riser as given in Column *K* and not Column *G*, determines the size of some sections of the riser.

PART OF SYSTEM	SECTION OF PIPE	RADIATION SUPPLIED, SQ. FT.	PIPE SIZE, INCHES
Riser *D*	*f* to *g*	200	2
" "	*e* to *f*	300	2
" "	*d* to *e*	400	2½
" "	*c* to *d*	500	2½
" "	*b* to *c*	600	2½
" "	*a* to *b*	700	3
Branch	to Riser *D*	700	3

Size riser *C* in manner similar to that used for riser *D*.

The equivalent length of run from the source of steam supply *A* to the farthest radiator supplied by main *BF* (or the radiator on floors *g* riser *F*) is between 400 and 500 ft.—therefore size the entire run from *B* to top of riser *F*, according to Column *F*, Table 16, observing *Note 4* as regards maximum capacity of up-feed supply risers given in Column *K*.

PART OF SYSTEM	SECTION OF PIPE	RADIATION SUPPLIED, SQ. FT.	PIPE SIZE, INCHES
Riser *F*	*f* to *g*	400	2½
" "	*e* to *f*	600	2½
" "	*d* to *e*	800	3
" "	*e* to *d*	1000	3
" "	*b* to *c*	1200	3½
" "	*a* to *b*	1400	3½
Branch	to Riser *F*	1400	4
Main	*B* to *F*	1600	3½

The equivalent length of run from the farthest radiator served by any return main (or that on floor *g* return riser *G*) to the vacuum pump is between 600 and 800 ft.—therefore size entire run according to Column *U*.

PART OF SYSTEM	SECTION OF PIPE	RADIATION SERVED, SQ. FT.	PIPE SIZE, INCHES
Return Riser *G*	*g* to *f*	400	¾
" " "	*f* to *e*	600	¾
" " "	*e* to *d*	800	1
" " "	*d* to *c*	1000	1
" " "	*c* to *b*	1200	1
" " "	*b* to *a*	1400	1¼
Branch	to Return Riser *G*	1400	1½
Return Main	*G* to *H*	1600	1½
" "	*H* to *I*	2400	2
" "	*I* to *J*	3200	2
" "	*J* to *L*	4800	2½

The equivalent length of run from the farthest radiator served by return riser *H* to the vacuum pump *L* is between 500 and 600 ft.—therefore size return riser *H* according to Column *T*.

PART OF SYSTEM	SECTION OF PIPE	RADIATION SERVED, SQ. FT.	PIPE SIZE, INCHES
Return Riser *H*	*g* to *f*	200	¾
" " "	*f* to *e*	300	¾
" " "	*e* to *d*	400	¾
" " "	*d* to *c*	500	¾
" " "	*c* to *b*	600	¾
" " "	*b* to *a*	700	¾
Branch	to Return Riser *H*	700	1

The equivalent length of run from the farthest radiator served by riser *I* to the vacuum pump is between 300 and 400 ft.—therefore size that riser according to Column *R*.

Size the return riser *I* in a manner similar to that used for riser *H*.

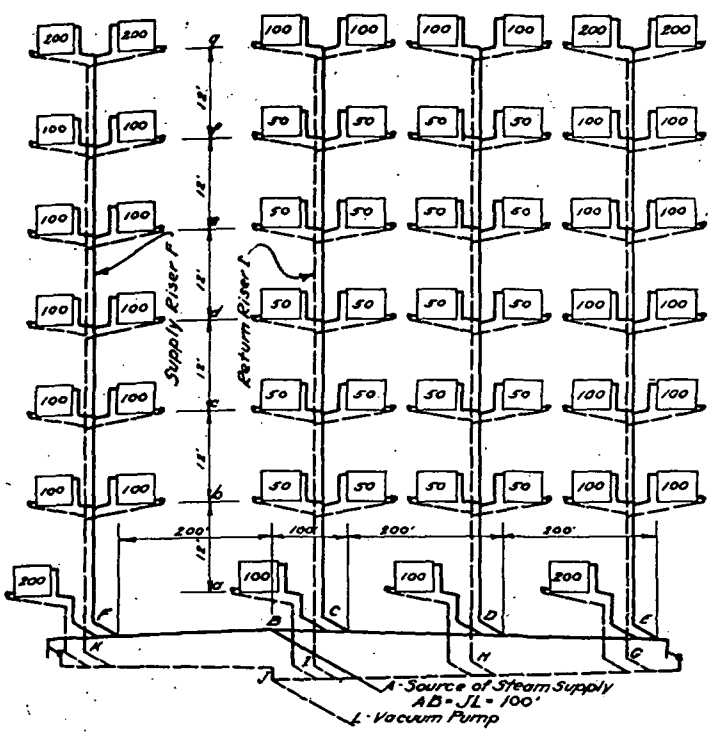


FIG. 8 LAYOUT OF VACUUM PUMP SYSTEM

The equivalent length of run from the farthest radiator served by return main *JK* to the vacuum pump is between 400 and 500 ft.—therefore size entire run from top of return riser *K* to *J* according to Column *S*.

PART OF SYSTEM	SECTION OF PIPE	RADIATION SERVED, SQ. FT.	PIPE SIZE, INCHES
Return Riser *K*	*g* to *f*	400	¾
" " "	*f* to *e*	600	¾
" " "	*e* to *d*	800	1
" " "	*d* to *c*	1000	1
" " "	*c* to *b*	1200	1
" " "	*b* to *a*	1400	1
Branch	to Return Riser *K*	1400	1¼
Return Main	*K* to *J*	1600	1½

RESULTS OF LABORATORY EXPERIMENTS

The Research Laboratory of the AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS has investigated this subject[1], and has found the limiting velocity for one and two-pipe risers (that is where all the

[1]Reports by Houghten, Ebin & O'Connell, TRANSACTIONS, AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS, Vols. 28–33, inclusive.