PRODUCTS

1. Wall Panels:

1.1 Vertical Wall Panels (WV)

WV are reinforced units, for load bearing applications as either external or internal walls in a wide variety of low and medium rise buildings. They can also be used as non-load bearing cladding for steel or concrete framed structures. They may have single mat or double mat reinforcements depending on the structural requirements.

1.2 Horizontal Wall Panels (WH)

Similar to WV, they are also reinforced units with either single or double mat reinforcements, but are used in horizontal positions. Applications include: low parapet, boundary walls, wall claddings to steel or concrete framed structures and for filling of space between lintels and ceiling. Tongue and groove joints are usually provided for multi-layered WH construction for ease of on-site assembly.

1.3 Fluted Wall Panels (WF)

Wall panels are also available with fluted surface as an added feature. They make very attractive features in building facades used either in small areas such as under window openings or as an all-over treatment. Fluted wall panels are also favorite features for boundary walls. Flutes are available in depths of 25 mm or less.

1.4 Partition Wall Panels (WP)

These are normally used as non-load bearing internal partitions with thickness ranging from 10 to 15 cm thick depending on the height of wall. The flexibility in the design of partition wall panels means it can be provided with central groove to accept grouting or with standard tongue and groove, increasing their ease of on-site assembly. They are simply fixed using steel angles or by grouting where possible inside framed structures or concrete-shell buildings.

1.5 Permissible Compressive Stress on Vertical Wall Panels (WV)

Wall Height (m)	Permissible Compressive Stress (kg/cm^2) at the following Wall Thicknesses (mm)			
	100	150	200	250
2.50	5.3	6.5	6.8	6.9
2.75	4.7	6.3	6.7	6.9
3.00	4.0	6.1	6.6	6.8
3.75	1.2	5.3	6.3	6.6
4.00	-	4.9	6.1	6.6
4.50	-	4.0	5.8	6.4
5.00	-	2.9	5.3	6.1
5.50	-	1.6	4.7	5.8
6.00	-	-	4.0	5.5

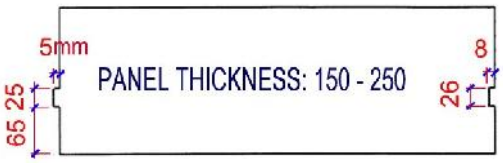
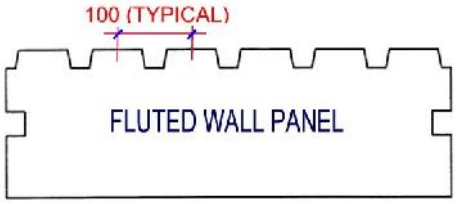
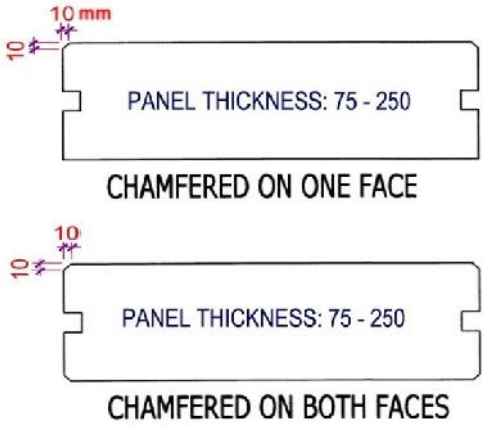
Above values were calculated based on the allowable compressive stress in low density concrete load-bearing walls as stipulated in **ACI 523.2R-68** (Guide for Low Density, Precast Concrete Floor, Roof and Wall Units), Chapter 4.3.2.
Non load-bearing partitions or curtain walls should be limited to a height/thickness (h/t) ratio of not greater than 48.

1.6 Maximum Length of WV & WH with Various Design Lateral Loads using Siporex Standard Reinforcements

Thickness (mm)	Maximum Length of Wall Panels at the following Design Wind Load (kg/m^2)			
	80	120	160	200
75	250 cm	-	-	-
100	400 cm	375 cm	325 cm	275 cm
125	500 cm	475 cm	450 cm	400 cm
150	600 cm	575 cm	550 cm	500 cm
175	600 cm	600 cm	600 cm	575 cm
200	600 cm	600 cm	600 cm	600 cm
225	600 cm	600 cm	600 cm	600 cm
250	600 cm	600 cm	600 cm	600 cm

1.7 Millings for Wall Panels

Wall panels are milled along their edges to suit various construction conditions and appearance using standard profiles. They may be chamfered or fluted on one or both faces. Following are various shapes of wall panel millings:

	**Central Groove** – Applicable for WV, groove to be filled with cement-sand grout (1:3), providing rigid connection between panels as well as connection to the foundation through steel anchorage and next upper floor through steel dowel bars and ring beams.
	**Tongue & Groove** – Applicable for WV, usually for non-load bearing external cladding or internal partitions where central groove for grouting is not applicable. Also commonly used for boundary walls using WH fixed at the ends to the supporting columns.
	**Fluted Surface** – Can be applied for both WV & WH in combination with Central Groove or Tongue & Groove for architectural purposes. Depth of flute can be 25 mm or less. Standard distance between flutes is 100 mm center to center.
	**Plain Corners** – Used in combination with Central Groove or Tongue & Groove where plain wall surface is required. Fiberglass tape fixed with our special adhesive, Gesol, along the joints will be necessary prior to application of wall finishes.
	**Chamfered Corners (one or both faces)**– Also used in combination with Central Groove or Tongue & Groove where joints between panels are required to be visible, forming V-grooved joints. This is appropriate for Siporex wall panels used as claddings to a framed structure. Fiberglass tape will not be necessary where chamfered corners or V-grooved joints are provided.

NOTE: ALL DIMENSIONS INDICATED ABOVE ARE IN mm.

2. Lintels:

2.1 Panel Type Lintels (LW)

Lintels are used as load-bearing members over window and door openings for external or internal walls, eliminating the need for shuttering and in-situ concrete. They are bedded with special Siporex glue onto wall panels adjacent to the opening of reduced height. The maximum obtainable lengths (free spans) in meters for lintels of various design loads and thicknesses are shown in table of Section 4.2.4. LW's usually have standard height of 60 cm.

2.2 Arch Type Lintels (LA)

Arch type lintels are also load-bearing members but with added architectural features that can be designed with various shape and sizes of arches applicable for openings at external facades or internal walls. Reinforcement mats are specially arranged to facilitate fabrication and avoid exposure after cutting the required shape. Arches can be designed with single panel where height of arch does not exceed 30 cm or multi layers of panels for high arches.

2.3 Box Type Lintels (LB)

Box type lintels are designed with special steel reinforcement arrangement to be used where lintel depth is limited. They are suitable for block wall construction, produced with depth equal to the height of Siporex blocks for ease of construction. This eliminates shuttering and cast-in-situ works as well as avoids thermal bridges caused by the use of traditional concrete lintels. The maximum obtainable lengths (free spans) in meters for Box type lintels of various design loads and thicknesses are shown in table of Section 4.2.5.

The minimum permissible end bearings for all types of lintels are as follows:

for L ≤ 2400 mm	200 mm each end
for L > 2400 mm	300 mm each end

Due to the special reinforcement arrangement, lintels must never be cut.

2.4 Maximum Clear Span of Panel Type Lintels with Various Design Loads (Height = 60 cm)

Design Load	Thickness of Panel Type Lintel (mm)			
	100	150	200	250
500 kg/m	250 cm	450 cm	540 cm	540 cm
1000 kg/m	200 cm	325 cm	400 cm	450 cm
1500 kg/m	100 cm	275 cm	325 cm	375 cm

2.5 Maximum Clear Span of Box Type Lintels with Various Design Loads (Height = 25 cm)

Design Load	Thickness of Box Type Lintel (mm)			
	100	150	200	250
500 kg/m	200 cm	350 cm	360 cm	360 cm
1000 kg/m	150 cm	250 cm	260 cm	265 cm
1500 kg/m	75 cm	200 cm	210 cm	210 cm

Other heights and spans of lintels can be designed by our technical department depending on their particular condition and considering the clear span of openings as well as design loads. Since Siporex lintels are constructed with the same materials as the wall panels or Siporex masonry blocks, the surfaces are easily finished and the possibility of cracks due to different thermal expansion is eliminated.

Various actual applications of Siporex lintels

3. Floor & Roof Slabs (FS & RS)

3.1 Product and Application

Siporex floor/roof slabs are reinforced aerated concrete products which are produced in accordance with international standards.

Siporex slabs attain their design strengths during the high-pressure steam curing process in the autoclaves. Thus, after delivery, slabs can be erected immediately within a very short period and ready for occupancy use.

Installation can be done with minimal number of erection crew, light equipments and will not require highly skilled workers. Shuttering works are eliminated, and finishing works can commence directly, saving time and overall costs.

Siporex slabs can be used both in flat roof areas or sloped roof. They can also be installed with cantilevered ends, produced with special reinforcements.

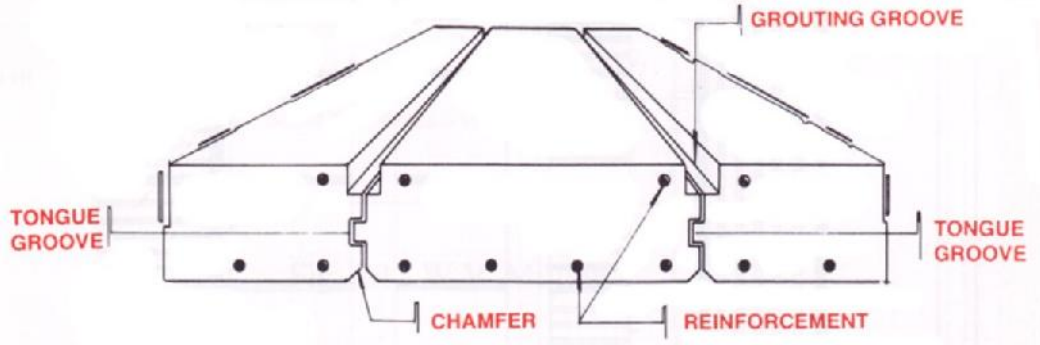
The excellent thermal insulation of Siporex slabs ensures pleasantly healthy and balanced internal temperature.

The units are milled along their edges to provide tongue & groove and grouting notch on top. The bottom longitudinal edges are preferred to have corner chamfers giving an attractive V-shaped joints pattern on the ceiling.

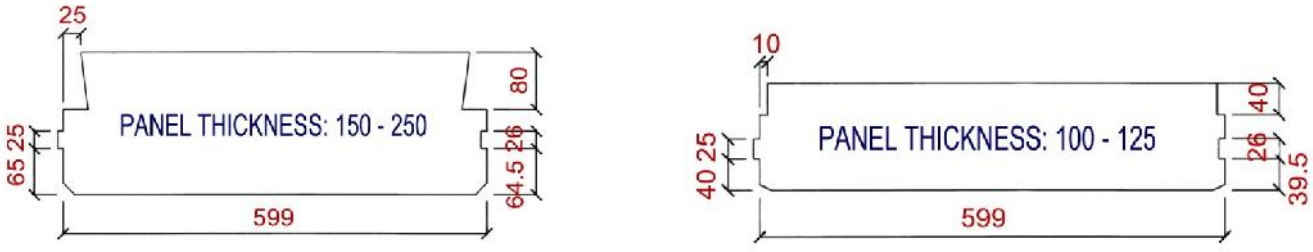
Siporex slabs are also produced in various thickness and spans depending on the required load-bearing capacities. The table shown on Section 4.3.3 gives a guide to the permissible spans of slabs with different design loads of various slab thicknesses.

FS & RS can be used in all types of buildings, e.g. housings, industrial, commercial & educational buildings.

3.2 Millings for Floor & Roof Slabs



Typical Section of Siporex Slab Construction



Milling of floor/roof slabs

Note: Dimensions shown are in millimeters.

3.3 Permissible Spans of Various Slab Thickness and Design Loads

Design imposed DL + LL (kg/m^2)	Permissible Spans with the following Thicknesses (mm)			
	100	150	200	250
110 kg/m^2	4250	6000	6000	6000
160 kg/m^2	4000	5750	6000	6000
210 kg/m^2	3500	5500	6000	6000
250 kg/m^2	3500	5250	6000	6000
300 kg/m^2	3250	5000	6000	6000
350 kg/m^2	3000	4750	6000	6000
400 kg/m^2	2750	4500	5750	6000
500 kg/m^2	2500	4000	5250	5750

Above design loads are in addition to the self-weight of the Siporex slabs. Siporex slabs are reinforced with double steel welded mats and anti-corrosion coated in Siporex factory. Quantity and sizes are in accordance with Siporex steel reinforcement tables.
The minimum required end-bearing supports are 75 mm for masonry & concrete supports and 50 mm for steel beam supports.

Various applications and construction of Siporex floor/roof slabs