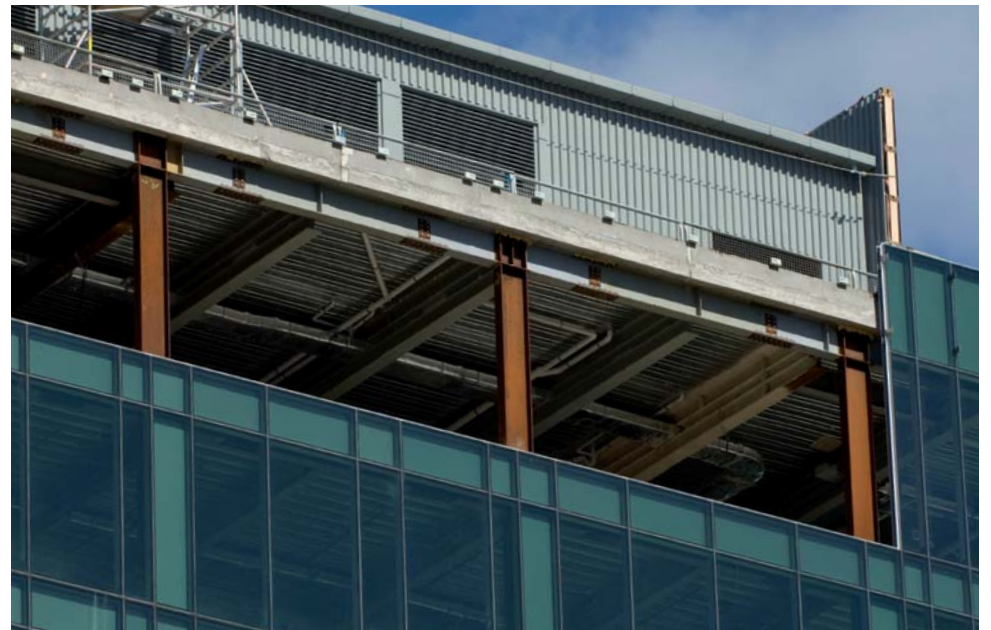




ComFlor 60/80

Quick Reference Load Span Tables





2 ComFlor 80 in construction at 21 Queen Street, December 2008

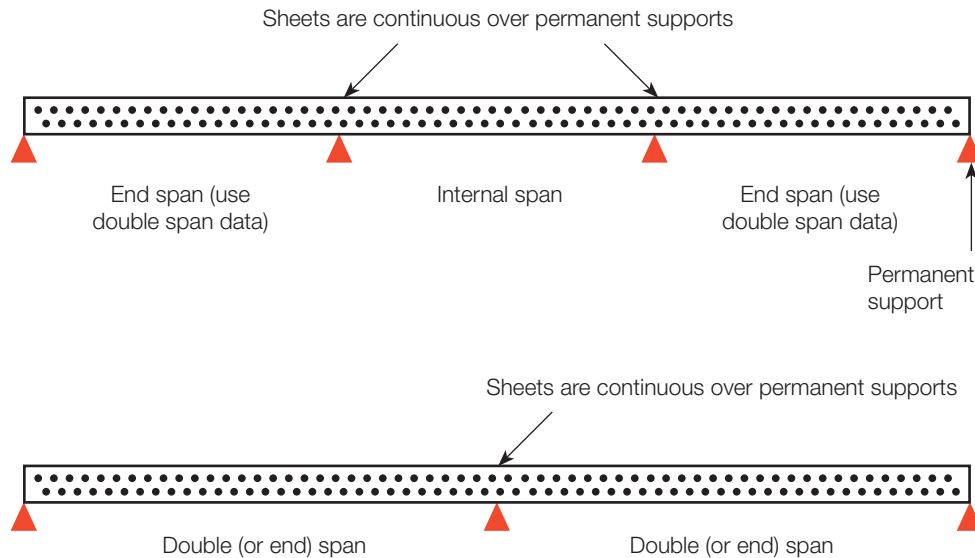


ComFlor 80 in construction at 80 Queen Street, December 2008

Unpropped - Quick Reference Load Span Table Notes Double Span in Construction - Simple Span in Service

The purpose of these tables is for rapid conceptual design only. A full design analysis using the Comdek software (and other 'whole system' software) is required to verify all design parameters are met.

Double Span in Construction



General

Apart from the 0.75mm data, these tables have been derived from version 8.3 of the Comdek design software. The 0.75mm data has been derived manually based as closely as possible to those parameters used in Comdek. Outputs from future versions of Comdek may differ slightly from those in these tables, therefore is important to always verify a design using the latest software.

Spans shown in this table are 'centre to centre' of 150mm wide (top flange) beams as is typical in unpropped continuous sheet construction. Wider beams will result in longer spans. To this end these tables can be considered conservative in most applications.

Spans listed are in 50mm increments with intermediate values at 25mm. Generally for double span construction, strength of the sheet over the support will govern the design.

Even if the ComFlor sheets are continuous over a permanent support in construction, the slab will act as a simple span in service unless full continuity reinforcement is placed over the permanent supports. 25MPa (cylinder strength) concrete used.

95% strength in construction	The green zone is the 'safe' zone within which the ComFlor is not unduly taxed structurally during construction.
98% strength in construction	The orange zone can be considered the 'working' zone where most efficient designs will occur. Concrete pour sequencing is important within the orange zone to minimise ponding and result in flatter concrete surface.
100% strength in construction	The red zone should never be used.

The construction deflection column to the right of the tables indicates the resultant deflection at the end of each of the colour bands.

Ultimately it is the 'clear span' that dictates the design. As the top flange width increases with larger beam selection, the possible beam centres increase. Specific design using the Comdek software is required.

5mm, 15mm, 22mm indicate the underside deflection to expect (inclusive of concrete ponding midspan) during construction. The line to the right thus 5mm | indicates the span applicable to that deflection figure. As a guide:

5mm – Practically flat appearance to the underside

15mm – 15mm underside deflection has generally proven to be a good compromise between visual appeal and functional construction spans.

22mm – A good ‘working’ maximum where underside appearance is not important, but maximum construction spans are desired.

25mm – Generally the absolute maximum underside deflection advised unless the visual appearance is of no relevance.

Normal Stage

Strength criteria limited to 95% utilisation.

Total Deflection is limited to the smaller of span/250 or 30mm.

Serviceability criteria limited to 99% utilisation (of 5Hz).

The composite (normal stage or ‘in service’) spans are designed to a 5Hz vibration limit. Studies of existing slabs have shown that this parameter results in a solid feeling slab that does not generally produce unsettling vibration underfoot if the support structure is inherently rigid (ie a concrete block wall). Please note that the slab alone does not necessarily dictate the overall slab ‘system’ vibration characteristics. If the support structure has the potential to be flexible (ie structural steel), the whole floor system should be considered for vibration. Spans can be increased markedly if the vibration criterion is relaxed or not critical to the end use of the slab.

Load/span combinations in these tables achieve a guaranteed 30 minute fire resistance rating (FRR). Greater than 30 minutes is often possible, dependant on the actual imposed load (tables give possible load based on 30 minutes FRR) - use the Comdek software to determine if the desired FRR can be achieved without additional reinforcing. Use the ‘Simple’ setting first to determine if mesh alone will satisfy the fire condition. Comdek allows for different mesh sizes to be considered in the ‘Simple’ method - or, using the ‘Fire Design’ method different bar sizes (10 to 32mm) can be placed in the ComFlor troughs in order to improve fire performance.

The load capacity for any given load/span configuration is shown as:

5.0

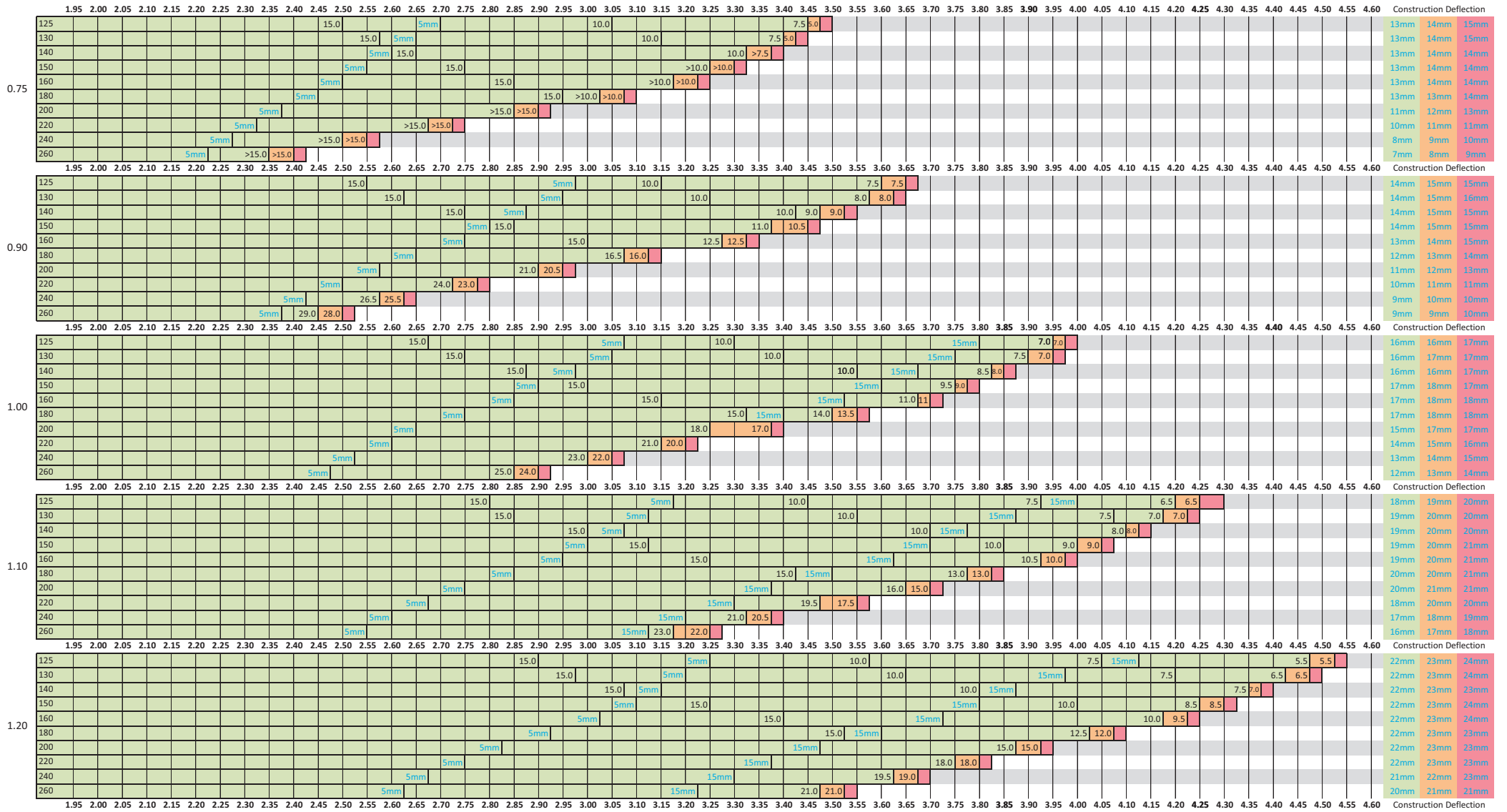
The fire rating will naturally increase at any given span if the actual design load is less than that shown on the tables.

Loadings Represented in the tables

SLL (Q) kPa	SDL (G) kPa	Category Reference from AS/NZS 1170.1:2002, table 3.1
15.0	0.5	E - minimum value for cold storage
10.0	0.5	E - minimum value for mobile stacking, mechanically operated heavy shelving (wheels on rails, eg compactus)
7.5	0.5	C5 - Stages in public assembly areas (no allowance for dynamic activities has been allowed for)
5.0	0.5	E - file rooms, office storage space, vaults and strongrooms
3.0	0.8	B - offices for general use
2.5	0.1	F - parking, garages, driveways and ramps restricted to cars, light vans, etc not exceeding 2500kg gross mass
1.5	0.8	A1 - General areas, private kitchens and laundries in self contained dwellings.

Note - Point loads have not been considered for these quick reference tables. Please use the Comdek software and/or discuss your needs with a ComFlor representative.

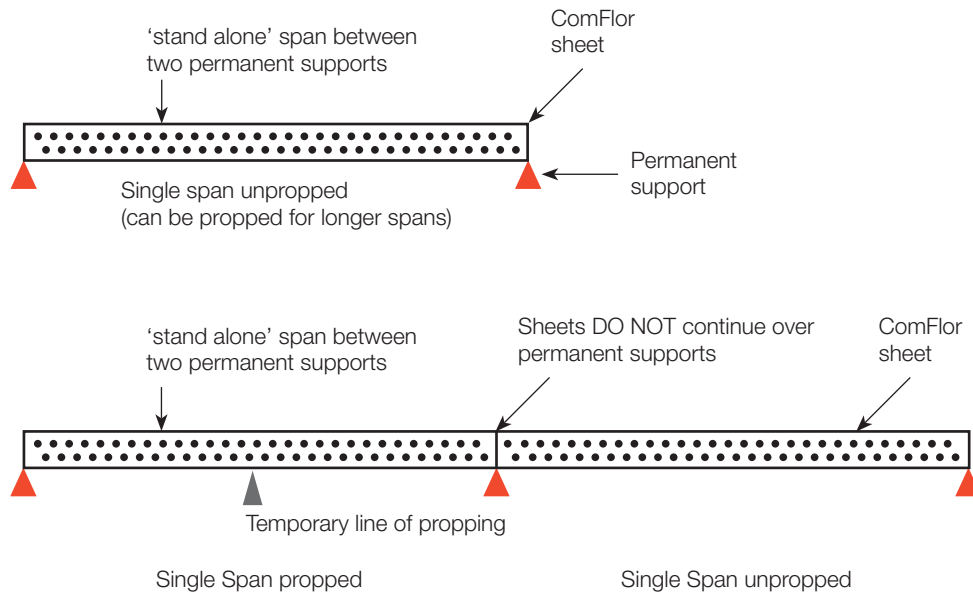
Quick Reference Load Span Table UnPropped ComFlor 60 Double Span Sheets in Construction - Simple Span Composite Slab - 30 minute fire rating



Quick Reference Load Span Table Notes Single Span in Construction - Simple Span in Service

The purpose of these tables is for rapid conceptual design only. A full design analysis using the Comdek software (and other 'whole system' software) is required to verify all design parameters are met.

Single span in construction



General

Apart from the 0.75mm data, these tables have been derived from version 8.3 of the Comdek design software. The 0.75mm data has been derived manually based as closely as possible to those parameters used in Comdek. Outputs from future versions of Comdek may differ slightly from those in these tables, therefore is important to always verify a design using the latest software.

Spans shown in this table are 'clear span' plus 100mm to reflect the typical application of the ComFlor sheet in a single span slab - 50mm seating onto the support structure.

Spans listed are in 100mm increments with intermediate values at 50mm. For unpropped single span design, underside deflection during the concrete pour will (generally) govern the effective span. For propped single span design, the resultant vibration and deflection characteristics of the composite slab will (generally) govern the design.

Even if the ComFlor sheets are continuous over a permanent support in construction, the slab will act as a simple span in service unless full continuity reinforcement is placed over the permanent supports. 25MPa (cylinder strength) concrete used.

Construction Stage

The colour zones on the table represent the ponded (soffit) deflection to expect during construction.



5mm, 15mm, 22mm indicate the underside deflection to expect (inclusive of concrete ponding midspan) during construction. The line to the right thus 5mm | indicates the span applicable to that deflection figure. As a guide:

5mm – Practically flat appearance to the underside.

15mm – 15mm underside deflection has generally proven to be a good compromise between visual appeal and functional construction spans.

22mm – A good 'working' maximum where underside appearance is not important, but maximum construction spans are desired.

25mm – Generally the absolute maximum underside deflection advised unless the visual appearance is of no relevance.

Normal Stage

Strength criteria limited to 95% utilisation

Total Deflection is limited to the smaller of span/250 or 30mm

Serviceability criteria limited to 99% utilisation (of 5Hz)

The composite (normal stage or 'in service') spans are designed to a 5Hz vibration limit. Studies of existing slabs have shown that this parameter results in a solid feeling slab that does not generally produce unsettling vibration underfoot if the support structure is inherently rigid (ie a concrete block wall). Please note that the slab alone does not necessarily dictate the overall slab 'system' vibration characteristics. If the support structure has the potential to be flexible (ie structural steel), the whole floor system should be considered for vibration. Spans can be increased markedly if the vibration criterion is relaxed or not critical to the end use of the slab.

Spans can be further increased by the addition of bottom reinforcing. Up to 600mm (varies) additional span can be achieved to that shown. Bottom reinforcing can be added also to increase the load carrying capacity of any given span/slab thickness combination. Use the Comdek design software to verify.

Load/span combinations in these tables achieve a guaranteed 30 minute fire resistance rating (FRR). Greater than 30 minutes is often possible, dependant on the actual imposed load (tables give possible load based on 30 minutes FRR) - use the Comdek software to determine if the desired FRR can be achieved without additional reinforcing. Use the 'Simple' setting first to determine if mesh alone will satisfy the fire condition. Comdek allows for different mesh sizes to be considered in the 'Simple' method - or, using the 'Fire Design' method different bar sizes (10 to 32mm) can be placed in the ComFlor troughs in order to improve fire performance.

The load capacity for any given load/span configuration is shown as:


5.0

The fire rating will naturally increase at any given span if the actual design load is less than that shown on the tables.

Propping

Please note, when propping is used, the self weight of the slab is applied as a dead load once props are removed and can result in lower load capacity than that of an unpropped slab of the same span. This is because (the self weight of) an unpropped slab 'loads up' as it is poured, whereas when propped the self weight is held by the propping initially.

The propping break lines (from 0 to 1, 2 or 3 rows required) occur at 95 % strength utilisation of the ComFlor sheet in construction.

 The heavy lines indicate those points at which one or more prop lines are required.

The propping line used must be checked to ensure it has the required capacity to support the construction loads. ComFlor has the capacity to span far enough to impart up to 1500kg per linear metre onto the propping line.

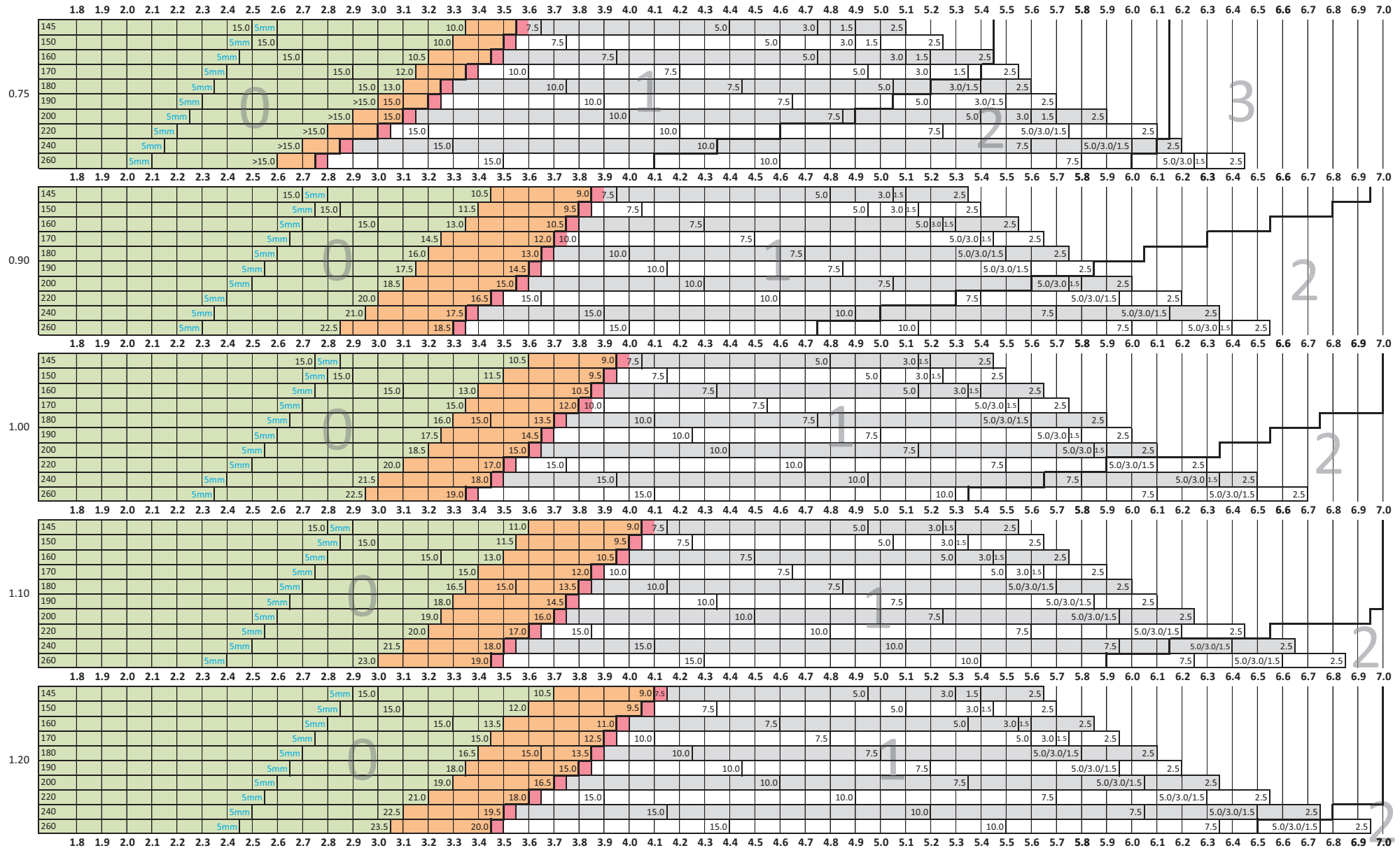
A top bearer width of 100mm is used for the temporary propping system. Construction spans can be increased if wider bearers are used.

Loadings Represented in the tables

SLL (Q) kPa	SDL (G) kPa	Category Reference from AS/NZS 1170.1:2002, table 3.1
15.0	0.5	E - minimum value for cold storage
10.0	0.5	E - minimum value for mobile stacking, mechanically operated heavy shelving (wheels on rails, eg compactus)
7.5	0.5	C5 - Stages in public assembly areas (no allowance for dynamic activities has been allowed for)
5.0	0.5	E - file rooms, office storage space, vaults and strongrooms
3.0	0.8	B - offices for general use
2.5	0.1	F - parking, garages, driveways and ramps restricted to cars, light vans, etc not exceeding 2500kg gross mass
1.5	0.8	A1 - General areas, private kitchens and laundries in self contained dwellings.

Note - Point loads have not been considered for these quick reference tables. Please use the Comdek software and/or discuss your needs with a ComFlor representative.

Quick Reference Load Span Table ComFlor 80 Single Span Sheets in Construction - Simple Span Composite Slab - 30 minute fire rating



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Tata Steel International (Australasia) Ltd

7 Bruce Roderick Drive, East Tamaki 2013,

PO Box 58880, Botany 2163

Auckland, New Zealand

t: +64 9 271 1780

f: +64 9 271 1970

www.tatasteelnz.com