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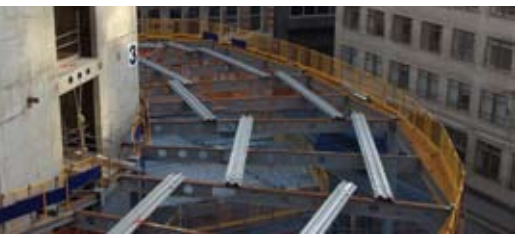
RICHARD LEES DECKING

Guidance for the preparation of Deck Manufacturing Schedules



…innovation, commitment, support.

Guidance for the preparation of Deck Manufacturing Schedules

Minimum Requirements for Schedule Only Contracts

RLD will undertake 'schedule only' contracts on the following basis:

- The client will supply a full schedule of decking including edge trims, closures and shear studs.
- The client agrees to pay for any additional materials that may have been overlooked when placing the order.
- The client maintains overall design responsibility.

Introduction

Richard Lees Decking Ltd is the supplier of Holorib and Ribdeck steel decking profiles in the UK. The company offers a complete drawing and detailing service for its products, documents that allow manufacturing schedules to be prepared and the decking to be installed on site.

This document is intended for the use of customers who wish to accelerate the project lead-in time and by-pass the RLD drawing service by themselves providing the information necessary for manufacture to proceed at the works. It gives guidance on the correct way to schedule sheet lengths to achieve effective coverage of the floor plate, as well as information on efficient bundling of the decking to allow safe installation at site.

This document should not be read in isolation. It is provided as a special supplement for self-scheduling of decking and ancillary items only.

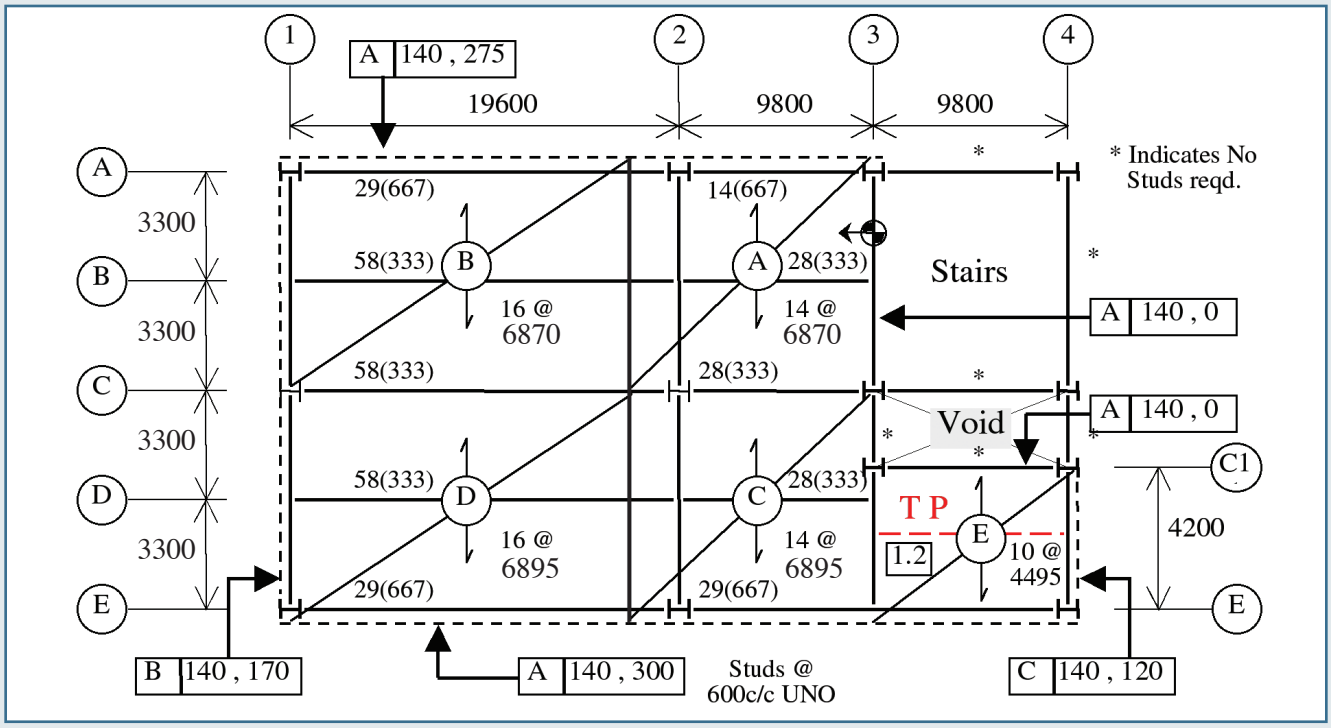
Additional information is contained in other RLD documents provided as part of the contract or available for download from **www.richardlees.co.uk**. Electronic schedule templates are provided by RLD on the website and these can be downloaded along with an example of how to complete the information required. The completed schedule forms can then be transmitted to RLD for rapid incorporation into the production process.

Other industry best practice guides are available, some of which are referenced at the end of this document.

Getting started

When planning a schedule, consideration should be given to the installation sequence so that materials can be bundled and distributed on the steel frame in a logical manner. It is also important to establish the location of all slab edges so that the sheet lengths and edge trim sizes can be correctly scheduled. Throughout this document boxes like this one will make reference to Box 1, which shows an example drawing used to plan a schedule, to illustrate the various processes described.

BOX 1: Installation plan showing key information for scheduling and fixing



Legend:

Decking bundle reference (D) and direction of span of sheets.	D	Gauge of decking in mm (1.2), if different from main area of the floor shown on the drawing.	1.2
Bundle contents – No. of sheets (16) and length in mm (6895).	16 @ 6895	Line of temporary props required.	TP
Edge Trim reference (A), height in mm (140), and off-set distance from centreline of perimeter steel beam in mm (300).	A 140 , 300	Start point and direction of laying of the steel decking sheets.	
		Total number of shear studs on the beam and their nominal spacing (mm)	29(667)

Selecting the right profile

Before preparing a manufacturing schedule it is essential that the Engineer responsible for the design of the building is satisfied that the profile selected is suitable for purpose. Guidance in this respect is in part available through the DECKSPAN design program (available for free download at **www.richardlees.co.uk**) and through tabulated data contained in the RLD standard literature. This guidance is limited in scope as it views the floor slab in isolation. The choice of decking profile can also affect the design of the supporting structure, as well as the acoustic, thermal, and dynamic performance of the finished building. Full engineering guidance from the Project Design Engineer should be sought on these aspects of the design before making any changes to the specified decking profile and gauge.

Reading a span load table

Span/Load tables combine construction and composite slab design details. In general, if the construction stage is controlling the design then maximum permissible spans decrease as slab depth increases, whereas if the composite stage controls then spans increase with slab depth. These opposing trends can make interpolation between figures in the span/load table difficult and it is therefore recommended that reference is made to the DECKSPAN composite floor design software, available for download from **www.richardlees.co.uk**, if in any doubt over the suitability of the product.

Adding a line of temporary props can help in the construction stage but will not increase the composite slab design capacity. Temporary props can actually have a detrimental effect on the ultimate load carrying capacity of the slab. This emphasises the importance of carefully checking the specific design conditions.

Table 1 shows an example of a span/load table which contains information in columns for 3 different gauges of the profile Ribdeck E60, and in rows for 3 different span configurations (a separate row for propped multiple spans is not shown as the sheet lengths can become impractical to handle). The columns are further divided into 3 sub-columns for different loading conditions on the composite floor slab, and the rows are divided into 7 sub-rows for different slab depths. Where the columns and rows intersect shows the permissible span in metres between centres of supports.

Two examples are shown. The first (RED) example shows the various options for pouring a 140mm deep normal weight concrete slab over a span of 3.30m, to carry 5.0kN/m² on the finished slab.

(1) 0.9 gauge decking would need to be propped (maximum span 3.58m), which would slow down the construction sequence, but could be used over single or multiple spans.

(2) The preferred option would normally be to specify 1.0 gauge decking supplied in multiple spans sheets and constructed without the need for temporary props (maximum span 3.62m).

(3) If the sheets needed to be in single span lengths and unpropped then 1.2 gauge decking would be needed.

The second (BLUE) example shows the effect of increasing the specified load to 10.0kN/m².

(4) Unpropped single and multiple span sheets now need to be specified in 1.2 gauge decking (maximum span 3.36m)

(5) Propping of the decking during construction is not an option as the maximum span is shown as only 3.10m. This is less than the maximum unpropped span because when the props are removed the self weight of the slab acts more as an imposed load and uses up some of the required 10.0kN/m² load capacity.

BOX 2: Choosing the right gauge of decking

The floor slab in Box 1 is to be designed to carry 5.0kN/m² imposed load. The layout generally allows sheets to be detailed continuously over 2 spans of 3.30m. For this application 1.0 gauge Ribdeck E60 can be specified. In one zone only, defined by grids 3-4/C1-E, the slab is restricted to a single span of 4.20m. This span will not only require to be propped during construction but also requires an increase in gauge to 1.2mm to accommodate the 5.0kN/m² load on the finished slab.

Reading a fire design table

Separate tables are provided to give guidance on the fire resistance of floor slabs using the 'fire design' method. This method has resulted from the successful completion of a series of full scale fire tests on composite floor slabs made up of steel decking, a light gauge welded wire mesh and either normal or lightweight concrete. The fire design tables are applicable to multiple span slabs only and are very similar in layout to those for construction and composite design stages.

(6) Table 2 illustrates that the RED slab described in Table 1 would not achieve a 1.0 hour fire rating with only an A193 fabric where the slab meets the continuity requirements of the fire design method. However using the Deckspan design software it can be determined that the maximum allowable span is 3.58m.

(7) Similarly the BLUE slab would appear not to achieve the required span with an A193 or A252 fabric however use of Deckspan determines that the maximum allowable span is 3.36m.

In situations beyond the scope of the 'fire design' tables the Designer may be able to achieve fire ratings of up to 4 hours through the inclusion of additional steel reinforcement. Deckspan design software can assist in giving guidance in these situations.

Span/load table - BS 5950 Method

	Support Condition	Slab Depth (mm)	Concrete Volume (m³/m²)	0.2% Mesh * 0.4% Mesh **	0.9 Gauge Imposed Load (kN/m²) 5.0	0.9 Gauge 7.5	0.9 Gauge 10.0	1.0 Gauge Imposed Load (kN/m²) 5.0	1.0 Gauge 7.5	1.0 Gauge 10.0	1.2 Gauge Imposed Load (kN/m²) 5.0	1.2 Gauge 7.5	1.2 Gauge 10.0
Single - Unpropped		130	0.094	A142*	2.78	2.78	2.67	3.14	3.14	2.85	3.48	3.48	3.17
		140	0.104	A193*	2.72	2.72	2.72	3.07	3.07	3.01	3.40	3.40	3.36
		150	0.114	A193*	2.66	2.66	2.66	3.00	3.00	3.00	3.33	3.33	3.33
		160	0.124	A252*	2.61	2.61	2.61	2.95	2.95	2.95	3.27	3.27	3.27
		175	0.139	A252*	2.54	2.54	2.54	2.86	2.86	2.86	3.18	3.18	3.18
		200	0.164	A393*	2.43	2.43	2.43	2.75	2.75	2.75	3.05	3.05	3.05
		250	0.214	A393*	2.27	2.27	2.27	2.56	2.56	2.56	2.85	2.85	2.85
Multiple - Unpropped		130	0.094	A142*	3.35	3.14	2.67	3.71	3.38	2.85	4.03	3.81	3.17
		140	0.104	A193*	3.27	3.27	2.81	3.62	3.57	3.01	3.94	3.94	3.36
		150	0.114	A193*	3.19	3.19	2.95	3.53	3.53	3.16	3.85	3.85	3.55
		160	0.124	A252*	3.11	3.11	3.08	3.46	3.46	3.31	3.76	3.76	3.73
		175	0.139	A252*	3.01	3.01	3.01	3.35	3.35	3.35	3.65	3.65	3.65
		200	0.164	A393*	2.84	2.84	2.84	3.19	3.19	3.19	3.49	3.49	3.49
		250	0.214	A393*	2.58	2.58	2.58	2.92	2.92	2.92	3.23	3.23	3.23
Single - Propped		130	0.094	A393**	3.43	2.88	2.51	3.70	3.08	2.67	4.20	3.44	2.94
		140	0.104	A393**	3.58	3.01	2.62	3.87	3.23	2.79	4.42	3.62	3.10
		150	0.114	A393**	3.71	3.13	2.73	4.03	3.37	2.92	4.62	3.79	3.25
		160	0.124	2xA252**	3.84	3.24	2.83	4.17	3.50	3.03	4.80	3.96	3.39
		175	0.139	2xA252**	4.01	3.40	2.97	4.38	3.68	3.19	5.06	4.18	3.58
		200	0.164	2xA393**	4.28	3.65	3.20	4.69	3.96	3.45	5.46	4.54	3.90
		250	0.214	2xA393**	4.74	4.09	3.60	5.22	4.46	3.91	6.14	5.18	4.48

Table 1: Example span/load table for Ribdeck E60 with Normal Weight Concrete

Fire design table - BS 5950 Method													
	Fire period (Hrs)	Slab Depth (mm)	0.2% Mesh *	Span (m) for given imposed Load (kN/m²)									
				A142			A193			A252 (A393***)			
				5.0	7.5	10.0	5.0	7.5	10.0	5.0	7.5	10.0	
Normal weight concrete	1.0	130	A142*	3.35	3.14	2.67	3.35	3.14	2.67	3.35	3.14	2.67	
		140	A193*	-	-	-	3.27	3.27	2.81	3.27	3.27	2.81	
		150	A193*	-	-	-	3.19	3.19	2.95	3.19	3.19	2.95	
		160	A252*	-	-	-	-	-	-	3.11	3.11	3.08	
		175	A252*	-	-	-	-	-	-	3.01	3.01	3.01	
		200	A393*	-	-	-	-	-	-	2.84***	2.84***	2.84***	
		250	A393*	-	-	-	-	-	-	2.58***	2.58***	2.58***	
	1.5	140	A193*	-	-	-	3.27	3.19	2.81	3.27	3.27	2.81	
		150	A193*	-	-	-	3.19	3.19	2.95	3.19	3.19	2.95	
		160	A252*	-	-	-	-	-	-	3.11	3.11	3.08	
		175	A252*	-	-	-	-	-	-	3.01	3.01	3.01	
		200	A393*	-	-	-	-	-	-	2.84***	2.84***	2.84***	
		250	A393*	-	-	-	-	-	-	2.58***	2.58***	2.58***	
	2.0	150	A193*	-	-	-	3.19	3.19	2.72	3.19	3.19	2.95	
		160	A252*	-	-	-	-	-	-	3.11	3.11	3.08	
		175	A252*	-	-	-	-	-	-	3.01	3.01	3.01	
		200	A393*	-	-	-	-	-	-	2.84***	2.84***	2.84***	
		250	A393*	-	-	-	-	-	-	2.58***	2.58***	2.58***	

Table 2: Example fire design table for Ribdeck E60 with Normal Weight Concrete.

The spans shown in this table are limited for safety reasons to the maximum allowable for whichever is the lesser of the construction or composite performance for a 0.9mm gauge profile. The Deckspan software should be used to determine the minimum mesh required for the actual design criteria.

BOX 3: Fire reinforcement

The main floor area has a continuous floor slab in the direction of span of the decking and could achieve a 1.0 hour fire rating using A193 mesh only. The exception is once again the zone defined by grids 3-4/C1-E where the 4.2m single span slab will require additional reinforcement. Deckspan software should be consulted for guidance.

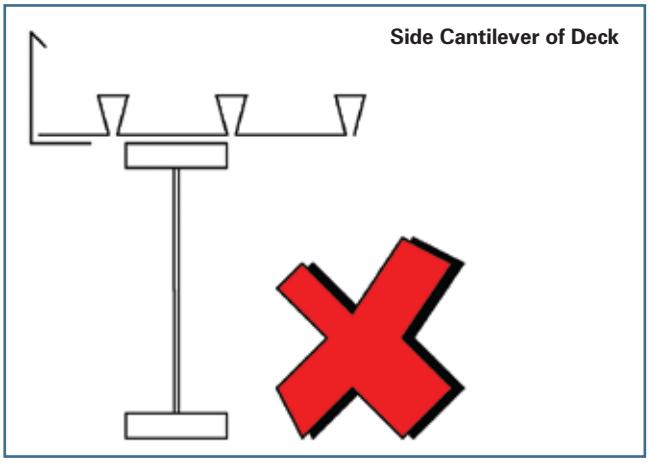


Figure 1: Decking is NOT suitable for side cantilevers

Decking cantilevers

Steel decking acts as permanent shuttering and can provide tensile reinforcement to the slab in sagging / bending. Where the desired slab edge falls outside of the line of the perimeter beams the steel decking can still be used as a shuttering system as it is possible to cantilever the decking in the direction of span by the lesser of 600mm or 150,000/(slab depth), where slab depth is in millimetres. The back-span should be a minimum of 4 times the cantilever length and be adequately anchored to resist overturning forces during construction operations.

The decking should not be allowed to cantilever sideways as it is designed as a one-way spanning structural element and has no design strength in the transverse direction. Side cantilevers can sometimes be accommodated using Edge Trim.

Slab Depth (mm)	Cantilever distance (mm) from beam centreline	
	Any gauge of decking	
	End Cantilever	Side Cantilever
130	600	0
150	600	0
175	600	0
200	600	0
300	500	0

Table 3: Permissible unpropped cantilever distances for decking

BOX 4: Extent of decking

The slab depth is 140mm, meaning that the decking can safely cantilever the required 275mm beyond Grid Line A and 300mm beyond Grid Line E. On Grid Line C1 the decking can be detailed to overlap the supporting beam to the beam centreline, provided that this is sufficient to give a minimum of 50mm bearing. Along Grid Lines 1, 3 and 4 the decking should be stopped on the top flange of the steel beams.

Bearings

Steel decking is most commonly used on steel, concrete or blockwork supports. The minimum bearings when calculating sheet lengths are given in Table 4. These bearings should be sufficient to accommodate any tolerances in the construction of the frame or walls, and allow the decking to be secured to the supports without contributing towards any minor spalling of concrete or blockwork.

Steel	Other Materials
50mm	70mm

Table 4: Minimum bearing requirements for decking sheets

Sheet Length

Steel decking will deflect less and therefore span further if it can be detailed and installed in multiple rather than single span sheets. Wherever possible, multiple span sheets should be restricted to double spans to minimise the manual handling difficulties on site. In situations where the two spans of a multiple spanning sheet are not equal, the benefits over single spanning sheets are only effective if the shorter of the two spans is no less than 85% the length of the longer span.

Steel decking sheets should be detailed to butt up to each other rather than overlap at sheet ends. A gap of up to 5mm is generally acceptable as concrete/fines leakage will be minimal. A negative tolerance on the sheet length will minimise the risk of additional cutting on site being required. Sheets should always be specified in 5mm increments. For example, schedule 2072mm as 2070mm, 3500mm as 3495mm.

Decking Profile	Gauge of Decking		
	0.9	1.0	1.2
Holorib	8.0	8.7	10.4
Ribdeck E60	9.3	10.3	12.3
Ribdeck S60	6.3	7.0	8.4
Ribdeck 80	6.7	8.0	9.2

Table 5: Self Weight (kg/m) of individual decking sheets

BOX 5: Decking sheet lengths

From grid lines 1-3 the decking can best be detailed in 2 span sheets, with additional length allowed for the cantilever sections. From the slab edge adjacent to Grid A to the internal beam on Grid C is a distance of 6875mm. A sheet length of 6870mm allows a slight negative tolerance whilst still minimising the risk of significant gaps being left between sheet ends and edge trim. Similarly the distance from Grid C to the slab edge adjacent to Grid E is 6900mm and sheets of length 6895mm are detailed. From Grid 3 to Grid 4 the slab finishes on the centreline of the Grid C1 beam and 300mm beyond Grid E. The total distance of 4,500mm can be covered using sheets 4,495mm long.

Decking on shelf angles

Where the decking is to bear onto the bottom flange or onto shelf angles on the beam web, care must be taken to ensure that the sheets are detailed short enough to clear the beam top flange whilst still being long enough to satisfy minimum bearing requirements. In most instances the only solution is to provide shelf angles that project a minimum of 50mm beyond the beam top flange. The higher up the beam web the shelf angles are set, the more critical this becomes.

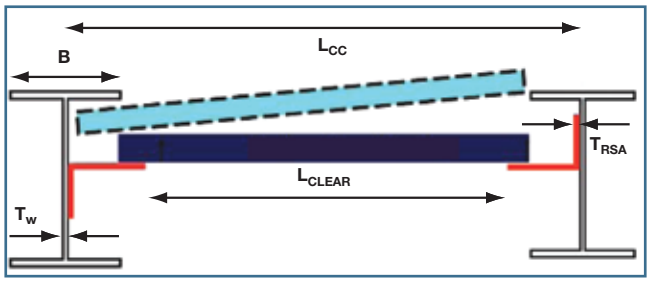


Figure 2: Installation of deck sheets on shelf angles

To calculate the optimum sheet length for bearing on to shelf angles the following formulae can be applied:

$L_{MIN} = L_{CLEAR} + 2 \times 50mm$

$L_{MAX} = L_{CC} - B / 2 - T_w / 2 - 20mm$ [- T_{RSA} if angle leg upwards]

Edge Trim

Edge trim is used to form vertical shuttering at all slab perimeters and large openings. It is generally supplied and installed in 3.0m lengths, with off-cuts greater than 1.0m in length from one bay used to start the next. Although not supplied in bespoke lengths as for the decking sheets, wastage levels for edge trim remain low.

Edge trim does not have any composite bonding properties and should not be considered to be contributing in any way towards the reinforcement of the concrete floor slab. The gauge of metal used for forming edge trim is normally 0.9mm, 1.2mm, 1.6mm or 2.0mm, depending on the design application. It can either be secured to the steel decking using self drill and tap screws, or anchored directly to the supporting structure.

Edge trim can be used as permanent shuttering to form limited side cantilevers for the floor slab. Guidelines are included in Table 6.

Slab Depth (mm)	Safe Cantilever Distance (mm)			
	Gauge of Edge Trim (mm)			
	0.9	1.2	1.6	2.0
130	100	125	160	195
150	50	115	150	185
200	n/a	100	130	160
250	n/a	50	100	135
300	n/a	n/a	50	100
350	n/a	n/a	n/a	50

Table 6: Permissible unpropped cantilever distances for edge trim

The vertical leg of the edge trim corresponds to the desired slab depth. The horizontal leg needs to be of sufficient length to provide a minimum of 50mm bearing onto structural steel supports, or 75mm overlap if secured to the steel decking profile. When fixing to masonry a minimum bearing of 100mm allows additional clearance away from the edge for the fixings and helps minimise the risk of spalling.

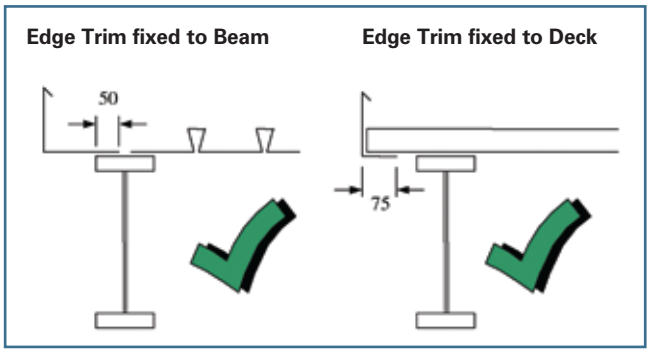


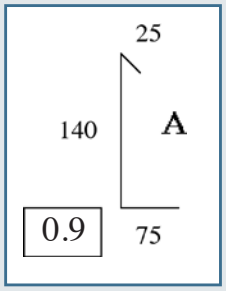
Figure 3: Minimum bearing and lap lengths for Edge Trim

BOX 6: Edge Trim size and gauge

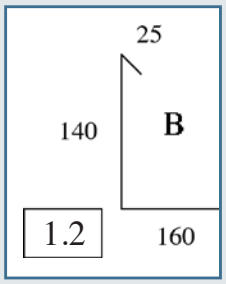
Along Grid Line 1 the slab edge is 170mm from the centreline of the beam. If the beam were 127mm wide then the distance from the toe would be 170 – 63 = 107mm.

Interpolating table 6 indicates that a minimum of 1.2 gauge Edge Trim is required for a 140mm deep slab. Along Grid Line 4 the slab edge is only 120mm from the beam centreline and Table 6 indicates that 0.9 gauge trim would be OK.

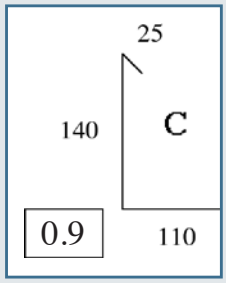
On smaller projects, normal practice would be to order all edge trim in the same gauge to avoid confusion during installation. Along Grid Lines A and E the edge trim can be attached to the end of the decking rather than the steel beam, meaning that a 75mm horizontal leg is all that is required. This is given the designation 'Type A' on the drawing and in the manufacturing schedule. Along Grid Lines 3 and C1 the edge trim can be attached directly to the steel beams but does not cantilever out beyond the beam centreline. 'Type A' trim with a 75mm horizontal leg is also suitable here. This Edge Trim can be formed in 1.0mm gauge steel. The total length required is 29.4m along A, 8.8m along 3, 9.8m along C1 and 39.2m along E; a total of 87.2m. As Edge Trim is supplied in 3.0m lengths a minimum of 30 lengths of 'Type A' Edge Trim should be scheduled.



Along Grid Line 1 the edge trim cantilevers 170mm from the beam centreline, or 107mm clear from the edge of a 127mm wide top flange. The horizontal leg of the 'Type B' trim would need to be 160mm to allow a bearing of 50mm on the beam. A total length of 13m of 'Type B' trim is required along Grid 1; 5 lengths of 3.0m trim should be scheduled.



Along Grid Line 4 the edge trim cantilevers 120mm from the beam centreline, or 57mm clear from the edge of a 127mm wide top flange. The horizontal leg of the 'Type C' trim would need to be 110mm to allow a bearing of 50mm on the beam. A total length of 4.2m of 'Type C' trim is required along Grid 4; 2 lengths of 3.0m trim should be scheduled.



Filling gaps

Steel decking and edge trim form the main components of the shuttering system but the system will not be complete until all significant voids and gaps have been filled. Special treatment is usually afforded to gaps greater than 5mm, as below this level the risk of concrete leakage is limited.

The biggest potential for leakage of concrete is at sheet ends, where the profiled shape of the decking can form significant voids. Internally these voids can be eliminated by detailing the decking to line through from one side of a building to another.

Figure 4: Steel Decking sheets with ends sealed by foam

In certain situations this may not be possible and it then becomes necessary to seal off the ends of the decking profile. The method chosen to seal the deck ends may vary with the shape of the profile. Holorib decking may be sealed using expanding foam, whilst the Ribdeck profiles may best be closed off using thin gauge end caps.

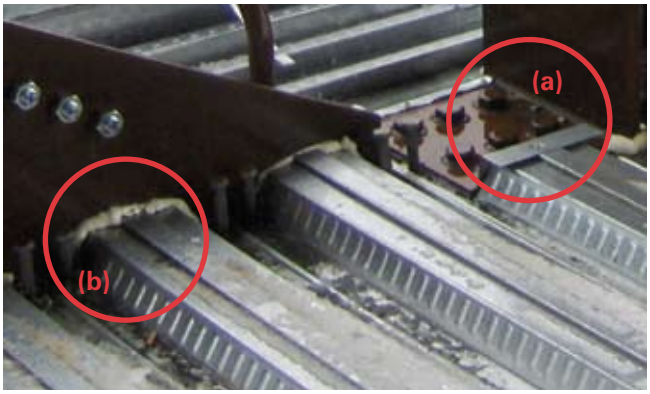


Figure 4: Steel Decking sheets with a) end closure plates and b) filler foam

Figure 6: Steel Decking sheets lined through

Effective coverage with decking

Decking sheets come in standard widths made up of 2 to 4 rib sections separated by trough sections. The outer troughs feature a side lap detail.

Profile	Rib Spacing	Cover Width
Holorib	150	600
Superib	150	600
Ribdeck E60	333	1000
Ribdeck S60	300	600
Ribdeck 80	300	600

Table 7: Standard widths (mm)

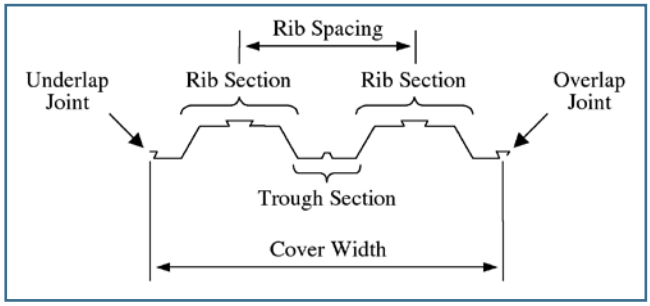


Figure 7: Reference terms for standard decking sheets

In most instances the most efficient way to effect coverage of each bay is to cut the final sheet longitudinally and either discard the off-cut or use it to start the next bay. For this to work the sheets must be set out in such a way as to allow the longitudinal cut to be in the decking trough, which then rests on a bearing surface during concrete placement.

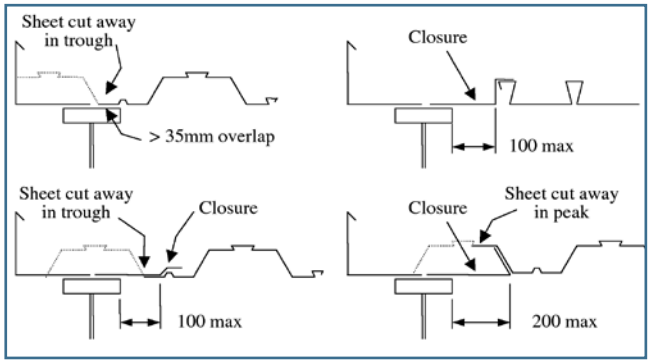
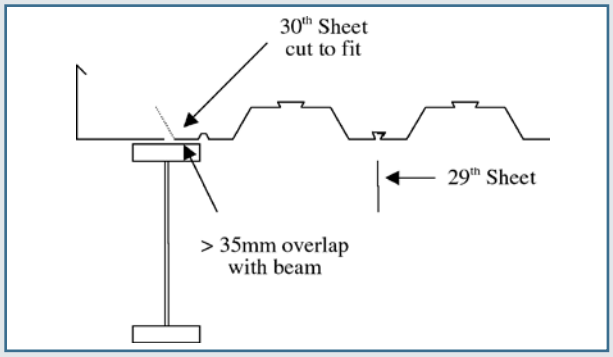


Figure 8: Cut sheets and closure plates to complete floor coverage

In situations where longitudinal cutting of the sheets is not practical or economical a side closure may be required.

BOX 7: Completing coverage

The layout starts on the centreline of Grid 3 where access is gained from the stair core. The Ribdeck E60 sheets are 1.0m wide, meaning that after installing 29 of the 30 sheets available there will remain a gap of 400mm to fill. The final sheet can be cut down in width to fill the gap, allowing > 35mm overlap with the beam top flange. There is no need to schedule any closure plates.



Scheduling decking bundles for delivery

Sheets are bundled together at the factory for ease of handling during delivery and distribution at the work site. The contents of each bundle should be decided at the scheduling stage so that each bundle can be lifted to level and placed on the building close to where the contents are required. Every effort should be made to limit the number of sheets in each bundle to a minimum of 10 and a maximum of 16. In addition it is preferable to put an even number of sheets in a bundle when using Holorib.

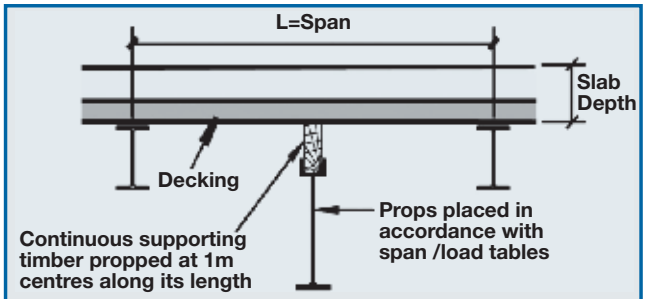
BOX 8: Bundle contents

Common practice would be to bundle together all the sheets required in one bay. Between Grid Lines 1-2 would require 20 sheets and between Grid Lines 2-3 and 3-4 would require 10 sheets. 20 sheets exceeds the recommended maximum bundle contents so schedule 14 sheets in bundles A and C and 16 in B and D. The 4 extra sheets in bundles A and C will need to be manoeuvred around the columns on Grid Line 2 once the bundles are broken open on site.

Bundle E can contain all 10 sheets required between Grid Lines 3-4/C1-E.

Propping and pre-propping of deck

Temporary props can be used to extend the span between permanent supports of decking sheets during concrete placement. The span/load tables (Table 1) give an indication of the maximum permissible spans for single and multiple spans, unpropped, and for single spans propped. Maximum permissible spans for propped multiple span sheets can be taken as equal to those for propped single spans, but consideration of the manual handling weight of the sheets may preclude the adoption of this solution.



Slab depth (mm)	Span 'L' (m)	Runner Size	
		Depth	Width
120	3.25	175mm	50mm
130	3.75	200mm	50mm
150	4.25	225mm	50mm
200	4.75	225mm	75mm

ABOVE DATA OFFERED AS A GUIDE ONLY TO SIZE OF TIMBER RUNNER

Table 8: Timber runner sizes for temporary propping system

The overall temporary propping system should be designed by the Engineer responsible for the project. As a guide the interface between the propping system and the deck soffit should consist of a continuous timber runner with the approximate dimensions shown in Table 8. The base of the props should rest on a continuous sole plate and be founded on ground of adequate load bearing capacity. The prop heights should be adjusted such that the top surface of the timber runner is level with that of the main supporting structure, with care taken to ensure that a positive camber is not induced in the decking sheet.

The decking can normally be safely installed prior to the positioning of the temporary propping system, allowing safety nets to be employed as the preferred method of fall arrest during this operation. When the distance between permanent supports exceeds the values shown in Table 9 the temporary propping system is required to be in place whilst decking sheets are being installed. This will preclude the use of safety nets and will necessitate the adoption of an alternative method of fall arrest such as air bags.

Profile	Span
Holorib	> = 4.0m
Superib	> = 4.0m
Ribdeck E60	> = 4.0m
Ribdeck S60	> = 4.0m
Ribdeck 80	> = 4.5m

Table 9: Spans above which props should be positioned prior to deck installation

BOX 9: Temporary propping

Table 8 suggests that for a 140mm deep slab spanning 4.20m a timber runner size of 225mm deep by 50mm should be checked for adequacy by the Project Design Engineer. Table 9 suggests that the temporary props should be positioned in bay 3-4/C1-E prior to the installation of the Ribdeck E60 sheets.

Shear Studs

Shear studs are often specified as part of the composite BEAM design. The size and spacing of the studs should be decided by the Project Engineer after due consideration of the shape of steel decking being used to form the floor slab. The studs are normally welded through the steel decking to the top flange of the steel beam. Shear studs can be supplied and delivered to site with the decking and trim.

BOX 10: Shear Studs

Shear stud quantities and spacings are specified for each beam on the drawing. 10 beams are shown with a stud number and spacing [shown for example as 58(333)], 6 beams are shown as not requiring shear studs [*] and the remaining 7 beams will require studs at the specified default level [600 c/c UNO].

Total quantities are therefore:

The 10 beams = 358 studs

The 6 beams = 0 studs

The 7 beams = 68 studs (40.9m total length / 600mm centres)

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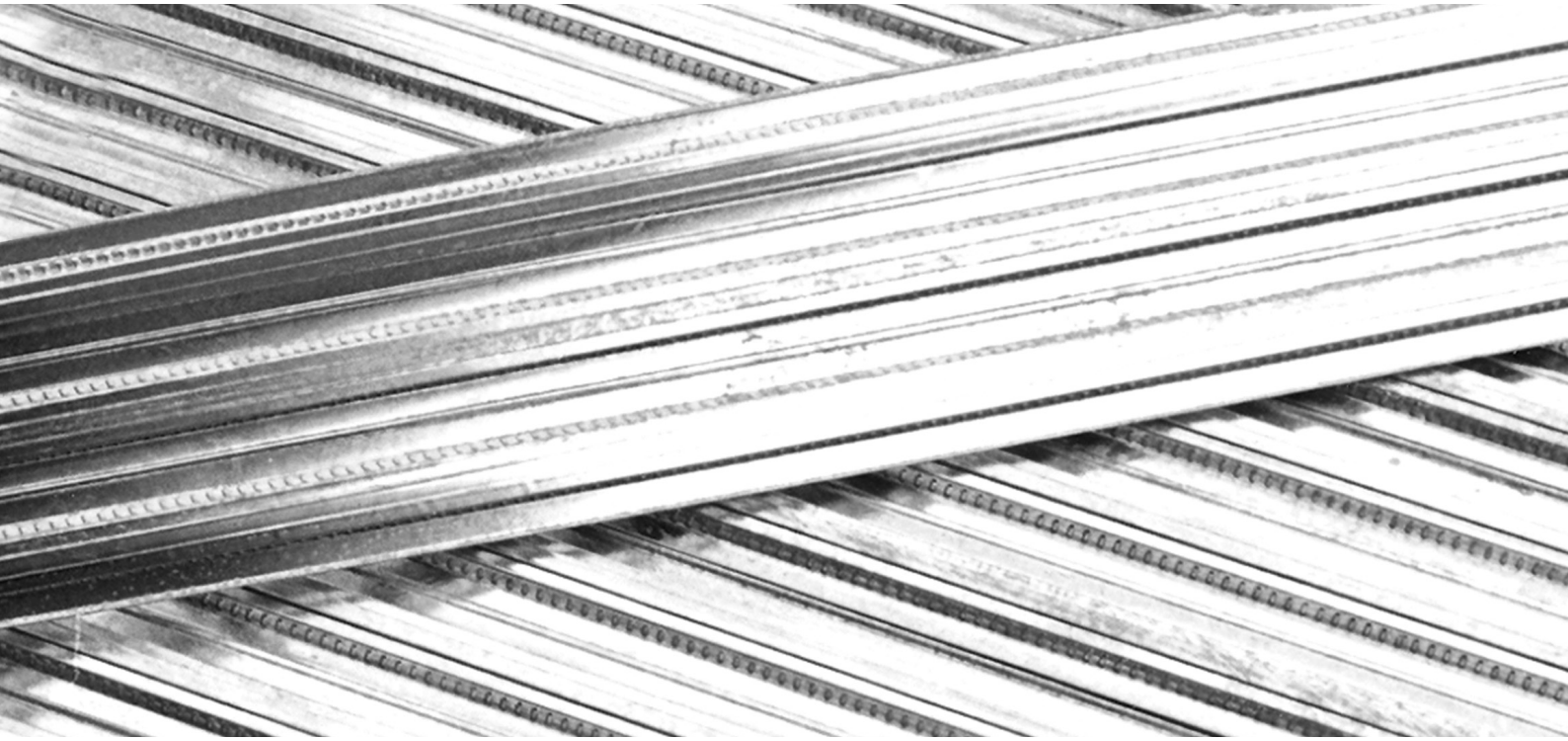
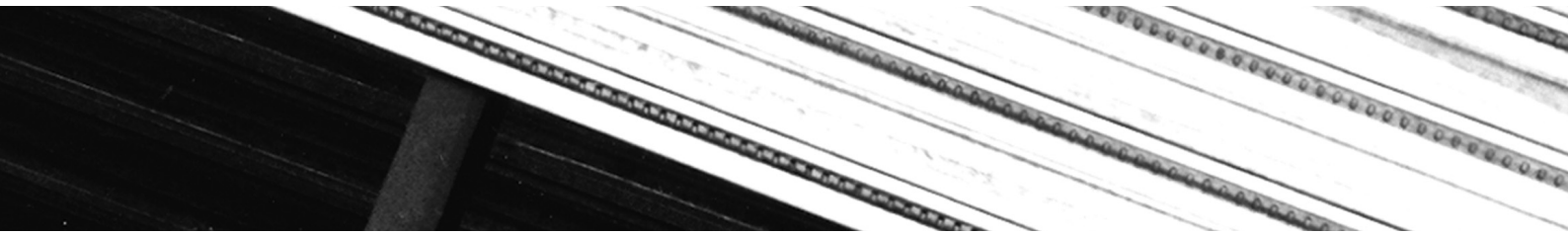
Total = 426 studs + extras for testing and spares = 450 studs



Reference material

Guidance Notes for Design and Fixing (Richard Lees Decking Technical Manual)
Span/Load tables for Holorib and Ribdeck profiles (Richard Lees Decking Technical Manual)
Code of practice for metal decking and stud welding (BCSA Publication 37/04)

Deckspan
Design software for Richard Lees Decking profiles
Free to download from **www.richardlees.co.uk**



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