PTI DC-20 TG on Dual Banded Tendons TN
December 14, 2016, 9:00 AM – 10:40 AM Eastern

TG Members Present:
Jonathan Hirsch, Hamid Ahmady, Asit Baxi, Martin Cuadra, Carol Hayek

Staff Present:
Miroslav Vejvoda, Amy Dowell

Discussion of the Dual Banded Tendon TN:

• The objectives for the TN were confirmed:
  o Discuss assumptions used in design of two-way slabs with dual banded tendons.
  o Develop an informative document describing the expected behavior of a dual banded layout.
  o Provide analytical basis for engineers to use in designing the system outside the requirements of ACI 318.
  o This TN is intended for use by engineers as guidance for design and as a reference in presenting their design to the Building Officials.

• The technical aspects of the analysis were discussed including:
  o Flexural strength: The basic assumption of plane sections remaining plane does not seem guaranteed; there might be some warping. The column/middle strip concept may be necessary here with the middle strip without tendons but still prestressed with secondary effects only. The load path seems somewhat undefined.
  o One-way shear – determined not to be a major concern for typical designs
  o Punching shear – difficult to model and will likely need research confirmation
  o Delamination – determined to not be a major concern for typical designs

Action Items:

• Asit will send tendon sizes and material properties from Burns’ research to Jonathan (ASAP)

• Jonathan will prepare the analytical model and circulate initial findings to TG by mid-January 2017
  o 1 model of test slab to compare with Burns’ research
  o 1 model of full-scale slab using modern PT systems
  o A comparison run with no PT effect in the slab panel, besides of the compression.

• Web meeting will be scheduled in January 2017 to discuss modeling findings