



CONSTRUCTION LEADERS

LETTER OF TRANSMITTAL	
DATE: <b>June 8, 2015</b>	PCL JOB NO: <b>5515002</b>
ATTN: <b>Chris Barker</b>	TRANSMITTAL NO: <b>076</b>

To: **State of Vermont Agency of Transportation**  
 One National Life Drive  
 Montpelier, VT 05633-5001  
 (802) 828-0053

Re: Hartford Lateral Slide  
 Project No.: IM 091-2(79)  
 Contract ID.: 12A132

County: Windsor PCL FILE NO: 5515002-046.1

WE ARE SENDING  Attached  Under separate cover via   **Email & SP**   the following:  
 Shop drawings  Prints  Plans  Samples  Specifications  
 Copy of Letter  Change Order  Other

COPIES	SPEC.	REVISION	DESCRIPTION
<b>1</b>	<b>Spec. Prov. #113</b>	<b>1</b>	<b>Precast Deck Panel Erection Plans</b>

TRANSMITTED for as checked below:

For approval  Approved as submitted  Resubmit  **1** Copies for approval  
 For your use  Approved as noted  Submit  Copies for distribution  
 As requested  Returned for corrections  Return  Corrected prints  
 For review and comment

**Remarks:**

The included drawings have been revised per comments from the Agency dated 6/5/2015.

Please return an email of this approved submittal to Erich Heymann ([ewheymann@pcl.com](mailto:ewheymann@pcl.com)) and Jeremy Mackling ([jmackling@pcl.com](mailto:jmackling@pcl.com))

We request the review and return of this submittal within **2 Days**. Please advise if this request cannot be met so we can plan accordingly.

By: **Erich Heymann**, Project Engineer

COPY TO: Project Files



**CONSTRUCTION LEADERS**

**SUBMITTAL NO. : 46.1  
Precast Deck Panel Erection Plans**

<b>Item No.</b>	<b>Specification</b>	<b>Description</b>
1	Spec. Prov. #113	Precast Deck Panel Erection Plans

***PROJECT:***  
**HARTFORD LATERAL SLIDE**  
**PROJECT NO.: IM 091-2(79)**  
**CONTRACT ID.: 12A132**

***OWNER:***  
**STATE OF VERMONT AGENCY OF TRANSPORTATION**

***ENGINEER OF RECORD:***  
**STATE OF VERMONT AGENCY OF TRANSPORTATION**

***CONTRACTOR:***  
**PCL CIVIL CONSTRUCTORS, INC.**

**JUNE 8, 2015**



Vermont Agency of Transportation  
I-91  
Windsor County  
Project Number: IM 091-2(79)

Hartford Lateral Slide

**Erection Plans**

**Precast Deck Panels**

Prepared By,

Erich Heymann

June 8, 2015

**PCL Civil Constructors Inc.**

3810 Northdale Blvd. Suite 200

Tampa, Florida 33624

813-264-9500

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# Precast Deck Panel Quality Control Procedures

## 1. Inspection of Precast Deck Panels

Prior to being shipped, panels will be inspected for damage at the plant by the JP Carrara & Sons, Inc. (fabricator) and VTrans inspection staff.

- Minor defects will be repaired by the manufacturer using an approved patch material from the VTrans APL. Minor defects are defined as holes, honeycombing, or spalls, which are 6" or less in diameter, that do not penetrate deeper than 1" into the concrete.
- Surface voids or "bugholes" that are less than 5/8" in diameter and less than 1/4" deep are not required to be repaired.
- Cracks less than .01" in width shall be sealed by a method approved by the Engineer. Cracks in excess of .01" may be cause for rejection. Any necessary repairs will be performed by the fabricator.

Deck Panel Rejection Criteria:

- Any crack transverse or diagonal to strand pattern and crossing more than one strand
- Any crack parallel to a strand and longer than 33% of the panel length
- Cracks shorter than 33% of the panel length and present at more than 12% of the total number of strands in the panel
- Voids or honeycombed areas with exposed strands

Upon arrival on site, and prior to offloading from the truck, panels will be inspected for damage by PCL. Any panels that do not meet the required standards will be sent back to the fabricator for repair.

## 2. Installation Procedure

The deck panels are to be cast by JP Carrara & Sons, Inc. and will be trucked to the jobsite. Panels will be offloaded from trucks and set into final position. Storage of panels on site is not anticipated. Installation drawings are included for reference.

Note: Prior to installation of deck panels, polystyrene will be secured to exterior edges of girder flanges. Foamular 1000 Extruded Polystyrene (min. compressive strength = 100 PSI) and Sonneborn 200 Adhesive will be used. Survey will shoot elevations at increments called out in the Contract Drawings to determine the required heights of the polystyrene. Contract drawings are attached for reference.

## 3. Concrete Production

Concrete will be supplied by Carroll Concrete (HPC Class AA 4000 PSI Precast). The approved mix design is included for reference. Concrete will be inspected at the plant and again when it arrives on site to ensure that it meets all requirements of the specifications.

VTrans will be responsible for Quality Assurance Testing.

The Contractor will be responsible for making additional cylinders for early breaks. Cylinders will be broken by S.W. Cole Engineering, Inc.

Concrete will be placed using a pump truck and will be vibrated using pencil vibrators to ensure sound concrete throughout.

## 4. Concrete Curing

Concrete will be cured for a minimum of 3 days and until a minimum of 85% of 28 day design strength (4000 PSI x 0.85 = 3400 PSI) is achieved.

**CRANE LIFT STUDY ANALYSIS - SHORT FORM**

**Project:** Hartford Lateral Slide

**Name:** Erich Heymann

**Date/Time:** 5/1/2015

**Crane Configuration**

Model/Serial # GR-750 XL Boom Length/Type: 114.3

Maximum Capacity 75 TN Jib Length/Type: N/A

Anti-two block device: Yes X No \_\_\_\_\_ Barge/Crane List: 0

**Ground Conditions:** Nature of Soil (Soil Type) \_\_\_\_\_ Pads \_\_\_\_\_

Are the uses of crane mats, or compacted fill required? Yes \_\_\_\_\_ No X

**Calculations**

Load Description: Deck Panels Load Weight: 2,712 LBS

**Rigging:**

75 Ton Main Block = 1600 LBS

6.2 Ton Ball = 330 LBS

Main Line = 499 LBS \* Assumed 4-part

Whip Line = 21 LBS

Other Rigging: 5/8" 4-Ways = 50 LBS

1 Ton Shackles = 20 LBS \* anticipate using 8 ton shackles

D-Ring = 10 LBS

Lifting Attachments = 20 LBS

\_\_\_\_\_ = \_\_\_\_\_ LBS

\_\_\_\_\_ = \_\_\_\_\_ LBS

Total Rigging: = 2550 LBS

**Load Weight + Rigging = 5,262 LBS CSX FACTOR X 1.5 \_\_\_\_\_ lbs**

Maximum Crane Radius = 90, Associated Boom Angle = \_\_\_\_\_

**Unfactored Load 73.1% of Chart Factored CSX load \_\_\_\_\_ of Chart**

**Final Checks Prior to Start**

- Verify Gross Weight and Load Chart Capacities, (De-rated if Crane on Barge)
- Inspected Crane and Verified Components (Daily Logs and Annual Certification Checked)
- Inspected Rigging for Condition and Size
- Ground Stability. Outrigger pads/blocking sized correctly? Barge/Crane List, (Derated Chart?)
- Distance to Nearest Utility \_\_\_\_\_ (above and below ground)
- Weather and wind load considerations, checked and verified at time of lift.
- Pre-Lift Meeting and Rigging Crew, Operator, and Signal Person (Attach sign-in sheet)
- Rigging Drawings Attached
- Method of Communication, (radios, hand signals etc.) checked & verified
- Lift Abort Procedures, checked and verified. JHA/PSI conducted

**Responsible Personnel** (Print Name & Sign)

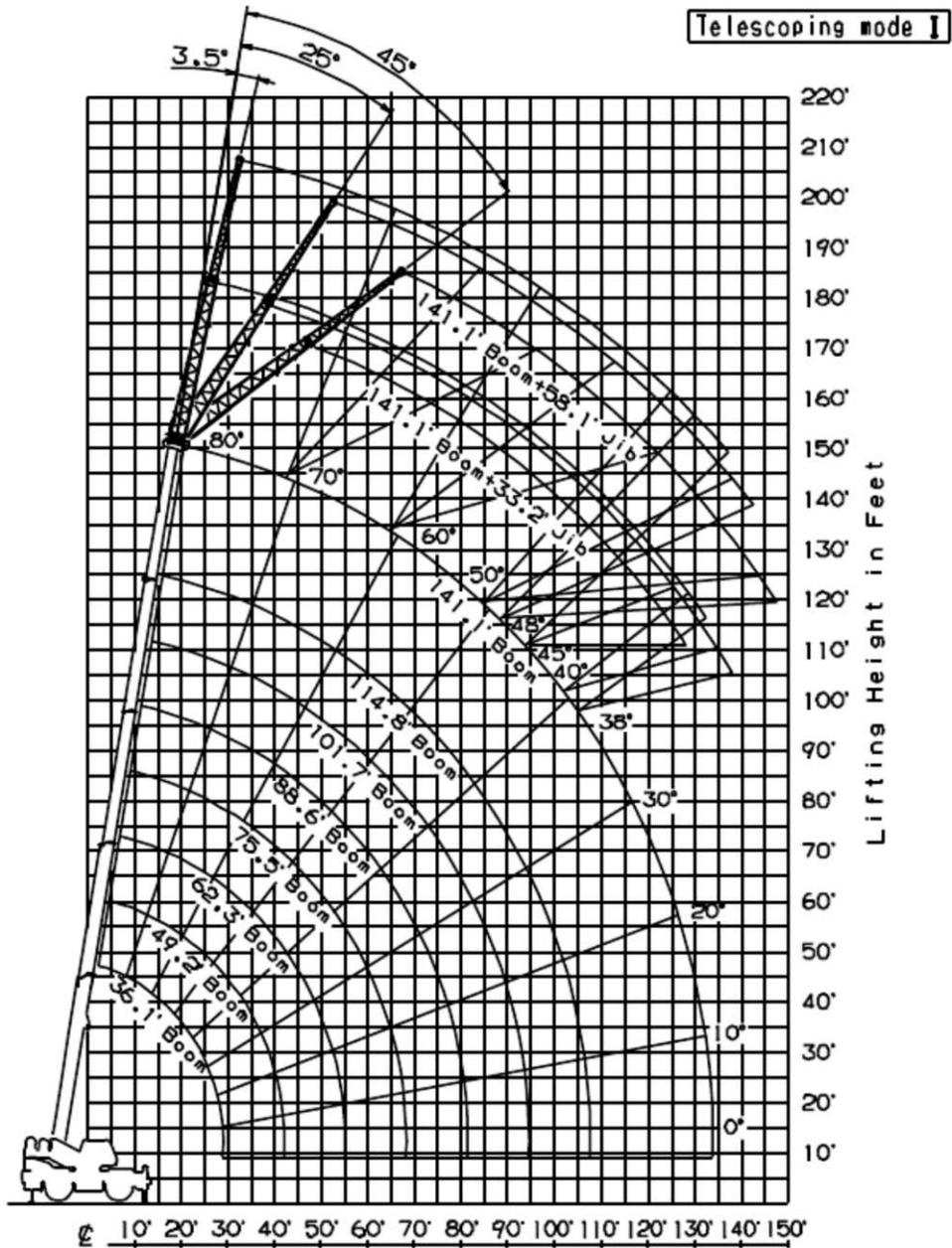
Level 1 or 2 Lift Specialist: \_\_\_\_\_

Superintendent: \_\_\_\_\_

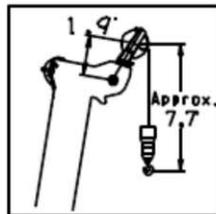
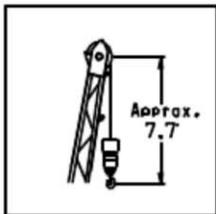
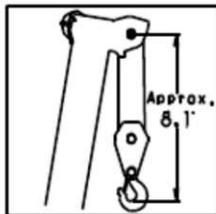
Operator: \_\_\_\_\_

# GR-750XL WORKING RANGE CHART

Telescoping mode I



Axis of Rotation  
Load Radius from Axis of Rotation in Feet

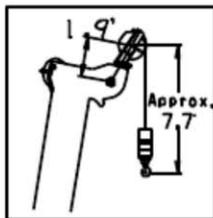
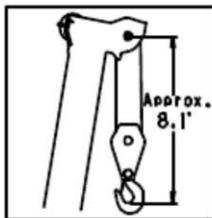
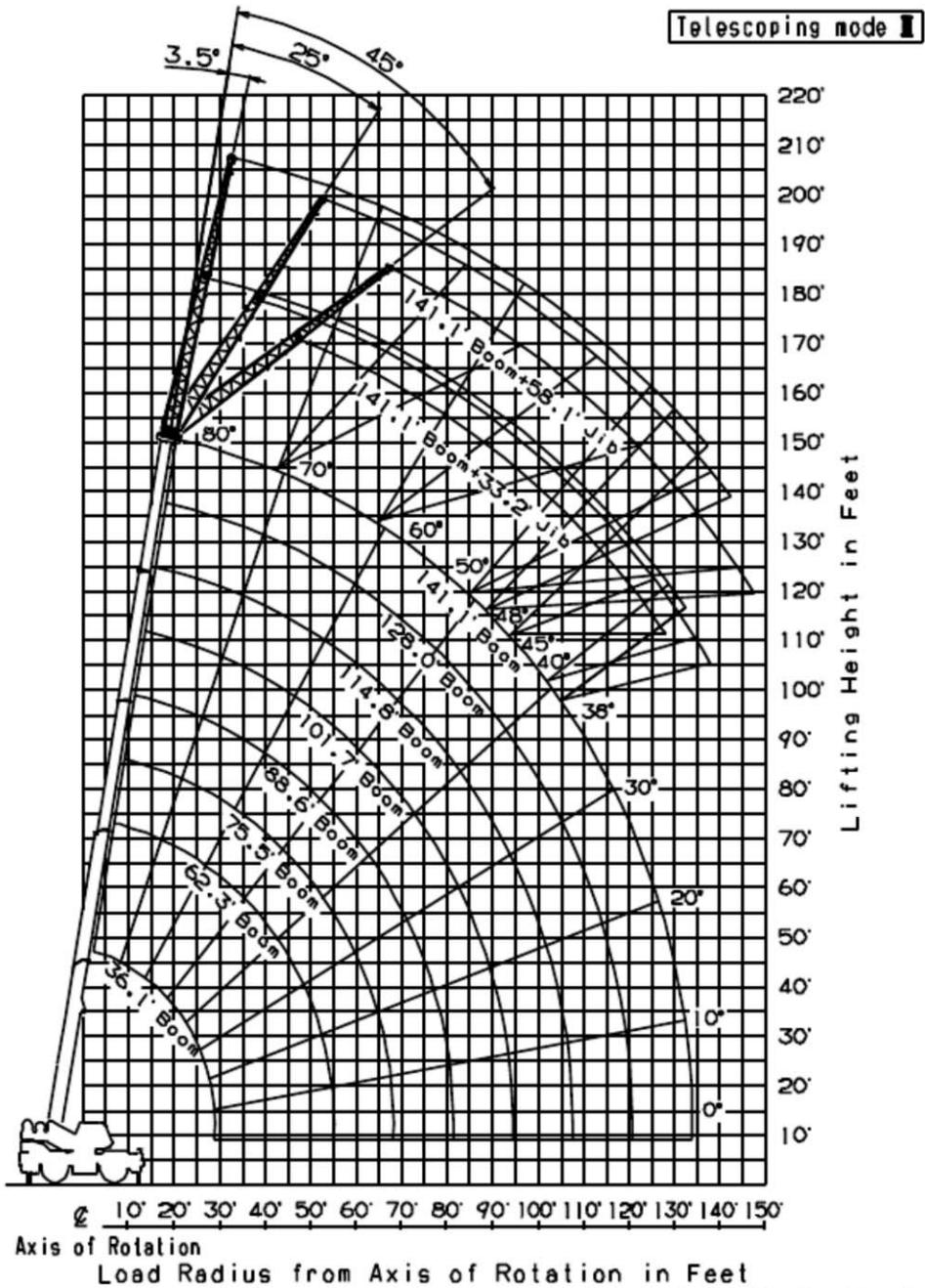


Boom Length in Feet

- 36.1' (11m)
- 49.2' (15m)
- 62.3' (19m)
- 75.5' (23m)
- 88.6' (27m)
- 101.7' (31m)
- 114.8' (35m)
- 141.1' (43m)

NOTE: 1. Boom and jib geometry shown are for unloaded condition and machine standing level on firm supporting surface. Boom deflection and subsequent radius and boom angle change must be accounted for when applying load to hook.

# GR-750XL WORKING RANGE CHART



NOTE: 1. Boom and jib geometry shown are for unloaded condition and machine standing level on firm supporting surface. Boom deflection and subsequent radius and boom angle change must be accounted for when applying load to hook.

Boom Length in Feet

36.1'	(11m)
62.3'	(19m)
75.5'	(23m)
88.6'	(27m)
101.7'	(31m)
114.8'	(35m)
128.0'	(39m)
141.1'	(43m)



**STATE OF VERMONT  
AGENCY OF TRANSPORTATION  
MATERIAL AND RESEARCH SECTION - STRUCTURAL CONCRETE UNIT**

**STRUCTURAL CONCRETE MIX DESIGN SUBMISSION**

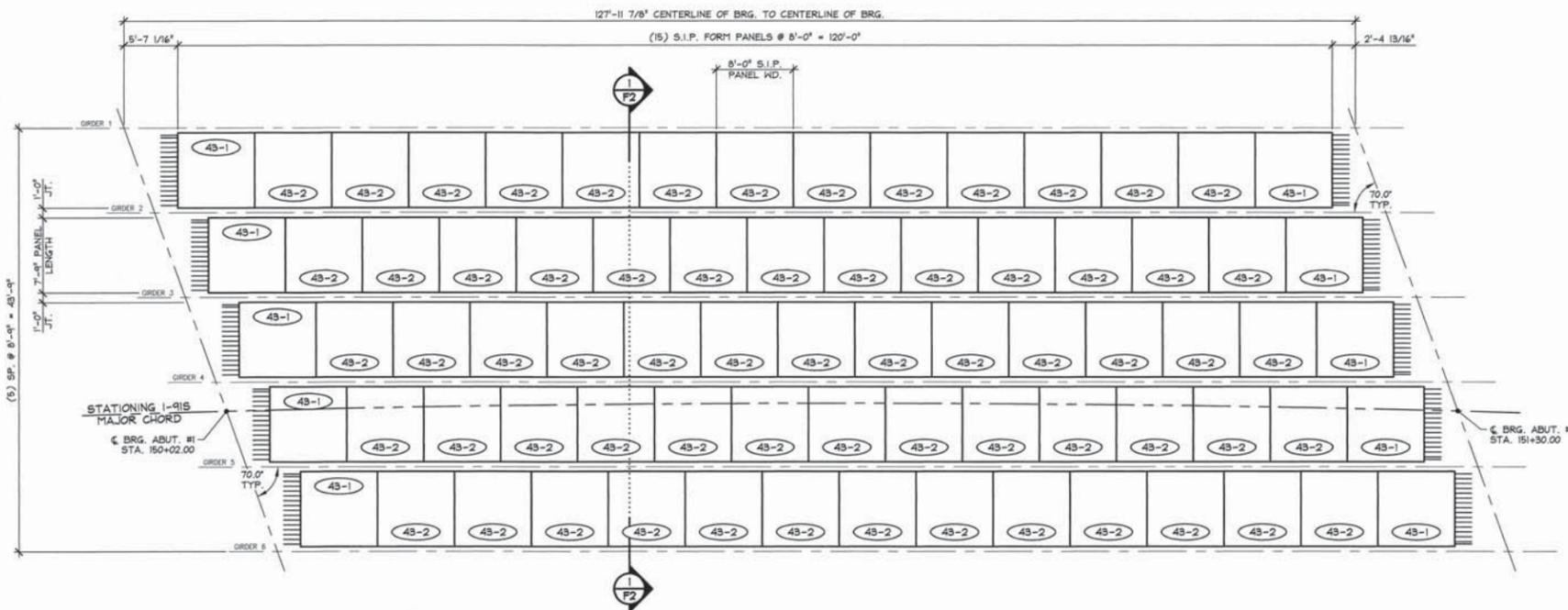
Concrete class: HPC AA  
 Additional Description \_\_\_\_\_  
 Ready Mix Supplier: CARROLL CONCRETE - W LEBANON, NH - RT 12A  
 Designed By Scott Jordan  
 Design strength \_\_\_\_\_ 4000 \_\_\_\_\_ PSI  
 Mix Design Style: Conventional  
 Agg weight - SSD or Dry: SSD

Agency Use Only	
Mix ID	HP00-AA-0
Mix Design #	
Approved by	
Approved Date	
Spec Book Year	2011

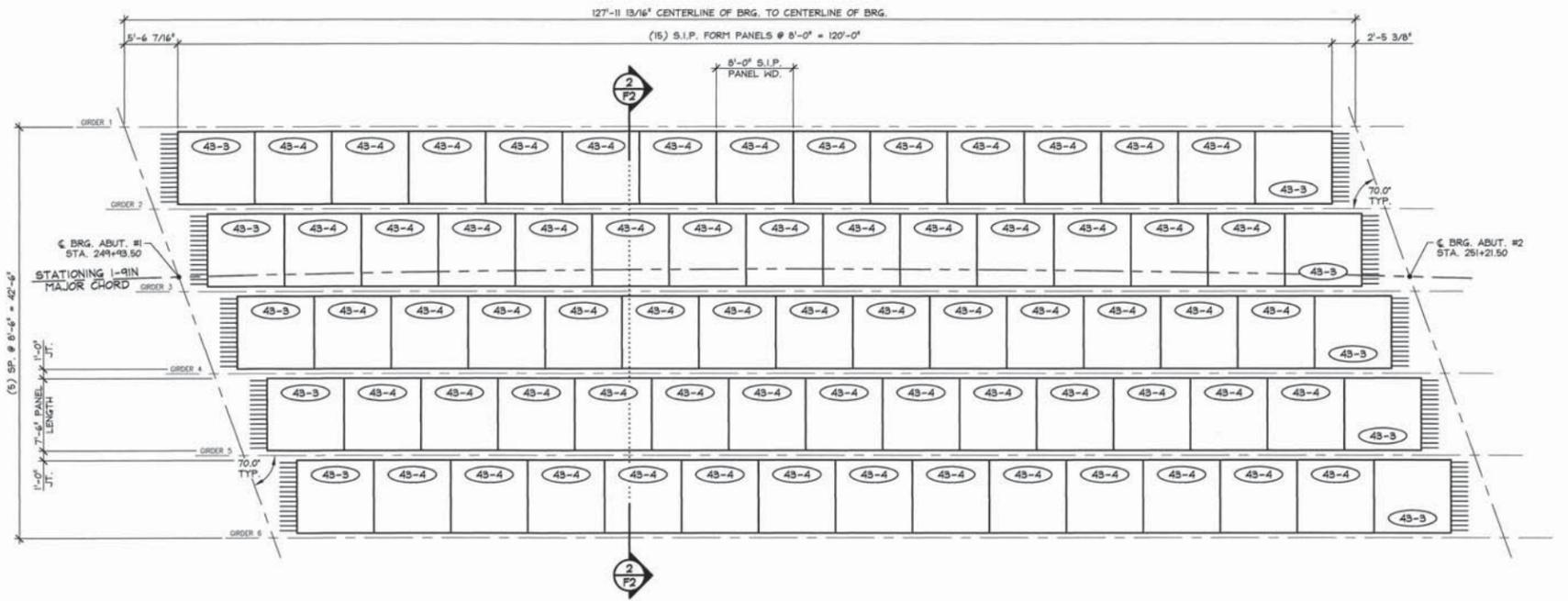
Mix designs are valid for a 12 month period from date of approval or unless there is a change in material, material property or design parameter.

<b>Cement:</b>		Specific Gravity _____	_____ lb/cy	_____ 0.00 cf
701.02	Source: _____ Brand Name: _____			
<b>Cement Type III:</b>		Specific Gravity _____	_____ lb/cy	_____ 0.00 cf
701.04	Source: _____ Brand Name: _____			
<b>Blended Cement:</b>		Specific Gravity <u>2.980</u>	<u>705</u> lb/cy	<u>3.79</u> cf
701.06	Source: <u>LAFARGE - TERCEM - MONTREAL, EAST PLANT</u> Brand Name: _____			
<b>Cement with Slag:</b>		Specific Gravity _____	_____ lb/cy	_____ 0.00 cf
701.07	Source: _____ Brand Name: _____			
<b>Pozzolan:</b>		Specific Gravity _____	_____ lb/cy	_____ 0.00 cf
725.03(a)	Source: _____ Brand Name: _____			
<b>Fly Ash:</b>		Specific Gravity _____	_____ lb/cy	_____ 0.00 cf
725.03(a)	Source: _____ Brand Name: _____			
<b>Silica Fume:</b>		Specific Gravity _____	_____ lb/cy	_____ 0.00 cf
725.03(b)	Source: _____ Brand Name: _____			
<b>Slag:</b>		Specific Gravity _____	_____ lb/cy	_____ 0.00 cf
725.03(c)	Source: _____ Brand Name: _____			
<b>Water</b>				
<b>Air Content Target</b>			<u>32</u> gals	<u>267.04</u> lb/cy
			<u>7.0</u> %	<u>4.28</u> cf
<b>Coarse Aggregate 3/8"</b>	Absorption <u>0.90</u>	Specific Gravity <u>2.880</u>	<u>1365</u> lb/cy	<u>7.60</u> cf
704.02A	Source: <u>LEBANON CRUSHED STONE - W LEBANON, NH</u>			
<b>Coarse Aggregate 3/4"</b>	Absorption _____	Specific Gravity _____	_____ lb/cy	_____ 0.00 cf
704.02B	Source: _____			
<b>Coarse Aggregate 1 1/2"</b>	Absorption _____	Specific Gravity _____	_____ lb/cy	_____ 0.00 cf
704.02C	Source: _____			
<b>Fine Aggregate:</b>	Absorption <u>1.40</u>	Specific Gravity <u>2.700</u>	<u>1590</u> lb/cy	<u>9.44</u> cf
704.01	Source: <u>LEBANON CRUSHED STONE - W LEBANON, N</u>	Fineness Modulus <u>2.78</u>		
<b>Air Entrainment Admixture</b>		Specific Gravity _____	<u>1</u> oz/cy	
725.02(b)	Source: <u>MASTER BUILDERS INC - MESQUITE, TX</u> Brand Name: <u>MasterAir AE 200/MicroAir</u>			
<b>Retarder Admixture:</b>		Specific Gravity _____	<u>0.5</u> oz/cwt	
725.02(c)	Source: <u>MASTER BUILDERS INC - MESQUITE, TX</u> Brand Name: <u>MasterSet R100</u>			
<b>High Range Water Reducer Admixture:</b>		Specific Gravity _____	<u>4</u> oz/cwt	
725.02(h)	Source: <u>MASTER BUILDERS INC - MESQUITE, TX</u> Brand Name: <u>MasterGlenium 7500</u>			
<b>Other Admixtures:</b>		Specific Gravity _____	_____ gal/cy	_____ 0.00 cf
	Source: _____ Brand Name: _____			
	Source: _____ Brand Name: _____	Specific Gravity _____	_____ oz/cwt	_____ 0.00 cf
	Source: _____ Brand Name: _____			
	Source: _____ Brand Name: _____	Specific Gravity _____	_____	_____ 0.00 cf
<b>TOTAL</b>		<u>47.560</u>	<u>3927</u> lb	<u>27.00</u> cf
Maximum Water/Cementitious Ratio		<u>0.40</u>		
Maximum Water (gal/cy)		<u>33.8</u>		
Slump Min/Max (inch)		<u>4.0</u> min	<u>7.0</u> max	
Air Content Min/Max (%)		<u>5.5</u> min	<u>8.5</u> max	
Design Unit Wt. (lb/cf)		<u>145.45</u>		

Notes:



1  
F1  
PRESTRESSED STAY-IN-PLACE FORM PANEL LAYOUT (BRIDGE 43S)  
1/8" = 1'-0"



2  
F1  
PRESTRESSED STAY-IN-PLACE FORM PANEL LAYOUT (BRIDGE 43N)  
1/8" = 1'-0"

ASTM A 955 (See 2011 General Special Provisions Section 713.01(f) for allowable UNS Designations)

**GENERAL NOTES**

- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
- MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 4,000 PSI.
- REINFORCING STEEL SHALL BE GR-60 ASTM A-615 (AASHTO-PSI), AND SHALL BE STAINLESS STEEL.
- PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M203M), AND SHALL CONSIST OF 3/8" x 270 KSI 7 WIRE LOW RELAXATION STRANDS.
- PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 17.2 K (U.N.O.) AFTER ACCOUNTING FOR CHUCK SLIPPAGE. TENSION SHALL BE VERIFIED BY MEASURING STRAND ELONGATION, (SEE EXAMPLE ELONGATION CALCULATION AND TENSIONING PROCEDURE, THIS SHEET).
- ENDS OF PRESTRESSING STRANDS SHALL PROJECT 6" MIN. FROM EACH END OF PANEL.
- THE TOPS OF THE PANELS SHALL BE BROOMED TO A SURFACE ROUGHNESS OF 1/16" (U.N.O.) (BROOM DIRECTION PARALLEL TO STRANDS).
- PANELS SHALL BE HANDLED AND ERECTED USING THE LIFTING INSERTS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. PANELS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS WITHIN 2'-0" OF THE PANEL ENDS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
- DESIGN MIX: J.P.C. BRIDGE MIX #425M (NO DCI)
- QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS, CONTRACT DOCUMENTS & SPECIFICATIONS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
- THE ENGINEER WILL BE NOTIFIED AT LEAST 14 DAYS PRIOR TO THE SCHEDULED START OF CASTING AND AT LEAST 2 DAYS BEFORE THE ACTUAL WORK BEGINS.
- CURING METHOD: AS SOON AS THE TOP OF THE PANEL IS FINISHED A COVER OF POLY AND A LAYER OF HOMOSOTE, (OR BLUEBOARD) WILL BE PLACED OVER THE PANEL IN A MANNER THAT WILL NOT DISTURB THE BROOM FINISH. THE DESIRED CURING TEMPERATURE RANGE SHALL NOT DROP BELOW 70°F. THE TEMPERATURE SHALL BE RECORDED BY AUTOMATIC SENSOR INSTRUMENTS ON GRAPH CHARTS SPACED NOT MORE THAN 50 FEET APART & WILL CONTINUE UNTIL RELEASE STRENGTH IS ACHIEVED (NATURAL CURE WITH NO EXTERNAL HEAT APPLIED). EACH CHART SHALL BE MARKED AND GIVEN TO THE INSPECTOR (IF APPLICABLE).
- THE DRILLING OF HOLES OR USE OF POWER ACTUATED TOOLS ON PANELS SHALL NOT BE PERMITTED.
- THE PANELS SHALL BE ORIENTED AND ERECTED WITH THE MARK-END AS SHOWN ON PLANS.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR FORMING THE END OF THE DECK SLAB PRIOR TO CASTING DECK.

**EXAMPLE PRESTRESSING STRAND ELONGATION CALC. AND TENSIONING**  
(NOT TO BE USED FOR CONSTRUCTION)

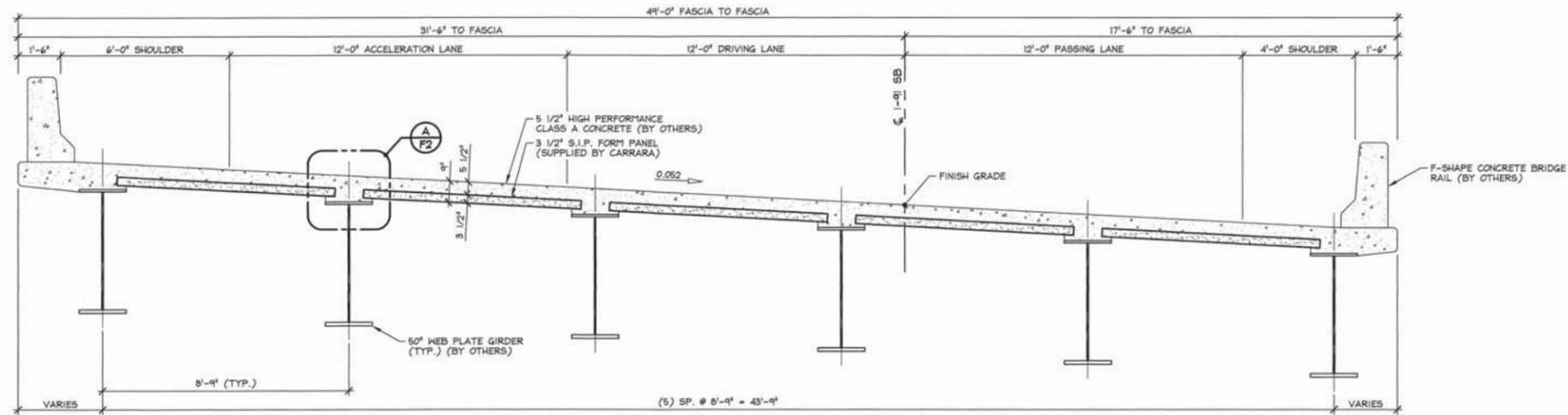
SIZE & GRADE: 3/8" x 270 KSI  
 AREA: 0.085 IN<sup>2</sup>  
 TENSION: 17,200 LBS. EACH STRAND  
 GRIP TO GRIP: 120'-6" = 120.5'  
 E<sub>s</sub> = 29,600,000 PSI (ASSUMED FOR THESE CALCULATIONS; VALUE TO BE OBTAINED FOR STRAND SPOOL ACTUALLY USED)  
 EXAMPLE:  $\Delta = \frac{PL}{AE} = \frac{(17,200 \times 3,000) \times 120.5 \times 12}{0.085 \times 29,600,000} = 8.45'$   
 THEREFORE: TOLERANCES: ± 5%  
 Δ UPPER LIMIT = 1.05 x 8.45' = 8.87' = 8 7/8"  
 Δ LOWER LIMIT = 0.95 x 8.45' = 8.03' = 8"  
 EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE:  
 Δ P =  $\frac{0.5 \times 14,200}{8.45} = 840$  LBS.  
 TOTAL TENSIONING FORCE = 17,200 + 840 = 18,040 LBS.

**STRAND TENSIONING PROCEDURE:**

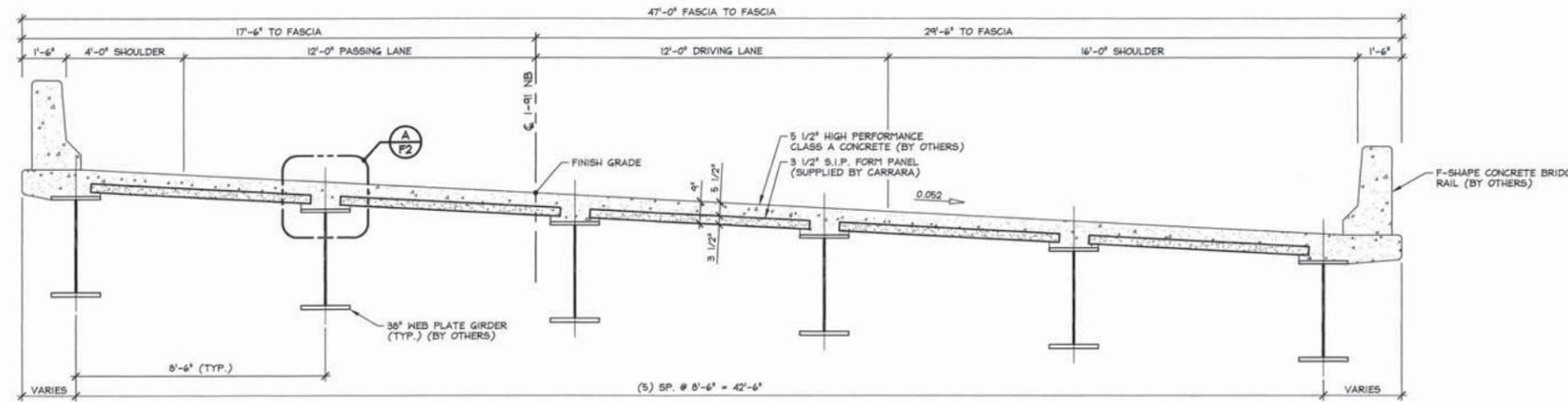
- PULL EACH STRAND INITIALLY TO 3,000 LBS. AND MARK STRAND.
  - THEN PULL EACH STRAND TO A TOTAL TENSION OF 18,040 LBS. AND MEASURE ELONGATION AFTER SEATING. IT MUST BE BETWEEN 8" AND 8 7/8".
- \*NOTE: FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED.

APPROVAL STAMP:  
 Vermont Agency of Transportation  
**RECEIVED**  
 CK'D BY RK OK'D BY WL  
 January 23, 2015  
 RESUBMIT NO Approved AsNoted  
 BY KH DATE 2-18-2015

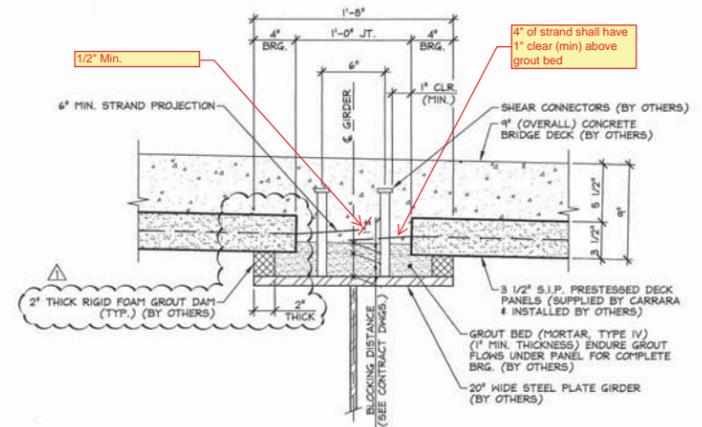
J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 1044 ODE ST., WOODBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010		PCL CONSTRUCTION CONTRACTOR TAMPA, FLORIDA	
STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF WINDSOR		DATE: JAN. 20, 2015	SCALE: NOTED
TOWN OF HARTFORD INTERSTATE 91 EXIT II BRIDGE NO.: 43 N/S PROJECT NO.: IM 091-2(79)		CHKD: -	DTM: B.L.
SUPERSTRUCTURE PLANS		JOB NO: 23455-015	DWG. NO: F1



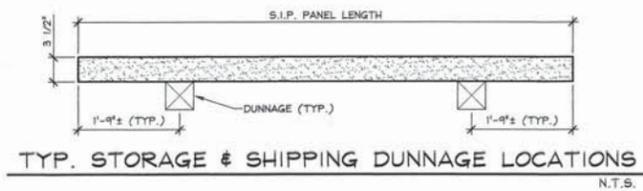
1 TRANSVERSE SECTION (BRIDGE 43S)  
 F2 3/8" = 1'-0"



2 TRANSVERSE SECTION (BRIDGE 43N)  
 F2 3/8" = 1'-0"



A SECTION  
 F2 1/2" = 1'-0"

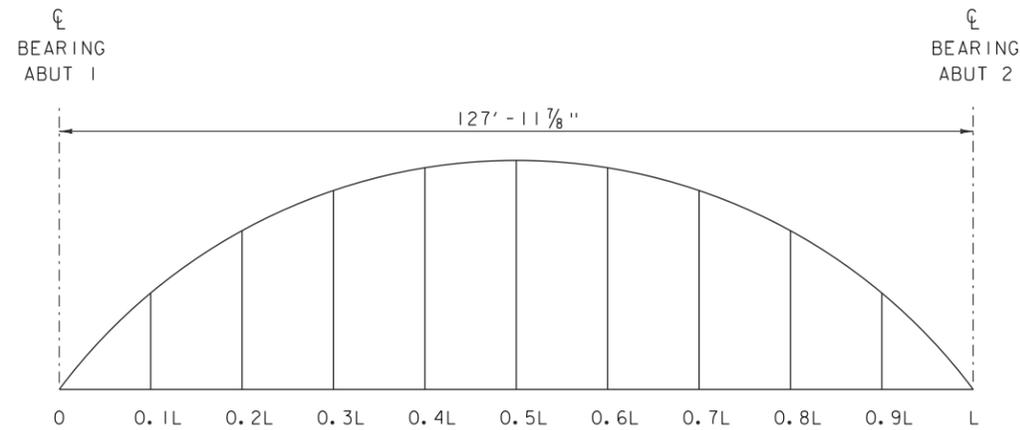


1-23-15 REVISED AS NOTED

APPROVAL STAMP:  
 Vermont Agency of Transportation  
**RECEIVED**  
 CK'D BY RK OK'D BY WL  
 January 23, 2015  
 RESUBMIT NO Approved AsNoted  
 BY KH DATE 2-18-2015

<b>J.P. CARRARA &amp; SONS INC.</b> Precast & Prestress Manufacturer <small>244 ONE STR. WOODBURY, VERMONT 05733 Phone: (802)388-6361 Fax: (802)388-9010</small>		PCL CONSTRUCTION CONTRACTOR TAMPA, FLORIDA
STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF WINDSOR		DATE: JAN. 20, 2015 SCALE: NOTED
TOWN OF HARTFORD INTERSTATE 91 EXIT 11 BRIDGE NO.: 43 N/S PROJECT NO.: 1M 091-2(79)		CHKD: - DFTM: B.L. JOB NO: 23455-015
<b>SUPERSTRUCTURE SECTIONS &amp; DETAILS</b>		DWG. NO: <b>F2</b>

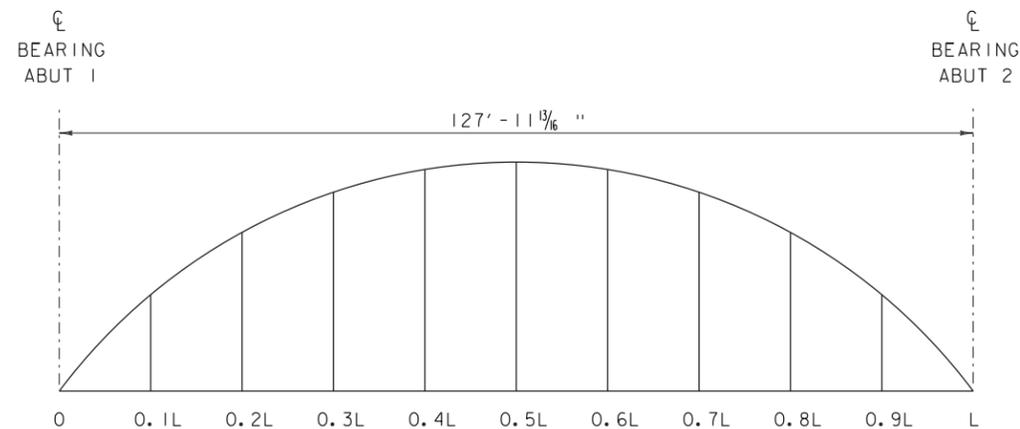




**BRIDGE 43S CAMBER DIAGRAM**  
NOT TO SCALE

	0	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	L
Steel Deflection	0	9/16	1 1/8	1 1/2	1 13/16	1 7/8	1 13/16	1 1/2	1 1/8	9/16	0
Precast Deck Panel Deflection	0	9/16	1 1/16	1 1/2	1 3/4	1 13/16	1 3/4	1 1/2	1 1/16	9/16	0
Cast-in-Place Slab Deflection	0	1 1/8	2 1/8	2 15/16	3 3/8	3 9/16	3 3/8	2 15/16	2 1/8	1 1/8	0
Superimposed Deflection	0	3/16	3/8	1/2	5/8	5/8	5/8	1/2	3/8	3/16	0
Total Slab & Super Deflection	0	1 5/16	2 1/2	3 7/16	4	4 3/16	4	3 7/16	2 1/2	1 5/16	0
Total Panel, Slab & Super Deflection	0	1 7/8	3 9/16	4 15/16	5 3/4	6	5 3/4	4 15/16	3 9/16	1 7/8	0
Total Deflection	0	2 7/16	4 11/16	6 7/16	7 9/16	7 7/8	7 9/16	6 7/16	4 11/16	2 7/16	0
Residual Camber	0	9/16	1	1 5/16	1 9/16	1 5/8	1 9/16	1 5/16	1	9/16	0
Total Camber	0	3	5 11/16	7 3/4	9 1/8	9 1/2	9 1/8	7 3/4	5 11/16	3	0

**BRIDGE 43S  
CAMBER AND DEFLECTION**  
(INCHES)

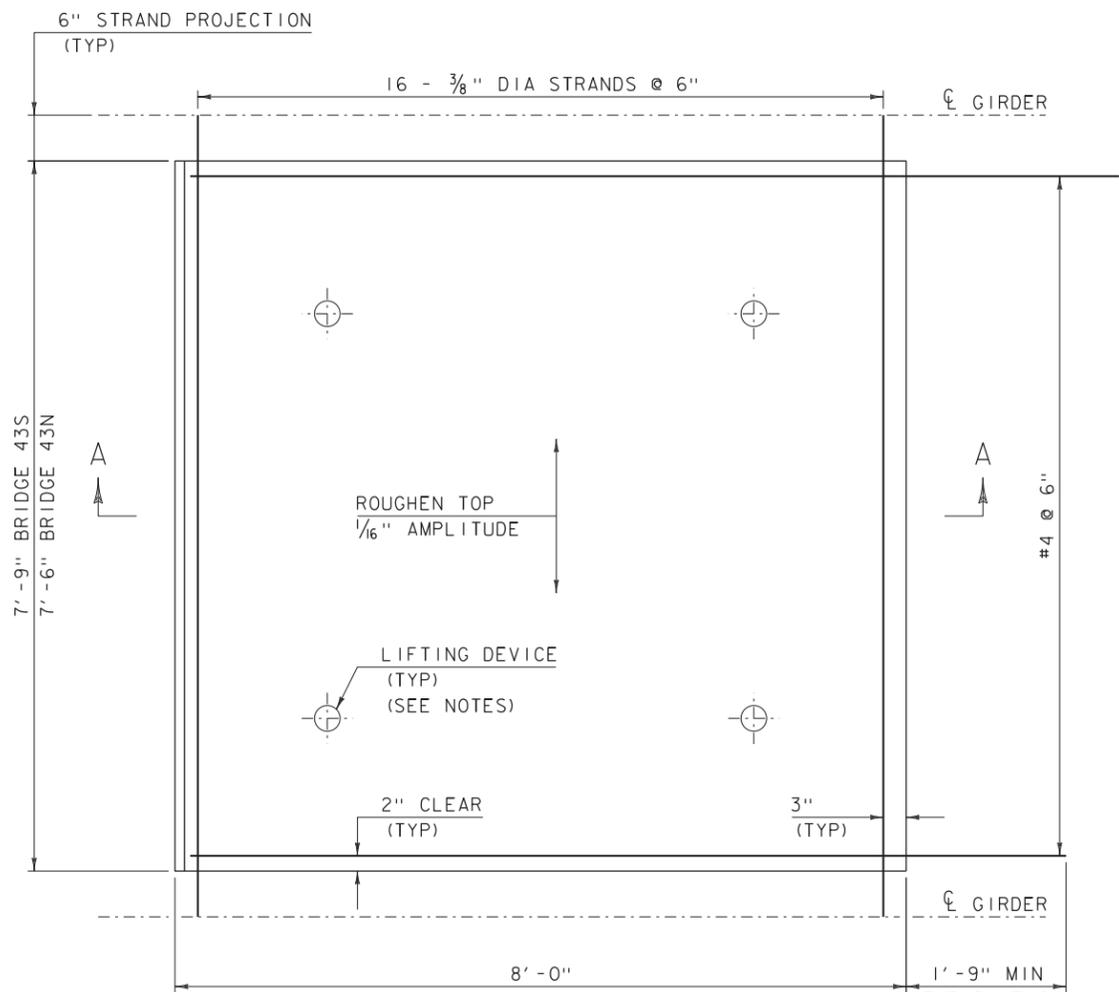


**BRIDGE 43N CAMBER DIAGRAM**  
NOT TO SCALE

	0	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	L
Steel Deflection	0	7/8	1 5/8	2 1/4	2 5/8	2 3/4	2 5/8	2 1/4	1 5/8	7/8	0
Precast Deck Panel Deflection	0	7/8	1 5/8	2 1/4	2 5/8	2 3/4	2 5/8	2 1/4	1 5/8	7/8	0
Cast-in-Place Slab Deflection	0	1 11/16	3 3/16	4 3/8	5 1/8	5 3/8	5 1/8	4 3/8	3 3/16	1 11/16	0
Superimposed Deflection	0	5/16	9/16	13/16	1 5/16	1	15/16	13/16	9/16	5/16	0
Total Slab & Super Deflection	0	2	3 3/4	5 3/16	6 1/16	6 3/8	6 1/16	5 3/16	3 3/4	2	0
Total Panel, Slab & Super Deflection	0	2 7/8	5 3/8	7 7/16	8 11/16	9 1/8	8 11/16	7 7/16	5 3/8	2 7/8	0
Total Deflection	0	3 3/4	7	9 11/16	11 5/16	11 7/8	11 5/16	9 11/16	7	3 3/4	0
Residual Camber	0	9/16	1	1 5/16	1 9/16	1 5/8	1 9/16	1 5/16	1	9/16	0
Total Camber	0	4 5/16	8	11	12 7/8	13 1/2	12 7/8	11	8	4 5/16	0

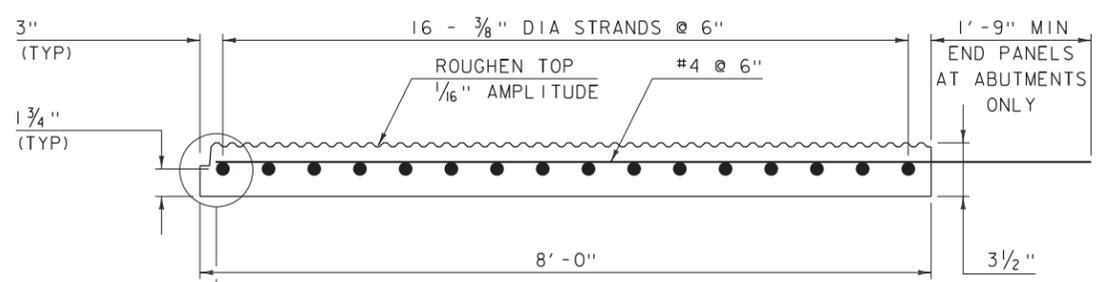
**BRIDGE 43N  
CAMBER AND DEFLECTION**  
(INCHES)

PROJECT NAME: HARTFORD	PLOT DATE: 16-DEC-2014
PROJECT NUMBER: IM 091-2(79)	DRAWN BY: K. FRIEDLAND
FILE NAME: sl2al32cam.dgn	CHECKED BY: W. LAMMER
PROJECT LEADER: K. HIGGINS	SHEET 89 OF 166
DESIGNED BY: R. KLINEFELTER	
CAMBER & DEFLECTION	



**PRECAST PRESTRESSED  
CONCRETE DECK PANEL PLAN**

SCALE 1"=1'-0"



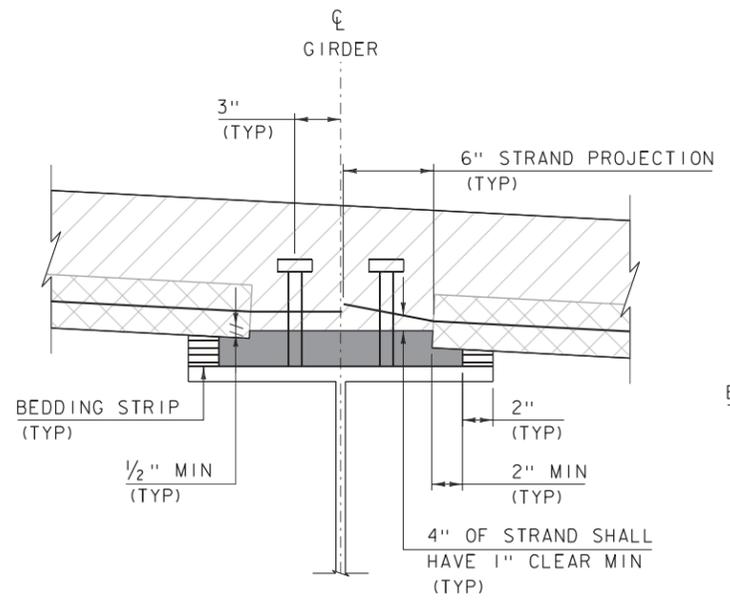
**SECTION A-A**

HOR. SCALE 1"=1'-0"  
VER. SCALE 2"=1'-0"

SEE TRANSVERSE  
NOTCH DETAIL  
(SEE NOTES)

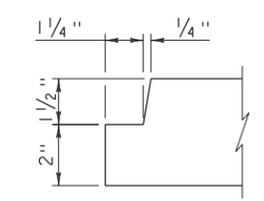
**NOTES:**

- 1) LIFTING DEVICE SHALL BE DESIGNED BY THE FABRICATOR.
- 2) SHEAR CONNECTORS AND STRANDS PROJECTING FROM PANELS SHALL BE CLEANED OF ANY EXCESS MORTAR AFTER GROUT BED PLACEMENT.
- 3) STRANDS PROJECTING FROM PANELS SHALL BE SECURED IN PLACE DURING DECK CONCRETE PLACEMENT.
- 4) OMIT TRANSVERSE NOTCH ON END PANELS AT ABUTMENTS.



**HAUNCH DETAIL**

SCALE 2"=1'-0"

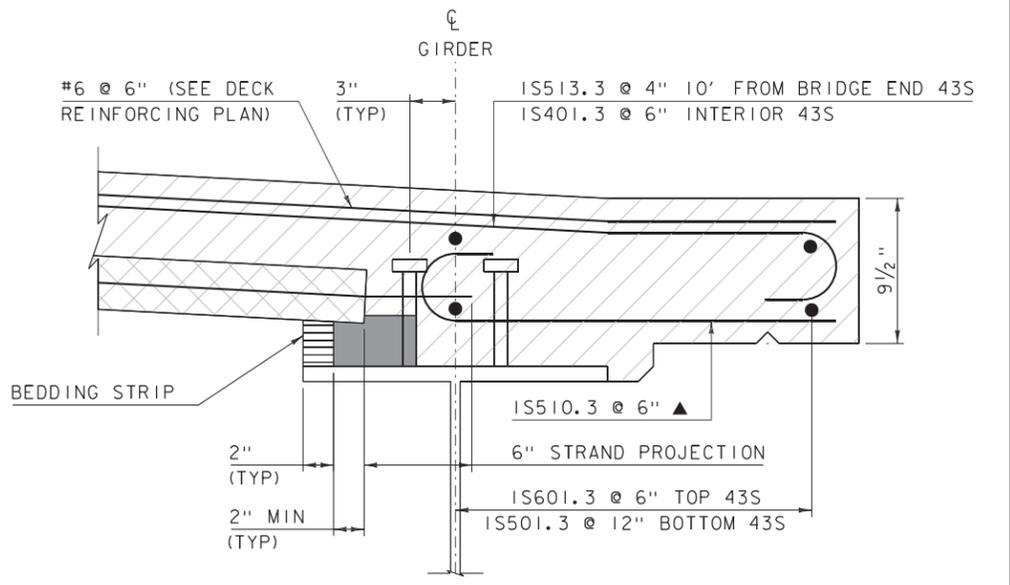


**TRANSVERSE  
NOTCH DETAIL**

SCALE 4"=1'-0"

**NOTE:**

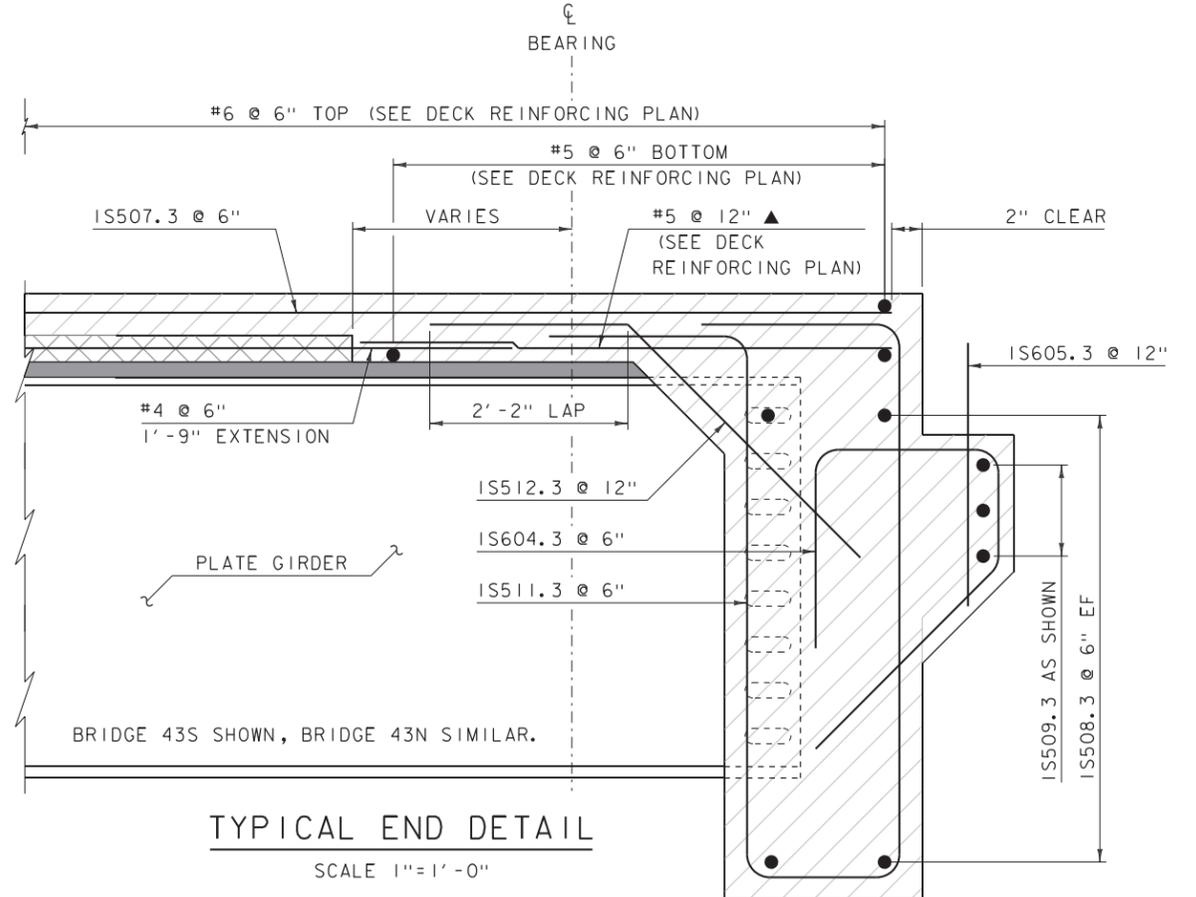
- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- ▲ = CUT TO FIT IN FIELD
- 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.



**TYPICAL OVERHANG**

SCALE 2"=1'-0"

BRIDGE 43S SHOWN, BRIDGE 43N SIMILAR.



**TYPICAL END DETAIL**

SCALE 1"=1'-0"

BRIDGE 43S SHOWN, BRIDGE 43N SIMILAR.

**LEGEND**

- CONCRETE, HPC CLASS A
- PRECAST PRESTRESSED CONCRETE DECK PANEL
- MORTAR, TYPE IV

PROJECT NAME:	HARTFORD	FILE NAME:	sl2al32sup43S.dgn	PLOT DATE:	15-DEC-2014
PROJECT NUMBER:	IM 091-2(79)	PROJECT LEADER:	K. HIGGINS	DRAWN BY:	K. FRIEDLAND
		DESIGNED BY:	R. KLINEFELTER	CHECKED BY:	W. LAMMER
		SUPERSTRUCTURE DETAILS		SHEET	92 OF 166

# SONNEBORN® 200 ADHESIVE

Rubber-based panel and foam adhesive

PRODUCT DATA

7 07200

**Thermal Protection**

## Description

Sonneborn® 200 Adhesive is a ready-to-use multi-purpose synthetic-rubber-based adhesive for bonding foam insulation and other wall panels to various structurally sound substrates. It remains flexible for low-temperature installations and provides fast initial bond strength.

## Yield

APPLIED AT 1/4" (6 MM) BEAD SIZE:  
30 lineal ft (9 m) / 300 ml cartridge  
83 lineal ft (25 m) / 825 ml cartridge

## Packaging

300 ml cartridges, 24 cartridges per carton  
825 ml cartridges, 12 cartridges per carton

## Color

Tan

## Shelf Life

1 year

## Storage

Store in unopened containers in a cool, dry area out of direct sunlight. Sonneborn® 200 Adhesive remains flexible even when stored at freezing temperatures.

## Features

- Does not attack foam
- Flexible at wide temperature range
- Multi-purpose
- Easy pumpability
- Nonfreezing

## Benefits

- Will not decrease insulation values
- Excellent for low-temperature installations
- Can be used as a general-purpose construction adhesive
- Provides fast, easy installation
- Requires no special storage requirements

## Where to Use

### APPLICATION

- Bonding most foam insulation to itself or to structurally sound surfaces such as concrete, masonry, wood and metal
- Composition board, asbestos cement, and gypsum board
- Bonding gypsum wallboard or paneling to studs or furring strips

### LOCATION

- Above grade
- Interior and exterior

## How to Apply

### Surface Preparation

Surfaces must be structurally sound, dry, clean, and free from all loose materials, oil, and grease.

### Application

#### FOAM INSULATION INSTALLATIONS

1. Remove excess mortar and any other projections to provide a generally flat surface.
2. Apply Sonneborn® 200 Adhesive to back side of prefitted foam. Use a 1/4" (6 mm) minimum bead with polystyrene foam and a 3/8" (10 mm) bead with other foams. Apply adhesive around entire outer areas, approximately 2" (51 mm) from edge, and run a bead from top to bottom on the left and right sides, both about 18" (0.46 m) in from the edge.

3. Position foam immediately, pressing firmly over entire area to ensure complete adhesive transfer. Most applications require temporary mechanical fasteners.

4. Allow to dry a minimum of 72 hours before covering with other materials.

#### PANEL INSTALLATIONS

1. Apply a continuous bead to all furring strips, studs, and top and bottom plates.
2. Position prefitted panels and fasten with finishing nails top and bottom to ensure proper alignment. Continue this procedure until finished.
3. If installing panels to drywall, apply adhesive in a zig-zag pattern within 1-1/2" (38 mm) of vertical edges on each side and 2 vertical beads in the panel center, 16" (0.41 m) apart. Position panel immediately, pressing firmly over entire area to ensure complete adhesive transfer. Use finishing nails top and bottom to help bonding.

#### BONDING FOAM TO CEILINGS AND WALLS

1. At least 3 mechanical fasteners per 8 ft (2.44 m) board must be used.
2. Space 1 fastener 12" (0.31 m) from ends of the board and 1 in center of the board.

### Clean Up

Remove excess adhesive with mineral spirits or naphtha.



## Technical Data

### Composition

Sonneborn® 200 Adhesive is a solvent-borne synthetic rubber.

### Typical Properties

PROPERTY	VALUE	PROPERTY	VALUE
<b>Base</b>	Synthetic rubber resin	<b>Application temperature, ° F (° C)</b>	35 – 120 (2 – 49)
<b>Viscosity</b>	Trowelable mastic	<b>Service temperature, ° F (° C)</b>	Up to 150 (66)
<b>Application</b>	Caulking gun	<b>Flash point, ° F (° C)</b>	0 (-18)
<b>Open time, min</b>	Up to 20, depending on temperature and humidity		

### For Best Performance

- Keep away from heat and open flame.
- When Sonneborn® 200 Adhesive is applied in or near areas containing foodstuffs, remove them before application and do not return them until all solvent vapors have dissipated.
- Solvent vapors can be objectionable to people unaccustomed to the odor; consult with building management before applying Sonneborn® 200 Adhesive in or around buildings occupied by nonconstruction personnel.
- Make certain the most current versions of product data sheet and MSDS are being used; call Customer Service (1-800-433-9517) to verify the most current versions.
- Proper application is the responsibility of the user. Field visits by Degussa personnel are for the purpose of making technical recommendations only and not for supervising or providing quality control on the jobsite.

### Health and Safety

SONNEBORN® 200 ADHESIVE

#### Danger

Sonneborn® 200 Adhesive contains petroleum hydrocarbon, silicon dioxide, n-hexane, calcium carbonate, and magnesium carbonate.

### Risks

Flammable liquid and vapor. May cause skin and eye irritation. Inhalation of vapors may cause irritation and intoxication with headaches, dizziness and nausea. Contains n-Hexane which can cause peripheral polyneuropathy and central nerve damage. Reports associate repeated or prolonged occupational overexposure to solvents with permanent brain, nervous system, liver and kidney damage. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

### Precautions

KEEP OUT OF REACH OF CHILDREN. KEEP AWAY FROM HEAT, FLAME, AND SOURCES OF IGNITION. Keep container closed when not in use. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. DO NOT take internally. Avoid breathing vapors. Use impervious gloves, eye protection and if the TLV is exceeded or product is used in a poorly ventilated area, use NIOSH/ MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. DO NOT cut or weld on or near empty container. Empty container may contain explosive vapors or hazardous residues. All label warnings must be observed until container is commercially cleaned or reconditioned.

### First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

### Proposition 65

This product contains materials known to the state of California to cause cancer, birth defects, or other reproductive harm.

### VOC Content

2.31 lbs/gal or 277 g/L, less water and exempt solvents.

**For medical emergencies only,  
call ChemTrec (1-800-424-9300).**

### Degussa Building Systems

889 Valley Park Drive  
Shakopee, MN, 55379

www.degussabuildingsystems.com

Customer Service 800-433-9517

Technical Service 800-243-6739

LIMITED WARRANTY NOTICE Every reasonable effort is made to apply Degussa exacting standards both in the manufacture of our products and in the information which we issue concerning these products and their use. We warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products, but also upon many factors beyond our control. Therefore, except for such replacement or refund, Degussa MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and Degussa shall have no other liability with respect thereto. Any claim regarding product defect must be received in writing within one (1) year from the date of shipment. No claim will be considered without such written notice or after the specified time interval. User shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith. Any authorized change in the printed recommendations concerning the use of our products must bear the signature of the Degussa Technical Manager.

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Form No. 1017971 9/03 (Replaces 1/02)  
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# FOAMULAR® 400/600/1000 Extruded Polystyrene (XPS) Rigid Foam Insulation

## Product Data Sheet



### Energy-Saving<sup>1</sup>, Moisture-Resistant XPS Insulation

#### High Compressive Strength

FOAMULAR® 400 XPS  
Insulation: ASTM C578 Type VI,  
40 psi minimum

FOAMULAR® 600 XPS  
Insulation: ASTM C578 Type VII,  
60 psi minimum

FOAMULAR® 1000 XPS  
Insulation: ASTM C578 Type V,  
100 psi minimum

### Description

Owens Corning™ FOAMULAR® 400, 600 and 1000 are high strength Extruded Polystyrene (XPS) Insulation products designed for use in engineered applications requiring additional load-bearing capability such as under slab, concrete floors, foundations, roadways and rail beds, plaza and parking decks and cold storage installations.

The unique closed-cell structure of FOAMULAR® XPS Insulation helps to make it highly resistant to moisture, retaining its excellent

R-value year after year—even following prolonged exposure to moisture and freeze/thaw cycling.

### Key Features

- Designed for use in high load bearing applications. High compressive strength helps resist damage from heavy loads. Available in 40, 60 and 100 psi compressive strengths.
- Excellent long-term stable insulating performance with an R-value<sup>2</sup> of R-5 per inch.
- Exceptional moisture resistance, long-term durability.
- Limited lifetime warranty<sup>3</sup>—maintains 90% of R-value and covers all ASTM C578 properties.
- GREENGUARD Gold Certified.
- The only XPS foam with certified recycled content—certified by SCS Global Services to contain a minimum 20% recycled content.
- Will not corrode, rot or support mold growth.
- Zero ozone depletion potential with 70% less global warming potential than our previous formula.
- Reusable
- Lightweight, durable rigid foam panels are easy to handle and install.
- Easy to saw, cut or score.

### Product Applications

- Owens Corning FOAMULAR® 400, 600, and 1000 Extruded Polystyrene (XPS) Rigid Foam Insulation are great for under slab, cold storage installations, concrete floors, foundations, plaza and parking decks, roofing, roadways and rail beds, permafrost protection and other high load-bearing applications
- Designed for use in high load bearing applications. High compressive strength resists damage from heavy loads. Available in 40, 60, and 100 psi compressive strengths

### Technical Information

This product is combustible. A protective barrier or thermal barrier is required as specified in the appropriate building code. For additional information, consult MSDS or contact Owens Corning World Headquarters at 1-800-GET-PINK®.

All construction should be evaluated for the necessity to provide vapor retarders. See current ASHRAE Handbook of Fundamentals.

FOAMULAR® XPS Insulation is a non-structural material and must be installed on framing which is independently braced and structurally adequate to meet required construction and service loading conditions.

FOAMULAR® XPS Insulation can be exposed to the exterior during normal construction cycles. During that time some fading of color may begin due to UV exposure, and, if exposed for extended periods of time, some

<sup>1</sup> Savings vary. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.

<sup>2</sup> R means the resistance to heat flow; the higher the R-value, the greater the insulating power.

<sup>3</sup> See actual warranty for complete details, limitations and requirements.



# FOAMULAR® 400/600/1000

## Extruded Polystyrene (XPS) Rigid Foam Insulation

### Product Data Sheet

degradation or “dusting” of the polystyrene surface may begin. It is best if the product is covered within 60 days to minimize degradation. Once covered, the deterioration stops, and damage is limited to the thin top surface layers of cells. Cells below are generally unharmed and still useful insulation.

FOAMULAR® Extruded Polystyrene Insulation has a maximum service temperature of 165°F. Taking simple precautions during construction can minimize the potential for heat related damage. Install only as much FOAMULAR® XPS Insulation as can be covered in the same day. For horizontal applications, always turn the print side down so the black print does not show to the sun which may at times act as a solar collector, raising the temperature of the foam under the print to an unacceptable level. Provide a final finish covering or temporary white opaque covering to avoid possible damage when dark (non-white) surfaces are used over FOAMULAR® XPS Insulation. Do not cover FOAMULAR® XPS Insulation either stored (factory wrapped or unwrapped), or partially installed, with dark colored (non-white), or clear (non-opaque) coverings and leave it exposed to the sun. Examples of such coverings include but are not limited to filter fabrics, membranes, temporary tarps, clear polyethylene, etc. If improperly covered, and exposed to the right combination of sun, time and temperature, FOAMULAR® XPS Insulation deformation damage may occur rapidly. See

### Typical Physical Properties<sup>1</sup>

FOAMULAR® 400/600/1000 Extruded Polystyrene (XPS) Rigid Foam Insulation

Property	Test Method <sup>2</sup>	FOAMULAR® Insulation		
		400	600	1000
<b>Thermal Resistance<sup>3</sup>, R-Value (180 day) minimum,</b> hr•ft <sup>2</sup> •°F/Btu (RSI, °C•m <sup>2</sup> /W) @ 75°F (24°C) mean temperature	ASTM C518			
1" Thickness		5.0 (0.88)	5.0 (0.88)	—
1½" Thickness		—	7.5 (1.32)	7.5 (1.32)
2" Thickness		10.0 (1.76)	10.0 (1.76)	10.0 (1.76)
3" Thickness		15.0 (2.64)	15.0 (2.64)	15.0 (2.64)
@ 40°F (4.4°C) mean temperature				
1" Thickness		5.4 (0.95)	5.4 (0.95)	—
1½" Thickness		—	8.1 (1.43)	8.1 (1.43)
2" Thickness		10.8 (1.90)	10.8 (1.90)	10.8 (1.90)
3" Thickness		16.2 (2.85)	16.2 (2.85)	16.2 (2.85)
<b>Long Term Thermal Resistance, LTTR-Value<sup>3</sup>, minimum</b> hr•ft <sup>2</sup> •°F/Btu (RSI, °C•m <sup>2</sup> /W) @ 75°F (24°C) mean temperature	CAN/ULC S770-03			
1" Thickness		5.0 (0.88)	5.0 (0.88)	—
1½" Thickness		—	7.8 (1.37)	7.8 (1.37)
2" Thickness		10.6 (1.87)	10.6 (1.87)	10.6 (1.87)
3" Thickness		16.2 (2.85)	16.2 (2.85)	16.2 (2.85)
<b>Compressive Strength<sup>4</sup>, minimum psi (kPa)</b>	ASTM D1621	40 (276)	60 (414)	100 (689)
<b>Flexural Strength<sup>5</sup>, minimum psi (kPa)</b>	ASTM C203	115 (793)	140 (965)	140 (965)
<b>Water Absorption<sup>6</sup>, maximum % by volume</b>	ASTM C272	0.05	0.05	0.05
<b>Water Vapor Permeance<sup>7</sup>, maximum perm (ng/Pa•s•m<sup>2</sup>)</b>	ASTM E96	1.1 (63)	1.1 (63)	1.1 (63)
<b>Dimensional Stability, maximum % linear change</b>	ASTM D2126	2.0	2.0	2.0
<b>Flame Spread<sup>8,9</sup></b>	ASTM E84	5	5	5
<b>Smoke Developed<sup>8,9,10</sup></b>	ASTM E84	45-175	45-175	45-175
<b>Oxygen Index<sup>8</sup>, minimum % by volume</b>	ASTM D2863	24	24	24
<b>Service Temperature, maximum °F (°C)</b>	—	165 (74)	165 (74)	165 (74)
<b>Linear Coefficient of Thermal Expansion,</b> in/in/°F (m/m/°C)	ASTM E228	← 3.5 × 10 <sup>-5</sup> (6.3 × 10 <sup>-5</sup> ) →		

- Properties shown are representative values for 1" thick material, unless otherwise specified.
- Modified as required to meet ASTM C578.
- R means the resistance to heat flow; the higher the value, the greater the insulation power. This insulation must be installed properly to get the marked R-value. Follow the manufacturer's instructions carefully. If a manufacturer's fact sheet is not provided with the material shipment, request this and review it carefully. R-values vary depending on many factors including the mean temperature at which the test is conducted, and the age of the sample at the time of testing. Because rigid foam plastic insulation products are not all aged in accordance with the same standards, it is useful to publish comparison R-value data. The R-value for FOAMULAR® XPS Insulation is provided from testing at two mean temperatures, 40°F and 75°F, and from two aging (conditioning) techniques, 180 day real-time aged (as mandated by ASTM C578) and a method of accelerated aging sometimes called "Long Term Thermal Resistance" (LTTR) per CAN/ULC S770-03. The R-value at 180 day real-time age and 75°F mean temperature is commonly used to compare products and is the value printed on the product.
- Values at yield or 10% deflection, whichever occurs first.
- Value at yield or 5%, whichever occurs first.
- Data ranges from 0.00 to value shown due to the level of precision of the test method.
- Water vapor permeance decreases as thickness increases.
- These laboratory tests are not intended to describe the hazards presented by this material under actual fire conditions.
- Data from Underwriters Laboratories Inc.® classified. See Classification Certificate U-197.
- ASTM E84 is thickness-dependent, therefore a range of values is given.

Owens Corning publication number 10015704, "Heat Build Up Due to Solar Exposure" for more information.

### Standards, Codes Compliance

- Meets ASTM C578 Type VI (FOAMULAR® 400 XPS Insulation), Type VII (FOAMULAR® 600 XPS Insulation), or Type V (FOAMULAR® 1000 XPS Insulation).



# FOAMULAR® 400/600/1000 Extruded Polystyrene (XPS) Rigid Foam Insulation

## Product Data Sheet

### Product and Packaging Data

FOAMULAR® 400/600/1000 Extruded Polystyrene (XPS) Rigid Foam Insulation

Material		Packaging						
Extruded polystyrene closed-cell foam panel with continuous skin on face and back surface.		Shipped in poly-wrapped units with individually wrapped or banded bundles.						
Thickness (in)	Product Dimensions Thickness (in) x Width (in) x Length (in)	Pallet (Unit) Dimensions (typical) Width (ft) x Length (ft) x Height (ft)	Square feet per Pallet	Board feet per Pallet	Bundles per Pallet	Pieces per Bundle	Pieces per Pallet	Edges
<b>FOAMULAR® 400 XPS Insulation</b>								
1	1 x 24 x 96	4 x 8 x 8	3,072	3,072	8	24	192	
2	2 x 24 x 96	4 x 8 x 8	1,536	3,072	8	12	96	Square Edge
	2 x 48 x 96	4 x 8 x 8	1,536	3,072	8	6	48	
3	3 x 24 x 96	4 x 8 x 8	1,024	3,072	8	8	64	
	3 x 48 x 96	4 x 8 x 8	1,024	3,072	8	4	32	
<b>FOAMULAR® 600 XPS Insulation</b>								
1	1 x 24 x 96	4 x 8 x 8	3,072	3,072	8	24	192	
1½	1.5 x 24 x 96	4 x 8 x 8	2,048	3,072	8	16	128	Square Edge
2	2 x 24 x 96	4 x 8 x 8	1,536	3,072	8	12	96	
	2 x 48 x 96	4 x 8 x 8	1,536	3,072	8	6	48	
3	3 x 24 x 96	4 x 8 x 8	1,024	3,072	8	8	64	
	3 x 48 x 96	4 x 8 x 8	1,024	3,072	8	4	32	
<b>FOAMULAR® 1000 XPS Insulation</b>								
1.5	1.5 x 24 x 96 (Half unit)	4 x 8 x 4	1,024	1,536	4	16	64	Square Edge
2	2 x 24 x 96 (Half unit)	4 x 8 x 4	768	1,536	4	12	48	

1. Product availability and lead times vary by region and by product. Consult your local Owens Corning sales representative for availability and lead times.

- UL Classified. A copy of UL Classification Certificate U-197 is available at [www.owenscorning.com](http://www.owenscorning.com)
- See UL ER8811-01 at UL.com
- See [www.foamular.com](http://www.foamular.com) for details on listings, constructions and assemblies
- Meets California Quality Standards and HUD UM #71a
- Compliance verification by RADCO (AA-650)



### Certifications and Sustainable Features of FOAMULAR® XPS Insulation

- FOAMULAR® XPS Insulation is reusable
- FOAMULAR® XPS Insulation is made with a zero ozone depletion formula
- Certified by SCS Global Services to contain a minimum of 20% recycled content
- Certified to meet indoor air quality standards under the stringent GREENGUARD Indoor Air Quality Certification Program, and the GREENGUARD Gold Certification

- Utilizing FOAMULAR® XPS Insulation can help achieve green building certifications including the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) certification

### Environmental and Sustainability

Owens Corning is a worldwide leader in building material systems, insulation and composite solutions, delivering a broad range of high-quality products and services. Owens Corning is committed to driving sustainability by delivering solutions, transforming markets and enhancing lives. More information can be found at <http://sustainability.owenscorning.com>.



# FOAMULAR® 400/600/1000 Extruded Polystyrene (XPS) Rigid Foam Insulation

## Product Data Sheet

### Warranty

FOAMULAR® XPS Insulation limited lifetime warranty maintains 90% of its R-value for the lifetime of the building and covers all ASTM C578 properties. See actual warranty for complete details, limitations and requirements at [www.owenscorning.com](http://www.owenscorning.com).

All products described here may not be available in all geographic markets. Consult your local sales office representative for more information.

For more information on the Owens Corning family of building products, contact your Owens Corning dealer, call 1-800-GET-PINK®, or access [www.owenscorning.com](http://www.owenscorning.com).

### Disclaimer of Liability

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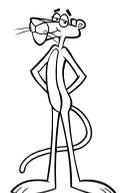
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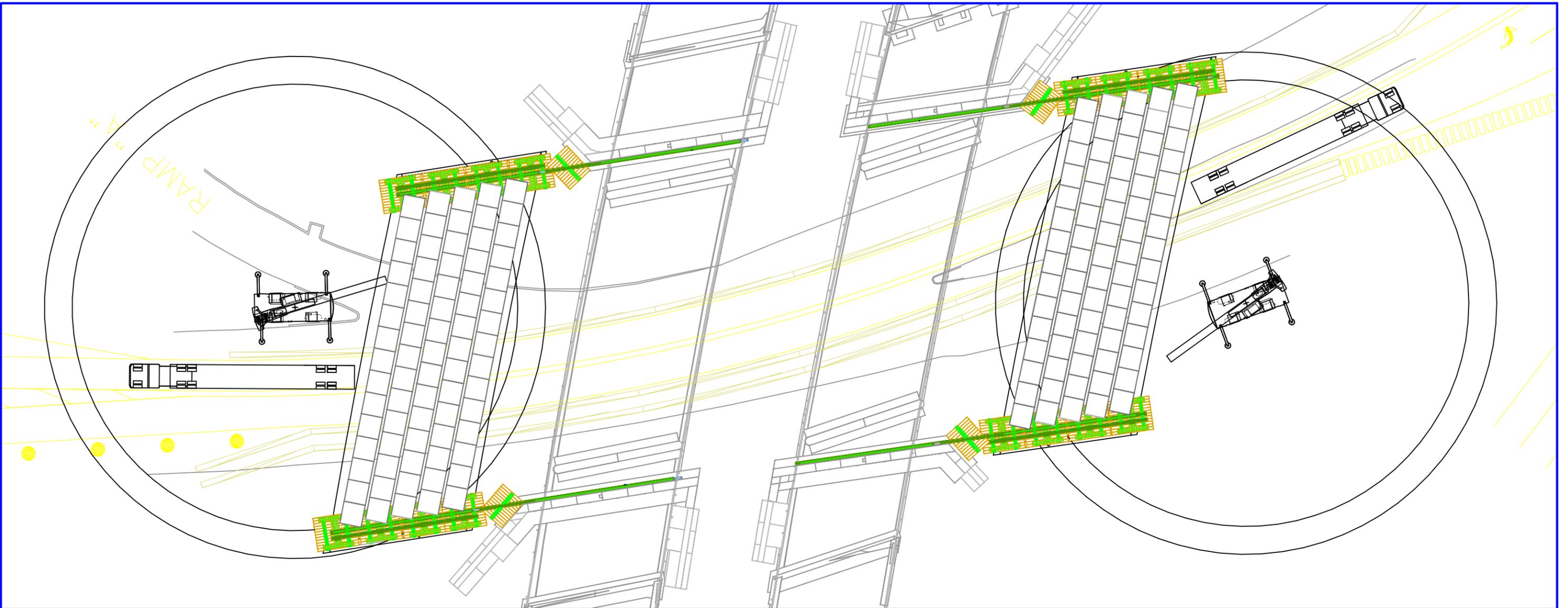
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**PRECAST DECK PANEL ERECTION PLANS**

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED

MATERIALS SHALL BE NEW OR IN GOOD CONDITION AND APPROVED BY THE DESIGN ENGINEER

ALL WORK OVER US-5 TO BE PERFORMED UNDER FLAGGING OPERATIONS PER THE TRAFFIC CONTROL PLAN

CONSTRUCTION LOADS SHALL NOT EXCEED 40 PSF

PANELS SHALL BE INSPECTED PRIOR TO OFFLOADING FROM TRUCK

MATERIAL PROPERTIES

CONCRETE (ABOVE HAUNCH - BETWEEN PANELS) - HPC AA 4000 PSI

POLYSTYRENE - FOAMULAR 1000 EXTRUDED POLYSTYRENE  
- (MIN COMPRESSIVE STRENGTH = 100 PSI)

ADHESIVE - SONNEBORN 200 ADHESIVE

CURING

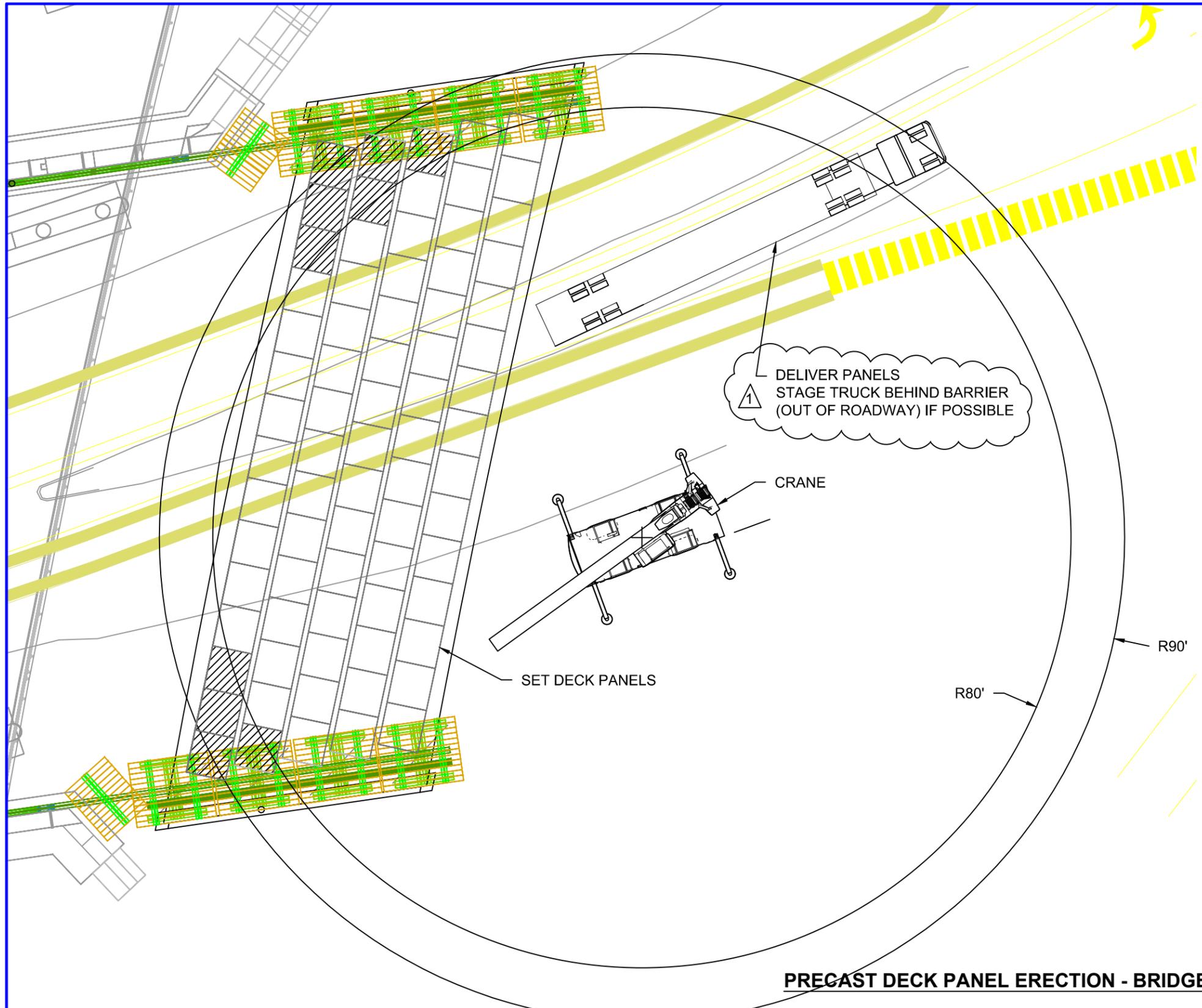


CONCRETE SHALL BE CURED FOR A MINIMUM OF 3 DAYS AND UNTIL A MINIMUM OF 85% OF 28 DAY DESIGN STRENGTH (4000 PSI x 0.85 = 3400 PSI) IS ACHIEVED

LIST OF DRAWINGS

TITLE.....	01
ERECTION PLANS (BRIDGE 43N).....	02
ERECTION PLANS (BRIDGE 43S).....	03
RIGGING.....	04

Revision No. & Date	Vermont Agency of Transportation			Engineer's Seal	Drawing Status	Name	Date	<b>PCL Civil Constructors, Inc.</b> 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
⚠ 6/8/2015						Drawn By	EWH		
	Road No.	County / City	Financial Project ID No.	<b>FOR CONSTRUCTION</b>	Design By	EWH	04/13/2015	Submittal	PCL Project / Job No.
	I-91	Hartford	IM 091-2(79)		Check By	TMD	06/08/2015	DECK PANEL ERECTION PLANS	I-91 Hartford / 5514001
								Drawing Title	Sheet No.
								TITLE PAGE	1



CRANE INFO:		GR-750XL
BOOM LENGTH:	FT	114.8'
PANEL WEIGHT:	LBS	2712
PICK WEIGHT + RIGGING:	LBS	5262
MAX. CRANE RADIUS:	FT	90
CRANE CAPACITY:	FT	7200
% OF CHART:		73%

**PROCEDURE**

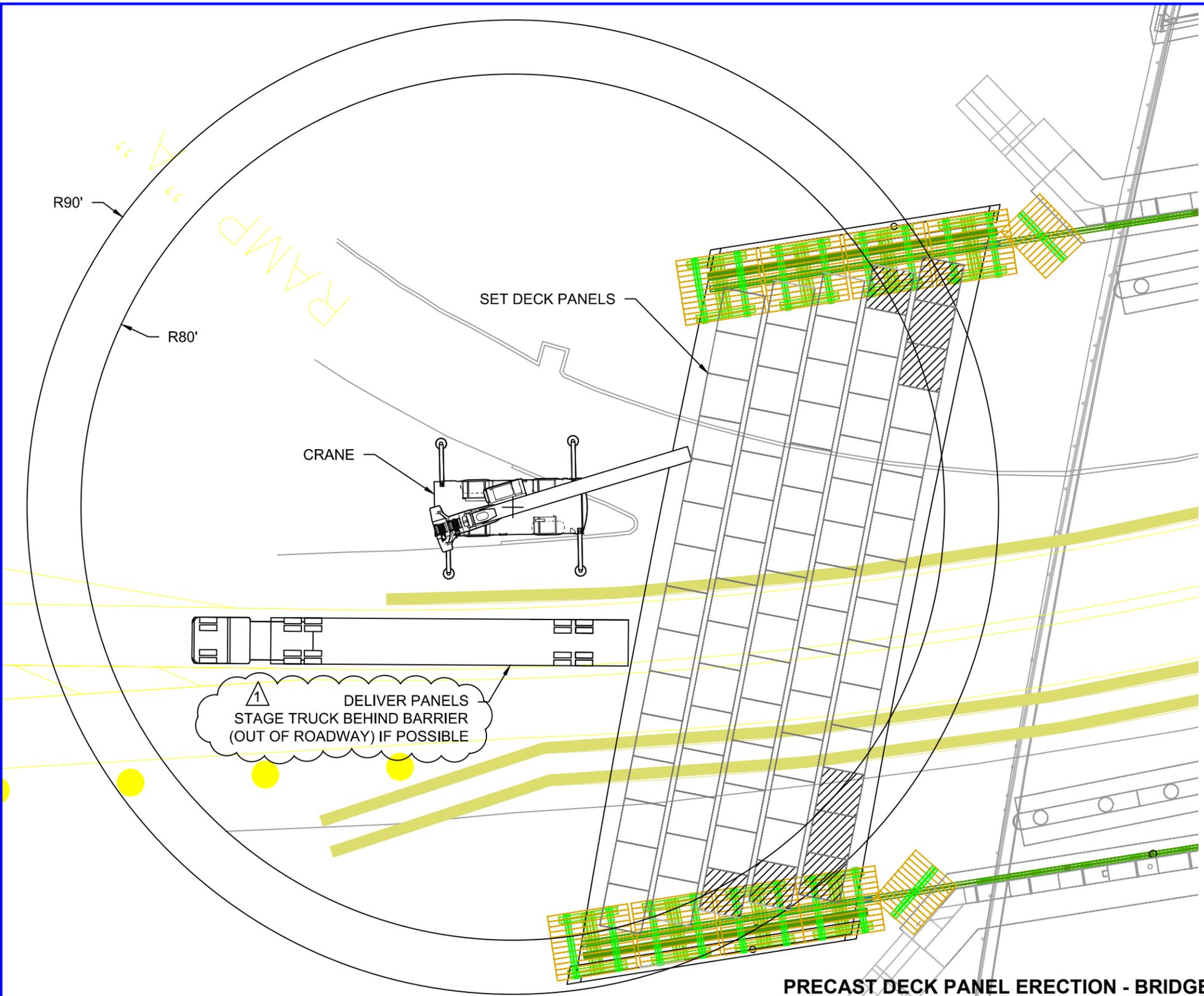
1. SET UP FLAGGING OPERATION ON US-5.
2. CLOSE DOWN US-5 EASTBOUND AND ALTERNATE TRAFFIC IN WESTBOUND LANE
3. RIG TO PANELS PER DETAILS ON SHEET 4
4. ERECT PANELS BEGINNING AT ONE END AND WORKING UPSTATION/DOWNSTATION.
5. STOP TRAFFIC ON US-5 PRIOR TO ERECTING PANELS OVER ROADWAY
6. RELEASE TRAFFIC ON US-5 IN BETWEEN PICKS.

**GENERAL NOTES**

1. CRANE LOCATION IS APPROXIMATE, ACTUAL LOCATION WILL VARY.
2. TELESCOPING MODE II MUST BE USED TO ACHIEVE REQUIRED CAPACITY AT RADIUS OVER 80'.
3. SHADED PANELS REQUIRE TELESCOPING MODE II BASED ON CRANE LOCATION SHOWN. MAY VARY PENDING ACTUAL CRANE LOCATION.
4. TWO LANES OF TRAFFIC SHALL BE MAINTAINED ON US-5 BETWEEN THE HOURS OF 6:00AM-9:00AM AND 3:00PM-6:00PM.

**PRECAST DECK PANEL ERECTION - BRIDGE 43N**

Revision No. & Date		Vermont Agency of Transportation			Drawing Status		Name		Date		<b>PCL Civil Constructors, Inc.</b> 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
1 6/8/2015					FOR CONSTRUCTION		Drawn By	EWH	04/13/2015	Design By		
Road No.	County / City	Financial Project ID No.		Jun 12 2015 9:06 AM		Submittal		Drawing Title		PCL Project / Job No.		
I-91	Hartford	IM 091-2(79)				DECK PANEL ERECTION PLANS		BRIDGE 43N		I-91 Hartford / 5514001		
										Sheet No.		
										2		



CRANE INFO:		GR-750XL
BOOM LENGTH:	FT	114.8'
PANEL WEIGHT:	LBS	2712
PICK WEIGHT + RIGGING:	LBS	5262
MAX. CRANE RADIUS:	FT	90
CRANE CAPACITY:	FT	7200
% OF CHART:		73%

**PROCEDURE**

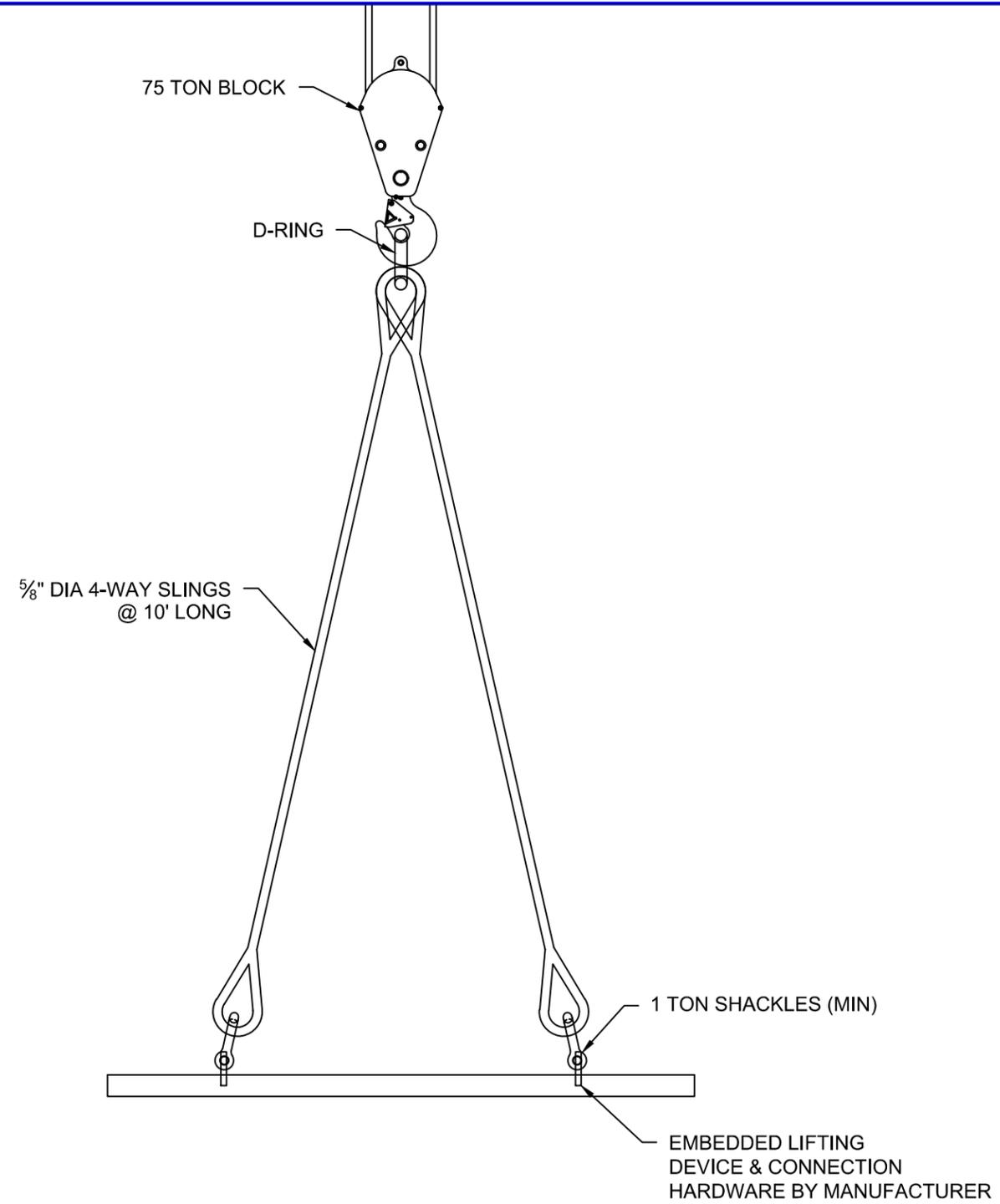
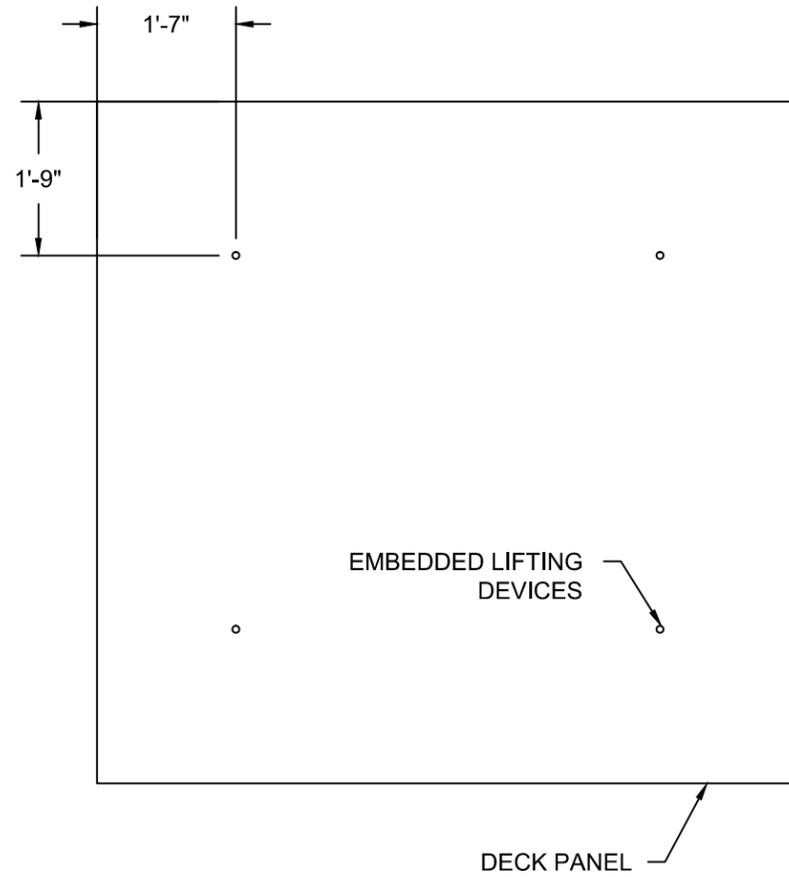
1. SET UP FLAGGING OPERATION ON US-5.
2. CLOSE DOWN US-5 WESTBOUND AND ALTERNATE TRAFFIC IN EASTBOUND LANE
3. RIG TO PANELS PER DETAILS ON SHEET 4
4. ERECT PANELS BEGINNING AT ONE END AND WORKING UPSTATION/DOWNSTATION.
5. STOP TRAFFIC ON US-5 PRIOR TO ERECTING PANELS OVER ROADWAY
6. RELEASE TRAFFIC ON US-5 IN BETWEEN PICKS.

**GENERAL NOTES**

1. CRANE LOCATION IS APPROXIMATE, ACTUAL LOCATION WILL VARY.
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3. SHADED PANELS REQUIRE TELESCOPING MODE II BASED ON CRANE LOCATION SHOWN. MAY VARY PENDING ACTUAL CRANE LOCATION.
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**PRECAST DECK PANEL ERECTION - BRIDGE 433**

Revision No. & Date		Vermont Agency of Transportation			Drawing Status		Name		Date		<b>PCL Civil Constructors, Inc.</b> 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689		
6/8/2015					FOR CONSTRUCTION		Drawn By	EWH	04/13/2015				
Road No.	County / City	Financial Project ID No.		Jun 12 2015 9:06 AM		Design By	EWH	04/13/2015	Submittal		PCL Project / Job No.		
I-91	Hartford	IM 091-2(79)				Check By	TMD	06/08/2015	DECK PANEL ERECTION PLANS		I-91 Hartford / 5514001		
										Drawing Title		Sheet No.	
										BRIDGE 43S		3	



**PANEL RIGGING DETAILS**

Revision No. & Date	Vermont Agency of Transportation				Drawing Status		Name	Date	<b>PCL Civil Constructors, Inc.</b> 3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
	Road No.	County / City	Financial Project ID No.		FOR CONSTRUCTION	Drawn By	EWH	04/13/2015	Submittal	PCL Project / Job No.
	I-91	Hartford	IM 091-2(79)	Jun 12 2015 9:06 AM	Design By	EWH	04/13/2015	DECK PANEL ERECTION PLANS	I-91 Hartford / 5514001	
					Check By	TMD	06/08/2015	Drawing Title	Sheet No.	
								RIGGING DETAILS	4	