

# ENGINEERING STANDARDS

OAK RIDGE TENNESSEE

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## COPPER TUBING - SUPPORT SPACING

### MAXIMUM SPAN IN FEET

CONDITION	NOMINAL TUBING SIZE, INCHES							
	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
BARE	7	8	9	10	11	13	14	15

**NOTES:**

TABULATED SPANS ARE BASED ON THE FOLLOWING:

SEAMLESS HARD-DRAWN COPPER TUBING, TYPES K AND L, ASTM B-88.

UNIFORM LOAD CONSISTING OF WEIGHT OF TUBING FULL OF WATER WHEN BARE.

EXCESSIVE VIBRATION AND CONCENTRATED LOADS SUCH AS VALVES AND BRANCH LINES ARE NOT TAKEN INTO ACCOUNT, SHORTER SPANS MUST BE USED FOR THESE CONDITIONS.

THE FOLLOWING FORMULAS WERE USED TO COMPUTE THE SPAN:

(MAXIMUM SPAN LIMITED BY STRESS)

$$L = \sqrt{\frac{SZ}{4W}}$$

(MAXIMUM SPAN LIMITED BY DEFLECTION NOT IN EXCESS OF 15% OF TUBE ID)

$$L = .417 \sqrt[4]{\frac{E(I D)}{W}}$$

WHERE:

L - SPAN IN FEET

W - UNIFORM LOAD, LBS. PER FOOT

Z - SECTION MODULUS =  $\frac{1}{.5(OD)}$  INCHES<sup>3</sup>

S - STRESS - 9,000 PSI. FROM TABLE 502.3.1 OF ANSI B31.5, REFRIGERATION PIPING

I - MOMENT OF INERTIA, INCHES<sup>4</sup>

ID - INSIDE DIAMETER OF TUBE, INCHES

E - MODULUS OF ELASTICITY, 15,600,000 PSI

APPROVED BY

Charles Garren

AUTHOR