Castle-Forms
CONSTRUCTION SYSTEMS

Raft – Therm

The Insulated Foundation System

Installation Guide

www.castleforms.com

00 353 (0) 57 868 0684

info@castleforms.com

Clonminam Business Park

Portlaoise Laois

R32 DP27 Ireland

Design:

The Raft Therm System is specifically designed for each individual project with the correct design determined by the following;

a) **Site ground conditions**
b) **Structural loadings**
c) **Engineering detail**
d) **U-value target**
e) **Time constraints**

Once these details have been determined the dimensions, type and quantity of each Raft-Therm component is factory prepared for site delivery.

Components:

Raft-Therm consists of the following components:

1. L sections moulded from high density EPS 300, used to create the external edge beam of the foundation.
2. Flat sheets moulded from high density EPS 300, fitted underneath internal load bearing walls and in basement floors.
3. Flat sheets moulded from medium density EPS 100, fitted underneath the floor between the external edge beam and internal load bearing walls.
4. Steel combs, used to secure L sections together when creating the external edge beam.
5. Plastic pins, used to secure flat sheets together.

Installation Guide:

The following guide offers advice to assemble the Raft-Therm system and is subject to final instruction from the project engineer. Prior to commencement of ground works a soil investigation report is required to determine the soil type and its likely load bearing capacity. Other factors such as the local water table, location of trees etc... also influence the soil bearing capacity and must be considered. It is recommended that experienced groundwork contractors are employed to prepare the ground and install Raft-Therm, training can also be provided on request.

1. Clear site of topsoil and loose organic material to a level where suitable load bearing ground is exposed.
2. Evenly spread a layer of free draining (20-40mm) hardcore extending approximately 1mtr beyond the footprint of the building, hardcore is laid to a minimum depth of 150mm, compacted in 50mm layers. To prevent contaminants spoiling the hardcore in difficult ground conditions it may be necessary to lay geo-textile prior to the placement of hardcore.
3. Pipework and ducting for ground floor services are installed at this point along with a radon sump if necessary.
4. Good site drainage is important to ensure there is no water build up underneath the foundation thereby preventing frost heave damage. A suitably designed land drain should be incorporated by the site engineer in the foundation design.
5. A light layer (30-50mm) of blinding such as 4-8mm or similar is spread over the compacted hardcore using a laser level for accuracy. This will facilitate the easy placement of the Raft Therm components.
6. Install DPC / gas membrane extending beyond the building footprint. Care should be taken to correctly seal all around the penetrating service stacks.
7. Alternatively, the DPC / gas membrane can be fitted between or on top of the floor insulation and draped over the external L section*.

8. Starting from each corner L sections are set working in towards the wall centers, each component should be a tight fit to the next. L sections are supplied in fixed 2mtr lengths from the factory and may need to be trimmed on-site to fit the actual wall dimensions. Offcuts should be retained for future use. Steel combs are used to secure the L sections together and prevent movement.

9. Once the outer edge beam is set and secured the internal load bearing walls are then marked out per the floor plan. High density EPS 300 sheets are carefully placed underneath these walls. The depth of concrete will determine the dimensions of EPS 300 at this point. Additional reinforcement may be required here to spread the overhead load.

10. Placement of the first layer of underfloor EPS 100 sheets commences from the perimeter inwards.

11. If not already in place the DPC / gas membrane is now fitted between the first and second layer of floor insulation and draped over the outer L sections*.

12. The second and subsequent layers of floor insulation are now installed, joints are staggered through the layers to prevent a continuous joint running from top to bottom. Plastic pins are provided to secure the sheets together. If not already in place DPC is fitted over the final layer of floor insulation and across the edge beam channel*.

13. Reinforcement is required in concrete to control cracking. This can be achieved by using steel rebar, mesh, structural fibers or a combination of the above. If steel is the preferred method of reinforcement care should be taken to avoid puncture damage to DPC / gas membrane during placement. As with a traditional foundations, services and heating pipework are now fitted and secured prior to concrete placement.

14. Prior to concrete placement a final check should be taken to ensure L sections are secured and if necessary further bracing applied, final levels are accurate across the floor area, reinforcement has been installed as per engineer's specification and all services are installed and secured.

15. Instruction should be taken from project engineer as to the correct concrete specification. A slump of S3 or less should be ordered, concrete with a greater slump may cause unnecessary lateral pressure against the L sections causing movement. Care should be taken to prevent concrete from lifting the top layer of floor insulation, this can be prevented by placing a small amount of concrete over the floor area prior to filling the edge beam.

*Instruction should be taken from project engineer as to preferred DPC/ gas membrane location.

Full installation training available – prices on application to Castleforms.