



Construction & Utilities Program Checklist for Onsite Erection of Concrete Panels, 2006.

Based on the recommendations of the
Foundations for Safety *Industry Standard for Precast and Tilt-up Concrete for Buildings, 2001 and AS 3850 – 2003 Tilt-up concrete construction.*

1; Has the erection of panels been properly planned?	Planning should take into account: <ul style="list-style-type: none">• Site limitations (if panels are cast on site)• Crane access• Panel sizes and weights• Delivery access (if panels are cast off site)• Crane WLL and mobility.• Obstructions to crane set-up & operation (walls, props, trusses, excavations/underground services)• Adequate slewing clearance.• Ground stability or hardstand capacity.• Casting/Erection sequence• Overhead obstructions, such as power lines.• A planned safe path of travel and stable surface for EWP's
2; Is crange sufficient for the erection?	Selection of cranes should be in accordance with Australian Standards AS 2550 and consider: <ul style="list-style-type: none">• Capacity required at working radius when lifting.• Sufficient crange to safely rotate panels• Is there sufficient ground stability for cranes entering site• Outriggers must be sufficiently packed to ensure stability.• Compliance with 'No-go zone' clearances and rules.
3; Has the necessary preparation been completed prior to erection?	A risk assessment should deal with all aspects of preparation to ensure: <ul style="list-style-type: none">• Access and erection area is safe,• Erection platform can support loads,• Sufficient space is available for set-up and movement,• Sufficient space is available for bracing,• Dowels and leveling shims are correctly located,• There is adequate temporary base restraint, (dowels, angle iron brackets etc)• Panel and brace footing has attained specified strength,• Rigging equipment is in serviceable condition,(clutches proof tested every 6 months, slings, chains and sheaves free from damage, and excessive wear) Lifting & spreader beams to be marked with WLL• Lifting inserts are in their correct location, as specified on shop drawings and recesses cleaned.• Only the minimum number of people are working in the erection area.
4; Are the members of the erection crew properly trained and certificated?	<ul style="list-style-type: none">• The person responsible for direction and coordination (leading hand) must hold a certificate of competency in either, <i>intermediate rigging</i> or <i>advanced rigging</i> classes.• The person responsible for the coordination of the panel erection must have received training based on the industry standard.• The crane operator must hold a certificate of competency appropriate for the type and size of crane being used.• The crew should include at least one additional certified rigger.

<p>5; Is the rigging system as specified in the shop drawings/ erection plan?</p>	<p>In selecting the rigging system, you need to take into account:</p> <ul style="list-style-type: none"> • Lifting clutches must have a design factor of 5.0. • Loads should be distributed equally to all lifting points, unless otherwise specified. • The system should suit the spacing and layout of lifting inserts. • Slings will be subjected to increased force on inclination and change of direction. • Does the panel should lie in its correct attitude for erection, OR is there sufficient crane capacity to rotate the panels?
<p>6; Are panels erected according to a planned sequence?</p>	<p>The erection sequence should be pre-planned:</p> <ul style="list-style-type: none"> • Panels must not be lifted before attaining the minimum concrete strength, • Lift with the rigging in view of the crane operator (whenever possible), • When lifting tilt-up panels out of the casting bed, the adhesion of the panel to the casting bed has to be broken; Procedures outlined in section 8.12 of the Industry Standard must be followed. • All personnel must be outside the “drop” zone, • Do not lift in wind conditions outside the capacity of the crane. • Is there sufficient lateral base stability? • What methods are used to ensure holding bolts are tensioned in accordance with the shop drawings specification? • Are dowels pins properly installed and grouted? • If angle iron footing brackets are used, <ul style="list-style-type: none"> a) do they provide sufficient footing stability? b) are they welded/fixed in place prior to the panel being released from the crane? • Are shims (panel packers) as specified in drawings, and not greater than 40mm high?
<p>7; Where temporary bracing is required, is it able to resist all loads?</p>	<p>The panel must be held firmly and safely by the crane while all braces are attached:</p> <ul style="list-style-type: none"> • Braces must have identification plate and load capacity marked, • Working load limit must be in accordance with AS 3850, • A minimum of two braces must be used for each panel. • Bracing anchor bolt size & length must be as specified on the shop drawings. • Are knee bracings required? • Braces should, where possible be located at two thirds of the height of the panel. • Temporary concrete pad footings for bracing must be designed to support brace footings. Footing design documentation must show concrete strength at installation, additional reinforcement (if any) and dimensions. • If screw in, steel footing plate system (Brace Anchor™ or similar) is used, soil-testing results must be kept with shop drawing/erection plan.
<p>8; Ongoing maintenance of bracing components and final removal of bracing.</p>	<p>It is the builders responsibility to ensure that:</p> <ul style="list-style-type: none"> • Braces, bracing bolts and pins are checked at regular intervals for required capacity and/or damage,. Brace pins are secured/locked, and can only be removed by using a tool. • BRACES ARE NOT TO BE REMOVED, under any circumstance, prior to final written instruction from the erection design engineer or project design engineer.

Further Information:

- Refer to the Foundations for Safety Victoria *Industry Standard for Precast and Tilt-up Concrete for Buildings*. The standard and other WorkSafe publications can be ordered from WorkCover Publications on tel. 9641 1333, picked up from your local WorkSafe office or downloaded from the “Publications” section of WorkSafe’s website: www.workcover.vic.gov.au
- Call the WorkCover Advisory Service on 9641 1444 or toll-free on 1800 136 089.