

BecoWallform

BUILDING FOR THE FUTURE



CONSTRUCTION METHOD STATEMENT & STANDARD CONSTRUCTION DETAILS

Standard Construction Method Statement

When calculating quantities for BecoWallform, some allowance should be included for waste, although with good housekeeping on site waste would be minimal. There will be offcuts where special shapes are cut on site, e.g. pitched gables. Materials should be ordered in good time, recognising delivery lead times. Where practical, minimise the time between delivery to site and construction of Wallform as this would reduce storage space requirement on site.

The site should be prepared to receive the materials, by way of allocating an adequate access and laydown area, preferably adjacent to the actual construction. If materials are to be stored on site, they should be kept under cover or sheeted down.

Ensure that there is someone on site to take delivery of the materials. Mechanical equipment is not necessary for offloading as all packed Wallform components are light enough to be manually portable.

CONSTRUCTION

Check that the base from which BecoWallform is to be built is clean and level. Any steps in the level of the foundations should be multiples of 250 mm to co-ordinate with the standard Wallblock height. Set out and check the line(s) of the wall(s) to be built.

Move the pallets of Wallform as close as practical to the point where they are to be erected and de-stack carefully, lifting each Wallblock cleanly up and away from the pallet in order to minimise damage. Starting at the corners, loosely lay out the base course of Wallblocks, identifying where any cut blocks will occur - preferably in the middle of a wall rather than the end or corner.

Again, starting from the corners, lay the second course to interlock with the base course of Wallblocks in a stretcher bond, avoiding coincidence of vertical joints between courses as far as possible.

BecoWallform is manufactured to close tolerances, and the interlocking joint detail is designed to ensure a tight integrated connection. A proper interlock is achieved by lining up the interlocking joint and pushing the Wallblock firmly and uniformly into place. Wallblocks should not be twisted or pushed into place on a skew.

Check the position and alignment of the corners before cutting any closure blocks for the base and second courses. Insert any end pieces for corners or openings progressively, as each course is laid.

Continue laying courses of BecoWallform up to the level determined for the first concrete pour, maintaining a pattern of stretcher bond construction. Use up all the Wallblocks from one pallet before opening a new pallet. It is easier, quicker and tidier to incorporate all individual Wallblocks as the work proceeds. Check for the

positions and height of door, window and any other apertures so that these are constructed as the BecoWallform construction progresses.

SUPPORT

The tight interlocking mechanism of Wallform components provides a relatively stable formwork system which achieves substantial extra rigidity from corner and crosswall constructions. When the height of concrete to be placed in one pour is less than one metre on a level base, it may be practical to place the concrete without additional bracing or support. When the height of concrete to be placed is greater than one metre, props or bracing should be provided at corners and at approximately two metre intervals along a free-standing wall so that the maximum length of unsupported wall does not exceed four metres.

The level of temporary support will vary depending upon the design and location of each project. On exposed sites or in conditions of strong or gusting winds it may be prudent either to reduce the exposed area of unfilled Wallblock system or provide additional bracing to counteract the effect of such winds. For this reason it is inadvisable to leave areas of unfilled Wallblock System for long periods before concreting, in case of deteriorating weather conditions.

Where lintel blocks are installed, check that they are adequately supported and braced if necessary.

REINFORCEMENT

Place and fix any specified steel reinforcement as the work proceeds, ensuring the minimum depth of cover is established. If designed with full reinforcement (e.g. a basement, swimming pool), it is recommended that the wall is built and concreted in stages of c. one metre to allow for close monitoring of the concreting process.

In standard building applications the only steel reinforcement required will be for lintels over the various openings. Reinforcing bars are located on the base of the lintel blocks resting on top of the spacers moulded into the base. Should it prove necessary to include shear links in a reinforcement cage it may be more practical to remove the metal wires from the Wallform lintel to allow positioning of either the reinforcing cage inside the lintel block, or alternatively a standard steel section in lieu of reinforced concrete.

In such cases it is recommended that an additional course of Wallblocks be laid over the lintel to prevent the concrete spreading the unsupported lintel sidewalls.

When a section of Wallform has been completed ready for concrete, check line, level, and plumb of all walls. Check the positions of apertures. Check also that steel reinforcement is in place, and that any bracing or support is secure. Particular care must be taken with long lintels to prevent movement of the lintel blocks which form, in effect, slender beams. Without full support of the Wallform system, lintel constructions are more susceptible to movement or distortion.

BUILDERS WORK

Install any ducts required through the wall for services and if necessary seal any gaps between the duct and the cut formwork. This will prevent any leakage of concrete when filling the wall, and eliminate cold bridging in the completed construction.

The position of wall ties and other concrete inserts should be marked out prior to concreting, to check for positioning and ensure that such items will clear the Wallblock bridges. (Note: Once the concrete is placed, there is relatively little time to set out and install any inserts before the concrete hardens.) If such inserts can be fitted securely and without impeding the flow of concrete, they may be fitted prior to concreting.

The wall thickness of the Wallblock must not be reduced (e.g. chased for services) before the concrete has been cast as any reduction will substantially weaken the strength of the formwork system.

BUILDING SCHEDULE

The area of BecoWallform that can be built at any one time may be as little or as much as practical. Whether it is the single course of a wall, or the complete storey height, construction of a building will depend upon experience, project requirements and resources available. For access, control and flexibility of operations, it is better to plan for long runs of wall at lower lift heights rather than short lengths of wall at high heights. The MAXIMUM height of wall that can be poured at any one time is three metres.

In most cases, the area of Wallform erected at any one time is likely to be determined by the quantity of concrete that is to be placed in the following operation.

For intermediate pours the most practical level of concrete is just above the level of the polystyrene bridges and below the top of the Wallblock. At this level the concrete surface will be regular and continuous to facilitate a good construction joint, and the risk of concrete clogging the interlock detail at the top of the Wallblock will be reduced.

CONCRETING

A successful concreting operation is the key to the success of the Wallform system. The structural engineer will confirm concrete specification and requirements for steel reinforcement. Design strength of the concrete may vary dependent upon the structural design and performance required.

Concrete must be specified as a structural grade (minimum 25N/mm^2 strength at 28 days) and pump grade concrete with a minimum cement content of 300 kg/m^3 , a minimum fine aggregate content of 40% and a slump in the range of 100 mm up to a **maximum** of 150 mm, regardless of whether a pump is used or not. 10mm aggregate size improves workability of the concrete, although aggregate size up to 20mm may be used providing additional care is taken to ensure the larger sized aggregate does not restrict the flow of concrete. When ordering concrete, ensure that the supplier is aware of the intended application.

Placing concrete by means of a concrete pump is recommended as the most practical and efficient method of carrying out the work unless the area of wall is very small. When ordering a concrete pump, check with the supplier that the concrete specification is suitable for the equipment to be used and check also what site facilities are required. A supply of water and some cement to prime the delivery pipes are normal requests. It is useful to co-ordinate the pump operator with the concrete supplier to minimise delays.

Concrete may also be placed by means of crane and skip, or manually using whatever container may practically and safely transport the material from mixer to point of placement without causing segregation or separation of the materials. The method of placement will also influence the area of wall to be constructed, since manual placement of concrete is slower than pump placement and the concrete has only a limited time before it will start to stiffen and set.

Before placing concrete, check there is a clear working area for delivery of the concrete and that adequate staging is provided if necessary to maintain a clear view inside the Wallform system. Provide protection for the top edges of the Wallblock system to prevent concrete contamination and physical damage from concrete spillage and accidental impacts. Check that the interior of the Wallform system is clear of all debris and loose articles before starting to concrete

Check that the concrete is the mix specified and is well mixed before commencing to fill the Wallform system. Concrete slump should be checked for each delivery and should be rejected if it is not within specification. (For further information on site quality control and testing refer to The Concrete Centre publication TCC/03/40: Site Sampling and Testing of Concrete – A practical guide for site personnel).

It is recommended that a swan-neck discharge nozzle or a thin-walled flexible hose is used when placing concrete from a boom pump as this will reduce the momentum of the concrete at discharge point and make placement much easier.

Concrete should be placed first under a window opening and then progressively round the wall. Concrete must not be pumped under pressure into the Wallform system. It should be allowed to drop vertically under gravity into the cavity of the Wallform system. It should be possible to observe that as the concrete level in the wall rises it will progressively flow along from the bottom and start to fill adjacent sections of the wall.

For maximum height pours, it is recommended to carry out the operation in stages - filling the formwork progressively in "layers" of approximately one metre to the planned fill level. The formwork is filled in layers to avoid a build-up of hydraulic pressure in the lower courses of formwork.

When filling the formwork manually, it is recommended that the formwork be erected and filled in stages approximately one metre high in order to maintain close control over the filling and compaction process.

Keep a lookout for signs of movement of the wall construction during the concrete operation and also for any significant leakage of concrete grout through Wallblock joints or adjacent to builder's work penetrations.

Throughout the concreting operation close attention must be paid that the concrete flows smoothly and fills the system progressively and completely. Care should be taken to ensure that any reinforcement is properly surrounded by concrete without displacement of the steel. Lintels must be concreted in a single operation without construction joints. The level of the top of the concrete pour should be almost at the top of the formwork to enable any surface preparation prior to the next concrete pour.

To ensure that the concrete is compacted, external tamping of the formwork is carried out using, for example, a short length of 100 x 50 PSE timber to tamp the face of the formwork. This will achieve compaction and indicate audibly the presence of any voids. Best results are achieved if the tamp has one end pivoting/resting on the formwork. Possible areas where a void may occur are where ducts or reinforcement interrupt the Wallform cavity, restricting the smooth flow of concrete. Particular attention should be given to ensure that concrete is properly compacted around lintel reinforcement.

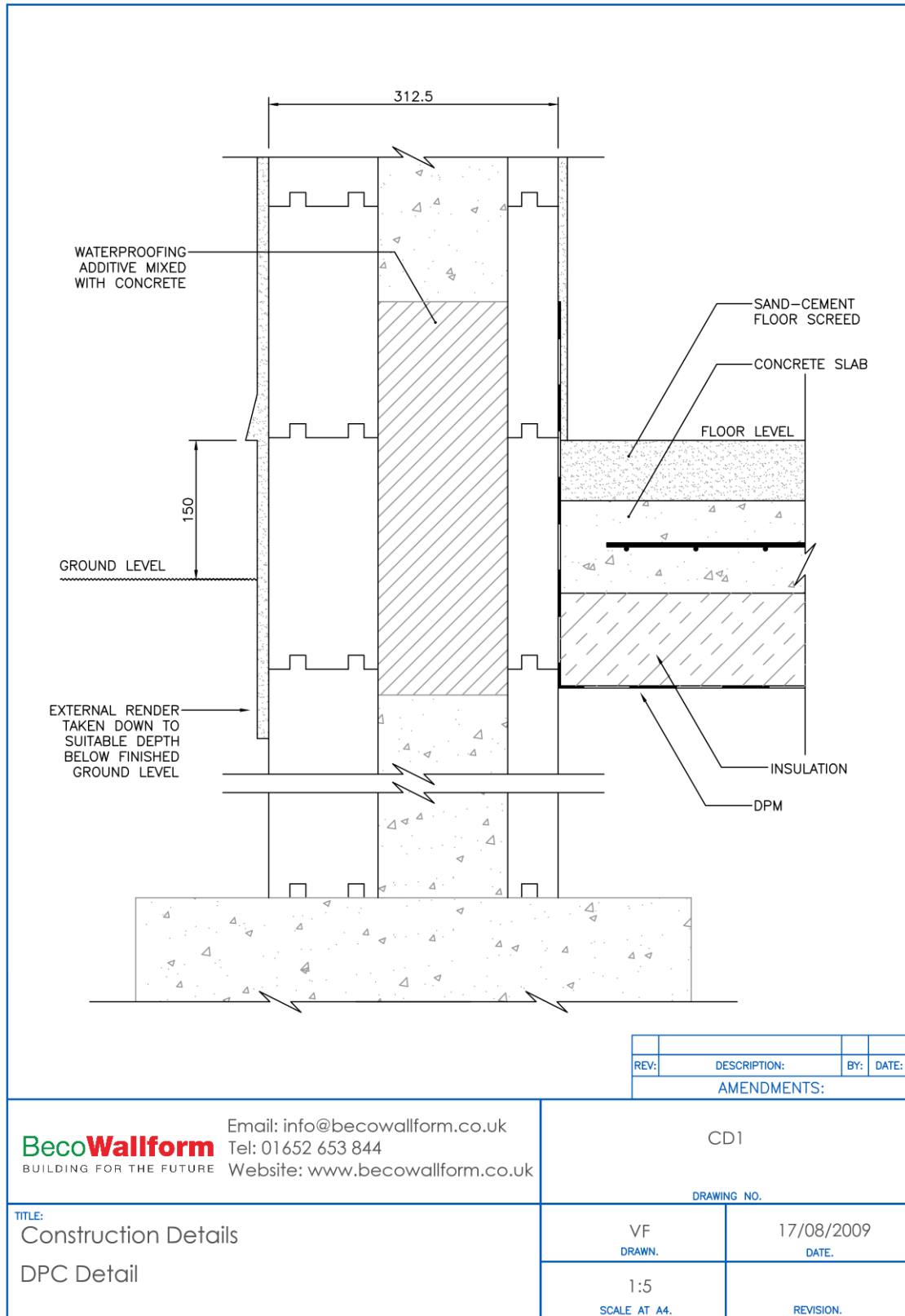
After concreting a section of wall, it is essential to check that line and level are correct. Should any movement have occurred for whatever reason, it may be corrected by applying even and regular pressure to the face of the Wallform and fixing it in the correct position with temporary bracing support. While the concrete is still wet, hose any spillage off the exposed face of the Wallform.

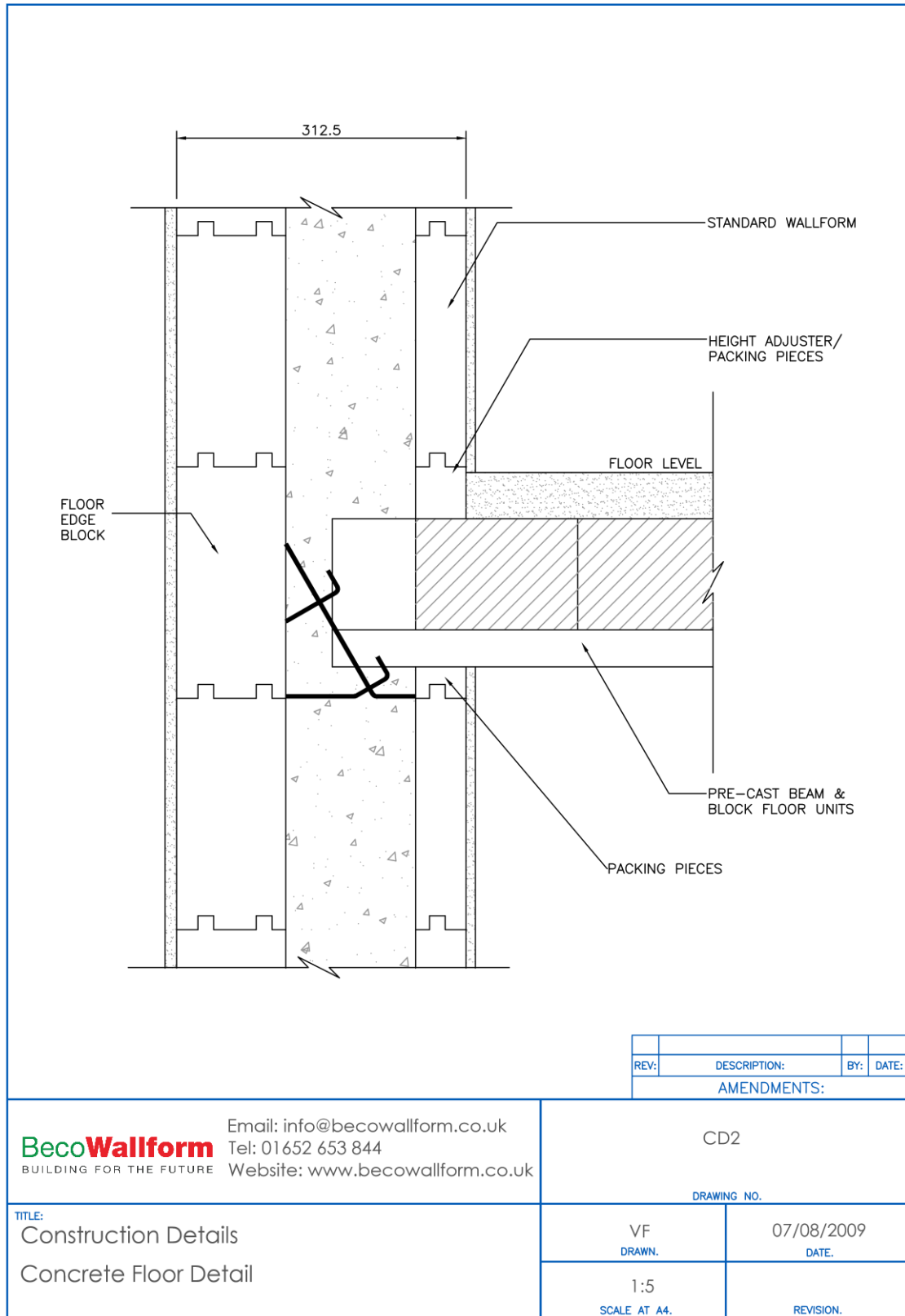
Where construction joints are to be formed, the top surface of the wet concrete may be flushed to remove any contamination and laitance and expose clean aggregate to form a good joint with the next batch of concrete. When the concrete is set, the exposed surface should be clean and any contamination should be removed to expose clean aggregate to which the fresh concrete will bond

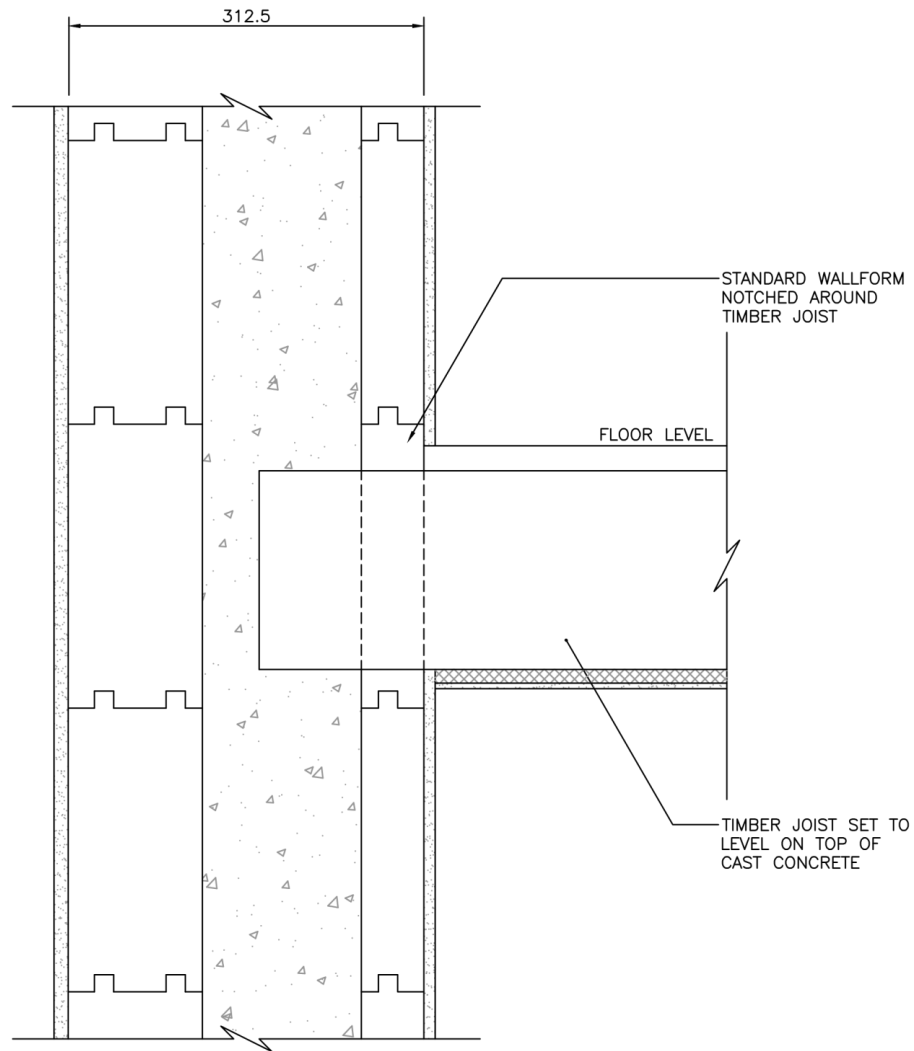
When concreting has been finished, cover any exposed concrete surfaces with damp hessian or polythene to prevent the concrete drying out too quickly. The expanded polystyrene faces of Wallblocks will protect the concrete from freezing weather conditions and also from very hot weather which could otherwise cure the concrete too quickly. By providing insulation against internal temperature fluctuations, the BecoWallform system is an excellent curing medium for concrete.

(For further information about handling and placing concrete, reference may be made to BS8000-2.2 1990
"Workmanship on Site – Site work with in-situ and precast concrete")

As the concrete cures, excess moisture will pass through the expanded polystyrene in the form of water vapour that will dissipate in the open atmosphere. It is, consequently, preferable to allow some time before applying any wall finishings that would act to slow down the drying out process.







REV.	DESCRIPTION:	BY:	DATE:
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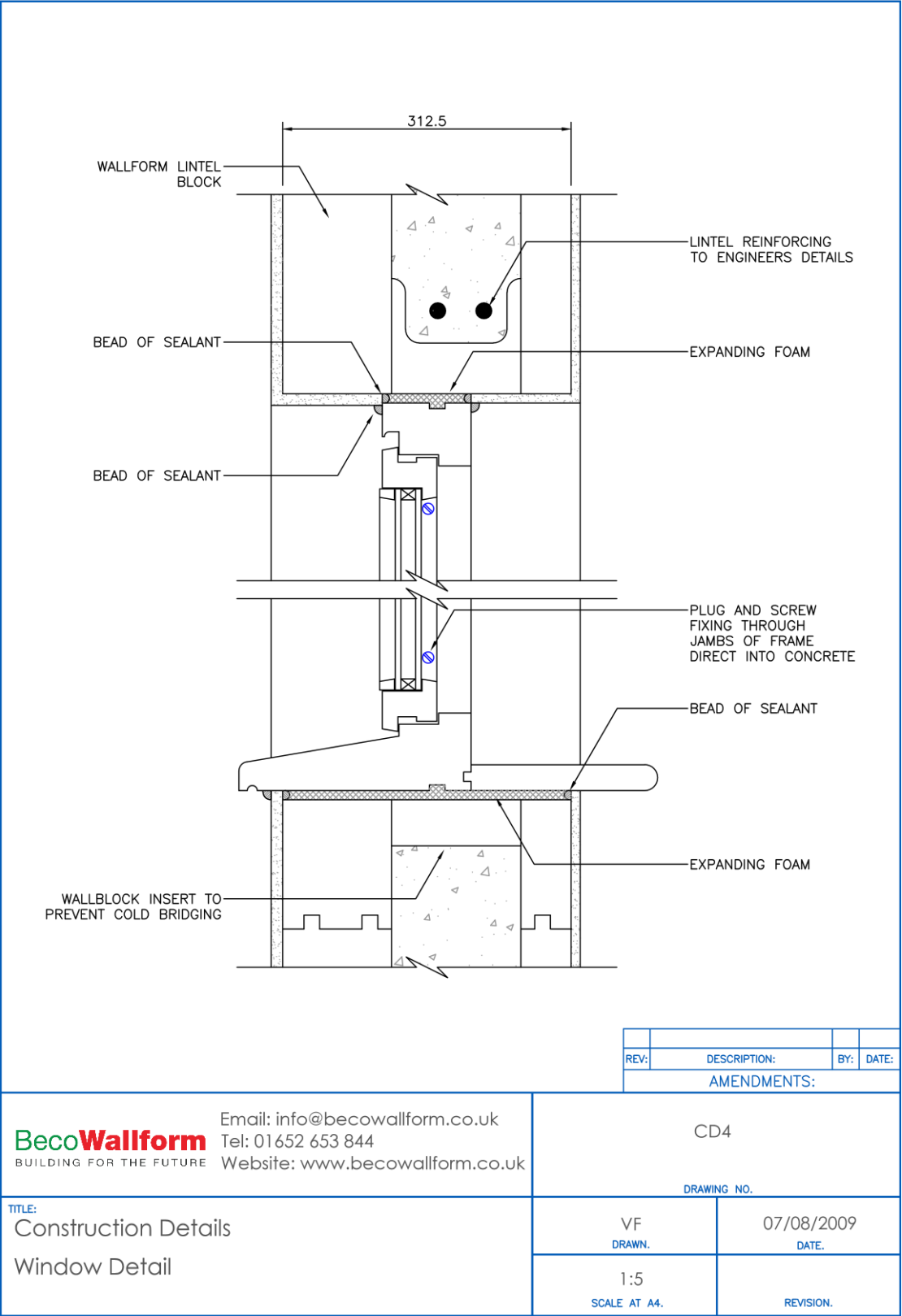
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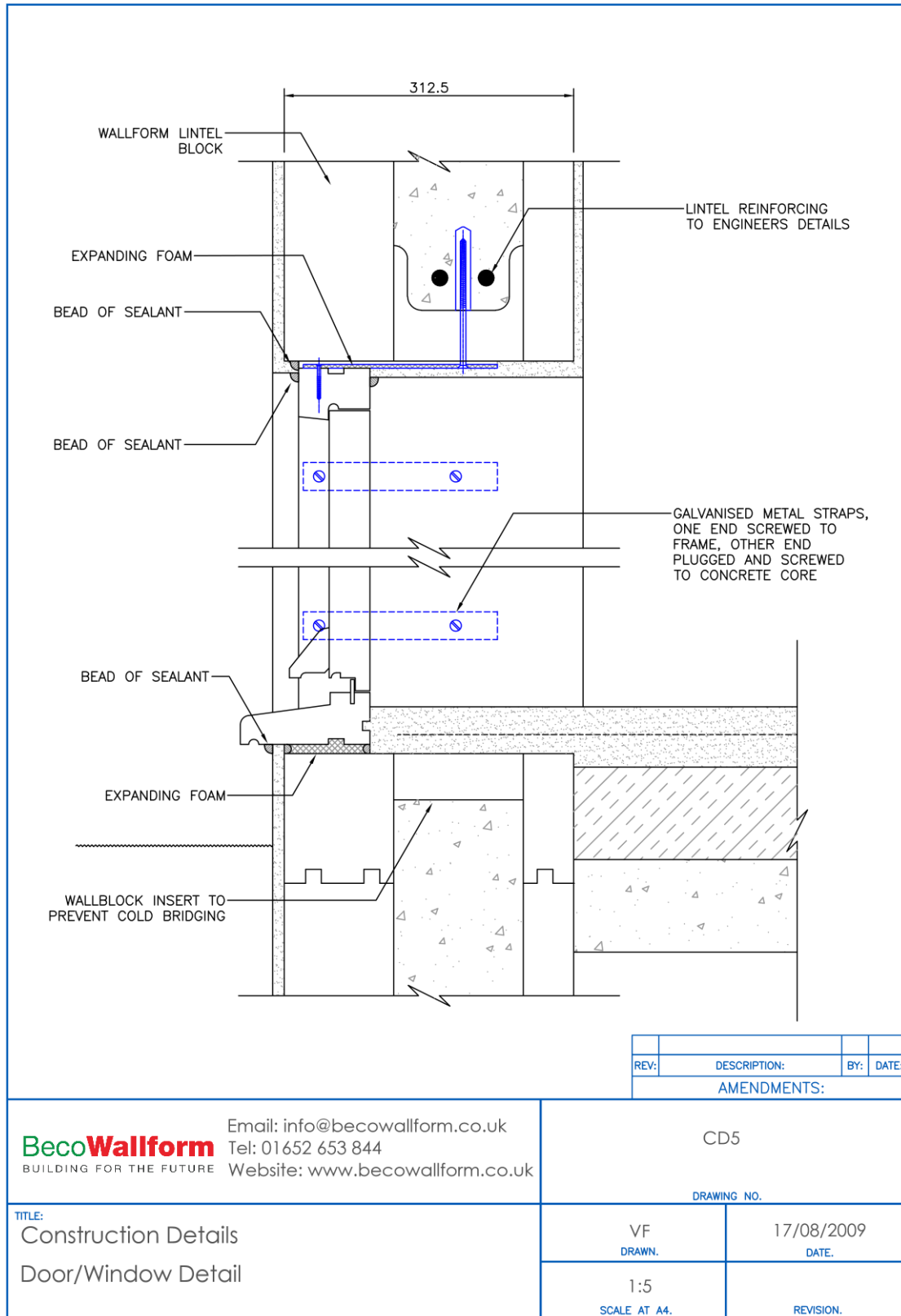
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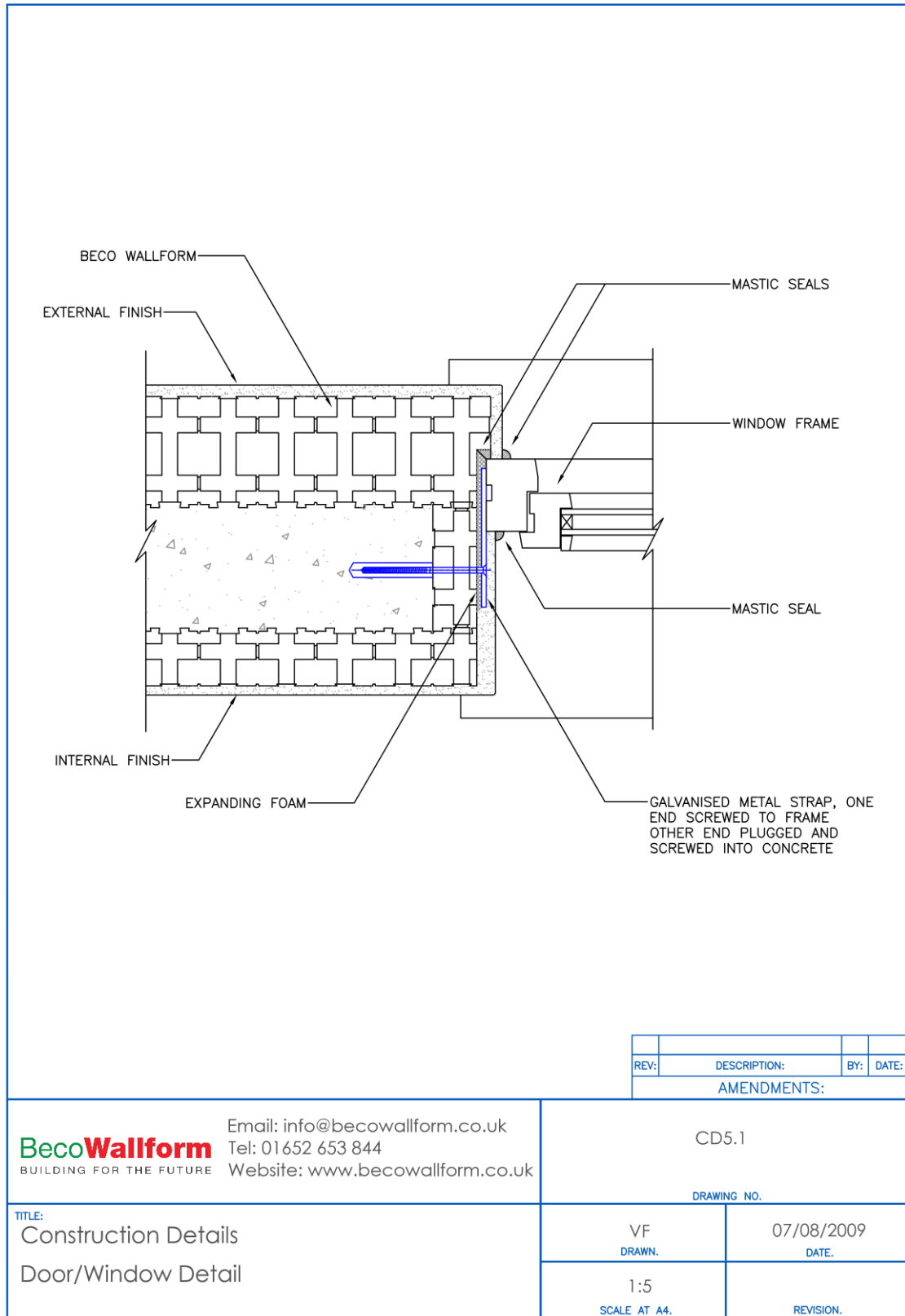
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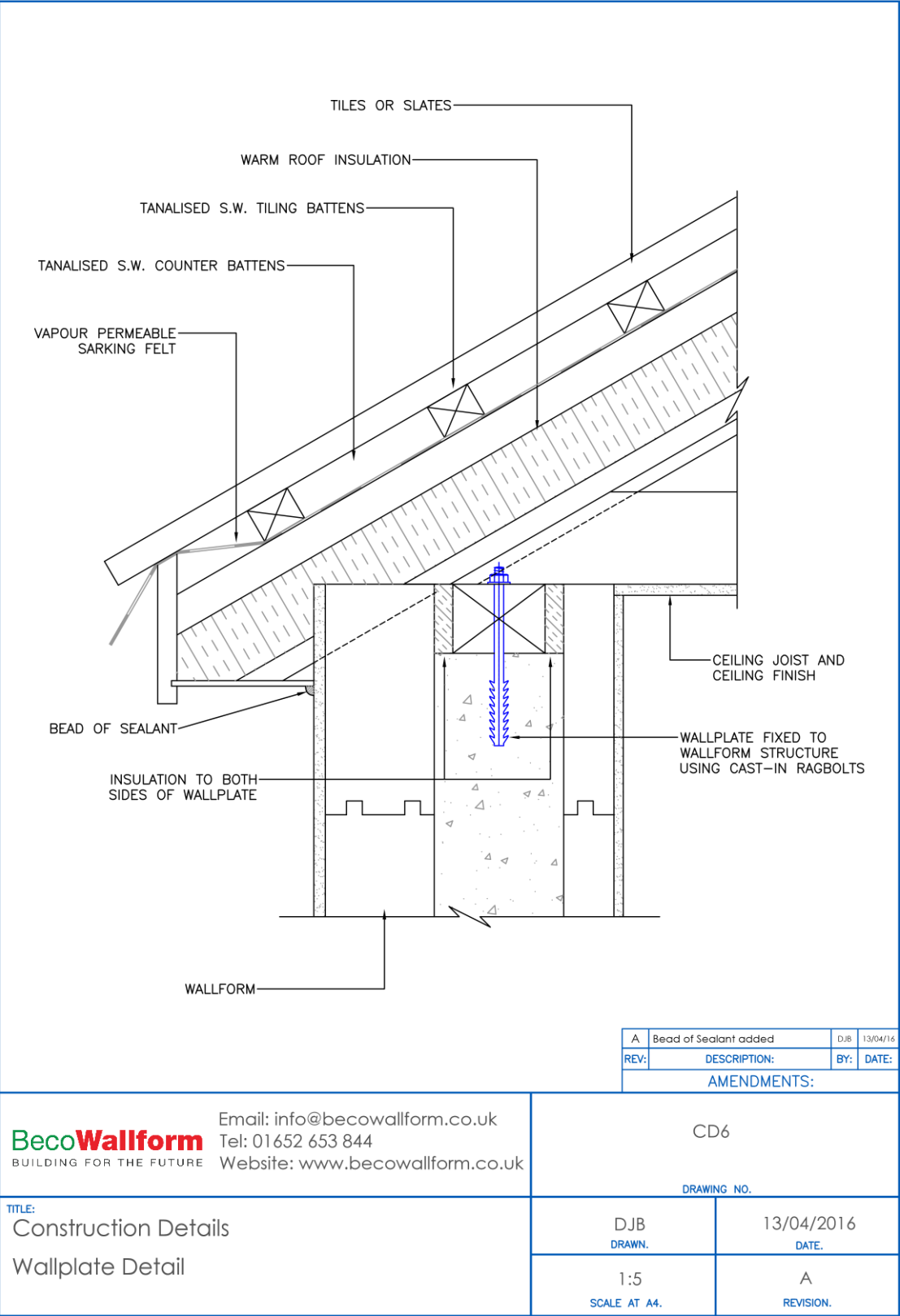
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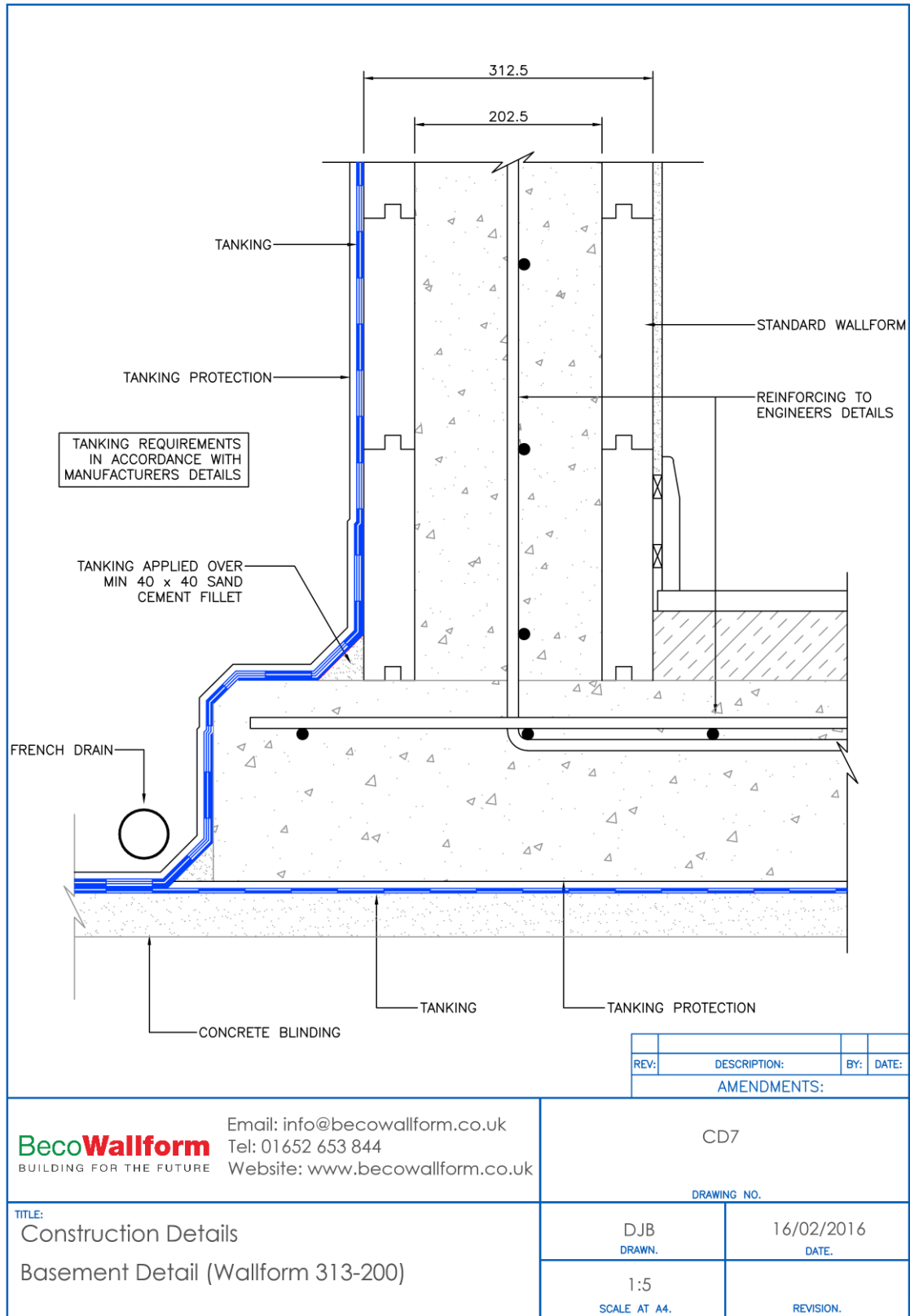
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