

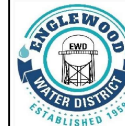
LENGTH OF RESTRAINED PIPE (FT)

| NOMINAL PIPE DIAMETER (IN) | BENDS / ELBOWS | | | | | | | | | | TEE BRANCH | REDUCERS | IN-LINE VALVES AND DEAD ENDS |
|----------------------------|----------------|--------------------|------------------|-------|----------------------|--------------------|-------|-----------------------|---------------------|-------|------------|----------|------------------------------|
| | 90 BEND | 45 BEND HORIZONTAL | 45 BEND VERTICAL | | 22.5 BEND HORIZONTAL | 22.5 BEND VERTICAL | | 11.25 BEND HORIZONTAL | 11.25 BEND VERTICAL | | | | |
| | | | UPPER | LOWER | | UPPER | LOWER | | UPPER | LOWER | | | |
| 4 | 17 | 7 | 21 | 7 | 3 | 10 | 3 | 2 | 5 | 2 | 31 | 16 | 51 |
| 6 | 24 | 10 | 30 | 10 | 5 | 14 | 5 | 2 | 7 | 2 | 51 | 48 | 72 |
| 8 | 31 | 13 | 39 | 13 | 6 | 19 | 6 | 3 | 9 | 3 | 74 | 68 | 94 |
| 10 | 36 | 15 | 47 | 15 | 7 | 23 | 7 | 4 | 11 | 4 | 92 | 92 | 113 |
| 12 | 43 | 18 | 55 | 18 | 8 | 27 | 8 | 4 | 13 | 4 | 112 | 97 | 134 |
| 14 | 48 | 20 | 63 | 20 | 10 | 30 | 10 | 5 | 15 | 5 | 131 | 121 | 152 |
| 16 | 54 | 22 | 71 | 22 | 11 | 34 | 11 | 5 | 17 | 5 | 150 | 145 | 172 |
| 18 | 59 | 25 | 79 | 25 | 12 | 38 | 12 | 6 | 19 | 6 | 167 | 149 | 190 |
| 20 | 64 | 27 | 86 | 27 | 13 | 41 | 13 | 6 | 20 | 6 | 186 | 168 | 208 |
| 24 | 74 | 31 | 100 | 31 | 15 | 48 | 15 | 7 | 24 | 7 | 220 | 179 | 243 |

- NOTES:
1. ALL PIPE SHALL BE RESTRAINED, REGARDLESS OF PIPE MATERIAL, IN ACCORDANCE WITH THE INFORMATION ABOVE OR AS PER DESIGN CRITERIA, WHICHEVER IS GREATER.
 2. WHERE TWO OR MORE FITTINGS ARE TOGETHER, JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH THE FITTING WHICH YIELDS THE GREATEST LENGTH OF RESTRAINED PIPE.
 3. THE LENGTH OF RESTRAINED PIPE, PERTAINING TO IN-LINE VALVES, SHALL BE APPLIED TO BOTH SIDES.
 4. THE LENGTH OF RESTRAINED PIPE, PERTAINING TO REDUCERS, SHALL BE APPLIED TO THE LARGER DIAMETER PIPING ONLY.

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|---------------|-----------|
| LAST REVISION | FEB. 2024 |
| CHECKED | MM |
| APPROVED | KRL |

RESTRAINED JOINTS



ENGLEWOOD WATER DISTRICT
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