

OVERHANG BRACKET CALCULATION INSTRUCTIONS

AASHTO SHAPES - TYPES III, IV, V, AND VI

- RECORD KNOWN INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
- CALCULATE THE MAXIMUM SCREED LOAD PER BRACKET (SLPB) WITH AN ESTIMATED $R = 1.5$. $SLPB = R \times W$. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
- WITH THE ESTIMATED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE, AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE THE BRACKET SPACING, S.
- CALCULATE S/D1 AND S/D2, ROUNDING UP TO NEAREST VALUE IN TABLE 2. ENTER TABLE 2 AND DETERMINE R VALUE.
- CALCULATE REVISED SLPB. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
- WITH THE REVISED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3 OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE REVISED BRACKET SPACING, S.
- CONTINUE ITERATIONS OF STEPS 4-6 UNTIL THE REVISED BRACKET SPACING, S, IS THE SAME AS THE PREVIOUS S VALUE.
- CHECK LUMBER JOIST SPACING WITH BRACKET SPACING VALUE, S. ROUND THIS VALUE UP TO THE NEAREST VALUE OF ALLOWABLE SPAN LENGTH OF JOIST OF TABLE 3. USING THIS VALUE, ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE, DETERMINE JOIST SPACING FROM TABLE 3. IF NECESSARY, ADJUST LUMBER JOIST SIZE AND/OR JOIST SPACING TO MEET ALLOWABLE SPAN LENGTH OF JOIST.
- CONVERSELY, IF THE DESIRED JOIST SPACING IS KNOWN, USE THIS ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE TO DETERMINE IF ALLOWABLE SPAN LENGTH OF JOIST IS GREATER THAN THE BRACKET SPACING, S. IF NECESSARY, ADJUST LUMBER JOIST SIZE TO MEET REQUIREMENTS OF ALLOWABLE SPAN LENGTH OF JOIST AND JOIST SPACING.
- RECORD REMAINING INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" FORM.
- SUBMIT FORM AND CALCULATIONS FOR REVIEW AND APPROVAL.

TABLE 1-1 (FOR USE ON **FIG. 2-4-10 2-4-10 (B) & 54"** HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (t) (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET								45° HANGER SWL (lbs)	
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.		0 lbs.
10	30	3'-6"	4'-0"	4'-5"	4'-9"	5'-3"	5'-7"	6'-1"	6'-5"	6'-9"	4000
	40	3'-6"	4'-0"	4'-5"	4'-9"	5'-3"	5'-7"	6'-1"	6'-5"	6'-9"	4000
	50	3'-6"	4'-0"	4'-5"	4'-9"	5'-3"	5'-7"	6'-1"	6'-5"	6'-9"	4000
12	30	3'-2"	3'-7"	4'-1"	4'-5"	4'-9"	5'-3"	5'-7"	6'-1"	6'-5"	4000
	40	3'-2"	3'-7"	4'-1"	4'-5"	4'-9"	5'-3"	5'-7"	6'-1"	6'-5"	4000
	50	3'-2"	3'-7"	4'-1"	4'-5"	4'-9"	5'-3"	5'-7"	6'-1"	6'-5"	4000
14	30	2'-10"	3'-4"	3'-9"	4'-2"	4'-7"	5'-0"	5'-4"	5'-7"	6'-4"	4000
	40	2'-10"	3'-4"	3'-9"	4'-2"	4'-7"	5'-0"	5'-4"	5'-7"	6'-4"	4000
	50	2'-10"	3'-4"	3'-9"	4'-2"	4'-7"	5'-0"	5'-4"	5'-7"	6'-4"	4000
16	30	2'-8"	3'-0"	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	6'-3"	4000
	40	2'-8"	3'-0"	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	6'-3"	4000
	50	2'-8"	3'-0"	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	6'-3"	4000

TABLE 1-2 (FOR USE ON **FIG. 2-4-10 2-4-10 (B) & 54"** HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (t) (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET								45° HANGER SWL (lbs)	
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.		0 lbs.
10	30	3'-1"	3'-6"	4'-0"	4'-5"	4'-11"	5'-5"	5'-9"	6'-3"	6'-7"	4000
	40	3'-1"	3'-6"	4'-0"	4'-5"	4'-11"	5'-5"	5'-9"	6'-3"	6'-7"	4000
	50	3'-1"	3'-6"	4'-0"	4'-5"	4'-11"	5'-5"	5'-9"	6'-3"	6'-7"	4000
12	30	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-4"	4000
	40	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-4"	4000
	50	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-4"	4000
14	30	2'-6"	2'-10"	3'-3"	3'-7"	4'-0"	4'-5"	4'-9"	5'-2"	6'-1"	4000
	40	2'-6"	2'-10"	3'-3"	3'-7"	4'-0"	4'-5"	4'-9"	5'-2"	6'-1"	4000
	50	2'-6"	2'-10"	3'-3"	3'-7"	4'-0"	4'-5"	4'-9"	5'-2"	6'-1"	4000
16	30	2'-3"	2'-7"	2'-11"	3'-4"	3'-8"	4'-1"	4'-5"	4'-8"	5'-8"	4000
	40	2'-3"	2'-7"	2'-11"	3'-4"	3'-8"	4'-1"	4'-5"	4'-8"	5'-8"	4000
	50	2'-3"	2'-7"	2'-11"	3'-4"	3'-8"	4'-1"	4'-5"	4'-8"	5'-8"	4000

TABLE 1-3 (FOR USE ON **FIG. 2-4-10 2-4-10 (B) & 54"** HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (t) (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET								45° HANGER SWL (lbs)	
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.		0 lbs.
10	30					2'-11"	2'-6"	2'-11"	3'-4"	4'-6"	4000
	40					2'-11"	2'-6"	2'-11"	3'-4"	4'-6"	4000
	50	2'-9"	3'-2"	3'-7"	4'-0"	2'-11"	2'-6"	2'-11"	3'-4"	4'-6"	4000
12	30					2'-11"	2'-6"	2'-11"	3'-4"	4'-6"	4000
	40					2'-11"	2'-6"	2'-11"	3'-4"	4'-6"	4000
	50	2'-9"	3'-2"	3'-7"	4'-0"	2'-11"	2'-6"	2'-11"	3'-4"	4'-6"	4000
14	30					2'-11"	2'-6"	2'-11"	3'-4"	4'-6"	4000
	40					2'-11"	2'-6"	2'-11"	3'-4"	4'-6"	4000
	50	2'-9"	3'-2"	3'-7"	4'-0"	2'-11"	2'-6"	2'-11"	3'-4"	4'-6"	4000
16	30					2'-11"	2'-6"	2'-11"	3'-4"	4'-6"	4000
	40					2'-11"	2'-6"	2'-11"	3'-4"	4'-6"	4000
	50	2'-9"	3'-2"	3'-7"	4'-0"	2'-11"	2'-6"	2'-11"	3'-4"	4'-6"	4000

TABLE 1-4 (FOR USE ON **FIG. 2-4-10 2-4-10 (B) & 54"** HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (t) (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET								45° HANGER SWL (lbs)		
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.		0 lbs.	
10	30						2'-3"	2'-11"	2'-5"	2'-9"	3'-10"	4000
	40						2'-3"	2'-11"	2'-5"	2'-9"	3'-10"	4000
	50					2'-4"	3'-0"	3'-7"	4'-1"	4'-5"	5'-9"	4000
12	30						2'-1"	2'-8"	2'-5"	2'-9"	3'-10"	4000
	40						2'-1"	2'-8"	2'-5"	2'-9"	3'-10"	4000
	50	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-1"	4'-5"	4'-9"	5'-9"	4000	
14	30						2'-1"	2'-8"	2'-5"	2'-9"	3'-10"	4000
	40						2'-1"	2'-8"	2'-5"	2'-9"	3'-10"	4000
	50	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-1"	4'-5"	4'-9"	5'-9"	4000	
16	30						2'-1"	2'-8"	2'-5"	2'-9"	3'-10"	4000
	40						2'-1"	2'-8"	2'-5"	2'-9"	3'-10"	4000
	50	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-1"	4'-5"	4'-9"	5'-9"	4000	

- DEFINITIONS**
- SLPB = SCREED LOAD PER BRACKET (R x W)
 - R = SCREED LOAD FACTOR, OBTAINED FROM TABLE 2
 - W = WHEEL LOAD
 - S = BRACKET SPACING
 - t = AVERAGE SLAB THICKNESS
 - K = DIMENSION DEFINED ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
 - L = OVERHANG MEASURED FROM EDGE OF TOP FLANGE TO EDGE OF SUPERSTRUCTURE

PROJECT NO. _____ COUNTY _____
 STATION: _____
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 STANDARD OVERHANG FALSEWORK
AASHTO TYPES III, IV, V, AND VI

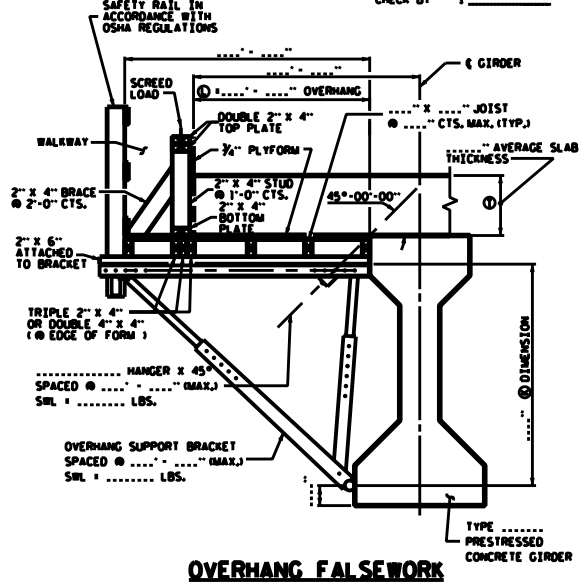
REVISIONS						SHEET NO.
NO.	DATE	BY	CHKD.	DATE	BY	REV.

ASSEMBLED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 DRAWN BY: R. WRIGHT 06/04 REV. _____
 CHECKED BY: V. CHAD 06/04

BRIDGE OVERHANG BRACKET SUMMARY

TOTAL SCREED WEIGHT : _____ LBS.
 NUMBER OF SCREED WHEELS : _____
 SCREED WHEEL LOAD (W) : _____ LBS.
 SCREED LOAD PER BRACKET : _____ LBS.

PROJECT NO. : _____
 COUNTY : _____
 STATION : _____
 DESCRIPTION : _____
 DATE : _____
 DESIGN BY : _____
 CHECK BY : _____

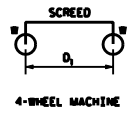


OVERHANG FALSEWORK

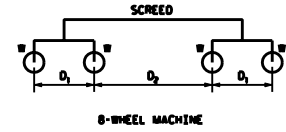
NOTES

- DESIGN INCLUDES CONSTRUCTION LIVE LOAD 20 PSF ON THE AREA SUPPORTED AND 75 PLF AT THE OUTSIDE DECK OF OVERHANGS.
- REQUIRED MINIMUM DIAGONAL LEG CAPACITY: 3600 LB WORKING LOAD
- THE CONTRACTOR HAS THE OPTION OF SUBMITTING HIS OWN DESIGN FOR OVERHANG FALSEWORK IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- SUBMITTALS UTILIZING THE INSTRUCTIONS AND PROCEDURES DESCRIBED ON SHEET 1 OF 3 SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE SPECIFICATIONS AND SPECIAL PROVISIONS. EXCEPT THAT CALCULATIONS FOR OVERHANG FALSEWORK NEED NOT BE SEALED BY A REGISTERED ENGINEER.
- FOR OVERHANG FALSEWORK BRACING DESIGN, SEE SHEET 3 OF 3.

ASSEMBLED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 DRAWN BY: R. WRIGHT 06/04 REV. _____
 CHECKED BY: V. CHAN 06/04



4-WHEEL MACHINE



8-WHEEL MACHINE

TABLE 2: SCREED LOAD FACTOR "R"

4 WHEEL MACHINE	
S/D1	R
< 1.0	1.00
1.1	1.09
1.2	1.17
1.3	1.23
1.4	1.29
1.5	1.33
1.6	1.38
1.7	1.41
1.8	1.44
1.9	1.47
2.0	1.50
2.2	1.55
2.4	1.58
2.6	1.62
2.8	1.64
3.0	1.67
3.5	1.71
4.0	1.75

		THE SCREED LOAD FACTOR R FOR 8 WHEEL MACHINE:																		
		S/D2																		
		< 1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.2	2.4	2.6	2.8	3.0	3.5	4.0	
S/D1	< 1.0	1.00	1.09	1.17	1.23	1.29	1.33	1.38	1.41	1.44	1.47	1.50	1.55	1.58	1.62	1.64	1.67	1.71	1.75	
	1.1	1.09	1.18	1.26	1.32	1.38	1.42	1.47	1.50	1.54	1.56	1.59	1.64	1.67	1.71	1.73	1.76	1.81	1.84	
	1.2	1.17	1.26	1.33	1.40	1.45	1.50	1.54	1.58	1.61	1.64	1.67	1.71	1.75	1.78	1.81	1.83	1.88	1.92	
	1.3	1.23	1.32	1.40	1.46	1.52	1.56	1.61	1.64	1.68	1.70	1.73	1.78	1.81	1.85	1.87	1.90	1.93	1.95	
	1.4	1.29	1.38	1.45	1.52	1.57	1.62	1.66	1.70	1.73	1.76	1.79	1.83	1.87	1.90	1.93	1.95	2.00	2.07	
	1.5	1.33	1.42	1.50	1.56	1.62	1.67	1.71	1.75	1.78	1.81	1.83	1.88	1.92	1.95	1.98	2.00	2.10	2.17	
	1.6	1.38	1.47	1.54	1.61	1.66	1.71	1.75	1.79	1.82	1.85	1.88	1.92	1.96	1.99	2.04	2.08	2.18	2.25	
	1.7	1.41	1.50	1.58	1.64	1.70	1.75	1.79	1.82	1.86	1.89	1.91	1.96	2.00	2.05	2.11	2.16	2.25	2.32	
	1.8	1.44	1.54	1.61	1.68	1.73	1.78	1.82	1.86	1.89	1.92	1.94	1.99	2.06	2.12	2.17	2.22	2.32	2.39	
	1.9	1.47	1.56	1.64	1.70	1.76	1.81	1.85	1.89	1.92	1.95	1.97	2.04	2.11	2.18	2.23	2.28	2.38	2.45	
	2.0	1.50	1.59	1.67	1.73	1.79	1.83	1.88	1.91	1.94	1.97	2.00	2.09	2.17	2.23	2.29	2.33	2.43	2.50	
	2.2	1.55	1.64	1.71	1.78	1.83	1.88	1.92	1.96	1.99	2.04	2.09	2.18	2.26	2.32	2.38	2.42	2.52	2.59	
	2.4	1.58	1.67	1.75	1.81	1.87	1.92	1.96	2.00	2.06	2.11	2.17	2.26	2.33	2.40	2.45	2.50	2.60	2.67	
	2.6	1.62	1.71	1.78	1.85	1.90	1.95	1.99	2.05	2.12	2.18	2.23	2.32	2.40	2.46	2.52	2.56	2.66	2.73	
	2.8	1.64	1.73	1.81	1.87	1.93	1.98	2.04	2.11	2.17	2.23	2.29	2.38	2.45	2.52	2.57	2.62	2.71	2.79	
	3.0	1.67	1.76	1.83	1.90	1.95	2.00	2.08	2.16	2.22	2.28	2.33	2.42	2.50	2.56	2.62	2.67	2.76	2.83	
3.5	1.71	1.81	1.88	1.95	2.00	2.10	2.18	2.25	2.32	2.38	2.43	2.52	2.60	2.66	2.71	2.76	2.86	2.93		
4.0	1.75	1.84	1.92	1.98	2.07	2.17	2.25	2.32	2.39	2.45	2.50	2.59	2.67	2.73	2.79	2.83	2.93	3.00		

TABLE 3: ALLOWABLE SPAN LENGTH OF JOISTS AND JOIST SPACINGS

AVG. SLAB THICKNESS (IN)	LUMBER JOIST SIZE (IN X IN)	JOIST SPACINGS			
		15 IN	12 IN	10 IN	8 IN
		THE ALLOWABLE SPAN LENGTH OF JOISTS			
10	2 x 4	---	4' - 6"	4' - 9"	5' - 0"
	4 x 4	5' - 9"	6' - 3"	6' - 6"	6' - 7"
12	2 x 4	---	4' - 3"	4' - 9"	5' - 0"
	4 x 4	5' - 3"	6' - 0"	6' - 3"	6' - 5"
14	2 x 4	---	4' - 0"	4' - 6"	5' - 0"
	4 x 4	---	5' - 6"	6' - 0"	6' - 4"
16	2 x 4	---	4' - 0"	4' - 3"	4' - 9"
	4 x 4	---	5' - 3"	5' - 9"	6' - 3"

PROJECT NO. _____ COUNTY _____
 STATION: _____

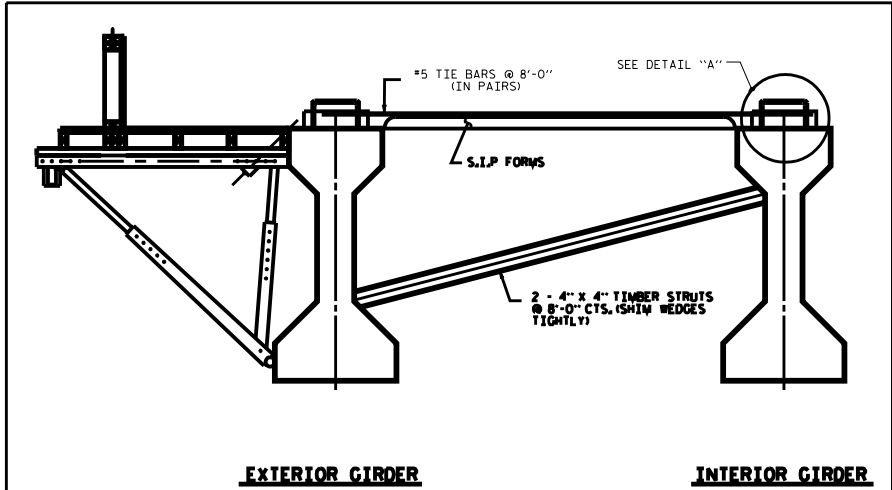
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION

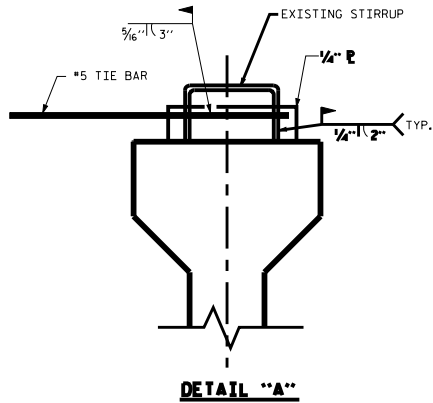
STANDARD OVERHANG FALSEWORK

AASHTO TYPES III, IV, V, AND VI

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	2 OF 3



DETAIL OF REQUIRED OVERHANG FALSEWORK BRACING SYSTEM



NOTES:

EACH #5 TIE BAR SHALL BE WELDED TO ONE STIRRUP LOOP AS SHOWN IN DETAIL "A". #5 TIE BARS SHALL BE WELDED TO TWO ADJACENT STIRRUPS OF THE EXTERIOR GIRDER AND THE ADJACENT INTERIOR GIRDER BETWEEN PERMANENT DIAPHRAGMS. WELD STEEL PLATES IN BETWEEN THE TIE BARS AND THE STIRRUP LOOP. WELDING TWO TIE BARS TO THE SAME STIRRUP LOOP SHALL NOT BE PERMITTED.

MAXIMUM SPACING BETWEEN THE BRACING (TIE BARS-TIMBER STRUT) IS 8'-0" CTS. #5 TIE BARS SHALL BE LOCATED OVER A TIMBER STRUT.

INSTALL TIE BARS AND TIMBER STRUTS PRIOR TO PLACEMENT OF CONCRETE OR SCREED WEIGHT ONTO THE OVERHANG FALSEWORK.

PROJECT NO. _____ COUNTY _____
 STATION _____
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION
 STANDARD OVERHANG FALSEWORK

**AASHTO TYPES
 III, IV, V AND VI**

REVISIONS				SHEET NO.	
NO.	DATE	BY	DATE	NO.	DATE

Drawn By: R. W. [unclear] 06/04 DATE: _____
 Checked By: V. [unclear] 06/04 DATE: _____

