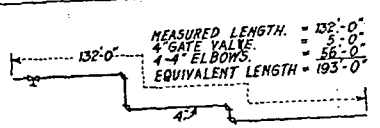
TABLE 3. CONSTANTS FOR VARIOUS LENGTHS AND INITIAL PRESSURES

STEAM PRESSURE GAGE LB.	CONSTANT BY WHICH TO MULTIPLY CAPACITY OF ANY PIPE FOR 1 LB. GAGE STEAM PRESSURE TO OBTAIN CAPACITY OF SAME PIPE FOR PRESSURE IN COL. 1	LENGTH OF PIPE FT.	CONSTANT BY WHICH TO MULTIPLY CAPACITY OF 100 FT. PIPE TO OBTAIN CAPACITY OF SAME SIZED PIPE WITH SAME PRESSURE, AND LENGTH AS GIVEN IN COL. A
Col. 1	Col. 2	Col. A	Col. B
0	0.92	20	2.240
1	1.00	40	1.580
2	1.03	60	1.290
5	1.11	80	1.120
10	1.24	100	1.000
15	1.35	120	0.912
20	1.45	140	0.841
30	1.63	160	0.793
40	1.79	180	0.741
50	1.94	200	0.710
60	2.08	250	0.632
75	2.26	300	0.578
100	2.54	350	0.538
125	2.79	400	0.500
150	3.02	450	0.477
175	3.23	500	0.447
200	3.44	600	0.407
...	....	700	0.378
...	....	800	0.354
...	....	900	0.333
...	....	1000	0.316
...	....	1400	0.267

TABLE 4. LENGTH IN FEET OF PIPE TO BE ADDED TO ACTUAL LENGTH OF RUN TO OBTAIN EQUIVALENT LENGTH

SIZE OF PIPE	ST'D. ELBOW	SIDE OUTLET TEE	GATE VALVE	GLOBE VALVE	ANGLE VALVE
	Length in Feet to be Added in Run				
2"	5	16	2	18	9
2½"	7	20	3	25	12
3"	10	26	3	33	16
3½"	12	31	4	39	19
4"	14	35	5	45	22
5"	18	44	7	57	28
6"	22	50	9	70	32
7"	26	55	10	82	37
8"	31	63	12	94	42
9"	35	69	13	105	47
10"	39	76	15	118	52
12"	47	90	18	140	63
14"	53	105	20	160	72

Example of length in feet of pipe to be added to actual length of run.



maximum allowable velocities as determined by the experiments of the Society's Research Laboratory. In designing a heating system no up-feed one-pipe riser should be figured to exceed the capacities indicated in this table.

Table 6 gives the maximum allowable capacity of up-feed *two*-pipe risers as determined by the experiments of the Society's Research Laboratory. In designing a heating system no up-feed two-pipe riser should be figured to exceed the capacities indicated in this table. This is based on the condensate of the riser returning against the flow of steam.

Table 7 gives the capacity of horizontal steam lines with various pitches. These values are for horizontal branches to the heating unit with the condensate of the steam line returning against the flow of steam. These values are safe for good pipe practice. It is not recommended that the pitch be less than ½ in. in 10 ft.

Table 8 gives the Society's Research Laboratory's finding on the decrease in the capacity of pipes not properly reamed.

Where the velocity of steam is the limiting factor in the capacity of a pipe, care must be taken that this velocity is not exceeded in any part of the pipe or fittings by a constriction, since the velocity at any one constriction will limit the whole system. For this reason, particular care must be taken to ream such pipe and guard against pipe thread compound constricting it at joints.

The pipe thread compound should be applied only to the male threads with a stiff brush.

Table 9 shows variation in capacity of a pipe as affected by variation of size and smoothness of pipe generally found on the market. The maximum and minimum results were obtained by picking out very smooth and very rough pipe from the stock room of a large manufacturer.

Tables 10, 11 and 12 have been compiled from tests run in the Society's Research Laboratory. They are figured on a 1 oz. pressure drop per 100 ft. equivalent length of run. There has been no attempt made to balance the system. This was not felt necessary due to the short runs of pipe and the small systems they would be used for. These tables are intended as a safe guide for the contractor or steam-fitter who often has these small jobs to install and who do not wish to have elaborate plans made.

Table 10 is a pipe sizing table for small one-pipe gravity low-pressure steam heating systems. This table was designed to meet the requirements of those laying out small systems where the equivalent length of run from the boiler or pressure reducing valve to the farthest heating unit is no greater than 200 ft. The capacities are based upon 1 oz. drop in pressure per 100 ft. equivalent length of run excepting where the maximum allowable velocity limits the capacity below this value. The capacities of supply mains as given in Column *B* are based upon a pressure drop of 1 oz. per 100 ft. equivalent length. The capacities of up-feed risers as given in Column *C* are based upon the maximum velocity. The capacities of branches to risers and heating units are based upon past experience and the Laboratory's findings.

Table 11 is for small two-pipe systems, and is similar to Table 10. It gives values for parts of a two-pipe system. It is based on a pressure drop