AGENDA
PTI DC-10 TG-A SOG Structural Task Group
Tuesday, May 2, 2017
8:00 AM - 10:00 AM
Hyatt Regency Atlanta - Atlanta, GA

Voting Members Present (x of 16)
   Homer Parker, Jr., Chair
   Dean Read, Vice Chair
   Greg Axten
   Lowell Brunley
   Darren Buck
   Tony Childress
   Kenneth Douglass
   Brian Eubanks
   Donald Illingworth
   Brian Juedes
   Jerald Kunkel
   Rene Luft
   Harley Nethken
   Donald Shaheen
   Mervin Snowden
   Tami Spicer
   Amy Dowell, NV

Parker Engineering, LLC
MLAW Consultants & Engineers
American Geotechnical
Bec-Lin Engineering, L.P.
Suncoast Post-Tension, Ltd
Childress Engineering Services, Inc.
Eric L. Davis Engineering
Paragon Structural Engineering, Ltd.
Don Illingworth & Associates, Inc.
Felten Group, Inc.
Jerald W. Kunkel Consulting Engineers, Inc.
Simpson Gumpertz & Heger, Inc.
Tech-Con Systems, Inc.
DPIS Engineering, LLC
Snowden Engineering, Inc.
Strand Systems Engineering, Inc.
PTI Staff

Associate Members Present
   Fabio Albino de Souza
   Bryan Allred
   Greg Axten
   Tim Lipasek
   Robert Lytton
   David Peralta
   Russ Price
   Jon Sampson
   Ilia Sarad
   Michael Scanlon
   Ken Walsh

EBPX Brazil
Seneca Structural Engineering, Inc.
American Geotechnical
DPIS Engineering, LLC
Texas A & M University
Unintech Consulting Engineers
Suncoast Post-Tension, Ltd
FBA, Inc.
Option One Consulting Engineers
Norex Engineering, Inc.
San Diego State University

Visitors Present

ACTION ITEMS FROM LAST / THIS MEETING

<table>
<thead>
<tr>
<th>Item #</th>
<th>Subject</th>
<th>Action</th>
<th>Responsible</th>
<th>Deadline / Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Design Examples</td>
<td>Remove city names and categorize by climate: Arid, Moderate, &amp; Wet</td>
<td>Childress</td>
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<td></td>
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<td>Complete a uniform thickness foundation example</td>
<td>Juedes</td>
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<td><strong>A. General</strong></td>
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<td>A.1 Call to Order</td>
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<td>A.2 Introductions</td>
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<td>A.3 Committee Roster / Changes</td>
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<td>A.4 PTI Antitrust Policy</td>
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<td><strong>B. Agenda &amp; Minutes</strong></td>
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<td>B.1 Approval of Agenda</td>
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| B.2 Approval of Minutes from 10/5/16 (Meeting ballot required) | B.2 Vote on Minutes approval from 10/5/16  
  Motion / Second: name / name        |
|                                     | Result: 0-0-0 (Y-N-A) |
| **C. Actions Taken Between Meetings** | The reorganization of SubCommittee (DC-10a) into Task Group (TG-10a) and what that means on how things will get done in the future. We will get more direction in DC-10 meeting, but as I understand it, DC-10 will assign task to this group. A set of Members will be assigned to address the Task and submit the results back to the main committee. The main TG committee can be used as a sounding board but the “voting” will be done at the main committee level. This is a change in framework from historical process of which the subcommittee developed and voted on issues prior to submittal to the main committee. The concept is characterized as placing interested committee members into a sub subtask groups to expedite work without the overhead of the non participating members or so I have come to understand. This framework will be updated / corrected/ edited as more information comes to light. |
| C.1 Letter Ballots (none)           |               |
| C.2 Web Meetings (none)             |               |
| **1. Action Item 1: (Design Example Update)** | It is time to wrap up all the Division 1 design examples for the User Guide. we have been working on these for a year now. Those examples that are not finished or otherwise unsuitable for publication by this meeting will have to be put on the website as an extra for later distribution. ALL parties working on design examples this is your final call to have your products ready to go so that we can close out the subcommittee’s DC-10A’s work product. |
| 1.1 Close up open examples from DC-10A | 1.1 Update on progress, set timeline for completion  
  • Climate based examples / Childress  
  • Uniform Thickness Foundation example / Juedes.  
  • Long narrow foundation example / Brumley. |
<table>
<thead>
<tr>
<th>Agenda Item</th>
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<tr>
<td><strong>Action Item 2: Assignment of Sub-SubTask Groups</strong></td>
<td>This is where we will assign sub task groups to develop and report to the Task Group and prepare for the main committee</td>
</tr>
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</table>
| **Create/Assign DC-TG10A.1** | DC-10A’s Proposition 1:  
1. Analysis of Use a limitation of Beta (6 Beta)  
2. Generate design problem of large / long rectangles  
3. Check boundary conditions  
4. Submit Rough Data and findings to TG 10A for review  
5. Incorporate Review Comments  
6. Prepare Formal Proposal for DC-10 Vote  
Assign Task Group:  
Chair:  
2.  
3.  
4.  
Expected Date of Rough Draft To TG-10A Chair:  
Expected Date for Final Draft to TG-10A Chair:  
Expected DC-10 Meeting Date for submittal: |
| **Create/Assign DC-TG10A.2** | DC 10A’s Proposition 2: Overlapping Rectangles – add definition of primary and secondary rectangles in new standard developed first in the Round Rock Committee Day meetings but could not use in the User Guide as Std had to be amended  
Assign Task Group:  
Childress / November Web Meeting / Proposal Attached (Change Proposal DC10.5-12-1602 attached) |
| **Create/Assign DC-TG10A.3** | DC-10 A’s Proposition 3:  
1. Analysis and Research Relationship with the beam depths (1.2 ratio) –  
2. Generate design examples  
3. Check for boundary conditions  
4. Submit Rough Data and findings to TG 10A for review  
5. Incorporate Review Comments  
6. Prepare formal Proposal for DC-10 Vote  
Assign Task Group:  
Chair:  
2.  
3.  
4.  
Expected Date of Rough Draft To TG-10A Chair:  
Date:  
Expected Date for Final Draft to TG-10A Chair:  
Expected DC-10 Meeting Date for submittal: |
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<tr>
<td>Create/Assign DC-TG10A.4</td>
<td>DC-10A’s Proposition 4: 1. Analysis and Research proposal to Modify standards to include Design vs. construction of deep perimeter beams 2. Generate examples and impact 3. Check for issues for change 4. Submit Rough Data and findings to TG 10A for review 5. Incorporate Review Comments 6. Prepare formal Proposal for DC-10 Vote</td>
<td>Chair: 2. 3. 4. Expected Date of Rough Draft To TG-10A Chair: Date: Expected Date for Final Draft to TG-10A Chair: Expected DC-10 Meeting Date for submittal:</td>
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<tr>
<td>Create/Assign DC-TG10A.5</td>
<td>TG-10A Assignment: 1. List of Propositions related to modification of the standards. 2. Generate test and/or background data as to purpose of modification and any impact to other conditions of the standards 3. Submit Rough Data and findings to TG 10A for review 4. Incorporate Review Comments 5. Prepare formal Proposal for DC-10 Vote</td>
<td>Chair: 2. 3. 4. Expected Date of Rough Draft To TG-10A Chair: Date: Expected Date for Final Draft to TG-10A Chair: Expected DC-10 Meeting Date for submittal:</td>
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<td>Create/Assign DC-TG10A.6</td>
<td>Dc-10A: Proposition 5: 1. Review of current standards to make sure change of Edge drop vs. center lift – transitions to all concepts. 2. Prepare list of conflicts or issues 3. Submit Rough Data and findings to TG 10A for review 4. Incorporate Review Comments 5. Prepare formal Proposal for DC-10 Vote</td>
<td>Chair: 2. 3. 4. Expected Date of Rough Draft To TG-10A Chair: Date: Expected Date for Final Draft to TG-10A Chair:</td>
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<td>Create/Assign DC-TG10A.7</td>
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<td>Expected DC-10 Meeting Date for submittal:</td>
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**Create/Assign DC-TG10A.7**

1. Research and Analyze the best templates for design example problems
2. Prepare samples of various templates
3. Submit Rough Data and findings to TG 10A for review
4. Incorporate Review Comments
5. Prepare formal Proposal for TG-10A Vote

**Create/Assign DC-TG10A.8**

1. Develop Examples of non-continuous beams, sloping beams, non-rectangular footprint further guidance to be placed on the web site for now and later incorporated into future version of user Guide
2. Analyze and research the more important examples to be generated.
3. Generate examples in conformance with TG-10A’s Templates (see TG10A.7)
4. Submit Rough Data and findings to TG 10A for review
5. Incorporate Review Comments
6. Prepare formal Proposal for DC-10 Vote

**Create/Assign DC-TG10A.9**

1. DC-10A’s Proposition 8: Eccentricity of tendon forces.
2. Research and analysis of the extent of issue
3. Generate/obtain data and

**Assign Task Group:**

Chair:
2. 3. 4.

Expected Date of Rough Draft To TG-10A Chair:
Date:
Expected Date for Final Draft To TG-10A Chair:

**Note K Douglass has already started work. Proposal offered**
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<td>exhibits to demonstrate the issues.</td>
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<td>4. Submit Rough Data and findings to TG 10A for review</td>
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<td>5. Incorporate Review Comments</td>
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<td>6. Prepare formal Proposal for DC-10 Vote</td>
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<td>Create/Assign DC-TG10A.10</td>
<td>DC-10A’s Proposition 9: Maximum tendon spacing.</td>
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<td>1. Research and analyze impact of maximum spacing of tendons</td>
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<td>2. Generate/obtain data</td>
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<td>3. Prepare exhibits for TG-10A for review</td>
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<td>4. Submit Rough Data and findings to TG 10A for review</td>
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<td>6. Prepare formal Proposal for DC-10 Vote</td>
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<tr>
<td>2. Action Item 3: (Create and Assign sub task groups to projects assigned by DC-10A)</td>
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Expected Date of Rough Draft To TG-10A Chair: 

Date: 

Expected Date for Final Draft to TG-10A Chair: 

Expected DC-10 Meeting Date for submittal: 

Assign Task Group: 

Chair: 

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Expected Date of Rough Draft To TG-10A Chair: 

Date: 

Expected Date for Final Draft to TG-10A Chair: 

Expected DC-10 Meeting Date for submittal: 

2.1 Section champion volunteers 

2.2 Outline expectations and set action items 

Assign Task Group: 

Chair: 

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Expected Date of Rough Draft To TG-10A Chair: 

Date: 

Expected Date for Final Draft to TG-10A Chair: 

Expected DC-10 Meeting Date for submittal: 

Assign Task Group: 

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<tr>
<td>D. New Business</td>
<td>D.1</td>
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<td>E. Next Meeting</td>
<td>2017 PTI Committee Days – Cancún, Mexico – October 4-6, 2017</td>
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<td>Web Meetings:</td>
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### AGENDA / MEETING EXHIBITS

<table>
<thead>
<tr>
<th>Exhibit #</th>
<th>Subject</th>
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<tbody>
<tr>
<td>Roster / A.4</td>
<td>Sign-In Sheet / PTI Anti-Trust Policy</td>
</tr>
<tr>
<td>Change Proposal DC10.5-12-1601</td>
<td>Shape factor and rib continuity change proposal</td>
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<tr>
<td>Change Proposal DC10.5-12-1602</td>
<td>Overlapping design rectangle change proposal</td>
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</tbody>
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**Required Document Update Proposal Form**

(Required for changes to all standard and specification documents)

**Document**
DC10.5-12: Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils

**Responsible Committee**
DC-10: Slab-on-Ground Committee

**Change Proposal Champion**
Ken Douglass  
**Date** 10/13/16

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### Background / Reasoning

– Explain why this section is in need of revision.

### Additional design guidance and clarification

Expand commentary

### Proposal

– Provide a detailed proposal of the change in track-changes format. (Contact PTI Staff for text file of existing document as needed)

<table>
<thead>
<tr>
<th>6.1.3 — Slab shape factor</th>
<th>R6.1.3 — Slab shape factor</th>
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<tbody>
<tr>
<td>The shape factor (SF) is defined as follows: SF = (foundation perimeter)^2/(foundation area) where the foundation perimeter is measured in feet; and the foundation area is measured in ft^2.</td>
<td>SF is a unitless measure of foundation irregularity. Experience has shown that the shape of a foundation affects its performance. For example, on the same expansive soil, a small square foundation will perform differently than a large, irregularly shaped foundation. The SF identifies those foundations, where the foundation shape necessitates additional attention in the design.</td>
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<tr>
<td>If SF exceeds 24, the designer should consider modifications to the foundation footprint, strengthened foundation systems, soil treatment to reduce swell, or the use of additional non-prestressed reinforcement and/or additional ribs in areas of high torsional stresses. Analysis by finite element procedures may also be used if SF &gt; 24.</td>
<td>Geotechnical approaches should reduce ym-center to less than 2.0 in. (5.08 cm) and ym-edge to less than 1.0 in. (2.54 cm). Techniques to accomplish this could include Soil treatment to reduce swell could include techniques such as water injection, pre-saturation, lime soil stabilization, or chemical injection, removal and replacement with low expansive soil.</td>
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materials, or perimeter barriers. Geotechnical analysis should also consider the reduction of em by one of the selected techniques. For example, the depth of removal and replacement with low expansive or moisture-conditioned materials or of moisture pre-conditioned soil depth may be considered to have an effect equal to a perimeter barrier of similar depth. Each treatment approach should be individually evaluated by the LDP. When select fill or granular material is used in the removal and replacement method, extreme care must be taken so that an undrained “bathtub” is not created.

6.2.2.3 — Rib continuity

Ribs used in design calculations shall be continuous between the edges of the foundation in both directions.

R6.2.2.3 — Rib continuity

The design method is based on full continuity of stiffening ribs from edge to edge of the foundation in both directions. Stiffening ribs used in design Ribs should extend across both full plan dimensions whenever possible. When architectural considerations (openings, corners, irregularities in plan shape, and so on) prevent rib continuity, the designer must provide equivalent rib continuity using rational engineering approaches. Ribs that are not considered continuous are allowed in construction but, should not be considered in design.

To be considered as a continuous rib in the design rectangle, the rib should:

(a) Overlap a parallel rib with adequate length; or

(b) Be connected to a parallel rib by a perpendicular rib, which transfers by torsion the bending moment in the rib.

Impact

- Identify other documents or sections that this proposed change may impact. Are there other sections that need modification if this change proposal is implemented?
- Provide sample design calculations to demonstrate the impact of this proposed change on the design (if applicable).

6.1.2 – Overlapping Rectangles
Change Proposal DC10.5-12-1602

Required Document Update Proposal Form
(Required for changes to all standard and specification documents)

Document
DC10.5-12: Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils

Responsible Committee
DC-10: Slab-on-Ground Committee

Change Proposal Champion
Tony Childress

Date
10/31/16

Background / Reasoning
– Explain why this section is in need of revision.

Proposal
– Provide a detailed proposal of the change in track-changes format. (Contact PTI Staff for text file of existing document as needed)

1. Add the following Definitions to Section 2.1

   **Primary Design Rectangle** – a design rectangle encapsulating the most contiguous portions of the foundation which represents the largest portion of the foundation, which has congruency in both directions and include the maximum perimeter boundary conditions practical.

   **Secondary Design Rectangle** – a design rectangle which includes specific portions of the foundation which extend outside the limits of the Primary Design Rectangle.

   **Non-Compliant Rectangle** – rectangle which can be mathematically generated from a slab geometry but which do not include the properties to be either a Primary Design Rectangle or a Secondary Design Rectangle.

2. Under Commentary R2.0 – Definitions and Abbreviations add Section R2.1 Definitions.
3. Modify current Figure R2.1 to become Figure 2.1.1.
4. Add the following Commentary to Section R2.1 Definitions.
• A given design may include multiple Primary Design Rectangles.
• Primary Design Rectangles may include small sections of void within the continuity.
• Some of the Primary Design Rectangle may exist outside the footprint.
• The Primary Design Rectangle should provide reasonably accurate moments in both directions based upon the aspect ratio of the true footprint of the foundation.

5. Add the following Commentary to Section R2.1 Definitions.
Figure 2.1.3 – Secondary Design Rectangle (Example)

- Where a Secondary Design Rectangle is selected, design requirements in the short direction need not necessarily be applied to the area which overlaps the Primary Design Rectangle and the Primary Design Rectangle shall control the design.
- Secondary Design Rectangles are not required for small projections from the Primary Design Rectangles, when deemed structurally insignificant by the designer.
- The design engineer should use sound engineering judgement as well as past experience on the design of the interface of these appendages.

Impact

- Identify other documents or sections that this proposed change may impact. Are there other sections that need modification if this change proposal is implemented?
- Provide sample design calculations to demonstrate the impact of this proposed change on the design (if applicable).