



Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Updates to Structures Standards

Jonathan Case

Arup

TII Standards Training 2022

17th May 2023

Recent Updates to TII Structures standards

Expansion Joints : February 2023

Revised standard **DN-STR-03006** “*Expansion Joints for Use in Road Bridge Decks*”

Significant update of design standard to reflect current design and approval procedures. Supplementary information provided regarding good detailing practice, installation and maintenance aspects.

Revised specification **CC-SPW-02300**

References to BD-33 (superseded) removed and references to DN-STR-03006 implemented.



TII Publications



Expansion Joints for Use in Road Bridge Decks

DN-STR-03006
February 2023



TII Publications



Specification for Road Works Series 2300 – Bridge Expansion Joints and Sealing of Gaps

CC-SPW-02300
February 2023

Standards



Standards

Recent Updates to TII Structures standards

Bridge Bearings : February 2023

Standard withdrawn **DN-STR-03004**

Applicable standard: Euronorm IS EN 1337 parts 1 to 11

Updated specification **CC-SPW-02100**

To align with IS EN 1337

Updated notes for guidance **CC-GSW-02300**

References to BD-33 (superseded) removed and references to DN-STR-03006 implemented.



Recent Updates to TII Structures standards

Design of Road Structures : February 2023

Interim Advice Note withdrawn: IAN-02

New design standard: **DN-STR-03020** “*The Structural Design of Road Structures*”

This Standard gives guidance, advice, and the requirements of the Road Authority on the use of Eurocodes for the design of structures constructed as part of National Road Projects and aspects of execution relevant to the design.



Recent Updates to TII Structures standards

Bridge abutment Standard Details : February 2023

Standard Details

CC-SCD-01850 *Single Leaf Abutment Gallery Door*

CC-SCD-01851 *Double Leaf Abutment Gallery Door*

CC-SCD-01852 *Abutment Gallery Security Mesh*

ELEVATION ON ABUTMENT SECURITY MESH

ELEVATION ON ABUTMENT SECURITY MESH (ALTERNATE DETAIL)

DETAIL 1

DETAIL 2

SECTION A-A

SECTION B-B

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE NOTED.
2. ALTERNATIVE DETAIL ONLY TO BE USED WHERE THE CLEARANCE BETWEEN BRIDGE ABUTMENT AND BRIDGE DOCK COINCIDE ALLOW FOR INSTALLATION OF PREFERRED OPTION.
3. STRUCTURAL STEELWORK TO BE IN ACCORDANCE WITH SERIES 1800 OF TII SPECIFICATION FOR WORKS. ALL STEEL TO BE GRADE S275 J2 UNLESS NOTED OTHERWISE.
4. ALL SPLICES AND CONNECTORS TO BE FULLY TOP COATED AFTER ASSEMBLY. ALL GAPS SHALL BE SEALED.
5. STAINLESS STEEL CONNECTION TO BE ELECTRICALLY ISOLATED FROM GALVANISED STEEL MEMBERS USING NEOPRENE WASHERS.
6. ALL EDGES TO BE GROUNDED SMOOTH.
7. STEEL DIMENSIONS ARE SPECIFIED FOR A MEAN TEMPERATURE OF 20°C.
8. HARD STAMPING SHALL NOT BE PERMITTED ON PERMANENTLY EXPOSED SURFACES.
9. VISIBLE WELDS ON EXPOSED SURFACES SHALL BE GROUNDED FLUSH.
10. ALL NUTS TO BE LOCKING NUTS.
11. MINIMUM 4mm FILLET WELDS TO BE PROVIDED ON ALL SIDES.
12. MESH AND FRAME TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH CC-SPW-01800. GALVANIZING COVERAGE RATE SHALL BE IN ACCORDANCE WITH EN ISO 1461. STAINLESS STEEL SHALL BE USED FOR ANCHOR BOLTS, NUTS AND WASHERS.
13. MAXIMUM SIZE OF OPENINGS IN MESH SECURITY PANEL SHALL BE 300x300mm.
14. ALTERATION TO PROPOSED GALVANISED STRUCTURAL STEELWORK AFFECTED BY HOLES FOR BOLTS ON LOCAL CUTTING WILL BE PROVIDED WITH PROTECTIVE COATING IN ACCORDANCE WITH THE ORIGINAL COATING SYSTEM AND AGREED WITH THE DESIGNER. FOR PROPOSED STEELWORK SITE GALVANISING PAINT WITH EQUIVALENT PROTECTION TO THE PROTECTIVE COATING SYSTEM CORROSION CATEGORY C5 AND VERY HIGH DURABILITY SHALL BE PROVIDED.
15. METHOD OF ERECTION TO BE AGREED WITH DESIGNER.
16. THE PURPOSE OF THIS DETAIL IS TO ENSURE CONSISTENCY OF ABUTMENT MESH FOR STRUCTURES ON THE NATIONAL ROAD NETWORK.
17. FOR EXISTING STRUCTURES, SURVEY TO BE CARRIED OUT TO CONFIRM REQUIRED DIMENSIONS PRIOR TO FABRICATION.
18. FABRICATION DRAWING TO BE PROVIDED TO DESIGNER IN ADVANCE OF FABRICATION.
19. THIS DESIGN IS FOR TYPICAL GAPS OF UP TO 800mm BETWEEN THE SUBSTRUCTURE AND ABUTMENT. LARGER GAPS WILL REQUIRE A BESPOKE DESIGN.
20. FOR EXISTING STRUCTURES, REINFORCEMENT SURVEY TO BE CARRIED OUT PRIOR TO FABRICATION TO AVOID CLASHING BETWEEN REBAR AND FIXINGS.
21. THE MINIMUM DESIGN LOAD OF EACH FASTENER IS 280kN.

ELEVATION OF DOUBLE LEAF ABUTMENT GALLERY DOOR

SECTION A-A

SECTION B-B

SECTION C-C

DETAIL 1 HEAVY DUTY HINGE

DETAIL 2 DUTY HINGE

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE NOTED.
2. ALL STEEL TO BE GRADE S275 J2 TO S18N UNLESS NOTED OTHERWISE.
3. FRAMES TO BE COMPRISED OF 80x80mm ANGLES ON FOUR SIDES WITH 20mm WIDE STRIP ATTACHED TO ACT AS DOOR STOP.
4. FRAMES TO BE FIXED WITH M10 GRADE 8 ANCHOR BOLTS INTO PREFORMED HOLES IN FRAME AT 300mm ON/4.
5. EACH DOOR TO BE FIXED TO THE FRAME WITH HEAVY DUTY HINGES.
6. HEAVY DUTY HINGES SHALL BE FULLY TOP COATED AFTER ASSEMBLY. ALL GAPS SHALL BE SEALED.
7. CATCHES TO BE PROVIDED TO ALLOW THE DOORS TO BE HELD IN THE OPEN POSITION.
8. ALL SPLICES AND CONNECTORS TO BE FULLY TOP COATED AFTER ASSEMBLY. ALL GAPS SHALL BE SEALED.
9. ADD 300x300mm AIR VENT WITH LATCH COLOUR: RAL 9005. STEEL PLATE TO FORM LOUVER AND FRAME AROUND. 4mm FILLET WELD ALL ROUND MAX GAP 20mm.
10. STAINLESS STEEL CONNECTION TO BE ELECTRICALLY ISOLATED FROM GALVANISED STEEL MEMBERS USING NEOPRENE WASHERS.
11. ALL EDGES TO BE GROUNDED SMOOTH.
12. STEEL DIMENSIONS ARE SPECIFIED FOR A MEAN TEMPERATURE OF 20°C.
13. HARD STAMPING SHALL NOT BE PERMITTED ON PERMANENTLY EXPOSED SURFACES.
14. VISIBLE WELDS ON EXPOSED SURFACES SHALL BE GROUNDED FLUSH.
15. MINIMUM 4mm FILLET WELDS TO BE PROVIDED ON ALL SIDES.
16. 75 AND 75mm DIMENSIONS TO BE SELECTED FOLLOWING ASSESSMENT OF EQUIPMENT THAT MAY NEED TO BE CARRIED IN THIS DESIGN IS BASED ON MAXIMUM 75 AND 75mm DIMENSIONS OF 210mm AND 120mm RESPECTIVELY. LARGER DOORS SHOULD ONLY BE USED IN ASSOCIATION WITH A UNIQUE STRUCTURAL DESIGN IN ACCORDANCE WITH THE RELEVANT DESIGN CODES.
17. IN DETAILING, CARE MUST BE TAKEN THAT DOORS DO NOT FOLLOW ANY ADJUSTED ANGLED SURFACES.
18. DOOR AND FRAME TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH CC-SPW-01800. GALVANIZING COVERAGE RATE SHALL BE IN ACCORDANCE WITH EN ISO 1461. STAINLESS STEEL SHALL BE USED FOR ANCHOR BOLTS, NUTS AND WASHERS.
19. PROTECTION AGAINST CORROSION PAINT SYSTEM AND FINAL COLOUR TO BE CONFIRMED WITH TII AND PROVIDED IN ACCORDANCE WITH CC-SPW-01800.
20. DOORS SHALL COMPLY WITH ANY FURTHER REQUIREMENTS STATED IN CC-SPW-01800.
21. DOOR SHALL OPEN OUTWARD FROM THE ABUTMENT GALLERY UNLESS SITE SPECIFIC CONSTRAINTS PREVENT THIS ARRANGEMENT.
22. EXECUTION CLASS EXC 4 AS PER IS 9186.
23. METHOD OF ERECTION TO BE AGREED WITH DESIGNER.
24. THE PURPOSE OF THIS DETAIL IS TO ENSURE CONSISTENCY OF ABUTMENT GALLERY DOORS FOR STRUCTURES ON THE NATIONAL ROAD NETWORK.
25. SURVEY TO BE CARRIED OUT TO CONFIRM REQUIRED DIMENSIONS PRIOR TO FABRICATION.
26. FABRICATION DRAWING TO BE PROVIDED TO DESIGNER IN ADVANCE OF FABRICATION.

	DOUBLE LEAF ABUTMENT GALLERY DOOR	
	STANDARD CONSTRUCTION DETAILS (SCD)	
REVISIONS	REVISION NUMBER	DESCRIPTION
	N/A	
ISSUE DATE	ISSUE NUMBER	ISSUE DESCRIPTION
FEBRUARY 2023	CC SCD 01851	

Recent Updates to TII Structures standards

EIRSPAN manuals : September 2022

Updated manual: **AM-STR-06054** “*EIRSPAN Bridge Management System Principal Inspection Manual*”

Updated manual: **AM-STR-06055** “*EIRSPAN Bridge Management System Routine Maintenance Manual*”

Documents reclassified from a Standard to a Technical Documents.



TII Publications



EIRSPAN Bridge Management System Principal Inspection Manual



TII Publications



EIRSPAN Bridge Management System Routine Maintenance Manual

AM-STR-06055
September 2022



Technical

Technical

Recent Updates to TII Structures standards

Gantry Groups 8 to 11 : December 2021

Standard Details for new Gantry type: Group 10

CC-SCD-01828

CC-SCD-01829

Standard Details for new Gantry type: Group 11

CC-SCD-01830

CC-SCD-01831

NOTES

1. The purpose of this detail is to ensure a consistency of structures for MGS gantries across the national road network. No section sizes and details are reference to any code. It is the responsibility of the Designer to ensure design and detail the MGS gantry, construction details and to ensure the construction details are in accordance with the standards, their associated risk rating criteria, the publication (Code of Practice, Code of Practice, Code of Practice, Code of Practice) and all other design documents as appropriate.
2. All gully support posts shall be designed to withstand the vehicle collision loads shown in Table 2.2 of the TII Code of Practice (Code of Practice) of a vehicle collision system.
3. The Designer to specify gantries shall provide structural drawings for the gantry, gully, all attachments for the gantry, such as road signs, and all other design documents as appropriate.
4. All dimensions are in millimetres.
5. Steel shall be S275 to S355 or S235 to S275 in EN 10355 unless otherwise stated. Unless otherwise stated, all dimensions shall be in accordance with the standards CC-SPW 1002.
6. The structural dimensions shall be in accordance with TII Standard CC-SPW 1002.
7. Protection in elements to be in accordance with TII Standard CC-SPW 1002.
8. A suitably qualified inspector in accordance with CC-SPW 1002 and CC-SPW 1003 shall be engaged by the Designer for inspection and approval of the gantry and all attachments for the gantry.
9. Temporary welded attachments shall be subject to approval by the Designer.
10. Lifting eyes to be designed by a specialist and subject to the Designer's approval.
11. Any temporary attachments for the gantry shall be designed by the Designer and approved by the Designer.
12. Any temporary attachments for the gantry shall be designed by the Designer and approved by the Designer.
13. Any temporary attachments for the gantry shall be designed by the Designer and approved by the Designer.
14. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
15. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
16. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
17. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
18. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
19. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
20. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
21. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
22. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
23. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
24. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
25. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
26. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
27. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
28. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
29. All dimensions shall be in accordance with TII Standard CC-SPW 1002.
30. All dimensions shall be in accordance with TII Standard CC-SPW 1002.

Recent Updates to TII Structures standards

Reinforced Earth Structures: July 2021

Updated specification: **CC-SPW-02500**

Updated to give consistency in design approach and specifications with regard to reinforced earth structures.

Updated notes for guidance: **CC-GSW-02500**



Notes for Guidance on the Specification for Road Works Series 02500 - Special Structures
CC-GSW-2500
July 2021



TII Publications



Specification for Road Works Series 02500 - Special Structures

CC-SPW-02500
July 2021



Standards



Standards

Recent Updates to TII Structures standards

Ongoing work

Sustainability & TII Structures – Position Paper

Review and commentary on current practices within TII Structures in the context of sustainable development. The objective of Position Paper is to identify current sustainability practices and to recommend key focus areas which have a positive impact on the delivery of the SIP goals.

Aesthetics of Road Structures – New design standard

Currently the requirements for bridge aesthetics and typical/standard details are defined by the Employer in the contract documents. The objective of this new standard is to provide an overarching document on the aesthetics of road structures – it will cover aspects related to processes and procedures, as well as requirements related to structural form and detailing principles.