GENERAL PRODUCT OVERVIEW

Fire Rated Products

Nailor offers a wide variety of fire rated products that are designed to provide the unobtrusive appearance required for architectural excellence and the high engineering performance required for use in heating and cooling applications. Ceiling diffusers, plenum slot diffusers and even ductless return air grilles are some of the many styles that are available.

Nailor’s selection of fire rated products are classified for use in UL/ULC restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate an exposed grid suspended ceiling (lay-in T-Bar) with up to a 3 hour rating. For details of fire rated assemblies, see the current UL Fire Resistance Directory or ULC List of Equipment and Materials Volume III Fire Resistance Ratings.

Fire Rated Pattern Diffusers

Nailor pattern ceiling diffusers are a high capacity louvered face directional diffuser that can supply large volumes of air at relatively low sound levels and pressure drops. Available in a variety of core styles and neck sizes; a combination can be selected to suit a specified air pattern and deliver the desired volume of air to suit particular requirements.

- **Square Neck –**
  - Fixed Pattern: Model 6500FRD [See page F8]
  - Adjustable Pattern: Model 6550FRD [See page F8]
  - Induction Vanes: Model 6500IVFRD [See page F8]

- **Round Neck –**
  - Fixed Pattern: Model 6505FRD [See page F10]
  - Adjustable Pattern: Model 6555FRD [See page F10]
  - Induction Vanes: Model 6505IVFRD [See page F10]

Fire Rated Stamped Square Diffusers

The 4000 and 4400 series models are a fire rated version of the popular RNS series. They have been specially designed to provide an extremely cost effective, value engineered product. They offer both the unobtrusive appearance required for architectural excellence and the 360° diffusion pattern at minimum NC levels required for high engineering performance.

- **Fixed Air Pattern –**
  - Full Face: Models 4010, 4020 [See page F12]
  - Panel Type: Models 4030, 4040 [See page F12]
  - Surface Mount: Model 4010-SM (ULC only) [See page F14]

- **Adjustable Pattern –**
  - Full Face: Models 4010-1, 4020-1 [See page F15]
  - Panel Type: Models 4030-1, 4040-1 [See page F15]

- **Fixed Pattern 2-Cone –**
  - Full Face: Models 4410, 4420 [See page F17]
  - Panel Type: Models 4430, 4440 [See page F17]
The **Nailor Model Series 4000** are UL/ULC Classified fire rated ceiling diffuser assemblies listed in Underwriters Laboratories Fire Resistance Directory and Underwriters’ Laboratories of Canada List of Equipment and Materials. This design meets UL time-vs-temperature test criteria and NFPA 90A requirements.

All diffusers are classified for use in UL/ULC restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate an exposed grid suspended ceiling (lay-in T-Bar) with up to a 3 hour rating. For details of fire rated assemblies, see the current UL Fire Resistance Directory or ULC List of Equipment and Materials Vol. III Fire Resistant Ratings.

These models are a fire rated version of the popular **RNS Series**. They have been specially designed to provide an extremely cost effective, value engineered product. They offer both the unobtrusive appearance required for architectural excellence and the 360° diffusion pattern at minimum NC levels required for high engineering performance. For these reasons the **RNS Series** diffuser is the most popular choice for general applications.

The stamped one-piece cones eliminate mitered corners and the die-formed curves provide consistent quality and performance. The stepped down core design increases capacity and minimizes streaking and smudging of the ceiling.

The diffusers provide stable diffusion and mixing patterns under constant and changing load conditions, and are particularly suitable for variable air volume systems.

**FEATURES:**

- Factory assembled, ‘packaged’ product ensures compliance with fire code, simplifies specification and minimizes field labor.
- Tested in accordance with UL Standard 263, “Fire Tests of Building Construction and Materials.”
- Approved for use with flexible duct. Eliminates steel branch duct and drop. No costly independent hangers and supports are required.
- Spring-loaded core is securely held in position and is removable without the use of tools.
- Engineered air diffusion pattern.
- Steel stamped cones for uniformity.
- All 12 x 12 (300 x 300) and 24 x 24 (600 x 600) modules feature four cones in all neck sizes, providing a uniform appearance where different sizes are installed in the same area.
- The fixed ceiling radiation damper is standard. The adjustable version for balancing is optional.
- Quick, easy access to the AV balancing option is achieved from the face of the diffuser by removing the center plug. It is not necessary to remove the inner cone assembly.
- 212°F (100°C) fusible link is standard (165°F (74°C) is optional).
- All models must be installed in accordance with the installation instructions for UL/ULC Classification.

**Material:** Heavy gauge corrosion-resistant steel.

**Finish:** AW Appliance White baked enamel finish is standard. Other finishes are available

**Performance Data:** See non-fire rated **Model RNS** on page D82.
Dimensional Data
Models 4010 and 4020 • Full Face

<table>
<thead>
<tr>
<th>Imperial Modules (inches)</th>
<th>Metric Modules (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed Neck Size</td>
<td>CM = 12 x 12</td>
</tr>
<tr>
<td></td>
<td>CM = 300 x 300</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Imperial Modules (inches)</th>
<th>Metric Modules (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed Neck Size</td>
<td>CM = 24 x 24</td>
</tr>
<tr>
<td></td>
<td>CM = 600 x 600</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

Models 4030 and 4040 • Panel Type

<table>
<thead>
<tr>
<th>Imperial Modules (inches)</th>
<th>Metric Modules (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed Neck Size</td>
<td>CM = 24 x 12</td>
</tr>
<tr>
<td></td>
<td>CM = 600 x 300</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Imperial Modules (inches)</th>
<th>Metric Modules (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed Neck Size</td>
<td>CM = 24 x 24</td>
</tr>
<tr>
<td></td>
<td>CM = 600 x 600</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

AV Fusible Link Adjustable Volume Control Option.
This UL Listed ceiling radiation damper option allows the ceiling radiation damper to be used as a balancing damper for volume control. The ceiling damper blades are adjusted with a hex key and perform like a butterfly damper.
**FIRE RATED STAMPED SQUARE CEILING DIFFUSERS**

- Fixed Air Pattern
- Round Neck
- 3 Hour Rating
- Surface Mount

**Model:**
4010-SM

**12 x 12 (300 x 300) Module**
Type S  Surface Mount Frame

**ITEMS:**
1. Flexible air duct (UL/ULC Class 0 or 1) connector or steel duct.
2. UL Listed fusible link. 212°F (100°C) standard.
3. Ceiling radiation damper/fire stop flap.
4. Thermal blanket.
5. Corrosion-resistant steel diffuser.
7. Mounting support frame.
8. Hanger wires (by others).
10. Mounting screws.

A unique Nailor Product. The only fire rated diffuser assembly of its kind for surface mount applications. Popular applications are fire rated ceiling designs which incorporate wooden joists on less than 24" (610) centers and 'Type X' gypsum wallboard ceiling membrane protection.

This model is a fire rated version of the popular RNS Louvered Face Series. Classified by Underwriters’ Laboratories of Canada (ULC) for use in ULC restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate air ducts and a hard (gypsum board) ceiling membrane with up to a 3 hour rating.

For details of fire rated assemblies, see the current ULC List of Equipment and Materials Vol. III Fire Resistant Ratings. The use of this product in fire rated ceilings with ceiling membrane protection and/or UL Classified assemblies in the U.S.A. requires local approval by the authority having jurisdiction.

**OPTIONS:**
- AV Fusible link adjustable volume control. Permits adjustment to damper blades for balancing.
- Non-standard temperature UL Listed fusible link (165°F (74°C)).

**Finish:** AW Appliance White baked enamel finish is standard. Other finishes are available.

**Performance Data:** See non-fire rated Model RNS on page D82.

**Available Sizes and Dimensional Data**

<table>
<thead>
<tr>
<th>Imperial Modules</th>
<th>Metric Modules</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Imperial Units</strong></td>
<td><strong>Metric Modules</strong></td>
</tr>
<tr>
<td>Listed Neck Size</td>
<td>(inches)</td>
</tr>
<tr>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>
FIRE RATED STAMPED SQUARE DIFFUSERS

FIRE RATED ADJUSTABLE STAMPED SQUARE CEILING DIFFUSERS

- Horizontal to Vertical Adjustable Discharge Pattern
- High Performance
- Round Neck
- 3 Hour Rating
- Lay-In

Full Face Models:
4010-1, 4020-1

Panel Type Models:
4030-1, 4040-1

The Nailor Model Series 4000 are UL/ULC Classified fire rated ceiling diffuser assemblies listed in Underwriters Laboratories Fire Resistance Directory and Underwriters’ Laboratories of Canada List of Equipment and Materials. This design meets UL time-vs-temperature test criteria and NFPA 90A requirements.

All diffusers are classified for use in UL/ULC restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate an exposed grid suspended ceiling (lay-in T-Bar) with up to a 3 hour rating. For details of fire rated assemblies, see the current UL Fire Resistance Directory or ULC List of Equipment and Materials Vol. III Fire Resistant Ratings.

These models are a fire rated version of the popular RNSA Series. They have been specially designed to provide an extremely cost effective, value engineered product. They offer both the unobtrusive appearance required for architectural excellence and the 360° diffusion pattern at minimum NC levels required for high engineering performance. They provide the flexibility of a standard horizontal discharge or near vertical discharge pattern, useful in high ceiling applications where better air penetration or spot heating may be desired.

The stamped one-piece cones eliminate mitered corners and the die-formed curves provide consistent quality and performance. The diffusers provide stable diffusion and mixing patterns under constant and changing load conditions, and are particularly suitable for variable air volume systems.

FEATURES:
- Factory assembled, ‘packaged’ product ensures compliance with fire code, simplifies specification and minimizes field labor.
- Tested in accordance with UL Standard 263, “Fire Tests of Building Construction and Materials.”
- Approved for use with flexible duct. Eliminates steel branch duct and drop. No costly independent hangers and supports are required.
- Adjustment: Unique screw-type arrangement is quick and simple from the face of the diffuser. Permits gradual adjustment of the air discharge pattern from horizontal to vertical by rotating the center cone and so moving the inner cone assembly up or down.
- Spring-loaded core is securely held in position and is removable without the use of tools.
- Engineered air diffusion pattern.
- Steel stamped cones for uniformity.
- All 12 x 12 (300 x 300) and 24 x 24 (600 x 600) modules feature four cones in all neck sizes, providing a uniform appearance where different sizes are installed in the same area.
- The fixed ceiling radiation damper is standard. The adjustable version for balancing is optional.
- Quick, easy access to the AV balancing option is achieved from the face of the diffuser by removing the center plug. It is not necessary to remove the inner cone assembly.
- 212°F (100°C) fusible link is standard (165°F (74°C) is optional).
- All models must be installed in accordance with the installation instructions for UL/ULC Classification.
- Material: Heavy gauge corrosion-resistant steel.
- Finish: AW Appliance White baked enamel finish is standard. Other finishes are available.
- Performance Data: See non-fire rated Model RNSA on page D87.
### Dimensional Data

#### Models 4010-1 and 4020-1 • Full Face

**Type L Lay-in T-Bar Frame**

* CM - 1/4” (6)

### Available Sizes and Dimensional Data

#### Model 4010-1
- **12 x 12** (300 x 300) module
- **24 x 24** (600 x 600) module

#### Model 4020-1
- **24 x 24** (600 x 600) module

<table>
<thead>
<tr>
<th>Listed Neck Size</th>
<th>Imperial Modules (inches)</th>
<th>Metric Modules (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CM = 12 x 12</td>
<td>CM = 300 x 300</td>
</tr>
<tr>
<td>6 8</td>
<td>D 6 6 A 2 1/4 B 0 to 6 3/4 C 152</td>
<td>A 6 3/4 B 7 3/4 C 203</td>
</tr>
<tr>
<td></td>
<td>CM = 24 x 24</td>
<td>CM = 600 x 600</td>
</tr>
<tr>
<td>6 8 10 12 14</td>
<td>D 6 6 A 3/8 B 11 1/4 C 305</td>
<td>A 12 1/4 B 356</td>
</tr>
</tbody>
</table>

#### Model 4030-1 and 4040-1 • Panel Type

**Type PL Panel Lay-in T-Bar Frame**

**FIRE RATED STAMPED SQUARE DIFFUSERS**

* Plus 1 1/2” (38) with AV option.

---

* Dimensions and properties of the fire-rated stamped square diffusers are detailed, including imperial and metric measurements for various models. The diagrams illustrate the layout and dimensions of the diffusers, with labels for each component such as ceiling radiation damper, fire stop flap, and flexible air duct. The tables provide specific dimensions for different models, with notes on the availability of certain options. The text is clear and structured, ensuring easy understanding of the product specifications.**
The Nailor Model Series 4400 are UL/ULC Classified fire rated ceiling diffuser assemblies listed in Underwriters Laboratories Fire Resistance Directory and Underwriters’ Laboratories of Canada List of Equipment and Materials. This design meets UL time-vs-temperature test criteria and NFPA 90A requirements. All diffusers are classified for use in UL/ULC restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate an exposed grid suspended ceiling (lay-in T-Bar) with up to a 3 hour rating. For details of fire rated assemblies, see the current UL Fire Resistance Directory or UL List of Equipment and Materials Vol. III Fire Resistant Ratings.

These models are a fire rated version of the economical RNS2 Series. They have been specially designed to provide an extremely cost effective, value engineered product. They offer both the unobtrusive appearance required for architectural excellence and the 360° diffusion pattern at minimum NC levels required for high engineering performance.

The stepped down core design increases capacity and the diffusers provide stable diffusion and mixing patterns under constant and changing load conditions. They can accommodate a turn down of 80% without losing the ceiling coanda effect and dumping, making them particularly suitable for variable air volume systems.

FEATURES:
- Factory assembled, “packaged” product ensures compliance with fire code, simplifies specification and minimizes field labor.
- Tested in accordance with UL Standard 263, “Fire Tests of Building Construction and Materials.”
- Approved for use with flexible duct. Eliminates steel branch duct and drop. No costly independent hangers and supports are required.
- The inner cone assembly is fixed and non-removable, providing additional security and safety.
- Engineered air diffusion pattern.
- Steel stamped cones for uniformity.
- All 12 x 12 (300 x 300) and 24 x 24 (600 x 600) modules feature two cones in all neck sizes, providing a uniform appearance where different sizes are installed in the same area.
- The fixed ceiling radiation damper is standard. The adjustable version for balancing is optional.
- Quick, easy access to the AV balancing option is achieved from the face of the diffuser by removing the center plug.
- 212°F (100°C) fusible link is standard (165°F (74°C) is optional).
- All models must be installed in accordance with the installation instructions for UL/ULC Classification.

Material: Heavy gauge corrosion-resistant steel.

Finish: AW Appliance White baked enamel finish is standard. Other finishes are available.

Performance Data: See non-fire rated Model RNS2 on page D96.
**Dimensional Data**
**Models 4410 and 4420 • Full Face**

| Model 4410 | 12 x 12 (300 x 300) module |
| Model 4420 | 24 x 24 (600 x 600) module |

<table>
<thead>
<tr>
<th>Listed Neck Size</th>
<th>D</th>
<th>A</th>
<th>C</th>
<th>E</th>
<th>D</th>
<th>A</th>
<th>C</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 6</td>
<td>5 1/2</td>
<td>1</td>
<td>11/4</td>
<td>152</td>
<td>25</td>
<td>140</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>8 8</td>
<td>6 1/2</td>
<td>1</td>
<td>1</td>
<td>203</td>
<td>165</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Listed Neck Size</th>
<th>D</th>
<th>A</th>
<th>C</th>
<th>E</th>
<th>D</th>
<th>A</th>
<th>C</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 6</td>
<td>6 13/16</td>
<td>152</td>
<td>173</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 8</td>
<td>7 13/16</td>
<td>203</td>
<td>198</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Models 4430 and 4440 • Panel Type**

| Model 4430 | 24 x 12 (600 x 300) module |
| Model 4440 | 24 x 24 (600 x 600) module |

<table>
<thead>
<tr>
<th>Listed Neck Size</th>
<th>D</th>
<th>C</th>
<th>D</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 6</td>
<td>5 1/2</td>
<td>152</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>8 8</td>
<td>6 1/2</td>
<td>203</td>
<td>165</td>
<td></td>
</tr>
</tbody>
</table>

**AV Fusible Link Adjustable Volume Control Option.**
This UL Listed ceiling radiation damper option allows the ceiling radiation damper to be used as a balancing damper for volume control.
The ceiling damper blades are adjusted with a hex key and perform like a butterfly damper.