BRITISH STANDARD

BS 6579-1: 1988
(Reprinted, Incorporating Amendment No. 1)

Safety fences and barriers for highways —

Part 1: Specification for components for tensioned corrugated beam safety fence on Z posts

UDC 625.738 + 692.88

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Road Engineering Standards Committee (RDB/-) to Technical Committee RDB/18, upon which the following bodies were represented:

Aluminium Federation
Association of Consulting Engineers
British Cement Association
British Railways Board
British Steel Industry
Convention of Scottish Local Authorities
County Surveyor's Society
Department of Transport
Institution of British Engineers
Institution of Civil Engineers
Institution of Highways and Transportation
Royal Automobile Club
Royal Society for the Prevention of Accidents

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

Department of Transport (Transport and Road Research Laboratory)
Fencing Contractors' Association

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Foreword

This Part of BS 6579 has been prepared under the direction of the Road Engineering Standards Committee and it supersedes BS 6579-1:1985, which is withdrawn. This edition of this Part of BS 6579 differs from the previous one in that additional information on post extensions has been included.
The other Parts of BS 6579 either published or in preparation are:

— *Part 2: Specification for tensioned corrugated beam safety fence on offset brackets;*

— *Part 3: Specification for components for tensioned rectangular hollow section beam (100 mm × 100 mm) safety fence;*

— *Part 4: Specification for tensioned rectangular hollow section beam (200 mm × 100 mm) safety fence;*

— *Part 5: Specification for open box beam safety fence (single height);*

— *Part 6: Specification for components for open box beam safety fence (double height);*

— *Part 7: Specification for untensioned corrugated beam safety fences;*

— *Part 8: Specification for concrete safety barriers.*

BS 6579 is being produced at the request of users and manufacturers in order to cover the various types of safety fences and barriers available.

Fences detailed in Parts 1 to 7 have been developed already and approved for use on roads in the United Kingdom.

The designs are based on the results of static and dynamic tests carried out in the past on components and complete systems under the direction of the Transport and Road Research Laboratory (TRRL).

The safety barrier in Part 8 is for use only on certain roads at the date of publication of this Part of BS 6579.

If further types are developed, BS 6579 will be revised and increased in scope to cover additions and variations.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 26, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

0 Introduction

0.1 The objective of providing safety fences and safety barriers adjacent to or in the central reserve of a highway is to reduce the consequences of vehicles leaving the highway and entering an area where it would be unsafe for them to travel. It is emphasized that in practice the range of vehicle characteristics and of conditions of impact with a safety fence are such that some variability in response, particularly by the impacting vehicle, is inevitable.

Safety fences are intended to absorb some of the energy of impact and to redirect the errant vehicle, so that it follows, within a narrow angle, the line of the fence in the direction of the traffic and does not overturn.

Safety barriers are intended to provide containment without significant deflection or deformation under impact, and to redirect errant vehicles along the line of the barrier in the direction of traffic.

0.2 The safety fences and barriers for ground mounting which are the subject of BS 6579 are for use in conjunction with parapets on bridges and other structures, which are the subject of BS 6779. Although definitions in both standards have been chosen so as to align as closely as possible, there are some cases where the definition is applicable only to a particular Part of BS 6579 and does not apply generally.

0.3 No direct guidance is given in BS 6579 on the situations where safety fences and barriers should be erected or on the choice of the types described in the various Parts, but information pertaining to general characteristics of different types of safety fences and barriers is given in Appendix A.

0.4 There are various situations and various methods by which transition between a safety fence or safety barrier and a vehicle containment parapet can be assured without impairing the overall protection afforded to the users of the highway.

Where it is not appropriate to make a direct connection to a bridge parapet, transition to an open box beam fence should be made using a special transition piece.

NOTE Details of a special transition piece are given in Figure 5 of BS 6579-5:1986.

Appendix B gives recommendations on methods of connecting safety fences to bridge parapets and other types of safety fence. In Appendix C the number of components is given for 1 km of safety fence.

0.5 It is important to recognize that the performance of a safety fence can be affected by factors that are not covered by the specifications for the components. These factors include the choice of intermediate posts to suit the ground conditions and the erection and maintenance of the fence. Tensioned fences are not complete until all tensioning procedures have been satisfactorily completed.

0.6 Figure 1 illustrates the general arrangement of a tensioned corrugated beam safety fence for which the components specified in this Part of BS 6579 are intended. It is essential that the end posts and all angled beam posts are set in concrete as illustrated in Figure 1.

Intermediate posts (see Figure 2) however are expected to be either driven securely, or set in concrete into the ground, or mounted on bridge decks using "bridge deck posts" as shown in Figure 3. Where a tensioned corrugated beam fence is not continued over a bridge, the full height anchorages shown in Figure 4 should be used. These should be set in concrete and located adjacent to the approach and departure ends of the bridge deck.

0.7 Enquiries concerning the availability of detailed drawings providing information on manufacture and installation should be made to the Department of Transport Headquarters[1)] or Regional Offices of the Department.

0.8 Appendix D gives information that should be provided when making an enquiry or order. In Appendix E important recommendations are given on the transport, handling and storage of components prior to assembly on site.

0.9 Appendix F provides guidance on action to take in order to restore the height of the safety fence following raising of the surface of the carriageway, e.g. as a result of resurfacing.

1 Scope

This Part of BS 6579 specifies requirements for the components to be used in the construction of the tensioned corrugated beam (TCB) type of safety fence supported on Z posts. Requirements are given for the materials and dimensions of the components and for protective finishes.

This Part of BS 6579 does not cover erection and tensioning of the assembled fence (see clause **0**).

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

[1)] Department of Transport, St Christopher House, Southwark Street. London SE1 0ET.

2 Definitions

For the purposes of this Part of BS 6579 the following definitions apply.

2.1
safety fence

an installation provided for the protection of users of the highway consisting of horizontal beams mounted on posts

2.2
safety barrier

an installation provided for the protection of users of the highway which is continuously in contact with its supporting foundation

2.3
single sided safety fence

a safety fence having its beams on the side of the mounting posts nearest to the traffic

2.4
double sided safety fence

a safety fence having the traffic face of its beams in front of, or in line with, the traffic faces of the supporting posts, with the traffic approaching on both sides

2.5
traffic face

the face of a safety fence or barrier that is nearer to the vehicular traffic flow

2.6
impacting vehicle

a vehicle striking a safety fence or barrier whether or not it is redirected

2.7
terminal

the end-section of the length of a safety fence within which the connection to another safety fence or parapet is made

2.8
flaring (of the ends)

the setting back of ground anchorages behind the line of a safety fence

NOTE Flaring is intended to reduce the risk of errant vehicles hitting or mounting the anchorages and to reduce the risk of a vehicle passing behind the safety fence.

2.9
full height anchorage

a cross-braced anchorage frame extending to the full height of a safety fence

NOTE Full height anchorages are used in locations where ground anchorages are not suitable.

2.10
initial installation length

the length of safety fence, obtained by setting out the position of each intermediate post from the centre of the angled beam post (the datum), when lap bolt clearances have been taken up but before beam to post connections are tightened

2.11
adjuster assembly

a device for tensioning safety fences and adjusting the verticality of end posts

3 Components

3.1 Beams

Adjuster beams, angled beams and standard beams shall be formed from steel, complying with BS 1449-1, type BHR, grade 43/25. All beams shall have the profile shown in Figure 5 and shall comply with the appropriate dimensional requirements given in Figure 2.

NOTE This form of angled beam is under review.

3.2 Posts and anchorages

3.2.1 All posts and anchorages shall be made from steel complying with BS 4360 and to the following grades:

a) end posts: sections grade 43C, plates grade 43A;

b) other posts: grade 43A;

c) full height anchorages: sections grade 43C, plates and angles grade 43 A.

3.2.2 Posts and anchorages shall comply with the dimensions shown in Figure 3 and Figure 4, respectively.

3.3 Adjuster brackets

Adjuster brackets shall be made from either:

a) cast steel complying with BS 3100, grade A2 or A3; or

b) spheroidal graphite cast iron complying with BS 2789 modified to provide a minimum tensile strength of 495 N/mm^2 with a minimum elongation of 12 % or

c) steel complying with BS 4360, grade 43A (ends may be forged).

3.4 Fasteners

Bolts, nuts and washers shall be manufactured in steel as follows.

a) Bolts shall be ISO metric black hexagon type, either complying with BS 4190, grade **4.6** or as specified on the drawings.

b) Nuts shall be ISO metric black hexagon nuts, complying with BS 4190, grade 4.

c) Washers shall be black complying with BS 4320, form E, F or G (see Table 2). Taper washers for converging anchorages shall normally have a taper of not less than 8° but the taper will vary with the differing angle between convergent beams.

3.5 Reinforcing rings and tie bars

Reinforcement for use in concrete foundation shall be made from 10 mm diameter steel rod, complying with BS 4449, grade 250.

3.6 Connecting straps

For double sided fences, steel straps fabricated from steel grade 43A complying with BS 4360 shall be fitted in pairs at all beam lap joints in such a way as to connect both sides of the fence.

4 Tolerances

4.1 Tolerances on dimensions of components shall be in accordance with the information given on the relevant figure of this Part of BS 6579.

4.2 Deviation from the specified dimensions for materials and fabricated components shall be measured before galvanizing.

5 Protective finish

All steel components, excluding reinforcing rings and reinforcing bars, shall be hot dip galvanized, in accordance with BS 729, after fabrication.

NOTE Where the purchaser wishes the components to be painted by the supplier he should specify his requirements with the enquiry and/or order. In this respect attention is drawn to BS 5493.

6 Marking

All beams, posts, anchorages and adjuster brackets shall be clearly marked with the following:

a) the number of this British Standard, i.e. BS 6579[2)];

b) manufacturer's identification mark;

c) digits indicating month and year of manufacture (Note for example 10/88 indicates manufacture during October 1988).

[2)] Marking BS 6579 on or in relation to a product represents a manufacturers' declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the appropriate Part of BS 6579. The accuracy of the claim is therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.

Appendix A Vehicle safety fences and barriers for highways: type characteristics

Information on type characteristics is given in Table 1. Illustrations of fence and barrier types are given in Figure 6.

Table 1 — Vehicle safety fences and barriers for highways: type characteristics

Type	Reference	Material	Type of support or mounting	Post spacing	Beam position mounting height	Single/double sided	Tensioned/untensioned T/UT	Design deflection	Design vehicle mass	Vehicle speed	Design angle of departure (max.)
				m	mm			mm	t	km/h (miles/h)	degrees
Corrugated beam[a]	TCB1	Steel	Z section steel post	3.2	Side 610	Single	T	1 000	1.5	113 (70)	8
Corrugated beam[a]	TCB2	Steel	Z section steel post	1.6	Side 610	Single	T	800	1.5	113 (70)	10
Corrugated beam	TCB3	Steel	Steel or timber post with offset	3.2	Side (inclined at 15°) 535	Double	T	800	1.5	113 (70)	10
Corrugated beam	TCB4	Steel	Single Z section steel post	3.2	Side 610	Double	T	800	1.5	113 (70)	10
Corrugated beam	UCB	Steel	Steel or timber posts with offset	3.8 (max.)	Side 525	Single or double	UT		1.5	80 (50)	10
Rectangular hollow section 100 mm × 100 mm[a]	TRHS1	Steel	Single Z section steel post	3.2	Top 610	Both	T	1 000	1.5	113 (70)	10
Rectangular hollow section 200 mm × 100 mm	TRHS2	Steel	Single Z section steel post	3.2	Top or side 610	Both Single	T T	600 600	1.5	113 (70)	8

Table 1 — Vehicle safety fences and barriers for highways: type characteristics

Type	Reference	Material	Type of support or mounting	Post spacing	Beam position mounting height	Single/double sided	Tensioned/untensioned T/UT	Design deflection	Design vehicle mass	Vehicle speed	Design angle of departure (max.)
				m	mm			mm	t	km/h (miles/h)	degrees
Open box beam	OB1	Steel	Z section steel post	2.4	Side 610	Single	UT	600	1.5	113 (70)	10
Open box beam	OB2	Steel	Z section steel post	2.4	Side 610	Double	UT	400	1.5	113 (70)	10
Open box beam (double height)[c]	OB3	Steel	Z section steel post	2.4	Side 610 and 1 020	Single	UT	1 000	5	80 (50)	15
Concrete barrier[a]	CSB	Concrete	Profiled barrier on continuous foundation	—	816 to top of concrete	Double	—	Zero	1.5	80 (50)	8

NOTE 1 Mounting heights quoted are to the centre of the beam above the adjacent carriageway level. If the horizontal distance from the beam traffic face to the carriageway exceeds 1 500 mm, the height dimension of the beam centreline will relate to the surface immediately below.
NOTE 2 Design angle of approach of vehicle is 20° in each case.
NOTE 3 Beams TRHS2 and OB1 may be mounted on steel brackets fixed to structures.
NOTE 4 Generally, double sided beams for dual carriageways on similar levels require only a single line of posts.
[a] May reduce dazzle when mounted in central reserve.
[b] Reduces extent of snow/sand drift. On dual carriageway central reserve has to be hardened.
[c] This type of safety fence will also satisfy the condition of a 1.5 t vehicle impacting at 20° and travelling at 113 km/h (70 miles/h).

Appendix B Transition between safety fences, bridge parapets and other types of safety fence

B.1 General

B.1.1 This appendix includes the methods of connecting a tensioned corrugated beam safety fence both directly and indirectly to bridge parapets which are the subject of BS 6779.

B.1.2 The tensioned corrugated and open box beam safety fences are complementary, the latter being used where a limited deflection is required.

B.1.3 Full height anchorages should be provided at each side of expansion joints.

B.1.4 Where a direct connection is made to a parapet, the parapet end posts may require strengthening.

B.1.5 Where there is a transition from tensioned corrugated to open box beam safety fence a full height anchorage should be provided.

B.1.6 It should be noted that the means for connecting safety fences to bridge parapets referred to in **B.1.1** varies according to whether the bridge parapets are fabricated in steel or aluminium.

B.1.7 Where direct connection to a bridge parapet is not practicable, a full height anchorage should be provided adjacent to the parapet. For various methods of connecting the safety fence to a parapet, see Figure 7 to Figure 13.

B.2 Transition to open box beam safety fence

B.2.1 A specially fabricated unit may be incorporated along the length of the safety fence installation in order to provide a transition from either a single or double sided tensioned corrugated beam safety fence (see Table 2, item nos. 006 to 024) to a single sided open box beam safety fence.

B.2.2 When either of these transition pieces is fitted, the post spacing should be changed from 3.2 m for the tensioned corrugated beam fence, to 2.4 m centres for the open box beam fence. The transition piece is designed to transmit the full 330 kN tension force.

B.3 Expansion joints in structures

B.3.1 Where a tensioned corrugated beam safety fence extends across an expansion joint and the total movement is not expected to exceed 16 mm, no special provision is required.

B.3.2 Where the safety fence extends across an expansion joint and the total movement is expected to exceed 16 mm, transition to an open box beam safety fence should be made (see **B.3** of BS 6579-5:1986).

B.4 Connections to steel parapets

Tensioned corrugated beam safety fences should not be directly connected to steel bridge parapets but transition should be made by means of a length of approximately 14 m of open box beam extending to the parapet. For a length of 10 m, the tensioned corrugated beam safety fence leading up to the open box beam safety fence should have posts spaced at 1.6 m centres, i.e. half the normal post spacing.

NOTE Means of connection are detailed in BS 6579-5.

B.5 Connections to aluminium parapets

B.5.1 Tensioned corrugated beam safety fence may be connected directly to an aluminium bridge parapet where a full height anchorage is installed adjacent to the bridge parapet to take the full tension force of 330 kN, by means of a special connection piece. (See Figure 8 and Figure 11.)

B.5.2 Alternatively, connection may be made by including a length of between 14.4 m and 28.8 m of open box beam fence connected to the strengthened end posts of the parapet by means of a connection piece. (See Figure 9, Figure 10, Figure 12 and Figure 13.)

B.5.3 In making all connections between steel and aluminium components stainless steel bolts should be used and a suitable insulating material applied to the interface.

B.6 Connections to concrete parapet or safety barriers

Connections should not be made directly to concrete parapets or safety barriers but transition should be made by means of a length of open box beam safety fence as described in **B.4**.

Appendix C Schedule of components for 1 km of fence

For the convenience of users of this Part of BS 6579, Table 2 gives the numbers of components required for an uninterrupted length of approximately 1 km.

Appendix D Information to be supplied

The following information should be provided when making an enquiry or order:

a) the number of this British Standard, i.e. BS 6579;

b) the type and reference of the safety fence, i.e. corrugated beam TCB1 (see Appendix A);

c) the item number and description of each component required (see Table 2);

d) any requirements for painting.

Appendix E Transport, handling and storage

Components should be transported in a manner such as to preserve the profile and finish required by this Part of BS 6579.

The method of handling and storage can adversely affect the supplied finish and it is essential that care is taken to avoid the trapping of moisture between beam sections and the consequent growth of "white rust" and other deposits accumulating on surfaces.

Appendix F Post extensions

If for any reason the height of the fence above the adjacent carriageway is affected by the raising of the running surface, action should be taken to restore the height of the safety fence to the specified dimension.

This should be achieved by raising the height of the posts by 100 mm when the increase of the height above the original carriageway does not exceed 175 mm (see Figure 14). If the increase of the height above the original carriageway exceeds 175 mm, new standard posts of an approved type should be installed, preferably not at exactly the same location.

The extension piece for raising the height of the intermediate posts for central reserve locations and for verge locations is shown in Figure 15 and Figure 16 respectively.

Since it is necessary to connect the beam to the existing anchorage, the post extension for the angled beam post raises the angled beam 75 mm as shown in Figure 15 and Figure 16. Modification or addition to the concrete is thus avoided.

Table 2 — Components for 1 km of fence

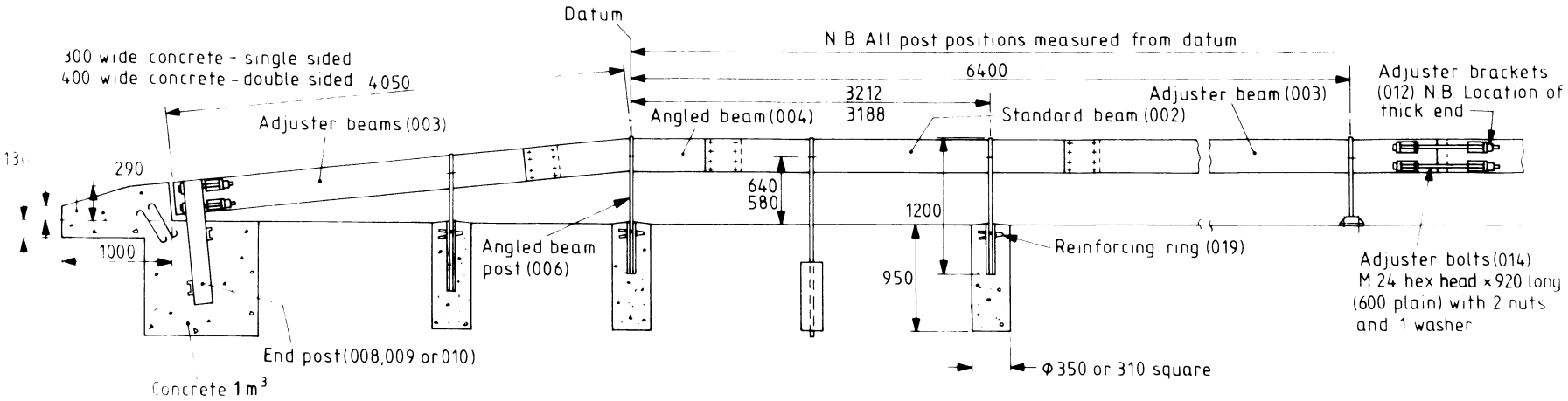
Item number (correlates with TRRL drawing)	Number required		Description of item
	Double-sided fence	Single-sided fence	
002	564	282	Standard beam
003	60	30	Adjuster beam
004	4	2	Angled beam
005	[ab]	[a]	Post
006	2[b]	2	Post angled beam
007	[ab]	[a]	Bridge deck post
008	2		End post (double beam)
009	—	1	End post (single beam) approach
010	—	1	End post (single beam) departure
011	[ab]	[a]	Post driven (central reserve)
012	120	60	Adjuster bracket
013	564	as required	Connecting strap
014	56	28	Bolt, adjuster
015	8	4	Bolt, anchorage
016	5 040	2 520	Lap bolt
018	as required	as required	Taper washer
019	[c]	[c]	Reinforcing ring
021	8	8	Reinforcing rod
022	—	—	Profile of post
023	[a]	[a]	Bridge deck post (adjustable height)
024	[a]	[a]	Extension, bridge deck post
025	as required	—	Anchorage frame (approach)
026	as required	—	Anchorage frame (departure)
027	as required	—	Anchorage beam (full height)
028	[ab]	[a]	Post driven (verge)
029	as required	—	Long post driven (verge)
030×	as required	—	Long post driven (central reserve)
031	[d]	[d]	Anchor bolt:M20
032	[e]	[e]	Cast-in socket
033	622	311	Washer post bolt M8
—	as required	—	Screw M10 × 25 mm length hex. steel grade **4.6** to BS 4190
—	622	311	Bolt M8 × 30 mm length hex. steel grade **4.6** to BS 4190
—	128	64	Nut M24 hex. steel grade 4 to BS 4190

NOTE See footnotes at end of table.

Table 2 — Components for 1 km of fence

Item number (correlates with TRRL drawing)	Number required		Description of item
	Double-sided fence	Single-sided fence	
—	5 040	2 520	Nut M16 hex. steel grade 4 to BS 4190
—	as required	as required	Nut M10 hex. steel grade 4 to BS 4190
—	622	311	Nut M8 hex. steel grade 4 to BS 4190
—	64	32	Black washer M24 (Form E) to BS 4320
—	8 950	5 040	Black washer M16 (Form F) to BS 4320
—	as required	as required	Black washer M10 (Form E) to BS 4320
—	622	311	Black washer M8 (Form G) to BS 4320
—	as required	—	Screw M16 × 35 mm length Stainless steel grade A4-80 to BS 6105
—	as required	—	Nut M16 hex. stainless steel grade A4-80 to BS 6105
—	[f]	[f]	Bolt M12 × 30 mm length grade 4.6 to BS 4190
—	[f]	[f]	Nut M12 hex. steel grade 4 to BS 4190
—	[f]	[f]	Black washer M12 (Form E) to BS 4320
—	[g]	[g]	Bolt M20 × 50 mm length hex. steel grade **4.6** to BS 4190
—	[g]	[g]	Black washer M20 (Form E) to BS 4320
—	as required	—	Washer M16 (Form A) to BS 4320 Stainless steel 304S15 to BS 1449-2

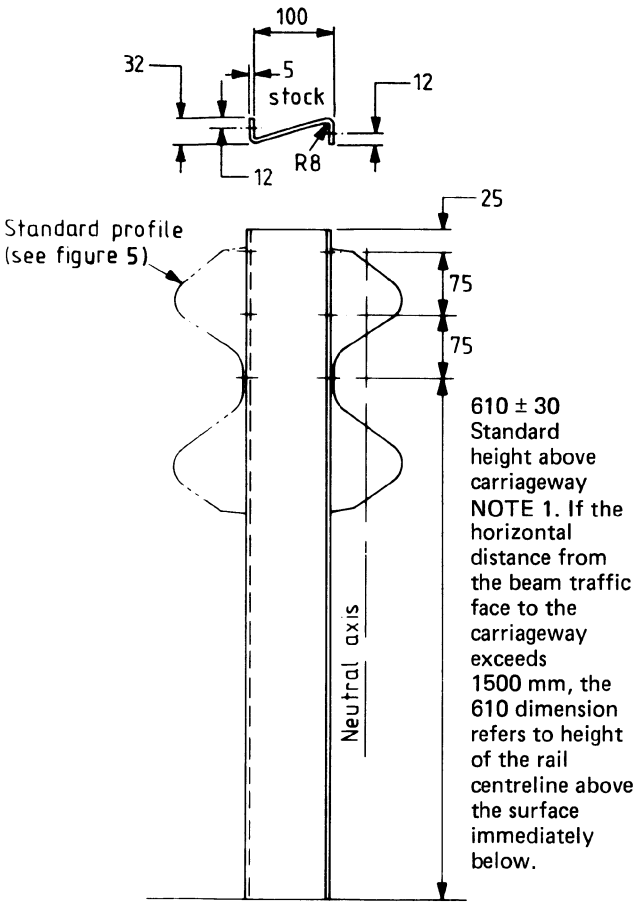
[a] Total quantity 311 (no. of each type as required).
[b] No. off double for dual single sided safety fence.
[c] No. off to equal no. off item number 005 + 2 for 006.
[d] No. off 4 per bridge deck post.
[e] No. off 1 per item 025 and 026.
[f] No. off 1 bolt, 1 nut and 2 washers per item 006.
[g] No. off 3 per item 025 and 026.



All dimensions are in millimetres.

NOTE The numbers given in parentheses refer to TRRL item numbers (see Table 2)

Figure 1 — General arrangement of TCB fence

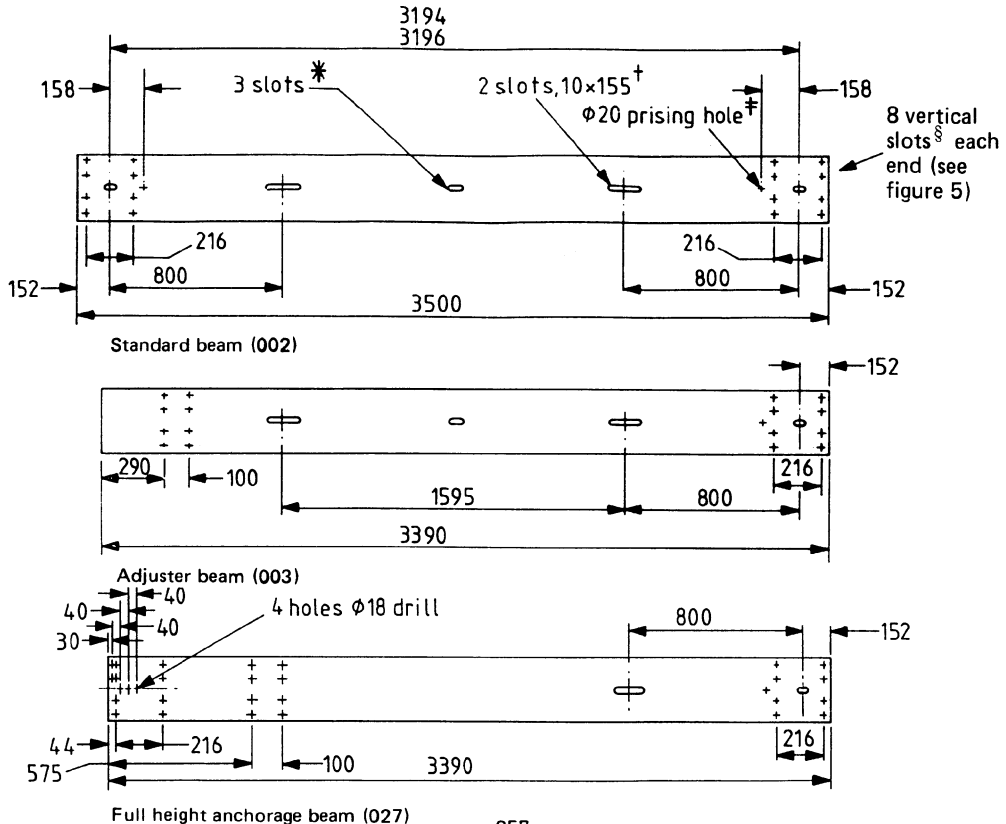


All dimensions are in millimetres.

NOTE 3. *Tolerances*: all length dimensions over 300 mm, unless otherwise stated, ± 5 mm;
all length dimensions less than 300 mm, unless otherwise stated, ± 1 mm.

NOTE 4. Angled beam post identical to intermediate post, but 6 No. 11 dia. holes replaced by 6 No. 14 dia. holes.

NOTE 5. The numbers given in parentheses refer to TRRL item numbers (see table 2).



NOTE 2. This form of angled beam is under review and may be the subject of a further amendment.

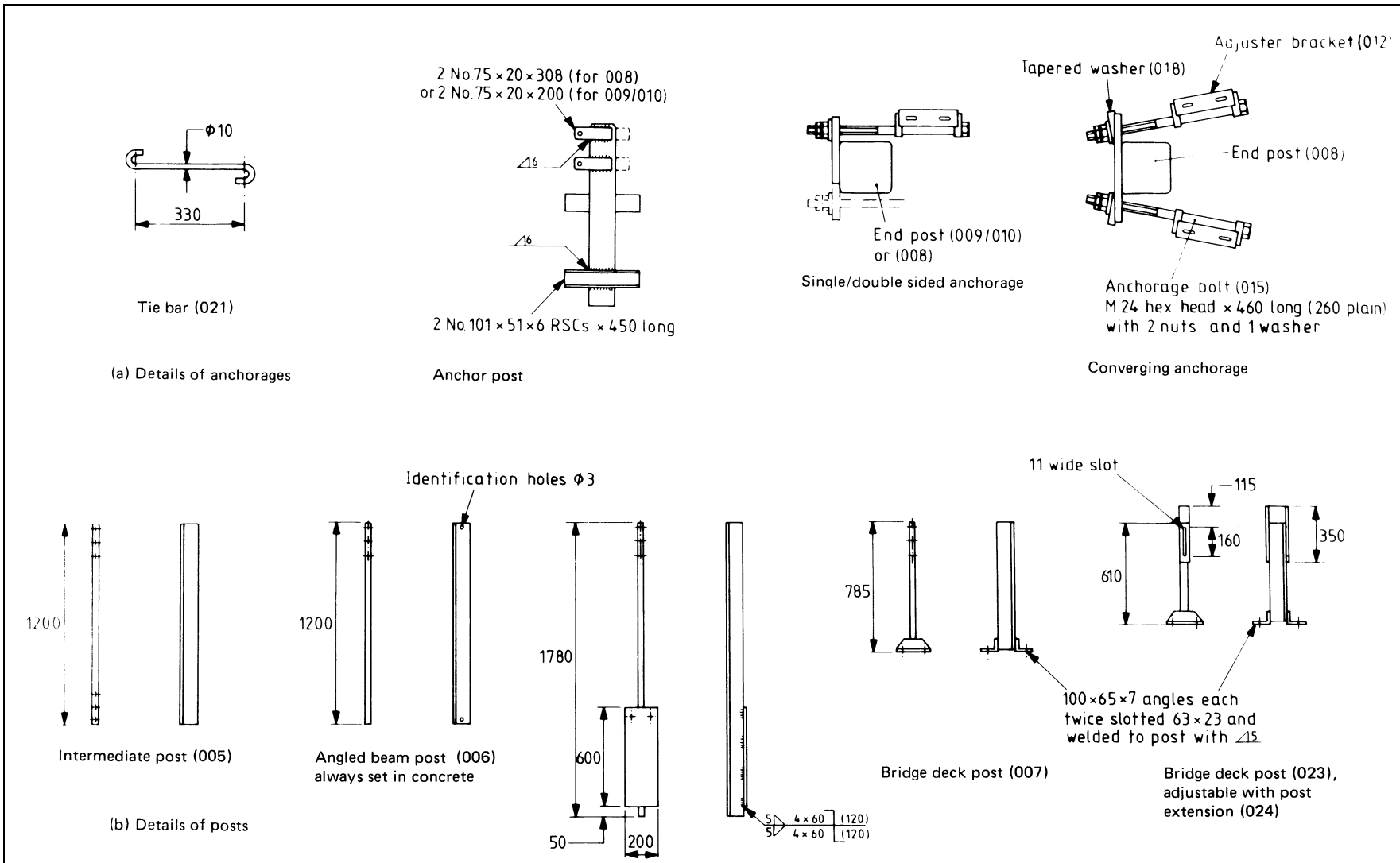
Key

Intermediate post and beam assembly ——— single sided

Intermediate post and beam assembly — — — — double sided

*To accommodate 16 mm dia. bolt, nut and 2 washers when beams are used for untensioned fence.
†To accommodate 8 mm dia. bolt, nut and 2 washers (1 at 40 mm dia.). Normally only 1 slot will be used.
‡For taking up initial slack when assembling.
§To accommodate 16 mm hex. head bolt, nut and 2 washers.
‖To accommodate 12 mm hex. head bolt, nut and 2 washers.

Figure 2 — Intermediate post and beam assembly

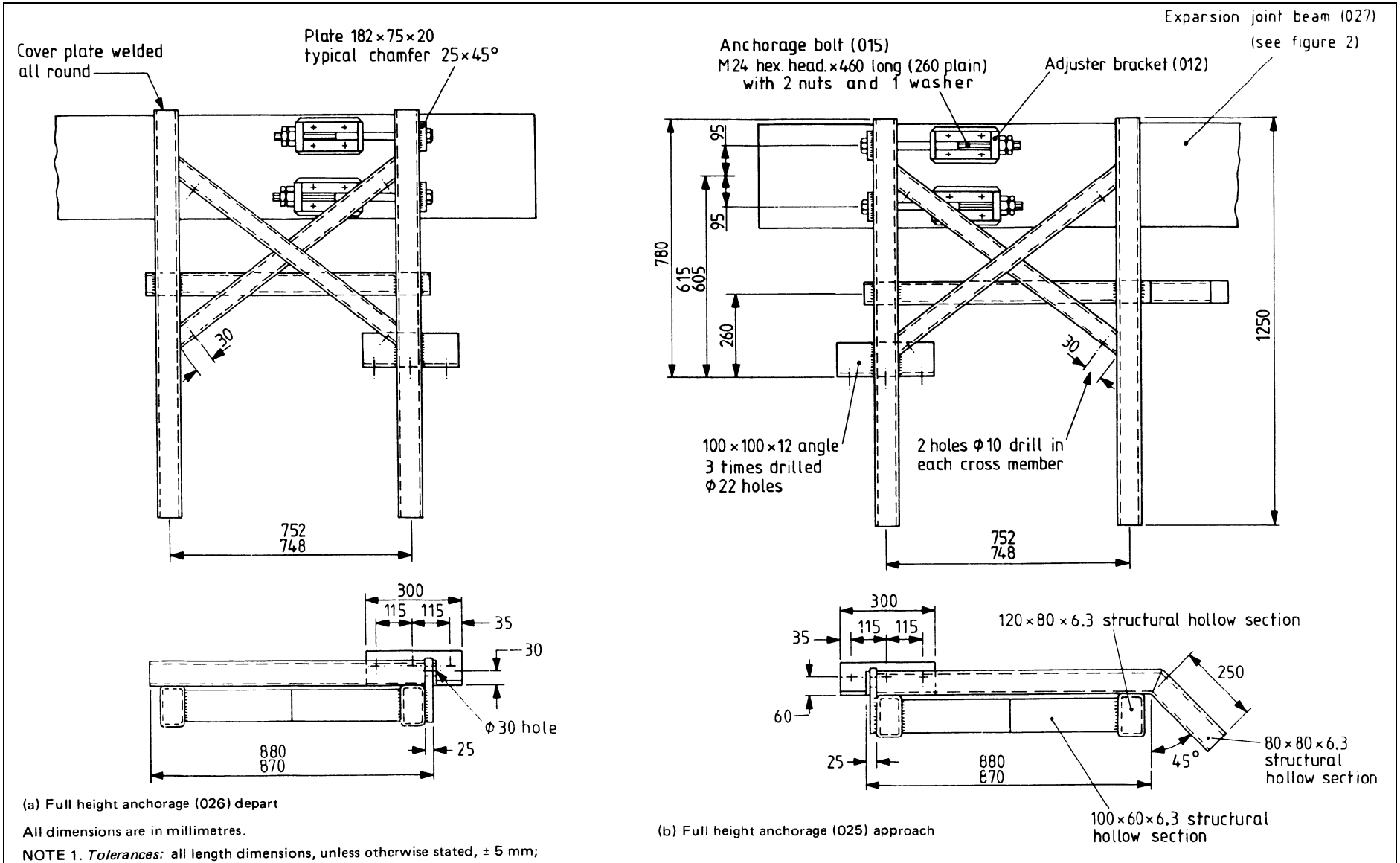


All dimensions are in millimetres.

NOTE 1. *Tolerances:* all length dimensions ± 5 mm;
all material dimensions as stock

NOTE 2. The numbers given in parentheses refer to TRRL item numbers (see table 2).

Figure 3 — Details of anchorages and posts



(a) Full height anchorage (026) depart

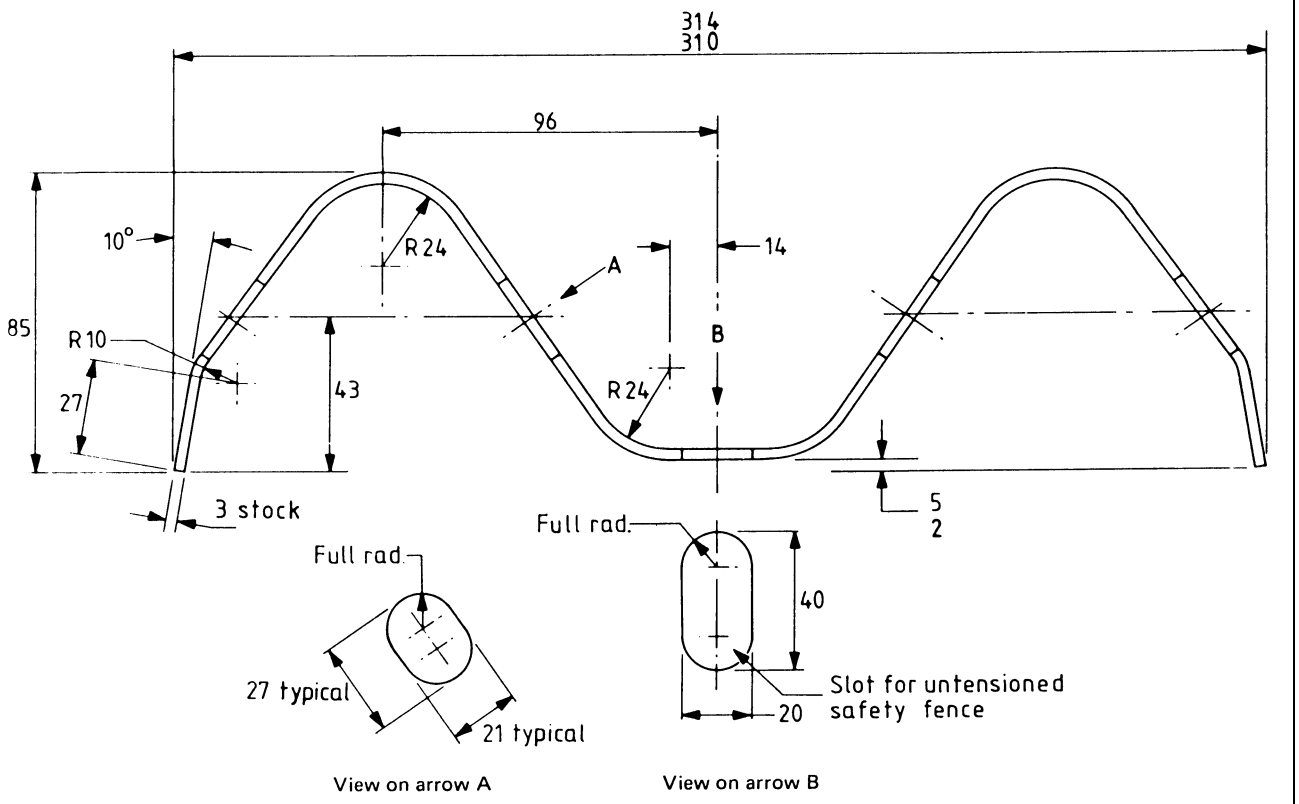
(b) Full height anchorage (025) approach

All dimensions are in millimetres.

NOTE 1. *Tolerances:* all length dimensions, unless otherwise stated, ± 5 mm; all material dimensions as stock.

NOTE 2. The numbers given in parentheses refer to TRRL item numbers (see table 2).

Figure 4 — Full height anchorages



All dimensions are in millimetres.

NOTE *Tolerances*: all length dimensions, unless otherwise stated, ± 2 mm;
all punching dimensions, unless otherwise stated, ± 1 mm.

Figure 5 — Profile and hole positions for corrugated beams

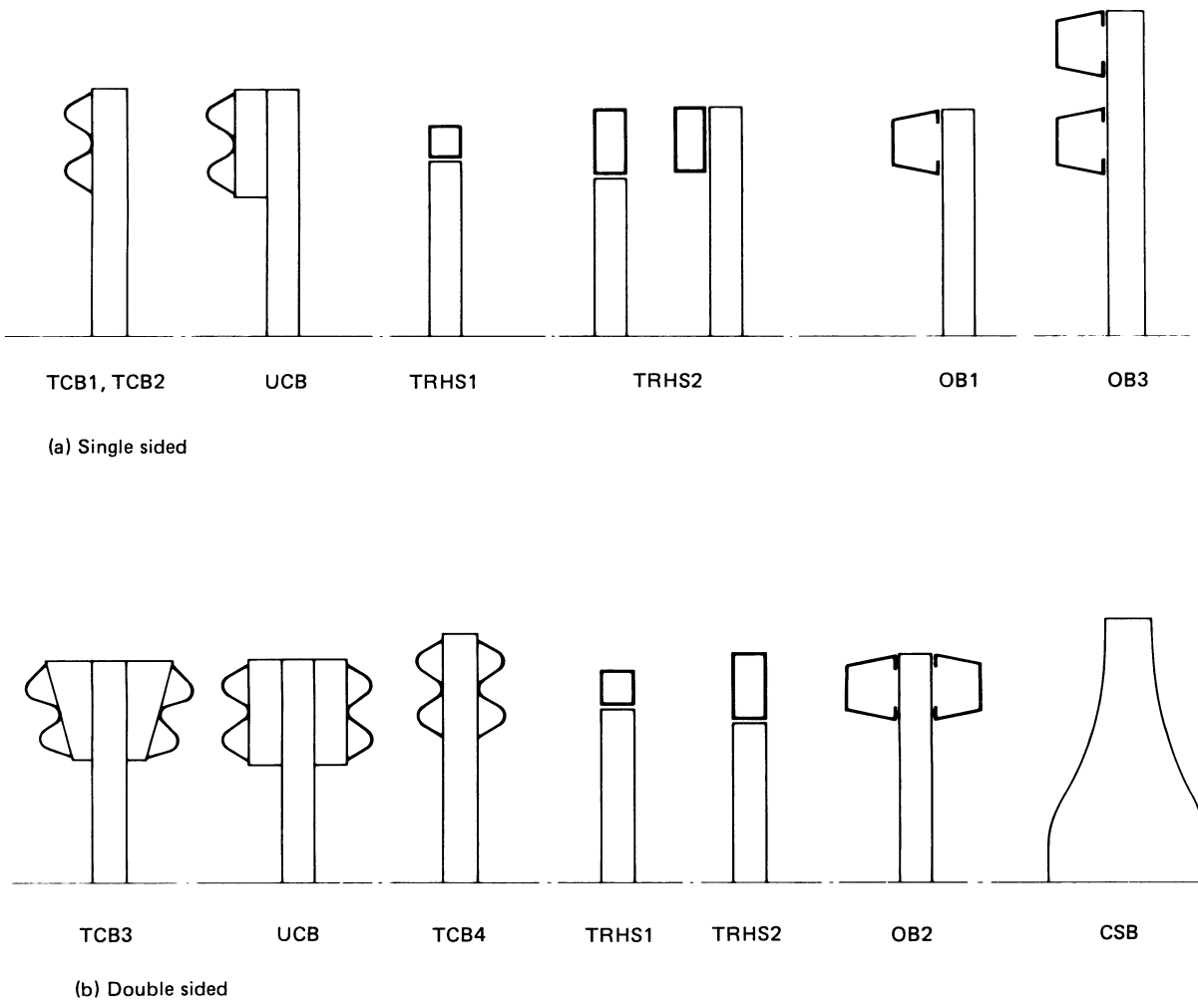
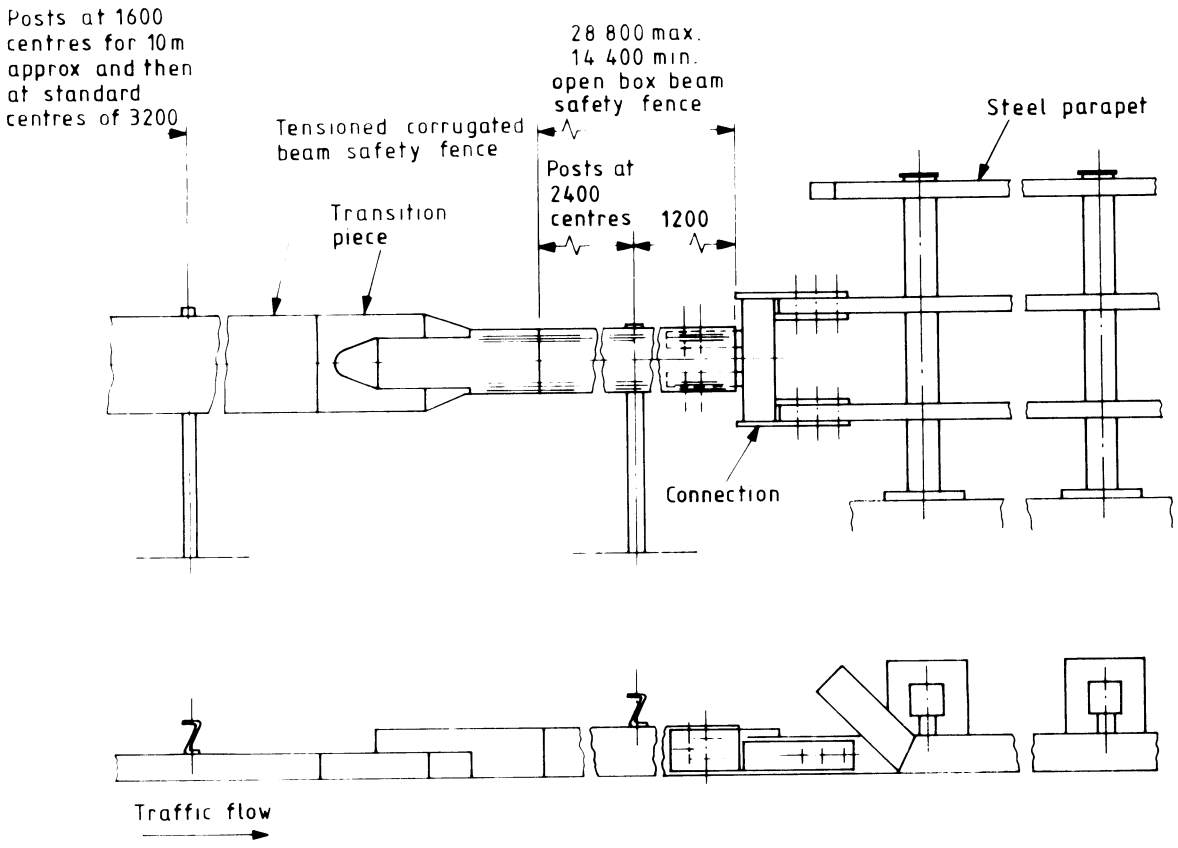
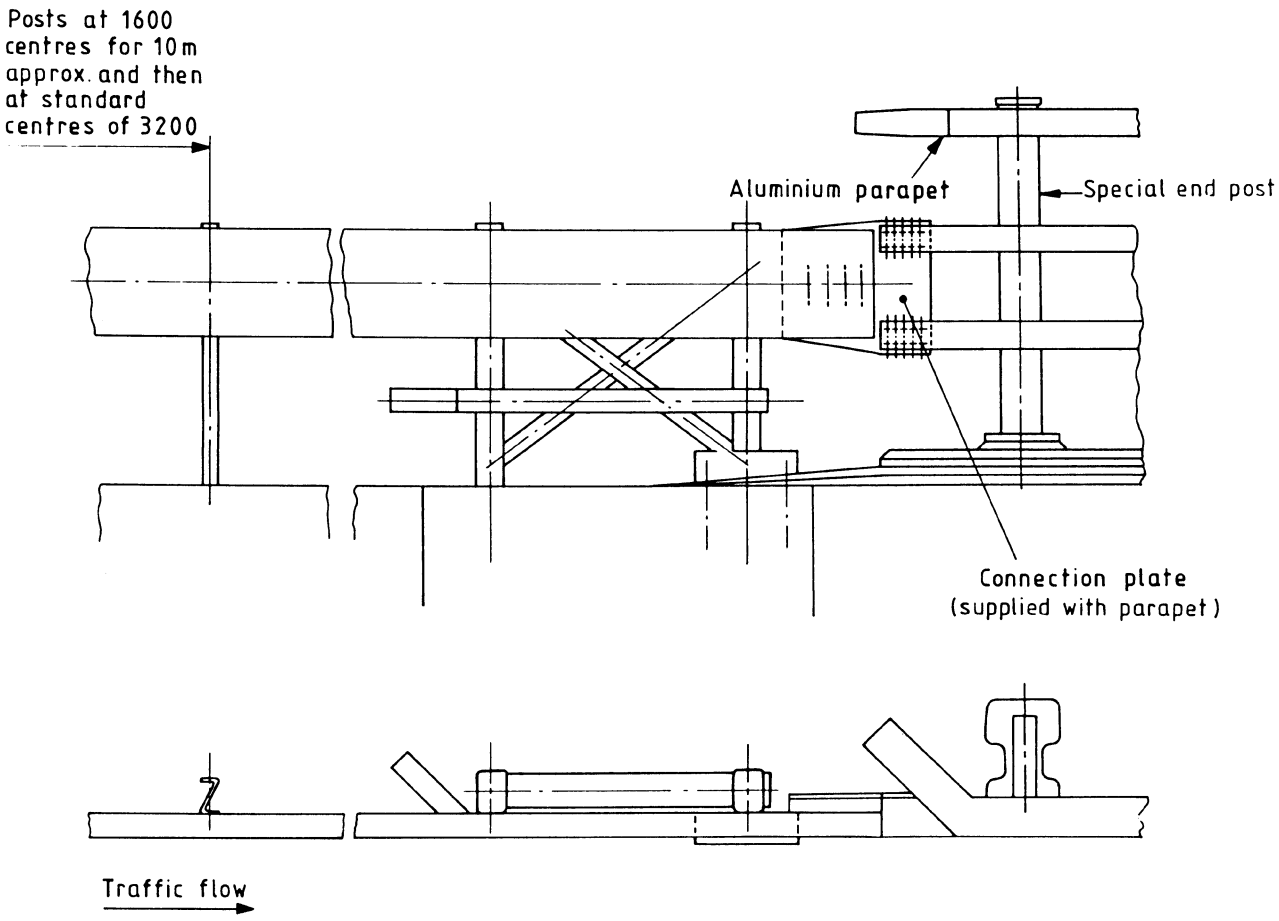


Figure 6 — Diagrammatical representation of fences and barriers



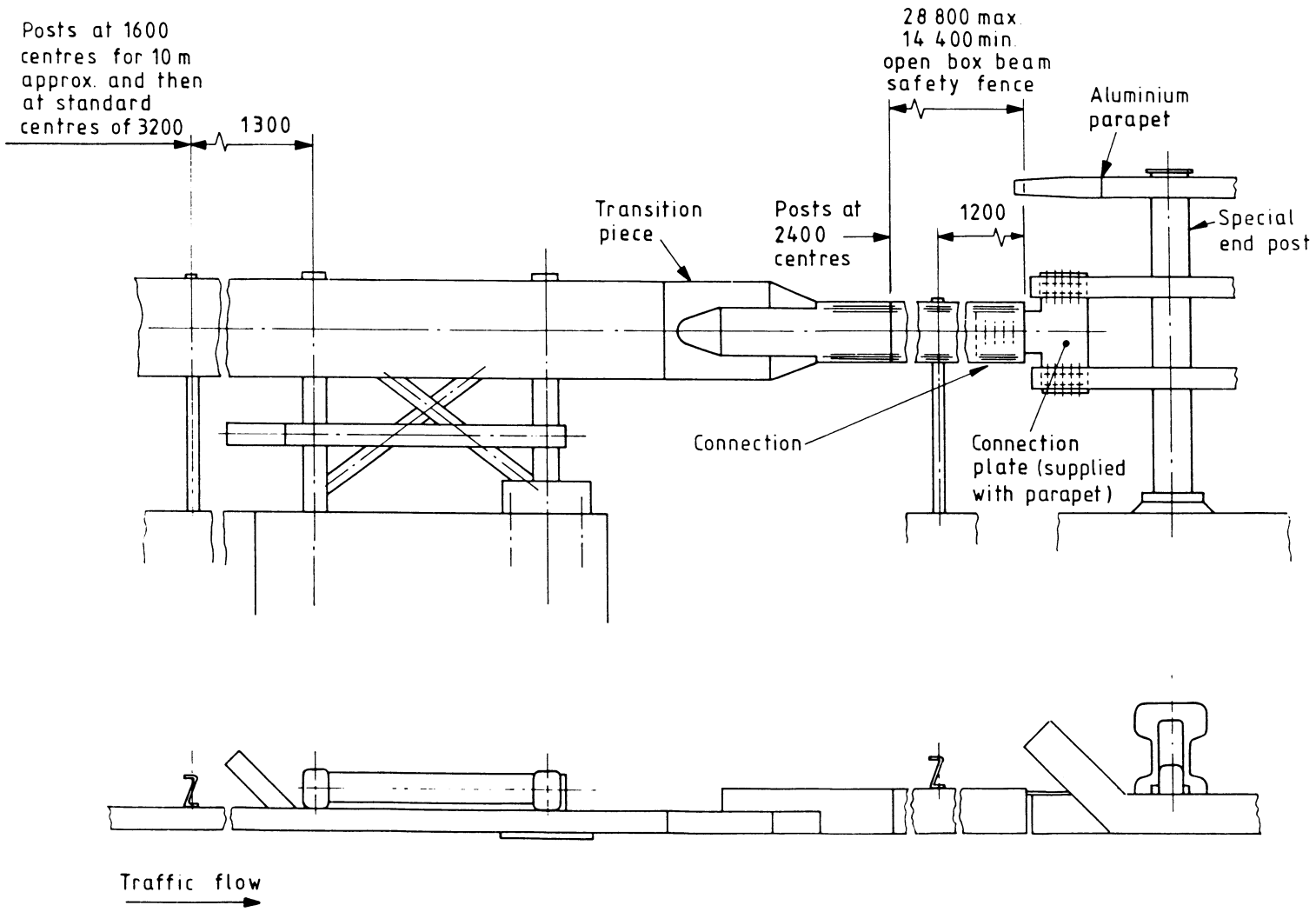
All dimensions are in millimetres, unless otherwise stated.

Figure 7 — TCB safety fence connection to steel parapet



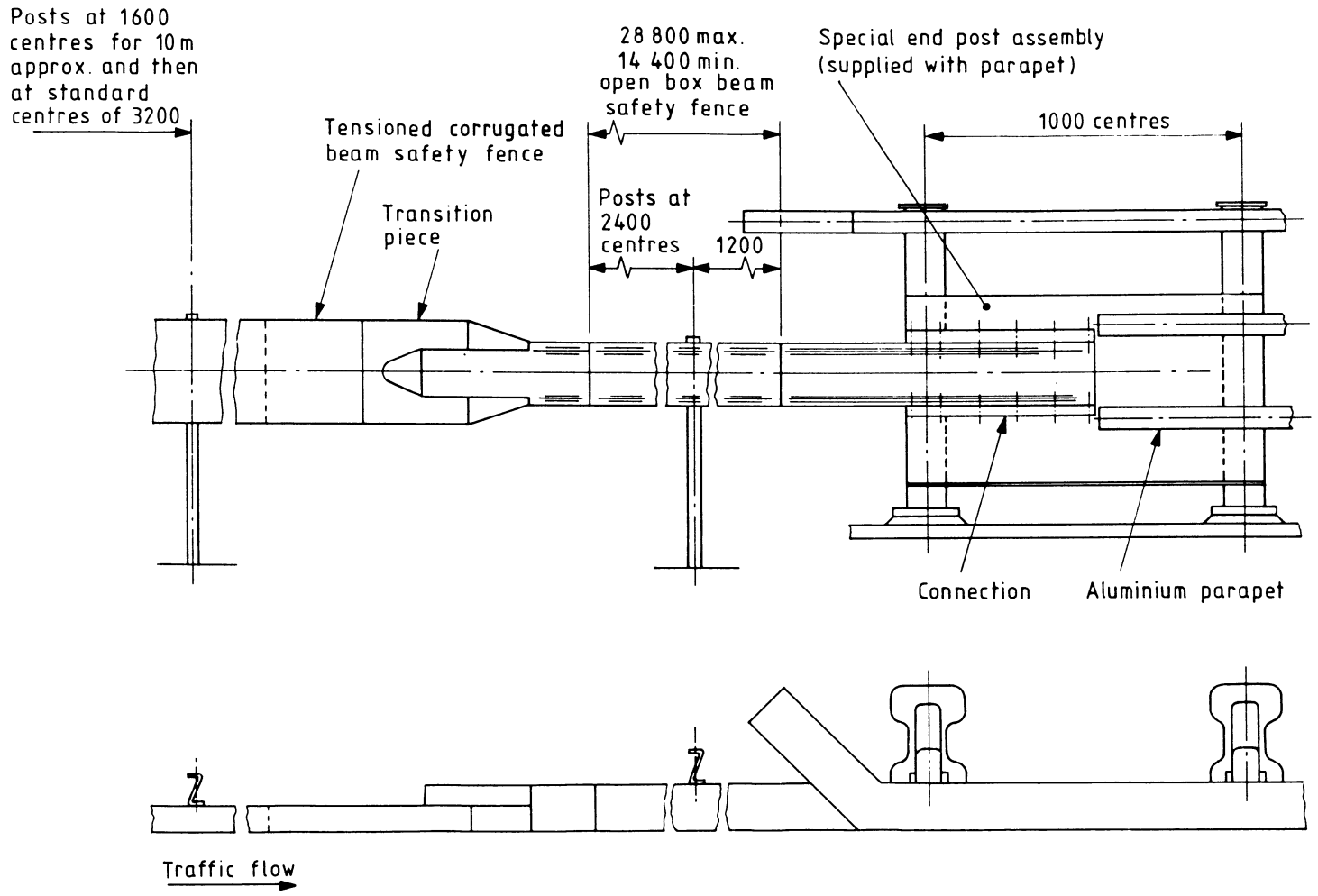
All dimensions are in millimetres, unless otherwise stated.

Figure 8 — TCB safety fence connection to BACO (BACO Contracts Ltd) parapet (preferred method)



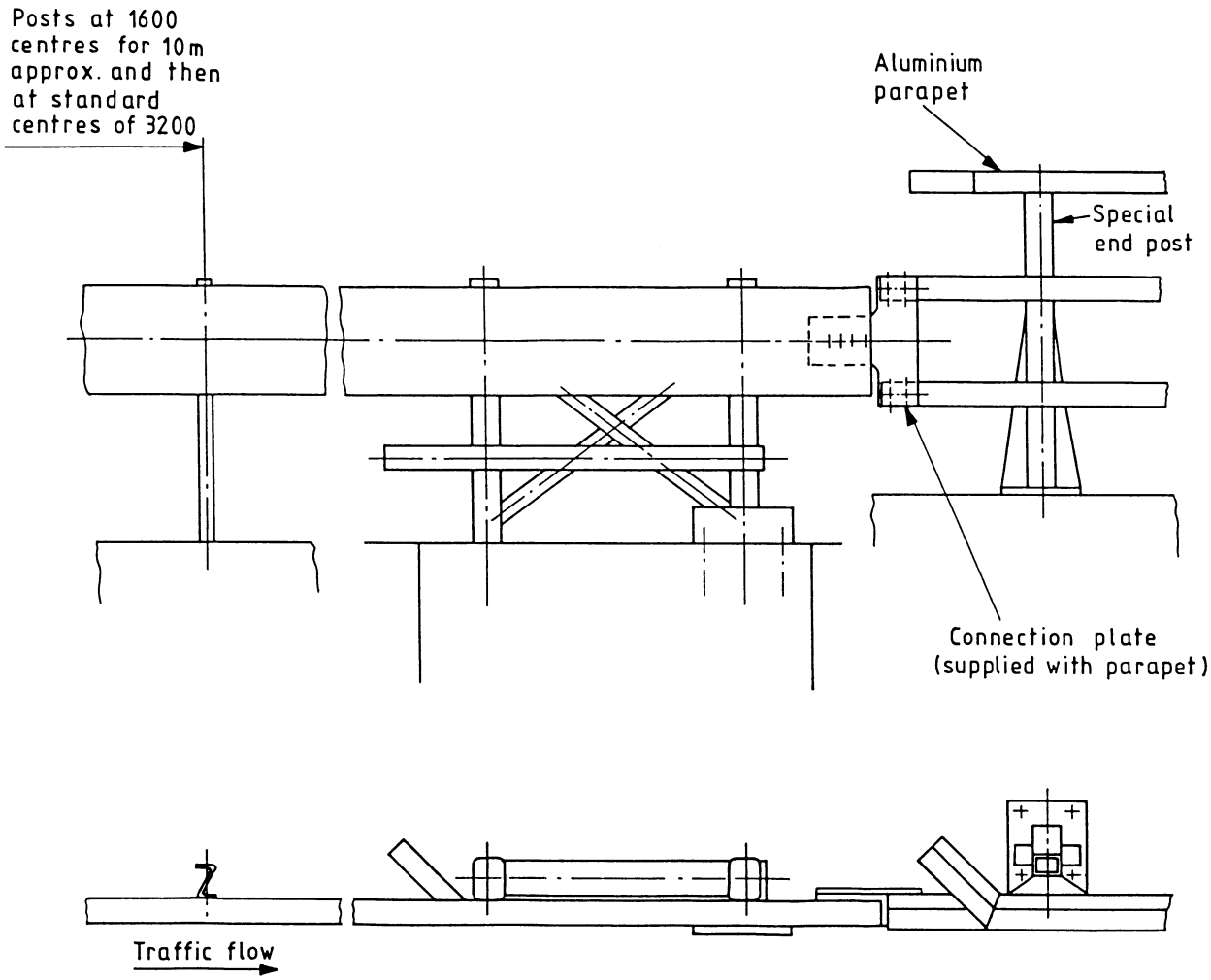
All dimensions are in millimetres, unless otherwise stated.

Figure 9 — TCB safety fence connection to BACO (BACO Contracts Ltd.) parapet (alternative A)



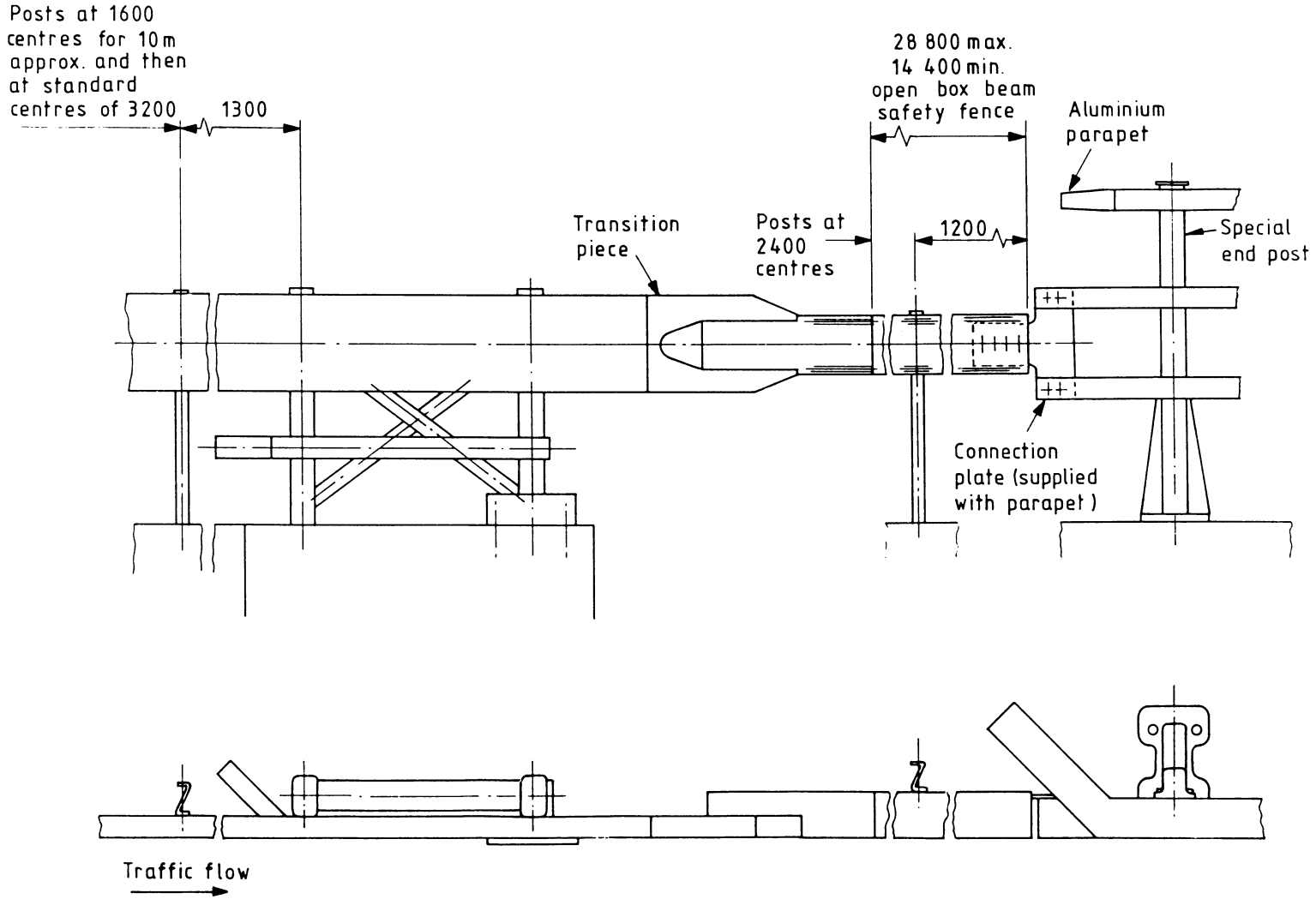
All dimensions are in millimetres, unless otherwise stated.

Figure 10 — TCB safety fence connection to BACO (BACO Contracts Ltd) parapet (alternative B)



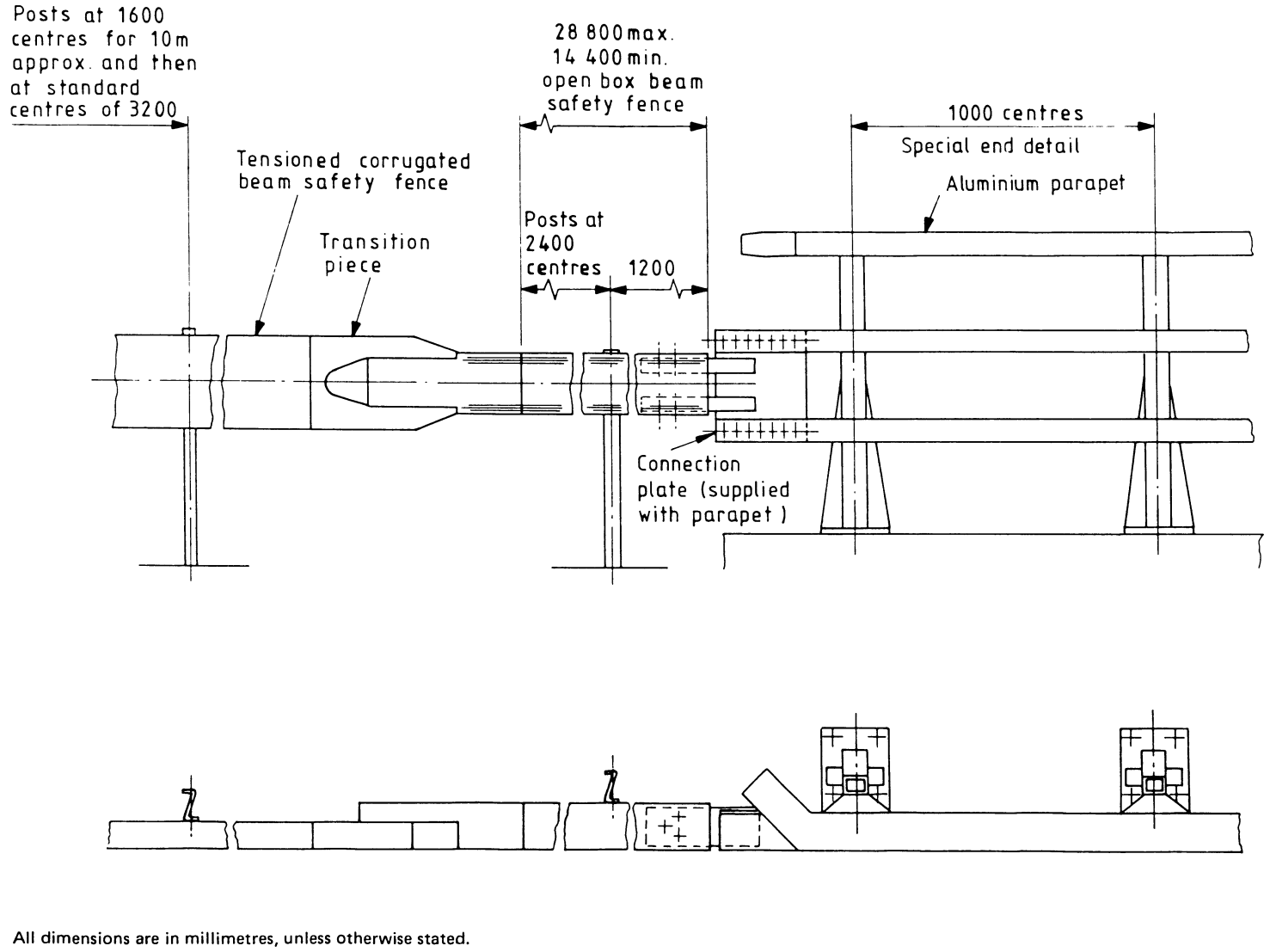
All dimensions are in millimetres, unless otherwise stated.

Figure 11 — TCB safety fence connection to AHDE (Alcan High Duty Extrusions Ltd) parapet (preferred method)



All dimensions are in millimetres, unless otherwise stated.

Figure 12 — TCB safety fence connection to AHDE (Alcan High Duty Extrusions Ltd) parapet (alternative A)



All dimensions are in millimetres, unless otherwise stated.

Figure 13 — TCB safety fence connection to AHDE (Alcan High Duty Extrusions Ltd) parapet (alternative B)

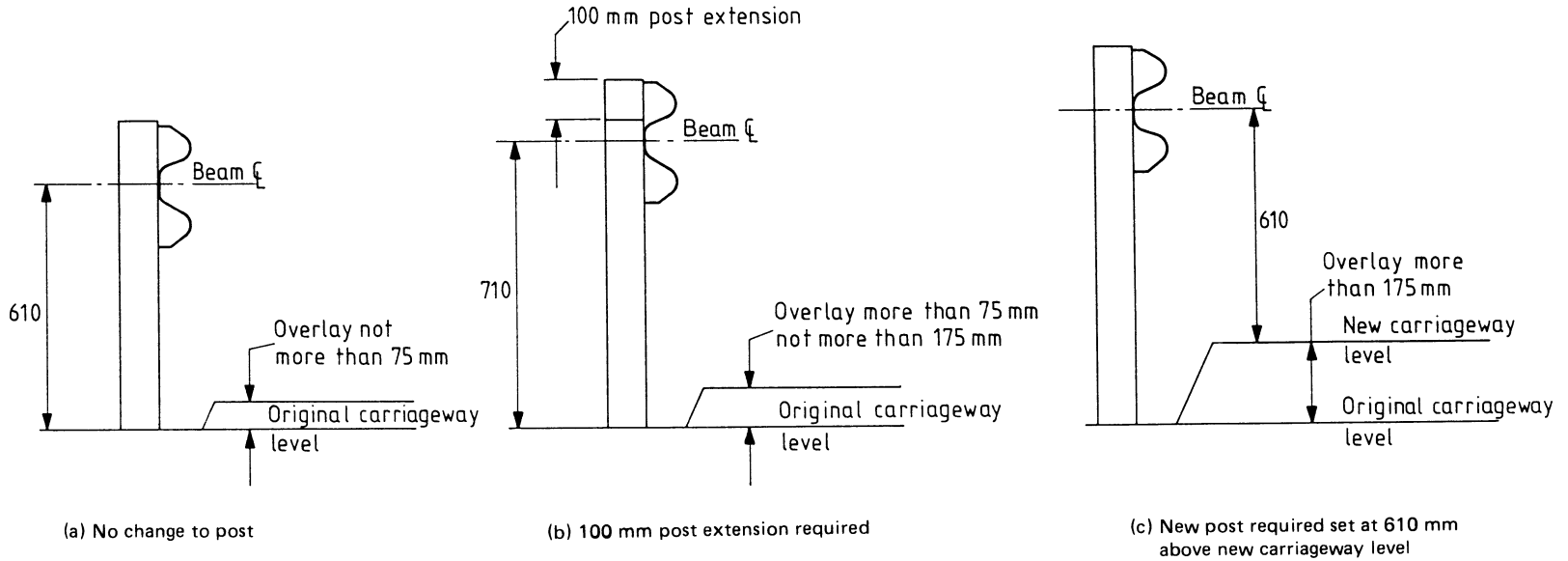


Figure 14 — Conditions for use of post extensions or new posts related to overlay thickness

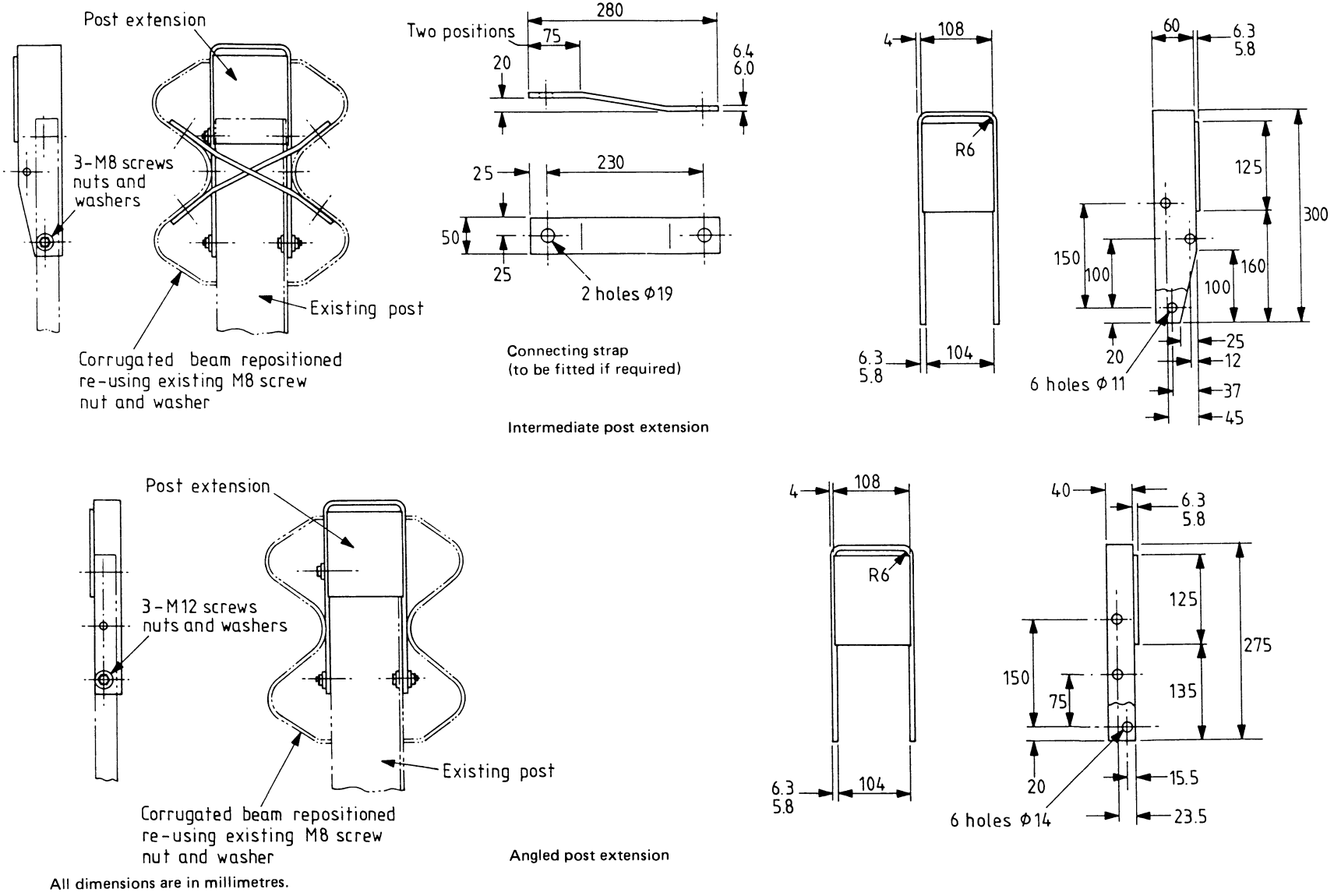
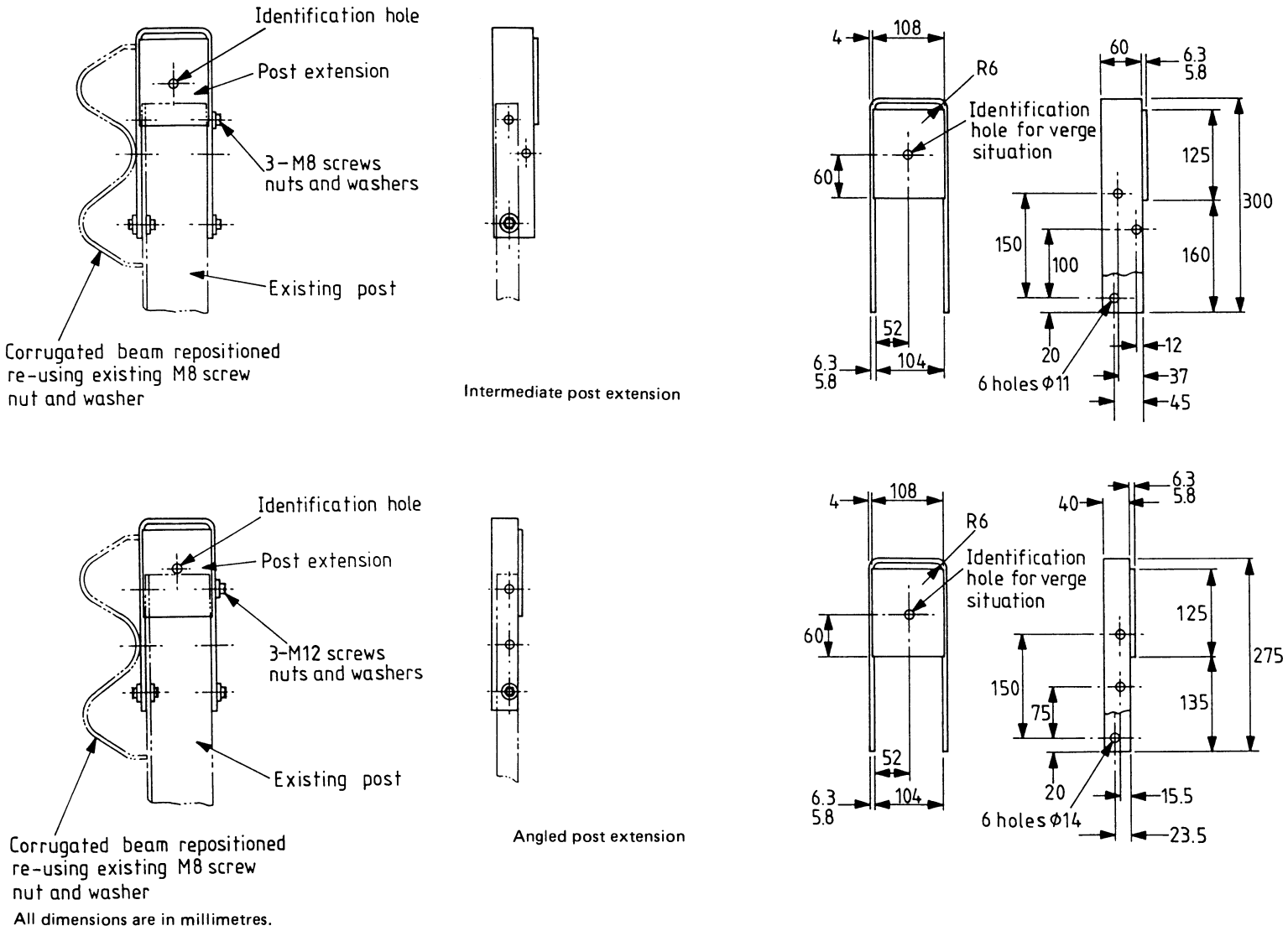


Figure 15 — TCB safety fence post extensions (central reserve)



All dimensions are in millimetres.

Figure 16 — TCB safety fence post extensions (verge)

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Publications referred to

BS 729, *Specification for hot dip galvanized coatings on iron and steel articles.*
BS 1449, *Steel plate, sheet and strip.*
BS 1449-1, *Specification for carbon and carbon manganese plate, sheet and strip.*
BS 1449-2, *Specification for stainless and heat resisting steel plate, sheet and strip.*
BS 2789, *Specification for spheroidal graphite or nodular graphite cast iron.*
BS 3100, *Specification for steel castings for general engineering purposes.*
BS 4190, *Specification for ISO metric black hexagon bolts, screws and nuts.*
BS 4320, *Specification for metal washers for general engineering purposes.*
BS 4360, *Specification for weldable structural steels.*
BS 4449, *Specification for hot rolled steel bars for the reinforcement of concrete.*
BS 5493, *Code of practice for protective coating of iron and steel structures against corrosion.*
BS 6105, *Specification for corrosion-resistant stainless steel fasteners.*
BS 6579, *Safety fences and barriers for highways.*
BS 6579-5, *Specification for open box beam safety fence (single height).*
BS 6779, *Parapets for vehicle containment on highways.*
BS 6779-1, *Specification for parapets of metal construction.*
BS 6779-2, *Specification for parapets of concrete construction*[3)].

[3)] In preparation.

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