

# AquaSAFE™ quick reference guide for residential fire safety systems

This guide is meant for reference only and does not intend to cover all applications or specific construction features. Always follow the requirements of NFPA 13D, sprinkler listings and local codes and ordinances. If in doubt about any requirements, contact the Authority Having Jurisdiction (AHJ).

## Jobsite review

Always review the design prints and walk the job to verify before starting the installation.

## Sprinkler locations

Mark sprinkler mounting locations—indicate sprinkler node (e.g., H13) from the design print.

## Sprinkler mounting details

Correct placement of ProPEX® fire sprinkler adapters depend on the type of sprinkler heads and the thickness of the ceiling material being used. Refer to the design prints for proper mounting dimensions. Always field verify with escutcheons or cover plates to ensure proper fit (measure and/or test with ceiling material).

## Tubing supports

Only use Uponor tube talons (F7050750 or F7051000) or other supports intended for plastic tubing. Refer to **Table 1** for tubing supports.

| Tubing support table  |                            |  |
|---|----------------------------|--|
| Horizontal runs, unsupported  | Horizontal runs, supported | Vertical runs  |
| Every 32"   | Every 72"                  | Every 4' to 5'; at each floor with a mid-story guide |
| When installed in exposed (unfinished) areas, metal hangers designed for use with non-metallic tubing are required every 24". |                            |  |

**Table 1: Tubing support table**

## AquaSAFE™ systems

Use ProPEX engineered polymer (EP) or lead-free (LF) brass tees or EP multiport tees between sprinkler adapters to connect cold-water plumbing fixtures.

## Pendent sprinklers

Typically mount 1" from the face of the ceiling. Refer to the sprinkler manufacturer's guideline installation bulletin(s) for specific sprinkler listings and mounting requirements.

## Sidewall sprinklers

Typically mount 4" to 6" from the ceiling; may be located up to 12" from the ceiling to avoid obstructions. Design prints and hydraulic calculations must reflect mounting positions 6" to 12".

## Sprinkler deflectors

Always mount parallel to the plane of the ceiling.

## Sloped ceilings

Refer to the sprinkler manufacturer's guideline installation bulletin(s) for specific flow, pressure, coverage and listing information when installing sprinklers in sloped ceiling applications. At least one sprinkler must be installed within 3' vertically from the ridgeline.

## Heat sources

Maintain 12" spacing between Uponor AquaPEX® tubing and heating ducts or recessed lighting fixtures. Refer to **Table 4** on the back of this page for minimum sprinkler spacing from heating ducts, diffusers and other heat sources.

## Attic spaces (insulation)

Ensure adequate insulation when running tubing in attic spaces. Refer to NFPA 13D, Annex A or the Uponor AquaSAFE Attic Insulation Guidelines on [uponorpro.com](http://uponorpro.com) for additional information.

## Field modifications

Submit marked-up design prints to Uponor Design Services at [design.services@uponor.com](mailto:design.services@uponor.com). Some changes may require additional hydraulic calculations.

## Flow test verification

Uponor recommends submission of a Flow Test Verification Form for every installation. Refer to the AquaSAFE Flow Test Instruction Sheet available on [uponorpro.com](http://uponorpro.com). Be sure to use the proper test orifice.

## Warning sign

Affix adjacent to the main shutoff valve.

## Sprinkler spacing

Refer to **Table 2** on the back of this page for sprinkler spacing requirements. Always refer to the NFPA 13D Standard, the sprinkler manufacturer's guideline installation bulletin(s) or contact Uponor Design Services at [design.services@uponor.com](mailto:design.services@uponor.com) for special requirements.

## Exposed (unfinished) areas

Uponor AquaPEX® and ProPEX fittings may be installed and left exposed with dimensional lumber, engineered wood, wood I-joists up to 16" deep and wood floor trusses up to 18" deep with on-center spacing of 12" to 24". Metal hangers designed for non-metallic tubing must be used in these areas (see **Table 1**). Refer to installation instructions and/or listings for additional requirements and limitations.

| Spacing requirement table                |  |
|--|--|
| Minimum spacing between sprinklers       | Dependent on sprinkler (8' is typical); verify with manufacturer's sprinkler guideline bulletin(s); refer to NFPA 13D, 2016 Edition, 8.1.1 for sloped ceilings |
| Maximum spacing between sprinklers       | Per design spacing noted on plan (e.g., spacing can be 12' x 12' up to 20' x 20')  |
| Minimum distance from wall               | Pendent sprinklers can be no closer than 4" from wall  |
| Maximum spacing away from a wall         | Half the design spacing noted on plan (e.g., spacing can be 12' x 12' up to 20' x 20'; therefore max. distance from wall could be from 6' up to 10')           |
| Spacing from non-continuous obstructions | 36" from the center of the obstruction; refer to NFPA 13D, 2016 Edition, 8.2.5 for more information  |

**Table 2: Spacing requirement table**

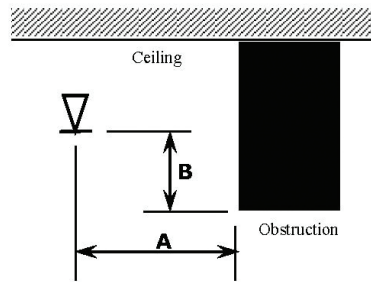
| Position of pendent sprinklers to avoid obstructions |   |
|--|---|
| Distance from sprinklers to side of obstruction (A)  | Maximum allowable distance of deflector above bottom of obstruction in inches (B) |
| Less than 1' 6"                                      | 0   |
| 1' 6" to less than 3'                                | 1   |
| 3' to less than 4'                                   | 3   |
| 4' to less than 4' 6"                                | 5   |
| 4' 6" to less than 6'                                | 7   |
| 6' to less than 6' 6"                                | 9   |
| 6' 6" to less than 7'                                | 11  |
| 7' and greater                                       | 14  |

**Table 3: Position of pendent sprinklers to avoid obstructions to discharge**  
Source: NFPA 13D, 2016 Edition, Table 8.2.5.3.2, Position of pendent sprinklers to avoid obstructions to discharge (refer to **Figure 1** and **Figure 2**).

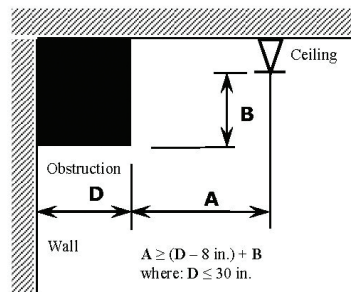
| Minimum distances for ordinary-temperature residential sprinklers |  |
|---|--|
| Heat source   | Minimum distance from edge of source in inches |
| Side of open or recessed fireplace                                | 36   |
| Front of recessed fireplace                                       | 60   |
| Coal- or wood-burning stove                                       | 42   |
| Kitchen range   | 18   |
| Wall oven   | 18   |
| Hot-air flues   | 18   |
| Uninsulated heat ducts  | 18   |
| Uninsulated hot water pipes                                       | 12   |
| Side of ceiling- or wall-mounted hot-air diffusers                | 24   |
| Front of ceiling- or wall-mounted hot-air diffusers               | 36   |
| Hot-water heater or furnace                                       | 6  |
| Light fixture (0 W to 250 W)                                      | 6  |
| Light fixture (250 W to 499 W)                                    | 12   |

**Table 4: Minimum distances for ordinary-temperature residential sprinklers**  
Source: NFPA 13D, 2016 Edition, Table 7.5.6.3, Minimum distances for ordinary temperature residential sprinklers

## Continuous obstructions



**Figure 1: Sprinkler positioning**  
Source: NFPA 13D, 2016 Edition, Figure 8.2.5.3.2, Positioning of sprinkler to avoid obstruction to discharge



**Figure 2: Sprinkler positioning**  
Source: NFPA 13D, 2016 Edition, Figure 8.2.5.3.3(a), Positioning of sprinkler to avoid obstruction against walls (i.e., pendent sprinkler with respect to a soffit)

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