

SYMBOL LEGEND		
SYMBOL	ABBR	DESCRIPTION
	G	GAS PIPING
	CW	COLD WATER PIPING
	FW	FILTERED WATER PIPING
	HW	HOT WATER PIPING
	HWR	HOT WATER RETURN PIPING
	S	SANITARY PIPING
	V	VENT PIPING
	CD	CONDENSATE DRAIN PIPING
	(E)	EXISTING
	S.O.V.	SHUT-OFF VALVE
		CHECK VALVE
		GAS COCK
		UNION
		PIPE CAP & STUB-OUT
	WCO	WALL CLEAN OUT
	2WCO	TWO-WAY CLEANOUT
	COTG	CLEANOUT TO GRADE
		PRESSURE REGULATOR
	WC	WATER CLOSET
	L	LAVATORY
	KS	KITCHEN SINK
	HS	HAND SINK
	MS	MOP SINK
	WH	WATER HEATER
	V.T.R.	VENT THRU ROOF
	A.F.F.	ABOVE FINISHED FLOOR
	P.O.C.	POINT OF CONNECTION
	P.O.D.	POINT OF DISCONNECT
	T.D.L.	TOTAL DEVELOPED LENGTH
		PLUMBING DETAIL REFERENCE
		EQUIPMENT REFERENCE

(BUILDING A) WATER CALCULATION BASED ON APPENDIX 'A' U.P.C.				(BUILDING B) WATER CALCULATION BASED ON APPENDIX 'A' U.P.C.			
TYPE	QTY.	F.U.	TOTAL	TYPE	QTY.	F.U.	TOTAL
WC	4	2.5	10	WC	2	2.5	5
L	6	1	6	L	4	1	4
SH	2	2	4	SH	1	2	2
BT	2	4	8	BT	1	4	4
HB	2	25.4	35	HB	1	25.4	25
KS/DW	4	3	12	KS/DW	2	3	6
CW	4	4	16	CW	2	4	8
ICEMAKER	4	0.5	2	ICEMAKER	2	0.5	1
TOTAL F.U.			61.5	TOTAL F.U.			32.5
MAX GPM			34 GPM	MAX GPM			22 GPM

LOSSES	
BLDG. HEIGHT	22 ft.
FEET x 0.43 P.S.I. / FEET	9.46 psi.
MIN. FIX. PRESSURE	20 psi.
WATER FILTER	0 psi.
<b>TOTAL</b>	<b>29.46 psi.</b>
DEVELOPED LENGTH TO FURTHEST FIXTURE	
FITTING LOSS TOTAL	174 ft.
<b>TOTAL</b>	<b>34.8 ft.</b>
MIN. PRESSURE AT P.O.C.	
BLDG. PRESSURE LOSS	55 psi.
PRESSURE AVAILABLE	29.46 psi.
FOR FRICTION LOSS	25.54 psi.
MAXIMUM ALLOWABLE PRESSURE DROP	
	25.54 psi.
	200.0 ft.
PER 100 FT.	
	12.23 psi.
	100 ft.

1 1/4" DIAMETER MAIN SELECTED PER CHART A-41 2012 U.P.C.

LOSSES	
BLDG. HEIGHT	22 ft.
FEET x 0.43 P.S.I. / FEET	9.46 psi.
MIN. FIX. PRESSURE	20 psi.
WATER FILTER	0 psi.
<b>TOTAL</b>	<b>29.46 psi.</b>
DEVELOPED LENGTH TO FURTHEST FIXTURE	
FITTING LOSS TOTAL	19 ft.
<b>TOTAL</b>	<b>114 ft.</b>
MIN. PRESSURE AT P.O.C.	
BLDG. PRESSURE LOSS	55 psi.
PRESSURE AVAILABLE	29.46 psi.
FOR FRICTION LOSS	25.54 psi.
MAXIMUM ALLOWABLE PRESSURE DROP	
	25.54 psi.
	114 ft.
PER 100 FT.	
	22.40 psi.
	100 ft.

1" DIAMETER MAIN SELECTED PER CHART A-41 2012 U.P.C.

(BUILDING A) GAS CALCULATION			
NAME	QTY.	INPUT (CFH)	TOTAL (CFH)
WATER HEATER	4	130	520
RANGE	4	65	260
DRYER	4	35	140
FAU	4	44	176
TOTAL			<b>1096 CFH</b>

2" DIAMETER MAIN SELECTED. PER TABLE 1216.2(1), 2012 U.P.C. 86 FT. T.D.L. (30 FT. ROW)

(BUILDING B) GAS CALCULATION			
NAME	QTY.	INPUT (CFH)	TOTAL (CFH)
WATER HEATER	2	130	260
RANGE	2	65	130
DRYER	2	35	70
FAU	2	44	88
TOTAL			<b>548 CFH</b>

1 1/2" DIAMETER MAIN SELECTED. PER TABLE 1216.2(1), 2012 U.P.C. 61 FT. T.D.L. (10 FT. ROW)

### SPECIFICATION

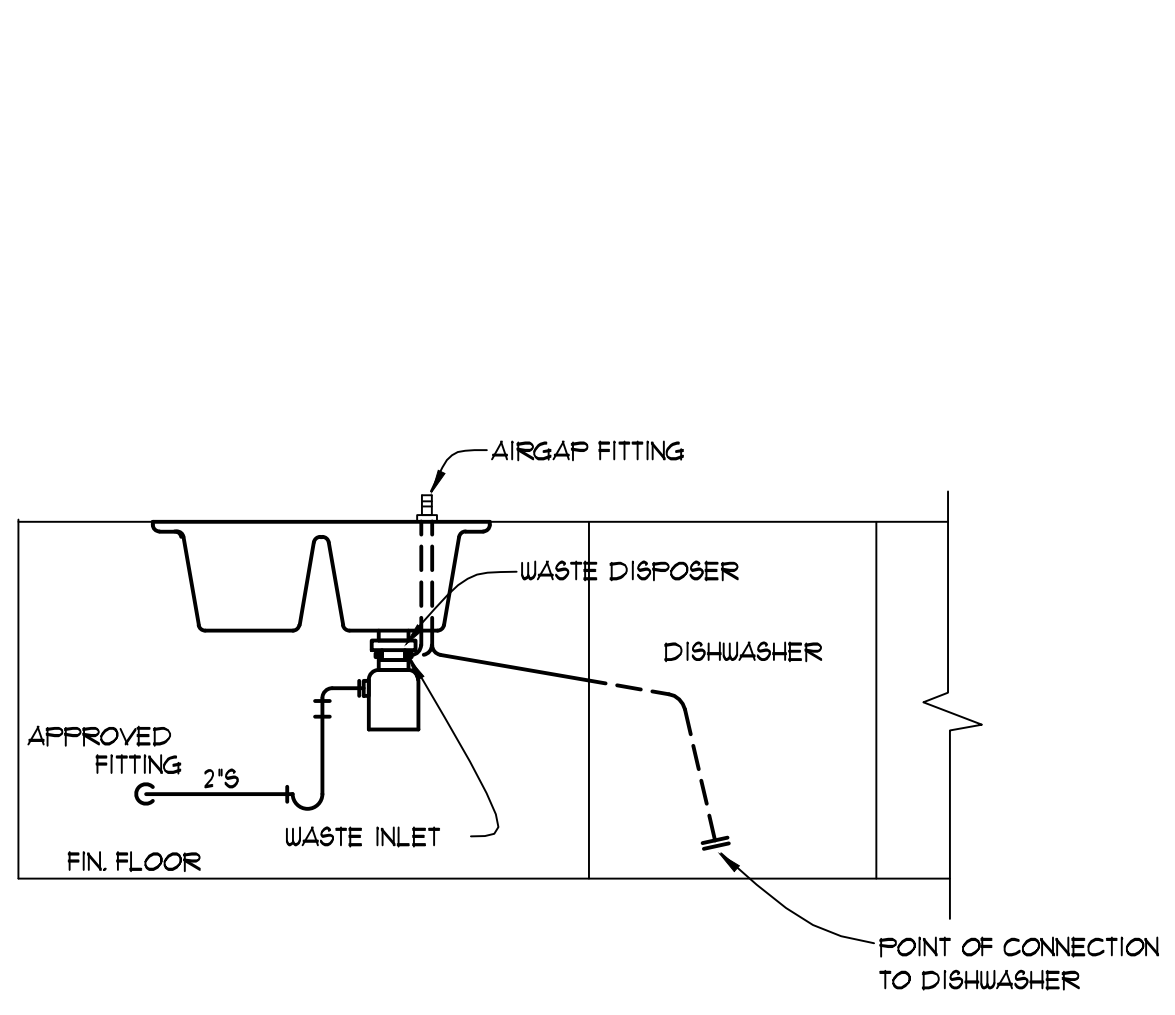
**GENERAL**

- CONTRACTOR SHALL CHECK AND VERIFY ALL SIZES, DIMENSIONS, AND CONDITIONS BEFORE STARTING ANY WORK. ANY DEVIATIONS OR PROBLEMS SHALL BE TRANSMITTED TO THE ENGINEER FOR REVIEW.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE 2012 IRC, U.P.C., 2011 NEC AND 2012 IECC AS AMENDED AND ADOPTED BY CLARK COUNTY.
- ALL EQUIPMENT SHALL BE BALANCED, ADJUSTED, AND TESTED TO PROVIDE SAFE, STABLE, AND QUIET OPERATION.
- CONTRACTOR TO PROVIDE A PRESSURE REDUCING VALVE W/ BYPASS SET TO 75 P.S.I. WHEN INCOMING WATER PRESSURE EXCEEDS 80 P.S.I.
- DRAWINGS ARE DIAGRAMMATIC, SMALL SCALE, AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED.
- ALL DESIGNS TO COMPLY WITH 2012 U.P.C. AND WITH LOCAL AMENDMENTS.

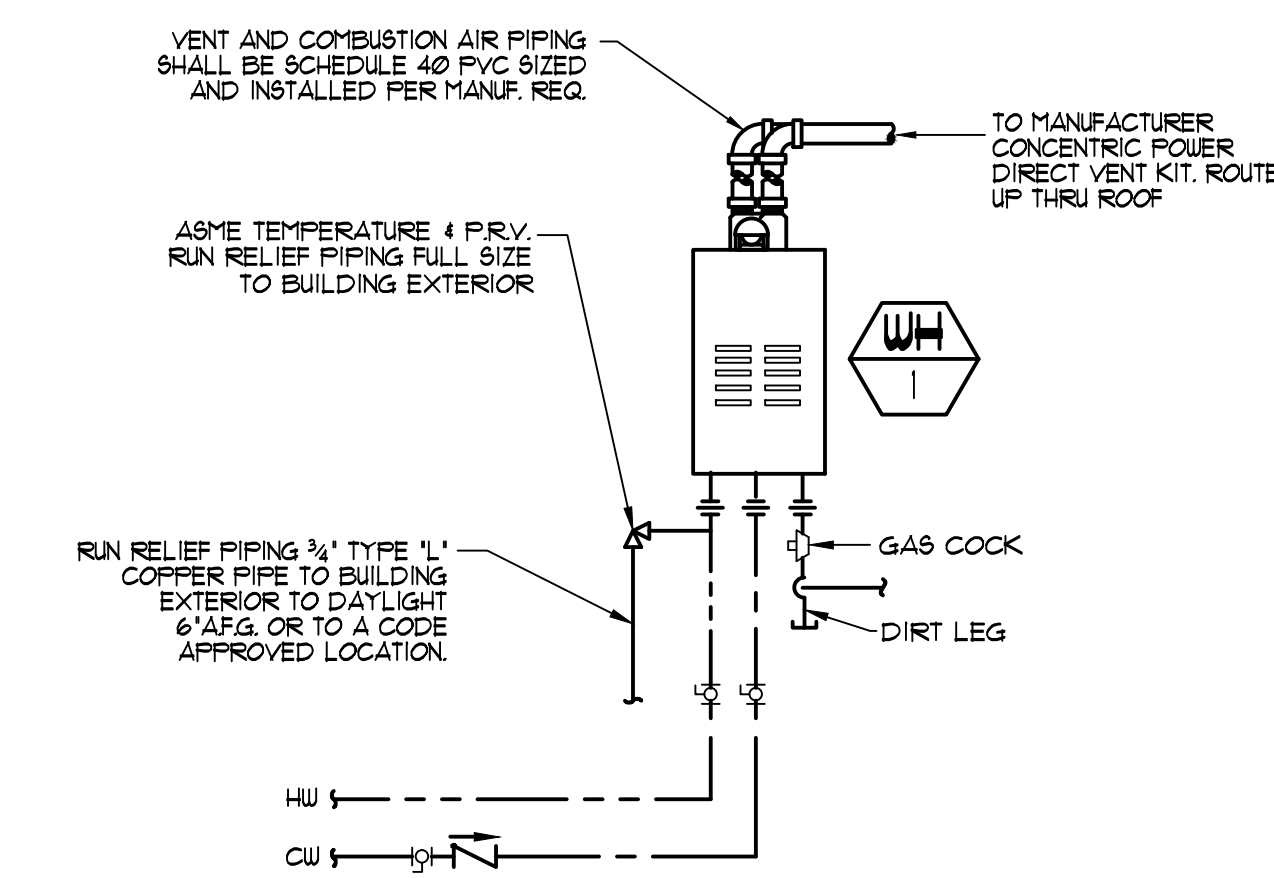
**PRODUCTS**

- DOMESTIC WATER PIPING (CONFORM W/ BUILDER/OWNER)**  
 ABOVE GROUND: TYPE 'M' COPPER, WROUGHT FITTINGS, LEAD-FREE SOLDERED.  
 BELOW SLAB: TYPE 'L' COPPER TUBING, SLEEVED THRU SLAB, ALL JOINTS SILVER BRAZED.  
 OR  
 'MIRBEO' OR EQUAL' CROSS-LINKED POLYETHYLENE TYPE 'A' PIPING WITH BRASS FITTINGS, SUITABLE FOR POTABLE WATER, WHEN INSTALLED BY A PRODUCT CERTIFIED TECHNICIAN.  
 \* PIPING WITHIN THE BUILDING SHALL BE OF A LIKE MATERIAL, (FOR SIZES 1/4" AND LARGER COPPER SHALL BE USED.) REF. ABOVE SPECS.  
 NOTE: DIELECTRIC FITTINGS SHALL BE USED WHEREVER DISSIMILAR METALS ARE JOINED.
- SANITARY WASTE AND VENT PIPING**  
 ABS OR PVC, PAINT WITH LATEX PAINT WHERE EXPOSED.
- GAS PIPING**  
 SCHEDULE 40 BLACK IRON, THREADED MALLEABLE FITTINGS INSIDE AND GALVANIZED FITTINGS AND PIPE WHERE EXPOSED, JOINT COMPOUND. PROVIDE ISOLATION VALVES AT ALL EQUIPMENT. 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.  
 UNDERSLAB: SLEEVED, SEALED & VENTED FERROUS GAS PIPING SHALL BE 'GASTITE' OR EQUAL, AND HAVE FACTORY PROTECTIVE COATING.  
 POLYETHYLENE GAS YARD PIPING: TO BE INSTALLED PER LATEST IAFMO.
- DOMESTIC HOT WATER AND RECIRCULATING PIPE INSULATION**  
 (COPPER ONLY) CLOSED CELL NEOPRENE PIPE INSULATION WITH A MIN R-3 VALUE, INSTALLED IN UNCONDITIONED SPACES & ON ALL HOT WATER RECIRCULATING SYSTEMS PER 2012 IECC.
- PLUMBING FIXTURES**  
 PROVIDE CP ANGLE STOPS TO FINISH PLUMBING FIXTURES. PROVIDE SHUT-OFF VALVES WITH UNIONS TO ALL OTHER FIXTURES, PROVIDE PRESSURE BALANCED OR THERMOSTATIC MIXING VALVES, PER 2012 U.P.C. AT ALL SHOWERS, BATHTUBS, AND/OR COMBINATIONS TO ALLOW FOR A MAXIMUM WATER TEMPERATURE OF 120°F. ALL PLUMBING FIXTURES SHALL COMPLY WITH LOCAL AUTHORITIES CURRENT WATER CONSERVATION CODES.

TANKLESS WATER HEATER SCHEDULE						
SYMBOL	MANUFACTURER/ MODEL NUMBER OR EQUAL	MINIMUM STORAGE (GALLONS)	ENERGY FACTOR	TYPE OF GAS	GAS INPUT (MBTUH)	REMARKS
	RINNAI RUJ301	-	0.95	NATURAL	130000	



**KITCHEN SINK & DISHWASHER SANITARY DETAIL**  
NO SCALE



**WATER HEATER DETAIL**  
NO SCALE

PLUMBING SHEET INDEX	
SHEET NUMBER	SHEET NAME
P001	SPECIFICATION, SCHEDULE, DETAILS, CALCULATIONS, SYMBOL LEGEND AND SHEET INDEX
F101	FIRST FLOOR PLUMBING PLAN (WASTE & VENT)
F1011	FIRST FLOOR PLUMBING PLAN (WATER & GAS)
F102	SECOND FLOOR PLUMBING PLAN (WASTE & VENT)
F1021	SECOND FLOOR PLUMBING PLAN (WATER & GAS)

### GENERAL NOTES

- SEAL ALL ROOF AND WALL PENETRATIONS WATER TIGHT.
- MAINTAIN PLUMBING VENTS A MINIMUM OF 10'-0" AWAY FROM ANY OA INTAKE.
- REFER TO PLUMBING FIXTURE SCHEDULE FOR ANY UNMARKED ROUGH-IN SIZES.
- COORDINATE WORK WITH OTHER TRADES PRIOR TO ANY ROUGH-INS.
- ALL SANITARY DRAINAGE PIPING 4" AND SMALLER SHALL BE SLOPED AT 1/4" PER FOOT.
- ALL VENT AND BRANCH VENT PIPING SHALL BE FREE FROM DROPS/BAGS AND EACH SUCH VENT SHALL BE LEVEL OR SHALL BE SO GRADED AND CONNECTED AS TO DRIP BACK BY GRAVITY TO THE DRAINAGE PIPE IT SERVES.
- ALL CONDENSATE PIPING SHALL BE SLOPED AT 1/8" PER FOOT.
- CONTRACTOR SHALL FIELD VERIFY EXACT SIZE, INVERT AND LOCATION OF SAN PIPING.

NO.	DATE	DESCRIPTION	BY



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**51 E. TEXAS AVE.**  
HENDERSON, NEVADA

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PHASE:	CD
DRAWN:	SO, LE
CHECKED:	SO
DATE:	10/22/2018

**P001**