TO EXCEED 80 P.S.I.
   B). PROVIDE A MEANS FOR HW EXPANSION WHEN ANY DEVICE IS INSTALLED PROHIBITING EXPANSION THRU BLDG'S SUPPLY, UPC 608.3 SIZE
   C). BE RESPONSIBLE TO VERIFY THAT WATER PRESSURE AND METER STATED ON PLANS, ARE THE MINIMUMS AVAILABLE IN FIELD.
5. WATER HEATERS W/ PIPE RISERS SHALL HAVE HEAT TRAPS ON BOTH THE INLET AND OUTLET OF THE WATER HEATER UNLESS THE WATER HEATER HAS INTEGRAL HEAT TRAPS OR IS PART OF A CIRCULATING SYSTEM.
6. DOMESTIC WATER PIPING
   A). HOT WATER SYSTEMS: INSTALL R-7 INSULATION ON THE HOT WATER SERVICES OF THE RE-CIRCULATING SYSTEMS AND NON-CIRCULATING HOT WATER LINES IN UNCONDITIONED SPACES, PER AMENDED 2012 IECC.
   B). ABOVE GROUND: TYPE "M" COPPER (IAPMO IS 2-2003), WROUGHT FITTINGS, LEAD FREE SOLDERED.
   C). BELOW SLAB: TYPE "L" COPPER (IAPMO IS 2-2003), TUBING SLEEVED THRU SLAB, ALL JOINTS SILVER BRAZED OR "WRSBD" OR EQUAL CROSS-LINKED POLYETHYLENE (IAPMO IS 7-2003)
   D). TYPE "A PIPING W/ BRASS FITTINGS, SUITABLE FOR POTABLE WATER, WHEN INSTALLED BY A PRODUCT CERTIFIED TECHNICIAN. NOTE: DIELECTRIC FITTINGS SHALL BE USED WHENEVER DISSIMILAR METALS ARE JOINED.
7. SANITARY WASTE AND VENT PIPING
   A). ABS (IAMPO IS 11-2003) OR PVC (IAMPO IS 9-2003) PAINT WITH LATEX PAINT WHERE EXPOSED.
8. CONDENSATE DRAIN PIPING
   A). TYPE "M" (IAPMO IS 3-2003), WROUGHT FITTINGS PVC, OR A CODE APPROVED MATERIAL
9. GAS PIPING
   A). INSIDE SCHEDULE 40 BLACK IRON, THREADED MALLEABLE FITTINGS OUTSIDE/EXPOSED, USE GALVANIZED FITTINGS AND PIPE, JOINT COMPOUND AND PROVIDE PROTECTION THAT IS CODE APPROVED. CAN USE CORRUGATED STAINLESS STEEL TUBING PROVIDED IT IS LISTED W/ AN APPROVED AGENCY. PROVIDE A SHUTOFF VALVE THAT IS ACCESSIBLE, IN THE SAME ROOM AND WITHIN 3 FEET FROM THE EQUIPMENT BEING SERVED.
   B). SUSPENDED PIPING SHALL BE SUPPORTED AT THE FOLLOWING INTERVALS; 6 FEET FOR 1/2", 8 FEET FOR 3/4" AND 1", 10 FEET FOR 1-1/4" AND LARGER.
10. PLUMBING FIXTURES
   A). PROVIDE OP ANGLE STOPS TO FINISH PLUMBING FIXTURES
   B). PROVIDE PRESSURE BALANCED MIXING VALVES AND 2.5 GAL/MIN MAX FLOW RATES AT ALL BATHTUBS AND SHOWERS, PER 2012 IECC
   C). PROVIDE SHUT OFF VALVES WITH UNIONS TO ALL OTHER PLUMBING FIXTURES (I.E. WATER HEATER) TO FACILITATE ISOLATION FOR REPAIR.
   D). ALL PLUMBING FIXTURES SHALL COMPLY WITH LOCAL AUTHORITIES CURRENT WATER CONSERVATION CODES.

Project Title
6 ANTHEM WAY

SHEET TITLE
drain waste & vent

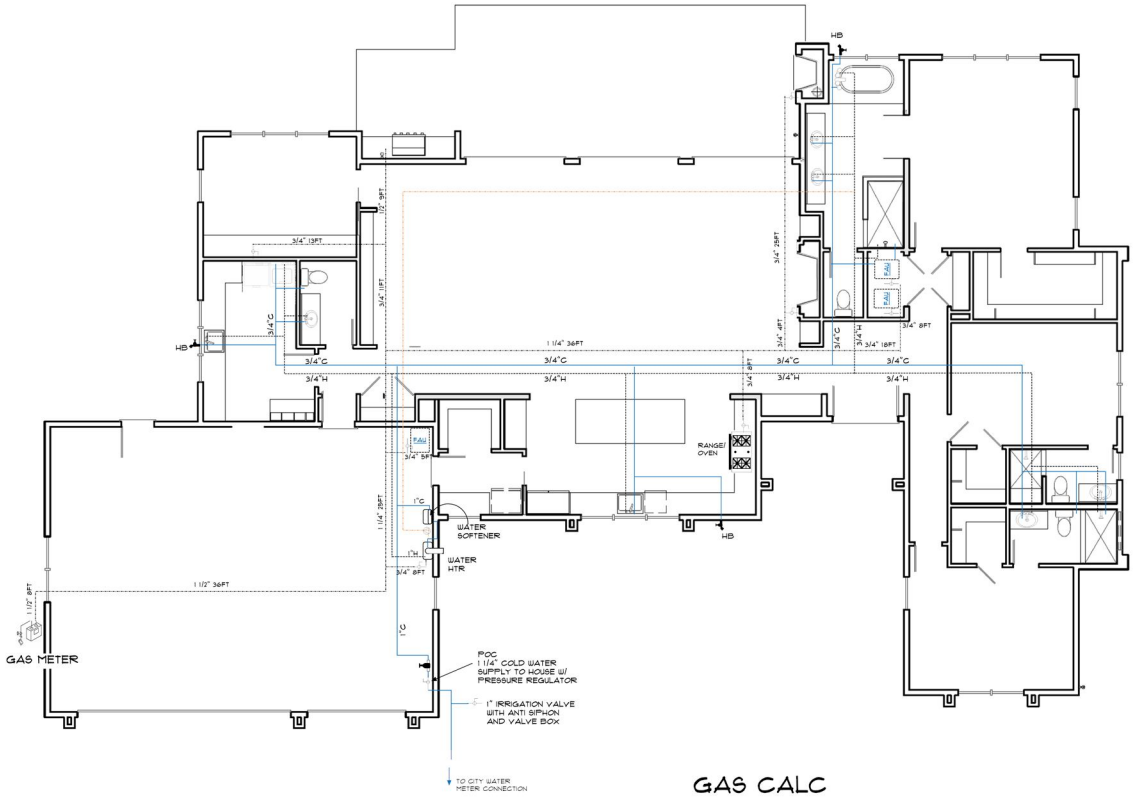
Issue Date

DRAWN BY

Project #

P-1

WATER $GAS PLAN NTS



PLBG MATERIAL LEGEND

- COLD WATER (WIRSBO OR COPPER)
- HOT WATER (WIRSBO OR COPPER)
- HOT CIRCULATION (WIRSBO OR COPPER)
- LP GAS (BLACK IRON)

NOTE: ALL WATER LINES TO BE 1/2" UNLESS NOTED OTHERWISE

GAS CALC

NOTE
ALL GAS PIPING TO BE IRON PIPE
IRON PIPE UPC TBL 12-7
130 FT TOTAL DEVELOPED LENGTH
NAT GAS SG =.60 @ 0.3IN WC

GAS EQUIP LIST (NAT GAS)					
ITEM	DEVELOPED LENGTH IN FT	QTY	BTU	CU FT PER/HR	MIN CONNECTION IPS
FURNACE 1	61	1	100,000	91	3/4
FURNACE 2	130	1	100,000	91	3/4
FURNACE 3	130	1	100,000	91	3/4
GAS DRYER	93	1	35,000	32	1/2
TANKLESS WATER HEATER	52	1	199,000	182	3/4
RANGE	113	1	65,000	59	1/2
BBQ STUB	89	1	75,000	68	1/2
FIRE PLACE	130 TO FURTHEST	2	40,000	36	1/2
TOTAL BTU 714,000 / 686 CU FT/HR					

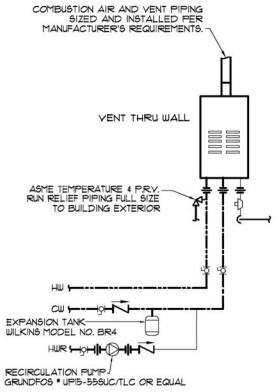
WFU CALC

TBL 702.1 UPC

WATER FIXTURES			
FIXTURE	QTY	FU EA	TOTAL
WATER CLOSET	4	2.5	10
LAV	5	1	5
BATH TUB	1	4	12
SHOWERS	3	2	8
KIT SINK	1	1.5	1.5
WASHER	1	4	4
UTILITY SINK	2	1	2
HOSE BIB	3	2.5(1)	4.5
TOTAL WSFU (TBL 610.3)			47

METER & PIPE SIZE-UPC 610.4			
STREET PRESSURE	MAX LENGTH	# FIXTURES&FU'S	METER/SUPPLY
80	150	20/47	MIN 1" METER 1 1/4" BLDG SUPPLY

TANKLESS WATER HEATER DETAIL



NOTE:
PROVIDE NECESSARY NORITZ CONTROLS FOR HEATER COMBO.

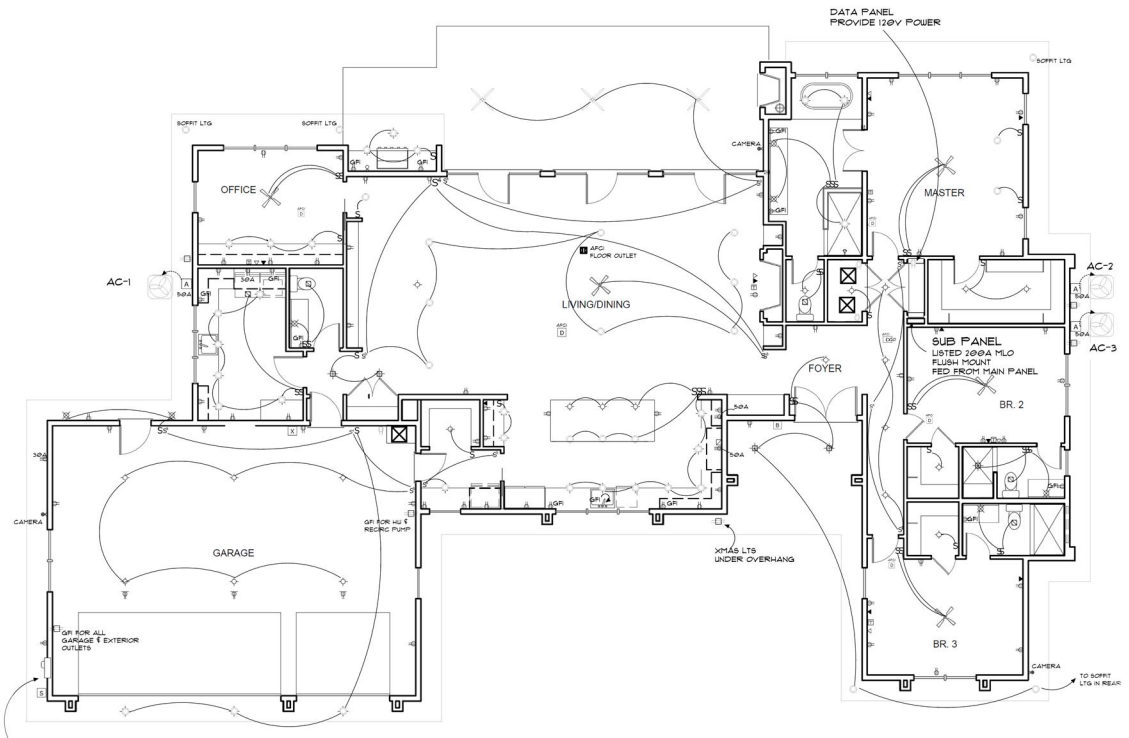
TANKLESS WATER HEATER SCHEDULE						
SYMBOL	MFR MODEL OR EQUIVELENT	MIN STORAGE (GALLONS) OR GPM	TYP OF GAS	GAS INPUT BTU	VOLTS	EFFICIENCY
HW	NORITZ MODEL: NR98-SV-NAT	8.4 GPM @40DEG TEMP RISE	NAT	199000 BTU	120	88%

Project Title
6 ATHENS LOT

SHEET TITLE
DWV / WATER

Issue Date
DRAWN BY
Project #

P-1

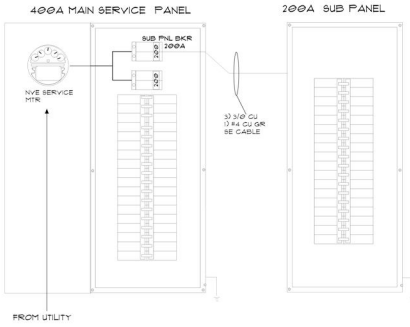


MAIN PANEL

LISTED 400A MAIN BREAKER
SOLAR READY PANEL
MAINTAIN 36IN CLEARANCE
IN FRONT
PROVIDE CONCRETE ENCASED
ELECTRODE PER NEC 250.52(A)(3)

SINGLE LINE DIAGRAM

SERVICE W/ SUB PANEL FEED



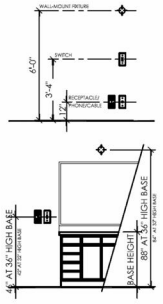
POWER PLAN

NTS

ELECTRICAL SYMBOL LEGEND

	SINGLE-POLE SWITCH
	THREE-WAY SWITCH
	FOUR-WAY SWITCH
	110 V. DUPLEX RECEPTACLE
	110 V. DUPLEX HALF-HOT RECEPTACLE
	110 V. DUPLEX RECEPTACLE WITH GROUND-FAULT INTERRUPTER
	110 V. DUPLEX HALF-HOT RECEPTACLE WITH GROUND-FAULT INTERRUPTER
X	DOORBELL XFMR
	220 V. APPLIANCE OUTLET
A	A/C DISCONNECT
B	PUSH BUTTON
C	CHIME
D	SMOKE ALARM
D CO	SMOKE/CO COMBO ALARM
J	J-BOX
M	MAIN ELECTRICAL PANEL
S	LIGHTED ADDRESS SIGN
T	TELEVISION JACK
	CEILING-MOUNT LUMINAIRE
	WALL-MOUNT LUMINAIRE
	RECESSED CEILING-MOUNT LUMINAIRE
	FLUORESCENT CEILING-MOUNT LUMINAIRE
	EXHAUST FAN
	TELEPHONE JACK
	VIDEO JACK
	FUEL GAS
	LOOSE KEY
	HOSE BIBB
	HOSE BIBB WITH SHUT-OFF
AFCI	ARC-FAULT INTERUPTER CIRCUIT
	CEILING MOUNT PADDLE FAN W/LIGHT

TYPICAL INSTALLATION HEIGHTS



NOTE:

THESE PLANS HAVE BEEN DESIGNED TO COMPLY WITH THE "2011 NATIONAL ELECTRICAL CODE AS AMENDED AND ADOPTED

ELECTRICAL NOTES

1. SMOKE ALARMS TO BE POWERED BY 110V AND INTERCONNECTED WITH A BATTERY BACKUP AND SIMULTANEOUS ALARM.
2. ELECTRICAL FIXTURES INSTALLED ABOVE TUBS AND SHOWERS TO BE WATERPROOF.
3. ALL 125-VOLT SINGLE-PHASE, 15 AND 20 AMPERE RECEPTACLES INSTALLED IN THE FOLLOWING LOCATIONS SHALL HAVE GROUND FAULT CIRCUIT INTERRUPTER PROTECTION:
   ALL RECEPTACLES LOCATED IN BATHROOMS, GARAGES, OUTDOORS, SERVING COUNTERTOPS IN KITCHENS, AND IN WET BARS WITHIN 6' OF A SINK.
4. DUPLEX RECEPTACLES SHALL BE INSTALLED IN ALL LIVING AND SLEEPING ROOMS (AND SIMILAR USE ROOMS) SO THAT NO POINT ALONG ANY LENGTH OF WALL 2'-0" OR GREATER IS MORE THAN 6'-0" FROM ANY OUTLET IN THAT SPACE, INCLUDING FIXED PANELS ON EXTERIOR WALLS. FLOOR OUTLETS SHALL NOT BE COUNTED AS PART OF THE REQUIRED NUMBER UNLESS LOCATED CLOSE TO A WALL.
5. DUPLEX RECEPTACLES SHALL BE INSTALLED IN KITCHENS AT EACH COUNTER SPACE 12" OR WIDER, AND SO THAT NO POINT ALONG ANY LENGTH OF COUNTER IS MORE THAN 4'-0" FROM ANY OUTLET. COUNTERS SEPARATED BY FIXED-IN-PLACE APPLIANCES SHALL BE CONSIDERED AS SEPARATE COUNTERTOPS.
6. ISLANDS AND PENINSULAR COUNTERTOPS GREATER IN SIZE THAN 12"X24" SHALL HAVE AT LEAST ONE RECEPTACLE OUTLET AND SHALL IN GENERAL, COMPLY WITH THESE REQUIREMENTS.
7. NO MORE THAN 4 DUPLEX OUTLETS SERVING THE REQUIRED COUNTERTOP RECEPTACLE SHALL BE INSTALLED ON ANY SMALL APPLIANCE BRANCH CIRCUIT.
8. ONE DUPLEX GFI RECEPTACLE SHALL BE PROVIDED FOR EACH LAVATORY IN BATHROOMS. BATHROOM RECEPTACLE OUTLETS SHALL BE SUPPLIED BY AT LEAST ONE 20 AMP BRANCH CIRCUIT. SUCH CIRCUITS SHALL HAVE NO OTHER OUTLETS.
9. ONE DUPLEX GFI RECEPTACLE EACH SHALL BE PROVIDED AT: FRONT OF DWELLING, REAR OF DWELLING, AND IN GARAGE.
10. THE FOLLOWING FASTENED-IN-PLACE APPLIANCES ARE REQUIRED TO HAVE A SEPARATE MINIMUM 20-AMPERE CIRCUIT:
    DISHWASHER, TRASH COMPACTOR, MICROWAVE OVEN, RANGE HOOD, CLOTHES WASHER AND HYDRO-MASSAGE BATHTUB. THE CLOTHES WASHER CIRCUIT MAY SERVE ONE ADDITIONAL OUTLET IN THE LAUNDRY AREA.
11. ALL BRANCH CIRCUITS THAT SUPPLY 120-VOLT, SINGLE-PHASE 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN DWELLING UNIT BEDROOMS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, SUNROOMS, REC. ROOMS, CLOSETS, HALLWAYS OR SIMILAR ROOMS SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION TYPE INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT (NEC ARTICLE 210.12(B) INCLUDING LIGHTS AND SMOKE ALARMS.
12. THE MAXIMUM NUMBER OF OUTLETS ON A 20-AMP, 125-VOLT CIRCUIT USED EITHER EXCLUSIVELY FOR RECEPTACLES OR EXCLUSIVELY FOR LIGHTING FIXTURES OR ANY COMBINATION OF RECEPTACLES AND LIGHTING FIXTURES SHALL BE 12.
13. A 125-VOLT, SINGLE-PHASE 15 AND 20 AMP RATED GFCI RECEPTACLE OUTLET SHALL BE INSTALLED AT AN ACCESSIBLE LOCATION ON THE SAME LEVEL AS AND WITHIN 25 FEET FOR THE SERVICING OF HEATING, AIR-CONDITIONING AND REFRIGERATION EQUIPMENT.
14. WHERE A BOX IS USED AS THE SOLE SUPPORT OF A CEILING-SUSPENDED(PADDLE) FAN, THE BOX SHALL BE LISTED FOR THE APPLICATION AND FOR THE WEIGHT OF THE FAN SUPPORTED.
15. ALL INTERIOR AND EXTERIOR STAIRWAYS SHALL BE PROVIDED WITH A MEANS TO ILLUMINATE THE STAIRS, INCLUDING THE LANDINGS AND TREADS. INTERIOR STAIRWAYS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED IN THE IMMEDIATE VICINITY OF EACH LANDING OF THE STAIRWAY. FOR INTERIOR STAIRS THE ARTIFICIAL LIGHT SOURCES SHALL BE CAPABLE OF ILLUMINATING TREADS AND LANDINGS TO LEVELS NOT LESS THAN 1 FOOT-CANDLE MEASURED AT THE CENTER OF TREADS AND LANDINGS.
16. ALL LIGHTING FIXTURES TO BE INSTALLED WITHIN A ZONE MEASURED 3 FEET HORIZONTAL AND 8 FEET VERTICAL FROM THE TOP OF THE BATHTUB RIM OR SHOWER STALL THRESHOLD (WHICH IS ALL ENCOMPASSING AND INCLUDES THE ZONE DIRECTLY OVER A TUB OR SHOWER STALL) SHALL BE GFCI PROTECTED.
17. LUMINAIRES IN CLOTHES, CLOSETS SHALL BE INSTALLED IN ACCORDANCE WITH 2011 NEC.
18. When more than 1 smoke alarm or carbon monoxide alarm is req. to be installed within an individual dwelling unit all alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit. Smoke and carbon monoxide alarms shall be installed in the following locations: (IRC Section R314.3 as amended)
    a. Smoke alarms in each sleeping room
    b. Smoke alarms outside of each separate sleeping area in the immediate vicinity of the bedrooms
    c. Smoke alarms on each additional story of the dwelling, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
    d. Carbon monoxide alarms outside of sleeping areas in the immediate vicinity of the bedrooms in dwelling units within which fuel fired appliances are installed and in dwelling units that have attached garages.
19. In all areas specified in 210.52, all 125 volt 15 and 20 amp receptacles shall be listed tamper-resistant receptacles. (NEC 406.11)
20. A minimum of 75% of the lamps in permanently installed fixtures shall be high efficacy lamps (IECC)

PROJECT TITLE
ATHENS LOT 3

SHEET TITLE
POWER PLAN

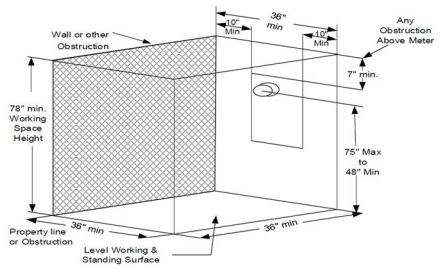
ISSUE DATE

DRAWN BY

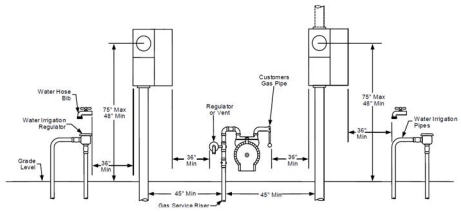
PROJECT #

E-1

Metering Equipment: Installation Requirements



Metering Equipment: Installation Requirements



RESIDENTIAL ELECTRICAL LOAD CALCULATIONS

Owner: Home Owner — Date: 4/ 2 / 2019

Address: 6 Anthem Way — Prepared by: JB

General Lighting Load Sq.Ft.	2959	X 3 Volt Amps	=	8877 VA
Small Appliance Circuits at 1500 VA each x	2	(min. of two)	=	3000 VA
Laundry (Washing Machine) Circuit 1500 VA x	1	(min. of one)	=	1500 VA
		Sub-Total	=	13377 **VA**
First 3,000 VA of Lighting, Small Appliance, Laundry Load at 100%			=	3,000 VA
From 3,001 to 120,000 VA at 35%	10377	X .35	=	3631 VA
Over 120,000 VA use 25%		X .25	=	VA

Electrical Cooking Appliances, Use NEC Table 220-55

(Number of Appliances) 1	Demand 100 % x Total KW 8	(Column A) x 1,000	=	8000 VA
(Number of Appliances)	Demand % x Total KW	(Column B) x 1,000	=	VA
(Number of Appliances)	Demand x Total KW	(Column C) x 1,000	=	VA
Dryer Load NEC Table 220-54			=	5000 VA
		(1) Sub-Total	=	19631 **VA**

Heating/Air Conditioning – List type and VA at 100%

(H) Heat Pump	(G) Gas + Cool	(S) Heat Strip	(A) Air Fans
( )	(2) 4140	( )	(2) 360
( )	( )	( )	( )
( )	( )	( )	( )
( )	( )	( )	( )
8280			720

(2) Sub-Total = 9000 **VA**

Fixed Appliances – If fewer than four units, use 100%. If four or more, use 75% of the nameplate rating.

Microwave	1500 VA x 1500	Food Center	600 VA x
Compactor	1200 VA x	Hot Water	4500 VA x
Dishwasher	1200 VA x 1200		VA x
Disposal	600 VA x 600		VA x
Cent.Vacuum	1800 VA x		VA x

Appliance Subtotal 3300 x **(100%) OR (75%)** **(3) Sub-Total** = 3300 **VA**

Add 25% of the largest motor (typical AC compressor)

4140 X 25% LM 1035 **(4) Sub-Total** = 1035 **VA**

5) Spare 20amps x 240 volts Sub-Total = 4,800 **VA**

GRAND TOTAL (Add Sub-Totals (1), (2), (3), (4), (5)) = 37766 **VA**

Total Volt Amps 37766 Divide by 240 Volts = 157.3 Amps

Service Size 400 Grounding Electrode Conductor #2 CU

BPPE-0200
Rev. (4/15/08)

ELE NOTES

Project Title: 6 Athens Lot

SHEET TITLE: Ele Notes

Issue Date

DRAWN BY

Project #

E-2