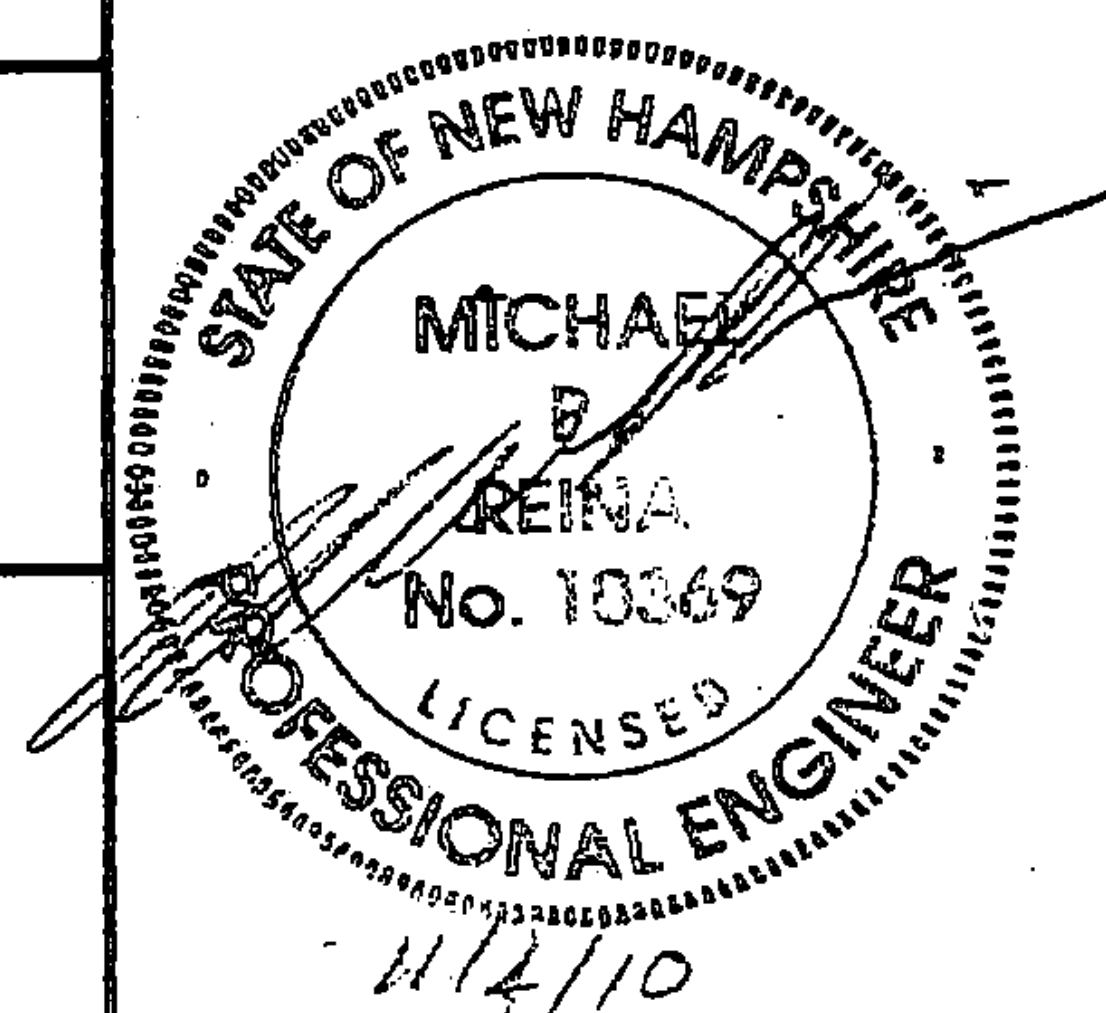


Deck Design Main Bars Transverse

AASHTO 17th Edition - 2002

<p>C/C Spacing of Supports = <input type="text" value="6"/> FT</p> <p>Support Top Flange Width = <input type="text" value="6.5"/> IN</p> <p>Effective Span Length for Design = 5.73 FT</p> <p>Effective Span Length (S) shall be the distance between edges of top flange plus one-half of stringer top flange width. (AASHTO 3.24.1.2)</p>	<p>Design Wheel Load <input type="text" value="16"/> kips</p> <p>Impact <input type="text" value="30%"/></p> <p>Continuity Factor <input type="text" value="0.8"/></p> <p>Allowable Steel Stress <input type="text" value="27"/> ksi</p> <p>Allowable Concrete Stress <input type="text" value="1.6"/> ksi</p>																				
<p>Dead Load Moment = 0.21363 Kip-Foot / Foot</p> <p>$W * S^2 / 8 * 0.8$ (IF Continuous Span)</p>																					
<p>Live Load Plus Impact Moment = 4.0196 Kip-Foot / Foot</p> <p>(AASHTO 3.24.3.1)</p> <p>$((S + 2) / 32) * P * (Impact) * 0.8$ (IF Continuous Span)</p>																					
<p>Maximum Stress Negative Moment</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">@ Bottom of Concrete =</td> <td style="width: 20%;">N/A*</td> <td style="width: 10%;">Ksi</td> <td style="width: 10%;">N/A*</td> <td style="width: 30%;">Design Stress Okay AASHTO 8.15.2.1.1</td> </tr> <tr> <td>@ Bottom of Grid =</td> <td>-18.12529</td> <td>Ksi</td> <td>OK</td> <td>Design Stress Okay AASHTO 10.32.1</td> </tr> <tr> <td>@ Top of Grid =</td> <td>-17.9808</td> <td>Ksi</td> <td>OK</td> <td>Negative Number Indicates Tension</td> </tr> <tr> <td>@ Form Pan =</td> <td>-0.57861</td> <td>Ksi</td> <td>OK</td> <td>*N/A means no concrete figured in design</td> </tr> </table> <p>$M_{DL} * 12 / (\text{Grid Only Section Modulus for Negative Moment}) + M_{LL+I} * 12 / (\text{Composite Section Modulus for Negative Moment})$</p>		@ Bottom of Concrete =	N/A*	Ksi	N/A*	Design Stress Okay AASHTO 8.15.2.1.1	@ Bottom of Grid =	-18.12529	Ksi	OK	Design Stress Okay AASHTO 10.32.1	@ Top of Grid =	-17.9808	Ksi	OK	Negative Number Indicates Tension	@ Form Pan =	-0.57861	Ksi	OK	*N/A means no concrete figured in design
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<p>Maximum Stress Positive Moment</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Top of Concrete =</td> <td style="width: 20%;">0.523515</td> <td style="width: 10%;">Ksi</td> <td style="width: 10%;">OK</td> <td style="width: 30%;">Design Stress Okay AASHTO 8.15.2.1.1</td> </tr> <tr> <td>Bottom of Grid =</td> <td>-9.14439</td> <td>Ksi</td> <td>OK</td> <td>Design Stress Okay AASHTO 10.32.1</td> </tr> <tr> <td>Top of Grid =</td> <td>0.348048</td> <td>Ksi</td> <td>OK</td> <td>Negative Number Indicates Tension</td> </tr> <tr> <td>Form Pan =</td> <td>-4.22706</td> <td>Ksi</td> <td>OK</td> <td>*N/A means no concrete figured in design</td> </tr> </table> <p>$M_{DL} * 12 / (\text{Grid Only Section Modulus for Positive Moment}) + M_{LL+I} * 12 / (\text{Composite Section Modulus for Positive Moment})$</p>		Top of Concrete =	0.523515	Ksi	OK	Design Stress Okay AASHTO 8.15.2.1.1	Bottom of Grid =	-9.14439	Ksi	OK	Design Stress Okay AASHTO 10.32.1	Top of Grid =	0.348048	Ksi	OK	Negative Number Indicates Tension	Form Pan =	-4.22706	Ksi	OK	*N/A means no concrete figured in design
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<p>Deflection</p>																					
<p>Effective Width of Deck - E = 4.36 Feet</p> <p>$E = (4 + 0.06S)$ but not over 7' (AASHTO 3.24.3.2)</p>																					
Deflection of Grid under Load of Wet Concrete =	0.00867810 Inches		= L / 8,297	Simple Span																	
$(5 * W * S^4) / 384 * E_s * I$																					
Deflection of Composite Grid Section under Live Load and Impact =	0.02776074 Inches		= L / 2594	Simple Span																	
$(P_{+I} * S^3) / 48 * E_s * (I * E)$																					
Deflection of Composite Grid Section under Live Load and Impact =	0.01998774 Inches		= L / 3602	Continuous Span																	
$0.015 * (P_{+I} * S^3) / E_s * (I * E)$																					



173 PRE FAB DECK PANELS.