

## S 1073 – PRECAST CONCRETE BULLETIN

11/7/07

**Q 1) Please clarify specific requirements relating to mix designs**

**A S 1073.05 AND 1073.06 DISCUSS MIX DESIGN SUBMITTALS AND APPROVALS. THE MIX DESIGN SUBMITTAL SHOULD INCLUDE ALL WEIGHTS, DOSAGES AND SUPPLIERS OF THE MATERIALS ALONG WITH TEST DATA INDICATING THAT THE CONCRETE IS CAPABLE OF PROVIDING THE DESIGN STRENGTH + THE ACI 301 OVERDESIGN.**

**STRENGTH RESULTS FOR THE DAILY PRODUCTION ITEMS SHOULD OBTAIN THE REQUIRED DESIGN STRENGTH PRIOR TO SHIPPING.**

**WHEN CHANGING SUPPLIERS OF MATERIALS (FOR INSTANCE: AGGREGATE), PROVIDE THE OFFICE OF MATERIALS MANAGEMENT (OMM) WITH CHANGES THAT WILL BE MADE. REPLACE ANY MATERIAL WITH THE SAME TYPE, GRADE OR SIZE MATERIAL. IF THE MATERIAL IS OF SIMILAR OR BETTER QUALITY, THE NOTIFICATION WILL BE ALL THAT IS NEEDED. WE MAY REQUEST STRENGTH RESULTS TO BE SUBMITTED IF THERE IS A QUESTION ABOUT THE QUALITY OF THE MATERIAL.**

**FOR SELF CONSOLIDATING CONCRETE (SCC), NOTIFY THIS OFFICE OF YOUR INTENT TO USE IT. PROVIDE A COPY OF THE MIX DESIGN AND THE PROPOSED CHANGES TO YOUR QUALITY CONTROL PLAN FOR SCC QUALITY CONTROL PROCEDURES. WE WILL SET UP A TIME TO EVALUATE THE MIX DESIGN AND PROCEDURES ACCORDING TO THE PROCESS LISTED AT:**

**<http://www.dot.state.oh.us/Divisions/ConstructionMgt/Materials/QPL%20Descriptions/705.12DualType.pdf>**

**Q 2) I have one issue that has come up recently and is regarding ODOT spec 706.03 Reinforced Concrete Pipe, Epoxy Coated. I have researched the Military Specification DOD-P-23236A with no real success. I have not been able to find an epoxy subcontractor that knows this particular spec. I also have a supplier that makes an additive that is introduced into our concrete mix that can possibly replace the epoxy coating.**

**My question therefore is how do I get the spec updated with either A: an updated military or a known spec and B: with an additional option of a concrete additive that can replace the epoxy coating?**

**A NO RESPONSE TO THIS QUESTION AS IT IS NOT A S1073 PRECAST ISSUE. CALL THE OFFICE FOR RESPONSE ON AN INDIVIDUAL BASIS**

**Q 3) Is black steel mesh acceptable in flat top joint?**

**A NO - 706.13 REQUIRES EPOXY STEEL FOR FLAT TOP SLABS. THIS APPLIES TO ALL STEEL IN THE FLAT TOP SECTIONS**

**Q 4) Is the epoxy spray paint acceptable for rebar ends?**

**A EPOXY COATING IS REPAIRED, AS PER ASTM A775. THE TERM, EPOXY SPRAY PAINT, HAS NO DIRECT MEANING. EACH SUPPLIER WILL FOLLOW THE REQUIREMENTS OF ASTM A775. THE SECTION ON REPAIR FROM ASTM A775 IS PROVIDED BELOW**

**11. Permissible Amount of Damaged Coating and Repair of Damaged Coating**

**11.1 The maximum amount of repaired damaged coating shall not exceed 1 % of the total surface area in each 0.3 m [1-ft] of the bar. This limit on repaired damaged coating shall not include sheared or cut ends that are coated with patching material (see 11.4).**

11.2 All damaged coating due to fabrication or handling (to the point of shipment) shall be repaired with patching material.

NOTE 13—If the amount of repaired damaged coating in any 0.3-m [1-ft] length of a coated bar, exceeds 1 %, that section should be removed from the coated steel reinforcing bar and discarded. In patching damaged coating, care should be taken not to apply the patching material over an excessive area of the intact coating during the repair process. Too large an area of thick patching material especially on smaller-size reinforcing bars is likely to cause a reduction in bond strength of the bars to concrete.

11.3 Repaired areas shall have a minimum coating thickness of 175  $\mu\text{m}$  [7 mils].

11.4 When coated bars are sheared, saw-cut, or cut by other means during the fabrication process, the cut ends shall be coated with patching material. Coated steel reinforcing bars shall not be flame cut.

11.5 Repair of damaged coating shall be done in accordance with the patching material manufacturer's written recommendations.

**Q** 5) Is black steel acceptable for cast-in lifters?

**A** IF THE LIFTERS ARE IN ITEMS THAT REQUIRE EPOXY STEEL, THEN SOME PROTECTION IS REQUIRED. GALVANIZED IS AN OPTION, BLACK STEEL IS NOT.

**Q** 6) What steel is required in 2-2-A/B catch basins?

**A** THE DETAILS IN THE STANDARD DRAWING ARE FOR CAST-IN-PLACE CONCRETE CATCH BASINS. IT ALLOWS THE USE OF PRECAST CBs, BUT HAS ADDITIONAL REQUIREMENTS. ONE OF THE REQUIREMENTS IS THAT IT "...BE REINFORCED SUFFICIENTLY TO PERMIT SHIPPING AND HANDLING WITHOUT DAMAGE", BUT A STEEL AREA IS NOT SPECIFIED.

NO AMOUNT OF STEEL IS GOING TO PREVENT EDGE BREAKS... FROM HARSH HANDLING. THAT IS NOT IS IN QUESTION HERE. HOWEVER, A SUFFICIENT AMOUNT OF STEEL REINFORCING SHOULD BE PROVIDED TO PREVENT CRACKS FROM DEVELOPING DUE TO THE NORMAL HANDLING. OF COURSE SOME CONTRACTORS DO A BETTER JOB OF HANDLING THAN OTHERS, BUT COUNTING ON NO HANDLING FORCES AND THEREFORE NOT PROVIDING ANY STEEL IS NOT PRUDENT. WE HAVE FOUND TOO MANY CATCH BASINS THAT HAVE DEVELOPED SEVERE CRACKS BECAUSE THERE WAS NO STEEL REINFORCING AT ALL – FIBERS ARE NOT CONSIDERED ADEQUATE REPLACEMENT FOR STEEL REINFORCEMENT.

WE SPECIFY ASTM C478 AS A "CATCH-ALL" SPECIFICATION FOR A VARIETY OF CONCRETE ITEMS. OF COURSE, C478 TECHNICALLY WAS NOT INTENDED TO COVER CATCH BASIN. HOWEVER, INDUSTRY STANDARDS SPECIFY ASTM C913, WHICH REQUIRES 0.14 in<sup>2</sup>/ft IN EACH DIRECTION FOR A SECTION THIS SIZE. IF A REASONABLE AMOUNT OF STEEL IN THE ORDER OF WHAT IS REQUIRED IN C913 IS USED AND A SEVERELY CRACKED SECTION IS FOUND IN THE FIELD, THE PIECE WITH THE CRACK MAY BE REJECTED BUT YOUR PLANT CERTIFICATION WILL NOT BE IN JEOPARDY. HOWEVER, NOT PROVIDING ANY STEEL SHOWS THAT THE PROVISION FOR PREVENTING DAMAGE IS BEING IGNORED WHICH MAY VERY WELL RESULT IN LOSS OF PLANT CERTIFICATION.

IF STEEL IS ADDED TO WITHSTAND HANDLING DAMAGE, THE STEEL CAN BE BLACK BUT MUST MEET COVER REQUIREMENTS OF ASTM C478.

Q	7) Is it acceptable to have box culvert/manhole mesh ends rest on the pallet?
A	BOTH ASTM C 1433 (SECT 7.3) AND C478 (SECT 14 – 6.2) THE ENDS OF THE LONGITUDINAL MESH TO BE EXPOSED. HOWEVER, THE TRANSVERSE WIRES STILL HAVE MINIMUM CLEARANCES.
Q	8) Are sanitary manhole specifications governed by ODOT or the local governing body? If the local group governs are cones allowed?
A	THEY ARE GOVERNED, LIKE ANY PROJECT, BY THE SPECIFICATIONS THAT APPLY IN THE CONTRACT. MANY LOCAL GOVERNING BODIES REFERENCE ODOT SPECIFICATIONS AS PER FHWA AND THEREFORE SHOULD BE BUILT IDENTICALLY TO THAT OF AN ODOT PROJECT. BID ACCORDING TO REQUIREMENTS OF THE CONTRACT.
Q	9) Are grade rings acceptable?
A	THIS AGAIN IS A CONTRACT ISSUE AND NOT AN ISSUE THAT CAN BE GENERALLY ANSWERED. 604.03.B PROVIDES AN OPTION FOR ADJUSTMENT DEVICES BUT EACH CONTRACT MAY OR MAY NOT HAVE SPECIFIC REQUIREMENTS
Q	10) If yes, do grade rings require epoxy steel?
A	AS 706.13 DOES NOT STATE GRADE RINGS CURRENTLY NO REQUIREMENT FOR EPOXY STEEL EXISTS.
Q	11) Is this for both Sanitary and storm?
A	THE DEPARTMENT STANDARD SPECIFICATIONS DO NOT DIFFERENTIATE BETWEEN SANITARY AND STORM FOR GRADE RING USAGE - AGAIN, EACH PROJECT STANDS ON IT'S OWN SPECIFICATIONS NOT A STANDARD. THEREFORE, A SUPPLIER MUST FOLLOW REQUIREMENTS FOR THE SPECIFIC PROJECT.
Q	12) If we are approved under the S-1073 Self-Certification program for ODOT, why do we have to notify ODOT every time we sell a job or prepare to begin production?
A	THIS HELPS US PERFORM OUR QUALITY ASSURANCE INSPECTIONS MORE EFFECTIVELY. THE CERTIFICATION PROGRAM FOLLOWS THE REQUIREMENTS OF S-1073 AND THAT REQUIREMENT IS LISTED IN SECTION 1073.21.
Q	13) Further, what is the proper format for informing ODOT that a precast plant is to begin production?
A	NO FORMAT IS SPECIFIED. THEREFORE, ANY MUTUALLY AGREEABLE FORMAT IS ACCEPTABLE. MOST PLANTS HAVE WORKED THIS ISSUE OUT WITH THE INSPECTOR. IF YOU DO NOT KNOW WHO TO CONTACT, CALL BRYAN STRUBLE AT 614-275-1325.
G	Some plants are producing CB and MH Tops that have black steel rather than epoxy steel for "Stock" Inventory or for "Non-ODOT" projects.
E	1. Be careful of what is required. If it is for a new Wal-Mart store... etc, then maybe epoxy steel is not required – that depends on the specs for the job. However, if it is for a municipality, county, etc, and they reference ODOT CM&S 706.13, unless they specify otherwise - epoxy steel is required. It does not necessarily need to be an "ODOT Project" to require epoxy steel
N	2. You need to differentiate between CB, MH and Inlet tops with epoxy steel and the ones with black steel. Preferably by stenciling "EPOXY" with the rest of the markings.
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