TABLE 26. PRESSURE LOSSES WITH LOW PRESSURE STEAM

Capacities of pipes for various pressure losses in ounces per 100 ft. straight pipe or its equivalent, allowing for condensation in covered piping, steam and condensation flowing in same direction, given in terms of square feet of direct radiation based on ¼ lb. condensation per sq. ft. per hr.

For capacities of pipes other than 100 ft. long, multiply the capacities given below by the factor for required length as given in Table 24, Column No. 4.

To determine the pressure loss in a pipe of given size, length and capacity: Multiply pressure loss in ounces per 100 ft. by length of pipe divided by 100.

Press. Loss in Oz. 100'	Commercial Pipe Size														
	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"	4½"	5"	6"	7"	8"	10"
0.25	12	23	51	79	158	262	480	717	1,014	1,379	1,887	3,078	4,559	6,408	11,631
0.50	16	32	71	111	224	370	678	1,013	1,433	1,949	2,667	4,352	6,446	9,060	16,445
1.00	23	46	101	157	316	524	959	1,431	2,027	2,757	3,773	6,156	9,117	12,814	23,261
1.50	28	56	124	192	387	641	1,174	1,754	2,481	3,374	4,618	7,535	11,159	15,685	28,471
2.00	32	64	142	222	447	741	1,356	2,026	2,866	3,898	5,334	8,704	12,891	18,119	32,891
2.50	36	73	160	248	500	829	1,517	2,266	3,205	4,358	5,964	9,732	14,414	20,259	36,775
3.00	39	79	175	272	548	908	1,662	2,482	3,511	4,774	6,534	10,662	15,790	22,194	40,610
3.50	43	86	189	293	591	980	1,794	2,680	3,790	5,155	7,055	11,511	17,048	24,286	44,115
4.00	46	91	202	314	632	1,048	1,919	2,866	4,054	5,513	7,543	12,312	18,231	25,631	46,520
4.50	48	97	214	333	671	1,111	2,035	3,039	4,299	5,847	8,002	13,047	19,320	27,157	49,315
5	51	102	226	351	707	1,172	2,145	3,204	4,532	6,164	8,435	13,747	20,456	28,607	51,931
6	56	112	247	384	774	1,283	2,349	3,509	4,964	6,751	9,349	15,346	22,547	31,946	58,311
7	60	121	267	415	836	1,386	2,537	3,790	5,361	7,281	9,961	16,248	24,060	33,817	61,397
8	64	129	286	443	894	1,482	2,713	4,052	5,732	7,796	10,667	17,407	25,781	36,221	65,782
9	68	137	303	470	949	1,572	2,878	4,299	6,012	8,167	11,223	18,337	27,217	38,248	69,357
10	72	145	319	496	1,000	1,657	3,033	4,532	6,410	8,716	11,928	19,464	28,827	40,518	73,550
11	76	152	335	520	1,049	1,738	3,181	4,721	6,707	9,101	12,211	20,317	30,039	42,351	77,012
12	79	159	350	543	1,095	1,815	3,334	4,963	7,020	9,548	13,068	21,324	31,581	44,388	81,200
13	82	165	364	565	1,140	1,889	3,461	5,161	7,308	9,929	13,589	22,168	32,838	46,480	84,710
14	85	172	378	587	1,183	1,960	3,588	5,360	7,580	10,310	14,110	23,012	34,096	48,572	88,221
15	88	178	391	607	1,226	2,029	3,713	5,546	7,843	10,668	14,598	23,819	35,284	49,976	90,990
16	91	184	404	627	1,265	2,096	3,838	5,732	8,108	11,026	15,086	24,624	36,472	51,381	93,760
17	94	189	416	647	1,304	2,159	3,954	5,904	8,353	11,410	15,544	25,350	37,560	52,847	95,685
18	97	195	428	665	1,342	2,222	4,070	6,077	8,598	11,794	16,003	26,087	38,641	54,314	98,630
19	99	200	440	683	1,378	2,283	4,180	6,242	8,830	12,061	16,437	26,840	39,776	55,764	106,247
20	102	205	452	701	1,414	2,344	4,290	6,407	9,063	12,328	16,870	27,594	40,912	57,214	113,862
24	112	225	495	768	1,548	2,566	4,697	7,018	9,928	13,501	18,697	30,691	45,094	63,992	116,621

TABLE 27. ONE-PIPE STEAM

Capacity in Sq. Ft. of Radiation

A Commercial Pipe Sizes	B Supply Main Branch to Risers (dripped). Steam and water flowing same direction.	C Supply Main Branch to Risers; Up-Feed Risers. Steam and water flowing opposite direction.	D Branches to Radiators: 5 ft. in length or less	D Branches to Radiators: 5 ft. to 10 ft. in length	E Wet Drip Main	F Dry Drip Main (Grade in Inches): Vertical or 1 inch in 5 ft.	F Dry Drip Main (Grade in Inches): 1 inch in 10 ft.	F Dry Drip Main (Grade in Inches): 1 inch in 20 ft.	F Dry Drip Main (Grade in Inches): 1 inch in 30 ft.	G Radiator Valve Sizes	H Allowance in feet of pipe for: Ells	H Allowance in feet of pipe for: Globe Valves
¾	.....	.....	.....	.....	.....	180	140	100	80	.....	0.8	1.2
1	40	40	24	.....	800	420	300	210	170	24	1.3	1.9
1¼	75	75	60	24	1,800	900	650	450	370	60	2.1	3.2
1½	150	100	100	60	3,000	1,500	1,000	700	600	100	2.8	4.2
2	300	170	200	100	6,000	3,000	2,100	1,500	1,200	200	5.	19.
2½	600	220	.....	.....	10,000	4,900	3,500	2,500	1,800	.....	7.	26.
3	900	340	.....	.....	18,000	9,000	6,400	4,500	3,700	.....	10.	33.
3½	1,500	460	.....	.....	26,000	.....	9,800	6,800	5,600	.....	12.	39.
4	2,000	600	.....	.....	37,000	.....	14,000	9,700	8,000	.....	14.	45.
4½	2,800	.....	.....	Drips for Risers						.....	15.	54.
5	3,600	For Down Feed Risers See Note	.....	Steam Risers	Drips to Returns: Wet	Drips to Returns: Dry	Steam Risers	Drips to Returns: Wet	Drips to Returns: Dry	.....	18.	58.
6	6,000		.....							.....	22.	70.
7	9,000	.....	.....	1	¾	¾	2½	1	1¼	.....	26.	82.
8	13,000	.....	.....	1¼	¾	¾	3	1	1¼	.....	31.	94.
10	23,000	.....	.....	1½	¾	1	3½	1¼	1½	.....	39.	117.
12	37,000	.....	.....	2	1	1	4	1¼	1½	.....	47.	140.

NOTES

Length Factors—For supply mains where steam and water are flowing in the same direction and for wet returns where lengths are other than 100 ft. multiply the factor here given by the sq. ft. of radiation to determine the carrying capacity of the pipe.

Length in Feet	200	300	400	500	1,000
Factors	0.710	0.576	0.500	0.447	0.316

To obtain size of supply mains (not dripped) and down feed risers where steam and water are flowing in the same direction, add amount of radiation the pipe is to supply steam to, and ¼ the radiation the pipe is carrying water from, and size as for steam mains (Column *B*). Where main is dripped at each point of reduction or oftener use Column *B*.

The end of steam mains, if reduced, to be one size larger than table calls for. On circuit mains where reduced and not dripped use eccentric coupling for making reduction.

In installations in buildings 3 stories or more in height each up-feed riser should be separately dripped into wet drip main. In tall buildings where risers are 100 ft. in length, or over, horizontal run-outs, to permit expansion or, where necessary, due to the design of building, should have separate drips carried down to basement into drip return line.