

PTI/ASBI M-50 Multistrand and Grouted PT Joint TG Document Title: PTI/ASBI M50.3-19, Public Review Closure	Ballot-M-50-1901	Ballot Start Date:	April 16, 2019
		Ballot End Date:	April 30, 2019

#	Name	Item / Section #	Comment	Committee Response
1	Jong Cheol Lee	1.3	1.3 - Referenced standards and specifications : The edition is not specified. Proposed resolution: The edition need to be specified.	No change <ul style="list-style-type: none"> Reference Standards are listed in standards without listing the edition; the latest edition is to be used. Specifications are listed in standards with listing a specific edition.
2	O'Brien	2.1	Specification calls out anchor nuts, but not hex nuts. Proposed resolution: Identify both types of nuts.	No change – New business As a new item, this will be considered by the committee as new business.
3	O'Brien	2.1	Wobble: Friction caused by unintentional deviation. Proposed resolution: Wobble is “deviation” causing the unintentional friction.	Editorial change Wobble friction – Friction caused by unintended duct deviations from theoretical duct profile.
4	BBR VT International Ltd	C2.1	Page 12, right column, first line: space between “a” & “12”? Proposed resolution: Check and correct if needed	Editorial change This will be corrected during document production.
5	BBR VT International Ltd	C2.1	Page 15, right column, second paragraph: is it “Saint-Venant’s Principle”? Proposed resolution: Check and correct if needed	Editorial change This will be corrected during document production.
6	O'Brien	4.2.1	Discussion of protection of strand, CalWrap, etc. Proposed resolution: Refer to section 8.0 for other required steps.	Editorial change Remove duplication of the text in C4.2.1 and C8.6 by removing wording under Packaging of Strand and inserting a reference to C8.6 instead.
7	O'Brien	4.3.2	Bar angular deviation, allowable angular deviation.	No change

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			Proposed resolution: No discussion of possible lock off difficulties, losses due to misalignment, etc.	No wording proposed to address.
8	O'Brien	4.3.4	Couplers, mentions color marking for visual checking. Proposed resolution: If couplers are buried, possibly fixed couplers, lock nuts, Allen set screws, etc.	No change No wording proposed to address.
9	BBR VT International Ltd	4.3.5	Page 27, “ducts with a minimum cross-sectional area two-and-a-half times the cross-sectional area of the prestressing steel based on the inside diameter of the duct”, does this “two-and-a-half times” also applies to straight or short tendons? According to onsite experience, “two times” would be enough for straight or short tendons. Proposed resolution: Decrease to “two times” or make it “two-and-a-half times” as a recommended value	No change This was addressed by the committee and changed from the requirements in the previous edition that was based on tendon installation method.
10	BBR VT International Ltd	4.3.5.2 C4.3.5.2	Page 29, table 4.1: the decimal number of figures is not consistent. Proposed resolution: Change all to with one decimal? e.g. 2.4 in ≤ ϕ ≤ 3.4 in, 3.4 in ≤ ϕ ≤ 4.0 in, 4.0 in ≤ ϕ ≤ 4.5 in, 4.5 in ≤ ϕ ≤ 5.8 in	No change – New business The committee will address this as a new business. The proposed rounding could create unforeseen noncompliance that needs a committee consideration.
11	BBR VT International Ltd	4.4.1	Page 36 Point 1: Clause 1 is not clear. Do Clauses 1 and 3 refer to PTI M-50	No change

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			<p>“acceptance standards for post-tensioning system” Section 6.1.5 (1) and (2) respectively?</p> <p>Proposed resolution: Point 1: Clarify better the clauses, e.g. combine Clauses 1 and 3 together as in PTI “acceptance standards for posttensioning system”.</p> <p>Point 2: Clause 3 requires a wedge plate capacity of 120% MUTS. However, since the whole PT system can only achieve maximally the AUTS of strands, why should this single component require 120%MUTS? Furthermore, this requirement of 120%MUTS, per PTI M-50, “provides a safety factor at maximum allowable jacking force of at least 1.5”. However, on site, the jacking load is controlled with a maximum possible value of overstressing force $0.95f_{p0.1}$. In Section 12.2 of this recommendation, it is also written that “The maximum stress in the prestressing steel at time of stressing shall not exceed $0.80 f_{pu}$. Do not overstress tendons to achieve the expected elongations.” What is the reason of applying a factor of 1.5?</p> <p>Proposed resolution: Point 2: Integrate Clause 3 requirement into Clause 1, i.e. after unloading from 95% MUTS, load again the anchorage device to failure and require a minimum strength of 95% AUTS (refer to static test requirement in EAD 16).</p>	<p>Item 1 is now matched with the new AASHTO requirement that used to be 96% of AUTS.</p> <p>Item 2 is for testing of special bearing plates that cannot be verified by analytical methods.</p> <p>Item 3 is for wedge plates only per PTI’s Acceptance Standards document.</p> <p>With the exception of Item 1 that was coordinated in AASHTO and PTI in this cycle, the other requirements have not changed.</p> <p>The committee would consider any future change proposals in the next cycle.</p>
12	Jong Cheol Lee	4.4.1	<p>4.4.1 - Post-tensioning anchorages : The AUTS of individual of multistrand is not same among strands.</p> <p>Proposed resolution: AUTS need to be replaced with MUTS.</p>	<p>No change</p> <p>In M50.3-12, this was 95% MUTS and in AASHTO, this was 96% AUTS. In this cycle, these were harmonized,</p>

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				and both will require 95% AUTS, for testing individual strand-wedge connection in unbonded state.
13	O'Brien	4.4.1	<p>“wedges that have broken into pieces”</p> <p>Proposed resolution: Individual pieces of the wedges broken into pieces, there may be vertical cracks in multiple wedge pieces.</p>	<p>No change</p> <p>This wording in the commentary is explicit in stating the intent.</p>
14	Jong Cheol Lee	4.4.3	<p>4.4.3 - Duct testing : The stiffness test requirements for duct connections are not specified.</p> <p>Proposed resolution: Add stiffness test requirements for duct connections.</p>	<p>No change – New business</p> <p>The committee will consider any now / additional proposals as new business.</p>
15	O'Brien	4.4.3	<p>“When prestressing steel is installed prior to concrete, there is no concern with prestressing steel installation”</p> <p>What does this mean?</p> <p>Proposed resolution: Restate to say that if the duct deforms from the concrete weight, subsequent installation of the strand may be difficult or impossible. Also, if the strands are installed, but the duct deforms or crushes in, it could affect elongations due to friction increase.</p>	<p>No change</p> <p>This commentary explains concerns with potential duct collapse preventing proper installation of the prestressing steel and that when the prestressing steel is pre-installed, there is no concern with the prestressing steel installation.</p>
16	BBR VT International Ltd	4.4.5	<p>The pressure test is required for a whole PTS or just the duct system? what are the specifications? which standard/recommendation does it refer to?</p> <p>Proposed resolution: Clarify the requirement.</p>	<p>No change</p> <p>The wording of the specification states the requirements: “The posttensioning assembly includes at least one of each component required to make a tendon from grout cap to grout cap”. The commentary qualifies this test as a system qualification test.</p>

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17	O'Brien	8.5	Plastic duct storage. Should we comment on protecting duct from direct sun exposure? Proposed resolution: None provided	No change The specification requires the duct to be "shaded from the sun".
18	BBR VT International Ltd	9.9	"...with letter designations corresponding to Fig. 9.1": no "Fig. 9.1" is shown in the document? Proposed resolution: Check and correct if needed	No change Fig. 9.1 will be in the document but was not modified; it shows the locations of the inlets and outlets.
19	O'Brien	11.2	Inspection of strand. How do you inspect a coil for broken wires? Proposed resolution: None provided	No change This is referring to a visual inspection that might show broken wires in the outer layers due to handling.

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20	O'Brien	12.5	<p>Calibration: calibrate the jack and gauge every 6 months, "Calibrations after the initial calibration by load cell may be done with a Master gauge."</p> <p>What does this mean that a calibration may be done by Master gauge? I believe it means that the service gauge accuracy, the real issue, may be confirmed by using a Master gauge on site to check the gauge. The terminology seems confusing, it is not a new calibration, it is a check of the gauge accuracy. Specification calls for calibration of the jack and gauge every 6 months, it does not call for calibration of the gauges themselves.</p> <p>Comments: There is very little impact from the calibrations and recalibrations of jacks, the only thing that can change is a small frictional variation. We should be focusing on the gauges. A perfectly calibrated gauge can be taken out of the case on its first use and hit against something, and knock the needle off of zero. (Note: this is not the mechanism of the gauge, it is the fixing of the fine thread needle pointer on the stem)</p> <p>Proposed resolution: At a minimum, allow some latitude to the site engineer as to the acceptability of the existing calibrations, if the gauge accuracy can be affirmed, the system may be accepted.</p>	<p>No change – New business</p> <p>This provision has not changed in this cycle and has been used for all PT applications for a long time.</p> <p>The committee will consider any new change proposals as a new business.</p>