

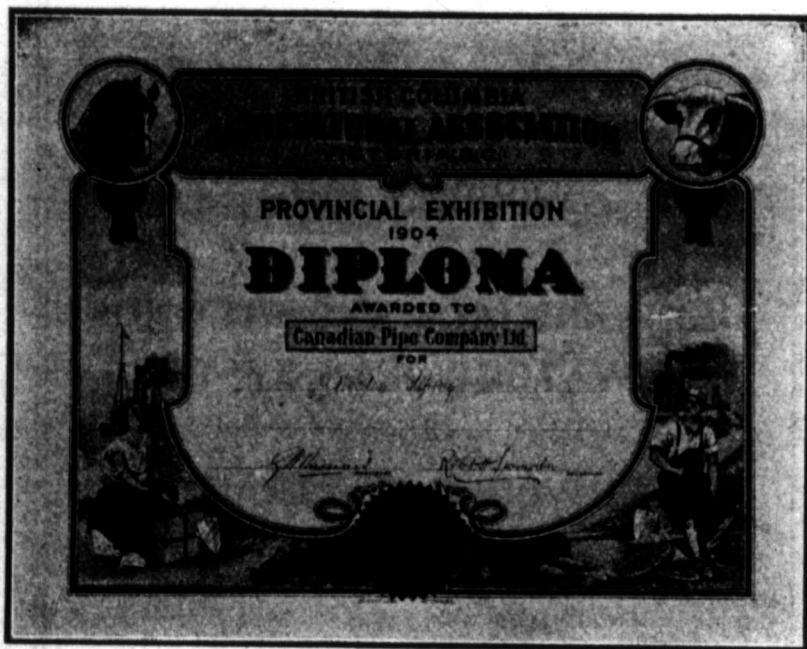
**Canadian Pipe Company,
LIMITED**

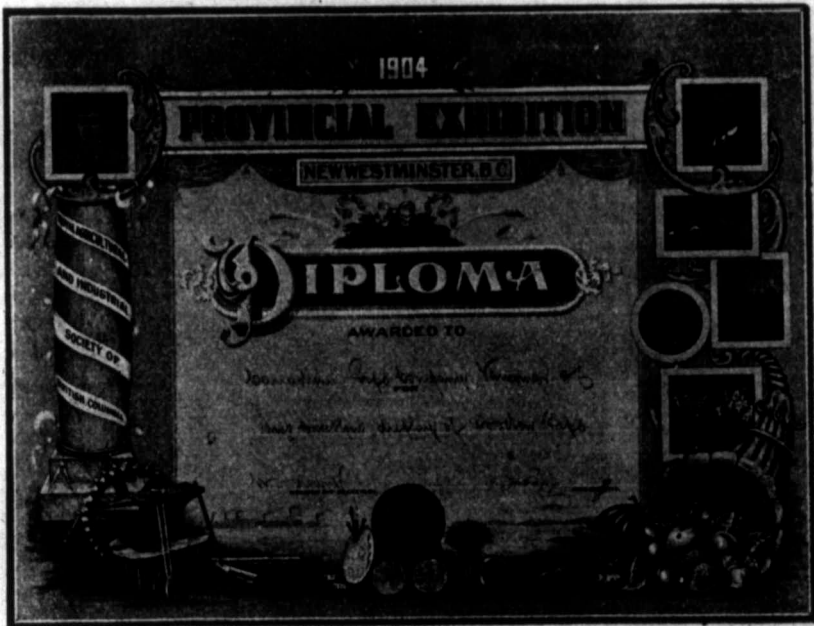
**MACHINE WIRE WOUND
WOODEN PIPE**

**IRON SPECIALS AND FITTINGS
FOR WATERWORKS SYSTEMS**

WATERWORKS CONTRACTORS

**Factory and Offices: BEATTY STREET
North End Cambie Street Bridge
VANCOUVER, B. C.**







Pipe line carried across Creek on Cable.

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WOOD PIPE AND WATER WORK SYSTEMS

In issuing our second catalogue we take the opportunity of thanking the public for the interest they have taken in this new Canadian industry. Since the death of Mr. Orchard the inventor of the Wire Wound Wood Stave Pipe) in August last, we are entirely a Canadian corporation, registered under the Joint Stock Companies Act (1862 Imperial).

In the following pages we will endeavour to give information and tables which will be of interest to those about to build new, or extend their present water works systems. Our factory is equipped with the most perfect machinery, thereby enabling us to manufacture and turn out expeditiously a perfect pipe in every respect.

The location of our factory affords us every facility to ship our products either by rail or water.

In thanking our patrons for their past orders, we can assure them that any future orders they entrust us with will have our utmost and prompt attention.

Those who contemplate using wood pipe in the future can rest assured that our experience is at their disposal, and by entrusting us with their orders we will strive to give such satisfaction as will be to our mutual benefit.

Enquiries are solicited, and all correspondence will have our prompt attention.

THE CANADIAN PIPE CO., LTD.,

Beatty Street,

Cambie Street Bridge,

Vancouver, B.C.

P.O. Box 915. Telephone 1642.

Pipe line carried across Creek on Cable.

WATER SUPPLY AND PURITY

There is nothing more essential to the health of the community than a plentiful supply of pure water for the house, the farm, the ranch, the office, the work shop, the factory, the mine, and for fire protection; and the importance of having this supply conveyed in perfectly constructed pipes is most essential to the efficiency of the system. While we are anxious to give all the advice possible, yet we recognise that the outlining and construction of water works should be directed by a competent hydraulic engineer. We have such an engineer in our employ whose services are always at the disposal of our patrons.

THE TEST FOR PURE WATER

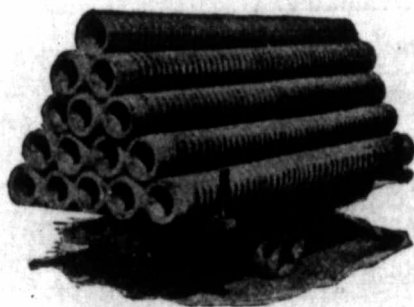
The following tests for pure water issued by the New Jersey State book of health, will be found useful.

COLOR: Fill a clean long bottle, made of colorless glass, with the water; look through the water at some black object; the water should appear perfectly colorless and free from suspended matter. A muddy or turbid appearance indicates the presence of soluble organic matter or solid matter in suspension.

ODOR: Empty out some of the water, leaving the bottle half full; cork up the bottle and place it for a few hours in a warm place; shake up the water, remove the cork and critically smell the air contained in the bottle. If it has any smell, and especially if the odor is in the least repulsive, the water should be rejected for domestic use. By heating the water to boiling, an odor is sometimes evolved that otherwise does not appear.

CURVES

Where it is necessary to make short curves, we manufacture short lengths so that the variation in each joint is so slight that it is scarcely discernible.



In laying Machine Banded Wood Pipe, no other tools are required but a tompon and maul. We manufacture these and furnish at very reasonable prices.

ADVANTAGES OF OUR PIPE

It is more durable than wrought iron or steel pipe.

It is cheaper than cast iron, wrought iron or steel pipe.

It has greater carrying capacity than iron or steel pipe of many years' service.

Its carrying capacity is never decreased by rust.

It conveys water sweeter, more wholesome and cooler.

It is cheaply laid.

It is easily and safely tapped.

It needs no caulking.

It can be fitted to any connection.

No frost bursts.

No electrolysis.

No contraction.

No corrosion.

Freight saved.

Greater longevity.

All pipe built in conformity to strict engineering rules and calculations.

The simplicity of the coupling renders great speed in laying possible, and obviates the necessity for skilled labor. The use of wood pipe has been thoroughly investigated, and not only found cheaper, but more suitable and durable than steel or iron.

THE DURABILITY OF WOOD PIPE

Although the manufacture and use of Wire Wound Wood Stave Pipe is of comparatively recent date in Canada, it has been in use in the United States of America for the past fifteen years, and we have before us such a mass of favorable comments in the shape of letters from the users of this pipe, that we have no hesitation in recommending its use.

The City of Seattle, Washington, has between 30 and 40 miles of wood pipe in use under heads varying from 20 to 300 feet, and we are informed that further extensions, amounting to about 8 miles of 6 to 20 inch pipe, are contemplated in the near future. Our correspondent in Seattle states that the cost of laying wood pipe is less than one half that of laying cast iron, and that the former is superior as regards repairs and facility of tapping.

Philipsburg, Montana, put in 10,000 feet of 8 and 10 inch and 2,800 feet of 6 inch wood pipe last year, and have just awarded a contract of 4,000 feet of 4 inch. The 12,800 feet now in use has a maximum head of 127 feet, but the 4,000 feet which will soon be laid will have a head of 400 feet.

About two years ago the City of Dayton, Washington, installed 2,500 feet of 10 inch wooden pipe. This city has decided upon improvements to its water system, which will require nearly 15,000 feet of 16 inch pipe. Wood pipe will be used throughout, as the city authorities will not even consider the purchase of iron pipe for extensions or improvements. The greater portion of their present system is composed of spiral steel pipe, laid thirteen years ago. It is now in bad condition, and will probably all have to be replaced within the next few years.

On the mountain division of the Canadian Pacific Railway 3,000 feet of 4 inch wooden pipe was laid in one day by a foreman and two men, and we are informed that the railway people are so pleased with it that they have discontinued the use of iron pipe altogether for their water supply.

The City of Tacoma, Washington, from April, 1900 to April, 1904, laid about 40 miles of wooden pipe, varying in size from 2 to 18 inches, which is giving every satisfaction, under pressure ranging from 90 to 130 lbs. per square inch. This city has practically abandoned the use of metal pipe since they have been able to procure first class wooden pipe.

The town of Kent, Washington, has installed over 6 miles of wood pipe in the last two years. Our correspondent there speaks very highly of wooden pipe, and draws our attention especially to its durability. He states that he has raised wooden pipe which has been in use for fourteen years and re-laid it, the pressure being changed from 45 lbs. to 82 lbs. per square inch. He also cites another case in which some wood piping has been in use on a farm near Kent for 28 years, and is still in excellent condition.

We also have a letter from W. Stokes, Cranbrook, dated November 11th, 1904.—“I have got the Cranbrook Water System all in, and it is all right. In the five and one half miles only four leaks showed up, all of which stopped in a short time when the wood had time to swell. I turned the water on and let it run out at the lower end for two days; then started and shut the valve and ran the pressure up to 100 lbs. and let it stand at that all day and found it all right. I might say that the Water Company are more than pleased with the pipe of the Canadian Pipe Company. I turned the first shovel of earth on the 15th of August, and had it all in on the 31st of October, and the water in the town that night.”

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HOW MADE

Our Pipe is built of absolutely clear, thoroughly kiln dried B.C. Douglas Fir, free from knots, splits, shakes, pitch seams, etc.; the staves are dressed into perfectly true segments and spirally machine wound under tension, with galvanized steel wire. The spacing and size of the wire is adapted to the pressure under which the pipe is to serve. The interior of the pipe being perfectly smooth frictional loss is almost eliminated, and pipe built by us discharges from 10 per cent. to 20 per cent. more water than metal pipe of equal dimensions.

IRRIGATION PIPE

We manufacture an exceptionally cheap irrigation pipe which possesses so many advantages over flumes that there should be no doubt or hesitancy about its use. It is built on the same principles as our pressure pipe. This pipe can be placed under ground, below plough dip, cuts off all waste of water by evaporation, and besides, saves right of way expense across ground owned by others.

It is adapted for all purposes of irrigation, as laterals can be run from main pipe and connected with taps, whereby water can be delivered to any point desired.

We can furnish our pipe for use as an Inverted Syphon where gulches are to be crossed, and save you the expense of building a ditch around the gulch or of building a flume, which is rendered useless in a short time.

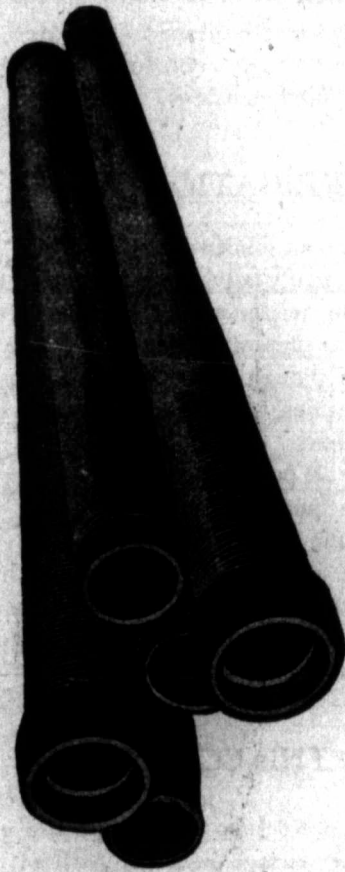
THE COATING

For the further protection of the pipe the entire length is dipped on the outer surface in a hot bath of tar and refined asphalt, properly mixed to give best results. The coating received from the dipping is very heavy, and much more will adhere to wood pipe than to metal pipe—thus the wood of the pipe as well as the banding is protected.

SLEEVE COUPLINGS

We Furnish our Pipe with any Style of Coupling Desired.
Wood Sleeve or Intersection Coupling.

Experience has proven—and we recommend the Wood Sleeve Coupling as the most perfect and cheapest coupling that



Showing our Machine Banded Wooden Stave
Pipe with Wood Stave Coupling.

can be used on wooden pipe. In using this style of coupling leaks in the joints are avoided.

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ELECTROLYSIS DOES NOT AFFECT WOOD PIPE OR SERVICE PIPES CONNECTED WITH IT

In recent years iron pipe has found that it has a dangerous foe stretching along the streets and alleys with it; and this is the electric wire which carries the heavy voltage of electricity, thus causing what is called electrolysis action. Under this condition iron pipe is charged so thoroughly that the destructive effects of the current may be seen wherever such pipe is exposed.

FROST

On account of wood being a non-conductor, the temperature of the water passing through wooden pipe is very uniform in winter and summer.

Freezing will not cause our make of pipe to burst like iron or other makes of wooden pipe. The wood expands and the steel wire embeds itself. This salient feature should commend it strongly in all Northern climates. Ice and frozen connections have been the cause of many disastrous fires.

SIZES

We manufacture the machine banded stave pipe in regular sizes of 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 22 and 24 inches diameter, and in lengths of 8, 10, 12, 14, 16, 18 and 20 feet. When the size exceeds 24 inches we build the pipe in the trench, using steel rods to bind the staves together.

The spacing of the rod is governed by the size of rod to be used, the size of pipe to be made and the pressure head that it is to serve under.

INSPECTION

All pipe made by us is carefully inspected at our factory before coating or testing in the press. While no shipments are made without such inspection, we are ready to afford at all times proper facilities to inspectors sent to our works by the purchasers of our pipe.

COST

Our prices range from 25 to 65 per cent. lower than the price of metal pipe.

In addition to first cost per foot of metal pipe, is the expense of caulking each joint, and there is one joint every ten to 12 feet, adding the cost of the lead to the cost of labor, makes the expense per length of 12 feet over 9 cents per foot for laying, and exclusive of earth.

There is no expense in laying our pipe except the driving together, which is nominal. The pipe is light to handle; four men (laborers) can lay in ditch 2,400 feet of 10 inch pipe in 10 hours.

In laying 10 inch cast iron pipe it would require 7 or 8 men at least to lay 300 feet in the same length of time.

The cost of taps for service connections is merely nominal, requiring simply the boring of a hole into the wood with a bit 1-32 of an inch smaller than the outside diameter of the pipe to be used, and in screwing the iron service pipe into the wood. The swelling of the wood with water in the pipe holds the tap like a vice; it will require a wrench to remove it.

Taps made in metal pipe require a saddle, an expense of from 75c. up, owing to size of pipe as well as the cost of the machine work and labor.

These items of expense must be considered in comparing prices of metal pipe with our wooden pipe.

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PRICES

We will be pleased to furnish prices on application. They vary according to size of pipe, the pressure required, size of bands used in banding and the style of coupling desired.

In writing for prices, kindly state approximate quantities and sizes for the different pressure heads, whether for a gravity or pumping system, and such other data as will enable us to quote you intelligently.

Inside diameter of pipe is always given, and price quoted per foot includes the coupling.

We furnish estimates and put in water works system complete if desired.

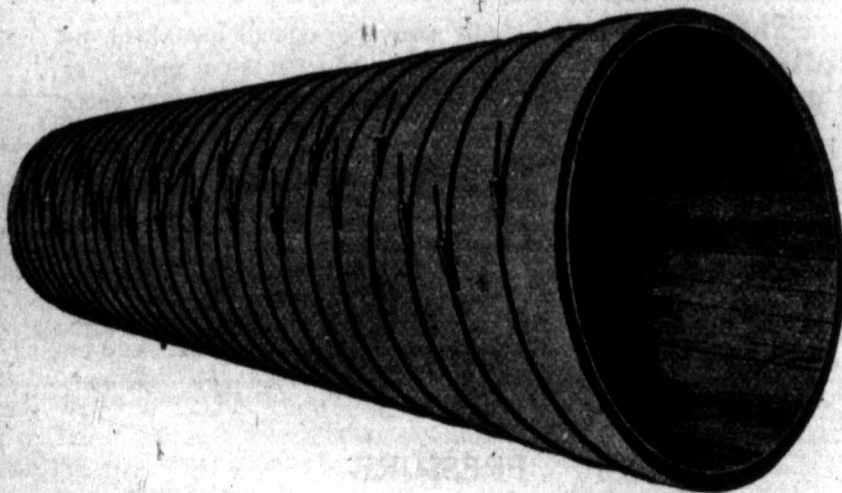
Full instructions in regard to laying pipe, making connections, cutting pipe, etc., are furnished upon request, or we can send an experienced man to superintend the laying of the pipe if desired.

PRESSURE

Owing to the class of material we use, our machine banded pipe can be manufactured to safely withstand a pressure of 285 lbs. to the square inch.

CONTINUOUS STAVE PIPE

We build continuous stave pipe of any dimension, and according to any specifications furnished, us. We contract for this work everywhere. We will be pleased to quote prices on this work upon application and receipt of specifications, with data necessary to intelligently understand the requirements.



40 inch Irrigation Pipe at
Brandon, Man.

For Power Plants
Water Companies
and Irrigation Systems

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AMOUNT IN CAR LOADS

Approximate number of feet of Wood Pressure Pipe contained
in a 36 foot car.

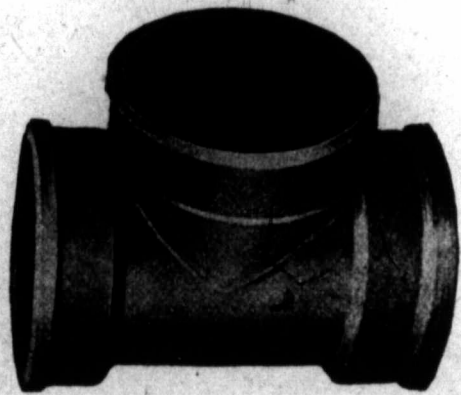
Diameter	lbs. Weight per ft.	Number of feet in car.
2 inches	2½ lbs.	18000 ft.
3 "	3⅞ "	10500 ft.
4 "	4¼ "	7000 ft.
5 "	7 "	5700 ft.
6 "	8 "	3800 ft.
8 "	10 "	2500 ft.
10 "	12½ "	1500 ft.
12 "	14½ "	1050 ft.
14 "	17 "	850 ft.
16 "	22 "	700 ft.
18 "	26 "	650 ft.
20 "	33 "	500 ft.
22 "	35 "	500 ft.
24 "	38 "	500 ft.

Flat Cars

When ordering, so as to take advantage of the minimum freight rates, it is well *where possible* to order so that the pipe can be nested thus :

2" in 5"	5" in 10"	10" in 14"
3" in 6"	6" in 10"	12" in 16"
4" in 8"	8" in 12"	14" in 18"

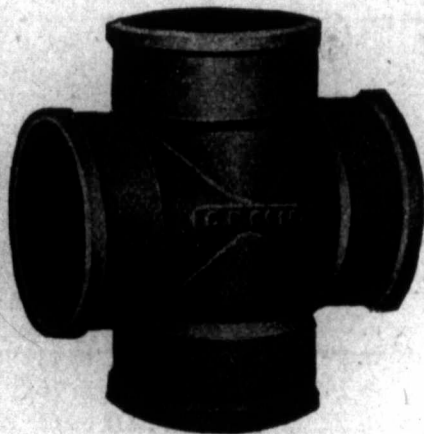
and so on.



TEES



ELLS



CROSSES

Manufactured by the Canadian Pipe Company, Ltd.
Vancouver, B. C.

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OUR CAST IRON FITTINGS AND CAST IRON SPECIALS FOR WOOD PIPE

Our machine-banded pipe can be fitted to standard cast iron fittings "bell or hub" ends, but we make them according to our own patterns and can furnish our fittings of lighter weight, with stencil strength greater than that of the pipe. All our fittings are made smoother and better finish in the "bell or hub" ends and at less cost. We manufacture everything in cast iron "specials" in connection with Wood Pipe.

We give herewith approximate weights of the smaller fittings. Weights of larger and different special fittings will be given on application.

Prices quoted on application.

CROSSES

Size	Approximate Weight in Pounds
2 x 2 x 2 x 2.....	33
3 x 3 x 3 x 3.....	54
4 x 4 x 3 x 3.....	72
4 x 4 x 4 x 4.....	88
6 x 6 x 4 x 4.....	121
6 x 6 x 6 x 4.....	124
6 x 6 x 6 x 6.....	133
8 x 8 x 4 x 4.....	143
8 x 4 x 8 x 4.....	164
8 x 8 x 6 x 4.....	147
8 x 8 x 6 x 6.....	166
8 x 8 x 8 x 8.....	197

ELLS

2 inch.....	14
3 inch.....	23
4 inch.....	44
6 inch.....	62
8 inch.....	82

TEES

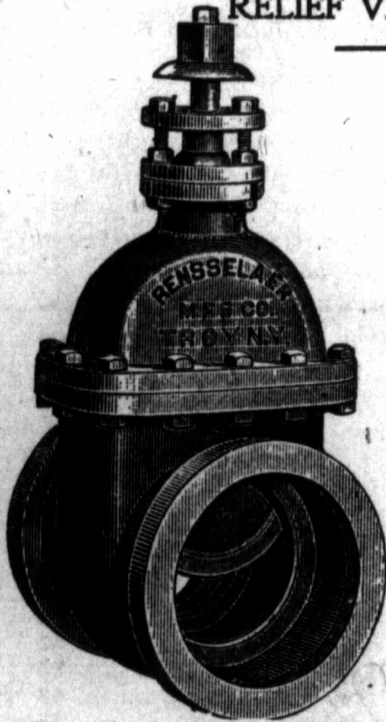
Size	Approximate Weight in Pounds
2 x 2 x 2.....	25
3 x 3 x 3.....	43
3 x 3 x 2.....	57
4 x 2 x 2.....	55
4 x 3 x 3.....	58
4 x 4 x 3.....	57
4 x 4 x 4.....	71
6 x 2 x 4.....	87
6 x 4 x 4.....	91
6 x 6 x 4.....	100
6 x 6 x 6.....	113
6 x 6 x 8.....	133
8 x 8 x 4.....	122
8 x 8 x 6.....	135
8 x 8 x 8.....	155

BENDS

4 inch, 45 deg.....	37
6 inch, 30 deg.....	48
6 inch, 45 deg.....	52
6 inch, 20 deg.....	46
8 inch, 20 deg.....	51
8 inch, 30 deg.....	62

HYDRANTS, GATE VALVES, AIR VALVES, RELIEF VALVES, ETC.

"COREY" STANDARD



Directions for Ordering Hydrants:

1st. Give size of valve opening or inside diameter of Standard Pipe.

2nd. Give length from surface of ground to bottom of connection Pipe.

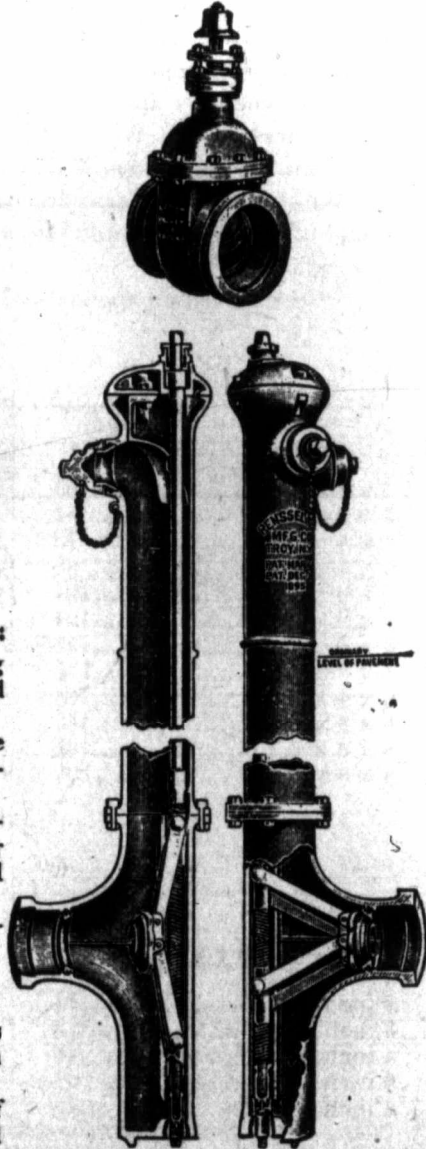
3rd. Give size of bottom connecting. Pipe Hydrants for Wood Pipe have Hub or Bell Ends.

These rules govern in ordering any make of Hydrants.

In Ordering Valves:

Always give number pounds pressure, or head under which Valves are to work.

We can furnish any make of Standard Hydrant desired, and can be shipped with orders for pipe.



PRICES QUOTED ON APPLICATION

FLOW OF WATER.

DIAMETER OF PIPE IN INCHES

5

4

3

Head in
ft. per

FLOW OF WATER.

Head in ft. per 1000 ft. for friction	DIAMETER OF PIPE IN INCHES											
	3				4				5			
	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches
0 5	0 58	0 028	1 40	0 67	0 058	2 90	0 75	0 102	5 10			
0 6	0 63	0 031	1 55	0 74	0 065	3 25	0 82	0 111	5 55			
0 7	0 68	0 033	1 65	0 79	0 069	3 45	0 89	0 121	6 05			
0 8	0 73	0 036	1 80	0 85	0 074	3 70	0 96	0 130	6 50			
0 9	0 77	0 038	1 90	0 90	0 078	3 90	1 01	0 137	6 85			
1 0	0 82	0 040	2 00	0 95	0 083	4 15	1 07	0 145	7 25			
1 5	1 09	0 053	2 65	1 16	0 101	5 05	1 30	0 177	8 85			
2 0	1 15	0 056	2 80	1 35	0 118	5 90	1 51	0 205	10 25			
3 0	1 41	0 069	3 45	1 65	0 144	7 20	1 85	0 251	12 25			
4 0	1 62	0 080	4 00	1 90	0 166	8 30	2 11	0 287	14 35			
5 0	1 82	0 090	4 50	2 12	0 185	9 25	2 38	0 324	16 20			
6 0	2 00	0 098	4 90	2 30	0 200	10 00	2 61	0 355	17 75			
7 0	2 15	0 105	5 25	2 51	0 219	10 95	2 82	0 382	19 10			
8 0	2 28	0 112	5 60	2 69	0 235	11 75	3 02	0 410	20 50			
9 0	2 44	0 120	6 00	2 85	0 249	12 45	3 20	0 435	21 75			
10 0	2 58	0 127	6 35	3 03	0 264	13 20	3 38	0 459	22 95			
12 0	2 83	0 139	6 95	3 29	0 277	13 85	3 70	0 503	25 15			
14 0	3 05	0 150	7 50	3 54	0 309	15 45	4 00	0 544	27 20			
16 0	3 25	0 160	8 00	3 80	0 332	16 60	4 27	0 580	29 00			
18 0	3 46	0 170	8 50	4 04	0 353	17 65	4 54	0 617	30 85			
20 0	3 65	0 179	8 95	4 25	0 371	18 25	4 77	0 619	32 45			

FLOW OF WATER.

Head in ft. per 1000 ft. for friction	DIAMETER OF PIPE IN INCHES								
	6			8			10		
	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches
0 5	0 162	8 10	0 98	0 342	17 10	1 10	0 600	30 00	
0 6	0 178	8 90	1 07	0 373	18 65	1 21	0 659	32 95	
0 7	0 192	9 60	1 15	0 401	20 05	1 29	0 693	34 65	
0 8	0 208	10 40	1 23	0 429	21 45	1 38	0 752	37 60	
0 9	0 220	11 10	1 30	0 454	22 70	1 48	0 806	40 30	
1 0	0 231	11 55	1 36	0 475	23 75	1 55	0 845	42 25	
1 5	0 284	14 20	1 68	0 586	29 30	1 90	1 035	51 75	
2 0	0 327	16 35	1 94	0 677	33 85	2 20	1 199	59 95	
3 0	0 388	19 40	2 39	0 834	41 70	2 69	1 466	73 30	
4 0	0 464	23 20	2 75	0 960	48 00	3 11	1 695	84 75	
5 0	0 519	25 95	3 08	1 075	53 75	3 47	1 891	94 55	
6 0	0 566	28 30	3 38	1 180	59 00	3 77	2 054	102 70	
7 0	0 613	30 65	3 65	1 274	63 70	4 11	2 240	112 00	
8 0	0 657	32 85	3 90	1 361	68 05	4 39	2 392	119 60	
9 0	0 696	34 80	4 14	1 445	72 25	4 67	2 545	127 25	
10 0	0 733	36 65	4 37	1 525	76 25	4 92	2 681	134 05	
12 0	0 804	40 20	4 76	1 661	83 05	5 38	2 932	146 60	
14 0	0 866	43 30	5 16	1 800	90 00	5 71	3 112	155 60	
16 0	0 927	46 35	5 50	1 920	96 00	6 21	3 384	169 20	
18 0	0 984	49 20	5 86	2 045	102 25	6 59	3 591	179 55	
20 0	1 037	51 85	6 17	2 153	107 65	6 96	3 793	189 65	

FLOW OF WATER.

Head in ft. per 1000 ft. for friction	DIAMETER OF PIPE IN INCHES					
	12			14		
	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches
0 5						
0 6						
0 7						
0 8						
0 9						
1 0						
1 5						
2 0						
3 0						
4 0						
5 0						
6 0						
7 0						
8 0						
9 0						
10 0						
12 0						
14 0						
16 0						
18 0						
20 0						

FLOW OF WATER.

DIAMETER OF PIPE IN INCHES											
12				14				16			
Head in ft. per 1000 ft. friction	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second
0 5	1 21	0 950	47 50	1 35	1 443	72 15	1 48	2 066	103 30		
0 6	1 32	1 036	51 80	1 48	1 582	79 10	1 62	2 261	113 05		
0 7	1 44	1 130	56 50	1 60	1 710	85 50	1 76	2 457	122 85		
0 8	1 54	1 209	60 45	1 71	1 829	91 45	1 87	2 608	130 40		
0 9	1 63	1 279	63 95	1 82	1 945	97 25	1 98	2 764	138 20		
1 0	1 72	1 350	67 50	1 92	2 052	102 60	2 09	2 917	145 85		
1 5	2 12	1 666	83 30	2 34	2 501	125 05	2 57	3 588	179 40		
2 0	2 44	1 915	95 75	2 72	2 907	145 35	2 97	4 046	202 30		
3 0	2 98	2 339	116 95	3 31	3 538	176 90	3 64	5 081	254 05		
4 0	3 44	2 700	135 00	3 82	4 083	204 15	4 19	5 849	292 45		
5 0	3 85	3 020	151 00	4 27	4 565	228 25	4 69	6 547	327 35		
6 0	4 22	3 303	165 15	4 68	5 003	250 15	5 14	7 175	358 75		
7 0	4 56	3 579	178 95	5 07	5 420	271 00	5 55	7 748	387 20		
8 0	4 86	3 815	190 75	5 41	5 783	289 15	5 94	8 294	414 70		
9 0	5 16	4 050	202 50	5 73	6 125	306 25	6 29	8 781	439 05		
10 0	5 45	4 278	213 90	6 05	6 467	323 35	6 64	9 269	463 45		
12 0	5 96	4 678	233 90	6 62	7 077	353 85	7 26	10 135	506 75		
14 0	6 44	5 055	252 75	7 16	7 654	382 70	7 86	10 972	548 60		
16 0	6 90	5 416	270 80	7 65	8 178	408 90	8 40	11 726	586 30		
18 0	7 29	5 722	286 10	8 11	8 669	433 45	8 89	12 410	620 50		
20 0	7 70	6 044	302 20	8 55	9 140	457 00	9 37	13 080	654 25		

FLOW OF WATER.

Head in ft. per 1000 ft. for friction	DIAMETER OF PIPE IN INCHES								
	18		20		22				
	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches
0 5	1 60	2 827	141 35	1 74	3 796	189 80	1 86	4 900	225 00
0 6	1 77	3 127	156 35	1 91	4 167	208 35	2 04	5 385	269 25
0 7	1 91	3 375	168 75	2 07	4 516	225 80	2 21	5 834	291 70
0 8	2 05	3 622	181 10	2 22	4 844	242 20	2 35	6 204	310 20
0 9	2 16	3 817	190 85	2 35	5 127	256 35	2 50	6 600	330 00
1 0	2 28	4 029	201 45	2 48	5 411	270 55	2 64	6 970	348 50
1 5	2 80	4 947	247 35	3 03	6 611	330 55	3 23	8 517	425 85
2 0	3 23	5 705	285 35	3 49	7 615	380 75	3 73	9 847	492 35
3 0	3 97	6 815	340 75	4 28	9 339	466 95	4 57	12 055	602 75
4 0	4 58	8 107	405 35	4 94	10 779	538 95	5 27	13 913	695 65
5 0	5 12	9 047	452 35	5 50	12 000	600 00	5 90	15 576	778 80
6 0	5 60	9 895	494 75	6 06	13 223	661 15	6 46	17 054	852 70
7 0	6 04	10 672	533 60	6 55	14 292	714 60	7 08	18 691	934 55
8 0	6 46	11 415	570 75	6 98	15 230	761 50	7 58	20 011	1000 55
9 0	6 86	12 122	606 10	7 41	16 168	808 40	7 92	20 909	1045 45
10 0	7 24	12 793	639 65	7 82	17 063	853 15	8 35	22 044	1102 20
12 0	7 92	13 994	699 70	8 56	18 678	933 90	9 14	24 130	1206 50
14 0	8 57	15 143	757 15	9 27	20 267	1013 35	9 86	26 030	1301 50
16 0	9 14	16 150	807 50	9 90	21 602	1080 10	10 56	27 878	1393 90
18 0	9 74	17 210	860 50	10 50	22 911	1145 55	11 20	29 568	1478 40
20 0	10 22	18 058	902 90	11 07	24 155	1207 75	11 78	31 099	1554 95

FLOW OF WATER.

Head in ft. per 1000 ft. for friction	DIAMETER OF PIPE IN INCHES					
	18		20		22	
	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches
0 5	1 60	2 827	141 35	1 74	3 796	189 80
0 6	1 77	3 127	156 35	1 91	4 167	208 35
0 7	1 91	3 375	168 75	2 07	4 516	225 80
0 8	2 05	3 622	181 10	2 22	4 844	242 20
0 9	2 16	3 817	190 85	2 35	5 127	256 35
1 0	2 28	4 029	201 45	2 48	5 411	270 55
1 5	2 80	4 947	247 35	3 03	6 611	330 55
2 0	3 23	5 705	285 35	3 49	7 615	380 75
3 0	3 97	6 815	340 75	4 28	9 339	466 95
4 0	4 58	8 107	405 35	4 94	10 779	538 95
5 0	5 12	9 047	452 35	5 50	12 000	600 00
6 0	5 60	9 895	494 75	6 06	13 223	661 15
7 0	6 04	10 672	533 60	6 55	14 292	714 60
8 0	6 46	11 415	570 75	6 98	15 230	761 50
9 0	6 86	12 122	606 10	7 41	16 168	808 40
10 0	7 24	12 793	639 65	7 82	17 063	853 15
12 0	7 92	13 994	699 70	8 56	18 678	933 90
14 0	8 57	15 143	757 15	9 27	20 267	1013 35
16 0	9 14	16 150	807 50	9 90	21 602	1080 10
18 0	9 74	17 210	860 50	10 50	22 911	1145 55
20 0	10 22	18 058	902 90	11 07	24 155	1207 75

FLOW OF WATER.

Head in ft. per 1000 ft. for friction	DIAMETER OF PIPE IN INCHES											
	24				26				28			
	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches
0 5	1 98	6 221	311 05	2 07	7 632	381 60	2 20	9 407	470 35			
0 6	2 17	6 818	340 90	2 28	8 406	420 30	2 41	10 305	515 25			
0 7	2 34	7 352	367 60	2 47	9 105	455 25	2 61	11 160	558 00			
0 8	2 50	7 855	392 75	2 65	9 790	489 50	2 79	11 930	596 50			
0 9	2 66	8 358	417 90	2 81	10 360	518 00	2 95	12 614	630 70			
1 0	2 81	8 829	441 45	2 95	10 876	543 80	3 11	13 398	669 90			
1 5	3 43	10 777	538 85	3 62	13 347	667 35	3 80	16 249	812 45			
2 0	3 97	12 474	623 70	4 18	15 411	770 55	4 40	18 814	940 70			
3 0	4 75	14 924	746 40	5 11	18 840	942 00	5 39	23 047	1152 35			
4 0	5 61	17 626	881 35	5 91	21 790	1089 50	6 22	26 597	1329 85			
5 0	6 28	19 732	986 60	6 60	24 334	1216 70	6 96	29 561	1478 05			
6 0	6 85	21 523	1076 15	7 23	26 457	1322 85	7 60	32 498	1624 90			
7 0	7 42	23 314	1165 70	7 82	28 632	1431 60	8 22	35 349	1767 45			
8 0	7 93	24 916	1245 80	8 35	30 786	1539 30	8 81	37 671	1833 35			
9 0	8 40	26 393	1319 65	8 85	32 630	1631 50	9 35	39 980	1999 90			
10 0	8 86	27 838	1391 90	9 33	34 400	1720 00	9 84	42 066	2103 30			
12 0	9 71	30 509	1525 45	10 22	37 681	1884 05	10 76	46 010	2300 50			
14 0	10 49	32 960	1648 00	11 05	40 741	2037 05	11 64	49 772	2488 60			
16 0	11 22	35 253	1762 65	11 81	43 543	2177 15	12 45	53 236	2661 80			
18 0	11 90	37 390	1869 50	12 53	46 198	2309 90	13 18	56 357	2817 85			
20 0	12 54	39 400	1970 00	13 22	48 742	2437 10	13 87	59 308	2965 40			

FLOW OF WATER.

Head in ft. per 1000 ft. for friction	DIAMETER OF PIPE IN INCHES								
	30			32			34		
	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches
0 5	2 31	11 340	567 00	2 40	13 404	670 20	2 51	15 825	791 25
0 6	2 53	12 420	621 00	2 63	14 688	734 40	2 75	17 339	866 95
0 7	2 73	13 401	670 05	2 85	15 817	790 85	2 96	18 663	933 15
0 8	2 92	14 334	716 70	3 05	17 034	851 70	3 17	19 987	999 35
0 9	3 09	15 169	758 45	3 22	17 984	899 20	3 38	21 311	1065 55
1 0	3 26	16 003	800 15	3 40	18 989	949 45	3 56	22 446	1122 30
1 5	3 99	19 587	979 35	4 10	23 234	1161 70	4 35	27 426	1371 30
2 0	4 63	22 828	1141 40	4 32	26 920	1346 00	5 03	31 714	1685 70
3 0	5 65	27 736	1386 80	5 38	32 840	1632 00	6 16	38 839	1941 95
4 0	6 52	31 907	1595 35	6 32	38 090	1904 50	7 10	44 765	2238 25
5 0	7 29	35 786	1889 30	7 65	42 725	2136 25	7 95	50 125	2506 25
6 0	7 97	39 125	1956 25	8 35	46 635	2331 75	8 68	54 727	2736 25
7 0	8 63	42 365	2118 25	9 02	50 376	2518 80	9 37	59 078	2953 90
8 0	9 23	45 310	2265 50	9 64	53 839	2691 95	10 03	63 239	3161 95
9 0	9 78	48 010	2400 50	10 24	57 190	2859 50	10 66	67 211	3360 55
10 0	10 32	50 661	2533 05	10 77	60 150	3007 50	11 23	70 805	3540 25
12 0	11 30	55 472	2773 60	11 81	65 959	3297 95	12 30	77 551	3877 55
14 0	12 20	59 890	2904 50	12 78	71 376	3568 80	13 30	83 856	4192 80
16 0	13 03	63 964	3198 20	13 62	76 068	3803 40	14 19	89 468	4473 40
18 0	13 78	67 646	3382 30	14 45	80 703	4035 15	15 08	95 079	4753 95
20 0	14 60	71 671	3583 55	15 24	85 115	4255 75	15 90	100 249	5012 45

FLOW OF WATER.

Head in ft. per 1000 ft. for friction	DIAMETER OF PIPE IN INCHES								
	30			32			34		
	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches
0 5	2 31	11 340	567 00	2 40	13 404	670 20	2 51	15 825	791 25
0 6	2 53	12 420	621 00	2 63	14 688	734 40	2 75	17 339	866 95
0 7	2 73	13 401	670 05	2 85	15 817	790 85	2 96	18 663	933 15
0 8	2 92	14 334	716 70	3 05	17 034	851 70	3 17	19 987	999 35
0 9	3 09	15 169	758 45	3 22	17 984	899 20	3 38	21 311	1065 55
1 0	3 26	16 003	800 15	3 40	18 989	949 45	3 56	22 446	1122 30
1 5	3 99	19 587	979 35	4 10	23 234	1161 70	4 35	27 426	1371 30
2 0	4 63	22 828	1141 40	4 32	26 920	1346 00	5 03	31 714	1685 70
3 0	5 65	27 736	1386 80	5 38	32 840	1632 00	6 16	38 839	1941 95
4 0	6 52	31 907	1595 35	6 32	38 090	1904 50	7 10	44 765	2238 25
5 0	7 29	35 786	1889 30	7 65	42 725	2136 25	7 95	50 125	2506 25
6 0	7 97	39 125	1956 25	8 35	46 635	2331 75	8 68	54 727	2736 25
7 0	8 63	42 365	2118 25	9 02	50 376	2518 80	9 37	59 078	2953 90
8 0	9 23	45 310	2265 50	9 64	53 839	2691 95	10 03	63 239	3161 95
9 0	9 78	48 010	2400 50	10 24	57 190	2859 50	10 66	67 211	3360 55
10 0	10 32	50 661	2533 05	10 77	60 150	3007 50	11 23	70 805	3540 25
12 0	11 30	55 472	2773 60	11 81	65 959	3297 95	12 30	77 551	3877 55
14 0	12 20	59 890	2904 50	12 78	71 376	3568 80	13 30	83 856	4192 80
16 0	13 03	63 964	3198 20	13 62	76 068	3803 40	14 19	89 468	4473 40
18 0	13 78	67 646	3382 30	14 45	80 703	4035 15	15 08	95 079	4753 95
20 0	14 60	71 671	3583 55	15 24	85 115	4255 75	15 90	100 249	5012 45

FLOW OF WATER.

Head in ft. per 1000 ft. for friction	DIAMETER OF PIPE IN INCHES								
	36			38			40		
	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches
0 5	2 62	18 518	925 90	2 72	21 420	1071 00	2 81	24 520	1226 00
0 6	2 85	20 144	1007 20	2 97	23 338	1169 40	3 08	26 876	1343 80
0 7	3 06	21 628	1081 40	3 22	25 357	1267 85	3 31	28 883	1444 15
0 8	3 32	23 465	1173 25	3 44	27 190	1359 50	3 55	30 977	1548 85
0 9	3 50	24 738	1236 90	3 65	28 743	1437 15	3 77	32 897	1644 85
1 0	3 69	26 081	1304 05	3 84	30 240	1512 00	3 97	34 642	1732 20
1 5	4 51	31 876	1593 80	4 71*	37 091	1854 55	4 86	42 408	2120 40
2 0	5 23	36 965	1848 25	5 43	42 761	2138 05	5 62	49 040	2450 20
3 0	6 40	45 235	2261 75	6 65	52 369	2618 45	6 88	60 035	3001 75
4 0	7 40	52 503	2625 15	7 69	60 558	3027 90	7 95	69 372	3468 60
5 0	8 27	58 452	2922 60	8 59	67 646	3382 30	8 88	77 487	3874 35
6 0	9 06	64 036	3201 80	9 42	74 182	3709 10	9 73	84 904	4245 20
7 0	9 80	69 266	3463 30	10 18	80 167	4008 35	10 50	91 623	4581 15
8 0	10 45	73 860	3693 00	10 88	85 680	4284 00	11 23	97 993	4899 65
9 0	11 10	78 455	3922 75	11 53	90 799	4530 95	11 92	104 014	5200 70
10 0	11 70	82 695	4134 75	12 15	95 681	4784 05	12 57	109 686	5484 40
12 0	12 82	90 612	4530 60	13 32	104 895	5244 75	13 66	119 197	5959 85
14 0	13 83	97 750	4887 50	14 38	113 242	5562 10	14 86	129 668	6483 40
16 0	14 81	104 677	5233 85	15 39	121 196	6059 80	15 90	138 743	6937 15
18 0	15 69	110 897	5644 85	16 31	128 441	6422 05	16 85	147 013	7350 65
20 0	16 56	117 046	5852 30	17 21	135 528	6776 40	17 77	155 061	7753 05

FLOW OF WATER.

Head in ft. per 1000 ft. for friction	DIAMETER OF PIPE IN INCHES											
	42				44				48			
	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches	Velocity in feet per second	Cubic Feet per second	Miner's Inches
0 5	2 91	27 997	1399 85	2 98	31 469	1673 45	3 16	39 708	1985 40			
0 6	3 18	30 594	1529 70	3 27	34 531	1725 55	3 46	43 478	2173 90			
0 7	3 46	33 288	1664 40	3 53	37 277	1863 75	3 74	46 996	2349 80			
0 8	3 67	35 309	1765 45	3 78	39 917	1995 85	4 00	50 264	2513 20			
0 9	3 90	37 522	1876 10	4 01	42 345	2117 25	4 23	53 154	2657 70			
1 0	4 12	39 638	1981 90	4 23	44 669	2233 45	4 47	56 170	2808 50			
1 5	5 04	48 490	2424 50	5 18	54 701	2735 05	5 47	68 736	3436 80			
2 0	5 82	55 994	2799 70	5 97	63 043	3152 15	6 31	79 291	3964 55			
3 0	7 14	68 694	3434 70	7 33	77 405	3870 25	7 75	97 386	4869 30			
4 0	8 24	79 277	3963 75	8 46	89 337	4466 75	8 94	112 340	5517 00			
5 0	9 20	88 513	4425 65	9 46	99 897	4994 85	9 99	125 534	6276 70			
6 0	10 07	96 883	4844 15	10 36	109 401	5470 05	10 94	137 472	6883 60			
7 0	10 90	104 868	5243 40	11 17	117 955	5897 75	11 82	148 530	7426 50			
8 0	11 65	112 085	5604 25	11 97	126 403	6320 15	12 64	158 834	7941 70			
9 0	12 35	118 819	5940 95	12 69	134 006	6700 30	13 40	168 384	8419 20			
10 0	13 02	125 265	6263 25	13 38	141 293	7064 65	14 12	177 432	8871 60			
12 0	14 27	137 291	6864 55	14 65	154 704	7735 20	15 45	194 145	9707 25			
14 0	15 40	148 163	7408 15	15 84	167 270	8363 50	16 70	209 852	10492 60			
16 0	16 46	158 361	7918 05	16 93	178 781	8939 05	17 87	224 554	11227 70			
18 0	17 47	168 079	8403 95	17 95	189 552	9477 60	18 95	238 125	11906 25			
20 0	18 43	177 315	8865 75	18 92	199 795	9989 75	19 97	250 943	12547 15			

Show



Showing our 14 inch Machine Banded Pressure Pipe being laid.

USEFUL INFORMATION

To find area of a circle multiply square of diameter by .7854.

To find diameter of a circle multiply circumference by .31831.

To find circumference of a circle multiply diameter by 3.1416.

To determine approximately the number of gallons in reservoir, multiply the length, width and depth in feet. This by 7.48.

To find pressure of water where head is given, multiply the head by .433.

To find the head when pressure is given, divide the pressure by .433.

Doubling the diameter of a pipe increases its capacity four times.

One cubic foot equals 7.48 gallons and weighs 62.4.

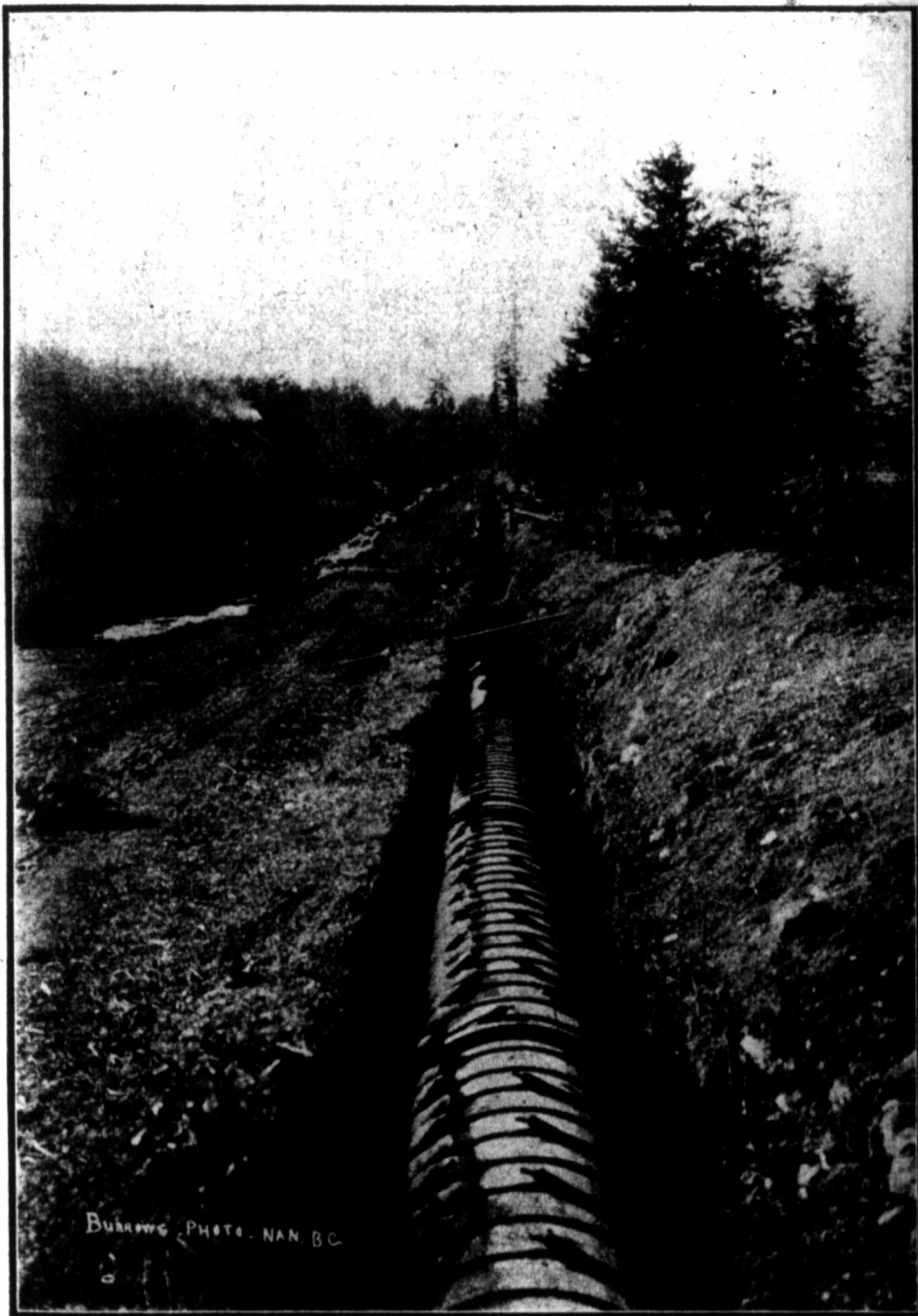
A miner's inch of water is equal to nine gallons per minute.

Theoretically water can be raised by suction 33 feet, but practically only 26 to 29 feet.

To find capacity in cubic feet: square diameter of bottom in feet, multiply by .7854 and by inside height of tank in feet.

Height of tank being known, to find diameter of tank needed for any capacity: divide quantity desired by .0034, divide remainder by height in inches and obtain square root. The value thus obtained is the diameter in inches, divide by 12 to obtain diameter in feet.

To find capacity of tank in gallons: square diameter in inches, multiply by height in inches, multiply by .0034, the product is the capacity in gallons.



Bukrows PHOTO - NAN B.C.

30" Built at Nanaimo by the Canadian Pipe Co., Ltd.

Loss of Head caused by Friction in Long Wooden Pipe.

Diameter of Pipe Inches	Volume of Water Cu. Ft. per min.	Velocity of Flow Feet per Second	Fractional Head per 1000 Feet
4	5	.9	1.13
	8	1.4	2.36
	10	1.9	4.11
	13	2.3	6.25
6	18	1.5	1.69
	23	1.6	2.75
	28	2.3	3.95
	30	2.5	4.66
	35	1.7	1.51
8	45	2.1	2.42
	55	2.6	3.55
	23	1.9	2.75
	65	3.1	4.86
	75	3.6	6.36
10	80	2.4	2.37
	90	2.8	2.96
	100	3.1	3.62
	110	3.3	4.34
	120	3.7	5.11

Amount of Water in gallons per minute that will discharge through a Wooden Pipe 1,000 feet or longer for given sizes under different heads:

Head in Feet	DIAMETER OF PIPE INCHES						
	3 in.	4 in.	6 in.	8 in.	10 in.	12 in.	16 in.
40	117	258	730	1511	2660	4,230	9,119
60	139	288	816	1689	2975	4,398	10,195
80	174	364	1032	2190	3876	6,196	12,896
100	195	407	1177	2448	4334	6,927	14,419
125	218	464	1315	2737	4845	7,645	16,124
150	239	508	1441	2998	5308	8,484	17,660
175	264	550	1556	3239	5733	9,164	19,076
200	282	587	1664	3462	6129	9,796	20,392
225	299	622	1765	3672	6501	10,391	21,630
250	315	656	1860	3870	6853	10,953	22,800
300	345	719	2038	4273	7506	11,998	24,976

A Miner's Inch

The definition of a miner's inch in different mining regions does not always agree. Usually, however, one square inch opening under a 6-inch head is taken as a standard measure. The amount of water that will discharge through this orifice in one minute will equal $1\frac{1}{4}$ cubic feet, or 11.22 gallons.

FLOW OF WATER

Diam. of Pipe in Inches	Area in Square Feet	Hydraulic Mean Depth in Feet	Coeff. of Formula for Velocity	Friction Head in Feet	
				Per 1000 ft.	Per Mile
3	0 049	0 063	1 00	0 5	2 64
4	0 087	0 084	1 01	0 6	3 17
5	0 136	0 104	1 02	0 7	3 70
6	0 196	0 125	1 03	0 8	4 22
8	0 349	0 167	1 04	0 9	4 75
10	0 545	0 208	1 05	1 0	5 28
12	0 785	0 250	1 06	1 5	7 92
14	1 069	0 292	1 09	2 0	10 56
16	1 396	0 333	1 12	3 0	15 84
18	1 767	0 375	1 15	4 0	21 12
20	2 182	0 417	1 18	5 0	26 40
22	2 640	0 458	1 20	6 0	31 68
24	3 142	0 500	1 22	7 0	36 96
26	3 687	0 542	1 235	8 0	42 24
28	4 276	0 583	1 255	9 0	47 52
30	4 909	0 625	1 27	10 0	52 80
32	5 585	0 667	1 285	12 0	63 36
34	6 305	0 708	1 30	14 0	73 92
36	7 068	0 750	1 315	16 0	84 48
38	7 875	0 792	1 33	18 0	95 04
40	8 726	0 833	1 34	20 0	105 60
42	9 621	0 875	1 355	22 0	116 16
44	10 560	0 917	1 36	24 0	126 72
48	12 566	1 000	1 375	26 0	137 28
54	15 904	1 125	1 39	28 0	147 84
60	19 635	1 250	1 41	30 0	158 40

always
is taken
gh this

Pressure of Water at Different Elevations.

Head in Feet	Pressure per Sq. In.	Head in Feet	Pressure per Sq. In.	Head in Feet	Pressure per Sq. In.
1	0.43	130	56.31	260	112.60
5	2.16	135	58.48	265	114.79
10	4.33	140	60.64	270	116.96
15	6.49	145	62.81	275	119.12
20	8.66	150	64.97	280	121.29
25	10.82	155	67.14	285	123.45
30	12.99	160	69.31	290	125.62
35	15.16	165	71.47	295	127.78
40	17.32	170	73.64	300	129.95
45	19.49	175	75.80	310	134.28
50	21.65	180	77.97	320	138.62
55	23.82	185	80.14	330	142.95
60	25.99	190	82.30	340	147.28
65	28.15	195	84.47	350	151.61
70	30.32	200	86.63	360	155.94
75	32.48	205	88.80	370	160.27
80	34.65	210	90.96	380	164.61
85	36.82	215	93.14	390	168.94
90	38.98	220	95.30	400	173.27
95	41.15	225	97.49	500	216.58
100	43.31	230	99.63	600	259.90
105	45.48	235	101.79		
110	47.64	240	103.96		
115	49.81	245	106.13		
120	51.98	250	108.29		
125	54.15	255	110.46		

Miner's Inch

The miner's inch given in the tables is the statutory miner's inch of Cal., and is as follows:

1 Miner's inch.....	0.02	cubic feet per second
1 Miner's inch.....	1.20	cubic feet per minute
1 Miner's inch.....	72.	cubic feet per hour
1 Miner's inch.....	1728.	cubic feet per day
1 Miner's inch.....	0.1496	gallons per second
1 Miner's inch.....	8.976	gallons per minute
1 Miner's inch.....	538.56	gallons per hour
1 Miner's inch.....	12925.44	gallons per day

A miner's inch will flood 10 acres 1.45 feet in depth in one year; or 14.49 acres one foot deep; or 18.11 acres 9 in. deep.