



Isometric Plumbing Drawings

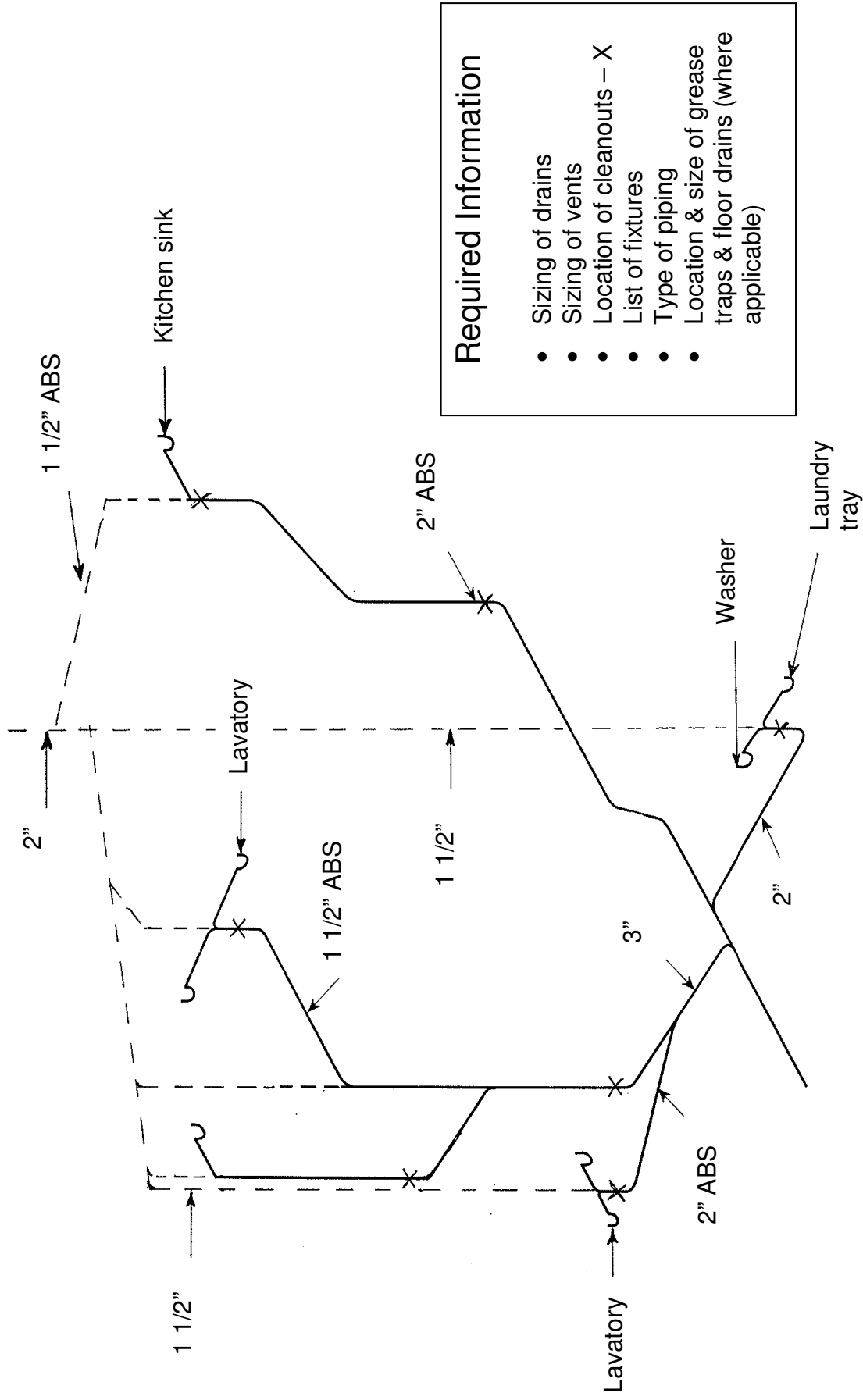
All commercial building permit applications, in which the plumbing system has not been designed by a mechanical engineer, must include two sets of isometric plumbing drawings.

The isometric drawings should include the following information:

1. Isometric drawings of drain, waste and vent (D.W.V.) must include the size, location and type of pipe.
2. Isometric drawings of hot and cold water piping must include the type and size of pipe, and fixture units (fixture units for branches and calculations for total load on water supply). Watermains over 90 meters (300 feet) in length are to be designed by a mechanical engineer.
3. The isometric drawings are to specify whether combustible or non-combustible plumbing is to be used. It is the responsibility of the designers to ensure the system complies with the BC Building Code requirements in Subsection 3.1.9. or 9.10.9.7., Fire Separations & Fire Rated Assemblies.
4. Grease traps must be installed in the plumbing system for restaurants and businesses that prepare food. The location and size of the grease interceptors must be included on the isometric drawing. For further information see the Building Inspections handout titled *Grease Interceptors in Kitchens*.
5. Isometric drawings to include the plumbing company name and contact phone number.

The isometric plumbing drawing approved by the City of Nanaimo must be supplied, on site, at the time of the Plumbing Inspector's inspection.

Example Drainage System – Isometric View



WATER PIPE SIZING EXAMPLE SMALL COMMERCIAL

Public use: means fixtures in general washrooms of schools, gymnasiums, hotels, bars, public comfort stations and installations where fixtures are installed so that their use is unrestricted.

BP# _____ Address: _____
 Phone # _____ Cell # _____

Plumbing contractor: _____ Type of water pipe used: COPPER

Fixture type:	Min. Supply Pipe
Bath (with or without shower)	1/2"
Clothes washer	1/2"
Dishwasher (domestic)	1/2"
Drinking fountain	3/8"
Hose bibb	1/2"
Lav	3/8"
Sink	
A) kitchen (domestic)	1/2"
B) kitchen (commercial)	1/2"
C) service	1/2"
D) service with direct flush valve	3/4"
Shower head	1/2"
Urinal	
A) flush tank	1/2"
B) direct flush valve	3/4"
C) self closing metering valve	1/2"
Water closet	
A) flush tank	3/8"
B) direct flush valve	1"

Public Hydraulic load per fixture type	#		-0.25
	Cold	Hot	
4	x		
0	x		
0/3	x	3	
1	x		
7	x	1	
2	x	3	
0/2	x	1	
4			
3	1	3	
5			
4	x		
3			
5			
0			
5	x		
10	x	2	
Total F.U			11.25

Copper and PVC			
Size	Cold	Hot	C.F.V
1/2"	3.5	2.5	0
3/4"	9	7.5	0
1"	18	14	0
1 1/4"	29	22	0
1 1/2"	46	34	10
2"	120	81	43
2 1/2"	245	170	125
3"	400	295	275
4"	850	600	800

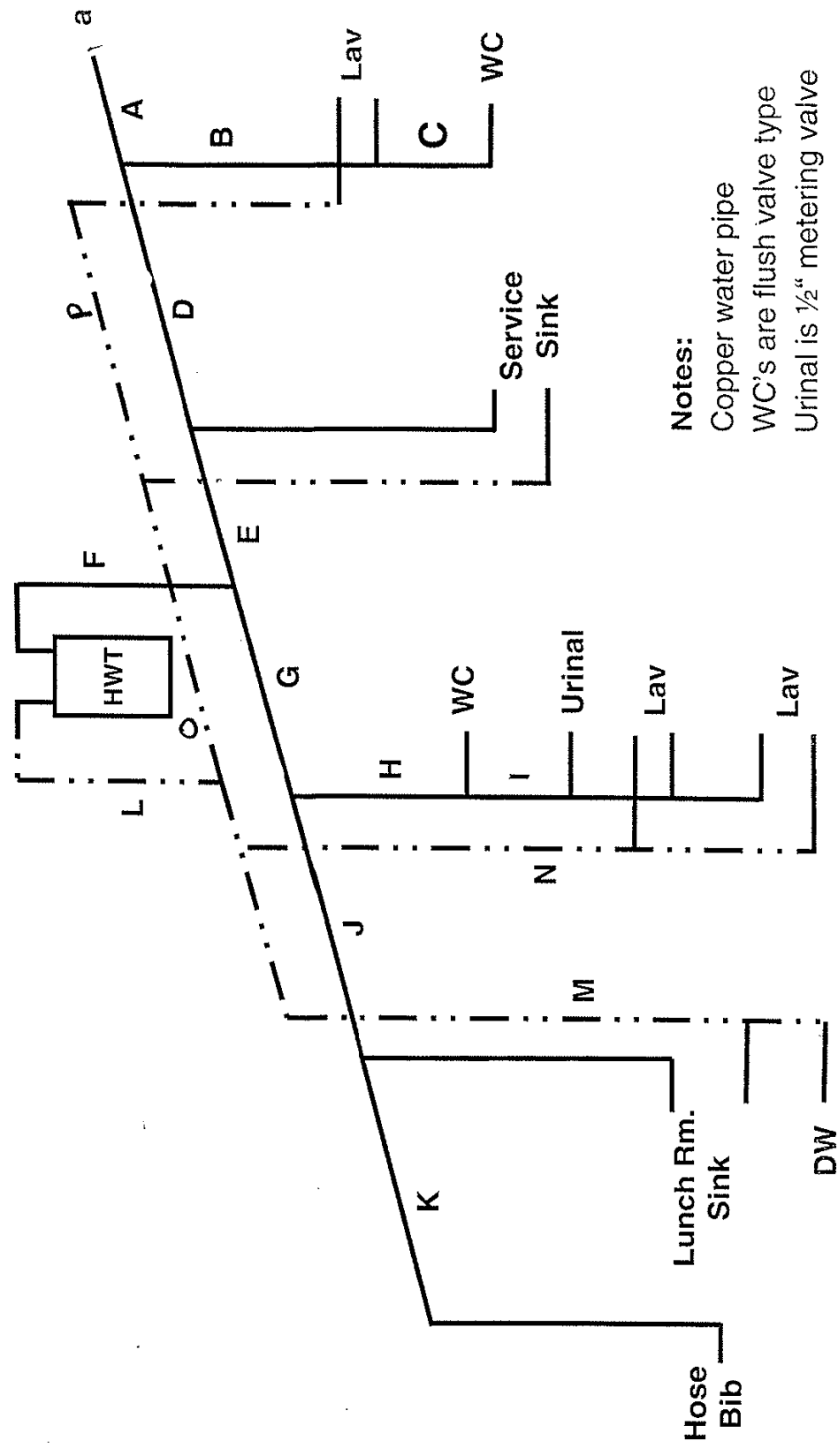
Pex /CPVC/ Duct Tile		
Size	C/H	C.F.V
1/2"	7	0
3/4"	17	0
1"	30	0
1 1/4"	54	13
1 1/2"	102	35
2"	265	140
2 1/2"	500	390
3"	750	695
4"	1800	1800

PIPE	Cold		Hot	
	F.U.	SIZE	F.U.	SIZE
A	45	2.5		
B	11.5	2		
C	10	1		
D	34.5	2		
E	33.75	2		
F	11.25	1		
G	25.5	2		
H	17	2		
I	7	0.75		
J	8.5	0.75		
K	7	0.5		
L			11.25	1
M			4.5	0.75
N			3	0.75
O			3.75	0.75
P			1.5	0.5
Q				
R				
S				
T				
U				

Supply	Hydraulic load	
	Private	Public
3/8"	1	2
1/2"	2	4
3/4"	3	6
1"	6	10

Use separate sheet for isometric drawing.

Example Commercial Water Piping - Isometric View



- Notes:**
- Copper water pipe
 - WC's are flush valve type
 - Urinal is 1/2" metering valve
 - Lunch Rm. Sink & Dishwasher taken as domestic/private use

WATER PIPE SIZING EXAMPLE SMALL RESIDENTIAL

BP# _____ Address: _____

Plumbing contractor: _____
 Phone # _____ Cell # _____

Fixture type:	Min. Supply Pipe
Bath (with or without shower)	1/2"
Clothes washer	1/2"
Dishwasher (domestic)	1/2"
Drinking fountain	3/8"
Hose bibb	1/2"
Lav	3/8"
Sink	
A) kitchen (domestic)	1/2"
B) kitchen (commercial)	1/2"
C) service	1/2"
D) service with direct flush valve	3/4"
Shower head	1/2"
Urinal	
A) flush tank	1/2"
B) direct flush valve	3/4"
C) self closing metering valve	1/2"
Water closet	
A) flush tank	3/8"
B) direct flush valve	1"

Private Hydraulic load per fixture	#		Cold	Hot	-0.25
	X	1			
2	X	1	2		
3	X				Hot
3	X	1	3		3
7	X	2	14		
1	X	1	1		-0.25 0.75
2	X	1	2		-0.5 1.5
0					
0					
0					
2	X				
0					
0					
0					
3	X	1	3		
6	X				
Total F.U					25
					6.75

Items not listed	Hydraulic load	
	Private	Public
Supply		
3/8"	1	2
1/2"	2	4
3/4"	3	6
1"	6	10

Private Use: Means fixtures in residences and apartments, in private bathrooms of hotels and in similar installations in other buildings for one family or individual.

Type of pipe used: _____ COPPER

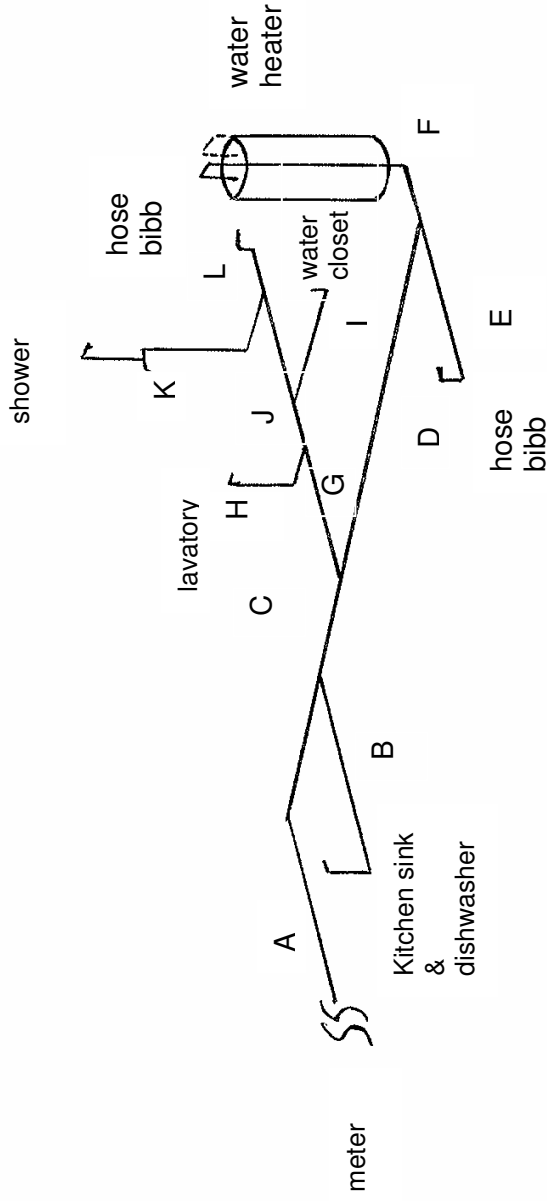
Copper and PVC	Cold		Hot	
	Size	Cold	Hot	C.F.V
1/2"	3.5	2.5	0	
3/4"	9	7.5	0	
1"	18	14	0	
1 1/4"	29	22	0	
1 1/2"	46	34	10	
2"	120	81	43	
2 1/2"	245	170	125	
3"	400	295	275	
4"	850	600	800	

Pex /CPVC/ Duct Tile		
Size	C/H	C.F.V
1/2"	7	0
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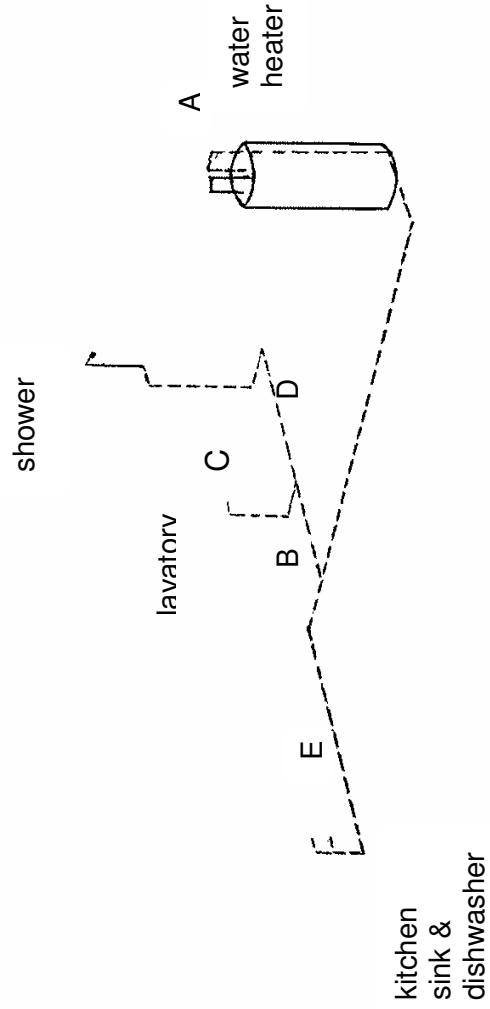
PIPE	Cold		Hot	
	F.U.	SIZE	F.U.	SIZE
A	25	1.25	6.75	0.75
B	1.5	0.5	2.25	0.5
C	23.5	1.25	0.75	0.5
D	13.75	1	1.5	0.5
E	7	0.5	4.5	0.75
F	6.75	0.75		
G	12.25	1		
H	0.75	0.5		
I	3	0.5		
J	8.5	0.75		
K	1.5	0.5		
L	7	0.5		
M				
N				
O				
P				
Q				
R				
S				
T				
U				

Use separate sheet for isometric drawing

Example Residential Water Piping - Isometric View



Cold Water



Hot Water

kitchen sink & dishwasher