

Case 05/2024

Issue: Modification of reinforcement arrangement in confined boundary element of walls and reinforcement arrangement in columns

Recommendation: (1) To accept the modified confinement arrangement in confined boundary element of walls without following the prescriptive requirements stipulated in clause 9.9.3.2 of the Code of Practice for Structural Use of Concrete 2013 (2020 Edition) (2013 Concrete Code).

(2) To accept the modified confinement arrangement of columns without following the prescriptive requirements stipulated in clause 9.5.2 of the 2013 Concrete Code.

Decision: Having noted the background information, members had no objection to endorse the paper on a case-by-case basis subject to the following conditions:

(a) For Recommendations (1) and (2):

(i) A full-scale mock up should be carried out prior to the commencement of construction. Part of the mock up should be opened up to verify quality of concreting. A performance report on the opening up should be submitted for acceptance prior to the commencement of module installation.

(ii) The following supervision conditions should be imposed:

- RSE Stream

Role	Frequency Level
RSE	Monthly
T3	Twice a week; and (1) 100% inspection of brushed, screeded or rough-tampered surface of precast panel of “sandwich” wall/column;

	(2) 100% inspection of fixing of locking bars into rotation links by measuring the top level of installed locking bars before concreting;
	(3) 100% inspection of concreting; and
	(4) 100% witness of RHT and coring tests.

- RC Stream

Role	Frequency Level
AS	Monthly
T3	Twice a week
T1	Full Time

- Items of Works for Quality Supervision as described in PNAP APP-158:

Stage	Inspection Items
Precast factory	1. Setting-out and alignment of cast-in connection links and connected rotation links within confined zone are within tolerances ( $\pm 1$ mm) and in accordance with approved plans
Site installation	1. Inspection of brushed, screeded or rough-tampered surface of precast panels of “sandwich” walls/columns; 2. Setting-out of MiC modules and “sandwich” walls/columns is within tolerances ( $\pm 1$ mm); and 3. Locations and alignment of all locking bars are in accordance with approved plans

During Concreting	<ol style="list-style-type: none"> <li>1. Check material delivery records;</li> <li>2. Carry out slump flow test on site; and</li> <li>3. Check if concreting follows the approved method statement</li> </ol>
After Concreting	<ol style="list-style-type: none"> <li>1. Carry out concrete cube test in accordance with CS1:2010.</li> <li>2. Carry out RHT for 10% of all the “sandwich” wall/columns; and</li> <li>3. Take concrete cores for compressive strength tests.</li> </ol>