



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

APPLICATION FOR HCAI PREAPPROVAL OF
MANUFACTURER'S CERTIFICATION (OPM)

OFFICE USE ONLY

APPLICATION #: OPM-0712

HCAI Preapproval of Manufacturer's Certification (OPM)

Type: ☒ New ☐ Renewal/Update

Manufacturer Information

Manufacturer: Sysmex America, Inc.

Manufacturer's Technical Representative: Jill Crist

Mailing Address: 577 Aptakisic Road, Lincolnshire, IL 60069

Telephone: (215) 962-8236

Email: CristJ@Sysmex.com

Product Information

Product Name: Sysmex XN-3100 on WG-20 + WG-31

Product Type: Automated Hematology Analyzer

Product Model Number: XN-3100 on WG-20 + WG-31

General Description: Blood Analyzer

Applicant Information

Applicant Company Name: Sysmex America, Inc.

Contact Person: Jill Crist

Mailing Address: 577 Aptakisic Road, Lincolnshire, IL 60069

Telephone: (215) 962-8236

Email: CristJ@Sysmex.com

Title: Senior Manager IVD Product Marketing

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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY





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Registered Design Professional Preparing Engineering Recommendations

Company Name: CYS STRUCTURAL ENGINEERS, INC.

Name: Dieter Siebald

California License Number: S4346

Mailing Address: 2495 Natomas Park Drive, Suite 650, Sacramento, CA 95833

Telephone: (916) 920-2020

Email: dieters@cyseng.com

HCAI Special Seismic Certification Preapproval (OSP)

☐ Special Seismic Certification is preapproved under OSP

OSP Number: _____

Certification Method

Testing in accordance with: ☐ ICC-ES AC156 ☐ FM 1950-16

☐ Other(s) (Please Specify): _____

*Use of criteria other than those adopted by the California Building Standards Code, 2022 (CBSC 2022) for component supports and attachments are not permitted. For distribution system, interior partition wall, and suspended ceiling seismic bracings, test criteria other than those adopted in the CBSC 2022 may be used when approved by HCAI prior to testing.

☒ Analysis

☐ Experience Data

☐ Combination of Testing, Analysis, and/or Experience Data (Please Specify): _____

HCAI Approval

Date: 2/20/2025

Name: Timothy Piland

Title: Senior Structural Engineer

Condition of Approval (if applicable): _____

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SYSMEX XN-3100 ON WG-20+WG-31



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NOTES:

1. THESE DRAWINGS ARE PREPARED FOR SYSMEX AMERICA, INC., LINCOLNSHIRE, ILLINOIS.
2. THE CONTRACTOR & INSPECTOR OF RECORD SHALL OBTAIN A COPY OF THIS PRE-APPROVAL FROM THE DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION (HCAI) PRE-APPROVAL PROGRAMS WEBSITE.
3. THIS PRE-APPROVAL COVERS THE SUPPORTS & ATTACHMENTS OF THE EQUIPMENT TO THE SUPPORTING STRUCTURE. THE EQUIPMENT, SUPPORT & ATTACHMENT HARDWARE ARE SUPPLIED BY THE MANUFACTURER. THE BOLTS & "SAFE-T-PROOF" (STP) ADHESIVE FASTENERS SHOWN IN THIS OPM SHALL BE SUPPLIED & INSTALLED BY THE CONTRACTOR.



SHEET TITLE: TABLE OF CONTENTS



CYS STRUCTURAL ENGINEERS, INC.

2710 GATEWAY OAKS DRIVE, SUITE 190N
SACRAMENTO, CA 95833

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www.cyseng.com

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SYSMEX XN-3100 ON WG-20+WG-31



GENERAL NOTES:

1. THIS HCAI PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2022. THE DEMAND (DESIGN FORCES) FOR USE W/ THIS OPM SHALL BE BASED ON THE CBC 2022.
2. IT IS THE RESPONSIBILITY OF THE SEOR FOR A SITE SPECIFIC PROJECT TO VERIFY:
 - A. THE ADEQUACY OF THE NEW OR EXISTING STRUCTURE TO RESIST THE FORCES & WT SPECIFIED FOR EA EQUIP IN ADDITION TO ALL OTHER LOADS. PROVIDE & DESIGN SUPPLEMENTARY MEMBERS AS REQ.
 - B. THAT THE FLR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPGS.
 - C. THAT THE FLR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY NEW OR EXISTING ANCHORS. THE SPCG SHOWN IN THE TABLE ON PG 3 IS THE REQ MIN SPCG OF THE GIVEN DIA ANCHORS. THE REQ SPCG FROM ANCHORS OF OTHER DIAMETERS & EMBEDMENTS MAY VARY & SHALL BE EVALUATED BY THE SEOR.
 - D. THAT THE INSTALLATION IS IN CONFORMANCE W/ THE CBC 2022 & W/ THE DETAILS SHOWN IN THIS PRE-APPROVAL.
 - E. THAT THE ACTUAL EQUIP'S WT, CENTER OF GRAVITY (CG) LOCATION, ANCHOR LOCATIONS, ANCHOR DETAILS, & THE MATERIAL & GAGE OF THE EQUIP WHERE ATTACHMENTS ARE MADE, AGREE W/ THE INFO SHOWN ON THE PRE-APPROVAL DOCUMENTS.
 - F. THAT THE CONC SLAB TO WHICH THE EQUIP IS ANCHORED SHALL MEET THE REQUIREMENTS OF THE APPLICABLE ICC REPORT & THIS OPM.
3. BOLTS THRU CONC ON MTL DECK:
 - A. BOLTS SHALL BE TORQUED BY $\frac{3}{4}$ TURN OF THE NUT AFTER SNUG TIGHT CONDITION IS ACHIEVED, UNO. THE SNUG TIGHT CONDITION IS DEFINED AS THE TIGHTNESS REQ TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
 - B. THRU-BOLT HOLES SHALL BE $\frac{1}{16}$ " LARGER THAN BOLT SIZE (HOLE SIZE = BOLT SIZE + $\frac{1}{16}$ ").
 - C. THRU-BOLTS IN CONC SHALL RECEIVE SPECIAL INSPECTION & TESTING IN ACCORDANCE W/ REQUIREMENTS FOR POST-INSTALLED ANCHORS. THRU-BOLTS W/ STL TO STL CONN IN TENSION DO NOT REQUIRE TESTING.
4. EXPANSION ANCHORS INSTALLED IN NWC OR SLWC SHALL BE CARBON STEEL HILTI KB-TZ2 EXPANSION ANCHORS AS NOTED COMPLYING W/ ESR-4266 REISSUED DECEMBER 2023. SCREW ANCHORS INSTALLED IN NWC OR SLWC SHALL BE CARBON STEEL HILTI KH-EZ SCREW ANCHORS AS NOTED COMPLYING W/ ESR-3037 REISSUED DECEMBER 2023.
 - A. INSTALLATION: INSTALL THE ANCHORS IN ACCORDANCE W/ THE REQUIREMENTS GIVEN IN THE ICC EVALUATION REPORT FOR THE SPECIFIC ANCHOR & THE PARAMETERS GIVEN IN THE ANCHOR TABLE ON PG 3.
 - B. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOBSITE TESTING IN ACCORDANCE W/ THE ANCHOR TABLE PROVIDED IN THIS DOCUMENT. TEST 50% OF THE INSTALLED ANCHORS. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE SPECIAL INSPECTOR & REPORT OF TEST RESULTS SHALL BE SUBMITTED TO HCAI. IF ANY ANCHOR FAILS THE TEST, TEST ALL ANCHORS. THE TEST SHALL BE PERFORMED 24 HOURS OR MORE AFTER INSTALLATION. TESTING MAY BE DONE PRIOR TO EQUIP INSTALLATION, HOWEVER NUT SHALL BE RETORQUED TO INSTALLATION TORQUE AFTER EQUIPMENT INSTALL. ALSO REFER TO 2022 CBC 1910A.5 "TESTS FOR POST-INSTALLED ANCHORS IN CONCRETE". REPORT OF TEST RESULTS SHALL BE SUBMITTED TO HCAI.
 - C. FAILURE/ACCEPTANCE CRITERIA: THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS:
 - TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE REACHED WITHIN THE FOLLOWING LIMITS:
 - WEDGE TYPE: ONE-HALF ($\frac{1}{2}$) TURN OF THE NUT.
 - HYDRAULIC RAM METHOD: APPLY AND HOLD TEST LOAD FOR A MINIMUM OF 15 SECONDS. THE ANCHOR SHOULD HAVE NO OBSERVABLE MOVEMENT AT THE APPLICABLE TEST LOAD, E.G., AS EVIDENCED BY LOOSENING OF THE WASHER UNDER THE NUT.
 - D. AVOID DAMAGING (E) STL REINF IN CONC SLAB WHEN INSTALLING CONC EXPANSION ANCHORS.
 - E. PROVIDE FOR FULL THRD ENGAGEMENT OF NUT & WASHER.



SHEET TITLE: GENERAL NOTES



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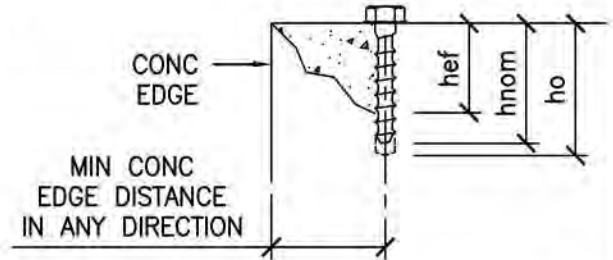
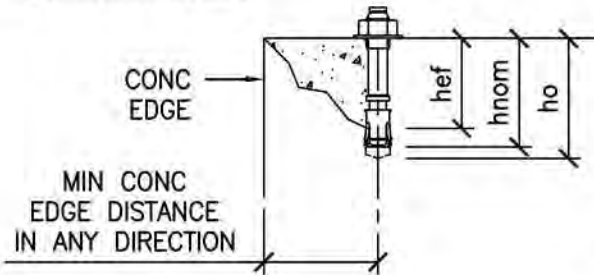
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SYSMEX XN-3100 ON WG-20+WG-31



GENERAL NOTES CONTINUED:



ANCHOR TABLE

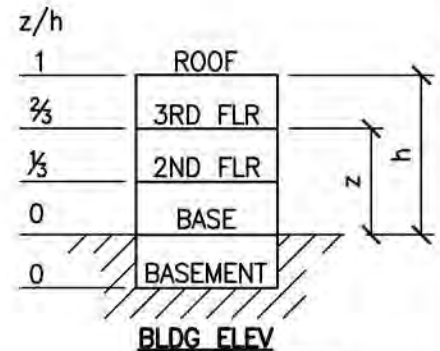
CONDITION OF ANCHORAGE	ANCHOR DIA & TYPE (INCH)	INSTALLATION EMBED (INCH) hnom	EFFECTIVE EMBED (INCH) hef	HOLE DEPTH (INCH) ho	MIN CONC THK (INCH) h	MIN CONC EDGE DISTANCE (INCH)	MIN ANCHOR SPCG (INCH)	TORQUE TEST (FT-LBS) OR TENSION TEST (LBS)
CASE 1 STRUT R'S	3/8 KB-TZ2	1 13/16	1 1/2	2	3/4	6	SEE PG 10	TORQUE = 25 FT-LBS
CASE 2	3/8 KH-EZ	2 1/2	1.86	2 3/4	3/4	8	3	TENSION = 660 LBS
CASE 3	3/8 KB-TZ2	2 1/2	2	2 3/4	4	8	3	TORQUE = 25 FT-LBS

5. THREE (3) CASES OF ATTACHMENT ARE SPECIFIED & PRESENTED IN THIS PRE-APPROVAL:

CASE 1: ATTACHMENT DETAILS LOCATED AT UPPER FLRS ABV THE BASE OF A BLDG. THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 3/4" SLWC TOPPING OVER 3" DEEP MIN 20 GA MTL DECK (f'c = 3000 PSI, MIN). ANCHORS SHALL BE CARBON STEEL THRD ROD THRU CONC FILL & MTL DECK.

CASE 2: ATTACHMENT DETAILS LOCATED AT UPPER FLRS ABV THE BASE OF A BLDG. THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 3/4" SLWC TOPPING OVER 3" DEEP MIN 20 GA MTL DECK (f'c = 3000 PSI, MIN). ANCHORS SHALL BE CARBON STEEL & INTO CONC FILL.

CASE 3: ATTACHMENT DETAILS LOCATED AT OR BLW THE BASE OF A BLDG. THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 4" NWC SLAB (f'c = 3000 PSI, MIN). ANCHORS SHALL BE CARBON STEEL.



BLDG ELEV



SHEET TITLE: GENERAL NOTES (CONTINUED)



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SYSMEX XN-3100 ON WG-20+WG-31



ABBREVIATIONS:

@	AT	NO. (#)	NUMBER OR POUNDS
AB	ANCHOR BOLT	NWC	NORMAL WEIGHT CONCRETE
ABV	ABOVE	OP	OPERATING
ADJ	ADJACENT	OPG	OPENING
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	OPM	HCAI PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION
BLDG	BUILDING	PERP	PERPENDICULAR
BLW	BELOW	PG	PAGE
BOTT	BOTTOM	PL	PLATE
BYD	BEYOND	PSI	POUNDS PER SQUARE INCH
CBC	CALIFORNIA BUILDING CODE	REINF	REINFORCING/REINFORCEMENT
CG	CENTER OF GRAVITY	REQ	REQUIRED
CL	CENTERLINE	SEOR	STRUCTURAL ENGINEER OF RECORD
CONC	CONCRETE	SIM	SIMILAR
CONN	CONNECTION	SLWC	SAND-LIGHTWEIGHT CONCRETE
COORD	COORDINATE	SPCG	SPACING
DBL	DOUBLE	SS	STAINLESS STEEL
DIM	DIMENSION	STL	STEEL
DTL(S)	DETAIL(S)	THK	THICK/THICKNESS
DIA (φ)	DIAMETER	Tu	ANCHORAGE TENSION REACTION DUE TO SEISMIC FORCE AT LRFD
(E)	EXISTING CONDITION	THRD	THREAD OR THREADED
EA	EACH	T&B	TOP & BOTTOM
EE	EACH END	TYP	TYPICAL
ELEV	ELEVATION	UNO	UNLESS NOTED OTHERWISE
EQ	EQUAL	Vu	ANCHORAGE SHEAR REACTION DUE TO SEISMIC FORCE AT LRFD
EQUIP	EQUIPMENT	W/	WITH
f'c	MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE	Wp	COMPONENT OPERATING WEIGHT
FLR	FLOOR	WT	WEIGHT
FT (')	FOOT/FEET		
Fy	SPECIFIED YIELD STRENGTH OF REINFORCING, PS OF STEEL, KSI		
GA	GAUGE		
HCAI	DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION		
ICC	INTERNATIONAL CODE COUNCIL		
IN (")	INCH		
INFO	INFORMATION		
KSI	KIPS PER SQUARE INCH		
LBS	POUNDS		
LRFD	LOAD & RESISTANCE FACTOR DESIGN		
MAX	MAXIMUM		
MIN	MINIMUM		
mm	MILLIMETER		
MTL	METAL		



SHEET TITLE: ABBREVIATIONS



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SYSMEX XN-3100 ON WG-20+WG-31

DESIGN CRITERIA:

1. SUPPORT & ATTACHMENT DESIGN IS PER 2022 CBC AT LRFD LEVEL FORCES.

OTHER MECHANICAL OR ELECTRICAL COMPONENTS PER TABLE 13.6-1 OF
ASCE 7-16 INCL SUPPLEMENT #1 & ERRATA:

$$\alpha_p = 1.0 \quad R_p = 1.5 \quad I_p = 1.5 \quad \Omega_0 = 1.5 \text{ (FOR CONC ANCHORS ONLY)}$$

W_p AS NOTED ON DRAWINGS

UPPER FLRS ABV THE BASE OF BLDG

CASE 1:	$S_{DS} \leq 1.45$	$F_p = 1.68 W_p$	$z/h \leq 0.95$
CASE 1:	$S_{DS} \leq 1.68$	$F_p = 1.68 W_p$	$z/h \leq 0.75$
CASE 2:	$S_{DS} < 0.65$	$F_p = 0.65 W_p$	$z/h \leq 0.75$

FLRS AT OR BLW THE BASE OF BLDG

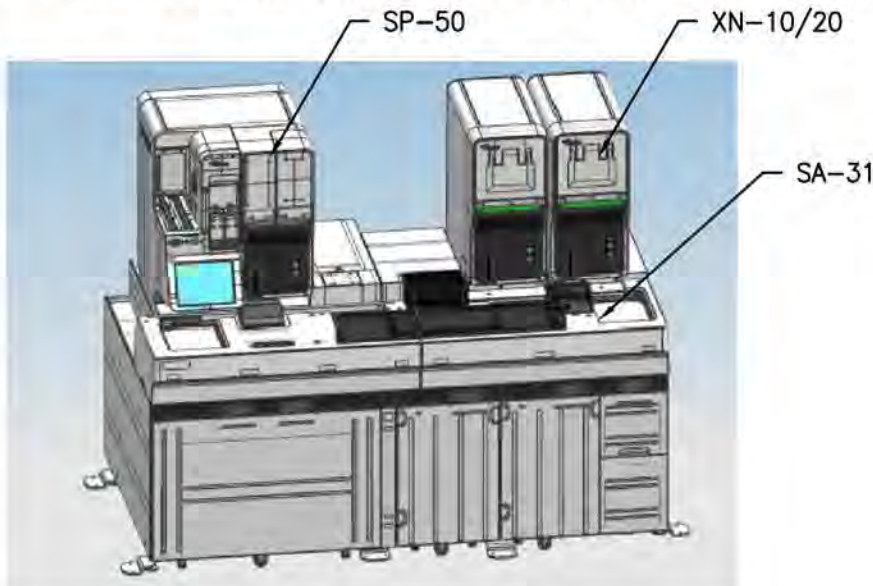
CASE 3:	$S_{DS} \leq 2.10$	$F_p = 0.945 W_p$	$z/h = 0$
---------	--------------------	-------------------	-----------

LOAD COMBINATIONS

$(0.9 - 0.2 S_{DS}) D - \Omega_0 F_p$ (FOR MAX TENSION)

$(1.2 + 0.2 S_{DS}) D + \Omega_0 F_p$ (FOR MAX COMPRESSION)

2. THIS PRE-APPROVAL MAY BE USED ONLY AT GEOGRAPHICAL LOCATIONS IN THE STATE OF CALIFORNIA WHERE S_{DS} & z/h VALUES RESULT IN AN F_p FORCE THAT IS LESS THAN OR EQ TO THE VALUE NOTED ABV. SEOR SHALL VERIFY THAT OTHER COMBINATIONS OF S_{DS} & z/h MUST RESULT IN AN F_p VALUE THAT IS EQ TO OR LESS THAN F_p FORCE FOR CASE UNDER CONSIDERATION.



ISOMETRIC OF SYSTEM CONFIGURATION



SHEET TITLE: DESIGN CRITERIA



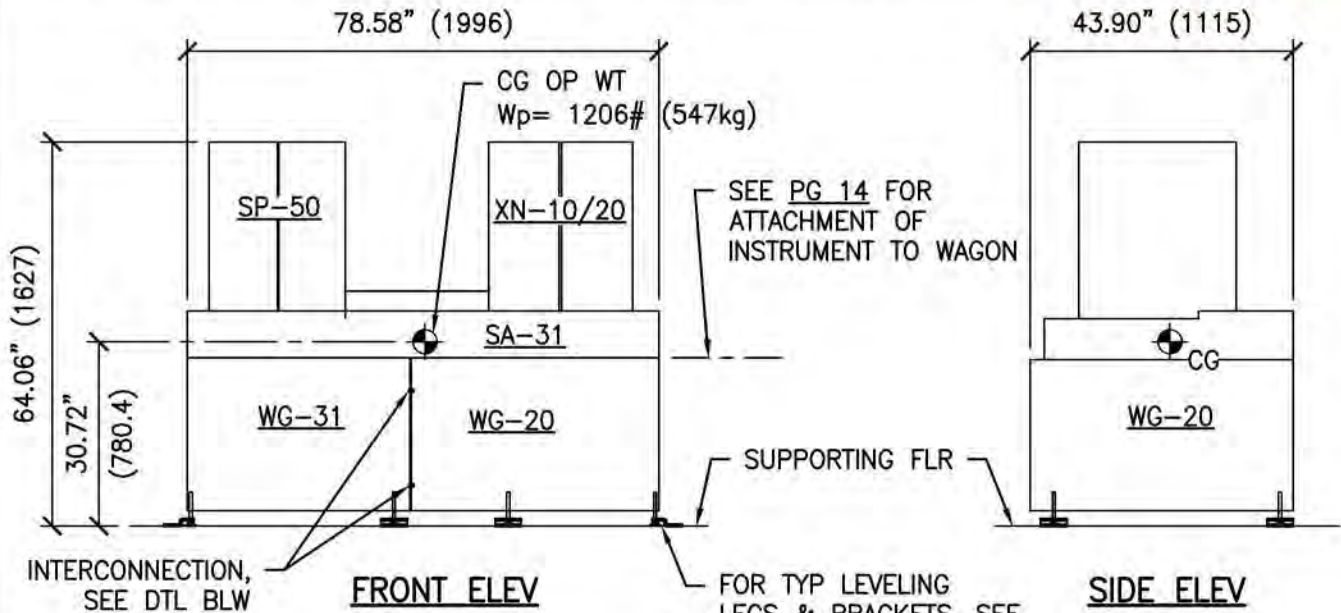
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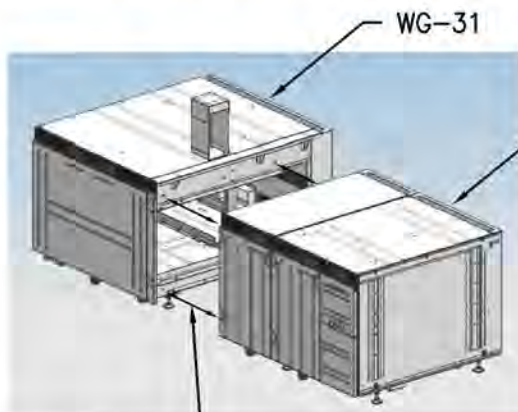
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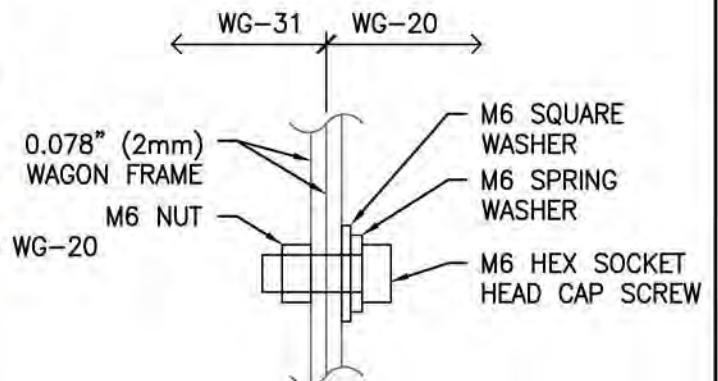


NOTES:

1. FOR PLAN VIEWS SHOWING WAGON TO FLOOR ATTACHMENTS, AND INSTRUMENT TO WAGON ATTACHMENTS, SEE PGS 7 & 14 RESPECTIVELY.
2. CASTERS NOT SHOWN FOR CLARITY.



INTERCONNECTION ISOMETRIC VIEW



WAGON INTERCONNECTION DETAIL 1



SHEET TITLE: SYSMEX XN-3100 ON WG-20+WG-31
ELEVATIONS



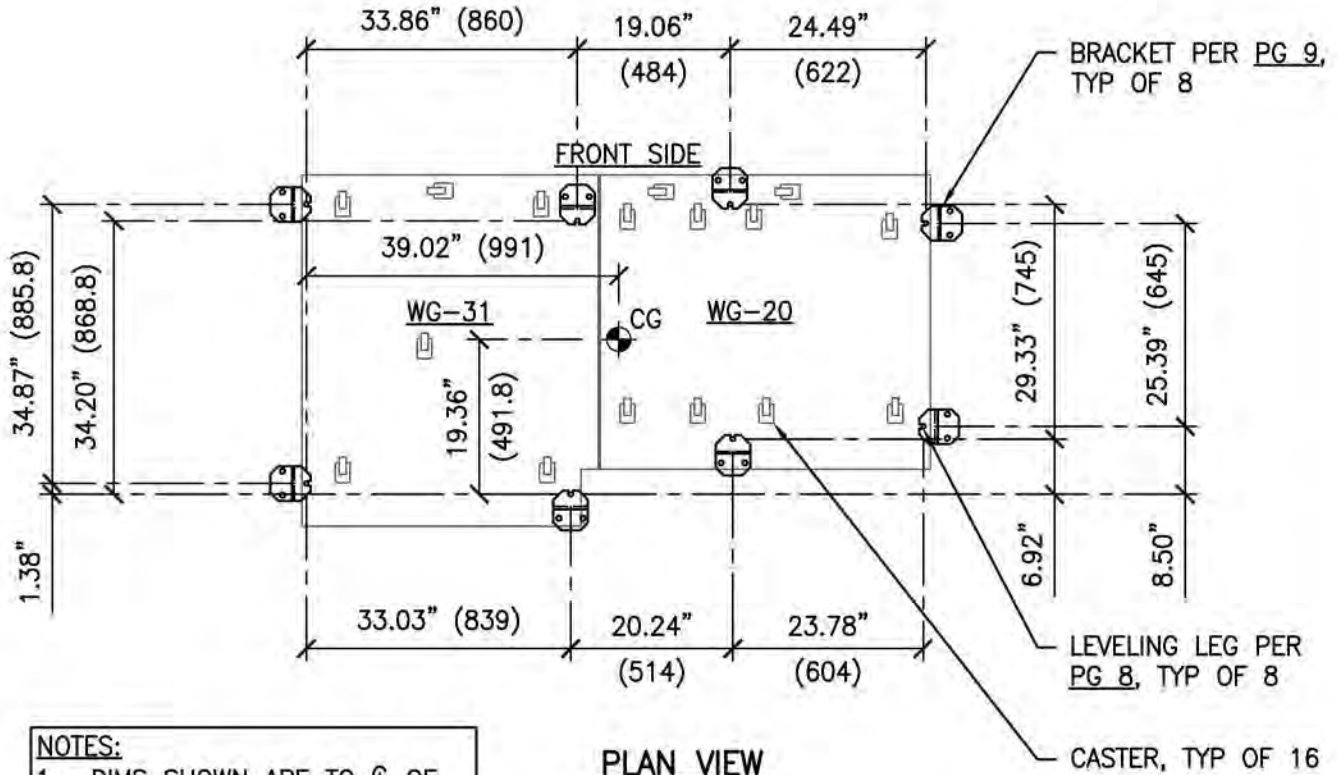
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SYSMEX XN-3100 ON WG-20+WG-31



NOTES:

1. DIMS SHOWN ARE TO ϕ OF LEVELING LEGS.
2. THIS SHEET SHOWS THE LOCATION AND ORIENTATION OF THE LEVELING LEGS, BRACKETS, AND CASTERS THAT SUPPORT THE WAGONS.

PLAN VIEW FROM BELOW



SHEET TITLE: SYSMEX XN-3100 ON WG-20+WG-31
PLAN VIEW



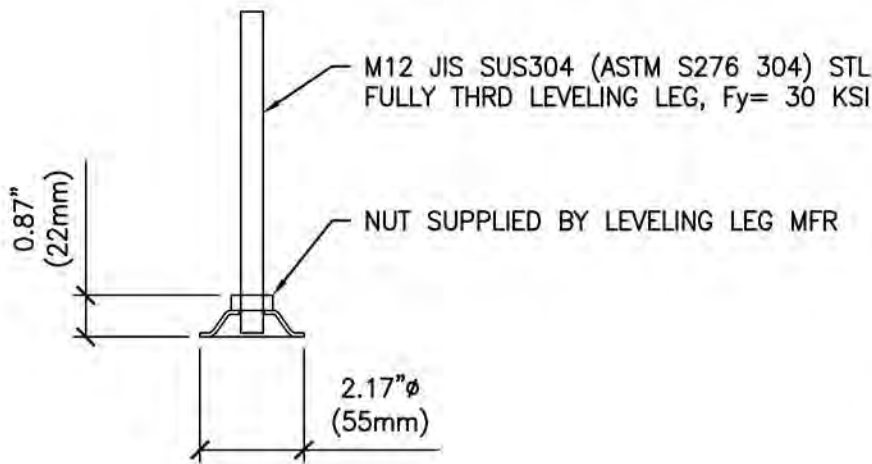
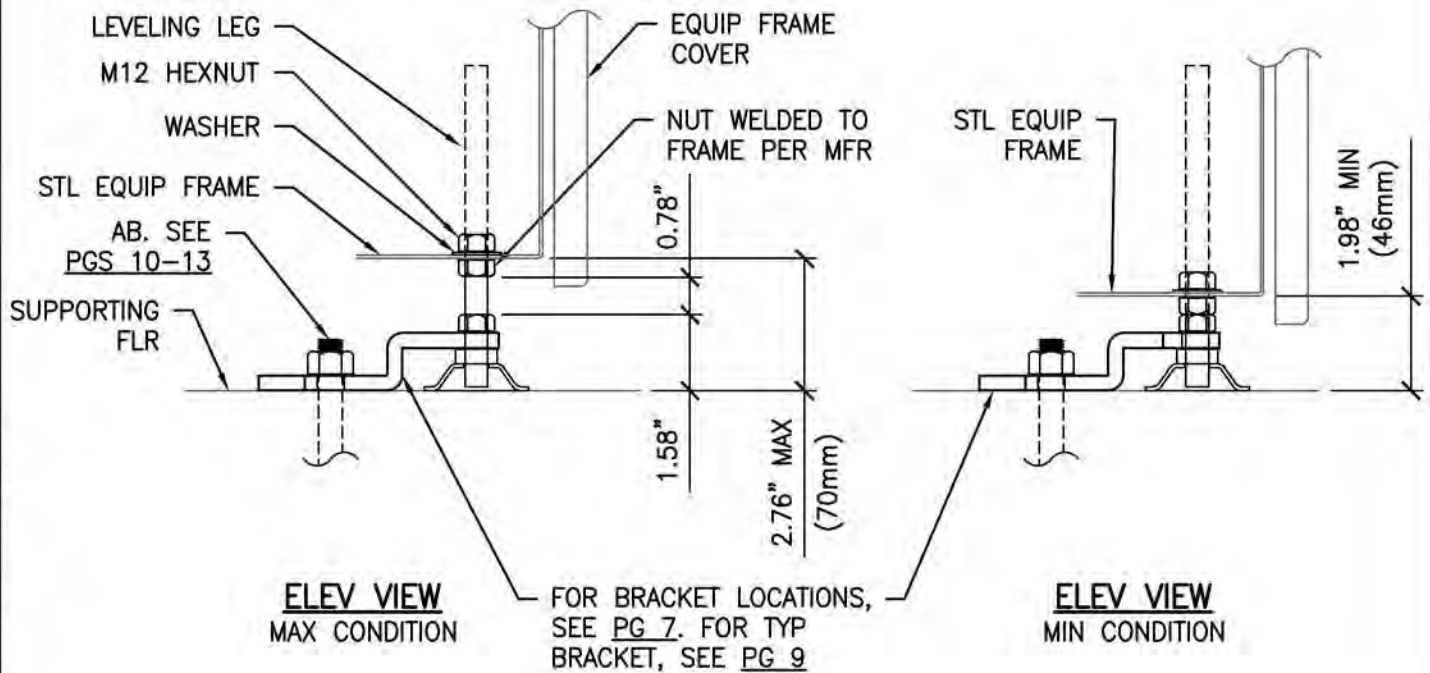
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SHEET TITLE: LEVELING LEG DETAILS



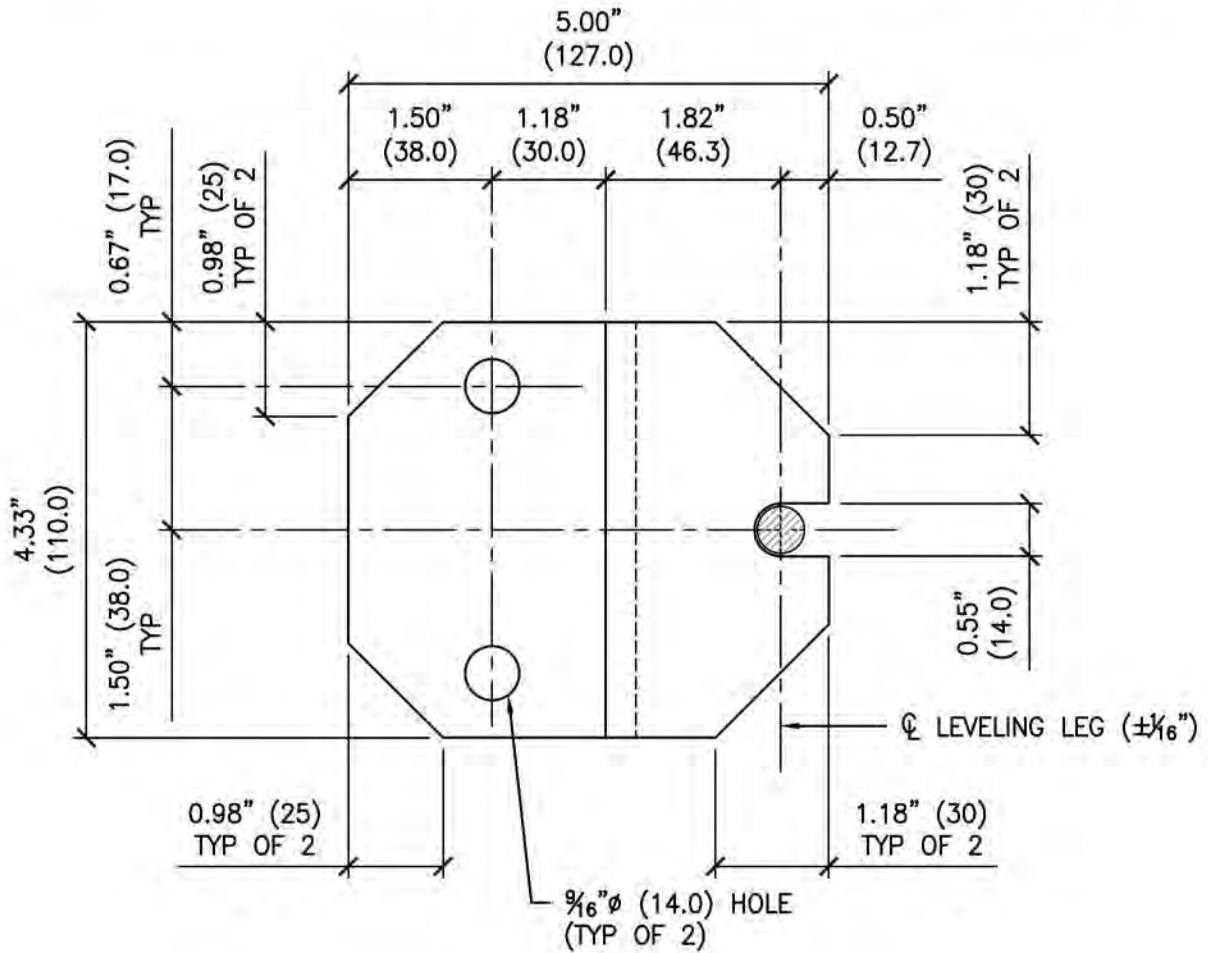
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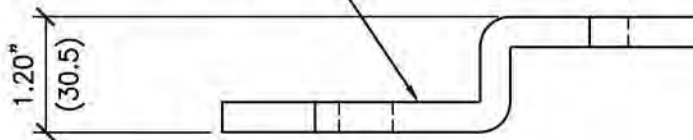
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SYSMEX XN-3100 ON WG-20+WG-31



**BRACKET
PLAN VIEW**

5/8" (8) THK JIS
 G3101-10 GRADE SS400
 (Fy= 35.53 KSI MIN)



**BRACKET
SIDE VIEW**



SHEET TITLE: BRACKET DETAIL



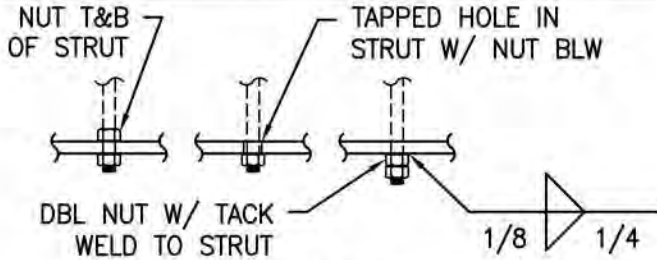
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SYSMEX XN-3100 ON WG-20+WG-31



MAX ANCHOR FORCES AT LRFD AT EA AB (LBS)		
	Tu	Vu
CASE 1 $z/h \leq 0.75$	1128#	321#

($\Omega_o = 1.5$) OVERSTRENGTH FACTOR IS APPLIED TO SHEAR FORCE ONLY

ANCHOR OPTIONS

STRUT \perp SUPPORT ANCHORS:
 $\frac{3}{8}" \phi$ KB-TZ2. SEE PGS 2 & 3 FOR INSTALLATION REQUIREMENTS

(E) NWC OR SLWC
($f'_c = 3000$ PSI)

MTL DECK EDGE

(E) MTL DECK
(20 GA MIN)

1.5" MIN AT
 \perp EDGE, TYP

6" MIN EDGE
DISTANCE, TYP

12" MIN EDGE
DISTANCE, TYP

2- $\frac{3}{8}" \phi$ ASTM A36 THRD ROD
($F_y = 36$ KSI) THRU SLAB W/
NUT & LOCK WASHER

STL EQUIP FRAME

BRACKET PER PG 9

STRUT \perp
PER PG 11

3.25" MIN

3" MAX

7.5" MAX

4.5" MIN

12" MIN TYP

1" MAX EITHER SIDE
OF FLUTE ϕ , TYP

SEE ANCHOR
OPTIONS ABV, TYP



SHEET TITLE: ATTACHMENT DETAILS THRU
CONCRETE FILL OVER METAL DECK (CASE 1)



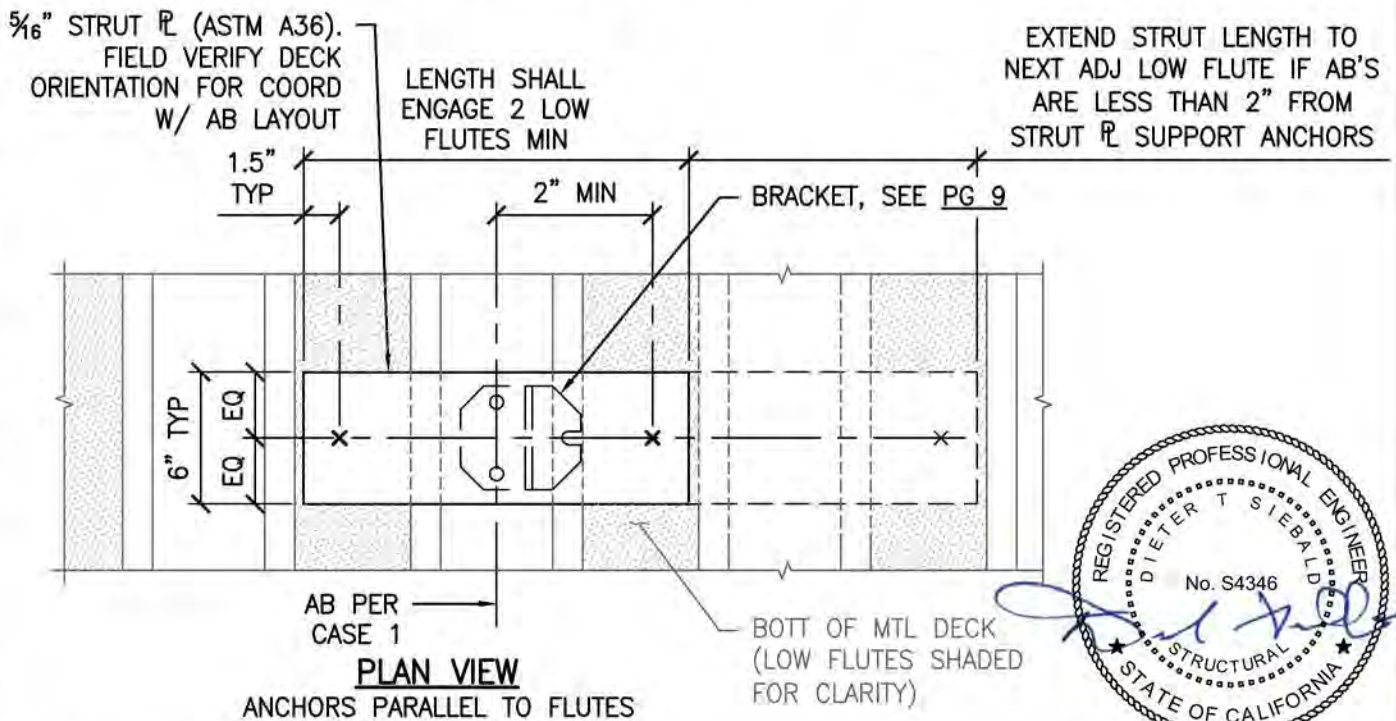
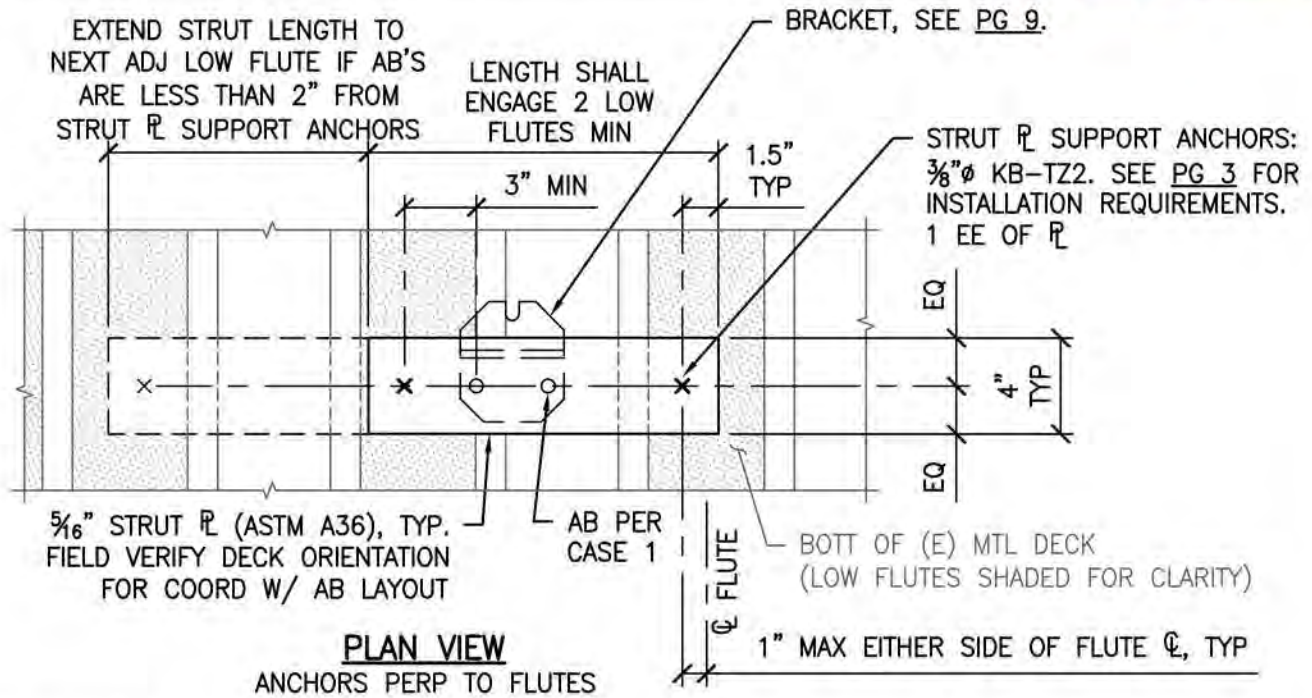
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SHEET TITLE: ATTACHMENT DETAILS THRU
CONCRETE FILL OVER METAL DECK (CASE 1)



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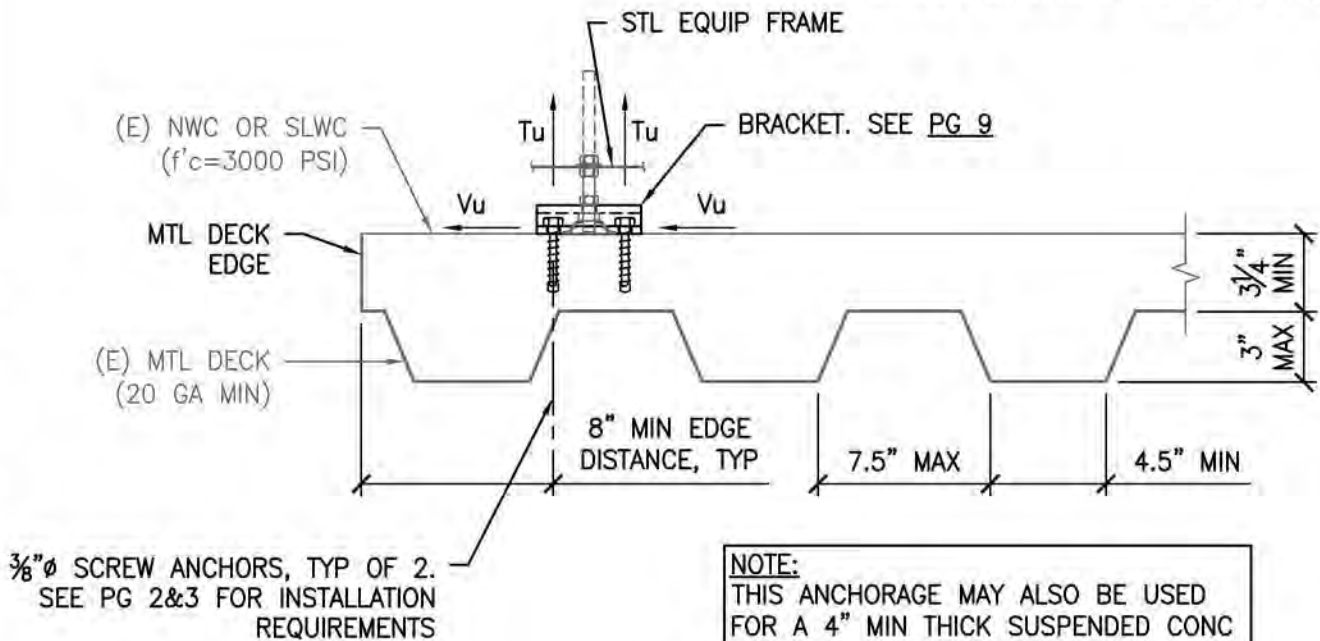
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SYSMEX XN-3100 ON WG-20+WG-31



	MAX ANCHOR FORCES AT LRFD AT EA AB (LBS)	
	Tu	Vu
CASE 2 $z/h \leq 0.75$	528#	125#

INCLUDES OVERSTRENGTH FACTOR ($\Omega_0=1.5$)



NOTE:
THIS ANCHORAGE MAY ALSO BE USED
FOR A 4" MIN THICK SUSPENDED CONC
SLAB W/ MIN $f'_c = 3000$ PSI



**SHEET TITLE: ATTACHMENT DETAILS INTO
CONCRETE FILL OVER METAL DECK (CASE 2)**

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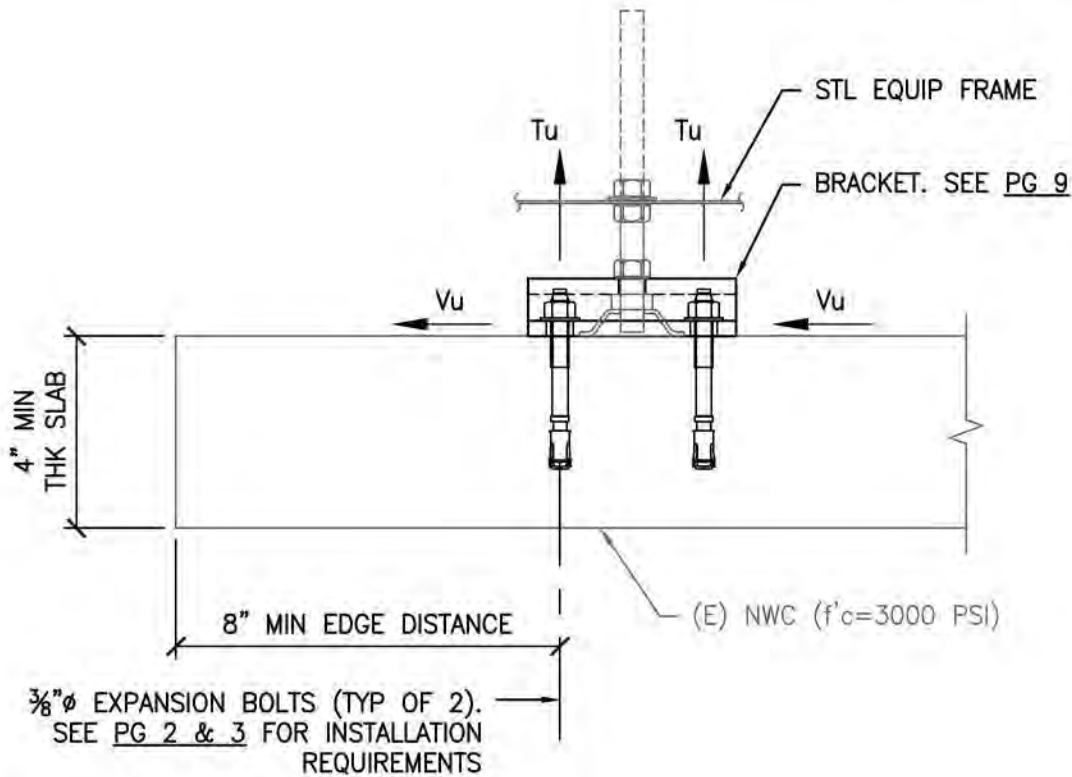
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SYSMEX XN-3100 ON WG-20+WG-31



CASE 3 $z/h \leq 0$	MAX ANCHOR FORCES AT LRFD AT EA AB (LBS)	
	Tu	Vu
	926#	182#

INCLUDES OVERSTRENGTH FACTOR ($\Omega_0=1.5$)



SHEET TITLE: ATTACHMENT DETAILS TO
4" CONCRETE SLAB AT OR BELOW GRADE (CASE 3)



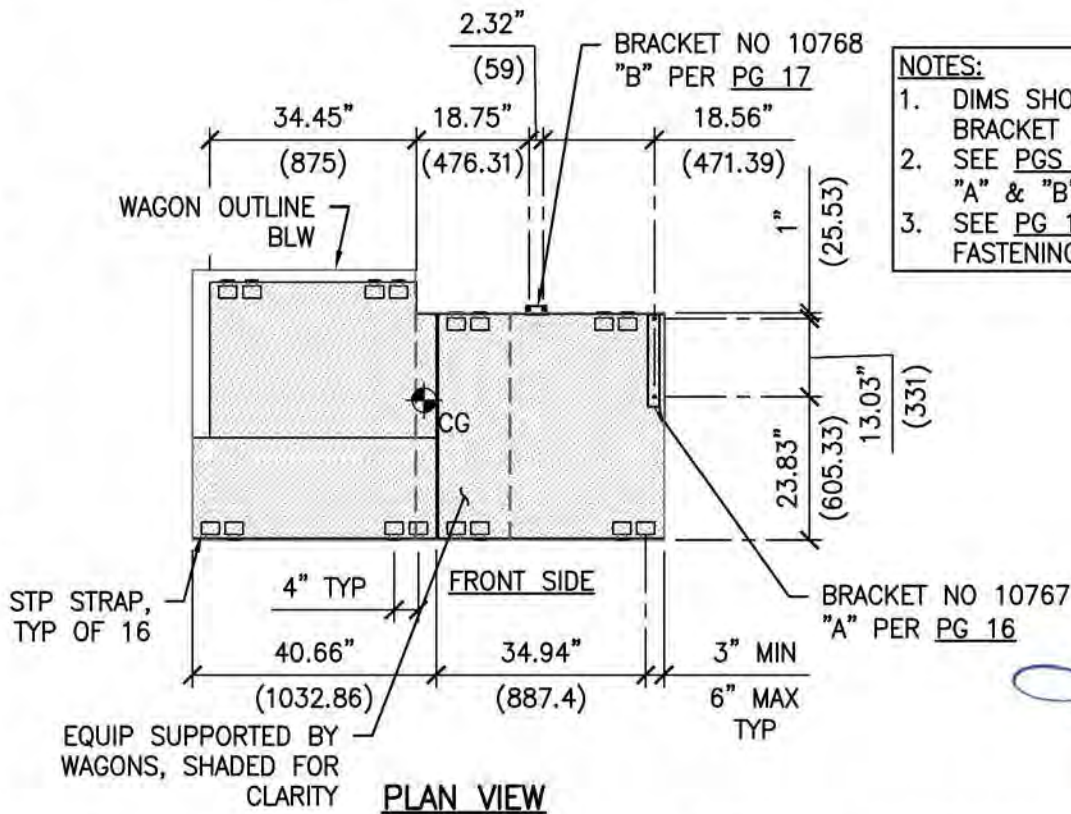
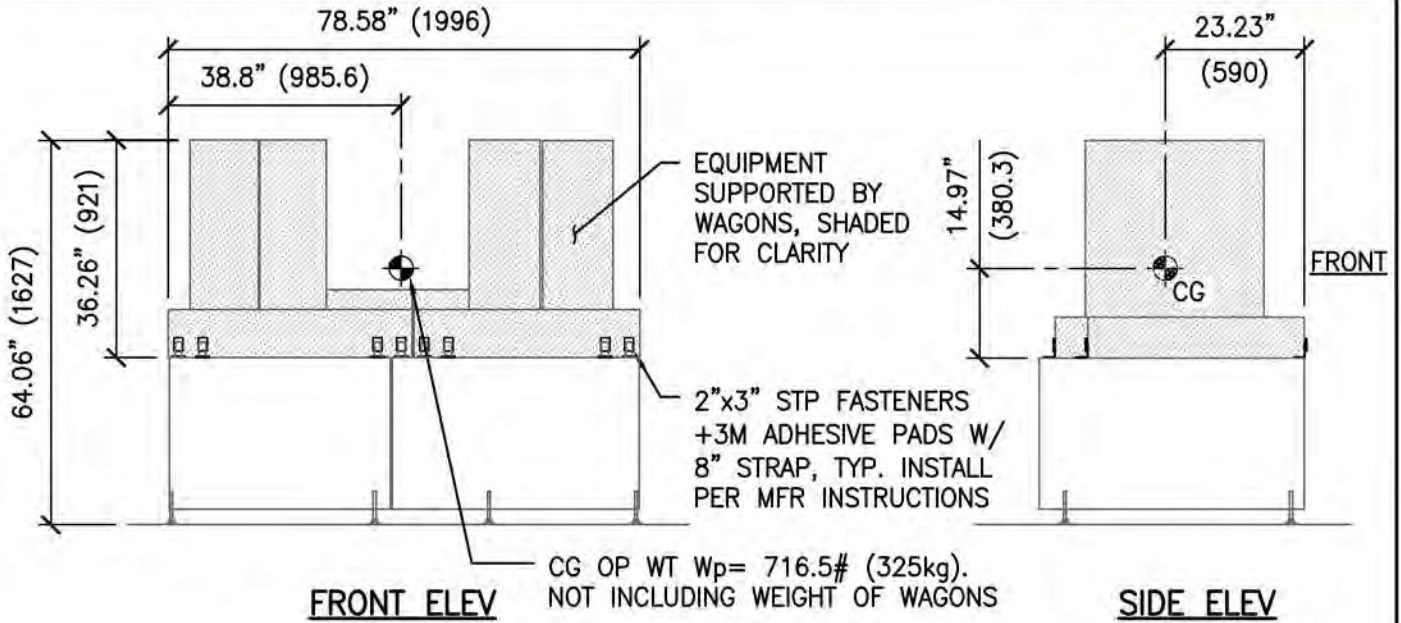
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SYSMEX XN-3100 ON WG-20+WG-31



NOTES:

1. DIMS SHOWN ARE TO ϕ OF BRACKET HOLES.
2. SEE PGS 16 & 17 FOR BRACKET "A" & "B" FASTENING DTLS.
3. SEE PG 18 FOR ADHESIVE PAD FASTENING DETAIL.



SHEET TITLE: SYSMEX XN-3100 ON WG-20+WG+31 CONNECTION TO WAGON
ELEVATIONS & PLAN VIEW



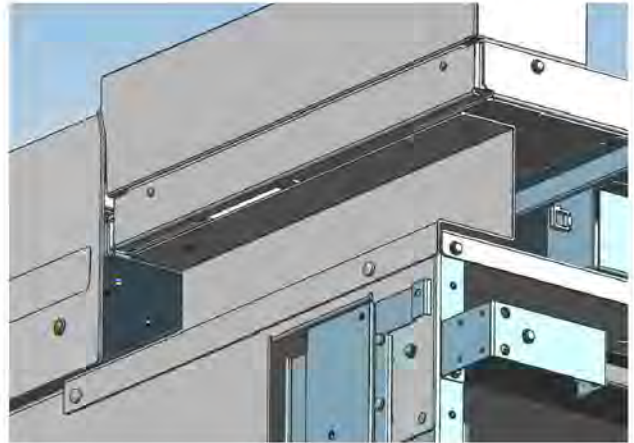
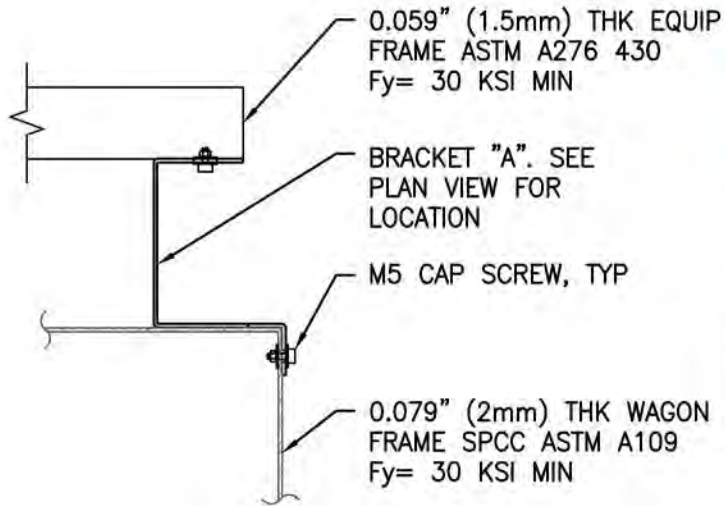
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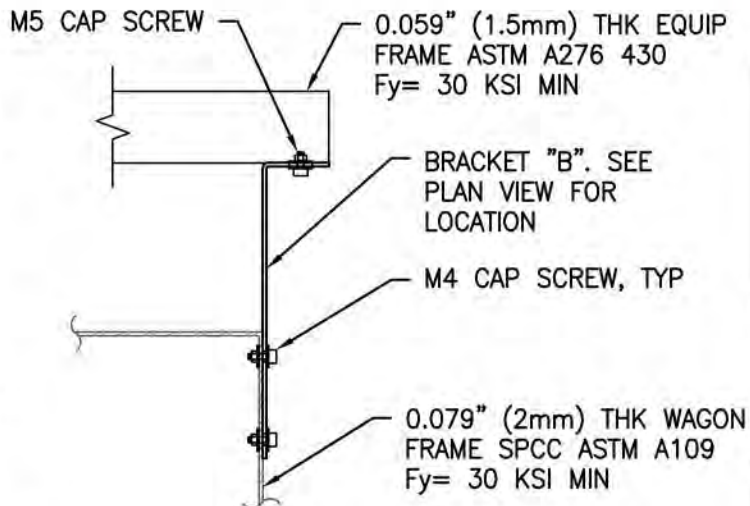
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SYSMEX XN-3100 ON WG-20+WG-31



WAGON ATTACHMENT BRACKET "A"



WAGON ATTACHMENT BRACKET "B"



SHEET TITLE: BENCHTOP ATTACHMENT DETAIL



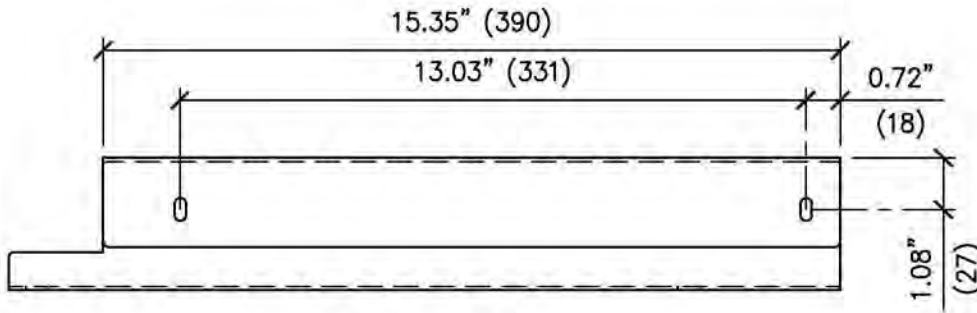
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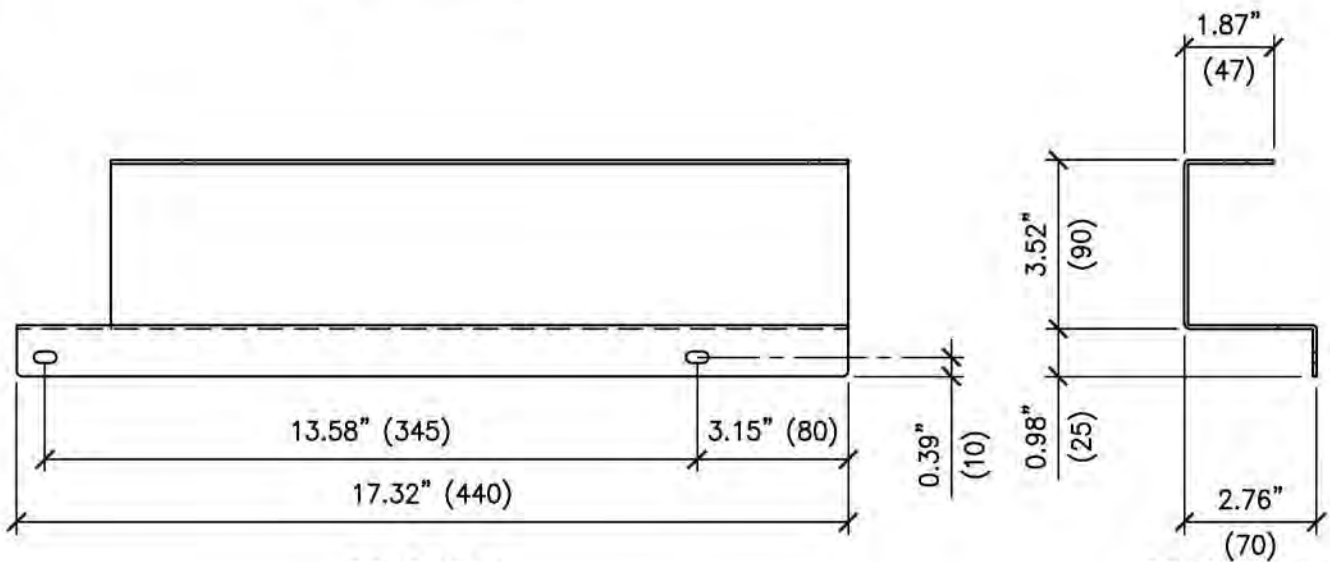
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SYSMEX XN-3100 ON WG-20+WG-31



**BRACKET A
PLAN VIEW**



**BRACKET A
FRONT ELEV**

**BRACKET A
SIDE ELEV**

BRACKET MATERIAL:
0.079" (2mm) THK ASTM A276
430 Fy= 30 KSI MIN



SHEET TITLE: BRACKET DETAILS
BRACKET NO 10767 "A"



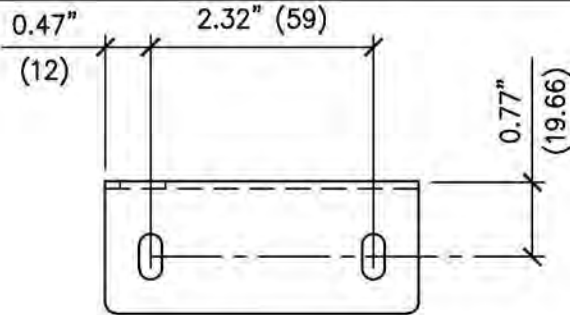
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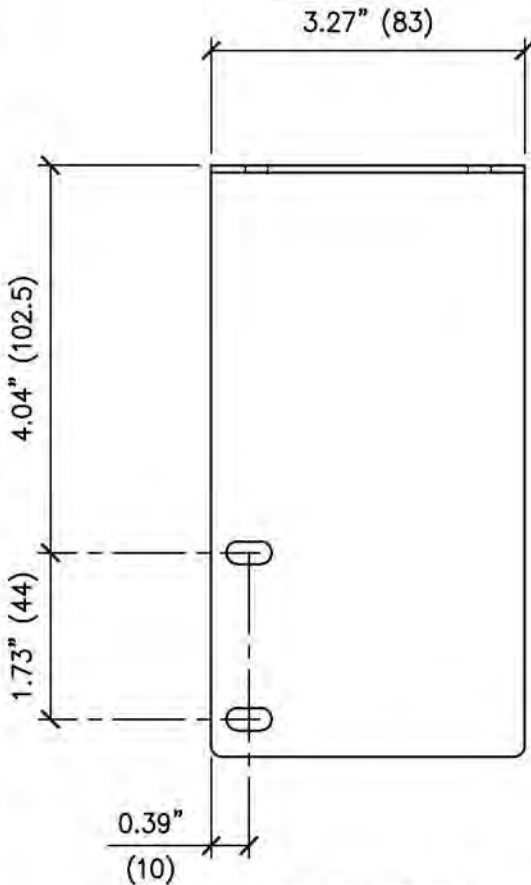
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SYSMEX XN-3100 ON WG-20+WG-31

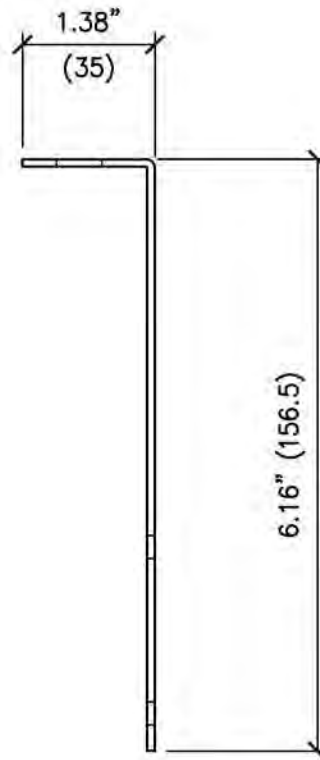


**BRACKET B
PLAN VIEW**

BRACKET MATERIAL:
 0.079" (2mm) THK ASTM A276
 430 Fy= 30 KSI MIN



**BRACKET B
FRONT ELEV**



**BRACKET B
SIDE ELEV**



SHEET TITLE: BRACKET DETAILS
BRACKET NO 10768 "B"



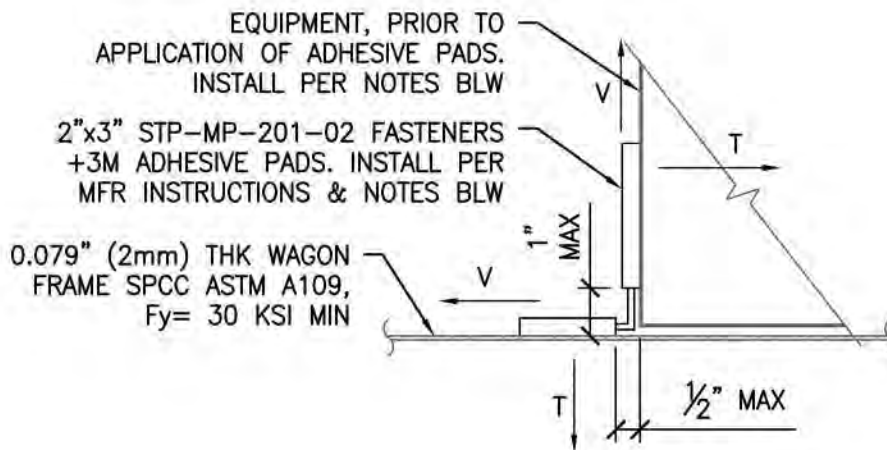
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SYSMEX XN-3100 ON WG-20+WG-31



NOTE:

FOLLOW MFR'S INSTRUCTIONS FOR ADHESION OF FOAM ADHESIVE
TO BOND SURFACE AS FOLLOWS: LIGHTLY ABRAD THE BOND
AREA OF SURFACES W/ A SCOTCHBRITE 7447 PAD & THEN CLEAN
W/ A 70:30 ISOPROPYL ALCOHOL (IPA)/WATER SOLUTION,
ALLOWED TO DRY PRIOR TO APPLICATION OF THE ADHESIVE PADS



SHEET TITLE: STP FASTENER TO WAGON CONNECTION DETAIL



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