Beam & Block Floor Specifications

1. **Description:** Precast concrete beam and block floor units designed provide structural suspended floors to domestic, residential, commercial, retail and industrial buildings.

2. **Materials:** All materials are sourced in accordance with the appropriate British Standard and in accordance with the ACP performance specifications.
   - Concrete typical 28 days strengths are 60N/mm²
   - Concrete strength at transfer 30 N/mm²
   - Water cement ratio 0.45 Maximum
   - Reinforcement typically indented prestressing wire

3. **Design:** All units are designed in accordance with BS 8110. Unit design is typically to Class 3 with a limiting crack width of 0.1mm unless otherwise stated. It is the clients responsibility to provide loading anticipated live and point loads including finishes.

4. ** Manufacture:** ACP T beams are manufactured in the long line prestressed method. Units are wet cast into steel moulds with under plate heating to assist in accelerated curing. Standard unit sizes are as follows:

<table>
<thead>
<tr>
<th>Thickness (mm)</th>
<th>Max Width (mm)</th>
<th>Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>135</td>
<td>up to 7.0</td>
</tr>
<tr>
<td>225</td>
<td>135</td>
<td>up to 9.0</td>
</tr>
</tbody>
</table>

5. **Tolerances:** Cross-sectional tolerances are within limits set out in clause 6.2.8.3 of BS8110:1997. ACP acceptable tolerances for standard prestressed units are as follows
   - Length -5mm to +10mm
   - Width -0mm to +6mm
   - Thickness -2mm to +6mm
   - Squareness 12mm difference between diagonals
   - Socket positions +/- 10mm
   - Lifter position +/- 100mm
   Special cast units will be to tolerances laid down in BS8110 where casting techniques permit.

6. **Mould Finishes:** All faces with the exception of the trowel face will be cast from steel shutter moulds. Surface finish is listed in BS8110 6.2.7.3 and is to conform to Type A. Small blemishes caused by entrapped air, excess mold release agent, marks on the casting surface and mould release agent staining can be expected. The surface will be free from voids and honeycombing. Surface marks from stacking timbers, strand runs and fork truck tine marks can be expected. Surface marks of stacking timber, strand run and mold release agent will fade out over time and use. Where a blemish free surface is required, masonry paint application is recommended.

7. **Trowel Finishes:** The trowel face of units will comply with a U1 type finish. Finish will be uniform and provide full grout cover to aggregates. Some trowel marks will be visible. Some colour and texture variation may be expected. Stacking timber marks and cement blooming may be expected. Colour variation, trowel pattern and cement blooming will fade over time and weathering. Where uniform colour is required, masonry paint or mineral staining is recommended.

8. **Camber:** Units will have a prestressing camber. Camber variation between adjacent units will not exceed 6mm for units up to 4.5m and 9mm for units up to 6m in length.
**Site Works**

9. **Site Access:** Full site access free of any obstructions or trenches to all site areas is assumed unless otherwise agreed. Access is required to both sides of wall construction unless previously arranged at pricing stage. Delivery vehicles are to unload inside the building to minimise on site handling. A suitable hardstanding surface must be provided to enable safe lifting operations for a 50 tonne crane lifting a 5 tonne load. The hardstanding is to extend a minimum of 4m beyond the edge of the building. Any doubt over the suitability of the hardstanding will result in halted operations whilst investigations take place. Any delay and disruption costs due to inadequate hardstanding will be borne by the employer. An uninterrupted wall line must be provided, any excavations required to install units must be carried out prior to delivery. A minimum of 8m clear headroom is required for all installation. It is assumed precast installation will be the sole site activity at the time of construction.

10. **Support:** The minimum support area for each end of the beam is 75mm over the continuous end of the beam. The support area must be designed to carry the full line load of the finished floor slab without bending and must be a smooth flat surface. Support may be mass concrete, steel frame or fully cured masonry.

11. **Erection Systems:** Beams are off loaded and installed using choke hitched chains.

12. **Unit Ends:** Prestressing tendons are visible at the unit ends. The density of the concrete means that no further treatment of the strand ends is required to ensure the serviceability and durability of the units.

13. **Damage:** It is highly likely that precast units will suffer small chips and superficial damage to unit surface. This damage should not compromise the units structural integrity. Any areas should be repaired with a high strength mortar. Colour matching of suitable repair mortar and the precast unit is not possible due to high strength requirements of the repair.