

## CODE AND INDUSTRY REFERENCES TO BENDING COPPER TUBE

### SUMMARY

Very little reference to bending copper tube is made in USA standards and codes. The 2009 Uniform Plumbing Code does state that "Both annealed and bending-temper tube can be bent with hand benders". Note the reference is made to annealed and **bending-temper**. Subsequent codes have eliminated this section on "Bending". Appendix X1 of ASTM B 75 Standard Specification for Seamless Copper Tube, indicates H55 temper as "capable of being bent". H58 temper is "recommended for general applications where there is no specific need for high strength or bending qualities". This indicates that Drawn General Purpose (H58 temper) copper is NOT bending temper.

### IAPMO/ANSI UPC-1 2009 UNIFORM PLUMBING CODE

The following paragraph is taken from the 2009 Uniform Plumbing Code. Code references after 2009 do not mention bending of copper tube.

#### *3. Bending*

*3.3.1 "Copper tube, properly bent, will not collapse on the outside of the bend and will not buckle on the inside of the bend. Tests demonstrate that the bursting strength of a bent copper tube can be greater than it was before bending. Because copper is readily formed, expansion loops and other bends necessary in an assembly are quickly and simply made if the proper method and equipment are used. Simple hand tools employing mandrels, dies, forms, and fillers, or power-operated bending machines are used. Both annealed tube and bending-temper tube can be bent with hand benders. The proper size bender for each size tube must be used."*

The above paragraph is very clear that bending is only appropriate for annealed tube and bending- temper tube.

## ASTM B 75 STANDARD SPECIFICATION FOR SEAMLESS COPPER TUBE

Appendix X1 of ASTM B 75 states the following.

### *X1. RECOMMENDED APPLICATIONS*

*X1.1 Tube in the H55 temper is recommended when a tube of some stiffness is required yet capable of being bent when necessary.*

*X1.2 Tube in the H58 temper is recommended for general application where there is no specific need for high strength or bending qualities.*

The wording in ASTM B 75 is quite clear that Drawn General Purpose (H58) tubing does not exhibit "bending qualities".

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