

owner and maintainer of the nsw rail network

RAILINFRASTRUCTURE CORPORATION

Discipline

Rolling Stock Engineering Standard

Category

Inspection

Title

INSPECTION OF STEPS AND HANDRAILS

Reference Number

RSS 0020

Version

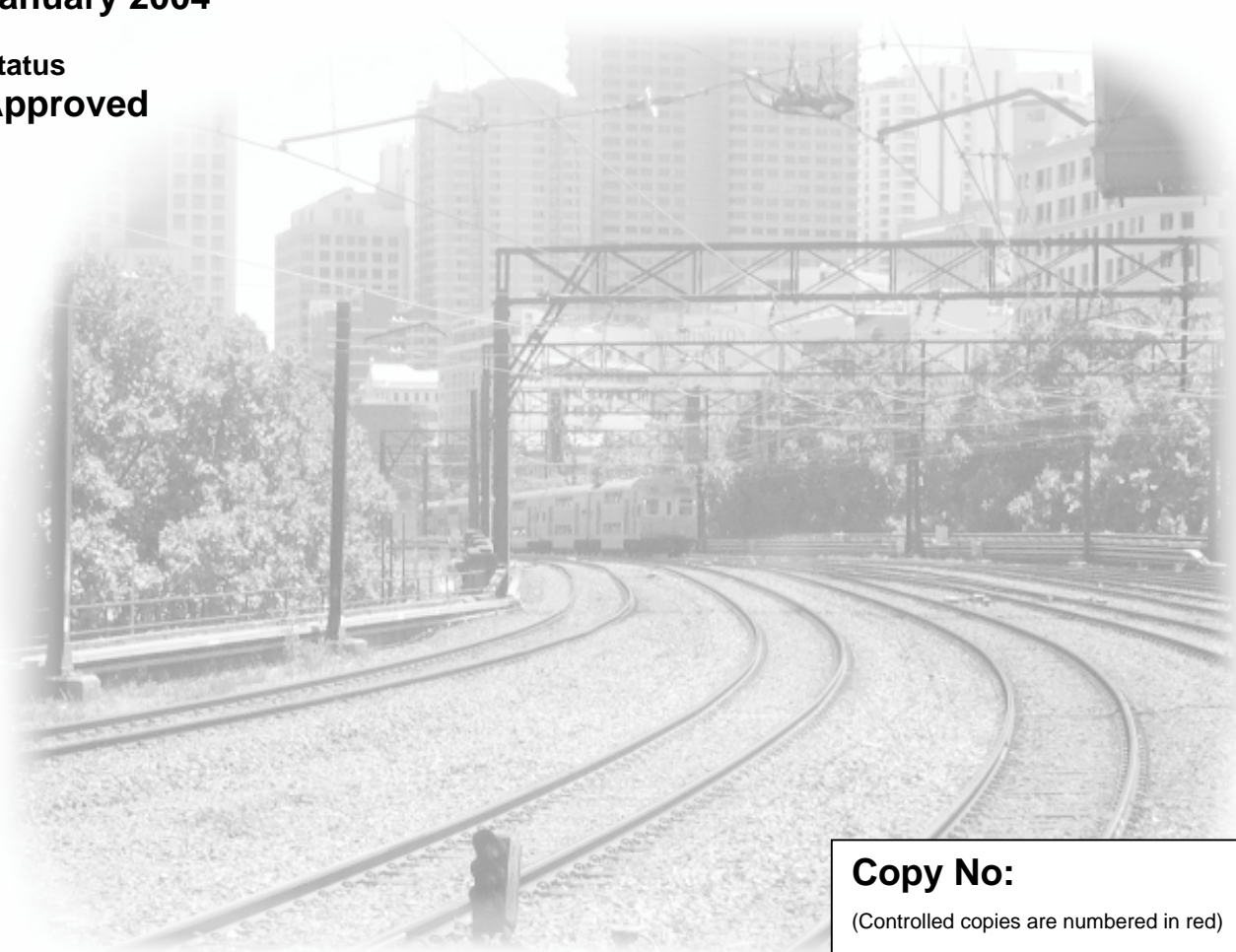
1.0

Date of Issue

January 2004

Status

Approved



Copy No:

(Controlled copies are numbered in red)

DISCLAIMER

Rail Infrastructure Corporation has used its best endeavors to ensure that the content, layout and text of this document is accurate, complete and suitable for its stated purpose. It makes no warranties, express or implied, that compliance with the contents of this document shall be sufficient to ensure safe systems of work or operation. Rail Infrastructure Corporation will not be liable to pay compensation in respect of the content or subsequent use of this document for any other purpose than its stated purpose or for any purpose other than that for which it was prepared except where it can be shown to have acted in bad faith or there has been willful default.

DOCUMENT APPROVAL

The technical content of this document has been approved by the relevant RIC engineering authority and has also been endorsed by the RIC Configuration Management Committee directly or as delegated through the conditions of the Configuration Management Policy.

DOCUMENT SUPPLY and CONTROL

The Primary Version of this document is the electronic version that is available and accessible on the Rail Infrastructure Corporation Internet and Intranet website.

It is the document user's sole responsibility to ensure that copies are checked for currency against the Primary Version prior to its use.

Controlled hardcopy versions of this document will be issued by the Principal Engineer Rolling Stock & Mechanical Assurance.

Controlled hardcopy versions of this document may be made and issued to sub-contractors if they are registered using a local document management and distribution system.

When controlled hardcopy versions are issued using a local document management system each copy is to be uniquely identified in the Control Box provided on the front of the document. The identifier used must identify the local distribution centre and the copy number. The identifier is to be marked using a colour other than black or grey.

COPYRIGHT

The information in this document is Copyright protected. Apart from the reproduction without alteration of this document for personal use, non-profit purposes or for any fair dealing as permitted under the Copyright Act 1968, no part of this document may be reproduced, altered, stored or transmitted by any person without the prior written consent of RIC.

About This Standard

This standard is based on TRS 1089.

Version History

Version 1.0

First issued January 2004

Draft 1 numbered RSS 25

Draft 2 renumbered as RSS 0020

This page has been intentionally left blank

Table of Contents

About This Standard	3
Version History	3
1 Scope	7
2 End Steps with Step Plate of Solid Material	7
3 End Steps with Step Plate of Expanded Metal	8
4 End Steps of All Types	10
5 Side Stirrup steps	11
6 Handrails	12
7 Reference Documents	12
7.1 RIC Standards	12

This page has been intentionally left blank

1 Scope

Defects in steps and handrails are considered as shunters hazards.

Any vehicle with a step or handrail which is damaged or distorted so that safety is compromised, shall be carded accordingly.

Loose or missing bolts, cracked or broken welds or components, and any components with cracks through or into bolt holes are unacceptable and the vehicle concerned shall be carded for repairs or replacements.

2 End Steps with Step Plate of Solid Material

This sub-section applies to those steps where the foot support surface consists of flat (smooth), diamond or chequer pattern plate.

Any distortion of the step plate above or below the horizontal plane is unacceptable (Diagram 1 (a) and (b)).

The distance from the end sill face to the step leg or rear of the step plate is unacceptable if greater than 65mm (Diagram 1(c)).

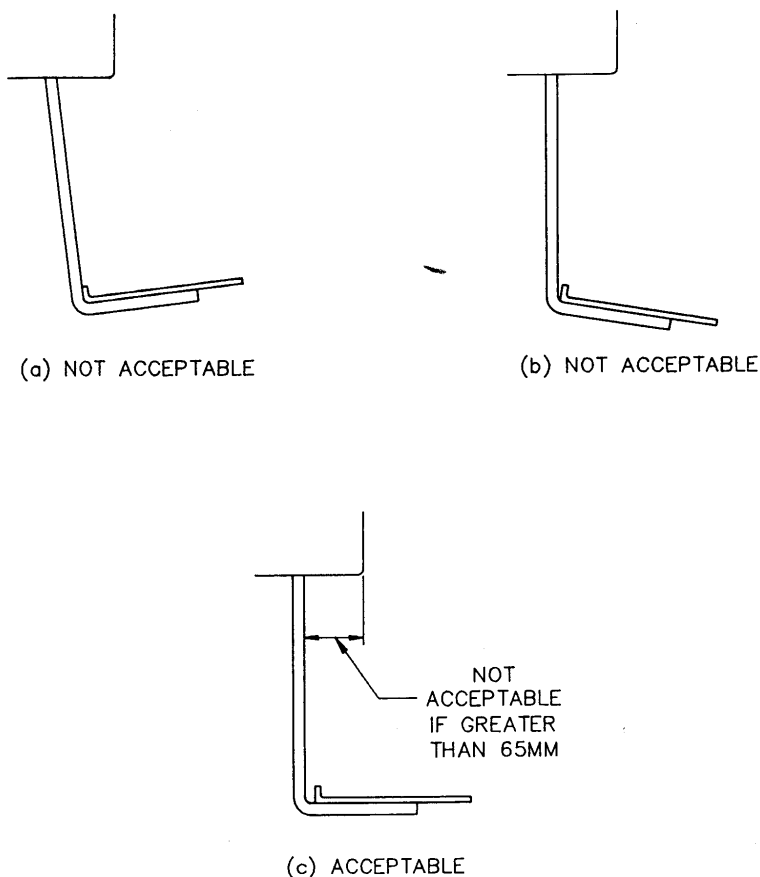


Diagram 1.

3 End Steps with Step Plate of Expanded Metal

This sub-section applies to those steps where the foot support surface consists of an open mesh expanded metal panel with anti-slip features.

Any distortion of the step plate above the horizontal plane is unacceptable (Diagram 2 (a)).

For straight leg steps bolted behind the end sill, distortion below the horizontal is acceptable up to a maximum of 5° (Diagram 2 (b)).

For straight leg steps bolted to the outside of the end sill and for bent leg steps bolted behind the end sill, downward distortion of the step plate is acceptable up to a maximum of 10° below the horizontal (Diagrams 2 (c) and (d)).

Any distortion of the vertical step legs, in the vehicle's longitudinal direction, of more than 5° is unacceptable for straight or bent leg steps. Distortion up to 5° is acceptable for:

- (a) Straight leg steps bolted not more than 65mm inboard of the end sill face (Diagram 3 (a)). If bolted more than 65mm inboard no distortion is acceptable (Diagram 3 (b)).
- (b) Bent leg steps provided the back of the step plate is not more than 65mm inboard of the end sill face (Diagram 3 (c)).

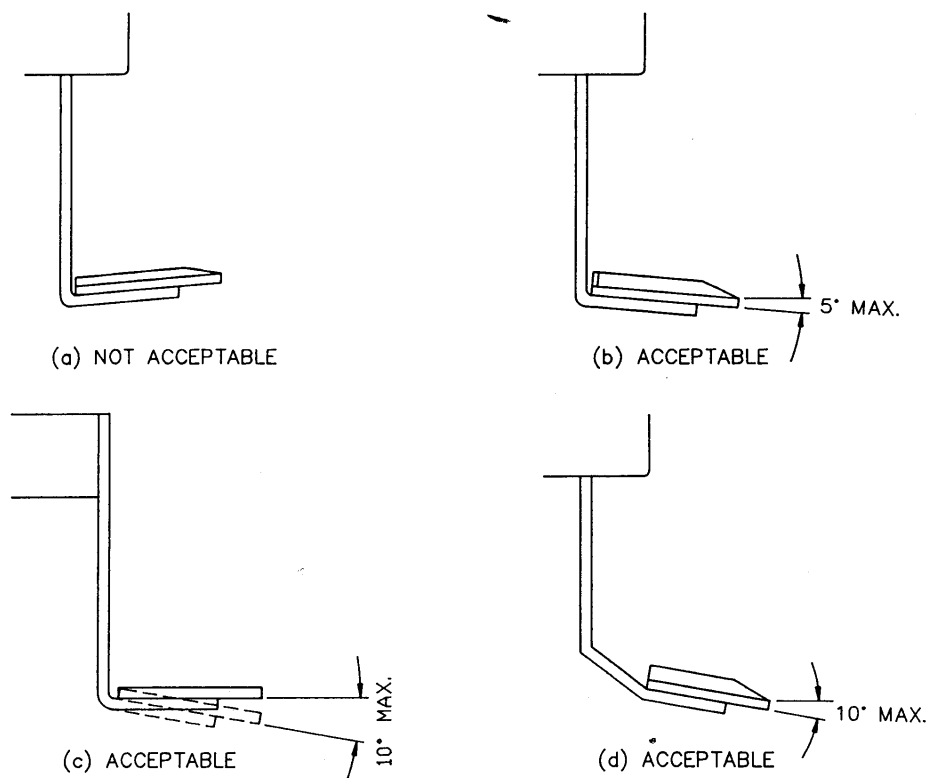


Diagram 2.

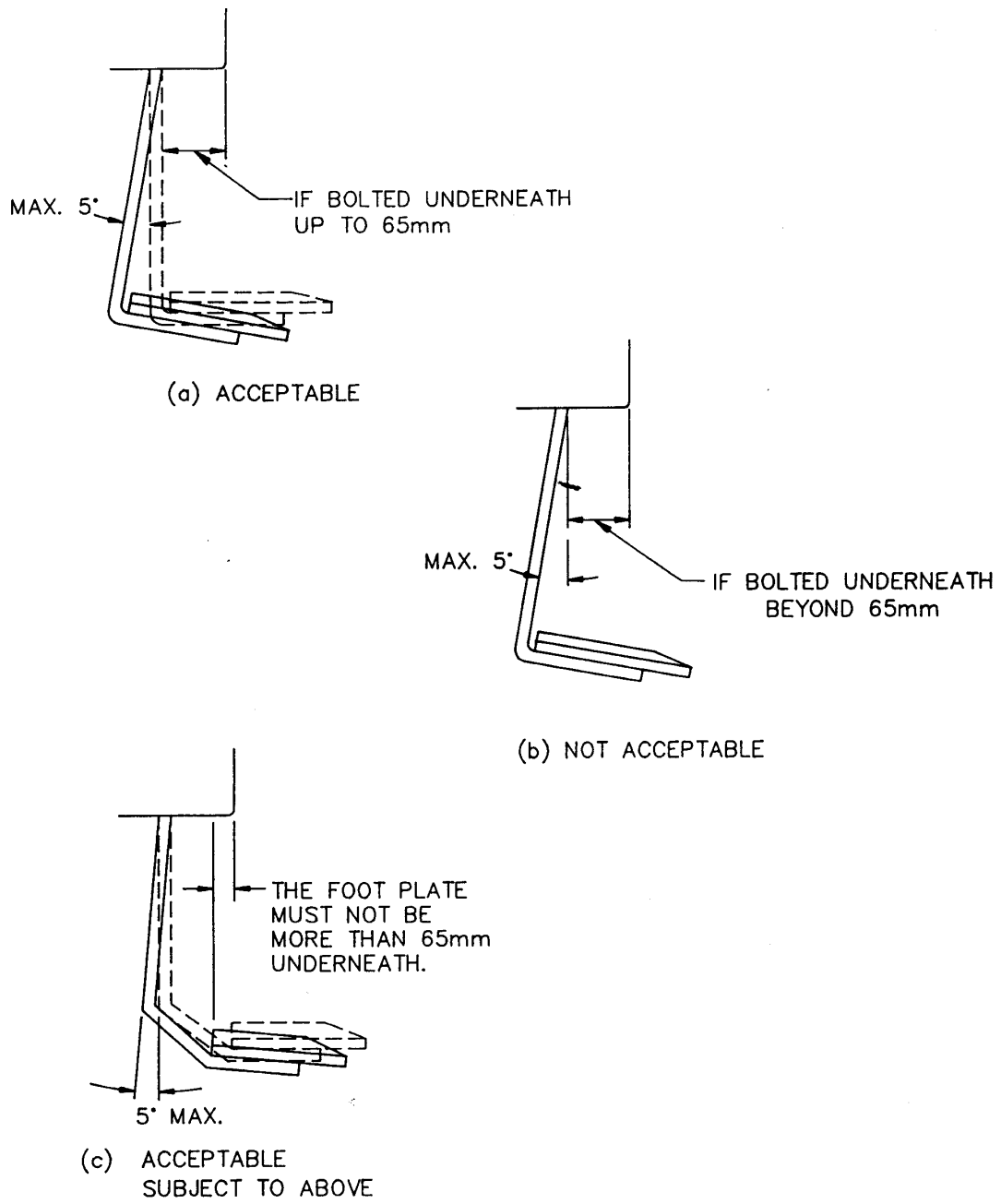


Diagram 3.

4 End Steps of All Types

Distortion of the step plate below the horizontal is unacceptable where an end mounted handbrake housing or mechanism protrudes into the space immediately above the step plate (Diagram 4 (a)).

Lateral displacement of step legs greater than 5° from the vertical, in either direction, is unacceptable. Displacement of up to 5° is acceptable provided that the step plate conforms to all other acceptable parameters (Diagram 4 (b)).

Any inclination of the step plate downward towards the longitudinal centre line of the track is unacceptable (Diagram 4 (c)).

Any inclination of the step plate greater than 5° downward towards the outside of the track is unacceptable (Diagram 4 (d)).

Any damage, distortion or misalignment of the step plate itself is unacceptable (Diagram 4 (e)).

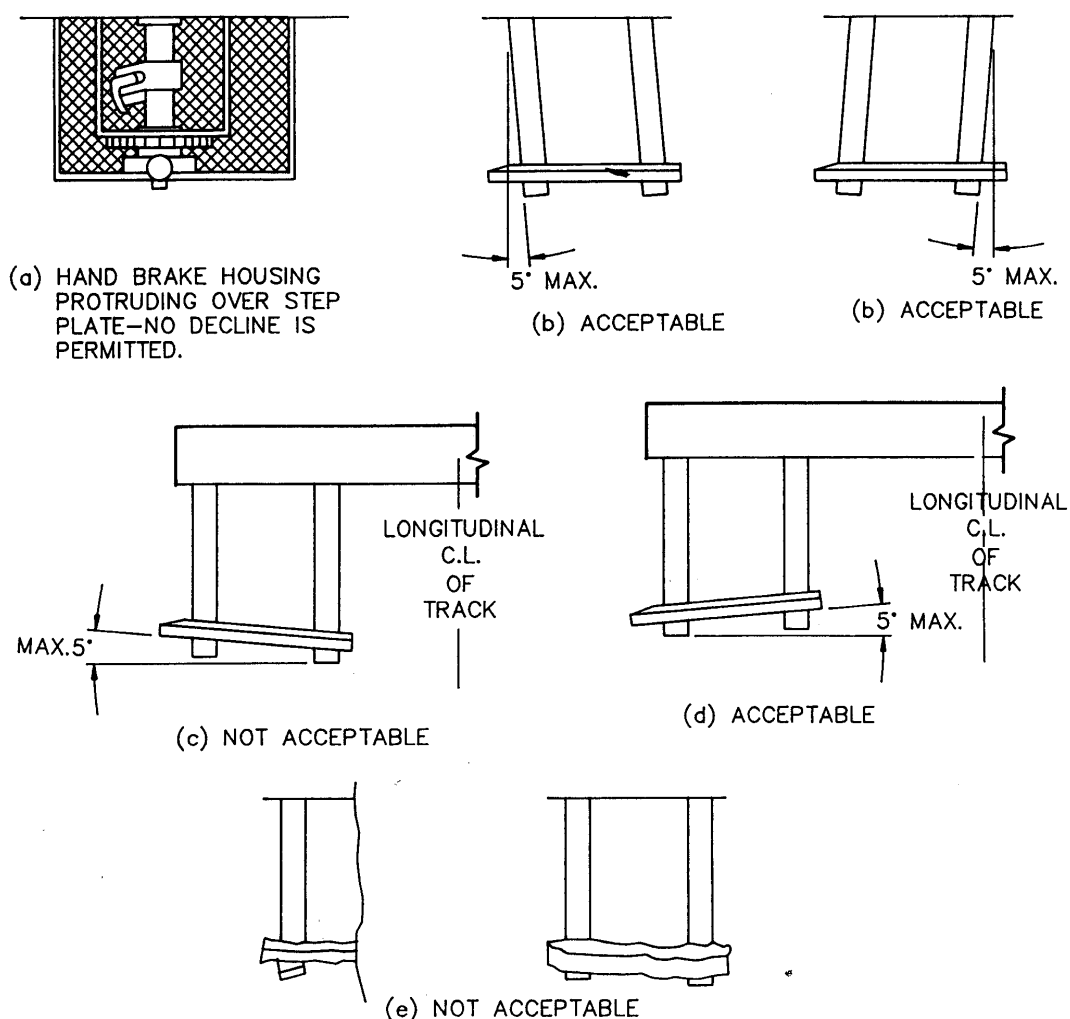


Diagram 4.

5 Side Stirrup steps

Provided the foot support surface is parallel with the underframe, longitudinal distortion of the vertical legs up to 5° in either direction is acceptable (Diagram 5 (a)).

For stirrup steps bolted inside the side sill, no inwards (lateral) distortion is acceptable. Outwards distortion is acceptable provided the step does not protrude past the outside of the underframe (Diagram 5 (b)).

For stirrup steps bolted to, or level with, the outside of the side sill, inwards distortion up to 5° from the vertical is acceptable. Outwards distortion is acceptable provided the step does not infringe the permissible vehicle outline of Section 18 (Diagram 5 (c)).

For stirrup steps bolted more than 75mm inboard of the adjacent outer face of the underframe, no inwards distortion is acceptable. Outwards distortion is acceptable provided the step does not protrude past the outside of the underframe (Diagram 5 (d)).

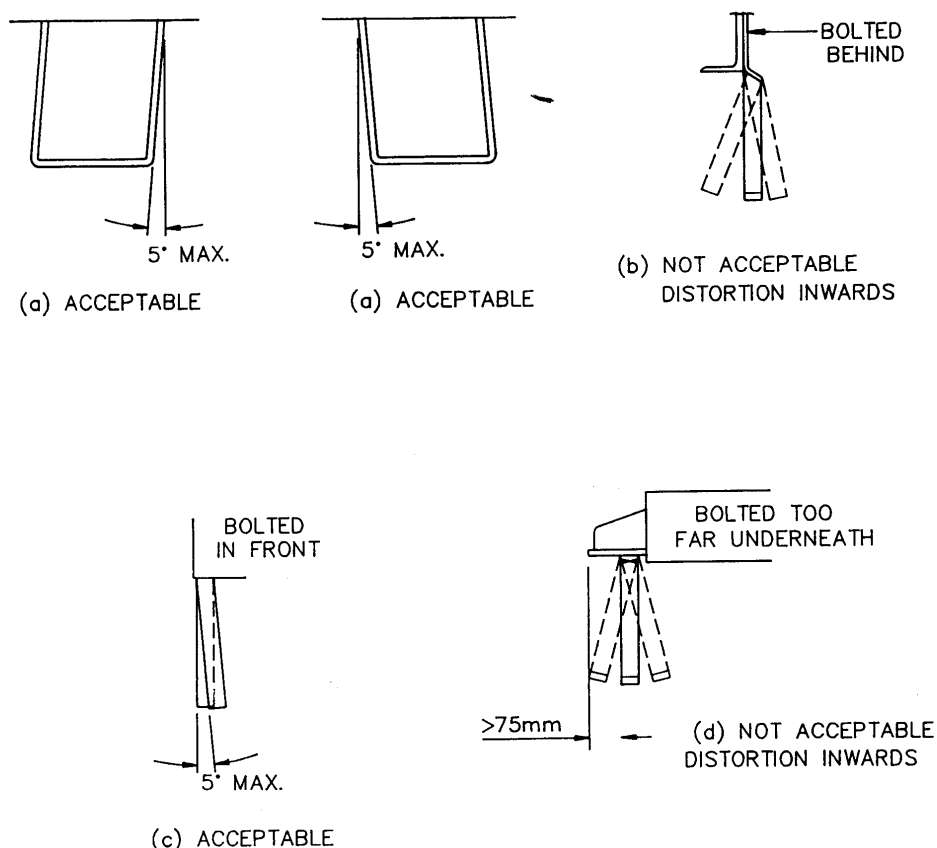


DIAGRAM 5.

6 Handrails

Any distortion to a handrail so that hand clearance at any location is less than 40mm is unacceptable (Diagram 6).

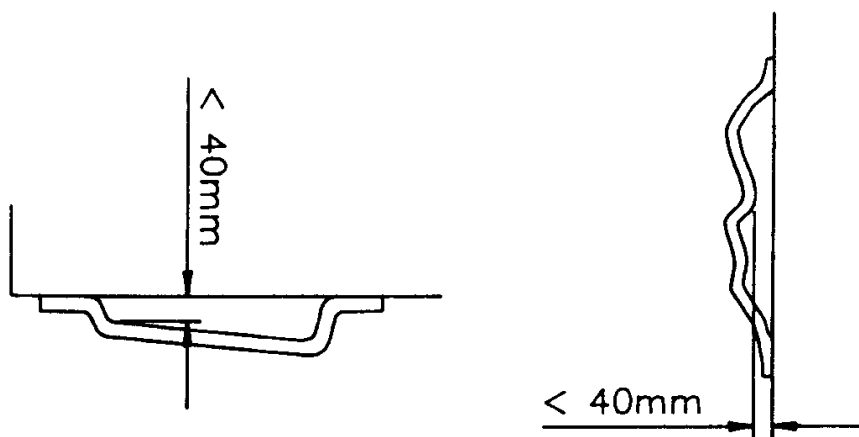


Diagram 6.

7 Reference Documents

7.1 RIC Standards