

PTI M-10 Barrier Cable TG Meeting Agenda Update on Publication Action Items

Tuesday, April 26, 2022
10:00 a.m. - 12:00 p.m. PT
Hilton La Jolla Torrey Pines, La Jolla, CA

Task Group Members Present (X of 15):

Todd Stevens – TG Lead
Tim Christle – PTI Staff
Rashid Ahmed
Carlos Banchik
Langston Bates
Asit Baxi
Muhammad Cheema
Baruch Gedalia
Dawn Kori
Thomas Matthews
Andrew Micklus
Doug Schlegel
Pete Scoppa
Eric Tegner
Dan Williams
Michael Williams

Short Span Barrier Cable Sub-Task Group Members Present (X of 8):

Fabrice Brugere – Sub-TG Lead
Tim Christle – PTI Staff
Todd Stevens
Rashid Ahmed
Don Kline
Carol Hayek
Carlos Banchik
Muhammad Cheema
Eric Tegner

Visitors:

The purpose of this meeting will be to discuss the status of each action item listed below as they pertain to PTI publications associated with this Task Group. The goal will be to establish a clear plan, member assignments and due dates which would facilitate completion of these action items.

STATUS OF DOCUMENTS ASSIGNED TO THIS TASK GROUP

(New notes from this meeting will be added in red)

1. **M10.7-XX Guide for Barrier Cable Maintenance and Repair (New Publication)**
 - a. Status update

2. **M10.4-07 Specification for Seven-Wire Prestressing Steel Strand for Barrier Cable Applications (Publication Update)**
 - a. Status update

3. **Technical Note 14 – Design of Prestressed Barrier Cable Systems (Publication Update)**
 - a. Status update
 - i. Review Ballot: Proposed PTI Barrier Cable Testing (closed 5/10/21). Reviewed simultaneously by this TG, M-10 and TAB. See attached review comments response summary.
 - ii. Testing program update from Asit

4. **Short Span Barrier Cable Calculations**
 - a. Merged with Item 3.

5. **PT Manual 7th Edition Update – Chapter 16, Design of Prestressed Barrier Cable Systems**
 - a. Tied to completion of Item 3.

6. **Draft Guide for Design of Barrier Cables**
 - a. On hold for now. Need to revisit this item later to determine if it should even be pursued.

7. **New Business**
 - a.

Meeting Adjourned: XX:XX pm ET

Next Meeting: 2022 PTI Committee Days, JW Marriott Cancun, Cancun, Mexico, October 4-7, 2022.....OR
2023 PTI Convention, JW Marriott Marquis Miami, Miami, Florida, April 30 - May 3, 2023

Meeting Exhibits: PTI Anti-Trust Policy
210421 M-10 Barrier Cable TG Minutes 04-21-21
210512 TAB M-10 Review-Barrier Cable Testing-Review Summary-BC
TG Response

At a meeting on October 8, 1980, the Board of Directors first discussed the Institute's status and policies regarding compliance with antitrust laws. After review of both the internal and external compliance procedures, the following resolution was approved:

"The staff, officers, directors and members of the Post-Tensioning Institute are reminded that they are required to comply with the spirit and specific requirements of the antitrust laws on all activities within the scope of, and related to, the official functions of PTI. Further, this restated position, along with appropriate explanatory material, should be placed in all meeting folders/books periodically, beginning with the 8th of October meeting of PTI."

On July 24, 2012 and again on October 7, 2015, the Executive Committee authorized Legal Counsel to review and update this Policy Statement in the perspective of the Department of Justice Business Review Letter of July 30, 1997 and current case law. As a continuing guide for your participation in PTI's meetings, please review and continue to adhere to the following "Legal Limitation on Discussions at PTI Meetings."

LEGAL LIMITATION ON DISCUSSIONS AT PTI MEETINGS AND EVENTS

A free exchange of ideas on matters of mutual interest to the members is necessary for the success of all meetings. Indeed, such an exchange of views is essential to the successful operation of every trade association and the law specifically allows legitimate exchange of views pertaining to, e.g., quality control, safety, building design and construction integrity, etc.

It is not the purpose of this memorandum to discourage the exploration in depth of any matters of legitimate concern to meeting participants. Nevertheless, to ignore certain antitrust ground rules, either through ignorance or otherwise, is to create a civil and criminal hazard businessmen simply cannot afford.

It is for these reasons that PTI provides you with a reminder that certain areas of formal and informal communication between competitors or between manufacturers and their suppliers and customers must be avoided, as posing potential antitrust problems.

The Sherman Antitrust Act, the Clayton Act, the Federal Trade Commission Act, and the Robinson-Patman Act comprise the basic federal antitrust laws, which set forth the broad areas of conduct considered illegal as restraints of trade. In general, agreements or understandings between competitors that operate as an impediment to free and open competition are forbidden. Federal antitrust prohibitions forbid any "agreement or understanding...to substantially lessen competition or tend to create a monopoly in any line of commerce." An important point to keep in mind is that communications and discussions between competitors or between sellers and customers, about matters which may be considered anti-competitive, often comprise the evidence from which courts infer antitrust violations. ***It is the policy of the Post-Tensioning Institute that such agreements, understandings or communications shall not be tolerated at any formal or informal meetings or social events of the Institute.***

The general prohibitions contained in the federal antitrust laws, have been particularized in the form of a series of consent decrees, originally entered against a number of member companies of various trade associations and the associations themselves. It is important to note that these laws not only apply to PTI members, but also to PTI itself. Often trade associations have been and are presently co-defendants in cases brought by the Justice Department and the Federal Trade Commission ("FTC"). Recently, the FTC has stated: *"Because trade associations are by their nature collaborations among competitors, the Commission and courts have long been concerned with anti-competitive restraints imposed by such organizations under the guise of codes of conduct. Competing for customers, cutting prices, and recruiting employees are hallmarks of vigorous competition. Agreements among competitors not to engage in these activities injure consumers by increasing prices and reducing quality and choice."* Similar "codes" or policies and requirements that encourage directly or indirectly members' unlawful activity are strictly forbidden by PTI in the course of its business with its members.

SPECIFIC EXAMPLES OF ACTIVITIES AND PRACTICES PROHIBITED

AT ALL PTI MEETINGS AND EVENTS:

Included in activities and practices which are forbidden, and are contrary to the policy of the Institute, both under the general antitrust laws and the consent decrees, subject to the said Business Review Letter, are the following:

- Agreeing to allocate markets, customers or suppliers among competitors, classify certain customers or suppliers being entitled to preferential treatment by manufacturers, and establish geographic trading areas.
- Participating in any plan designed to induce any manufacturer or distributor to sell or refrain from selling, or discriminate in favor of, or against any particular customer or class of customers.
- Agreeing in any manner to fix or otherwise establish bids, prices (including price increases, decreases, standardization or stabilization), profits, costs, contract terms affecting price (such as discounts and credit terms), etc. because, e.g. prices were too low, with the exception of certain resale pricing agreements between manufacturers and retailers or distributors.
- Agreeing in any manner to limit or restrict the quality of products to be produced (e.g., restrictions on selling coated strand to certain customers).
- Participating in any plan which has the effect of discriminating against, or excluding competitors, suppliers or customers.

These examples are provided to guide you in your discussions during formal and informal PTI meetings and social events. If the occasion arises, more specific advice will be provided by legal counsel, who is required by Article IV, Section 7 of the PTI By-Laws to be present at all meetings of the Board of Directors and the Executive Committee.

PTI M-10 Barrier Cable TG Meeting Minutes Update on Publication Action Items

Wednesday, April 21, 2021
12:00 PM – 2:00 PM Eastern
Virtual Convention Meeting via Zoom

Task Group Members Present (10 of 15):

Todd Stevens – TG Lead
Tim Christle – PTI Staff
Rashid Ahmed
Carlos Banchik
Langston Bates
Asit Baxi
Muhammad Cheema
Baruch Gedalia
Dawn Kori
Thomas Matthews
Andrew Micklus
Doug Schlegel
Pete Scoppa
Eric Tegner
Dan Williams
Michael Williams

Short Span Barrier Cable Sub-Task Group Members Present (4 of 8):

Fabrice Brugere – Sub-TG Lead
Tim Christle – PTI Staff
Todd Stevens
Rashid Ahmed
Don Kline
Carol Hayek
Carlos Banchik
Muhammad Cheema
Eric Tegner

Visitors:

Joshua Phillips
Neel Khosa
Greg Hunsicker
Russ Price
Zuming Xia
Sam Carnell
Jon Grafton
Frank Salzano
Evan Langston
Mark Patrick
Jeremy SPC
Tony Johnson

The purpose of this meeting will be to discuss the status of each action item listed below as they pertain to PTI publications associated with this Task Group. The goal will be to establish a clear plan, member assignments and due dates which would facilitate completion of these action items.

STATUS OF DOCUMENTS ASSIGNED TO THIS TASK GROUP

(New notes from this meeting will be added in red)

1. **M10.7-XX Guide for Barrier Cable Maintenance and Repair (New Publication)**
 - a. Status update
 - b. Not discussed

2. **M10.4-07 Specification for Seven-Wire Prestressing Steel Strand for Barrier Cable Applications (Publication Update)**
 - a. Status update
 - b. Not discussed

3. **Technical Note 14 – Design of Prestressed Barrier Cable Systems (Publication Update)**
 - a. TAB “soft review” of TN14 was completed on 1/16/21.
 - b. TAB web meeting was held 2/11/21 to discuss review comments. Todd and Fabrice were also in attendance.
 - c. Concurrence to wait until after testing program results are known to finish TN14 final edits.
 - d. Testing program update from Asit.
 - i. Asit presented his testing proposal setup.
 - ii. Would like review/comment from this group.
 - iii. Test will be run at least twice, maybe a third time.
 - iv. Maybe test at 5 mph and 7 mph.
 - v. After 2-week TAB and TG review, make edits and then test 4-6 weeks after that.

4. **Short Span Barrier Cable Calculations**
 - a. Merged with Item 3.

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6. **Draft Guide for Design of Barrier Cables**
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7. **New Business**
 - a. EV cars can accelerate fast from 0-20 mph as compared to traditional vehicles. This may impact the code in the future. Some newer models might even achieve 0-40 mph in seconds. EVs can be heavier than traditional cars.

Meeting Adjourned: 1:00 pm ET

Next Meeting: 2022 PTI Convention. Hilton La Jolla Torrey Pines, La Jolla, CA, April 24-27, 2022

Meeting Exhibits: PTI Anti-Trust Policy
210421 M-10 BC TG Zoom Attendance Report

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Meeting ID	Topic	Start Time	End Time	User Email
84650062885	M-10 TG Barrier Cable	4/21/2021 12:03	4/21/2021 13:01	tim.christle@post-tensioning.org

Name (Original Name)	User Email	Total Duration (Minutes)	Guest
Asit Baxi		61	Yes
Pete Scoppa		59	Yes
Tim Christle	tim.christle@post-tensioning.org	58	No
Michael Williams		58	Yes
Fabrice Brugere		58	Yes
Joshua Philips	jphilips@harrisrebar.com	58	Yes
Neel Khosa	neelkhosa@gmail.com	58	Yes
Todd Stevens		58	Yes
Dawn Kori		58	Yes
Gregory Hunsicker	gregory.hunsicker@onpointet.com	58	Yes
Andrew Micklus		58	Yes
RPrice		57	Yes
Zuming Xia		57	Yes
Sam Carnell		57	Yes
Doug Schlegel		56	Yes
Eric Tegner		55	Yes
Dan Williams		53	Yes
Rashid Ahmed		52	Yes
Jon Grafton		27	Yes
Frank Salzano		27	Yes
Evan Langston	evan@pt-mfg.com	22	Yes
MarkPatrick		11	Yes
Jeremy SPC		2	Yes
Tony Johnson		2	Yes

PTI Committee: TAB-120, M-10, M-10 TG Barrier Cable	Testing Program Review	Review Start Date:	April 26, 2021
Document Title: Proposed PTI Barrier Cable Tests (Review Summary)		Review End Date:	May 10, 2021

Name	Page #	Section #	Comment: T / S / G	Comments	BC Test Group Response
Krauser			T	I noticed that the steel grade in Appendix C is 250 ksi. I am guessing that galvanized strand is being utilized; however, I thought that galvanized strand was now 270 ksi. Please confirm that correct steel grade is used.	Final calculations prior to testing will match the Strand Mill Certificates. We are going to use 270ksi - Galvanized
N.Khosa			G	voting affirmative is not an endorsement for/against this test.	
N.Khosa			G	Please include some guidance on how to apply a one-span test to a multi-span condition. I realize a vehicle will only impact 1 span in a multi-span condition. My fear is that the “short-span” results will become the standard and dictate designs for long-span condition (i.e. designs will be overly conservative).	This test reflects a worst case scenario. The document that will come out from this test will have single and multi-span conditions and other information.
N.Khosa			G	If the first 2 test results are vastly different, we need at least 3 tests for each weight/velocity variable. How will this be determined in the budget and/or during the test?	Agreed..If the difference in the final cable tension between test 1 and 2 vary by more than 10%, a 3 rd test will be run with the final force determined as the average of the 3 tests..
N.Khosa			S	Some commentary should be given on how different anchorages (Barrel, grabbit, etc) would perform.	Anchorage type is not a variable for the test. The study is focused on the strand force and on the design methodology.
N.Khosa			G	The test setup appears to mimic an unrestrained stub column condition. How will the test results be applicable to standard column standard?	We believe the condition being studied is a worst-case scenario.
N.Khosa			S	I see no mention of the backstressing in the calcs or setup.	This will be described in the document that comes out. Yes, the cable will be back-stressed before establishing the initial tension for the test .
N.Khosa			S	I feel IBC Code is outdated with regards to EV’s. The acceleration of these vehicles can be as fast as 0-30 mph in <1.0 second. Additionally, the weight of EV’s is greater than or equal to non-EV’s.	Correct. Beyond scope of this research. It will be new business and potentially new research down the road.

PTI Committee: TAB-120, M-10, M-10 TG Barrier Cable	Testing Program Review	Review Start Date:	April 26, 2021
Document Title: Proposed PTI Barrier Cable Tests (Review Summary)		Review End Date:	May 10, 2021

Name	Page #	Section #	Comment: T / S / G	Comments	BC Test Group Response
				<p>T = Technical (technically relevant, major) S = Secondary (technically less significant) G = Global (overall significance, assessment)</p> <p>Furthermore, the center of gravity of EV's is much lower than non-EV's (the battery is housed between the tires) which would change the vehicle impact-cables.</p> <p>Ex. Tesla Model X 2021 specs: Width 6'-7", Curb Weight 5185-5648 lbs, 0-60mph in 2.60-3.00 seconds.</p> <p>Recommend: New business for M-10 BC Task Group</p>	
Sward			T	<p>This is a very worthwhile research project and have a couple of comments.</p> <p>Suggest rewording Objective c) to read "Propose changes to the IBC Code".</p> <p>Test Setup item 1 paragraph 2 makes an assumption that the test frame will not have any appreciable deflections. I suggest this be validated during the tests.</p> <p>Test Setup item 2.b indicates the strand forces for the dynamic test will be recorded by video. Why not use a data acquisition unit?</p> <p>How will the strand deflections be recorded? Again, I would suggest collecting all of the measurements into a common data acquisition unit where all the collected data can be correlated.</p>	<ol style="list-style-type: none"> The exact title will be determined once we have finished the testing and have a better picture of the results and the consensus analysis from the results. The analysis will be discussed within TAB/M-10TG and our test Task Group. The title can be finalized at this time. Agree. That is the plan. We ran some preliminary tests and are in the process of beefing up the end posts and adding additional supports under the beam to prevent rotation of the end posts. Formal Data Acquisition Unit (like in a University Lab) is beyond our budget. But we plan on using a high performance digital strain gage with a USB module to have a graphical readout of the force and 200 sample readout per second. Will record the deflections as well.
Tegner			T	Span: 20' approx..	Agree and part of the test procedure.

PTI Committee: TAB-120, M-10, M-10 TG Barrier Cable	Testing Program Review	Review Start Date:	April 26, 2021
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Name	Page #	Section #	Comment: T / S / G	Comments	BC Test Group Response
				<p>T = Technical (technically relevant, major) S = Secondary (technically less significant) G = Global (overall significance, assessment)</p> <p>Steel Test Frame: watch for HSS deflection; stiffen as needed; anchor to slab if needed.</p> <p>Pre-tension: (1) cable at 2.5kips to 3kips; verify with hand-held digital tension indicator</p> <p>Loading: (1) cable at 2kip, 3kips, and 4kips</p> <p>Measuring: cable deflection at loading</p>	
Hamid	1	1	T	Please note that post movement of 0.04" (as per app 1) causes quit a bit of deflection at mid point of cable span that has to be accounted for in caclulations.	Agree. That is the plan. We ran some preliminary tests and are in the process of beefing up the end posts and adding additional supports under the beam to prevent rotation of the end posts.
Hamid	1	App B	S	Sag due to self weight should be 0.138" instead of 1.173"	<p>Allowable Sag is 0.138" (after initial tension has been applied)</p> <p>The 1.173" number is the sag due to self-weight and without any tension in the strand</p> $a = \left(\frac{3wL}{64EA} \right)^{1/3} \ell$
Ahmed			G	See attached PDF with my review comments.	Agree and all comments noted.

Note: Please focus on technical issues and do not list purely editorial comments