

TECHNICIAN'S CHECKLIST PRE-DECK POUR

Pre - Deck Pour Checklist																																	
Concrete																																	
Have mix designs been submitted and approved?																																	
How much retarder will be used?																																	
<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="padding: 5px;">TABLE 1000-2</th> </tr> <tr> <th colspan="3" style="padding: 5px;">ELAPSED TIME FOR PLACING CONCRETE</th> </tr> <tr> <th rowspan="2" style="padding: 5px;">Air or Concrete Temperature Whichever is Higher</th> <th colspan="2" style="padding: 5px;">Maximum Elapsed Time</th> </tr> <tr> <th style="padding: 5px;">No Retarding Admixture Used</th> <th style="padding: 5px;">Retarding Admixture Used</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;">90°F</td> <td style="text-align: center; padding: 5px;">30 minutes</td> <td style="text-align: center; padding: 5px;">1 hr. 15 minutes</td> </tr> <tr> <td style="text-align: center; padding: 5px;">80°F through 89°F</td> <td style="text-align: center; padding: 5px;">45 minutes</td> <td style="text-align: center; padding: 5px;">1 hr. 30 minutes</td> </tr> <tr> <td style="text-align: center; padding: 5px;">*79°F or below</td> <td style="text-align: center; padding: 5px;">60 minutes</td> <td style="text-align: center; padding: 5px;">1 hr. 45 minutes</td> </tr> <tr> <td style="text-align: center; padding: 5px;">**70°F through</td> <td style="text-align: center; padding: 5px;">60 minutes</td> <td style="text-align: center; padding: 5px;">1 hr. 45 minutes</td> </tr> <tr> <td style="text-align: center; padding: 5px;">**69°F or below</td> <td style="text-align: center; padding: 5px;">1 hr. 30 minutes</td> <td style="text-align: center; padding: 5px;">2 hr. 15 minutes</td> </tr> <tr> <td colspan="3" style="text-align: center; padding: 5px;">* Applicable to Class AA and A concrete.</td> </tr> <tr> <td colspan="3" style="text-align: center; padding: 5px;">** Applicable to Class B concrete.</td> </tr> </tbody> </table>		TABLE 1000-2			ELAPSED TIME FOR PLACING CONCRETE			Air or Concrete Temperature Whichever is Higher	Maximum Elapsed Time		No Retarding Admixture Used	Retarding Admixture Used	90°F	30 minutes	1 hr. 15 minutes	80°F through 89°F	45 minutes	1 hr. 30 minutes	*79°F or below	60 minutes	1 hr. 45 minutes	**70°F through	60 minutes	1 hr. 45 minutes	**69°F or below	1 hr. 30 minutes	2 hr. 15 minutes	* Applicable to Class AA and A concrete.			** Applicable to Class B concrete.		
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What other admixtures will be used?																																	
If the air content is low air entraining agent may be added on site as long permitted by the Engineer and the specifications are followed.																																	
<div style="border: 1px solid black; padding: 10px;"> <p>Construction Manual Section 420-4</p> <p>When concrete arrives on the job with an air content below the specified level by more than the allowable tolerance, the supplier may use additional air entraining admixture if the following conditions are met:</p> <ol style="list-style-type: none"> 1. The admixture is the same brand and type as originally introduced at the plant unless otherwise permitted by the Engineer. 2. The admixture, if liquid, is measured into a bucket containing 1 gallon of water. The admixture, if prepackaged powder, is added according to the manufacturer's recommendation. 3. The admixture, if liquid is thoroughly mixed with the water and the mixture, is then directed to the front of the drum with the drum momentarily stopped. 4. The maximum allowable water-cement material ratio of the concrete is not exceeded with the addition of water and admixture solution. 5. The concrete is then mixed 30 revolutions at mixing speed. 6. A record is kept by project personnel of the brand, type, and quantity of admixture and of water added is clearly noted on the sample card and batch ticket. This policy should apply only to trucks already on site and en route. However, air adjustments may be necessary on subsequent loads due to variations in raw materials at the plant. </div>																																	
When an air test fails and air entrainment agent is added, the mix in the pump should be wasted. When the adjusted mix exits the pump and passes they can begin discharging on the deck again.																																	
What quantity of mix will be ordered?																																	
Minimum rate must be 35 cy per hour. What is the planned rate? The maximum interval between loads can not exceed 20 minutes.																																	
Is fly ash required in the mix?																																	
How many sets of early break cylinders does the contractor want?																																	
How and where will concrete cylinders be protected?																																	
Where will the trucks wash out?																																	
What is the sampling frequency?																																	

Pumping Concrete	
All grout or other materials used to lubricate the lines must be wasted off the deck.	
Where will the pump set up? Never on a deck without previous submittal and approval.	
Discuss the boom angles and how this may effect the air content.	
Can the pump reach the entire pour area?	
If not how will the other areas be poured? If the method of placement changes (such as going from a bucket to a pump) testing must be restarted. For example, if the contractor places 17 cy with a bucket and switches to a pump, he must start testing the first load coming through the pump as if it were the beginning of another pour.	
If the contractor must lay a hose out on the deck it must be supported so that it does not damage the rebar coating and prevent vibration transfer through the rebar to the fresh mix.	
Concrete delivery and pumping rate should be timed to ensure continuous operation of the pump.	
All samples for acceptance must be taken from the discharge end of the pump.	
<p>Construction manual section 420-5</p> <p>When pumping is utilized in the placement of deck concrete, the following guidelines should be observed:</p> <ol style="list-style-type: none"> 1. A minimum of three Technicians should be present on a pour in which a pump is used for placement. They should be used for the following: <ol style="list-style-type: none"> a. On the bridge deck to check placement, depths, finishing, straight edging, curing, etc. b. Documentation of batch tickets, frequency of tests, and assistance of testing. c. Testing including chase, pot, temperature, and slump as required at the pump and on the deck. 2. On the first load, the Technician should run a chase, pot, and slump from the truck after the Contractor adjusts the water. At the pump discharge, before vibration, the Technician should run a pot and slump for correlation of losses. Inasmuch as losses are variable, the Technician should run additional correlation tests at cylinder time, changing spans, or if a variation in slump or excessive boom angle is noticed. 3. To account for pump losses, concrete should be placed into the pump with a maximum slump of 4 inches and 5.5 to 7.5% air. Concrete which falls within these limits may be accepted at the truck unless the correlation indicates that the discharged concrete will be outside the 4-19 acceptable ranges. Rejection of concrete must be based from samples obtained from the pump discharge. As always, samples used for cylinders must be obtained from the pump discharge. 4. The concrete company QC person may add an air entrainment agent to the trucks only until adjustment can be made at the plant. 5. Wet epoxy coated steel is slick. To assist the Technicians in obtaining samples, the Contractor should provide a plank walkway from the pump discharge across the mat of steel. 	
If two trucks are backed up to the pump simultaneously only one truck may discharge at a time. This will allow for a constant rate of flow into the pump and will keep the mix from the trucks separated for testing purposes.	

Weather	
What is the 7 day forecast?	
Is there a chance temperatures may drop below 35° F during the curing period? If so adequate insulating material must be on site.	
Regardless of the weather predictions for rain, the Contractor must have available at the site sufficient coverings to protect the fresh concrete in case of an unexpected rain shower.	
Will the air temperature be above 35° F at pour time on site in the shade?	
If insulation is necessary concrete should be batched in accordance with Article 420-7(C).	

Dry Run	
Has the dry run been performed in accordance with the attached procedure?	
If so, inspect the work book to ensure the proper format has been followed.	
If not, this must be completed and approved before pouring.	
Have the location of the dry run depth checks been noted for future reference?	
Does the inspector have a device to check depth during the pour?	
If the bridge is curved has the rail been marked at increments to ensure the screed stays on the proper skew?	
If the skew is not between 75° and 105° is the screed set up on the skew?	
If there is a crown and a skew does the contractor have a skew bar kit in place?	
Does the superelevation vary making crown adjustment necessary during the pour?	
If so, has the rail been marked at the proper increments for this gradual adjustment?	
Is the screed finishing in the proper direction?	
Are the drums turning in the proper direction?	
Does the contractor have materials available for an emergency header?	
Are construction joints keyed appropriately?	
Have tattletales been provided to check deflection?	
Does the contractor have 2 workbridges on site?	
Will the curing material (burlap) be wet prior to placement?	

Placement	
Is there a specific pour sequence indicated on the plans? This sequence must not vary without the permission of the Engineer.	
Has the interior of the forms been cleaned from all debris, especially in the corners?	
Concrete may not be dropped more than 3' above the beams or forms.	
If concrete is placed against previously poured mix or on concrete girders or panels the existing mix must be wet for 2 hours before the pour.	
How many people will the contractor have for the pour?	
How many people will the contractor have for curing and covering?	
Does the screed have a vibrator?	
Footprints must be vibrated out. Vibrator operators should walk backwards to avoid walking in vibrated mix.	
Concrete should be loaded on the same skew as the bridge at all times.	
Just before placing concrete the forms beams and rebar should be wet.	
Does the contractor have 2 vibrators, generators, and misting devices?	
Concrete must be placed in lifts no deeper than 12" in diaphragms.	
Do not load the deck an excessive distance beyond the screed. Doing so will make it more difficult to place the proper amount of concrete, and mix that is walked in must be revibrated.	
A minimum of 15 depth checks should be made by the inspector.	
Will the contractor have a 10' straightedge available? The deck should be straightedged at the frequency recommended in Article 420-14(B) of the spec book.	
Areas under the barrier wall should not be finished smooth, but be left in a rough condition.	
The purpose of fogging is to lower the temperature and raise the relative humidity in the vicinity of the work. It shall not be used to add water to the concrete other than to replace moisture lost by evaporation.	

Crossing	
The screed may be moved across a previously cast deck 1) before the concrete in the entire pour has yet to achieve initial set 2) or after the concrete has achieved at least 1500 psi as evidenced by non-destructive testing.	

Curing	
Membrane curing compound is not allowed unless approved as a temporary measure by the Engineer. If curing compound is allowed it must be removed after the curing period.	
What approved curing media will be used?	
Curing media must be wet prior to placement on the mix.	
Curing media must be applied prior to initial set.	
Concrete must be cured for 7 days.	
Article 420-7 Protect all concrete by means of heated enclosures or by insulation whenever any of the following conditions occur: (a) The concrete is placed when the air temperature, measured at the location of the concreting operation in the shade away from artificial heat, is below 35 F. (b) The air temperature, measured at the location of the freshly placed concrete in the shade away from artificial heat, is below 35 F and the concrete has not yet attained an age of 72 hours or an age of 48 hours when using high-early strength portland cement concrete. If the mix contains fly ash or ground granulated blast furnace slag, protect the concrete for 7 days.	
Concrete should be removed from the substructure and beams immediately after the pour is completed.	

Safety	
Do all trucks have operating backup alarms?	
Will flagmen be necessary for trucks entering the road?	
Review required personal protective equipment.	
Will lighting be needed?	
Where should vehicles be parked?	

Dry Run Procedure for Transverse Screeds

1. Screed Rails can be set initially by measuring up a constant distance from the overhang form or the top of the side form, but this is only preliminary. Final adjustments must be made prior to the dry run.
2. For more detailed discussion of screed setup see Chapter 4 of the Structures II (CON 815) Manual and view the Transverse Screed Setup videos on YouTube Construction Unit Training playlist. Before beginning, at all four corners of the screed the distance from the screed rail up to the carriage rail should be the same and the carriage rail should be straightened ([Video 1](#)), the rollers should be aligned ([Video 2](#)), and if the bridge is in a crown section, crown can be adjusted into the truss at this point ([Video 3](#)).
3. The screed should be pulled to the zero buildup location of one exterior girders. The distance from the buildup to the bottom edge of the front of the drums should be measured. Both legs on this side of the screed should be adjusted identically until the distance measured is equal to the deck thickness plus the buildup. This step should be repeated for the other exterior girder. After this the screed is set to grade ([Video 4](#)).
4. Begin on one of the exterior girders. At each 20th point (or 40th or 60th point on longer spans) use the stick constructed in Video 4 to measure up from the top of the girder to the carriage rail. The carriage should be located as close to the exterior girder line you chose as possible and still allow for easy measurement. This measurement should equal the calculated buildup.
5. If the buildup is greater than the calculated buildup, the screed rail should be lowered until the plan buildup is achieved. Conversely, if the buildup is less than the plan thickness, the screed rail should be raised until the calculated buildup is achieved. The screed rail is adjusted by turning the nuts located between the top of the side form and the screed rail saddle.
6. Steps 4-5 should be repeated for each twentieth point on the exterior girders before checking the interior girders. Any errors found on the interior girders at that point should be minor variations due to incorrect pan elevations or the arithmetic difference in the plan dead load deflection of the particular interior girder and that of the exterior girder.
7. Verify the plan deck thickness from the deck pans to the finish roller and the plan cover over the top mat of rebar. The tolerance for deck thickness and rebar cover should be +/- 1/8th inch. The thickness and cover should be checked at least every other 20th point (or 40th or 60th point) at the center of the concrete deck panel or SIP form.

