ASSOCIATION FOR ROAD TRAFFIC SAFETY AND MANAGEMENT

GUIDANCE DOCUMENT

WG2/

05/22

PROVIDING GUIDANCE TO MANUFACTURERS AND USER COMMUNITIES

GUIDANCE ON THE REQUIREMENTS FOR FIXED PLATE TRAFFIC SIGNS ON GANTRIES

Introduction

This Guidance is written for the benefit of sign manufacturers, installers, gantry and sign designers, and purchasers of overhead mounted fixed traffic signs for installation on gantries only. It does not relate to vertical traffic signs which are affixed at verges.

It is written to support the requirements of Series 1200 of the Manual of Contract Documents for Highways Work (MCHW) and is intended to provide supplementary guidance to the Appendix 12/6 Traffic Signs: Special Sign requirements on Gantries.

Background and definitions

The design of the gantry superstructure is undertaken by qualified structural engineers and follow the requirements laid down in DMRB CD365; Portal and cantilever signs/signals gantries.

The term Designer throughout this document is defined under DMRB CG300 Technical Approval of Highways Structures Terms & Definitions as “Designer – the organisation responsible for the overall design or assessment. Also known as the Principal Designer”.

The Introduction to the Design Manual for Roads and Bridges (DMRB GG 101) requires compliance with MCHW and states at 2.1:

All works, including inspections on motorway and all-purpose trunk roads, on land owned, leased, or managed by the Overseeing Organisation shall be undertaken in accordance with DMRB requirements appropriate to the intended use of the asset or road.

It is the responsibility of the Designer to identify and set the performance requirements of all elements and components of the scheme and to ensure compliance with the overall scheme requirements.

Whilst sign manufacturers may use software in the manufacture processes, to confirm the traffic sign structure details provided by the Designer, this is limited to providing assurance that their part of the structure meets stated performance requirements, and it remains the responsibility of the Designer to ensure compliance to the overall scheme requirements in accordance with the contract with the end client.

Recommendations

As a guide to Designers the following recommendations apply:

The spacing between sign support uprights should normally be no greater than 2500mm. If a wider spacing is required, this will be deemed an exception which must be communicated to the sign manufacturer by the Designer in order for the sign manufacturer to specially construct a more rigid sign face to accommodate this specific spacing.

The maximum overhang of the sign being the distance from the edge of the sign-plate to the nearest upright support should normally be no greater than 750mm. If a larger overhang is required, this will be deemed as an exception which must be communicated as above.

Wind loading and Channel Spacings

The Designer shall set out the required Wind Pressure Class (e.g., WL7, WL8, etc) in accordance with BS EN 12899-1:2007 Fixed Vertical Road Traffic Signs or a specific design wind pressure they want the sign assembly to be designed to meet.

The Institute of Highways Engineers Sign Structures Guide 2021 provides information regarding wind load calculation and specifically identifies the information required as a minimum.

Wind loading information provided by the Designer will be subjected to assessment by the sign manufacturer to identify and confirm the appropriate channel spacings for the required wind loading requirements stated for each gantry sign.

In addition, the following must be provided to the sign manufacturer to determine the most appropriate type of channel and channel spacings for that assembly:

- the maximum width of the sign
- the maximum height of the sign
- the mounting height to the underside of the sign (which allows for the incorporation of differing shapes of sign)
- substrate to be used in the manufacture of the sign
- location of vertical gantry uprights?

Vertical Splits

Vertical splits in the sign face should, wherever possible, be positioned in front of the uprights on the gantry superstructure for strength and to avoid light spill through the sign face. It is recommended as a minimum that a 50mm wide section of tape should be affixed to the rear of the sign face to cover the split and minimise any potential light spill. Tape should be of a suitable and durable quality and appropriate colour (grey, black or non-metallic finish in accordance with TSRGD 2016)

All vertical joints require channel joining sections to be used with the channels to ensure horizontal alignment as per the channel manufacturer's instructions either factory fixed or during installation.

Fixings

Vibration resistant fixings are to be used which are compatible for both the channel and the upright sections of the gantry superstructure.

Where butting plates are installed on site, vibration resistant fixings must be used. It is recommended that diamond headed (twist-in) bolts are used. It is recommended that such plates be added at approximately 1000mm intervals. Further guidance can be found at DMRB CS 125 Inspection of Traffic Signs, Appendix D and the diagram A below (extracted from CS 125 DMRB)

All nuts are to be tightened to the torque recommended by the fixing supplier to secure the fixing to the gantry sign and to the upright.

All traffic signs must comply with the requirements of BS EN 12899-1:2007 and the UK National Annex thereof and must be UKCA marked (CE marking will remain in use until January 2023).

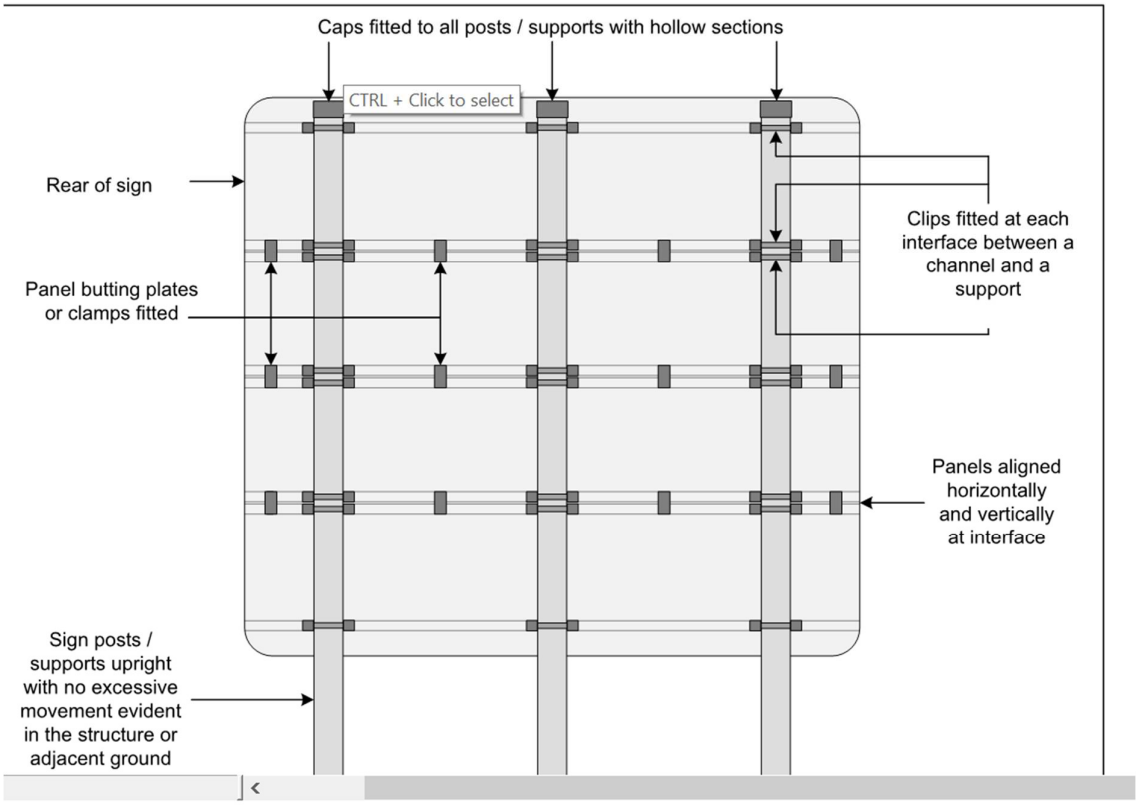


Diagram A – extracted from DMRB CS125 and applicable to show fittings for signs for gantries.

Documentary requirements

The list produced below is intended to supplement the current Appendix 12/6 MCHW Series 1200 NG1220. At the time of publication of this document (May 2022) MCHW is under review by National Highways. ARTSM has requested that this list be used in the revised Series when it is published.

A template checklist has also been provided together with an illustrative diagram for the process.

<u>The Designer must provide the following information</u>

(i) Geographic location of gantry/traffic signs
(ii) All appropriately numbered scheme specific drawings
(iii) Drawings must include overall maximum dimensions of sign plates together with the mounting height to the underside of the gantry sign plate from the carriageway
(iv) Details of any light spill screens and backing boards required
(v) Requirements for type of material, preparation, and finish, for sign plates, gantry uprights etc [For painting, cross reference should be made to Appendix 19/2]
(vi) Details of any requirements for anchorages and attachment systems, including loadings and torque settings, cable ducting and other equipment or features that may affect the design of the traffic sign (including any angle setting requirements)

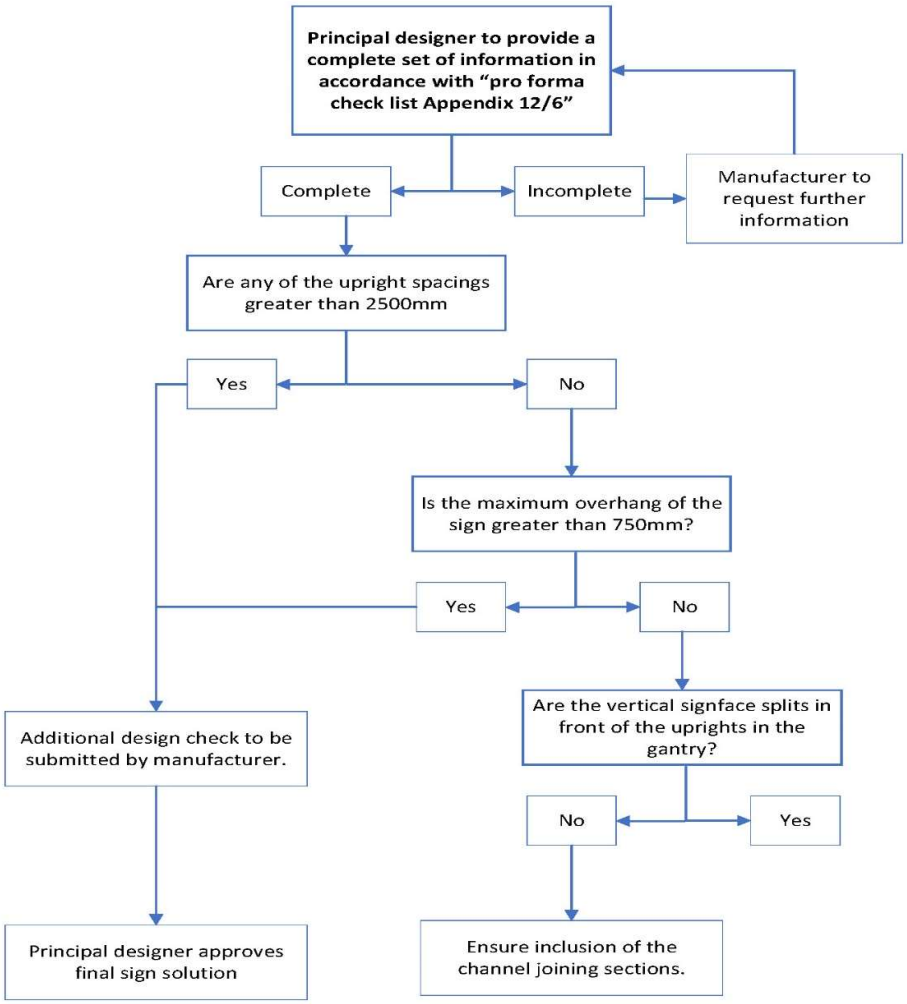
(vii) The number, type, size, and positioning of all gantry uprights. (Note. Where spacing is greater than 2500mm you must seek further recommendations from the sign manufacturer)
(viii) Details of overhang required (Note. Where this is greater than 750mm you must seek further recommendations from the sign manufacturer)
(ix) Details of any electrical equipment compartments
(x) The type of sign face material including the class of any retroreflective material
(xi) The type of direct illumination, whether internal or external, overhead mounted or upward pointing luminaires
(xii) The method of switching the illumination, [e.g., photo-electric control, time switch]
(xiii) Any requirement for the covering of traffic signs
(xiv) Details of location identifying marks
(xv) Site specific basic wind load
(xvi) All Sign face drawings with all dimensions in accordance with TSRGD 2016 and relevant DfT working drawing and published guidance; the Traffic Signs Manual; Chapter 7: Design of traffic signs, or DfT Authorisation
(xvii) Any specific requirements not covered above

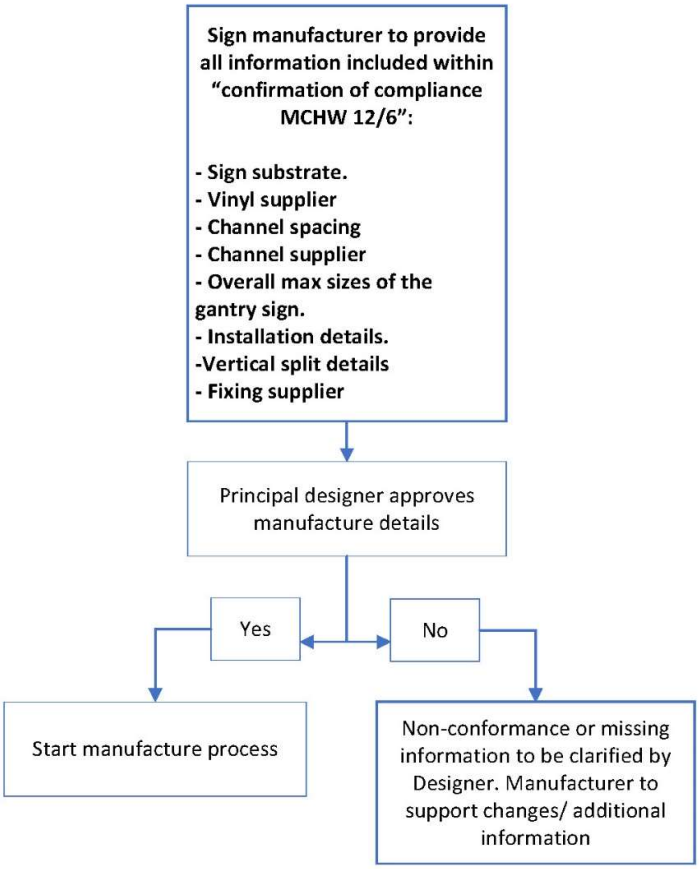
Performance specification pro forma checklist

	Received from designer	**Compliance by sign manufacturer**	**Additional comments**
Performance Spec Ref:	**Xxx/xxx/xx**		
Geographic Location of gantry(s)			
All appropriately numbered scheme specific drawings			
Maximum Overall dimensions of sizes of sign plates including mounting height to the underside of the gantry sign plate			
Details of light spill screens and backing boards required			
Required type of material preparation and finish for sign plates			
Details of any requirements for anchorages and attachment systems, including loadings and torque settings, cable ducting and other equipment or features that may affect the design of the traffic sign (including any angle setting requirements)			
Number, size, type, and positioning of gantry uprights (NB. Spacing greater than 2500mm must be identified as an exception)			

Maximum sign plate overhang (NB. Overhang greater than 750mm must be identified as an exception)			
Details of any electrical equipment compartments			
Type of sign face material including retroreflective Class			
Type of direct illumination			
Method of switching illumination			
Requirements for coverings			
Details of location identifying marks			
Site Specific basic wind loading requirements			
Sign face drawings (compliant to TSRGD or DfT Authorisation)			
Any additional requirements not identified above			

Process flowchart





Following manufacture and supply Confirmation of compliance form fully signed off by Manufacturer and submitted to Designer

Confirmation of Compliance

A Confirmation of Compliance Form should submitted to the Designer for approval prior to manufacture. The requirements of this Confirmation of Compliance form must meet those stipulated from the Designer as above.

On completion of manufacture and supply the Confirmation of Compliance form should be signed and dated as the Sign manufacturer sign off evidence and supplied to the relevant person on behalf of the Designer.

The sign manufacturer's Confirmation of Compliance form should include the Design Sheet obtained from the application of the calculations /computer software and shall be forwarded for approval to the Designer.

This Confirmation of Compliance form shall also include:

- the sign substrate used
- channel spacings and channel supplier
- and overall maximum sizes of the gantry sign including mounting height and wind loading used as provided by the Designer

A template has been created below by way of example.

Sign manufacturer's sign off

It is the responsibility of the sign manufacturer to provide a declaration that the sign itself has been designed with the relevant wind loading applied for the location, with the appropriate channels being affixed to the rear of the substrate in the correct positions as per the requirements provided by the Designer. (See Pro-forma Checklist above)

The sign manufacturer must declare that manufacture of the gantry sign has been undertaken in accordance with BS EN12899-1:2007 and will supply the appropriate CE/UKCA certification accordingly

The documentation provided by the sign manufacturer is supplementary to the certification information and forms part of the evidence which must be provided to the Designer for completion of the project. The sign manufacturer is expressly signing off the performance of the sign only as per the example document below.

Example Gantry Sign Confirmation of Compliance Form

Project	*M99 Smart Motorway*
Designer/Scheme/Gantry/Sign (where different all information must be provided)	*Any Consultant* *1, Any Road* *Any Town* *Any County* *Postcode*
Gantry Sign Reference	*123456/7890*
Designer Performance Specification for sign manufacture reference:	*0987/654321*

Sign Manufacturer	*Any Sign Company* *1, Another Road* *Another Town* *Another County* *Postcode*

CE/UKCA Certificate Number	*998877I*

Issued By	*A Nominated Body* *A Different Road* *A Different Town* *A Different County* *Postcode*

Sign Drawings provided to support Appendix 12/6

Drawing Number	*1234/5678 Revision B, dated 31st December 2021*
Drawing Number	*1234/3456 Revision C, dated 31st December 2021*
Drawing Number	*1234/4567 Revision D, dated 31st December 2021*

Maximum Width of sign plate	*10,000mm*
Maximum Height of sign plate	*4000mm*
Mounting Height to Underside of Sign plate	*8000mm*

Design wind pressure	*1000 N/m² (Pa)*

Substrate Used	*3mm Aluminium Sheet, Type ABCD*

Channel Manufacturer	*Channel Supplier*
Channel Type	*Heavy Duty*

Horizontal Channel Spacings	*600mm*

Structural Summary (Computer or manual)	*Attached*

We hereby certify that this sign to the dimensions and wind load herein described has been manufactured in full accordance with BS EN 12899-1:2007 and the requirements of our CE/UKCA Certification, with the appropriate substrate and channel spacings as detailed in this Confirmation of Compliance form and as stipulated by the requirements of the Designer Performance Specification Reference ******* for the manufacture of this sign.

Signed on Behalf of the Sign manufacturer	Mr Sign Manufacturer

Date	*Date of sign off*

May 2022

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