Function

• Public Demand
  • They make (Trunk) roads safer
  • They make it easier to drive
  • They cut down travel times
  • They make transport work better
    • (prohibitory)
High Quality Road Markings

- Best safety performance
- Best efficiency
- Very clear road layout, road geometry easy to read
- Ease of decision making, consistent predictable road behaviour
- Vulnerable road users able to use roads - especially at night
- Junctions clear and visible

Additional Benefits of road studs

- Visibility in damp or wet where road markings are invisible at night. (Northern Winter)
- Visibility and preview of road geometry for large distances in all conditions.

Inputs

Processes

Outputs

No Delineation

- Very high collision rates day and night, many serious or fatal
- Many drivers don't drive at night. Vulnerable drivers housebound.
- High instance of run-off road, head on collision, junction misread.
- Road behaviour erratic and unpredictable
- Efficiency seriously affected, Journey times very unpredictable.
Revised series 1200 Signs

- CE and regulations the main driver
- Performance driven
- Wind loading
- Base requirements
- Incorporate TS4 requirements
- No national annex for signs
- CE mark to employer requirements.
Table 12/2 Recommended wind pressure values for use in the Republic of Ireland for Signs up to a maximum overall Height, H of 9.6m

<table>
<thead>
<tr>
<th>Maximum Width, w</th>
<th>Sign maximum overall height, H (m)</th>
<th>Wind speed (v_b) (m/s)</th>
<th>Wind pressure value (kN/m²) for sign maximum overall height, H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum w = 1.8</td>
<td>3.6</td>
<td>(\leq 26) (See Fig. 12/1)</td>
<td>0.8 1.2 0.6 1.0 0.6 1.0</td>
</tr>
<tr>
<td>Maximum d = 1.8</td>
<td></td>
<td>(&gt; 26) (See Fig. 12/1)</td>
<td>0.8 1.4 0.8 1.2 0.8 1.2</td>
</tr>
<tr>
<td>Maximum (h_m) = 1.8</td>
<td></td>
<td>All wind speeds</td>
<td>1.4 1.4 1.3</td>
</tr>
<tr>
<td>Maximum w = 4.35</td>
<td>6.3</td>
<td>All wind speeds</td>
<td>1.4 1.4 1.3</td>
</tr>
<tr>
<td>Maximum d = 4.5</td>
<td></td>
<td>All wind speeds</td>
<td>1.4 1.4 1.3</td>
</tr>
<tr>
<td>Maximum (h_m) = 1.8</td>
<td></td>
<td>All wind speeds</td>
<td>1.4 1.4 1.3</td>
</tr>
</tbody>
</table>

Distance from the Shoreline, (d)

- \(d \leq 2\) km
- \(2\) km < \(d < 10\) km
- \(d \geq 10\) km
### Table 12/3 Performance requirements for Traffic Sign Faces

<table>
<thead>
<tr>
<th>Road classification</th>
<th>Unlit</th>
<th>Lit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural motorways and rural dual carriageways with 120 km/h speed limit – overhead gantry signs (long distance viewing)</td>
<td>R3A</td>
<td>R3A</td>
</tr>
<tr>
<td>Urban motorways and urban dual carriageways with a speed limit of ≤100km/h – overhead gantry signs (short distance viewing)</td>
<td>R3B</td>
<td>R3B</td>
</tr>
</tbody>
</table>
| National road                                                                       | RA1 if AADT < 3500
RA2 if AADT ≥ 3500                                                                        | RA2         |
| Regional road                                                                       | RA1         | RA2        |
| Local roads                                                                         | RA1         | RA1        |
| Roadworks                                                                           | RA2         | RA2        |

**Notes:**

1. Exceptions to Table 12/3; Parking signs shall be RA1 and Keep Left Bollards shall be R3A or R3B for all road types.

2. Prismatic materials of suitable performance may be substituted for glass bead materials of a particular class on specific permission of the Employer’s Representative. Substituted prismatic materials shall not have a retroreflectivity performance equivalent to a higher class of material.
Specify general requirements

4 Flanged posts shall be galvanised steel in accordance with I.S. EN ISO 1461 and be secured by anchorages and attachment systems. Flanged posts shall be fabricated prior to being hot dip galvanised. Galvanised bolts shall be used and shall be lightly greased before final installation and bolts and anchorages shall be installed so as to achieve the required loading and torque settings. Flange plates shall include holes or slots to accommodate the attachment system. Flange plates shall be neat and appropriately designed for their location.

5 H Frame and cranked posts (RCD/1200/009) shall comply with the requirements in this specification for steel posts and shall be fabricated before being hot dip galvanised. Posts and crossbars shall be of uniform cross section.

6 Passively safe posts shall comply with the performance types in I.S. EN 12767 as set out in the design. The structural performance shall be clearly marked on the post. Passively safe posts shall have a 30 year design life and the design shall have a signed manufacturer’s warranty against material failure for 10 years.
Revised series 1200 Delineation

- Set base requirements for different road types.
  - National 200mcd 3 year sliding guarantee
  - Non national 100mcd white 80mcd yellow 2 year steady guarantee
- Set guarantee periods for all delineation.
Current Programme

• Result of 200mcd
  • Operators frequently checking bead depth
  • Well maintained equipment
  • No cheap materials
  • Lines achieve 100mcd baseline over extended period.
Current Programme

• Payment
  • 60% on application
  • 20% on initial proof of quality
    • Typically at year end
  • 20% at 36 months

• Result – Quality rewarded
  • No arguments
    • (money does the talking)
Specification and Measurement

- Ask for what you want
  - (Want what the public wants !)
- Simplify bills
  - Prepare scabble spray
  - Prepare scabble extrude
  - Brush wash and spray (rumble)
  - Remove
- Contractor controls prep
  - Contractor deals with the consequences
Testing

- No point in specifying unless you test
- Contractor provided independent test
  - CE marking
  - Employer spot tests / joint tests

- Test = Payment
High studs
Signs and Lines areas

Outside MMaRC and PPP

Signs maintenance
Delineation Maintenance

Contact regional office or NRA project manager
Signs@nra.ie