The components of a sprinkler head are: 1. Frame or casting, 2. Deflector 3. Fusible element or frangible bulb, 4. Pip Cap, 5. Pintle Screw, 6. Belleville Spring

Some Sprinklers utilize low zinc content brass to provide a more resilient frame or casting. This low zinc content protects the sprinkler from de-zincification. The Bellville Spring seals the water way of the sprinkler. This metal to metal sealing mechanism allows the waterway to clear even when no pressure is on the inlet of the - Sprinkler head.
Laboratory Approvals

UL & c-UL (ULC) : NFPA & UL Requirements
FM : FM Requirements
(NFPA : NFPA minimum)
LPC : LPC Standard
VDS : VDS Standard
NYC & LA : Specific City

approvals
Types of Sprinkler Heads
Control Mode – Standard Response and Quick Response

Standard Coverage
Upright
Pendent
Sidewall

Extended Coverage
Upright
Pendent
Sidewall

Control Mode Special Application
Large Drop Sprinkler
Suppression

ESFR – upright and Pendent
Residential

Control Mode Sprinklers
Control Mode Sprinklers are separated in the following Categories:
Standard Coverage - Standard Response
Standard Coverage - Quick Response
Extended Coverage – Standard Response
Extended Coverage – Quick Response
Dry Barrel – Standard Response/Quick Response
Storage – Standard/Quick Response
Sprinkler Head Identification

<table>
<thead>
<tr>
<th>MICROMATIC® Model M Glass Bulb Sprinkler</th>
<th>Model Number (SIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STANDARD RESPONSE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>UPRIGHT</strong></td>
<td>VK100</td>
</tr>
<tr>
<td>BSP</td>
<td>VK200</td>
</tr>
<tr>
<td>BSP</td>
<td>VK200</td>
</tr>
<tr>
<td>BSP</td>
<td>VK001</td>
</tr>
<tr>
<td>BSP</td>
<td>VK002</td>
</tr>
<tr>
<td>BSP</td>
<td>VK003</td>
</tr>
<tr>
<td>BSP</td>
<td>VK004</td>
</tr>
<tr>
<td>BSP</td>
<td>VK002</td>
</tr>
<tr>
<td>BSP</td>
<td>VK202</td>
</tr>
<tr>
<td>BSP</td>
<td>VK202</td>
</tr>
</tbody>
</table>

| **PENDENT**                             |                    |
| BSP                                     | VK102              |
| BSP                                     | VK202              |
| BSP                                     | VK202              |
| BSP                                     | VK003              |
| BSP                                     | VK004              |
| BSP                                     | VK002              |
| BSP                                     | VK202              |
| BSP                                     | VK202              |

The Model or SIN (Sprinkler Identification) Number is a number assigned to a sprinkler head. The number is stamped on the sprinkler deflector as a means of identifying the sprinkler.

Sprinkler identifying

SIN Number
SIN Number

Thermal Response Requirements

TEMPERATURE RATINGS FOR GLASS BULB HEADS

A - Standard Response Elements – 5 mm bulb

<table>
<thead>
<tr>
<th>Color</th>
<th>Max Ceiling Temp (°F)</th>
<th>Max Ceiling Temp (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>100°F</td>
<td>38°C</td>
</tr>
<tr>
<td>Yellow</td>
<td>165°F or 212°F</td>
<td>74°C or 100°C</td>
</tr>
<tr>
<td>Green</td>
<td>248°F</td>
<td>120°C</td>
</tr>
<tr>
<td>Blue</td>
<td>321°F</td>
<td>161°C</td>
</tr>
<tr>
<td>Mauve</td>
<td>364°F</td>
<td>183°C</td>
</tr>
<tr>
<td>Black</td>
<td>562°F</td>
<td>294°C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Max Ceiling Temp (°F)</th>
<th>Max Ceiling Temp (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>100°F</td>
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<td>Green</td>
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<td>120°C</td>
</tr>
<tr>
<td>Blue</td>
<td>321°F</td>
<td>161°C</td>
</tr>
<tr>
<td>Mauve</td>
<td>364°F</td>
<td>183°C</td>
</tr>
<tr>
<td>Black</td>
<td>562°F</td>
<td>294°C</td>
</tr>
</tbody>
</table>
**B - Fast Response Elements – 3 mm bulb**

<table>
<thead>
<tr>
<th>Temperature (°F)</th>
<th>Temperature (°C)</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>100°F (38°C)</td>
<td>Ordinary</td>
<td>Red</td>
</tr>
<tr>
<td>175°F (79°C)</td>
<td>Intermediate</td>
<td>Yellow</td>
</tr>
<tr>
<td>200°F or 121°F (94°C or 100°C)</td>
<td>High</td>
<td>Green</td>
</tr>
<tr>
<td>286°F (141°C)</td>
<td></td>
<td>Blue</td>
</tr>
</tbody>
</table>

**K Factors**

K factors are known as the coefficient of discharge. The larger the K factor in number, the more water it can discharge at a given pressure. There are (") current thread sizes used for sprinkler heads, ½", ¾", and 1" threads.

Do not just match the thread size when replacing a sprinkler head. Identify what orientation, K factor, and temperature prior to replacing a sprinkler.

**Orifice Sizes - Effect of Larger K Factors**

- Develop larger water droplets that penetrate the fire plume
- Discharges same water density at lower pressures
- Lower starting pressures may save the designer a pipe size in their calculations, which will lower the cost of the system installation.
Calculating \((K)\)

**NOMINAL K FACTORS- NFPA and Factory Mutual**

Sprinkler "K Factors are as follows

<table>
<thead>
<tr>
<th>(K)</th>
<th>of%</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4</td>
<td>50%</td>
<td>½&quot;</td>
</tr>
<tr>
<td>1.9</td>
<td>33.3%</td>
<td>½&quot;</td>
</tr>
<tr>
<td>2.4</td>
<td>25%</td>
<td>½&quot;</td>
</tr>
<tr>
<td>3.4</td>
<td>18%</td>
<td>½&quot;</td>
</tr>
<tr>
<td>Baseline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.7</td>
<td>10%</td>
<td>½&quot;</td>
</tr>
<tr>
<td>0.8</td>
<td>14%</td>
<td>¾&quot;</td>
</tr>
<tr>
<td>1.4</td>
<td>20%</td>
<td>¾&quot;</td>
</tr>
<tr>
<td>1.6</td>
<td>25%</td>
<td>¾&quot;</td>
</tr>
<tr>
<td>1.8</td>
<td>30%</td>
<td>¾&quot;</td>
</tr>
<tr>
<td>2.2</td>
<td>40%</td>
<td>1&quot;</td>
</tr>
<tr>
<td>2.7</td>
<td>45%</td>
<td>1&quot;</td>
</tr>
<tr>
<td>3.2</td>
<td>50%</td>
<td>1&quot;</td>
</tr>
<tr>
<td>3.8</td>
<td>55%</td>
<td>1&quot;</td>
</tr>
</tbody>
</table>

**Sprinkler Sensitivity**

- Thermal Response Requirements

**SPRINKLER SENSITIVITY**

- **STANDARD RESPONSE** : – 1 Min. 60 Sec. Room Fire Test
  – 100 Sec. Plunge Test

- **QUICK RESPONSE** : – 70 Sec. Room Fire Test
  – 1½ Sec. Plunge Test

- **RESIDENTIAL** : – Special Fire Test
  – 1½ Sec. Plunge
  – Plunge Oven
**Response Time Index - RTI**

- RTI - measures the speed of response of the heat sensitive element
- Traditionally Fast Response sprinklers have a thermal element with an RTI of \( 0.5 \) (m/s\(^2\)) or less. ESFR’s must have a thermal element with an RTI of \( 63 \) m/s\(^2\) or less
- Standard Response Sprinklers have a thermal element with an RTI of \( 0.8 \) (m/s\(^2\)) or more.

**Components:**
- Strut – \( 11 \) m/s\(^2\), Glass Bulb (\( 5 \) mm) - \( 501 \) m/s\(^2\), Fusible Link – \( 62 \) m/s\(^2\), Glass Bulb (\( 3 \) mm) - \( 63 \) m/s\(^2\), Glass Bulb (\( 2.5 \) mm) - \( 22 \) m/s\(^2\), Heat Fin - \( 62 \) m/s\(^2\)

**MINIMUM SPRINKLER FLOW**

\[
Q = \text{Area} \times \text{Density} \\
Q = K \times P \\
P = \left( \frac{Q}{K} \right)^2 \\
K = \frac{Q}{P}
\]

**Were:**
- \( Q \) = Water Flow
- \( K \) = Coefficient of discharge
- \( P \) = Pressure

**Sprinkler Spacing**

- Determining Area/Sprinkler
  - A. Along branch lines:
    1. Determine distance between sprinklers (or to wall/obstruction)
    2. Choose largest - twice distance to wall or distance to next sprinkler.
    This dimension will be defined as \( S \).
  - B. Between branch lines:
    1. Determine distance to adjacent branch line (or to wall/obstruction).
    2. Choose largest - twice distance to wall or distance to adjacent line.
    This dimension will be defined as \( L \).

\[
\text{Area/Sprinkler} = S \times L
\]
Extended Coverage or Residential
Must use one of the listed coverage areas
The actual area protected per sprinkler must fit within the listed design coverage area

### 7.4 0.07 K-factor
VK458, Part No. 13230
Tech Data Page Sprinkler 140w
- Larger K-Factor provides lowest starting pressure in NFPA 13 applications (0.1 density)

<table>
<thead>
<tr>
<th>Coverage Area</th>
<th>12 x 12 (3.7 x 3.7)</th>
<th>14 x 14 (4.3 x 4.3)</th>
<th>16 x 16 (4.9 x 4.9)</th>
<th>18 x 18 (5.5 x 5.5)</th>
<th>20 x 20 (6.1 x 6.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>73 (0.50)</td>
<td>73 (0.50)</td>
<td>73 (0.50)</td>
<td>8.8 (0.60)</td>
<td>10.5 (0.72)</td>
</tr>
</tbody>
</table>

### 5.2 0.75 K-factor
VK436, Part No. 12166
Tech Data Page Sprinkler 140i
- Listed with beam ceilings up to 14'

<table>
<thead>
<tr>
<th>Coverage Area</th>
<th>12 x 12 (3.7 x 3.7)</th>
<th>14 x 14 (4.3 x 4.3)</th>
<th>16 x 16 (4.9 x 4.9)</th>
<th>18 x 18 (5.5 x 5.5)</th>
<th>20 x 20 (6.1 x 6.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>72 (0.50)</td>
<td>72 (0.50)</td>
<td>72 (0.50)</td>
<td>10.7 (0.74)</td>
<td>14.8 (1.02)</td>
</tr>
</tbody>
</table>

### 5.5 0.79 K-factor
VK432, Part No. 10050
Tech Data Page Sprinkler 141a
- Continually listed by UL since 1997

<table>
<thead>
<tr>
<th>Coverage Area</th>
<th>12 x 12 (3.7 x 3.7)</th>
<th>16 x 16 (4.9 x 4.9)</th>
<th>18 x 18 (5.5 x 5.5)</th>
<th>20 x 20 (6.1 x 6.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.5 (0.50)</td>
<td>11.9 (0.80)</td>
<td>14.6 (1.00)</td>
<td>19.0 (1.30)</td>
</tr>
</tbody>
</table>

### 7.4 0.07 K-factor
VK458, Part No. 13230
Tech Data Page Sprinkler 140w
- Larger K-Factor provides lowest starting pressure in NFPA 13 applications (0.1 density)

<table>
<thead>
<tr>
<th>Coverage Area</th>
<th>12 x 12 (3.7 x 3.7)</th>
<th>14 x 14 (4.3 x 4.3)</th>
<th>16 x 16 (4.9 x 4.9)</th>
<th>18 x 18 (5.5 x 5.5)</th>
<th>20 x 20 (6.1 x 6.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>73 (0.50)</td>
<td>73 (0.50)</td>
<td>73 (0.50)</td>
<td>8.8 (0.60)</td>
<td>10.5 (0.72)</td>
</tr>
</tbody>
</table>

Example:

\[
\text{\^1 ft x \^2 ft (\^1 m X \^2 m) room}
\]

Use \[
\text{\^1 ft X \^2 ft (\^1 m X \^2 m)}
\]
**Determining design area**

1. **Determining Size - standard**
   Use NFPA Chart

![Graph showing density and area curves with marked lines for different hazard groups.](image)

**FIGURE 11.2.3.1.5 Density/Area Curves.**

2. **Determining Size - Extended Coverage**
   Must use Greater of... Coverage of five sprinklers or area required by occupancy

**Example 1:**
Light Hazard w/ 2 x 2 Sprinklers 400 sf x 5 sprinklers = 2000 sf
LH = 1050 sf
Use 2000 sf

**Example 2:**
Light Hazard w/ 12 x 12 Sprinklers 144 sf x 5 sprinklers = 720 sf
LH = 1050 sf
Use 1050 sf
When using Quick Response…
You can reduce the design area based on ceiling height

(Remember: NFPA 13 limits the minimum size to 900sf = 84m²)

**Design Calculations**

Calculating Flow (Q) at sprinkler End Head
Q = Area x Density
Example: \(0.15\) density with \(12\)sf coverage per sprinkler
\(0.15 \times 12 = 1.8\)gpm minimum at sprinkler end head

Calculating Pressure (P) at the sprinkler End Head
P = \((Q + K)^2\)
Q = Flow at sprinkler end head
K = K Factor of Sprinkler

Example:
Q = \(1^{\text{gpm}}\)
\[ K = \frac{81}{5.6} \]
So... \((18 + 0.6)^2 = 10.3\text{psi Minimum}\)

**Calculating (K) - Orifice Sizes**
Orifice Sizes are Represented by a “K Factor”
The K Factor is derived by the following formula:
\[ K = 29.83 \cdot CD^2 \]
Basically, the larger the K value the larger the orifice.

### Starting Pressure Comparison for Different Orifice Sprinklers

<table>
<thead>
<tr>
<th>K Factor</th>
<th>Flow Rate</th>
<th>Starting Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.6</td>
<td>26 gpm</td>
<td>12.66 psi</td>
</tr>
<tr>
<td>8.0</td>
<td>26 gpm</td>
<td>10.36 psi</td>
</tr>
<tr>
<td>11.2</td>
<td>26 gpm</td>
<td>6.11 psi</td>
</tr>
<tr>
<td></td>
<td>(44.44 gpm)</td>
<td>(min 7 psi)</td>
</tr>
<tr>
<td>11.8</td>
<td>26 gpm</td>
<td>6.39 psi</td>
</tr>
<tr>
<td></td>
<td>(44.44 gpm)</td>
<td>(min 7 psi)</td>
</tr>
</tbody>
</table>
0.7 gpm per sq. ft x 120 sq. ft. = 84 gpm

Standard Coverage Sprinklers Pendent or Upright

Minimum operating pressure is 7 psi. Flow rate per sprinkler is determined by area x density or minimum pressure multiplied by square root of minimum pressure (which ever is greater)
Standard Spray Sprinkler Spacing (Area of Coverage)
Light Hazard (as defined by NFPA 13): 220 sq. ft.
max Ordinary Hazard (as defined by NFPA 13): 130 sq. ft.
Max Extra Hazard (as defined by NFPA 13): 100 sq. ft. max
(Note: areas given for hydraulically calculated systems)

Classification of Occupancies
Upright and pendent spray sprinklers shall be permitted in all occupancy hazard classifications and building construction types.

1.1* Classification of Occupancies.
1.1.1 Occupancy classifications for this standard shall relate to sprinkler design, installation, and water supply requirements only.
1.1.2 Occupancy classifications shall not be intended to be a general classification of occupancy hazards.

2.1* Light Hazard Occupancies.
Light hazard occupancies shall be defined as occupancies or portions of other occupancies where the quantity and/or combustibility of contents is low and fires with relatively low rates of heat release are expected.
EXAMPLES: Churches, Clubs, Hospitals, Museums, Offices, Restaurant Seating Areas
NFPA 13 limits maximum area of coverage for **Light Hazard** to 522 sq. ft. per sprinkler

O       O       O

15 ft(4.57 m)

O       15 ft(4.57 m)       O       O

**Density prescribed for Light Hazard is 0.10 gpm per sq. ft.**
Minimum flow rate for sprinklers spaced 522 sq. ft. is
Determined by area x density  
Q = 0.10 gpm per sq. ft. x 522 sq. ft. = 22.2 gpm

**5.3.1* Ordinary Hazard (Group 1).**
Ordinary hazard (Group 1) occupancies shall be defined as occupancies or portions of other occupancies where combustibility is low, quantity of combustibles is moderate, stockpiles of combustibles do not exceed 8'-0", and fires with moderate rates of heat release are expected.
Examples: Restaurant Service Areas, Bakeries, Automobile Parking and Showrooms, Laundries

**5.3.2* Ordinary Hazard (Group 2).** Ordinary hazard (Group 2) occupancies shall be defined as occupancies or portions of other occupancies where the quantity and combustibility of contents are moderate to high, stockpiles do not exceed 12', and fires with moderate to high rates of heat release are expected.
Examples: Dry Cleaners, Horse Stables, Machine Shops, Library Stack Rooms, Mercantile, Confectionary Products, Casino area.
**NFPA 13** limits maximum area of coverage for **Ordinary Hazard**
to \(130\) sq. ft. per sprinkler

\[
\begin{array}{c}
\text{O} \\
\text{O} \\
\text{O}
\end{array}
\]

\(13\) ft (3.9 m)

**Density prescribed for Ordinary Hazard** \(1\) is \(0.10\) gpm per sq. ft.
Minimum flow rate for sprinklers spaced \(130\) sq. ft. is
Determined by area x density
\[
Q = 0.10 \text{ gpm per sq. ft.} \times 130 \text{ sq. ft.} = 19.5 \text{ gpm}
\]

**Density prescribed for Ordinary Hazard** \(2\) is \(0.20\) gpm per sq. ft.
Minimum flow rate for sprinklers spaced \(130\) sq. ft. is
Determined by area x density = \(Q\)
\[
Q = 0.20 \text{ gpm per sq. ft.} \times 130 \text{ sq. ft.} = 26 \text{ gpm}
\]

**8.4.1* Extra Hazard (Group 1).**
Extra hazard (Group 1) occupancies shall be defined as:
occupancies or portions of other occupancies where the quantity and combustibility of contents are very high and dust, lint, or other materials are present, introducing the probability of rapidly developing fires with high rates of heat release but with little or no combustible or flammable liquids.
Examples: Combustible Hydraulic Fluid Use Areas, Metal Extruding, Saw Mills, Upholstering with Plastic Foams, Rubber Reclaiming
Extra Hazard (Group 2).
Extra hazard (Group 2) occupancies shall be defined as occupancies or portions of other occupancies with moderate to substantial amounts of flammable or combustible liquids or occupancies where shielding of combustibles is extensive.
Examples: Flammable Liquids Spraying, Open Oil Quenching, Plastics Processing, Solvent Cleaning, Varnish and Paint Dipping

NFPA 13 limits maximum area of coverage for Extra Hazard to 100 sq. ft. per sprinkler

\[
1 \cdot 0 \text{ft}(3.0 \text{ m})
\]

\[
0 \cdot 1 \text{ft}(0.3 \text{ m}) 0
\]

Standard Coverage Sprinklers

Density prescribed for Extra Hazard 1 is 0.3 gpm per sq. ft.
Minimum flow rate for sprinklers spaced 100 sq. ft. is Determined by area x density = Q
\[
Q = 0.3 \text{ gpm per sq. ft. x 100 sq. ft.} = 30 \text{ gpm}
\]

Density prescribed for Extra Hazard 2 is 0.4 gpm per sq. ft.
Minimum flow rate for sprinklers spaced 100 sq. ft. is Determined by area x density = Q
\[
Q = 0.4 \text{ gpm per sq. ft. x 100 sq. ft.} = 40 \text{ gpm}
\]
Standard Coverage Sprinklers Sidewall

Standard Spray Sprinkler Spacing (Area of Coverage) Light Hazard (as defined by NFPA 31): 691 sq. ft. max (91,72 sq. m)

Ordinary Hazard (as defined by NFPA 13): 100 sq. ft. max
(Note: Must be listed for Ordinary Hazard) (9,14 sq. m)
SIDEWALL SPRINKLER DISTRIBUTION

Must meet Average Distribution Requirements over the 100 ft² (9.3 m²) area between two sprinklers spaced 10 ft (3.05 m) apart for standard 1/2” (13 mm) orifice sprinklers: 0.60 gpm/ft² (0.43 L/s/m²) or 0.70 gpm/ft² (0.78 L/s/m²) for large orifice sprinklers 1/4” (22 mm): And still provide 75% against wall in which sprinklers are installed, for both 1/2” and L/O.

Density prescribed for Light Hazard is 0.10 gpm per sq. ft.

Sidewall Sprinklers

1/4 ft (13 mm) Sp/Sp 1/4 ft (13 mm) Sp/Sp

1/4 ft (13 mm) Sp/W

Maximum Distance

Minimum flow rate for sprinklers spaced 196 sq. ft. is determined by area x density = Q

Q = 0.10 gpm per sq. ft. x 196 sq. ft. = 19.6 gpm

Density prescribed for Ordinary Hazard Group 1 is 0.10 gpm per sq. ft.

Sidewall Sprinklers

1/0 ft (15 mm) Sp/Sp

1/0 ft (15 mm) Sp/Sp

1/0 ft (15 mm) Sp/W

Maximum Distance
Minimum flow rate for sprinklers spaced 100 sq. ft. is determined by area x density = Q
\[ Q = \cdot \cdot \cdot \cdot \text{gpm per sq. ft.} \times 100 \text{ sq. ft.} = \cdot \cdot \cdot \cdot \text{gpm} \]

**Density prescribed for Ordinary Hazard Group 2 is 0.2 gpm per sq. ft.**

Minimum flow rate for sprinklers spaced 100 sq. ft. is determined by area x density = Q
\[ Q = \cdot \cdot \cdot \cdot \text{gpm per sq. ft.} \times 100 \text{ sq. ft.} = \cdot \cdot \cdot \cdot \text{gpm} \]

**Extended Coverage Sprinklers ECLH Sprinkler Minimum Design**

Have maximum coverage areas of 400 sq. ft. as mandated by NFPA 13. Spacing is in increments of 2'-0" intervals, example: 12'x12', 14'x14', 16'x16', 18'x18', and 20'x20'.

**ECLH Sprinkler Minimum Design**

![Image of ECLH sprinkler](image)

**Model M ECLH-ELO Pendent VK type**

<table>
<thead>
<tr>
<th>Spacing</th>
<th>Area of Coverage</th>
<th>Light Hazard Density</th>
<th>Minimum Water Flow</th>
<th>* % Fewer Sprinklers</th>
</tr>
</thead>
<tbody>
<tr>
<td>12'x12'</td>
<td>144 ft²</td>
<td>\cdot \cdot \cdot gpm/sq ft</td>
<td>\cdot \cdot \cdot gpm</td>
<td>13%</td>
</tr>
<tr>
<td>14'x14'</td>
<td>196 ft²</td>
<td>\cdot \cdot \cdot gpm/sq ft</td>
<td>\cdot \cdot \cdot gpm</td>
<td>30%</td>
</tr>
<tr>
<td>16'x16'</td>
<td>256 ft²</td>
<td>\cdot \cdot \cdot gpm/sq ft</td>
<td>\cdot \cdot \cdot gpm</td>
<td>44%</td>
</tr>
</tbody>
</table>

*Based on a 200 sq. ft. coverage area for standard coverage upright and pendent
EC (extended coverage) Sidewall vs. Standard

- EC has larger protection areas
- EC has flatter distribution
- Require greater separation from obstructions
- Need to be designed and installed per listing

Extended Coverage Sidewall Spacing

- Per NFPA 31: Unobstructed, flat
  - Max. area of coverage = 200 ft² (Lt. & Ord.)
  - Light Hazard max. between sprinklers
  - Ordinary Hazard max. between sprinklers