



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:
 - Discuss assumptions used in design of two-way slabs with dual banded tendons.
 - Develop an informative document describing the expected behavior of a dual banded layout.
 - Provide analytical basis for engineers to use in designing the system outside the requirements of ACI 318.
 - 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:
 - 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.
 - One-way shear – determined not to be a major concern for typical designs
 - Punching shear – difficult to model and will likely need research confirmation
 - 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**
 - 1 model of test slab to compare with Burns' research
 - 1 model of full-scale slab using modern PT systems
 - 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