

NAMSLAB[®]

PRECAST CONCRETE DECKING SYSTEM
Patent no: 2001/0013 ; 2007/1571



PRACTICAL MANUAL FOR
SPECIFICATION AND INSTALLATION

NAMSLAB cc DETAILS

Tel: +264 61 244 940

Fax: +264 61 244 372

Cell: +264 81 124 4840 - Elmi Brand (Owner)

International Consulting Engineers - (Structural Engineer)

Email: admin@namslab.com

Website: <http://namslab.com>

P O Box 31626, Windhoek, NAMIBIA

P O Box 3961, Vineta, SWAKOPMUND

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1. ADVANTAGES TO YOU:

1.1 The Architect

Responsibility for Design – NAMSLAB engineered slabs are designed by an Engineering Council of Namibia registered Engineer, at no extra cost to the Architect or his clients.

Time saving during drawing - The architect need only to show the outline of the slab and make reference to the NAMSLAB system.

Plans free - Slab layout plans showing position of ribs, blocks, polystyrene and stiffeners are prepared, free of charge.

Written guarantee - A written guarantee is submitted on request, thereby indemnifying the Architect from the design responsibility of the slab.

Workmanship - NAMSLAB engineered slabs are manufactured under strict quality control in a well equipped factory, thereby ensuring uniformity and the highest standard of quality.

Material - All concrete and steel in the NAMSLAB system is of the best quality and in accordance with the specifications of the South African Bureau of Standards. The finish is excellent and the concrete strength results are available for each batch.

Flexibility of Designs – NAMSLAB engineered slabs are not limited to residential use. The system is a one way spanning system and can be used in hostels, flats, offices, multi storey buildings, shopping centres, etc. With clear spans less than eight meters. Cantilevers up to 1.5m can also be achieved.

Savings – Compared to in-situ concrete slabs, NAMSLAB engineered slabs will be able to produce the following savings:

- Quick and easy to install – no skilled labour needed
- Material costs up to 25% less than in-situ concrete
- Up to 65% time saving for installation

- Fewer props required
- No shutters required
- Services cast into slab

1.2 The Client (Employing Authority)

Cost saving – The most important factor to the client is the cost saving due to the simplicity of the slab installation, reduced installation time and reduced material cost.

Engineer's Design – The slab is designed by an Engineering Council of Namibia registered Engineer. This design fee and the layout drawings are done at no extra cost to the client.

Time saving – NAMSLAB is designed for fast installation. This will enable the client to occupy the premises sooner.

1.3 The Quantity Surveyor

Saves time in measuring – Allowing a PC amount per meter squared utilizes considerably less time than measuring shutters, steel and concrete quantities.

Responsibility limited – Measuring only the quantity of the area that NAMSLAB will be used and the quantity of 25 Mpa concrete topping are the only responsibilities of the quantity surveyor. The manufacturer and the Engineer determine all other elements in the NAMSLAB pre-cast decking system with a computer aided design package.

Free advice and assistance in preparing bills and quantities – NAMSLAB will assist the QS in any if he requires additional input in preparing the bill of quantities.

1.4 The Consulting Engineer

Time saver – Detailed design drawings and calculations are prepared at no extra cost and submitted to the project engineer for approval, thereby saving time and cost of designing and drawing detailed plans.

Guarantee – A written guarantee is submitted on request, confirming that the NAMSLAB pre-cast decking system has been designed by an Engineering Council of Namibia registered Engineer in accordance with the following codes:

- a) The general procedures and loadings to be adopted in the design of buildings – SANS 10160:2010
- b) The structural use of concrete – SABS 0100/2000

Design aids and software – Quick reference tables and analysis software files will be sent to the Consulting Engineer on request free of charge, if he requires to do the design himself.

1.5 The Contractor(Builder)

Time saver – If there is no bill of quantities, all that is needed is to submit a copy of the building plan to NAMSLAB, who will give an accurate quotation. This quotation will include all ribs with reinforcing steel, blocks, polystyrene, stiffener steel and mesh. There will also be an additional quote, which includes delivery of these materials to your site. The builder will only be responsible for the propping of the ribs for 14 days and the cast of the 50mm, 25 Mpa concrete topping. If the builder does not want to be involved with the installation, NAMSLAB will suggest other construction companies with installation experience.

No delays – You get ready made slab components at the time you want them. No unnecessary storage of material is required.

Engineer's Design – The slab is designed by an Engineering Council of Namibia registered Engineer. This design fee and the layout drawings are done at no extra costs.

Guarantee – A written guarantee is submitted on request.

Package deal – Your slab components are delivered together with all relevant materials. A detailed slab layout, showing positions of all components is supplied.

Skilled labour – No carpenters are needed for shuttering. No steel fixers are needed, as all steel except the stiffeners are already cast into the concrete ribs.

Clean job – All components are calculated before they are manufactured. There will be no off-cuts and other wasted material on site.

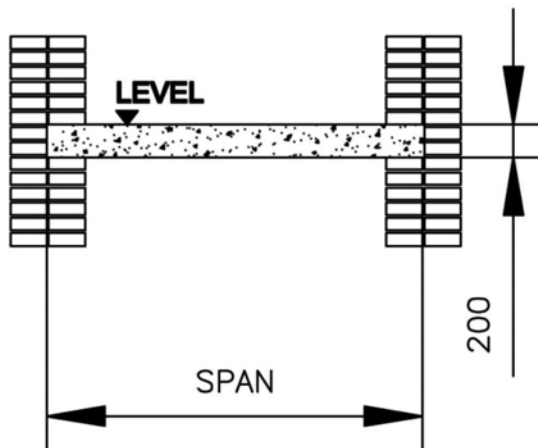
2. PRECAST CONCRETE DECKING SYSTEM SPECIFICATIONS:

2.1 Specifying slabs on drawings

On Building plans – Ideally the Architect or draught person should, in his cross sections, only show the outline of the slab.

- Reference to use NAMSLAB precast concrete decking systems
- The position and level of the top of the slab
- All intended steps between levels
- Overhang dimensions
- Special load areas, with reference to intended loads
- Slab depth (200mm can be used as a default)

Example: Typical slab on load bearing supports (Note that brickwork on outside can be used to shutter the concrete topping).

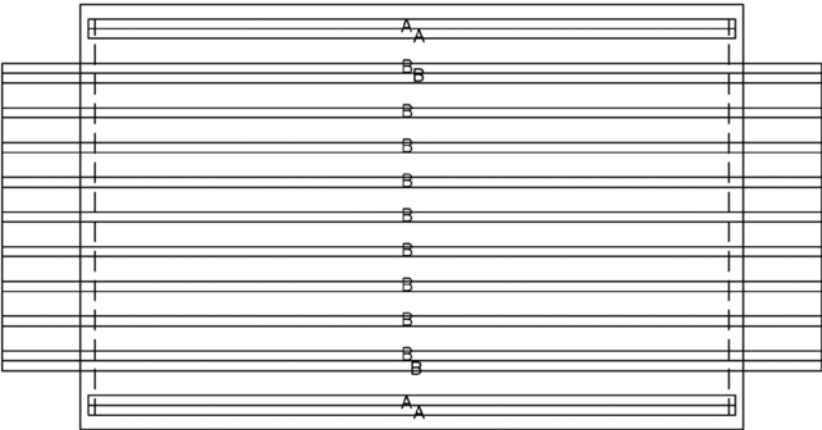


The following note can be placed on drawings by Architects:

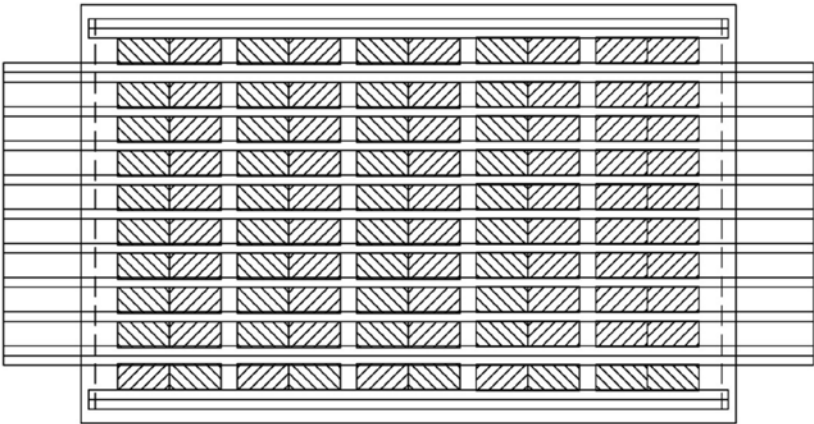
NAMSLAB precast concrete decking system to be used. Installation must be done to Engineer's specifications and in accordance with SANS 10160:2010 and SABS 0100:2000.

2.2 Layout drawings supplied by NAMSLAB

Example: A slab for an entertainment area over a double garage



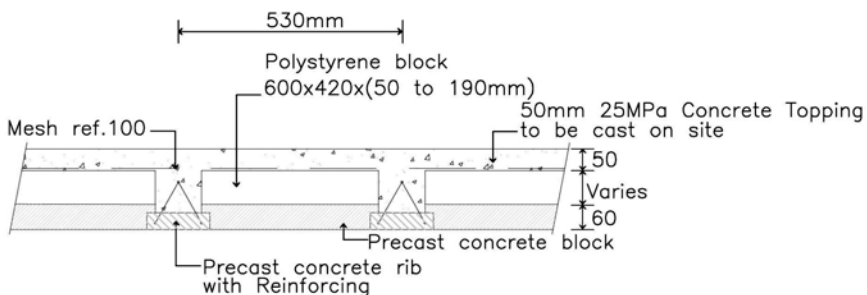
Example: Layout of concrete ribs and blocks.



Example: Layout of polystyrene blocks

Member	No Off	Top Rft	Bot. Rft	Length
Rib Type A	4	1Y12	3Y16	7250
Rib Type B	11	1Y12	3Y16	9500
Blocks	230			
Half Blocks	8			
Blocks *	1	with holes		
Polystyrene	100	600X420X90		
Mesh sheets	4	6000x2400 (300mm lap)		
Stiffeners	8	Y10, 6000 mm long		
Slab Area	55	m ²		

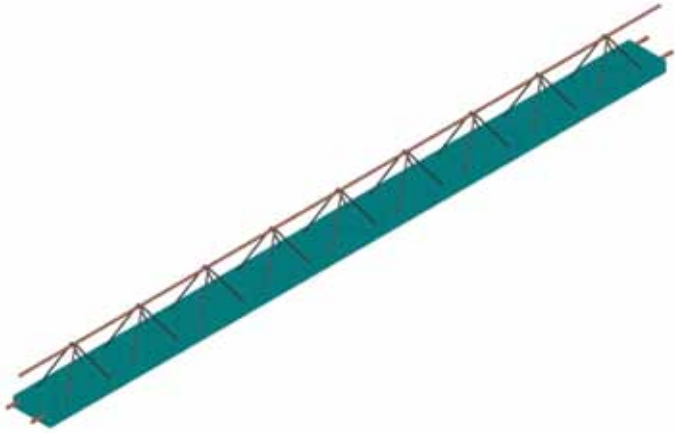
Schedule of all components



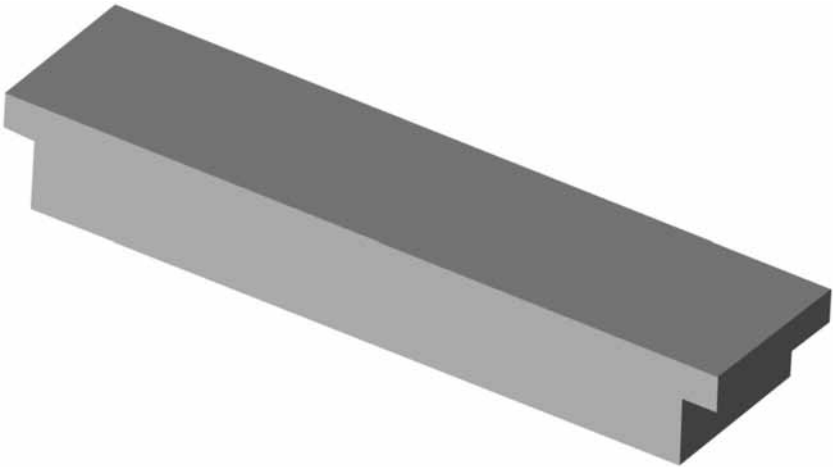
Typical section of NAMSLAB patented system

NAM PAT NO.: 2001/0013 ARIPO Design No.: 2007/01571

2.3 Factory manufactured pre-cast components



The pre-cast concrete rib. Concrete with cast in reinforcing steel, according to Engineer's design.



The pre-cast concrete block (400 x 100 x 60mm thick).

2.4 Installation procedure



*Place concrete ribs and prop at maximum 1800mm centres.
Rib ends to be supported by load bearing walls or concrete beams.*



Support ribs @ 1.8m c/c maximum with scaffolding plank or similar.



*Use concrete blocks as spacers on both ends.
Ribs to be placed at 530mm c/c.*



*Place remainder of blocks to form permanent shuttered deck.
Special blocks with pre-remained holes will be provided for electrical services.*



Place polystyrene blocks and mesh ref 100, leaving 150mm wide gaps for stiffeners at 1200mm c/c.

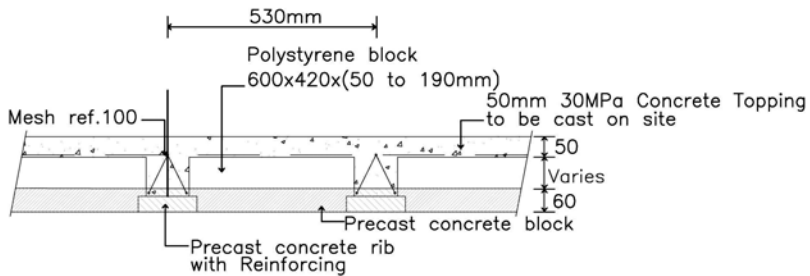


Cast 50mm 25 Mpa concrete topping, vibrate thoroughly and leave props in place for 14 days. Topping should be cured for at least 3 days.

3. ADDITIONAL APPLICATIONS:

3.1 NAMSLAB for coastal regions

- NAMSLAB ribs for coastal regions are 60mm thick to provide the minimum cover to steel as specified in SANS 10160:2010.
- Less concrete are required on site.
- 30 Mpa is specified for the topping for better water proofing qualities.



3.2 NAMSLAB for floating foundations

- Quick and easy to install.
- Cost savings on steel and concrete.
- Time saving.
- No cover blocks required.



Soil preparation and compaction



Modulo laid directly on surface bed

3.3 NAMSLAB precast stair system

- Quick and easy to install
- No skilled labour required
- No shuttering required
- No propping required
- Designed for 5kN live load
- Supported by landing beams.
- All widths of staircases can be created.
- Floor to floor heights from 2.6m to 3.2m can be created.
- Excellent finish
- Full set of stairs can be installed in less than 2 hours.

Designed to SABS 0100:2000.



4. OTHER PRODUCTS:

4.1 Precast permanent shuttering for beams

The Design: The patented product developed in South Africa by Cobute CC and Conspec Structural Civil Design. The product was also certified by the University of Cape Town. The objective was to eliminate all of the complications associated with the wooden shuttering, steel fixing and casting of reinforced concrete beams specified from structural engineers and most of the time, installed by unskilled labourers. The research and development took approximately one year, with the fine-tuning of all technical requirements resulting in substantial savings in time and expenses for the builder.

The Shuttering: It consists of two L-shaped beams, reasonably light (20-37kg per linear meter each) with additional steel, factory fixed in the specified position, easy-to-handle and eliminated carpentry costs. Installation is simply lifting into place and tying the two halves together using the protruding wire mesh. A six-meter long beam can be erected ready for casting in approximately 90min by six unskilled labourers with a reduced number of props required.



Shuttering to Beam



Beams in place

Advantages:

- More cost effective than conventional cast in situ
- Easy to handle and quick to erect/install
- Can be split along the length to allow for lighter weight
- Minimal shuttering and propping required and quick to strip
- Additional bottom tensile steel designed to suit spans and loads
- Use of steel fixing on site, additional bottom tension steel factory installed.



Beam Supporting Cantilevered Slab

4.2 Precast permanent shuttering for staircases

The Design: By cutting the side panel of a Cobute R.C. (reinforced concrete) beam in the shape of a staircase, we have been able to easily manufacture a precast staircase. The basic components are the same as those of the decking system (precast panels and ribs).



Staircase ready for casting



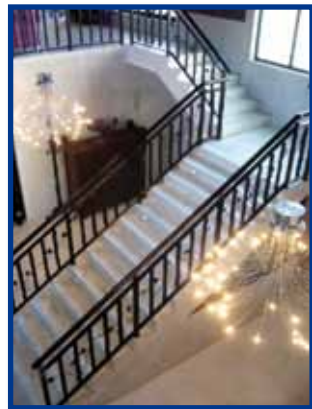
Staircase ready for casting

Advantages:

- The right combinations of the experimented precast permanent shuttering for R.C. beams and the slab components offer to the market a precast staircase, light enough to not require a crane at the site, easy to put together and to be cast.
- The stepped side panels are precast to suit any combination of risers and treads using simple adjustable moulds.
- The beams are precast to include the landings and allow for any angle. This can be assembled on site utilizing, at the joint, splice bars and concrete. This eliminates any irregularities in the sides of each riser or tread.
- A simple staircase can be erected, ready for casting in approximately 90min by 4 unskilled labourers.
- Once again, minimal shuttering is required.



Completed Staircase



Finished Staircase

4.3 Geoplast Products

Also available from NAMSLAB:

GEOPLAST PRODUCTS – new user friendly and affordable solutions for raft foundations, retaining walls and columns.

Visit our webpage for more information.

5. MAJOR PROJECTS WHERE THE NAMSLAB SYSTEM WAS USED

By January 2013, NAMSLAB supplied over 240 000 square meters of slab material since it was founded in 2001.



*Air Namibia:
Windhoek – 3000m²*



*Monte Leone Flat:
Windhoek – 4500m²*



*J Smit Development:
Langstrand – 2000m²*



*Atlantic Villa:
Swakopmund – 1153m²*



*Boutique Hotel:
Swakopmund – 1250m²*



*House B Smit:
Windhoek – 500m²*



*Swakopmund Waterfront:
Swakopmund – 45 000m²*



*Sand and Sea Development:
Swakopmund – 4650m²*



*Fishers Court Development:
Windhoek – 9850m²*



*House Martial:
Windhoek – 296m²*



*Schoemans Heights:
Windhoek – 1600m²*



*Offices for European Commission:
Windhoek – 1150m²*



*Seaside Hotel and Spa:
Swakopmund – 2800m²*



*The Dunes:
Swakopmund – 1200m²*



*Windhoek Gymnasium Phase 3:
Windhoek – 940m²*



*Yllos Parking:
Windhoek – 593m²*