

APPLICATION BULLETIN

Copper/Brass/Bronze

# **COPPER FIRE SPRINKLER SYSTEM**

**Stone Creek Apartments  
Tyler, Texas**



COPPER DEVELOPMENT ASSOCIATION INC.

# THE SPRINKLER CONTRACTOR

LaDew Fire Protection was founded in 1931 and, over the years, has grown from a modest concern to one of the largest fire protection firms in the Southwest United States. Presently, the company employs

approximately 200 people and operates 8 field offices in Texas, Louisiana, and Oklahoma.

Ladew is a conservative company, with a practical no-nonsense attitude toward it's work. According to Carl Smith, the company's President, "The choice of piping materials depends on the nature of the job. For many residential applications, copper can offer competitive installation cost, high quality and easy installation."

## THE INSTALLATION

Stone Creek is located near the the prestigious Hollytree Country Club, in Tyler, Texas, and offers a high quality adult living environment. Like many communities around the country, Tyler is encouraging the use of residential fire sprinkler systems to improve fire safety in its multifamily dwellings. Currently, NFPA-13 type systems are required in all multifamily housing more than two stories high.

Over 190 of the units at Stone Creek required sprinklering, and the developer contracted with Ladew Fire Protection to install a cost-effective system.

The installed system is state-of-the-art in every respect and insures maximum fire safety for the building and its occupants.



Figure 1: Ceiling pendent in kitchen.

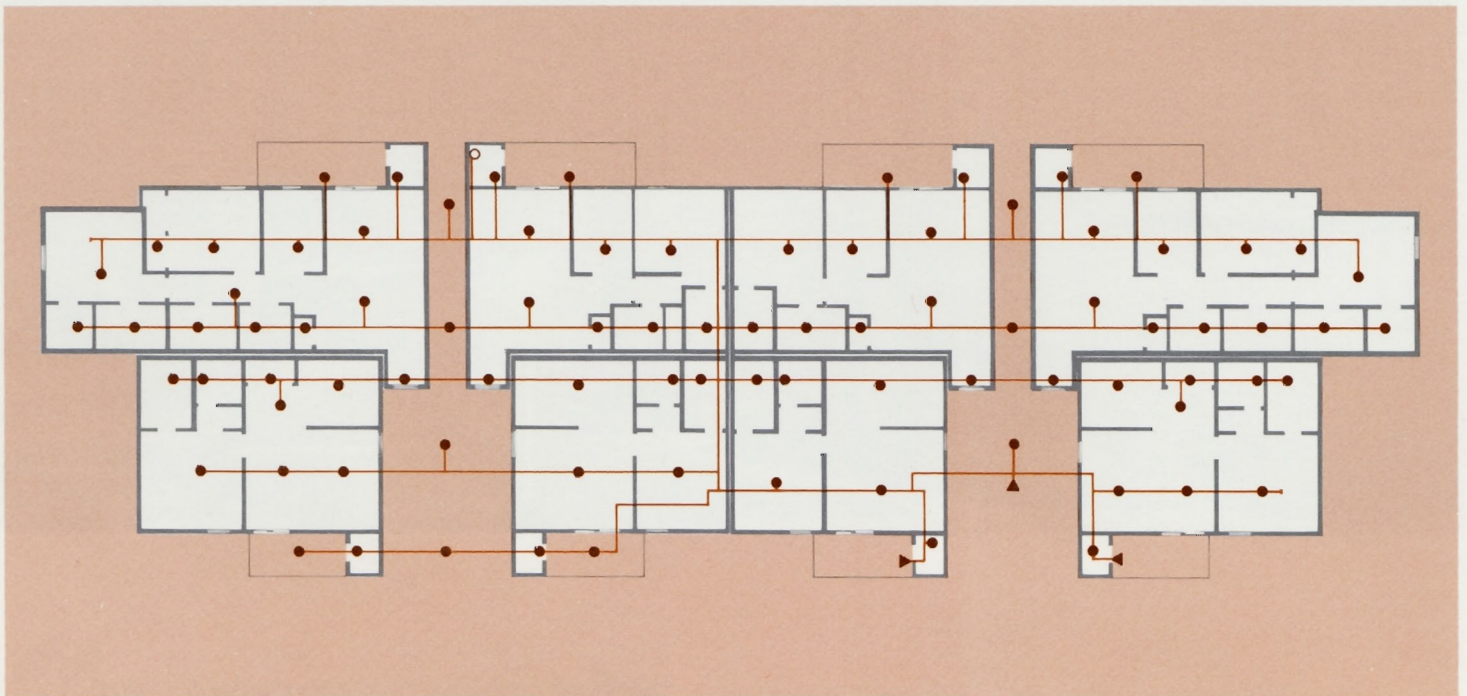


Figure 2: Sprinkler plan for typical floor in Stone Creek Apartments.

# TECHNICAL DISCUSSION

In the last few years, LaDew has completed over one dozen major residential sprinkler projects using copper.

According to Dan Mallow, one of their senior design engineers, "Copper works better than steel for most of these. Residential wood construction is often a lot more cut-up than commercial jobs, and there are a lot more variations from the plans. These two factors make accurate prefabrication of steel systems very difficult. If we field fabricate steel, it becomes quite expensive, since field labor rates run about double those in the shop. Copper systems are a lot easier to field fabricate, especially with the T-Drill system, which lets us pull 'T' connections in place, right where we need them. Also, in tight spaces, the tube can be flexed a little, and this helps avoid cutting and rebuilding the piece."

According to LaDew the installed copper system was cost effective. They further state that using the T-Drill tool saved between 10% and 25% over a copper system built without the tool.

LaDew has also discovered other advantages to copper, according to Corky Westman, their Assistant Construction Supervisor, "When we ran our first pressure tests, we were surprised to find a 50% reduction in leaks, and that saves a lot of troubleshooting time. Also, the installation got started faster, and was more convenient than with steel pipe (which LaDew currently installs using a combination of screwed and Victaulic fittings). Copper with T-Drill proved faster to install than polybutylene with heat fusion joining."

"At first, we had some concern over using copper," according to Westman, "but major problems never materialized. Four hours of training was all it took to get our people used to copper. They like working with the material, because it is a lot lighter and flexible, unlike steel."

"With experience we learned how to make the most of copper's advantages." According to Mallow, "With shop fabricated steel systems, we itemize and stock every single piece before the job starts, but the copper jobs are largely built in the field. At first, some time was lost in trips back to the supply house. Now, we have a 40-foot parts van that we move from site to site, stocked with everything we need. It saves a lot of time.

For the Stone Creek Apartments project, copper was an excellent choice."

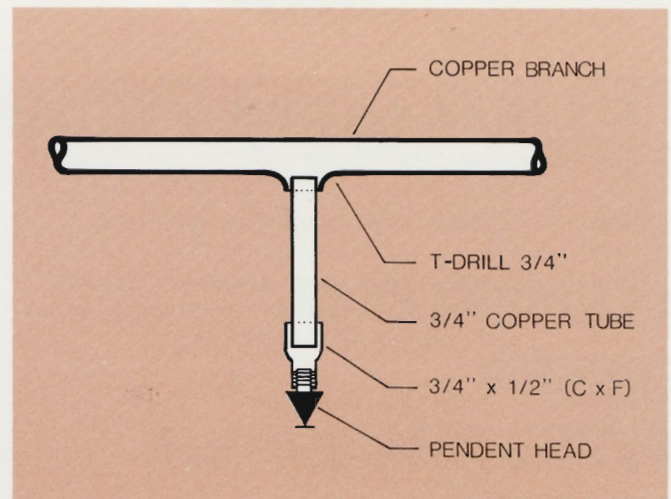


Figure 3: Detail of sprinkler drop using T-Drill.

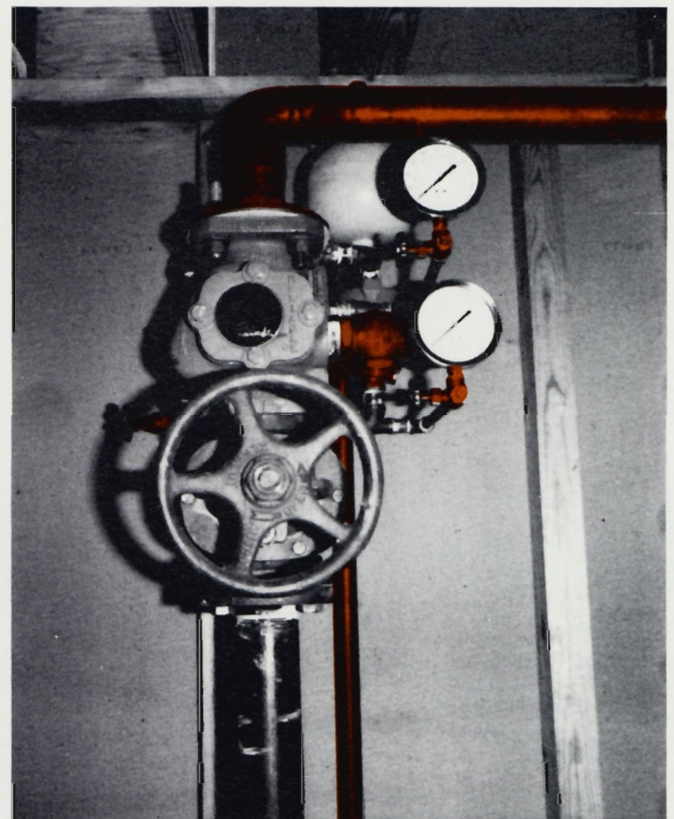


Figure 4: Main shut-off and alarm on riser.



Figure 5: Typical attic upright head.

# SUMMARY DATA

**Project** Stone Creek Apartments, Tyler, Texas

**Description** 248 unit multifamily apartment complex. One and two bedroom units ranging in size from 510 to 890 square feet.

**Sprinkler Contractor** LaDew Fire Protection (Home Office)  
4120 Scottsdale Drive  
Dallas, Texas 75227  
(214) 388-2171

**Sprinkler System** All copper type NFPA-13 system in 192 units, including 3,520 sprinkler heads, and 21,862 feet of copper tube.

**Basis for Copper Selection** Competitive cost, easier site fabrication and superior performance.

**Owner** Scott/Baggett Development  
Longview, Texas

**Architect** Scott Partnership  
Longview, Texas

**General Contractor** S.B.D. Construction Company  
Longview, Texas

## Statistical Information

no. of units =	192
total sprinkler heads =	3520
heads per unit sprinkled =	18.3 (av.)
tube per unit =	113.9 ft. (av.)
tube use by size =	
3/4 in. ....	4,069 ft. (19%)
1 in. ....	12,453 ft. (57%)
1 1/4 in. ....	2,436 ft. (11%)
1 1/2 in. ....	265 ft. (1%)
2 in. ....	2,640 ft. (12%)
<b>Total</b> .....	<b>21,862 ft. (100%)</b>
estimated copper fitting use =	
ells .....	856
adapter C x F .....	3536
<b>Total</b> .....	<b>4392</b>



Figure 6: Typical ceiling pendent.



Figure 7: Stone Creek Apartments.

**NOTICE:** This Application Bulletin has been prepared for the use of fire protection contractors and others involved in the design and installation of fire sprinkler systems. It has been compiled from information supplied by the referenced fire sprinkler contractor and by consulting organizations that Copper Development Association Inc. believes to be competent sources for such data. However, CDA assumes no responsibility or liability of any kind in connection with the Bulletin or its use by any person or organization and makes no representations or warranties of any kind thereby.

