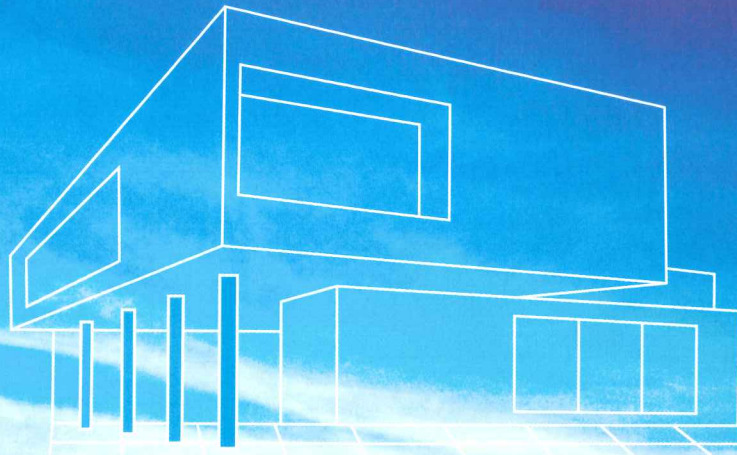


# VoidForm®

**BARNES**  
Innovation working for you

WAFFLE RAFT SLAB SYSTEM



The perfect  
foundation  
for innovation

**BARNES**  
Innovation working for you



## Features

### The great base for a great job

Barnes Plastics provide an advanced system for waffle raft slab foundations.

The traditional “in-ground” concrete slab requires digging of trenches, construction of a perimeter nib wall and subsequent back filling. This method is labour intensive, does not allow accurate measurement of concrete and can be subject to considerable delays if rain occurs.

The waffle raft slab system, on the other hand, involves building an “on-ground” slab on a level building surface using perimeter formwork and Barnes polystyrene Voidforms, separated by plastic spacers, to create reinforced concrete ribs beneath the slab surface.

This means the waffle raft slab has number of significant advantages over the

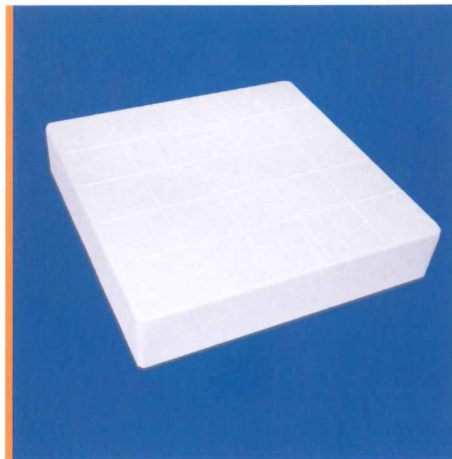
conventional method of construction:

- Construction is simple.
- Less site preparation is required.
- Construction is quicker than conventional methods.
- Lower costs are often possible on difficult sites and when bridging services.
- Work can often continue in adverse weather conditions.
- Concrete volumes can be accurately calculated meaning wastage can be eliminated.
- The Voidforms provide “built in” insulation from the ground.

The new Barnes Voidform itself incorporates a strong waffle pattern of ribs underneath. The Voidforms are light and easily cut when required, yet robust enough to withstand construction foot traffic.

The Barnes Plastics Voidform® System provides maximum control of every concrete pour

### Waffle raft slab system components



Voidform®



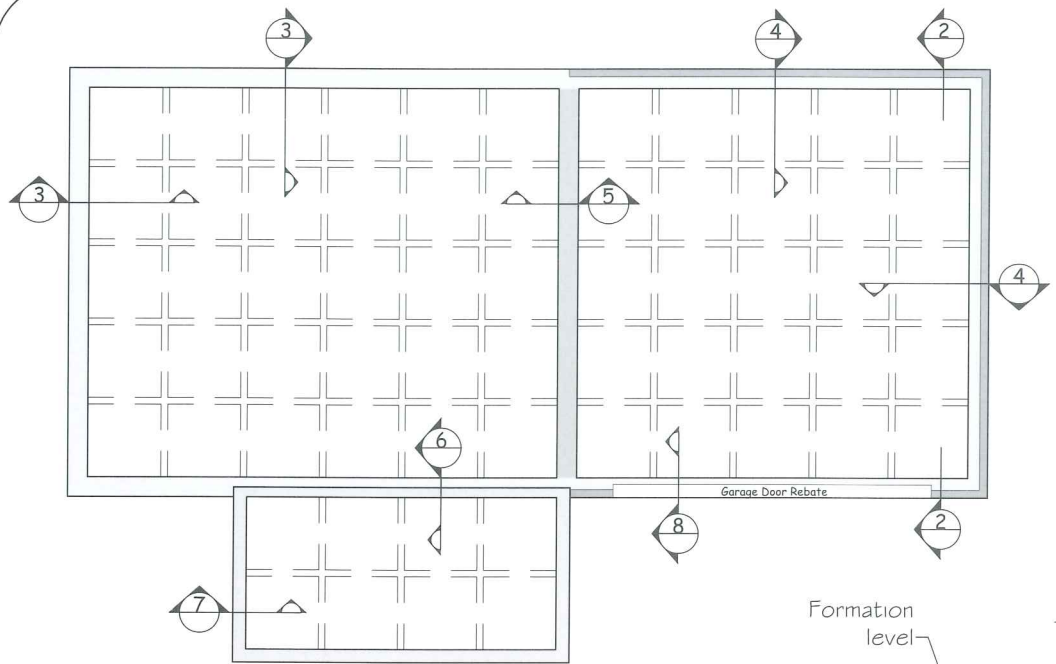
Underside of Voidform



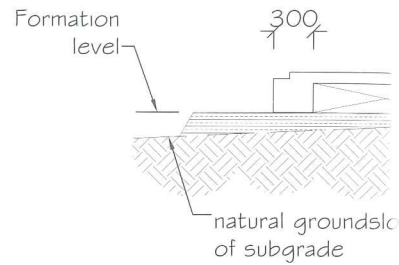
WJ100 Spacer



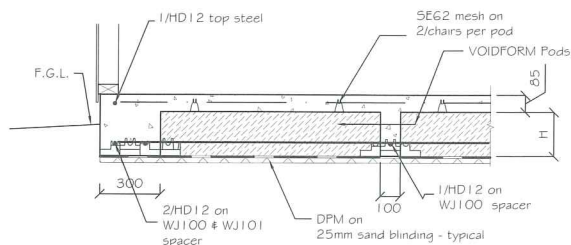
WJ101 Clip-on Spacer



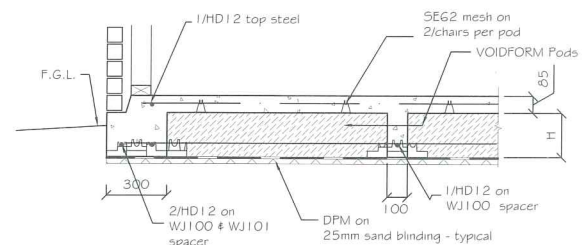
Typical Foundation Plan  
Scale 1:100



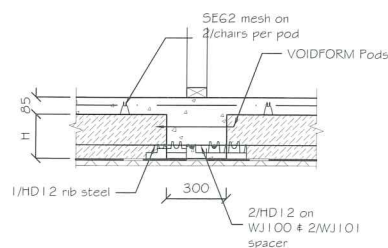
2  
Scale



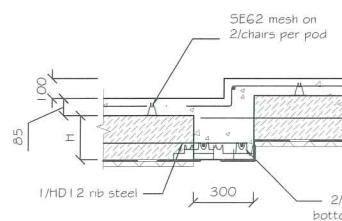
Detail  
Light Cladding  
Scale NTS



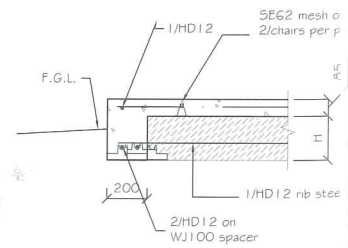
Detail  
Heavy Cladding  
Scale NTS



Detail  
Load Bearing Wall Footing  
Scale NTS

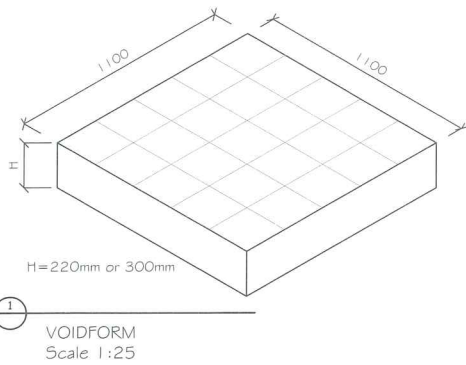


Detail  
Step Down  
Scale NTS



Detail  
Non-Load Bearing Edge  
Scale NTS

VOIDFORM WAFFLE



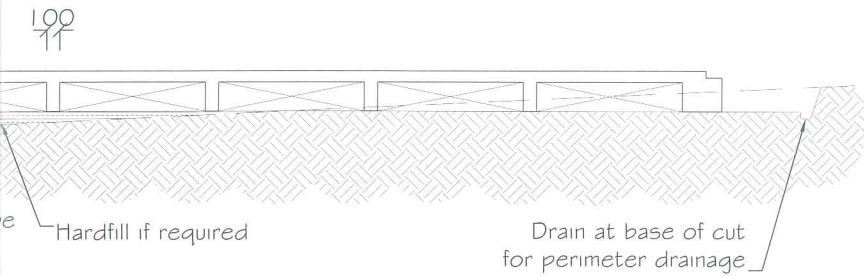
General Notes

Site Preparation

All vegetation and organic soil is to be removed in the area of the floorslab, down to subgrade level. Prepare site to formation level by the placement of compacted hardfill. For flat sites this equates to a minimum of 20mm of fines.

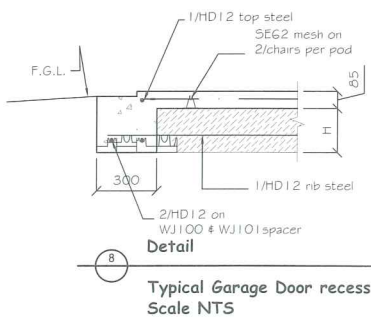
Expansive Soils

This is subject to specific design by a qualified professional



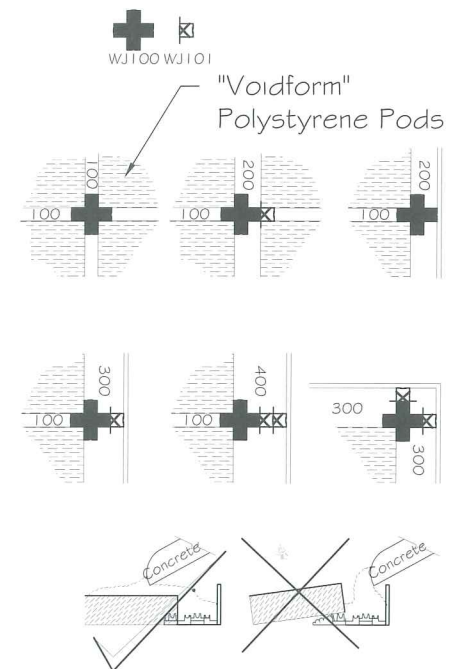
Typical Cross Section

Scale 1:50



# WAFLE RAFT SLAB DETAILS

## WJ Spacer Combinations



Note:

Details are to be used as a general guide only. Foundation designs to be conducted by a suitably qualified engineer.



## Installation

Every step saves costs....

Reduces concrete quantities...

Provides greater slab strength and energy efficiency...

Ensures maximum control and reliability.



**Step 1** The building site must be levelled, all plumbing pipes fixed in place and the formwork positioned.



**Step 2** Plastic sheeting of 250 microns is spread over the site, with all laps taped.



**Step 3** Starting from the corner of the site, lay VoidForms® in grid pattern, using WJ100 and WJ101 spacers. The VoidForms® can be easily cut to size and to fit plumbing fixtures.



**Step 4** Place the reinforcement bars between the VoidForms® and the top mesh over the total area. Ensure tie laps are used as required.



**Step 5** Place chairs under the mesh at a rate of 4 per VoidForm®.



**Step 6** In a single concrete pour, partially cover the VoidForm® before filling the ribs. (This will help prevent the VoidForm® from floating).



## SPACER SYSTEM WJ 100 & WJ 101

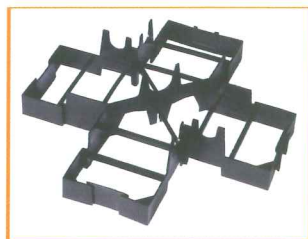


Fig.1  
WJ100 Centre Spacer



Fig.2  
WJ101 Clip-on Spacer



Fig.3  
Clip-on Spacer added

What can these raft spacers be used for?

- There are two spacers in this series, the WJ100 Centre spacer and the WJ101 Clip-on spacer. They can be clipped together to form a variety of combinations.
- The WJ100 Centre spacer is designed to form 100mm wide internal ribs.
- Slab thickenings or internal beams can be formed in multiples of 100mm by adding WJ101 Clip-on spacers to the Centre spacers.
- The Centre spacers naturally creates a 200mm edge beam. The edge beam can be increased in multiples of 100mm by adding WJ101 Clip-on spacers.

Reinforcing placement:

- A single reinforcing bar can be placed in a 100mm internal rib and two bars can be placed in 200mm edge beam. An extra reinforcing bar can be added for each WJ101 Clip-on spacer that is added.
- The WJ100 and WJ101 spacers have been designed to allow for the following concrete cover: 50mm bottom cover, 45mm internal cover to polystyrene and 75mm cover for external surfaces.

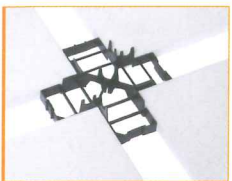


Fig.4  
100mm rib

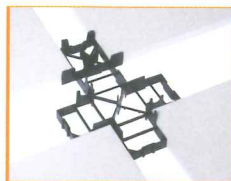


Fig.5  
200mm rib



Fig.6  
300mm internal beam



Fig.7  
400mm internal beam

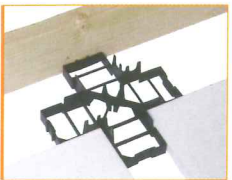


Fig.8  
200mm perimeter beam

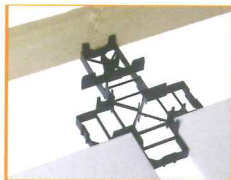


Fig.9  
300mm perimeter beam

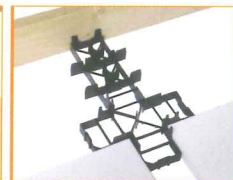


Fig.10  
400mm perimeter beam

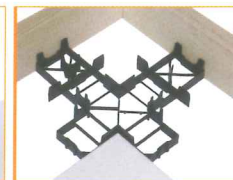


Fig.11  
External corner 300mm  
perimeter

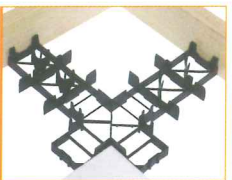


Fig.12  
External corner 400mm  
perimeter

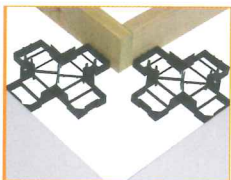


Fig.13  
Internal corner 300mm  
perimeter

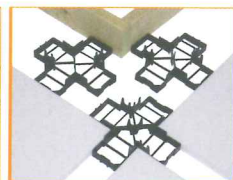


Fig.14  
Internal corner 300mm  
perimeter

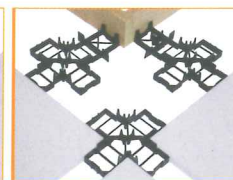


Fig.15  
Internal corner 400mm  
perimeter

[www.barnesplastics.co.nz](http://www.barnesplastics.co.nz)

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