Water infiltration is one of the industry’s most persistent and costly problems. Leaks, loss of insulating properties, structural deterioration and property damage cost owners of large, flat, built-up roofs billions of dollars every year. This often results in complete removal and replacement of all roofing materials. Rising energy and roofing material costs compound the problem.

The Troxler RoofReader™ allows mapping of hydrogen concentrations within the roofing structure, permitting repair or replacement of only saturated areas. As part of a preventative maintenance program, the RoofReader quickly pinpoints problem areas, saving time and minimizing capital outlay. The RoofReader is also an effective quality assurance tool on new roofing materials for warranty verification and for tracing leaks.

Graph shows how roof moisture data levels would appear when plotted.
• **Rapid Results**
  Press the start button on the handle or gauge base, wait 7.5 seconds for the audio beep and record your reading. There is also a scanning meter that provides an instantaneous indication of the presence of hydrogen.

• **Versatile**
  The 3216 weighs only 9 lbs. (4 kg), has a handle height which adjusts for user comfort and has a tilting handle to allow testing underneath air conditioning units and other structures.

• **Nondestructive**
  The 3216 operates on the principle of neutron moderation. Fast neutrons emitted by a radioactive source are slowed by hydrogen in the roof. Slowed neutrons are detected and counts displayed are proportional to moisture (hydrogen) content. Statistical analysis reduces data to wet and dry areas. Core samples can be taken to verify results.

**USA Patents:**

**Canada Patents:**

---

**Application**

1. A grid is laid out on the roof area. A typical grid size is 10’ x 10’ (3m x 3m).
2. Nondestructive nuclear moisture counts are taken at each grid intersection and recorded. The manner in which the survey is performed negates surface texture effect (gravel does not have to be removed from the roof surface). Because of its compact design, light weight and convenient carrying height, the gauge is quickly and easily moved between test points.
3. Proper interpretation of data can establish dry areas and varying degrees of moisture intrusion. A frequency histogram is one simple way of handling data which will establish wet and dry areas. A 3-D surface plot (or contour map) of the roof may be prepared to aid in replacing the affected areas. Both of these types of graphs can easily be created using a spreadsheet program like Microsoft® Excel™. Instant reading by the scanning meter can be used for quick troubleshooting of wet areas.

---

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>US Customary Units</th>
<th>SI Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7.5 sec</td>
<td>15 sec</td>
</tr>
<tr>
<td>Precision at 12.5pcf (±pcf)</td>
<td>0.74</td>
<td>0.52</td>
</tr>
<tr>
<td>Depth of Measurement at 12.5pcf (inches)</td>
<td>—</td>
<td>8.9</td>
</tr>
<tr>
<td>Useful Measurement Range (pcf)</td>
<td>—</td>
<td>0-62.4</td>
</tr>
<tr>
<td>SI Units</td>
<td>7.5 sec</td>
<td>15 sec</td>
</tr>
<tr>
<td>Precision at 200 kg/m³ (±kg/m³)</td>
<td>11.9</td>
<td>8.4</td>
</tr>
<tr>
<td>Depth of Measurement at 200 kg/m³ (mm)</td>
<td>—</td>
<td>225</td>
</tr>
<tr>
<td>Useful Measurement Range (kg/m³)</td>
<td>—</td>
<td>0-1000</td>
</tr>
</tbody>
</table>

---

**Mechanical**

- **Gauge Materials:** Stainless steel base, anodized aluminum handle, ABS plastic top cover
- **Operating Temperature:** -10 to 70°C (14 to 158°F)
- **Storage Temperature:** -55 to 85°C (-67 to 185°F)
- **Surface Contact Dimensions:** 190 x 229 mm (7.5 to 9 inches)
- **Height without Handle:** 495 mm (19.5 inches)
- **Height with Handle:** 770 mm (30.3 inches)
- **Weight:** 4.1 kg (9 lbs.)
- **Shipping Weight:** 12 kg (26.5 lbs.)
- **Shipping Case:** 670 x 406 x 330 mm (26.5 x 16 x 13 inches)

---

**Radiological**

- **Source Form:** Stainless steel, double encapsulated
- **Source Classification:** ANSI-C54444
- **Maximum Surface Dose Rates:** 4.5 mrem/hr neutron, 1 mrem/hr gamma
- **Shipping Case:** DOT 7A, Type A, Yellow II label, TI 0.1
- **Radionuclide:** Am-241:Be, 40 millicuries

---

**Standard Equipment**

- **Shipping case**
- **DC charger**
- **AC charger**
- **Operator’s manual**