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# ROOF DRAINS

## PRODUCT RECOMMENDATIONS

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<tr>
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<th>Product</th>
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<td>RD-230, RD-240</td>
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<td>Deck Receptor</td>
<td>RD-400, RD-410</td>
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<tr>
<td>Downspout Nozzle / Cover</td>
<td>RD-940, RD-950</td>
</tr>
<tr>
<td>Downspout Boot</td>
<td>RD-970, RD-980</td>
</tr>
<tr>
<td>Primary Roof Area</td>
<td>RD-300, RD-300-F</td>
</tr>
<tr>
<td>Primary Roof Overflow</td>
<td>RD-300-R, RD-300-W</td>
</tr>
<tr>
<td>Promenade or Patio</td>
<td>RD-100-CP, RD-200-CP, RD-300-CP15</td>
</tr>
<tr>
<td>Scupper or Parapet</td>
<td>RD-270, RD-290</td>
</tr>
<tr>
<td>Secondary Roof Area</td>
<td>RD-100, RD-100-F, RD-200, RD-200-F</td>
</tr>
</tbody>
</table>

## SIZING

1. Calculate roof area (sq. ft.) to be drained.
2. Determine average hourly rainfall rate at roof location (Chart A).
3. Approximate leader (drain pipe) size. In general, increasing leader size will decrease the number of drains required.
4. Reference leader size with hourly rainfall rate, to determine roof area drained by each leader (Chart B).
5. Divide roof area (1.) by area per leader (4.) to determine the number of drains required.

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Chart A

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S:WD:RD-4 0812
**Placement**

For most efficient drainage, roof drains, to the extent possible, should be equally spaced. A roof drain must also be located in any potential water collection area.

**Material & Characteristics**

**Bodies** - Industrial grade cast iron, finished with Watts standard gray acid resistant epoxy coating. Many Watts roof drains can be specified with PVC (-60) or ABS (-61) bodies, for direct solvent weld connection.

**Combination Flashing Clamp/Gravel Guard** - Standard acid resistant coated cast iron. Watts securing stud design helps spot flashing clamp bolt holes, which might otherwise be covered or filled during membrane application.

**Poly Dome** - UV stabilized high density polyethylene, high resistance to breakage and weathering.

**Pipe Connection**

**No Hub (Standard)** - Butt connection using no hub or neoprene coupling, suitable for cast iron, plastic, and most other piping applications.

**Push-On (P)** - Gasket connection ASTM C-564, with pipe stop. Suitable for no hub or service weight cast iron, Sch. 40 plastic, and steel pipe. Recommended for below grade use only.

**Threaded (T)** - Female IPS thread in drain outlet.

**Inside Caulk (X)** - Caulk ring on drain outlet, pipe is inserted and joint sealed with lead & oakum.

**PVC Socket (-60)** - Sch. 40 PVC solvent weld female socket.

**ABS Socket (-61)** - Sch. 40 ABS solvent weld female socket.

**Side Outlet (-SO)** - No Hub (see above) side outlet.

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**Vertical Leader Sizing in Inches**

<table>
<thead>
<tr>
<th>Rainfall Rate (inches/hour)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Roof Area In Square Footage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2,880</td>
<td>8,800</td>
<td>18,400</td>
<td>34,600</td>
<td>54,000</td>
<td>116,000</td>
</tr>
<tr>
<td>2</td>
<td>1,440</td>
<td>4,400</td>
<td>9,200</td>
<td>17,300</td>
<td>27,000</td>
<td>58,000</td>
</tr>
<tr>
<td>3</td>
<td>960</td>
<td>2,930</td>
<td>6,130</td>
<td>11,530</td>
<td>17,995</td>
<td>38,660</td>
</tr>
<tr>
<td>4</td>
<td>720</td>
<td>2,200</td>
<td>4,600</td>
<td>8,650</td>
<td>13,500</td>
<td>29,000</td>
</tr>
<tr>
<td>5</td>
<td>575</td>
<td>1,760</td>
<td>3,680</td>
<td>6,920</td>
<td>10,800</td>
<td>23,200</td>
</tr>
<tr>
<td>6</td>
<td>480</td>
<td>1,470</td>
<td>3,070</td>
<td>5,765</td>
<td>9,000</td>
<td>19,315</td>
</tr>
<tr>
<td>7</td>
<td>410</td>
<td>1,260</td>
<td>2,630</td>
<td>4,945</td>
<td>7,715</td>
<td>16,570</td>
</tr>
<tr>
<td>8</td>
<td>360</td>
<td>1,100</td>
<td>2,300</td>
<td>4,325</td>
<td>6,750</td>
<td>14,500</td>
</tr>
</tbody>
</table>

Maximum tributary areas which can be drained by Roof Drains, Vertical Rainwater Leaders, or Storm-Water Conductors for Various Rainfall Rates. Source: ASPE Practical Plumbing Engineering (c) 1998

Chart B
Commonly Specified Options

Galvanized Body & Flashing Clamp (-13) - Cold zinc galvanizing, commonly specified in highly corrosive environments, such as coastal or industrial areas. Watts standard acid resistant epoxy coating eliminates the need for galvanizing in many applications.

Accutrol Flow Restrictor (-A) - Regulates flow during heavy rains, reducing load on storm sewer system. Available 1 to 3 weirs, max. flow 30GPM per weir. Specification detail upon request.

Sump Receiver (-B) - Drops roof drain flange flush with top of roof deck, eliminating strain on roofing membrane, and potential puddling around drain.

Underdeck Clamp (-D) - Securely fastens drain to roof deck.

Adjustable Extension (-E) - Raises roof drain from main deck, drain body and membrane clamp adjust level with top of insulation.

Reversible Extension Flange (-F) - Heavy gauge zinc plated steel, creates stable surface over deck opening for quick installation and adjustment of drain body to height of insulation. Replaces specification for cumbersome sump receiver/extension combination.

Stainless Steel Ballast Guard (-GSS) - 8" high perforated stainless steel, specified for high ballast, or in IRMA installations.

Ductile Iron Dome (-K) - Epoxy coated, durable and impact resistant.

Galvanized Ductile Iron Dome (-K13) - Cold zinc galvanizing, commonly specified in highly corrosive environments, such as coastal or industrial areas. Watts standard acid resistant epoxy coating eliminates the need for galvanizing in many applications.

Ductile Iron Low Dome (-K) - Low profile, epoxy coated, durable and impact resistant.

Aluminum Dome (-K80) - Epoxy coated, corrosion resistant.

SS Mesh Covered Aluminum Dome (-K83) - Screen prevents small debris from entering drain.

Vandal Proof (-6) - Allen head screws regularly furnished, torx & pin may be specified for high security applications.

2" High External Water Dam (-R) - Fixed water dam specified for primary overflow roof drains.

Adjustable Internal Water Dam (-W) - Specified for primary overflow, standard 4" dia. X 4" high standpipe.
ROOF DRAINS

TYPICAL INSTALLATIONS

- **RD-100-B-D**
  - Cast iron no hub drain body
  - Dome
  - Flashing clamp
  - B15 body
  - Membrane
  - 2" insulation
  - Adjustable extension flange
  - Metal deck
  - Underdeck clamp
  - Sump receiver
  - Waterproofing membrane
  - Metal deck
  - Underdeck clamp
  - ABS internal standpipe
  - Waterproofing membrane
  - Concrete
  - No hub cast iron drain body

- **RD-300-D-F**
  - Cast iron no hub drain body
  - Dome
  - Flashing clamp
  - B15 body
  - Membrane
  - 2" insulation
  - Adjustable extension flange
  - Metal deck
  - Underdeck clamp
  - Waterproofing membrane

- **RD-100-D-W**
  - Cast iron no hub drain body