## Case 30/2021

Issue:	Modification of reinforcement arrangement in confined boundary
	element of walls and the use of non-destructive method to verify the
	quality of infilled concrete within semi-precast walls

- Recommendation: (1) To accept the modified reinforcement 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 (the Concrete Code 2013).
  - (2) To accept the use of Ultrasonic Pulse Echo (UPE) Testing as a quality control measure to verify quality of in-situ self-compacting concrete between semi-precast walls of adjacent modules.
- Decision: Having noted the background of the design approach, construction sequence, quality control, site supervision and the testing proposals, members endorsed the recommendations on a case-by-case basis subject to the following conditions:
  - A full-scale mock up should be carried out prior to the commencement of construction. A performance report should be submitted for acceptance prior to the commencement of module installation;
  - (2) The following supervision conditions should be imposed: RSE Stream:

Role	Frequency Level
RSE	Monthly
T3	Two times per week
	(Full time during installation of vertical lapping bars, concreting of the central porting of composite wall and supervision of Ultrasonic Pulse Echo Testing.)
RC Stream:	
Role	Frequency Level
AS	Monthly
Т3	Two times per week

Two Full Time T1

T1

- (3) Test reports of the trial panels should be submitted and found satisfactory prior to the consent application for the proposed works. The criteria to assess the adequacy of design shall be:
  - (i) The ultimate compression capacity,  $f_{cu}$  of the specimen using the proposed details (specimen 2) should be larger than that of the control sample using the prescribed details in the Concrete Code 2013 (specimen 1);
  - (ii) The strain  $\varepsilon_{85}$  of specimen 2 corresponding to stress  $0.85 f_{cu}$  to be larger than that of specimen 1; and
  - (iii) The ultimate capacity,  $f_{cu}$  of the specimen using the proposed details but including 150mm long unconfined edge (specimen 3) should be larger than that of specimen 1. The strain  $\epsilon_{85}$  of specimen 3 corresponding to stress  $0.85f_{cu}$  to be larger than that of specimen 1.