

### 1. CONCRETE MIX DESIGN

#### MIX COMPONENTS

PRODUCT DESCRIPTION	LSB PER CY	DENSITY
CEMENT	757	3.15
POZZOLAN	CLASS F FLY ASH	2.3
SAND	WE DALEY NATURAL	2.7
STONE	WE DALEY #67	2.73
WATER	DALEY WELL	1
HIGH-RANGE WATER-REDUCING ADMIXTURE	GLENUM 3400	91
AIR-ENTRAINING ADMIXTURE	WB-4520	8
CORROSION-INHIBITING ADMIXTURE	RECRETE CNI	704
DESIGN AIR		

#### VARIOUS PROPERTIES

UNIT WEIGHT: 144 LB/CF  
WATER/CEMENT RATIO: 0.32  
AIR SPEC: 1.5%  
SLUMP/SPREAD: NOT MORE THAN 29"

#### ADMIXTURE NOTE:

THE AMOUNT AND TYPE OF WATER REDUCING ADMIXTURES MAY VARY SLIGHTLY FROM DAY TO DAY DEPENDING ON ALLOWABLE VARIATIONS IN RAW MATERIALS (E.G., MOISTURE CONTENT, TEMPERATURE, GRADATIONS, ETC.) VARIATIONS IN ADMIXTURES ARE MADE TO MAINTAIN A FAVORABLE WATER/CEMENT RATIO WHILE MAINTAINING A WORKABLE MIXTURE. THEREFORE, WHEN THERE IS AN INCREASE IN THE HIGH RANGE WATER REDUCER THERE IS A CORRESPONDING DECREASE IN THE AMOUNT OF WATER REQUIRED. THIS IN TURN INCREASES SLIGHTLY THE AMOUNT OF SAND AND STONE REQUIRED TO MAINTAIN A 1.0 CUBIC YARD YIELD.

#### GENERAL NOTE:

MODIFICATIONS OR DEVIATIONS FROM THE ORIGINAL MIX AT ANY TIME AFTER THE SHOP DRAWINGS HAVE BEEN APPROVED WILL BE SUBJECT TO THE ACCEPTANCE OF THE ENGINEER.

### 2. CURING METHOD

UNDER SECTION 310-10 CURING OF PRESTRESSED CONCRETE THE CURING OF METHOD OF RADIANT HEAT IS CITED. WITH CONTROLLED ENVIRONMENT AT DALEY PRECAST, INC. WITH BURLAP AND BLANKETS ENCAPSULATION THE BRIDGE BEAM, THE BEAM ITSELF IS A SOURCE OF RADIANT HEAT FOR ITSELF.

DALEY PRECAST, INC. REQUESTS THAT THE RADIANT HEAT OF THE BEAM IS COVERED BY WET BURLAP AND BLANKETS BE CONSIDERED AN ACCEPTABLE METHOD OF CURING.

### 3. GROUTING PROCEDURES

#### GROUTING OF SHEAR KEYS:

- CLEAN JOINTS WITH AN OIL FREE AIR-BLAST IMMEDIATELY BEFORE GROUT PLACEMENT. VERIFY THAT THE BACKER ROD IS STILL IN PLACE.
- FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR ADDITIONAL JOINT PREPARATION AND GROUT PLACEMENT.

#### GROUTING OF POST-TENSION TRANSVERSE TENDONS:

- GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI, BASED ON THE MANUFACTURER'S RECOMMENDATIONS. PRIOR TO STRESSING, THE GROUT NEED NOT BE CURED FOR THREE DAYS PRIOR TO THE COMMENCING OF POST-TENSIONING.
- PROVIDE APPROPRIATE CURB MOLDS AS DESCRIBED IN A84910 FOR 3 SETS OF 3 DAY CUBES, 3 SETS OF 28 DAY CUBES AND AT A MINIMUM OF 3 MORE CUBES TO TEST FOR THE 1500 PSI MINIMUM COMPRESSIVE STRENGTH.

#### GROUTING OF END DETAILS:

- GROUT ANCHOR BOLTS INTO THE SLEEVES IN THE PRESTRESSED UNITS AT THE FIXED ENDS. BEFORE THE GROUT CURES, PLACE THE WASHER PLATE, AND INSTALL THE NUT ON TOP AND TIGHTEN.
- PLACE THE COLD POURED JOINT SEALER IN THE SLEEVES IN THE PRESTRESSED UNITS AS THE EXPANSION ENDS. PLACE THE WASHER PLATE AND INSTALL THE NUT ON TOP. HAND TIGHTEN AND THEN LOOSEN 1/2 TURN.
- GROUT OVER THE NUT AND BOLT IN THE ANCHOR BOLT BLOCK OUTS ON THE FIXED ENDS. FILL THE ANCHOR BOLT BLOCK OUTS ON THE EXPANSION ENDS WITH COLD POURED JOINT SEALER.

### 4. TRANSPORTATION, HANDLING, AND STORAGE DETAILS

- DEFECTS, WHICH THE SAFETY OF EMPLOYEES AND THE PROTECTIVE CARE OF THE PRODUCT BEING HANDLED, ARE THE CRITICAL FACTORS EACH TIME ANY PRODUCT IS MOVED.
- THE RECOMMENDED METHOD FOR ANY HANDLING IS TO USE EMBEDDED LIFTING DEVICES WHENEVER POSSIBLE.
- SPECIAL CARE SHOULD BE TAKEN WHEN FORKTRUCK EQUIPMENT IS USED TO PREVENT DAMAGE BY THE FORKS. LIFTING FORKS SHALL HAVE RUBBER PADS OR LIAN TO PROTECT THE CONCRETE FROM DAMAGE.
- TRUCKS AND OTHER CONVEYANCES USED TO TRANSPORT PRECAST CONCRETE PRODUCTS FROM THE PLANT TO THE ERECTION SITE SHALL BE EQUIPPED AND MAINTAINED TO DELIVER THE PRODUCTS WITHOUT DAMAGE.
- SOME FORM OF PADDING FOR TIE-DOWN SHALL BE USED TO PROTECT THE EDGE OF THE PRODUCT.
- SHIPPING RECORDS SHALL BE KEPT OF ALL PRODUCTS AND ACCESSORIES. TRANSPORTATION DAMAGE SHOULD BE RECORDED ON THE SHIPPING RECORDS. SHIPPING MANAGER OR QUALITY ASSURANCE IS TO PREPARE A CERTIFICATION AND AUTHORIZING OF EACH SHIPMENT.

### 5. INSTALLATION PROCEDURE

#### 1. LAY OUT WORKING LINES:

- LAY OUT WORKING LINES FOR THE ENTIRE BRIDGE WIDTH ON THE BEAM SEAT.
- MEASURE ALL WORKING LINES FROM A COMMON WORKING POINT.
- BASE THE WORKING LINES ON THE NOMINAL BEAM WIDTHS.

#### 2. VERIFY BEAM SEAT ELEVATIONS:

- MEASURE ELEVATIONS AT BEAM SEATS.
- IF SEATS ARE HIGH OR LOW, TAKE CORRECTIVE ACTION.
- INSTALL BEARINGS.

#### 3. ERECT BEAMS:

- PLACE BEAMS TO FIT WITHIN THE WORKING LINES.
- AS WORK PROGRESSES, INSTALL HARDWOOD WEDGES BETWEEN ADJACENT BEAMS TO MAINTAIN PROPER JOINT OPENING (A MINIMUM OF ONE WEDGE AT EACH TRANSVERSE TENDON).
- DRILL ANCHOR BOLT HOLES.
- PLACE ANCHOR BOLTS.

#### 4. INSTALL BACKER ROD: PLACE FILLER BELOW THE KEYWAY BOTTOM.

#### 5. INSTALL TRANSVERSE TENDONS:

- FEED TENDONS THROUGH DUCTS.
- VERIFY THAT HARDWOOD WEDGES ARE IN PLACE AS REQUIRED TO PREVENT SLIPPAGE OF BEAMS.
- TRANSVERSE TENDONS SHALL BE COVERED BY SEAMLESS POLYPROPYLENE SHEATH WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND FOR THE LENGTH OF THE STRAND, EXCEPT AT ANCHORAGE LOCATIONS.

#### 6. GROUT SHEAR KEYS:

- REFERENCE ITEM 3. GROUTING PROCEDURES.
- AFTER GROUTING, CAREFULLY ROD JOINTS TO ELIMINATE ANY POSSIBILITY OF VOIDS.

#### 7. POST-TENSION TRANSVERSE TENDONS:

- REFERENCE ITEM 3. GROUTING PROCEDURES.
- AFTER GROUTING, POST-TENSION TENDONS TO 30 KIPS USING A CALIBRATED JACK OPERATED BY QUALIFIED PERSONNEL.

#### 8. GROUT END DETAILS:

- REFERENCE ITEM 3. GROUTING PROCEDURES.

#### 9. FINISH WORK: REMOVE WEDGES AND PATCH SURFACE AND FASCIA BEAMS AT TRANSVERSE TENDONS.

### 6. QUALITY CONTROL PROCEDURES

#### QUALITY ASSURANCE

- WM. E. DALEY PRECAST LLC HAS AN ENTIRE DEPARTMENT DEVOTED TO QUALITY CONTROL. THE QUALITY ASSURANCE DEPARTMENT MONITORS, TESTS, AND INSPECTS ALL PRODUCTION IN THE PLANT AND REPORTS DIRECTLY TO THE PLANT MANAGER. IT IS THE POLICY OF THE QUALITY CONTROL DEPARTMENT TO FOLLOW ALL PCI STANDARDS AND TEST PROCEDURES AND ALL APPLICABLE ACI AND ASTM STANDARDS.
- WM. E. DALEY PRECAST LLC EMPLOYS A QUALITY ASSURANCE INSPECTOR TO MAINTAIN DAILY OVERVIEW AND INSPECTION OF ALL PRODUCTION. RESPONSIBILITIES INCLUDE THE FOLLOWING:

PLANT TESTING OF MATERIALS	POSTPOUR INSPECTION
MIX DESIGN	OVERALL DIMENSIONS
PRE-POUR INSPECTION	INSERT TYPE AND LOCATION
GENERAL CONDITION OF MOLD, CHAMBERS	VOIDS
DIMENSIONAL VERIFICATION	CONCRETE TESTING
SIZE, POSITION OF STRANDS	SURFACE FINISHES, APPEARANCE
SIZE, POSITION OF REINFORCING STEEL	CRACKS, DAMAGE
POSITION OF INSERTS	IDENTIFICATION OF PIECE
SIZE, POSITION OF VOIDS, BLOCKOUTS, ETC.	HANDLING AND STORAGE
POSITION OF INTEGRAL ITEMS AND ACCESSORIES	PRE-SHIP INSPECTION
INSPECTION OF BATCHING, MIXING AND CONVEYING CONCRETE	
PLACEMENT AND CONSOLIDATION OF CONCRETE	
FINISHING OF CONCRETE	
INTEGRAL ITEMS, ACCESSORIES, PLATES, LIFTERS	

#### ACCEPTANCE TESTING

WM. E. DALEY PRECAST LLC EMPLOYS ACI CERTIFIED CONCRETE TESTERS TO MONITOR AND TEST CONCRETE DELIVERIES. THE CONCRETE TESTER AND THE INSPECTOR CHECK ALL MATERIAL CERTIFICATES FOR CONTRACT COMPLIANCE AND CONFORMANCE TO STANDARDS.

#### SAMPLING OF CONCRETE FOR COMPRESSIVE STRENGTH

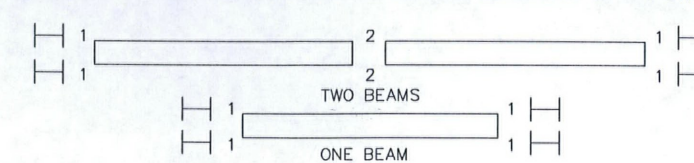
- ONCE ALL INGREDIENTS ARE BATCHED AND MIXED FOR A MINIMUM OF 90 SECONDS, THE CONCRETE SHALL BE PLACED INTO A 4 CUBIC YARD BUCKET FOR PLACEMENT INTO FORM. PRIOR TO DELIVERING TO FORM, A SAMPLE OF CONCRETE SHALL BE OBTAINED BY AN ACI GRADE 1 FIELD TECHNICIAN.
- ONCE SAMPLE IS OBTAINED TESTING FOR TEMPERATURE (ASTM C1064), AIR CONTENT (ASTM C231), SLUMP/SPREAD (ASTM C143) AS WELL AS UNIT WEIGHT (ASTM 138) SHALL BEGON.
- ONCE ALL TESTING HAS BEEN COMPLETED CONCRETE CYLINDERS SHALL BE CAST WITH SAME CONCRETE AS ABOVE TESTS AS THE CYLINDERS ARE BEING CAST. FORK TRUCK DRIVER SHALL BE INFORMED BY FIELD TECHNICIAN THAT THE CONCRETE HAS EITHER PASSED OR FAILED. IF PASSED FORK TRUCK DRIVER SHALL DELIVER TO THE BED, IF FAILED CONCRETE SHALL BE REJECTED AND DEPOSITED ELSEWHERE.

### 7. CAMBER

DALEY PRECAST, INC. TAKES PRIDE IN ABILITY AND DUE DILIGENCE IN PROVIDING QUALITY PRODUCTS WITH CONSISTENT CAMBER THAT ARE WELL WITHIN THE RANGE OF PCI TOLERANCES. THAT BEING SAID, CAMBER WILL BE CHECKED. IF NEEDED, AN ARRAY OF WEIGHTS WILL BE ON SITE TO ENSURE THAT ALL BEAMS ARE AT THE SAME CAMBER PRIOR TO THE GROUT AND POST-TENSIONING PROCESSES.

### 8. TRANSFER OF PRESTRESSING FORCE PROCEDURE

DE-TENSIONING THE STRANDS WILL BE PERFORMED WITH TWO SETS OF OXYGEN ACETYLENE TORCHES SIMULTANEOUSLY AT THE LOCATIONS SHOWN BELOW, DEPENDING ON NUMBER OF BEAMS CAST, THE STRANDS WILL BE CUT SYMMETRICALLY AROUND THE VERTICAL CENTERLINE OF THE STRAND PATTERN.



Vermont Agency of Transportation

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OK'D BY: Timothy F. Beech

3:26 pm, Jul 21, 2010

RESUBMIT: KMI

APPROVED: 10/20/10

DATE: 7/23/2010

BY: KMI

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