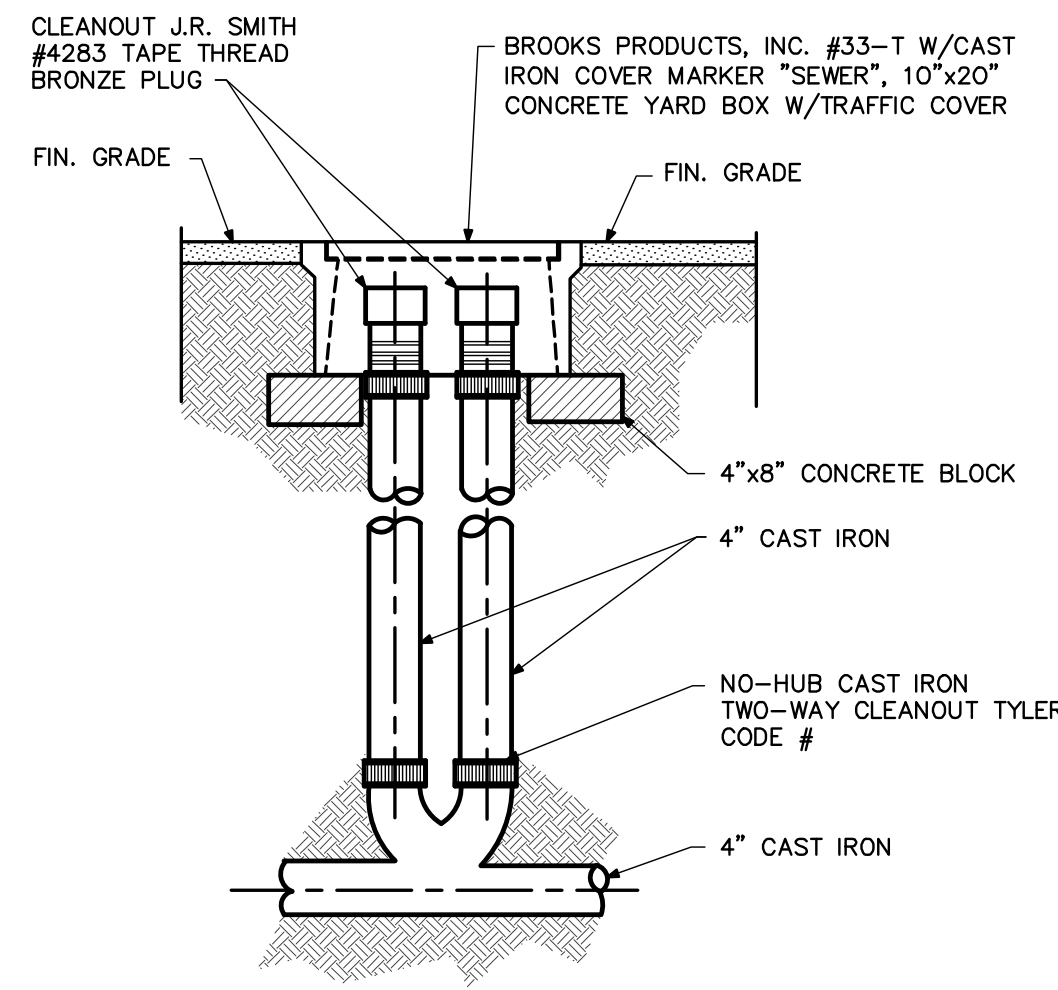


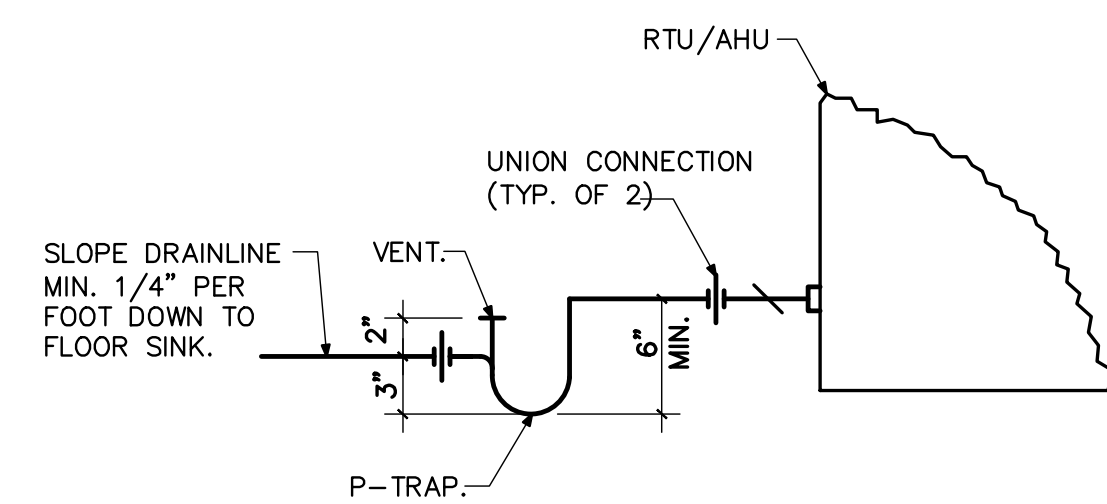
**WATER HEATER DETAIL**

SCALE: NONE



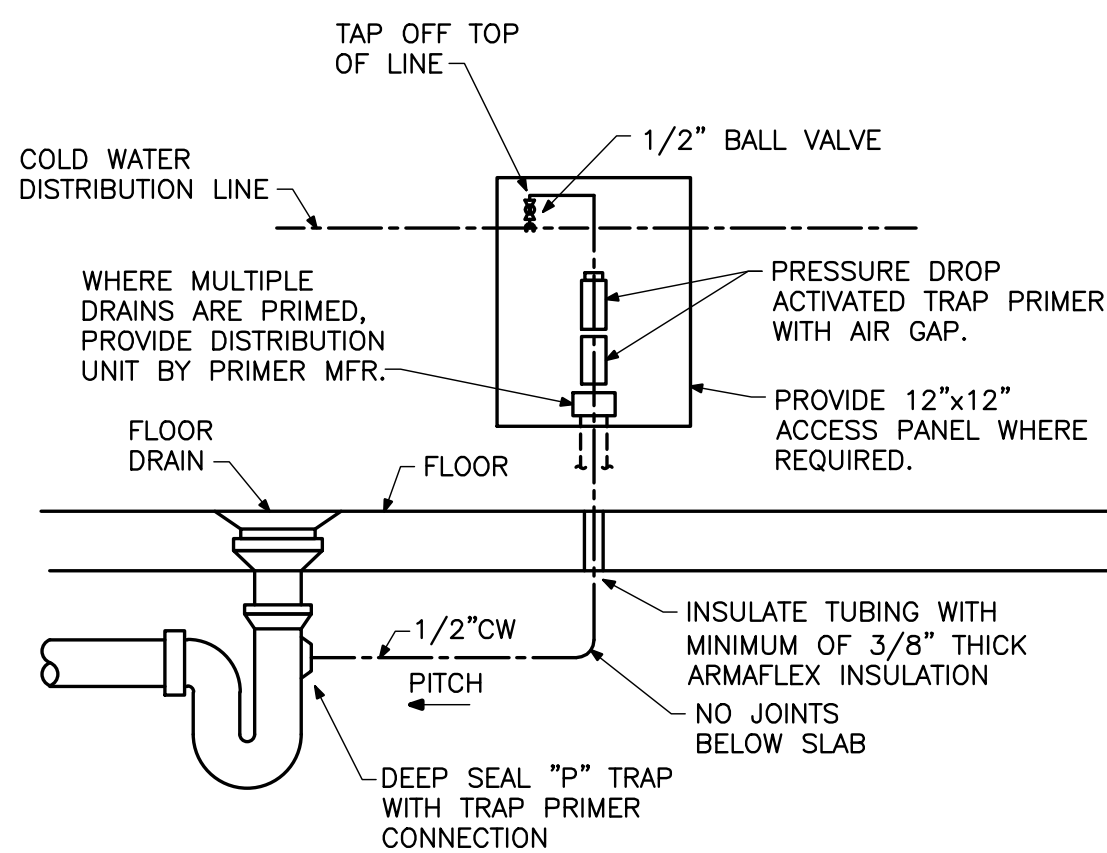
**2-WAY CLEANOUT DETAIL**

SCALE: NONE



**RTU CONDENSATION LINE CONNECTION DETAIL**

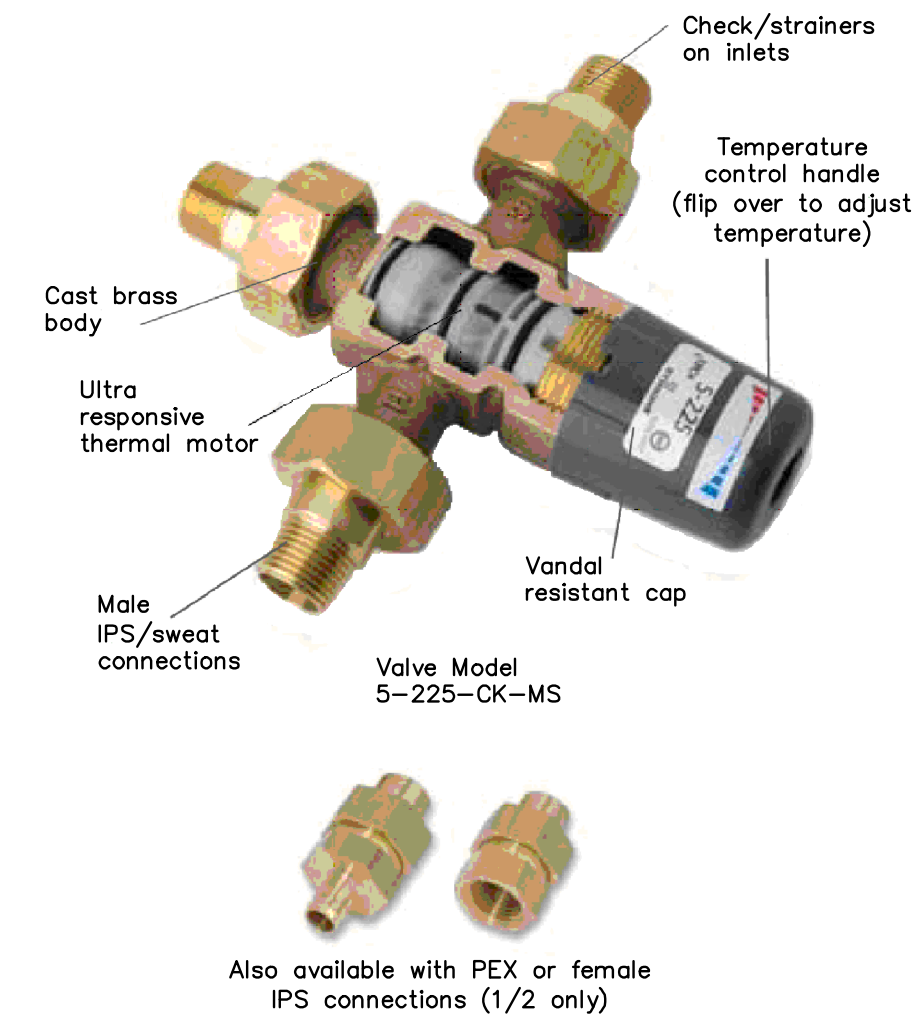
SCALE: NONE



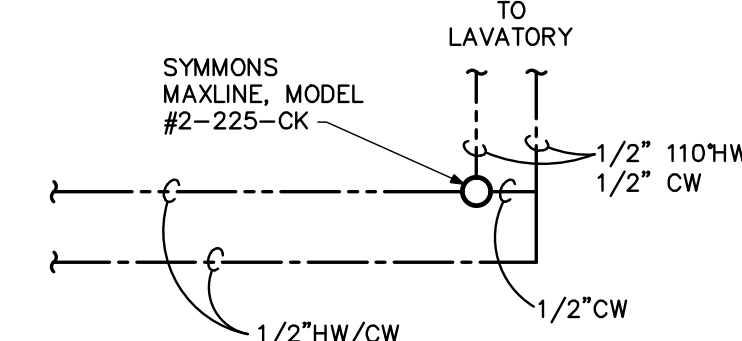
**TRAP PRIMER DETAIL**

SCALE: NONE

USE PRO-SET TRAP PRIMERS WHERE ALLOWED BY LOCAL JURISDICTIONS.



Also available with PEX or female IPS connections (1/2 only)



**TEMPERATURE LIMITING DEVICE CONNECTION**

SCALE: NONE

PLUMBING LEGEND		
VALVES, FITTINGS, ETC		
1. MANUAL STOP VALVE	11. ELBOW DOWN	
2. PRV (PRESSURE REDUCING VALVE) FISHER OR EQUAL	12. STRAINER	
3. BALANCE VALVE	13. TOP TEE CONNECTION	
4. CHECK VALVE	14. BOTTOM TEE CONNECTION	
5. AUTOMATIC CONTROL VALVE	15. SIDE TEE CONNECTION	
6. CGA LISTED GAS COCK	16. SHOCK ABSORBER	
7. THERMOMETER WITH S/S WELL	17. PRESSURE GAGE W/COCK	
8. RPBP (REDUCED PRESS BACKFLOW PREVENTER)	18. MANUAL AIR VENT	
9. UNION OR FLANGE	19. CIRCUIT SETTER	
10. END CAP	20. PIPE ANCHOR	
	21. 1/2" PRESSURE/TEMP TAP	
	22. ELBOW UP	

SYMBOL	ABBREV.	DESCRIPTION
---	CW	COLD WATER
---	HW	HOT WATER
---	HWC	HW CIRCULATING
---	V	VENT
---	G	NATURAL GAS LINE
---	W	SANITARY WASTE BURIED
---	W	SANITARY WASTE ABOVE GRADE
---	SR	STEAM RETURN
---	SS	STEAM SUPPLY
---	CA	COMPRESSED AIR
---	DR	CONDENSATE DRAIN

SYMBOL	ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
⊙	FD	FLOOR DRAIN	CI	CAST IRON
⊕	WCO	WALL CLEANOUT	(N)	NEW DEVICE
⊙	FCO	FLOOR CLEANOUT	⊙	WORK POINT (POINT OF CONNECTION)
⊕	VTR	VENT THRU ROOF		

FIXTURE CONNECTION SCHEDULE					
FIXTURE	HW	CW	WASTE	VENT	
WATER CLOSET - FLUSH TANK	-	1/2"	3"	2"	
LAVATORY	1/2"	1/2"	2"	2"	
HAND SINK	1/2"	1/2"	2"	2"	
PREP SINK	1/2"	1/2"	2"	2"	
3-COMPARTMENT SINK	1/2"	1/2"	2"	2"	
WASHER	1/2"	1/2"	3"	2"	

SIZES SHOWN ARE MINIMUM PIPE SIZES TO A SINGLE FIXTURE.

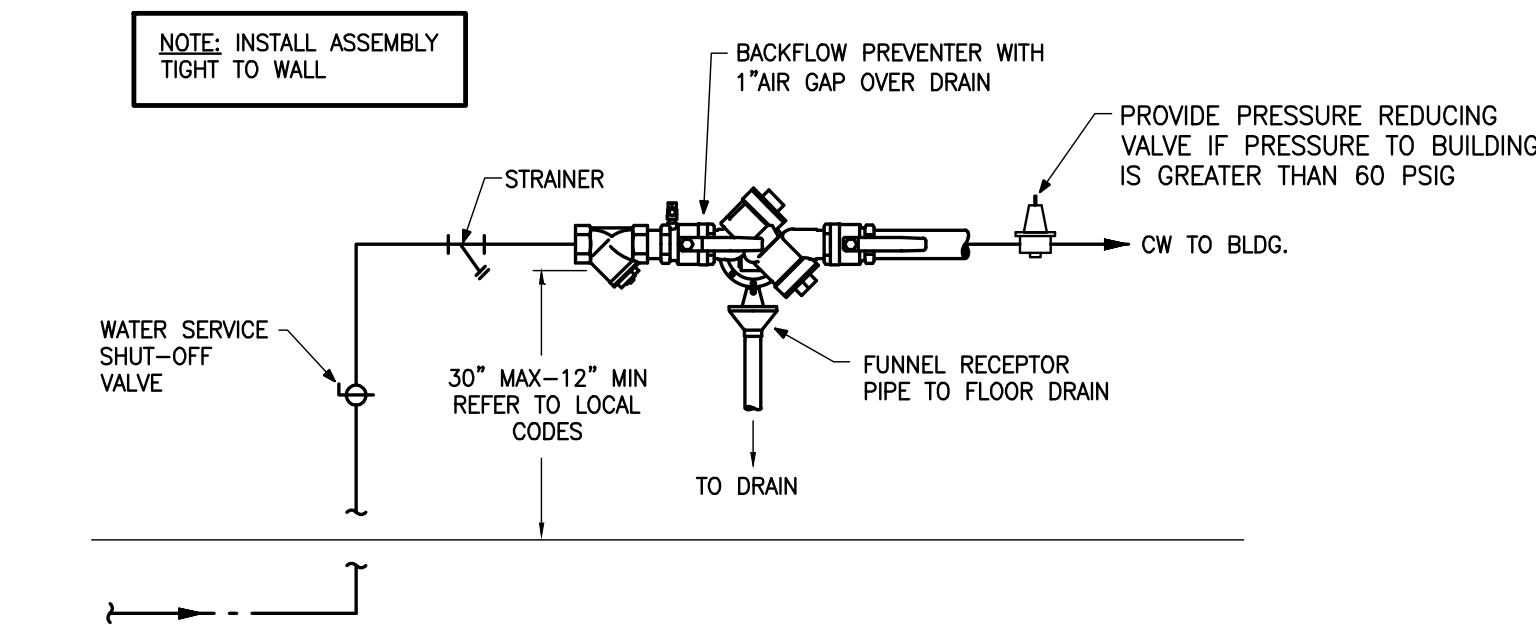
PIPING SYSTEM TYPE	MINIMUM INSULATION THICKNESS (IN.) FOR PIPE SIZES			
	UP TO 1.5"	2"	2.5" - 4"	5" - 6"
DOMESTIC COLD WATER.	0.5	0.5	1.0	1.0
DOMESTIC HOT WATER (SUPPLY, RECIRCULATED, AND TEMPERED).	1.5	2.0	2.0	2.0
SANITARY WASTE PIPING EXPOSED TO OUTDOOR AMBIENT TEMPERATURES.	1.5	1.5	2.0	2.0

**PIPING INSULATION SCHEDULE NOTES:**

- ALL PIPING SYSTEMS LISTED ABOVE SHALL BE INSULATED WITH INSULATION THICKNESS AS INDICATED.
- FOR ANY PIPING NOT NOTED ABOVE TO BE EXPOSED TO OUTDOOR AMBIENT TEMPERATURES, INCREASE INSULATION THICKNESS BY 0.5 INCHES WHEN INSTALLED IN SUCH EXPOSED LOCATIONS.
- ALL INSULATED PIPING EXPOSED TO WEATHER SHALL BE PROTECTED WITH WEATHER-PROOF ALUMINUM JACKET.

PLUMBING EQUIPMENT SCHEDULE		
WH-1	WATER HEATER	BRADFORD WHITE 80 GALLON POWER DIRECT VENT, MODEL #PDV-80S-200-3N, 199,000 BTUH INPUT, 194 GALLON RECOVERY AT 100' RISE., 3" Ø VENTS, 28-1/4", 645 LBS.
WH-2	WATER HEATER	SAME AS WH-1.
ED	FLOOR DRAIN	SIOUX CHIEF MODEL #SIOUX CHIEF MODEL B33-2PNR, WITH ROUND NICKEL-BRONZE STRAINER, PROVIDE WITH TRAP GUARDS FROM PROSET SYSTEMS, INC. 1-800-262-5355.
WCO	WALL CLEANOUT	SIOUX CHIEF MODEL 872 16 GAUGE CHROME PLATED ABS.
FCO	FLOOR CLEANOUT	SIOUX CHIEF MODEL 852 ADJUSTABLE CLEANOUT, CAST IRON.
EXP-2	EXPANSION TANK	STATE MODEL #ETC-5X, 4.55 GALLON, 11 LBS. EMPTY.
RPBP	BACKFLOW PREVENTER	FEBCO MODEL #B25Y, 1-1/2" REDUCED PRESSURE BACKFLOW PREVENTER, HORIZONTAL INSTALLATION ONLY.

PLUMBING FIXTURE LIST		
S-1	HAND SINK	1/2"CW, 1/2"HW, 2"V, 2"W. JUST SINKS MODEL #SL-2017-A-GR, 20"x17", 4-1/2" DEEP, REAR DRAIN (ADA COMPLIANT) 3 HOLES ON 4" CENTERS, DELTA BARS SINK MODEL #2171, CHROME, HANDLE #H25, PROVIDE BADGER V, 1/2 HP DISPOSAL WHERE NOTED ON PLANS.
WC-1	WATER CLOSET	1/2"CW, 2"V, 3"W, TOTO MODEL #CST744EL, ECO DRAKE CLOSED COUPLED TOILET, 1.28 GPF, ADA COMPLIANT, E-MAX TECHNOLOGY, ELONGATED OPEN FRONT SEAT, LESS LID, WHITE.
MB	MOP BASIN	1/2"CW, 1/2"HW, 2"V, 2"W. FIAT MODEL #MSB2424, FLOOR MOUNTED MOP SERVICE BASIN, WITH FIAT CHROME PLATED SERVICE SINK FAUCET, MODEL #B30AA, WITH TEMPERATURE LIMITING STOP SET AT 120°. OR EQUAL.
L-1	SINK	1/2"CW, 1/2"HW, 2"V, 2"W. AMERICAN STANDARD MODEL #0321.026 DECLYN WALL-HUNG LAVATORY, BARRIER FREE, VITREOUS CHINA, 4" CENTERS, CHICAGO FAUCET MODEL #2200-4CP, WITH TEMPERATURE LIMITING STOP SET TO 110°F, PROVIDE VOLUME CONTROL RESTRICTOR AT 0.5 GPM. PROVIDE WITH TRUEBRO LAV GUARD-2, ADA COMPLIANT UNDERSINK PROTECTION. (OR EQUAL).



**WATER ENTRY DETAIL**

SCALE: NONE

**COLORADO CONSULTING ENGINEERS**  
 9861 W. 86TH PLACE  
 ARVADA, CO 80005  
 PH: 303-956-8811  
 FAX: 1-866-929-7403  
 EMAIL: DesEng1@Comcast.net  
 EMAIL: GCA15@Comcast.net

**ALMA INTERNATIONAL MARKET**  
**MARTEL CORPORATION**  
 444 S. BROADWAY  
 ENGLEWOOD, COLORADO

DRAWN BY: JAF/AJF  
 CHECKED BY: GAC/RE

REVISIONS:

No.	Description	Date

ISSUE RECORD:

No.	Description	Date
1	ISSUED FOR PERMIT/CONST.	11-21-11

SHEET CONTENTS:

SCHEDULES AND DETAILS

PROJECT NO.: -  
 DATE: 07-05-10  
 DRAWING NO.:  
**P-0**

DATE: 11/21/2011  
 Project: 4442 S. Broadway  
 Address: Englewood, CO  
 Client: -  
 To: -

**Water Heater Calculations**  
**4442 S. Broadway**

Date: 2011-11-21  
 Address: Englewood, CO

WH-1  
 WH-2

4442 S. Broadway

11/21/2011

**2006 IPC FIXTURE UNIT CALCULATIONS**

FIXTURE:	Quantity	2006 IPC Water FU	2006 IPC Waste FU	TOTAL WATER F.U.	TOTAL WASTE F.U.
<b>Bath Group* (WC, 2L, BT/SH)</b>	<b>Multifamily/Private 3+</b>	<b>0</b>	<b>3.6</b>	<b>5</b>	<b>0</b>
Bathtub	Private	0	1.4	2	0
Shower Head	Private	0	1.4	2	0
Bidet	Private	0	2.0	1	0
Lavatory	Private	0	0.7	1	0
Dish Washer	Private	0	1.4	2	0
Kitchen Sink w/Grinder	Private	0	1.4	2	0
Laundry Tray	Private	0	1.4	2	0
Clothes Washer 8lb	Private	0	1.4	2	0
Water Closet, 1.6 gpf Flush Valve	Private	0	6.0	4	0
Water Closet, 1.6 gpf Gravity Tank	Private	0	2.2	3	0
Urinal, Wall Flush Valve	Public	0	5.0	2	0
Waterless Urinal	Public	0	0.0	2	0
Prep Sink	Public	2	3.0	2	6
3-Comp Sink	Public	2	3.5	2	7
Dishwasher	Public	1	3.0	2	3
Kitchen Sink w/Grinder	Public	0	4.0	2	0
Bar Sink	Public	0	2.0	1	0
Hand Sink	Public	2	2.0	1	4
Lavatory	Public	4	2.0	1	8
Service Sink or Mop Basin	Public	1	3.0	2	3
Shower Head	Public	0	1.4	2	0
Clothes Washer 8lb	Public	0	3.0	3	0
Clothes Washer 15lb	Public	0	4.0	3	0
Water Closet, 1.6 gpf Flush Valve	Public	0	10.0	4	0
Water Closet, 1.6 gpf Gravity Tank	Public	4	5.0	4	20
Drinking Fountain	Public	0	0.025	0.5	0
Hose Bibb	Public	0	2.5	-	0
Hose Bibb, Each Additional	Public	0	1.0	-	0
2" Floor Drain	All	2	-	2	-
Floor Sink	All	2	-	2	-
<b>TOTALS</b>		<b>20</b>		<b>51</b>	<b>42</b>

Estimated Probable Peak Demand Table E103.3(3) =

29.4 GPM

**WASTE SIZING:**

Does not include irrigation demand =

0 GPM

4" WASTE Sanitary Sewer

TOTAL GPM = 29.4 GPM

**SANITARY WASTE SIZING:**  
 4" Wastes=216 Fixture Units\*  
 6" Wastes=720 Fixture Units\*  
 \* Slope 1/4" per Foot  
 (1/8" SLOPE multiply F.U. by 0.8)

The irrigation demand is not included in this calculation. The Irrigation System will not be functioning during normal business hours.

SERVICE Size = 1-1/2" Service

Meter Size = 1" Meter

Tap Size = 1" Tap

FIXTURE	GPH ea.	Quantity	Total GPH
3 compt sink	39.28	1	39.3
2 compt sink	47.13	1	47.1
Service Sink or Mop Sink	2.00	1	2.0
Dish machine Commercial	20.00	1	20.0
Kitchen Sink	2.00	0	0.0
Bar Sink	1.00	0	0.0
Hand Sink	1.00	1	1.0
Lavatory	1.50	2	3.0

Temp Rise (F)	140
Recovery Efficiency	85%
Elevation (Alt)	5280

7	112.4	GPH Recovery Required (Minimum)
	1.9	GPM Recovery Required (Minimum)
	1.87	GPM Hot Water
Output Required	131,339	BTUH
Electrical Input	38.5	KW
Natural Gas SL Input	155	MBH SL Input
Natural Gas Input Alt	196	MBH at Altitude (4% per 1000ft deration)

2-COMPT SINK DIMS:

	36.0" Wide
	18.0" Deep
	12.0" Height
One Bowl	7,776 cubic inches/bowl
2 Bowls	9.0 cubic feet Total
70% Full	6.3 cubic feet Adjusted
One filling per Hour	47.1 GPH at 70% Full

3-COMPT SINK DIMS:

	18.0" Wide
	20.0" Deep
	12.0" Height
One Bowl	4,320 cubic inches/bowl
3 Bowls	7.5 cubic feet Total
70% Full	5.3 cubic feet Adjusted
One filling per Hour	39.3 GPH at 70% Full

**Grease Interceptor Sizing Calculation @ 4442 S. Broadway Englewood, CO**

Bowl Size in inches	Number of	% Full	Total Volume in cubic inches	Cubic Inches per Gallon	Total Gallons		
18	20	12	3	0.75	9720	231	42.1
18	20	12	3	0.75	9720	231	42.1
						Dishwasher	50.0
						Total GPM	134.2

With a 1 minute retention, the total flow in gallons per minute = 135 = 270 Gal. G.I. Minimum Size

**WEYMOUTH GAS EQUATION:**  
 (Reference: PIPING HANDBOOK, p 3-159 Crocker & King, 1973)

$$Q = 28.05 \sqrt{\frac{(P1^2 - P2^2) d^5 (16.3)}{S(L \cdot 5280)}}$$

P1 = Initial gas pressure at Gas Meter, PSIA  
 P2 = Final gas pressure at Gas Appliance, PSIA  
 d = actual pipe diameter, inches  
 S = Specific Gravity of Gas  
 L = Length of piping, feet

ACTUAL METER Gas Pressure = 14"WC = 0.5057 PSI  
 MAX Press Drop = 6.5"WC = 0.2348 PSI  
 PRESSURE AT END OF LINE = 5.5"WC = 0.2709 PSI

**INPUTS:**  
 Local Barometric Pressure = 12.20 PSIA  
 Initial Gas Pressure = P1 = 0.5057 PSI = 14.00"WC Initial Pressure at GAS METER  
 Pressure Drop MAX = P1 - P2 = 0.2348 PSI = 6.50"WC MAX Pressure Drop  
 Final Gas Pressure = P2 = 0.2709 PSI = 5.50"WC Final Pressure P2 at Appliance  
 Specific Gravity = S = 0.67 SG  
 Pipe Length = L = (See Table below)

**CONVERSION DATA:**

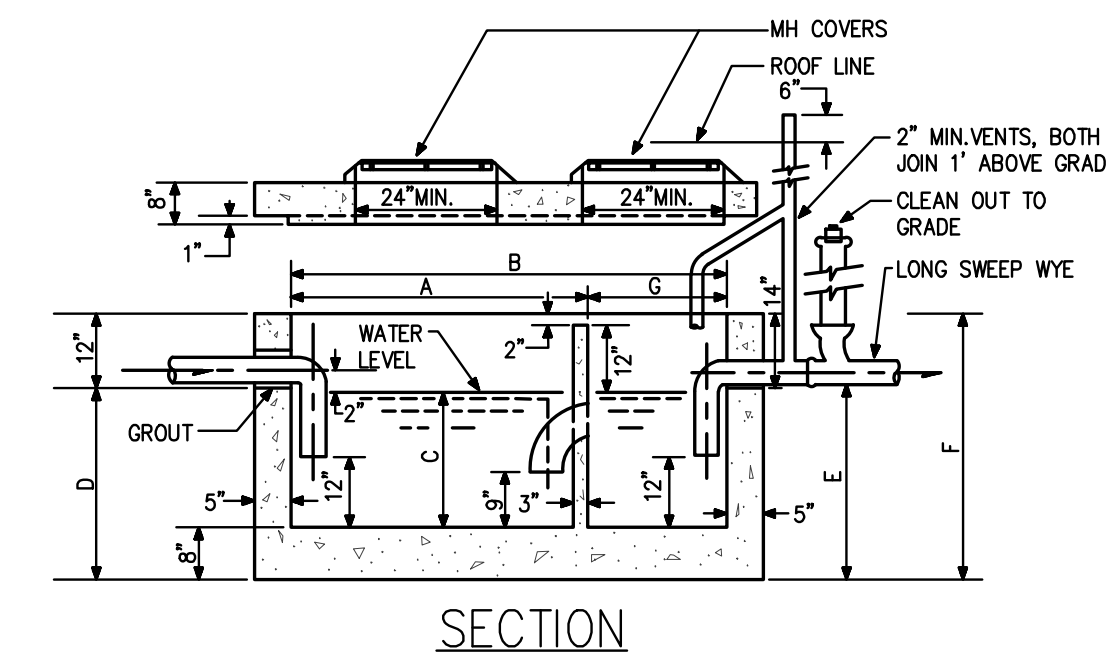
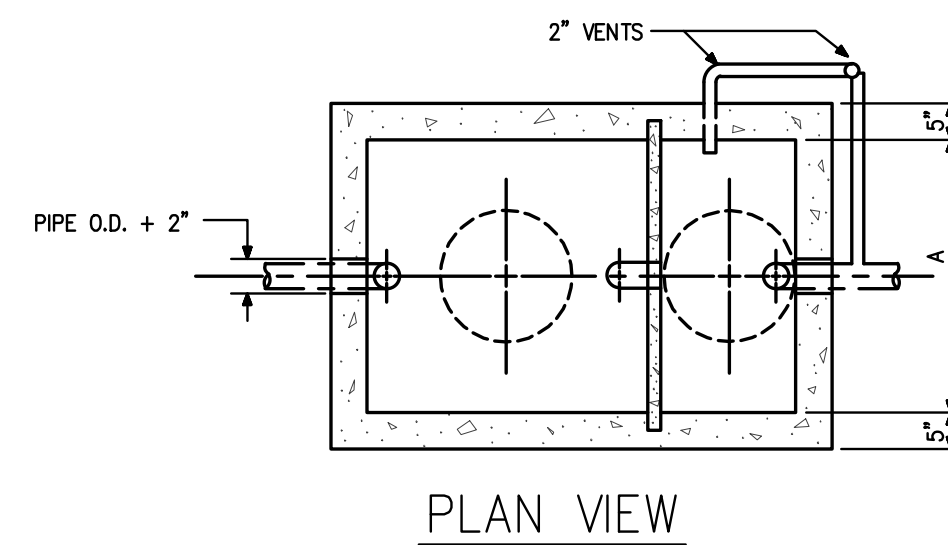
SL = 14.7 PSIA  
 5000ft = 12.2 PSIA  
 1 PSI = 2.307"WC  
 1 PSI = 27.684"WC  
 1" WC = 0.0361 PSI

**14"WC GAS PRESSURE TABLE: "Q" in CFH**

Nominal Pipe Size "d"	Actual I.D. in d	25 ft length (L)	50 ft length (L)	100 ft length (L)	125 ft length (L)	150 ft length (L)	200 ft length (L)	275 ft length (L)	300 ft length (L)	600 ft length (L)	750 ft length (L)	1000 ft length (L)	1500 ft length (L)
1/2"	0.622	341	241	171	153	139	111	103	99	70	62	54	44
3/4"	0.824	723	511	361	323	295	234	218	209	147	132	114	93
1"	1.049	1,376	973	688	615	562	445	415	397	281	251	217	178
1-1/4"	1.380	2,858	2,021	1,429	1,278	1,167	925	862	825	583	522	452	369
1-1/2"	1.610	4,311	3,049	2,156	1,928	1,760	1,396	1,300	1,245	880	787	682	557
2"	2.067	8,394	5,936	4,197	3,754	3,427	2,718	2,531	2,423	1,713	1,533	1,327	1,084
2-1/2"	2.469	13,483	9,534	6,742	6,030	5,505	4,767	4,065	3,892	2,752	2,462	2,132	1,741
3"	3.068	24,063	17,015	12,032	10,761	9,824	8,508	7,255	6,946	4,912	4,393	3,805	3,107
3-1/2"	3.548	35,457	25,072	17,728	15,857	14,475	12,536	10,691	10,235	7,238	6,473	5,606	4,577
4"	4.026	49,667	35,120	24,834	22,212	20,277	17,560	14,975	14,338	10,138	9,068	7,853	6,412
5"	5.047	90,746	64,167	45,373	40,583	37,047	32,084	27,361	26,196	18,523	16,568	14,348	11,715
6"	6.065	148,122	104,738	74,061	66,242	60,470	52,369	44,660	42,759	30,235	27,043	23,420	19,122
8"	7.981	308,003	217,791	154,001	137,743	125,742	108,895	92,866	88,913	62,871	56,233	48,700	39,763
10"	10.020	564,999	399,514	282,499	252,675	230,660	199,757	170,353	163,101	115,330	103,154	89,334	72,941
12"	11.938	901,328	637,335	450,664	403,086	367,966	318,668	271,761	260,191	183,983	164,559	142,513	116,361

**BUILDING OUTLINE PLUMBING SPECIFICATIONS**

- COORDINATE ACTUAL LOCATION OF PLUMBING FIXTURES AND ROUGH-INS WITH ARCHITECTURAL DRAWINGS PRIOR TO BEGINNING WORK.
- CONTRACTOR SHALL FIELD VERIFY ALL PIPING AND PLUMBING LOCATIONS AND INVERTS PRIOR TO TRENCHING FOR OR INSTALLATION OF NEW PIPING.
- EXCAVATE FOR ALL PLUMBING WORK, COMPACT TO 95% AASHO OR PROCTOR DENSITY IN 6" MAXIMUM LAYERS AT OPTIMUM MOISTURE CONTENT. REWORK IF ANY SETTLEMENT WITHIN THE FIRST YEAR GUARANTEE.
- PROVIDE ISOLATION VALVES AT ALL PLUMBING FIXTURES REQUIRING HOT AND/OR COLD WATER. PROVIDE BALL VALVE LINE-SIZE RATED FOR 40 PSIG WOG.
- ISOLATE EACH PIECE OF EQUIPMENT AND EACH ROUGH-IN EXCLUDING WASTE AND VENT.
- ALL DOMESTIC HOT AND COLD WATER PIPING ABOVE GRADE SHALL BE TYPE L COPPER WITH NO-LEAD 95/5 SOLDERED FITTINGS. TYPE K SOFT COPPER SHALL BE USED BELOW GRADE.
- PLUMBING CONTRACTOR TO PROVIDE A WATER PRESSURE TEST ON SITE. WHERE WATER PRESSURE IS OVER 60 PSI THEN PROVIDE FULL SIZE PRZ VALVE ON THE SECONDARY SIDE OF THE RPBFF.
- PROVIDE BRANCH SHUT-OFF VALVES ON ALL WATER LINES EXTENDING FROM MAINS.
- ALL INTERIOR ABOVE-GRADE WASTE, VENT, AND STORM DRAIN PIPING SHALL BE PVC. ALL INTERIOR BELOW-GRADE WASTE, VENT, AND STORM DRAIN PIPING SHALL BE PVC. ALL HORIZONTAL WASTE, VENT, AND STORM DRAIN PIPING SHALL BE SLOPED AT A MINIMUM OF 1/8" PER FOOT OR AS OTHERWISE REQUIRED BY CODE. PIPING INSTALLED BELOW GRADE SHALL BE COATED. INSULATE ROOF DRAIN PIPING (ABOVE GRADE) IN SAME MANNER AS SPECIFIED FOR DOMESTIC HOT AND COLD WATER PIPING, WITH THICKNESS IN ACCORDANCE WITH PIPING INSULATION SCHEDULE, AND PROVIDE JACKET WITH VAPOR BARRIER.
- PROVIDE FLOOR DRAIN TRAP PRIMERS, TO BE PRIME PERFECT WITH VALVED 1/2" CW TO EACH FLOOR DRAIN, WITH ACCESS PANELS WHERE REQUIRED. SUBSTITUTE PROSET TRAP GUARDS WHERE ALLOWED BY CODE.
- PROVIDE SANITARY SEWER SYSTEM CLEANOUTS AS REQUIRED BY LOCAL CODES. ALL CLEANOUTS REQUIRED ARE NOT NECESSARILY SHOWN ON PLANS. CLEANOUTS TO BE AT A MINIMUM OF 100 FEET ON CENTER, AND AT THE BASE OF EACH WASTE STACK.
- ALL EXTERIOR WASTE AND STORM DRAIN PIPING BEYOND 5'-0" OF FOUNDATION SHALL BE PVC, UNLESS OTHERWISE SHOWN ON CIVIL DRAWINGS.
- ALL CONDENSATE DRAIN PIPING SHALL BE TYPE M COPPER.
- PROVIDE DIELECTRIC COUPLINGS AT ALL CONNECTIONS BETWEEN DISSIMILAR METALS.
- INSULATE ALL NEW AND EXISTING DOMESTIC HOT, COLD AND HOT WATER CIRCULATING WATER PIPING WITH FIBERGLASS HEAVY DENSITY PIPE INSULATION WITH FIRE RESISTANT JACKET AND SELF SEALING LAP. INSULATION THICKNESS SHALL BE IN ACCORDANCE WITH PIPING INSULATION SCHEDULE. INSULATE FITTINGS AND VALVE BODIES WITH MITERED SECTION FOR PIPE INSULATION OR WITH CEMENT TO A THICKNESS EQUAL TO ADJOINING PIPE INSULATION. FINISH FITTINGS AND VALVE BODIES WITH CANVAS AND SEIZE WITH LACING ADHESIVE. FLANGES AND UNIONS SHALL NOT BE COVERED. COVERING SHALL BE NEATLY TERMINATED ON EACH END OF SCREWED UNIONS WITH INSULATING CEMENT.
- DO NOT LOCATE WATER PIPING IN EXTERIOR WALLS OR ATTICS. ROUTE PIPING INBOARD OF BUILDING INSULATION TO AVOID FREEZING. ELECTRIC HEAT TRACE ALL PIPING LOCATED IN UNHEATED AREAS WITH CHROMALOX 7.0 WATTS/FT, MI CABLE AND 1" THICK FIBERGLASS INSULATION COVER.
- INSULATE ALL NEW AND EXISTING HEATING, CHILLED AND CONDENSER WATER PIPING IN SAME MANNER AS SPECIFIED FOR DOMESTIC HOT AND COLD WATER PIPING, WITH THICKNESS IN ACCORDANCE WITH PIPING INSULATION SCHEDULE. PROVIDE JACKET WITH VAPOR BARRIER FOR CHILLED WATER PIPING.
- PRESSURE TEST ALL PIPING PER CODE BUT TO AT LEAST 150% MAXIMUM W.P.
- ALL INTERIOR ABOVE GRADE GAS PIPING 2" AND SMALLER SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH 150 PSI O.W.G. BLACK BANDED MALLEABLE IRON SCREWED FITTINGS. ALL INTERIOR ABOVE GRADE GAS PIPING 2-1/2" AND LARGER, AND ALL BELOW GRADE INTERIOR GAS PIPING (ALL SIZES), SHALL BE WELDED SCHEDULE 40 BLACK STEEL. ALL BELOW GRADE INTERIOR BLACK STEEL GAS PIPING SHALL BE COATED. ALL BELOW GRADE GAS PIPING OUTSIDE OF THE BUILDING SHALL BE SCHEDULE 80 CPVC PIPING AND FITTINGS. ALL GAS PIPING INSTALLED ON ROOF SHALL BE SUPPORTED AT A MINIMUM OF EVERY 6 FEET, WITH 6" MINIMUM CLEARANCE FROM ROOF, EXCEPT WHERE GOVERNED BY MORE STRINGENT LOCAL CODES OR SPECIFICATIONS. ALL VISIBLE GAS PIPING SHALL BE LABELED WITH PRESSURE AT 6'-0" ON CENTERS. ALL PIPING EXPOSED TO WEATHER SHALL BE PAINTED.
- PROVIDE FULL-SIZED SHUT-OFF VALVE AND 6" DIRT LEGS AT ALL CONNECTIONS TO GAS-FIRED EQUIPMENT. GAS PIPE TO BE CGA LISTED LINE-SIZE RATED FOR GAS PIPE.
- ALL EQUIPMENT AND FIXTURES WHICH ARE CONNECTED TO A POTABLE WATER SUPPLY SHALL BE INSTALLED IN SUCH A MANNER AS TO ELIMINATE THE POSSIBILITY OF ANY PHYSICAL OR POTENTIAL CROSS-CONNECTION. VACUUM BREAKERS SHALL BE PROVIDED FOR ALL SUBMERGED/ENCLOSED OUTLETS, DISH MACHINE LINES, HOSE CONNECTIONS, ETC. VACUUM BREAKERS SHALL BE INSTALLED A MINIMUM OF 6" ABOVE THE OVERFLOW RIM AND LOCATED ON THE DISCHARGE SIDE OF THE LAST VALVE ON THE EQUIPMENT. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED ON ALL CONTINUOUS PRESSURE LINES SUPPLYING EQUIPMENT SUCH AS SODA CARBONATORS, ICE MACHINES, ETC.
- ALL FLOOR DRAINS AND FLOOR SINKS SHALL BE FLUSH-MOUNTED, PROPERLY SEALED, AND EASILY ACCESSIBLE FOR CLEANING AND MAINTENANCE.
- ALL WATER LINES, WASTE AND VENT LINES, SODA SYRUP LINES, ETC. SHALL BE CONCEALED WITHIN THE WALL, BELOW FLOOR, OR ABOVE CEILING SURFACES.
- FURNISH AND INSTALL PLUMBING FIXTURES ON CARRIERS AS SCHEDULED ON THE PLANS. PROVIDE CHROME PLATED ACCESSORIES AND PIPE COVER ON ALL EXPOSED FIXTURE RUNOUTS. PROVIDE ANGLE STOPS ON ALL FIXTURE RUNOUTS. PROVIDE INSULATION AND ROUGH-IN AS REQUIRED FOR COMPLIANCE WITH ADA REQUIREMENTS. PROVIDE ALL ACCESSORIES AND SPECIALTY ITEMS AS REQUIRED FOR A COMPLETE FIXTURE INSTALLATION.
- ALL PIPING SHALL BE PROPERLY SUPPORTED, WITH PROVISIONS FOR HORIZONTAL BRACING AND EXPANSION/CONTRACTION AS REQUIRED. FOR INSULATED PIPING, AT EACH SUPPORT LOCATION, PROVIDE SHEET METAL SHIELDS FOR PIPING 2" AND SMALLER (EXCEPT WHERE REQUIRED TO BE CLAMPED) AND CALCIUM SILICATE THERMAL INSERTS WITH SHEET METAL SHIELDS FOR PIPING LARGER THAN 2" AND FOR ALL SIZES OF INSULATED PIPING REQUIRED TO BE CLAMPED. PROVIDE SUPPLEMENTAL STEEL SUPPORTS AS REQUIRED FOR INSTALLATION OF ALL PLUMBING MATERIALS, EQUIPMENT, AND APPARATUS.
- SEAL ALL PIPING PENETRATIONS THROUGH FIRE-RATED WALLS WITH U.L. APPROVED FIRESTOPPING MATERIAL. SUBMIT SHOP DRAWINGS TO ENGINEER FOR REVIEW AND APPROVAL, INCLUDING DETAILS OF CONSTRUCTION AND PROPOSED FIRE-RATED ASSEMBLIES, MATERIALS AND PRODUCTS USED, AND VERIFICATION OF OVERALL SYSTEM COMPLIANCE.
- ALL PIPING SYSTEMS SHALL BE TESTED AND PROVEN TIGHT PRIOR TO CONCEALMENT. THE TEST SHALL BE WITNESSED BY OWNER'S REPRESENTATIVE.
- ALL PIPING SHALL BE CLEANED AND FLUSHED PRIOR TO SERVICE. (DOMESTIC WATER PIPING SHALL BE STERILIZED.)
- ALL RATED RETURN AIR PLENUMS MUST HAVE PLENUM RATED PIPING, OR PLENUM RATED PIPING INSULATION.



- NOTES:
- PIPE AND FITTINGS SHALL BE CAST OR DUCTILE IRON, MINIMUM 3" DIAMETER.
  - SMALL COMPARTMENT HAS 1/3 TOTAL CAPACITY.
  - WALLS AND BOTTOM REINFORCED THROUGHOUT WITH 2 x 6 #10 REBAR.
  - COVERS SHALL BE REINFORCED LONGITUDINALLY WITH NO.6 REBAR ON 6" CENTERS, NO.4 REBAR ON 6" CENTER WIDTHWISE, AND NO.8 REBAR DIAGONALLY AROUND ACCESS HOLES.
  - CLEAN OUT SHALL BE AN IRON BODY FERRULE WITH BRASS SCREW PLUG.
  - VENT PIPE SHALL BE DUCTILE IRON TO A POINT 6" ABOVE GROUND.
  - MANHOLE RING AND COVER SHALL BE J MARK NO.1161 OR APPROVED EQUAL, AS DETERMINED BY CITY ENGINEER.
  - CHECK WITH SUPPLIER FOR EXACT DIMENSIONS.
  - NO BOLT DOWN COVERS ALLOWED WITHOUT APPROVAL FROM THE CITY OF THORNTON.

WATER CAPACITY APPROX. GALLONS	GREASE CAPACITY APPROX. CUBIC FT.	DIMENSIONS TWO COMPARTMENT TANK INCHES						
		A	B	C	D	E	F	G
320	13	48	72	22	32	30	44	24
560	32	48	72	36	46	44	58	24
780	47	48	96	40	50	48	62	32
1060	74	72	108	34	44	42	56	34
1250	87	80	128	35	43	41	62	32

**GREASE INTERCEPTOR**

SCALE: NONE

9861 W. 86TH PLACE  
 ARVADA, CO 80005

PH: 303-956-8811  
 FAX: 1-866-929-7403  
 EMAIL: DesEng1@comcast.net  
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DRAWN BY: JAF/JAF

CHECKED BY: GAC/RE

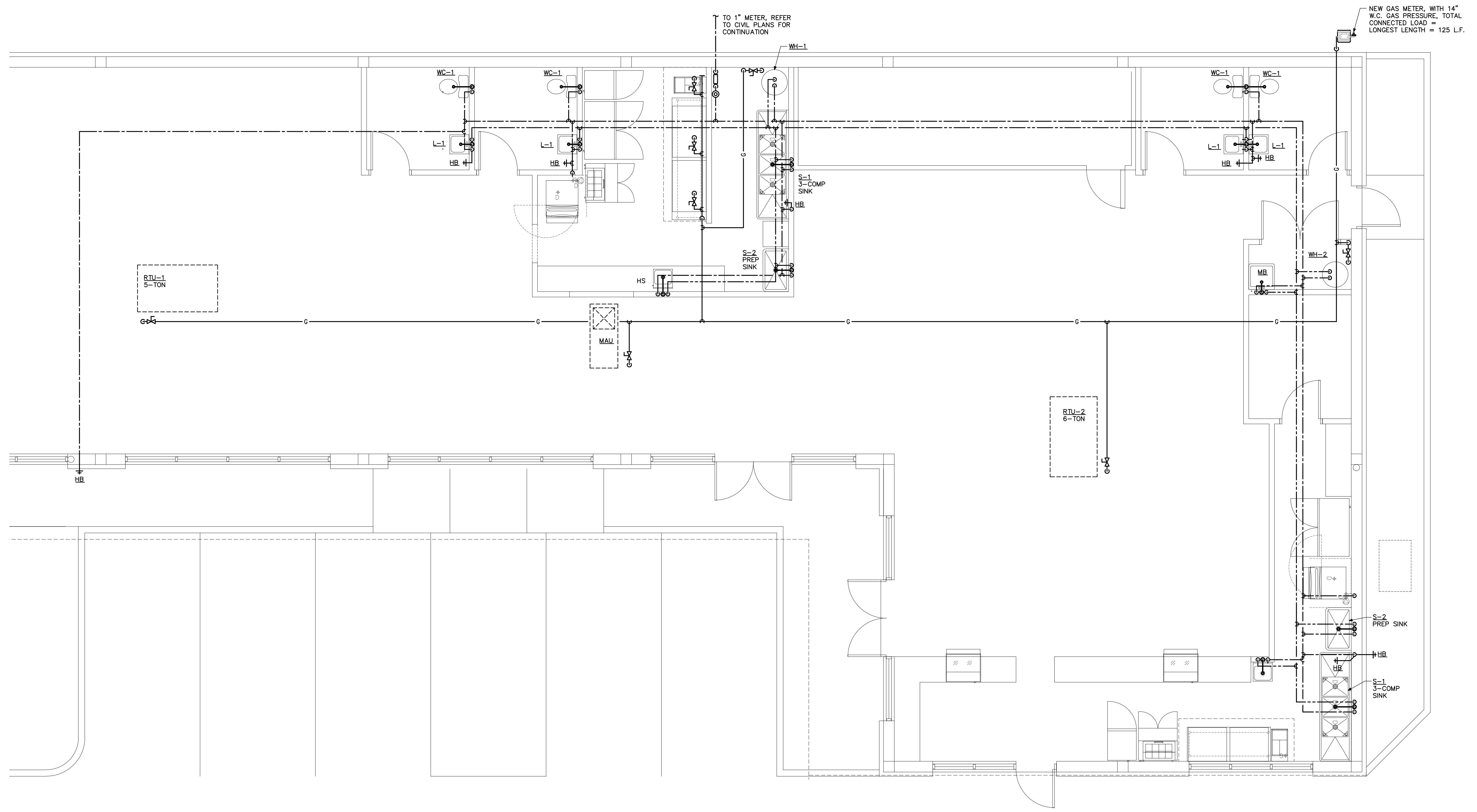
REVISIONS:

No.	Description	Date

ISSUE RECORD:

No.	Description	Date
1	ISSUED FOR PERMIT/CONST.	11-21-11

**ALMA INTERNATIONAL MARKET  
MARMEL CORPORATION**  
442 S. BROADWAY  
ENGLEWOOD, COLORADO



**PLUMBING DETAIL NOTES:**

① x

**DOMESTIC WATER & GAS PIPING PLAN**

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

DRAWN BY: JAF/AJF

CHECKED BY: GAC/RE

REVISIONS:

No.	Description	Date
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ISSUE RECORD:

No.	Description	Date
1	ISSUED FOR PERMIT/CONST.	11-21-11

SHEET CONTENTS:

PLUMBING PLAN

PROJECT NO.: -

DATE: 07-05-10

DRAWING NO.:

**P-2**

**ALMA INTERNATIONAL MARKET  
MARMEL CORPORATION**  
442 S. BROADWAY  
ENGLEWOOD, COLORADO

DRAWN BY: JAF/AJF

CHECKED BY: GAC/RE

REVISIONS:

No.	Description	Date

ISSUE RECORD:

No.	Description	Date
1	ISSUED FOR PERMIT/CONST.	11-21-11

SHEET CONTENTS:

PLUMBING PLAN  
-

PROJECT NO.: -

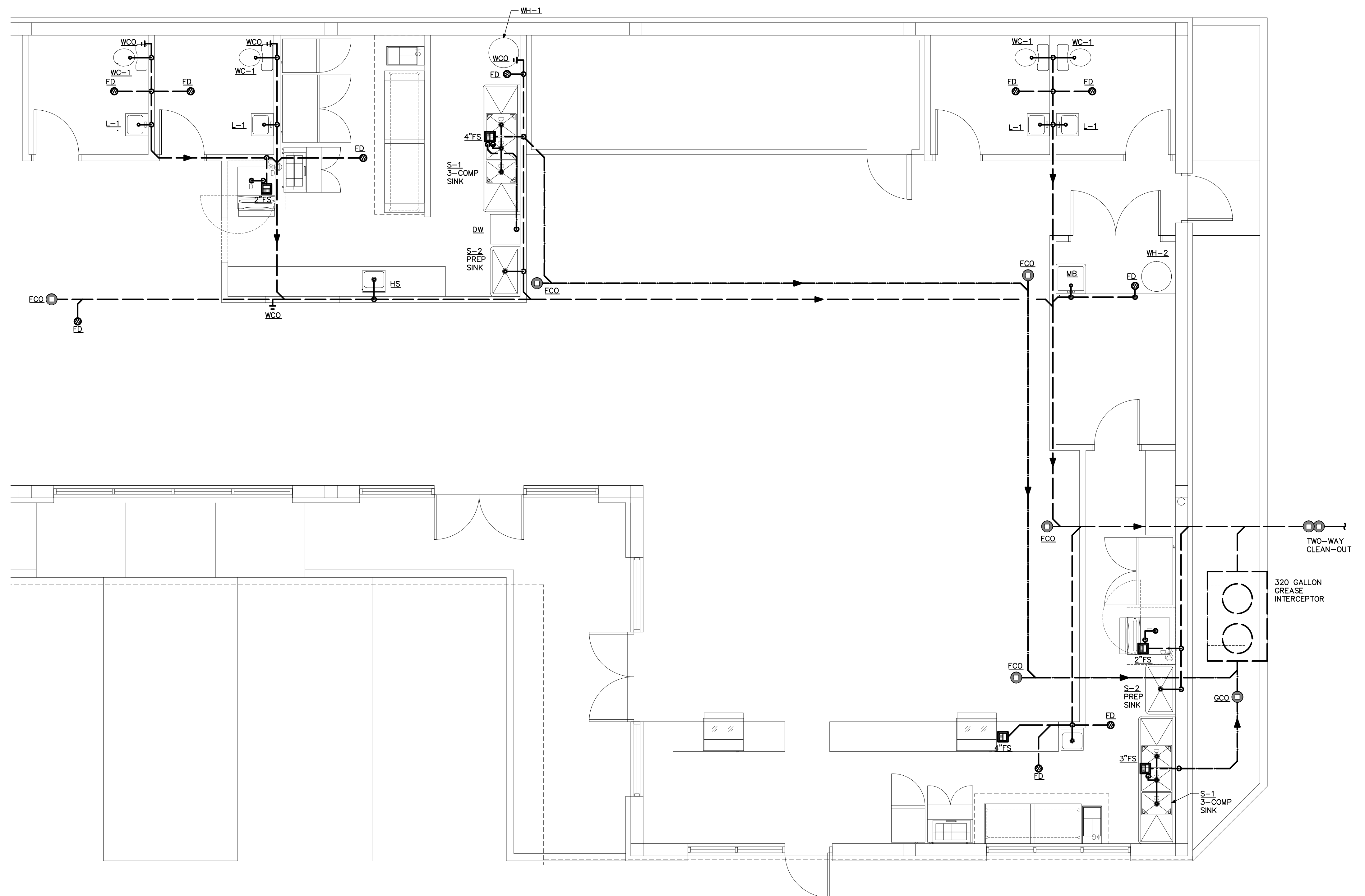
DATE: 07-05-10

DRAWING NO.:

**P-3**

PLUMBING DETAIL NOTES:

① x



**WASTE PLAN**

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