Latex Modified Concrete

Mix Design

- SUBMITTED BY LAFARGE ANNUALLY OR ON A PROJECT SPECIFIC BASIS IF OTHER SUPPLIER USED, REFER TO SPECIFICS.
- SUBMIT TO CENTRAL LAB FOR DESIGN APPROVAL

Latex

- 3-copies submitted of manufacturer test reports
- sample of admixture needs to be submitted to central lab, 20 days prior to use on project for acceptance testing.
- One sample is usually adequate for most projects.

Storage

- Cement - type i or type ii, (from same supplier) only one type
- Water - mixing, cleaning or wetting decks

Aggregates - CA

- Gradation
- Stockpiles - check for moisture the day of pour, protect from moisture cover with plastic etc.
- if excessive moisture is present in fine aggregate it will reduce available mix water and may not be usable for placement.

**Definition of excessive moisture:** if aggregate moisture higher than available mix water

**Proportioning And Mixing Equipment**

Submitted by supplier
state personnel should verify calibration of trucks
(be present if possible)

Calibration Of Trucks
Calibration of cement
Calibration of aggregates
Calibration of latex meter

Deck Preparation

- Must meet requirements of specifications
- Sound and mark deck for delamination
- Jackhammers of 30kg/60 lbs for initial removal operations
- Smaller chippers of 15kg/30lbs or smaller if the project manager feels that larger hammers are detrimental to bridge deck.
- Operation of jackhammers no more than 60% from horizontal.
- If less than 50% of deck thickness remains the deck should be taken full depth except in isolated random locations as determined by project manager.

Hydrodemolition

- Calibration of equipment is necessary
- Equipment must be operated by qualified personnel

Reinforcing Bars

- REPLACE AS NECESSARY, LAPPED A MINIMUM OF 0.30mm/12" OR AS DIRECTED BY PROJECT MANAGER.
- NEW BARS AND EXISTING BARS MUST HAVE A MINIMUM OF 20mm OR ¾" CLEARANCE AROUND EXPOSED BARS.

Cleaning Deck

- SANDBLAST DECK AND REBAR TO GRAY METAL (REFER TO NEW SPECS FOR ADDITIONAL REQUIREMENTS).

Forms for Full Depth Repair

- FORM FOR AREAS LESS THAN 0.5 sq/m (4 sq/ft) CAN BE SUSPENDED FROM REBAR.
LARGER AREAS MUST BE SUPPORTED FROM PRIMARY MEMBERS OF SUPERSTRUCTURE OR SHORED FROM BELOW.

Pre-Placement Conference

- Contractor, state and supplier should all be present and should be scheduled at least two days or more prior to placement
- Cover specifications, methods of placement, inspection and potential problems

Dry Run Of Bridge Deck

- Covered in detail in pre-placement section of training session.

Setting of Gradeline

- Surveyor should shoot existing gradeline, plot profile and project new gradeline.
- This must be submitted to project manager prior to approval.
- Adjustments should be made to grade to produce a smooth riding surface and shall result in at least the minimum concrete fill as shown in plans/contract.
- Bulk heads and deck joints should be installed to proper grade and longitudinal joints should avoid wheel paths as much as practical.

Placement/Application

Placement (Finishing Machine Must Meet Specification Requirements)

- Pre-wet deck: wet deck for 2 hours before pour - inspector should verify.
- cover with plastic to keep moisture in and protect deck from spills.
- check rate of evaporation at or near deck surface, no more than .73 kg/m2/h (.15 lbs/ft2)
- ambient temperature of not less than 7 c(45 f)

Mortar Bonding
Starting out, pour a little latex modified concrete, then broom it over the deck and edges, spreading the mortar mixture.

Aggregates need to be removed. Keep the mixture ahead of the pour, but not so far it dries out (2m or 6’ +/-)

**Note:** complete application/coverage of mortar is critical to bonding of overlay to existing surface.

**Concrete Placement**

- Don’t place more than 3 meters ahead of finishing machine, need to place continuously.
- A delay of 5 to 20 minutes cover ends of concrete with burlap.
- If stopped more than 20 minutes set a bulkhead in deck.
- Make sure fluids don’t settle in low/removed areas - have air compressor available to blow out fluid

**Concrete Placement**

- Minimal hand finishing - wood floats & fresno only
- Vibrator should be used at all partial depth areas and against edges, bulkheads and expansion joints

**Testing**

- Air, temperature, unit weight; run as usual
- slump - wait 5 minutes set concrete aside and do not disturb
- If not in specs, adjust mix and retest
- Clean equipment immediately! Wear old clothing/shoes
- Do occasional checks of water/cement ratio and latex yield at least 3-4 per truck.

**Curing**

- PLACE DOUBLE LAYER OF CLEAN BURLAP (APPROVED EQUAL)
- TIMING IS EVERYTHING! (BETTER TOO SOON THAN TOO LATE) 15 -20 MIN.
- LIGHTLY FOG SPRAY IT, THEN PLACE WHITE PLASTIC
- KEEP BURLAP WET FOR 48 HOURS. VERIFY BURLAP IS WET ENTIRE 48 HOURS
- COLD WEATHER CURING (0 C/32 F)
- CONTINUE WET CURING UNTIL CYLINDERS BREAK AS PER SPECS

**Post Inspection**
- Straight edge deck. Follow criteria as in previous section (same tolerances)
- After curing, check for delamination/bonding
- If not acceptable, remove and replace (contractor expense)
- Groove it, apply hmwm to cracks if any