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Subject: Matrax Strong Plate 820-A
Strength Comparison

Based on the attached fabrication drawings for the Matrax Strong Plate 820-A, built with 0.120"-thick walled floor material, and added 0.187"-thick plate, the assembly has the following properties:

Matrax Strong Plate Properties

Plate length = 20'	(strong direction)
Plate width = 8'	(weak direction)
$F_y = 60^{\text{ksi}}$	(min yield strength of steel)
$S_{xx} = 2.73 \text{ in}^3$	(section modulus in the strong direction, per 8"-wide strip)
$S_{yy} = 1.68 \text{ in}^3$	(section modulus in the weak direction, per 8"-wide strip)

Solid Steel Road Plate Properties

$F_{y \text{ plate}} = 50^{\text{ksi}}$	(yield strength of road plate)
$S_{1.5"} = 3.0 \text{ in}^3$	(section modulus of 1.5"-thick plate, per 8"-wide strip)
$S_{1"} = 1.33 \text{ in}^3$	(section modulus of 1"-thick plate, per 8"-wide strip)

Strength Comparison

$$(60^{\text{ksi}})(2.73 \text{ in}^3)/(50^{\text{ksi}})(3 \text{ in}^3) = 1.09$$

↑
Strong plate is 9% stronger than a 1.5"-thick steel plate, when loaded in its strong direction

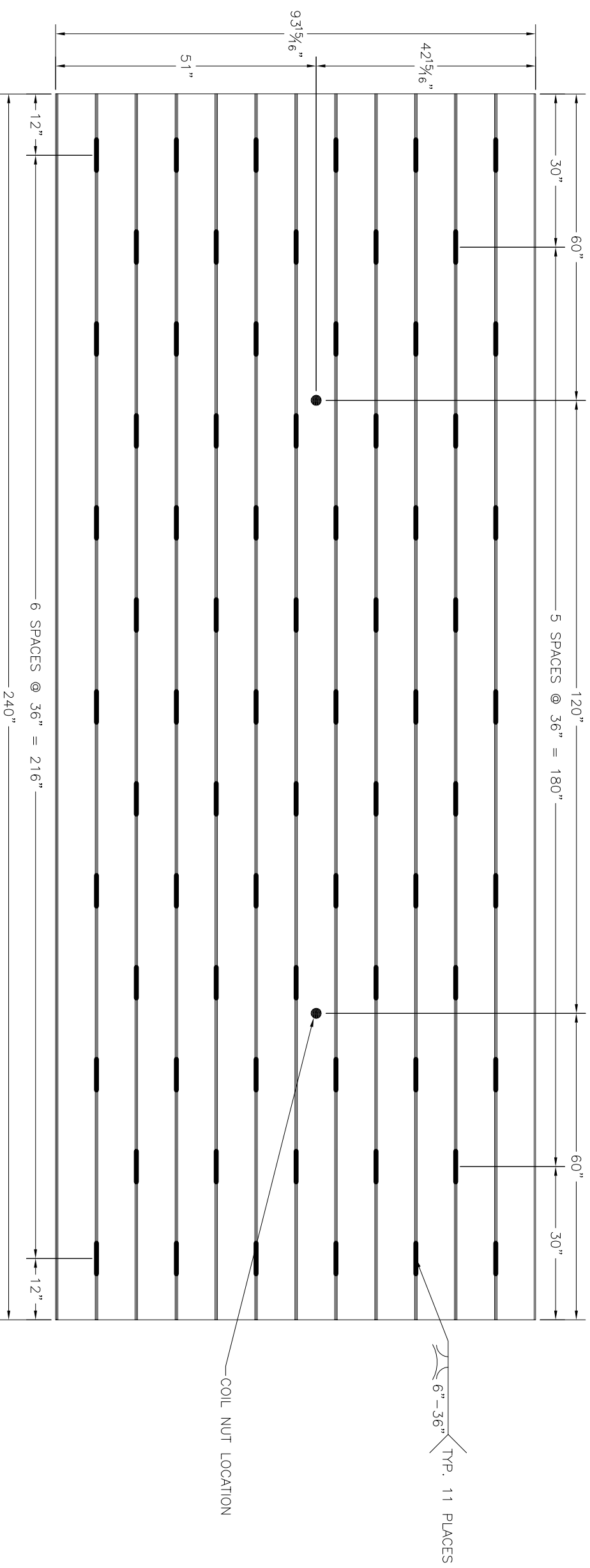
$$(60^{\text{ksi}})(1.68 \text{ in}^3)/(50^{\text{ksi}})(1.33 \text{ in}^3) = 1.52$$

↑
Strong plate is 50% stronger than a 1"-thick steel plate, when loaded in its weak direction

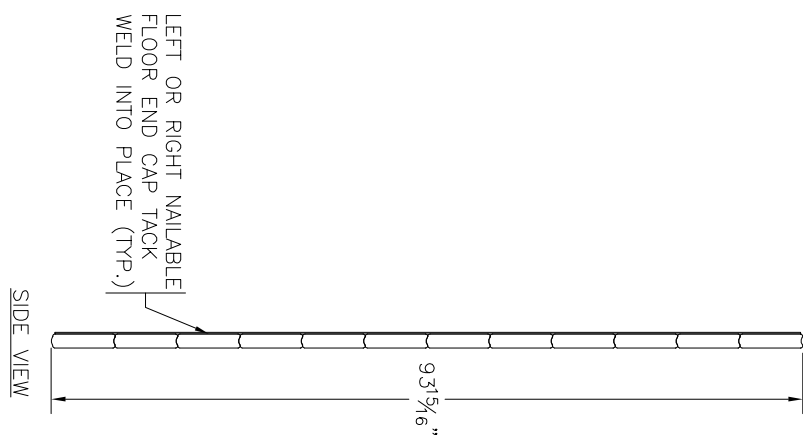
As shown above, the Matrax 820-A Strong Plate is stronger than a standard 1.5"-thick road plate when used in the strong direction, and is stronger than a 1"-thick road plate when used in the weak direction. This document is not intended to provide certification for use, but purely to confirm properties. A licensed engineer must certify use of Strong Plate for any specific loading and span conditions. If you have any questions, please feel free to contact me.

Sincerely,

Jasper Calcara, P.E.



TOP VIEW



SIDE VIEW

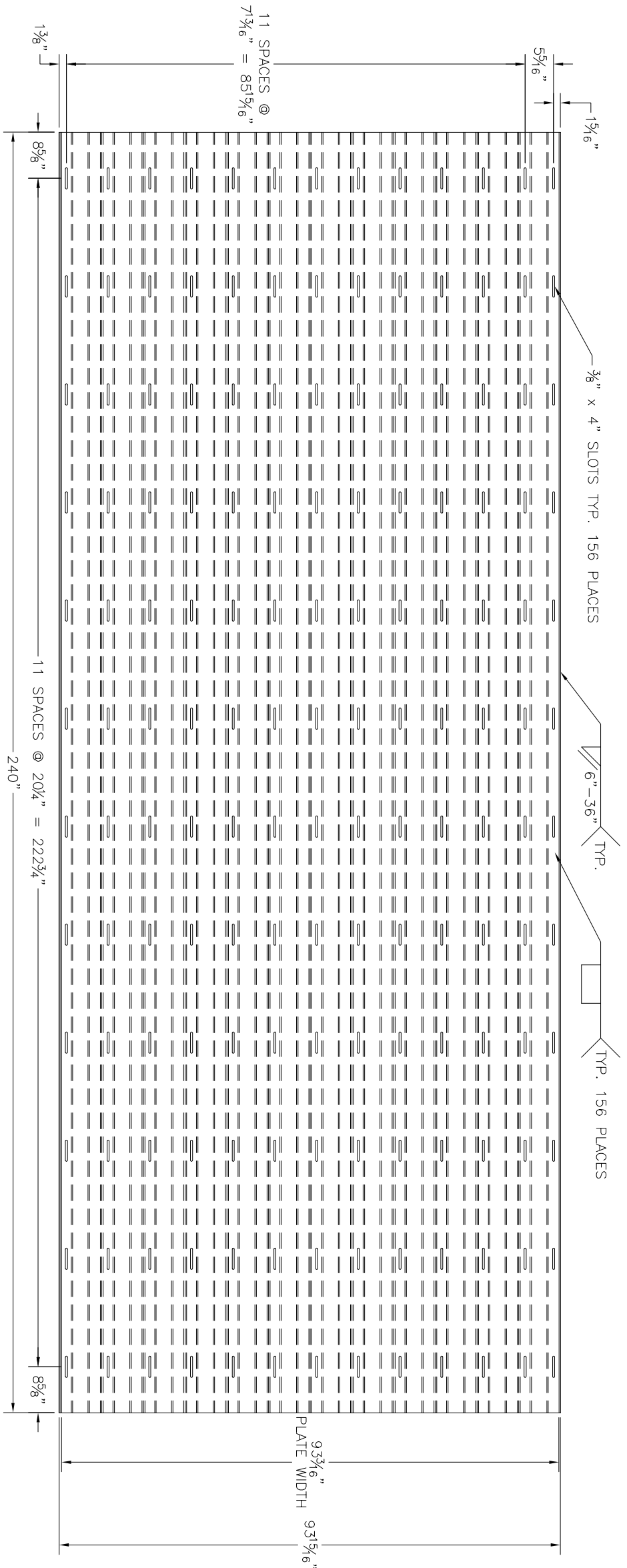
NOTES:

1. NAILABLE FLOOR THICKNESS: SEE TABLE
2. NAILABLE FLOOR MATERIAL: ASTM A1011 GR. 65 CLASS 2
3. PLATE THICKNESS: SEE TABLE
4. PLATE MATERIAL: ASTM A1011 GR. 60 CLASS 2
5. ALTERNATE CONTINUOUS WELDS TO MINIMIZE HEAT BUILDUP
6. MATRAX STRONG PLATE SERIAL NUMBER TO BE THE FOLLOWING FORMAT: M8:120509-"A" WHERE "A" IS REPLACED BY SEQUENTIAL PRODUCTION NUMBER

NAILABLE FLOOR & PLATE THICKNESS OPTIONS		
OPTION	NAILABLE FLOOR THICKNESS	PLATE THICKNESS
1	0.120"	0.188"
2	0.120"	0.250"
3	0.150"	0.150"
4	0.150"	0.188"
5	0.150"	0.250"



TITLE: MATRAX STRONG PLATE 820-A ASSEMBLY DRAWING TOP VIEW	
DATE: MAY 9, 2012	DWG NO: CF120509-01
REVISED:	PAGE: 1 OF 7
REV. NO:	SCALE: N.T.S.
DRAWN BY: C. THUSS	APPR. BY:



BOTTOM VIEW

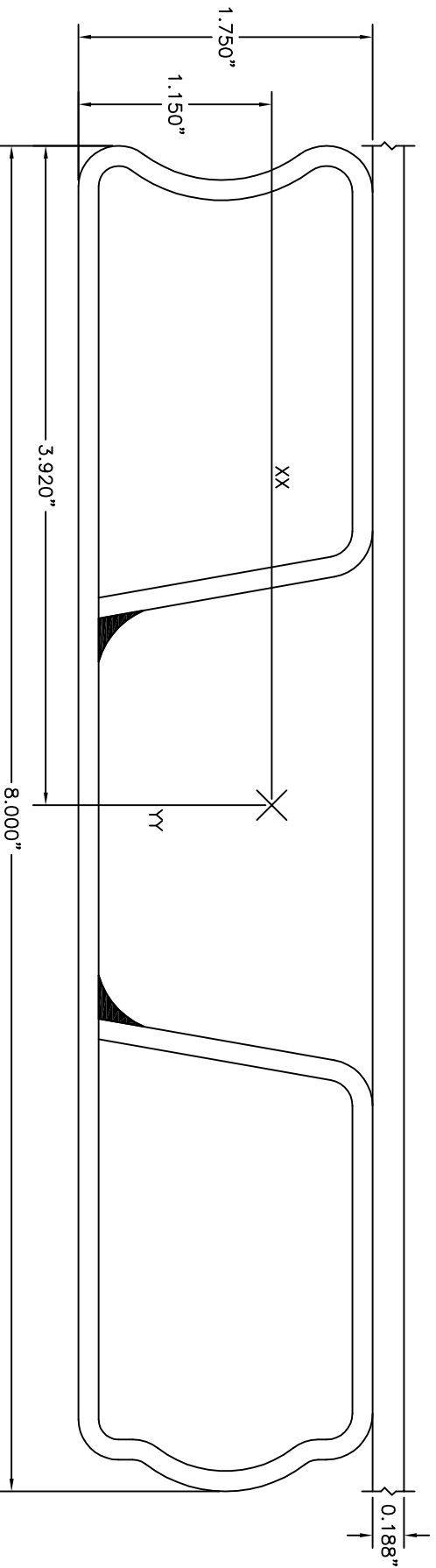
NOTES:

1. NAILABLE FLOOR THICKNESS: SEE TABLE
2. NAILABLE FLOOR MATERIAL: ASTM A1011 GR. 65 CLASS 2
3. PLATE THICKNESS: SEE TABLE
4. PLATE MATERIAL: ASTM A1011 GR. 60 CLASS 2
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NAILABLE FLOOR & PLATE THICKNESS OPTIONS		
OPTION	NAILABLE FLOOR THICKNESS	PLATE THICKNESS
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3	0.150"	0.150"
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TITLE:		MATRIX STRONG PLATE 820-A
ASSEMBLY DRAWING BOTTOM VIEW		
DATE: MAY 9, 2012	DWG NO: CF120509-01	
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SECTION PROPERTIES

MOMENT OF INERTIA (IN ⁴)	2.15
SECTION MODULUS (IN ³)	2.73
WEIGHT (LBS/FT ²)	18.89

TITLE:

MATRIX STRONG PLATE 820-A
0.120" FLOOR WITH 0.188" PLATE
AVAILABLE FLOOR SECTION PROPERTIES

DATE: MAY 9, 2012	DWG NO: CF120509-01
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