APEX 4240
MOBILE STAGE

mobilestages.miami / apex.miami

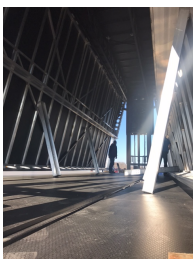
786-504-2369
786- 255-4949

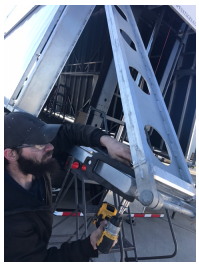
Apex 4240 Mobile Hydraulic Stage

Rental/Sales/Service 786-504-2369 / 786-255-4949 apex.miami / mobilestages.miami

The APEX 4240 features a 42’ wide x 40’ deep x 25’ tall stage area and is built on five non-slip floor sections. A center section built on the trailer frame, and a bi-folding two part deck on either side. The roof structure is capable of supporting a maximum of 48,000 lbs. The fly-bays have a capacity of 4,000 lbs. each and are designed to facilitate virtually every line array on the market. The trailer frame is supported at six points by hydraulic controlled leveling out- riggers. These out-riggers allow the deck to be set between 4’ and 6’ high in order to adapt to most terrain and venue requests.

Hang 40' un obstructed truss, enjoy a clear 16' on each of the four side wings. The 4240 comes with a complete set of options to make your production seemless.



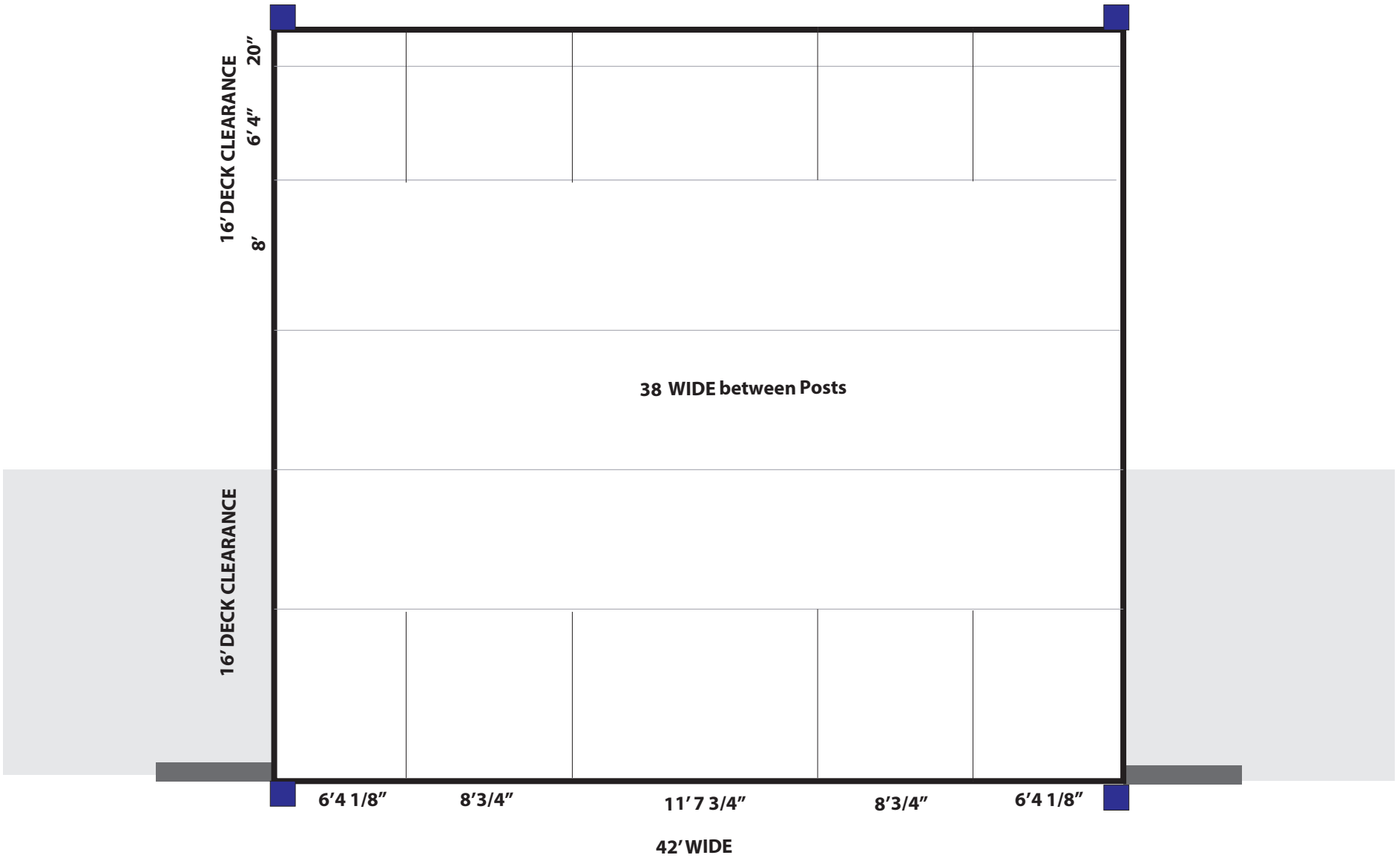


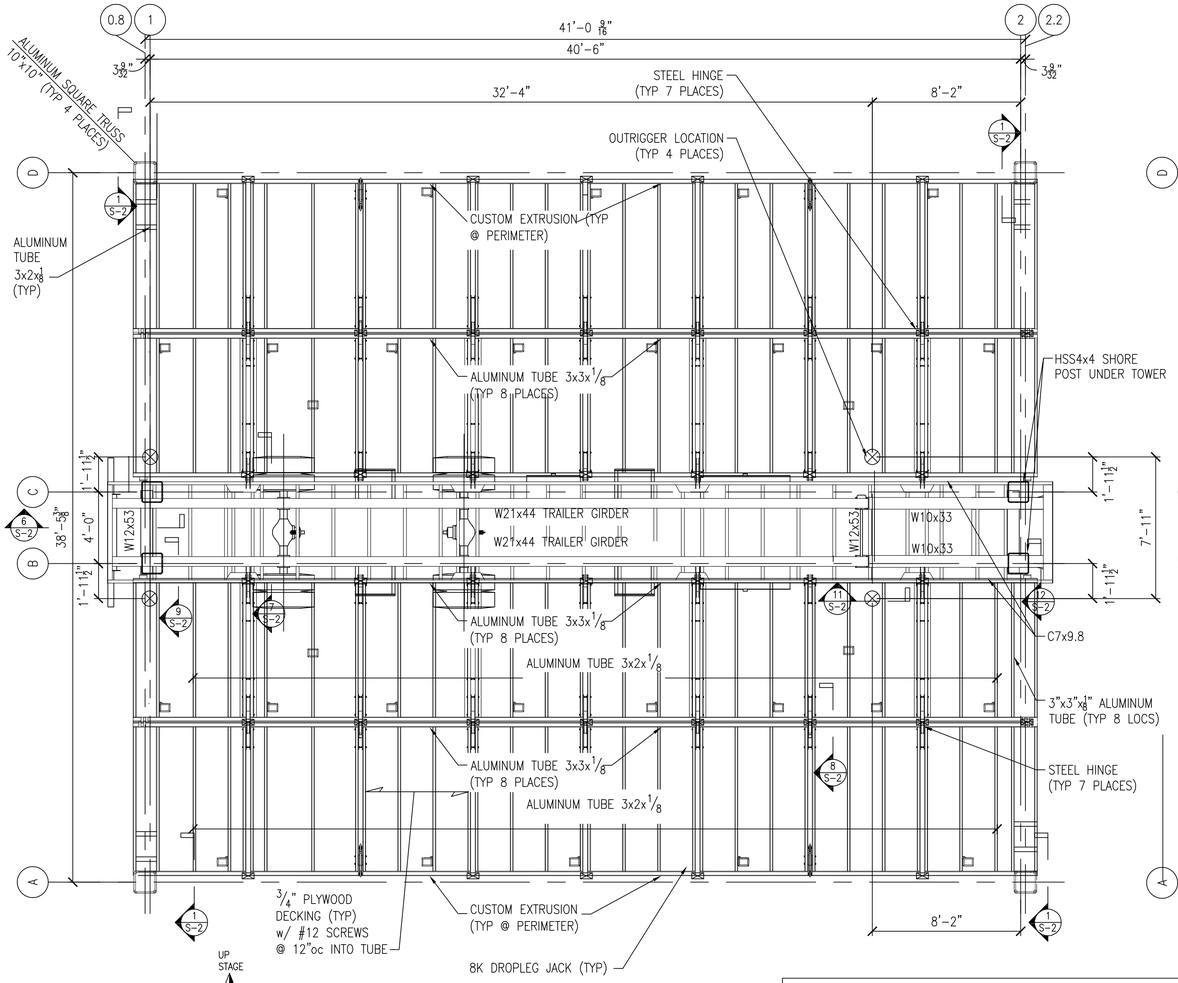
RIGGING POINTS & LOADS for

APEX 4240

MAX ROOF CAPACITY #58,000

updated 1/25/2017 tm



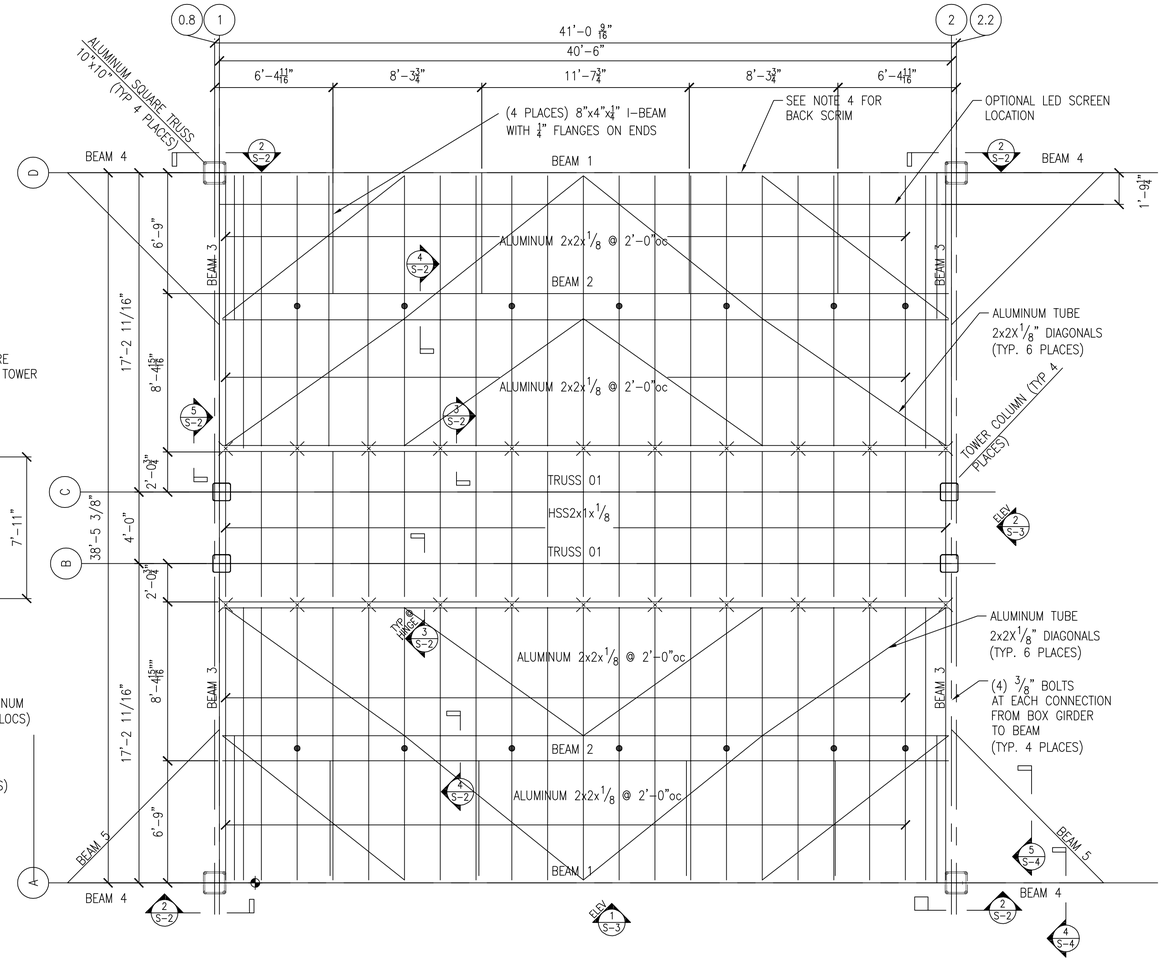


PLATFORM FRAMING PLAN

1/4" = 1'-0"

NOTES

1. ⊗ INDICATES OUTRIGGER LOCATION ON TRAILER



ROOF FRAMING PLAN

1/4" = 1'-0"

NOTES

1. ⊗ INDICATES HINGE BETWEEN STEEL ROOF & ALUMINUM ROOF.
2. ● INDICATES (2) DESTACO CLAMPS #331 720 LB CAPACITY CONNECTION BETWEEN ROOF PURLINS. CLAMPING FORCE OF 1200 LBS PER CLAMP.
3. SEE SHEET S-4 FOR TRUSS AND BEAM PROFILE
4. SEE HIGH WIND ACTION PLAN IN GENERAL NOTES: 40 MPH MAX WIND WITH SCRIM PRESENT.

UP STAGE / STAGE RIGHT / STAGE LEFT / DOWN STAGE

BEAM LOADING CHART***

BEAM CALLOUT	UNIFORM LOAD (PLF)	1/2 POINTS (LBS)	1/3 POINTS (LBS)	1/4 POINTS (LBS)
BEAM 1	180	3200	2400	1600
BEAM 1 W/ LED	50	1200	900	600
BEAM 2	70	1500	1100	750
BEAM 2 W/ LED	10	300	200	150
TRUSS 01	180	4500	3500	2400
BEAM 3 ADDIT	–	–	–	–
BEAM 3 NO B2	200	2000	1500	1000
BEAM 4	–	4000	4000/2000**	–
BEAM 5	–	2000	2000/1000****	–

NOTES

* ONLY ONE POINT LOAD PER BEAM @ ONE TIME, MULTIPLE POINT LOADS ON A SINGLE BEAM IS NOT PERMITTED

** 4000 POUND LOAD APPLIED TO THIRD POINT NEAREST TO ALUMINUM TRUSS TOWER/ 2000 POUND LOAD AT THIRD POINT NEAR WIRE ROPE.

*** VENUE OWNER SHALL VERIFY ACTUAL LOADING CONDITIONS DO NOT EXCEED THESE RESTRICTIONS

**** POINT LOADS ALIGN WITH LOADING ON BEAM 4. LOADS SHALL BE APPLIED ON BEAM 5 IN LINE WITH LOADS ON BEAM 4 AND PARALLEL TO ROOF FRAMING

ROOF HAS BEEN DESIGNED FOR SUPPORT OF LED SCREEN AT LOCATION SHOWN. ALLOWABLE LED SCREEN LOAD IS 4000#. NO SINGLE POINT LOAD IN 11'-7 1/4" CENTER SECTION SHALL EXCEED 800#. WHEN BEAM 2 IS FULLY LOADED, BEAM 3 HAS NO ADDITIONAL CAPACITY (ASSUMING SPEAKER WING IS LOADED). BEAM 3 CAPACITY WHEN BEAM 2 IS NOT LOADED AND LED IS NOT PRESENT ASSUMES SPEAKERS ARE PRESENT IN SPEAKER WINGS.

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REVISIONS

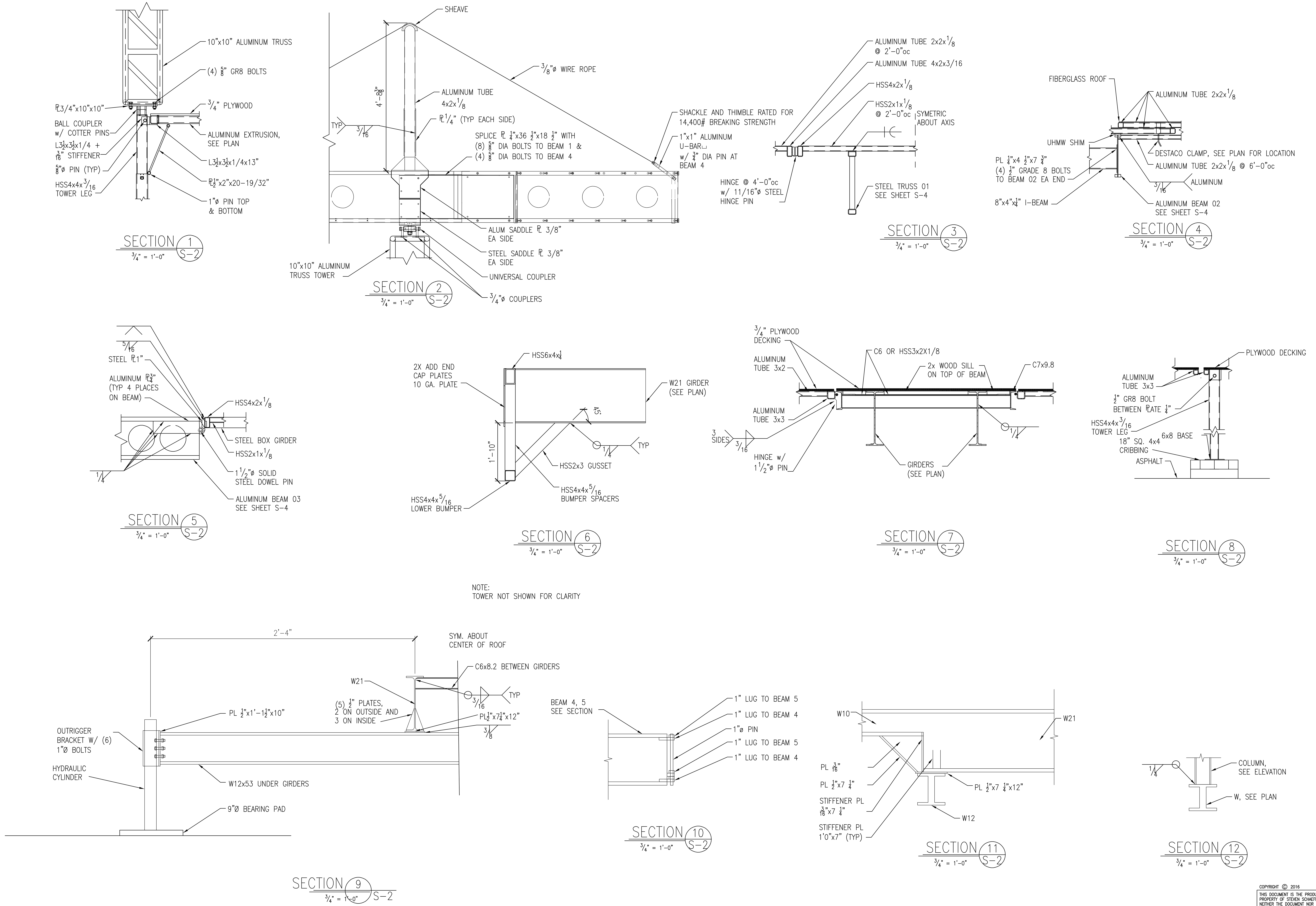
Date 2/3/2017
Drawn by KRK
Project No. 1516.04
Dwg. File Name 01PP1645

Sheet Title: PLAN VIEW
Project Title: 2016 4240 ROOF REVIEW

NOT SITE SPECIFIC

Issue 0
Sheet No. S-1 OF 5

FILENAME: 01fp1645_4240.dwg
PLOT DATE: Feb 14 2017 3:41PM
PLOTTED BY: mjm



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PLOTTED BY: mjm

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Date: 2/3/2017
Drawn by: KRK
Project No.: 1516.04
Dwg. File Name: 02FD1645

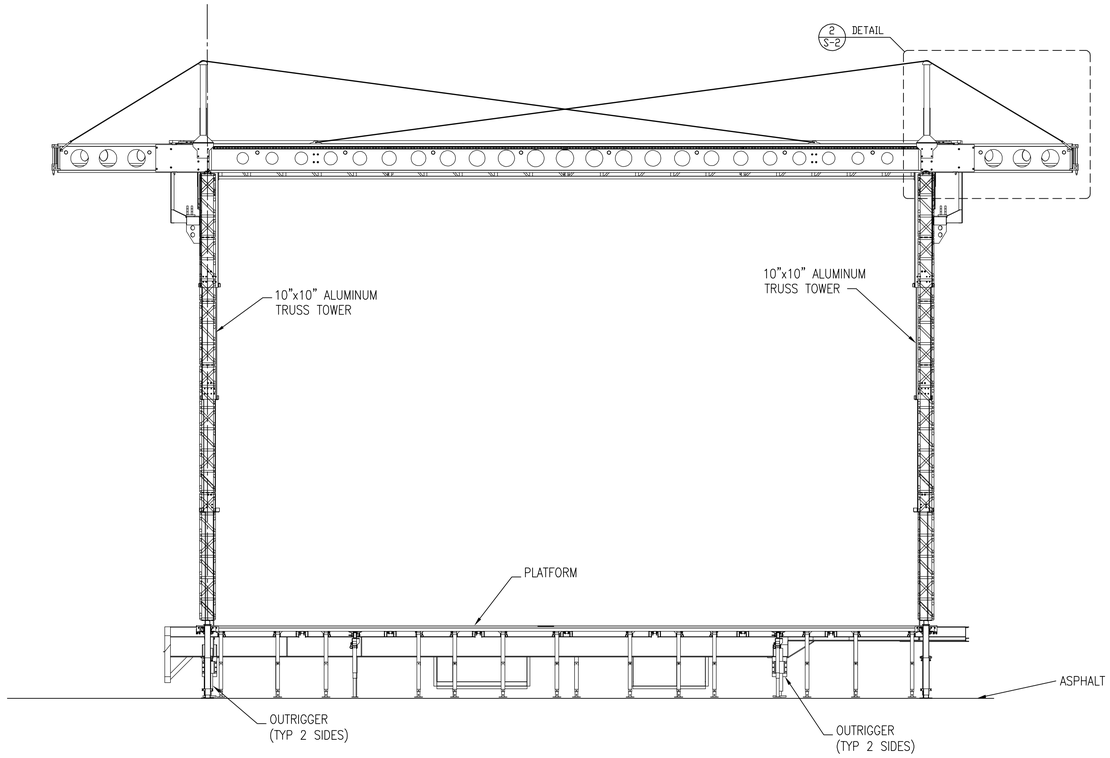
REVISIONS

Sheet Title: DETAILS

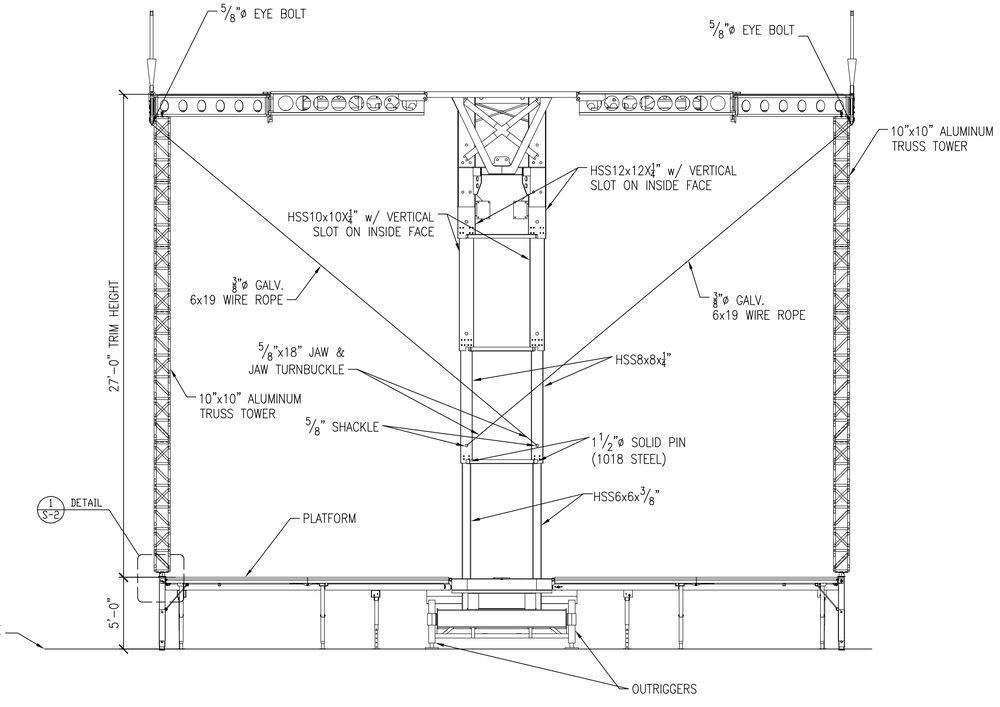
Project Title: 4240 ROOF REVIEW

Issue: 0

Sheet No. S-2 OF 5



ELEVATION 1
1/4" = 1'-0"



ELEVATION 2
1/4" = 1'-0"

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REVISIONS

Date 2/3/2017
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Project No. 1516.04
Dwg File Name 03DET1645

Sheet Title ELEVATIONS
Project Title 4240 ROOF REVIEW

Issue 0
Sheet No. S-3
OF 5

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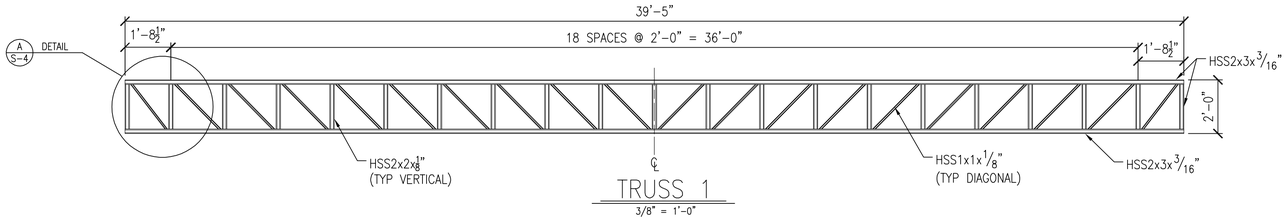
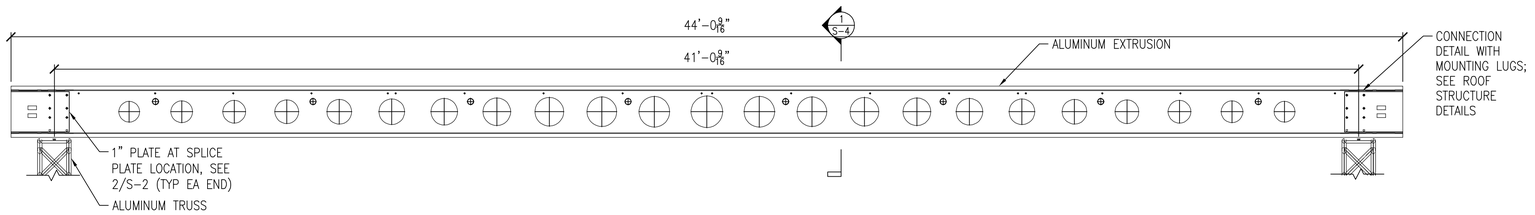
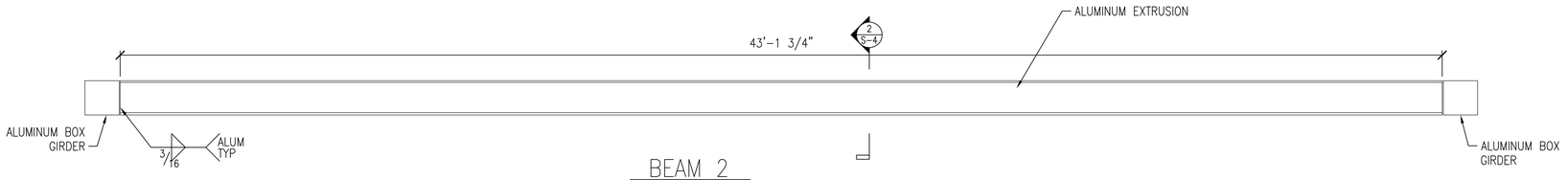
PLOTTED BY: mjm



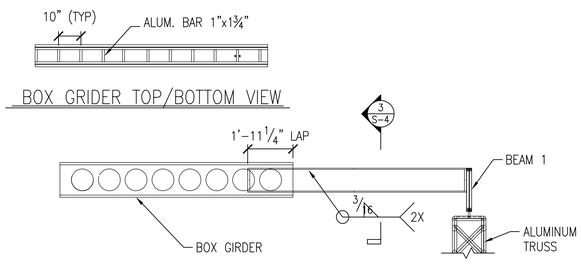
TRUSS 1
3/8" = 1'-0"



BEAM 1
3/8" = 1'-0"



BEAM 2
3/8" = 1'-0"



BEAM 3
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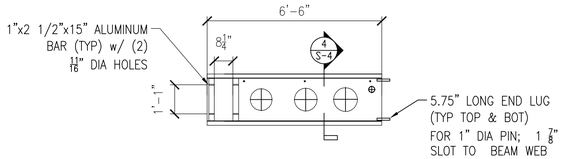
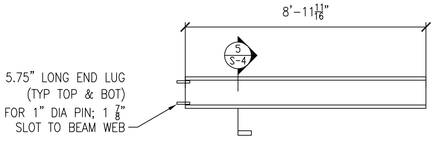
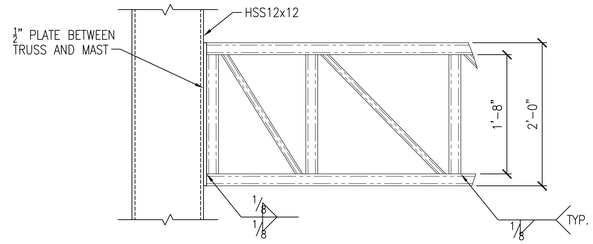


BEAM 4
3/8" = 1'-0"



BEAM 5
3/8" = 1'-0"



DETAIL A S-4
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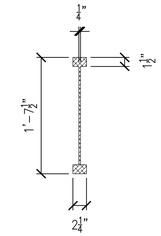
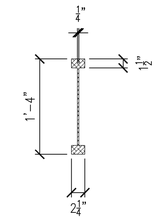


SECTION 1 S-4 / 4 S-4
1" = 1'-0"



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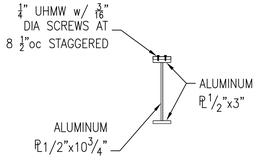

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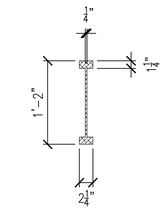

SECTION 5 S-4
1" = 1'-0"

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Date 2/3/2016
Drawn by KRK
Project No. 1516.04
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REVISIONS

Sheet Title: BEAM/TRUSS DETAILS
Project Title: 2016 4240 ROOF REVIEW

Issue 0
Sheet No. S-4 OF 5

FILENAME: 04det1645_4240.dwg
PLOT DATE: Feb 14 2017 4:05PM
PLOTTED BY: mjm

GENERAL STRUCTURAL NOTES

GOVERNING CODE

2012 INTERNATIONAL BUILDING CODE

THE ANALYSIS IS BASED ON THE DESIGN CRITERIA SHOWN BELOW AND IS NOT SPECIFIC TO ANY SITE OR USE. THESE DOCUMENTS SHALL NOT BE CONSTRUED AS DOCUMENTS TO BE USED FOR PERMIT UNLESS THE SPECIFIC SITE CHARATERISTICS AND GOVENERNING CODES HAS BEEN REVIEWED BY A STRUCTURAL ENGINEER. ESG HAS NOT ANALYZED ANY PORTION OF THE LIFTING SYSTEM OR IT'S COMPONENTS. THE ANALYSIS OF THIS STRUCTURE IS BASED ON THE ASSEMBLY OF THE STRUCTURE IN IT'S FINAL CONDITION.

DESIGN LOADS

1. UNIFORM ROOF LOAD:

   A. FRAMING LOAD — 3 PSF
      TOTAL LOAD ON TRUSSES — 2 PSF MIN.

2. ROOF RIGGING LOADS:

   A. SEE DRAWINGS FOR RIGGING LOADS ON STRUCTURE. RIGGING PLOTS NOT REVIEWED BY ESG.

3. PLATFORM LOADS:

   A. LIVE LOAD — 100 PSF
   B. FRAMING LOAD — 5 PSF
      TOTAL LOAD ON SCAFFOLD ASSEMBLY — 105 PSF MIN.

4. WIND LOAD & ASCE 37-02 (PER ASCE 7):

   A. BASIC WIND SPEED (BASED ON 3-SECOND GUST) = 80 MPH (ULTIMATE), 65 MPH (ALLOWABLE) APPLIED TO THE STRUCTURAL FRAME AND PERMANENT ATTACHMENTS FOR AN "OPEN" CONDITION MULTIPLIED BY A REDUCTION FACTOR OF 0.75 IN ACCORDANCE WITH ASCE 37-14.
   B. BASIC WIND SPEED (BASED ON 3-SECOND GUST) = 40 MPH (ALLOWABLE) APPLIED TO THE STRUCTURAL FRAME AND PROJECTED AREAS OF THE SCRIMMED WALLS FOR THE "PARTIALLY ENCLOSED" CONDITION
   C. OCCUPANCY CATEGORY = II
   D. WIND IMPORTANCE FACTOR, I = 1.0
   E. WIND EXPOSURE = C (ALL WIND DIRECTIONS)
   F. INTERNAL PRESSURE COEFFICIENT, GCpi = +0.55, -0.55

5. SEISMIC LOAD:

   A. DOES NOT APPLY FOR MOST LOCATIONS PER PLAZA E1.21. SEE NOTE ABOVE REGARDING REQUIRED SITE SPECIFIC REVIEW.

CONSTRUCTION AND SAFETY

1. CONTRACTOR SHALL BRACE ENTIRE STRUCTURE AS REQUIRED TO MAINTAIN STABILITY UNTIL COMPLETE AND FUNCTIONING AS THE DESIGNED UNIT.

2. ENGINEER SHALL NOT BE RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF CONSTRUCTION SELECTED BY CONTRACTOR.

3. THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. WHEN ON SITE, THE ENGINEER IS RESPONSIBLE FOR HIS OWN SAFETY BUT HAS NO RESPONSIBILITY FOR THE SAFETY OF OTHER PERSONNEL OR SAFETY CONDITIONS AT THE SITE.

4. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. SHOULD ANY DISCREPANCY BE FOUND, CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF THE CONDITION.

5. ROOF SYSTEM ERECTION:

   A. ROOF SYSTEM SHALL NOT BE HOISTED DURING WIND SPEEDS GREATER THAN 10 MPH.

   B. BALLAST SHALL BE INSTALLED PER SHEET S-1 WHEN WIND SPEEDS GREATER THAN 20 MPH ARE ANTICIPATED

HIGH WIND LOAD ACTION PLAN (HWAP) REQUIREMENTS

1. THE HWAP DEFINES WIND DESIGN SPEEDS FOR AN "OPEN MAIN STAGE ROOF SYSTEM" AND A "FULLY ENCLOSED MAIN STAGE ROOF SYSTEM".

   A. AN "OPEN MAIN STAGE ROOF SYSTEM" SHALL BE DEFINED BY A CONDITION WHERE THE MAIN STAGE ROOF STRUCTURE IS FULLY ERECTED WITH NO WALL PANELS OR STAGE EQUIPMENT INSTALLED ON THE ROOF STRUCTURE.
   B. A "FULLY ENCLOSED MAIN STAGE ROOF SYSTEM" SHALL BE DEFINED BY A CONDITION WHERE THE MAIN STAGE ROOF STRUCTURE IS FULLY ERECTED WITH SIDESTAGE OR BACKSTAGE WALL PANELS OR STAGE EQUIPMENT INSTALLED ON THE ROOF STRUCTURE.

   C. WIND DESIGN SPEEDS FOR THE "OPEN" CONDITION AND THE "FULLY ENCLOSED" CONDITION ARE DEFINED IN THE "LOADS" SECTION, ABOVE.

2. THE PURPOSE OF THE HWAP IS TO ENSURE THAT ALL STRUCTURES IN THE STAGE BLOCK (STAGE, STAGE ROOF, SIDE STAGE SCAFFOLD TOWERS & BACKSTAGE) AREA WILL REMAIN SAFE DURING ALL WIND CONDITIONS. THE HWAP DOES NOT PREVENT DAMAGE TO THE STRUCTURE DURING HIGH WIND EVENTS, ONLY GLOBAL STABILITY.

   A. A SAFE MEANS OF USING A LOWER WIND DESIGN SPEED FOR A FULLY ENCLOSED MAIN STAGE ROOF SYSTEM

   B. THE HWAP PROVIDES A MEANS OF SAFELY RESPONDING TO INCREASING WIND LOAD DURING PERIODS OF VENUE OPERATION.

   C. THE HWAP IS ONLY INTENDED TO PROVIDE A METHOD FOR REDUCING THE PROJECTED WIND AREA ON THE PERFORMANCE STAGE MAIN ROOF ONLY.

   D. THE HWAP PERTAINS TO REMOVAL OF MAIN ROOF SIDE WALLS AND BACK WALLS ONLY.

   E. THE HWAP SHALL BE IN FORCE AT ANY TIME WHEN THE MAIN STAGE ROOF SYSTEM FABRIC SIDEWALLS AND BACK WALLS ARE INSTALLED.

   F. THE HWAP IS NOT REQUIRED WHEN THE MAIN STAGE ROOF SIDEWALLS AND BACKWALLS ARE NOT INSTALLED.

3. THE FOLLOWING PROVISIONS MUST BE MET PRIOR TO IMPLEMENTATION OF THE HWAP;

   A. THE FABRIC SIDEWALL AND BACKWALL INSTALLATION METHOD MUST ALLOW FOR THESE UNITS TO BE LOWERED IN A CONTROLLED FASHION IN LESS THAT 5 MINUTES FROM NOTICE OF PUTTING THE HWAP INTO ACTION.

4. HWAP TRAINING:

   A. THE VENUE OPERATOR SHALL PROVIDE FOR HWAP TRAINING OR ENSURE THAT THE TRAINING IS PROVIDED BY OTHERS.

   B. TRAINING SPECIFICS:

      1. A DOCUMENTED RECORD OF TRAINING SHALL BE KEPT ON SITE AND IN THE VENUE OPERATORS GENERAL OFFICES.
      2. ALL HWAP TRAINED PERSONNEL SHALL BE RETRAINED AFTER A PERIOD OF 3 YEARS OR AFTER THEY HAVE NOT WORKED AT THE VENUE FOR A PERIOD OF 1 YEAR.
      3. A MOBILIZATION MEETING SHALL TAKE PLACE AT THE BEGINNING OF EACH EVENT TO DEFINE SPECIFIC RESPONSIBILITIES FOR ONSITE HWAP PERSONNEL.
      4. AN HWAP CREW MANAGER SHALL BE DESIGNATED DURING THE MOBILIZATION MEETING.
      5. THE HWAP CREW MANAGER SHALL HAVE AUTHORITY TO IMPLEMENT THE HWAP AT ANY TIME AND UNDER ANY CIRCUMSTANCES HE/SHE SEES FIT.

5. HIGH WIND ACTION PLAN:

   A. THE HWAP SHALL BE IN FORCE WHEN ANY OF THE FOLLOWING CONDITIONS OCCUR:

      1. FABRIC SIDEWALLS AND/OR BACKWALLS ARE INSTALLED ON THE MAIN STAGE ROOF SYSTEM.

      2. THE VENUE IS BEING USED FOR AN EVENT.
         a. AN EVENT SHALL BE DEFINED AS ANY CONCERT, REHEARSAL, RENTAL OR ANY OTHER PROFESSIONAL OR COMMERCIAL USE OF THE STAGE SPACE BY ANY PARTY THAT IN ANY WAY REQUIRES USE OF STAGING EQUIPMENT TO BE ATTACHED TO THE MAIN STAGE ROOF STRUCTURE.
         b. EXCEPTION:
            (1) ANY EXCEPTION SHALL BE ALLOWED IF THE EQUIPMENT INSTALLED ON THE MAIN ROOF UNIT PRESENTS A PROJECTED WIND AREA OF LESS THAN 2% OF THE BARE ROOF AREA AND
            (2) NO SIDEWALLS OR BACKWALLS OF ANY KIND ARE INSTALLED ON THE MAIN STAGE ROOF SYSTEM.

   B. THE HWAP SHALL GOVERN OPERATING CONDITIONS DURING A TIME PERIOD THAT SHALL COMMENCE AT THE BEGINNING OF PRE-EVENT OPERATIONS AND SHALL CONTINUE TO SUCH TIME WHEN ALL PERSONNEL AND EQUIPMENT HAVE BEEN REMOVED FROM THE VENUE AT THE CLOSE OF THE SPECIFIC EVENT.

   C. **MONITORING OF SITE WIND CONDITIONS:** ACTIVE ON SITE WIND MONITORING SHALL BE MAINTAINED FOR THE DURATION OF THE MAIN STAGE ROOF SYSTEM ERECTION UNLESS THE WALL PANELS ARE LOWERED TO REDUCE WIND PRESSURE.

      1. **LOCAL WEATHER SERVICE MONITORING:** REAL-TIME MONITORING OF A LOCAL LINK TO THE NATIONAL WEATHER SERVICE (THIS MAY BE A LINK TO A LOCAL COMMERCIAL OR GOVERNMENT SERVICE) SHALL BE MAINTAINED BY THE HWAP CREW. REAL-TIME MONITORING SHALL BE INSTALLED IF WIND SPEEDS GREATER THAN 20 MPH ARE ANTICIPATED. THE USER SHALL BE SOLELY RESPONSIBLE FOR PROPER INSTALLATION OF THE BALLAST BEFORE AND DURING THE EVENT.

      2. **ACCESS DURING MONITORING:** ACCESS IN THE VICINITY OF THE ROOF STRUCTURE SHALL ONLY BE ALLOWED WHILE MONITORING IS MAINTAINED.

   D. **WHEN WIND GUSTS EXCEED 25 MPH:** MOBILIZE THE HWAP CREW AND HAVE THE NECESSARY PERSONNEL IN PLACE AND ON STANDBY.

   E. **WHEN WIND GUSTS EXCEED 30 MPH:** CEASE ALL SHOW OPERATIONS. EVACUATE ALL AUDIENCE MEMBERS AND CREW FROM THE IMMEDIATE VICINITY OF THE MAIN STAGE ROOF SYSTEM EXCEPT HWAP CREW PERSONNEL.

   F. **WHEN WIND GUSTS EXCEED 35 MPH**: LOWER, REMOVE OR CUT WALL PANELS TO REDUCE WIND LOAD ON THE STRUCTURE. LOWERING OR REMOVAL OF WALL PANELS MUST BE ACCOMPLISHED FROM THE GROUND BY REMOTELY ACTIVED SYSTEMS. **NO PERSONNEL MAY CLIMB THE STRUCTURE TO EFFECT LOWERING OF THE SIDE PANELS.** THESE SYSTEMS MAY INCLUDE ELECTRICAL LOWERING DEVICES, MECHANICAL RELEASE SYSTEMS OR OTHER SYSTEMS THAT ALLOW THE WALL PANELS TO BE BROUGHT TO THE GROUND IN LESS THAN 5 MINUTES.

   G. **WHEN WIND GUSTS EXCEED 40 MPH:** ALL WALL PANELS MUST BE FULLY LOWERED AND SECURED AT GROUND LEVEL. **IF WALL PANELS HAVE NOT BEEN REMOVED** WHEN WIND SPEED EXCEEDS 40 MPH, ALL PERSONNEL SHOULD MAINTAIN A SAFE CLEAR DISTANCE FROM THE ROOF SYSTEM AS COLLAPSE OF THE ROOF OR MOVEMENT OF THE STRUCTURE MAY OCCUR.

   H. THE BALLAST ON THE STRUCTURE COLUMN SHOULD BE INSTALLED TO PREVENT GLOBAL UPLIFT ON THE STRUCTURE PER THIS SHEET PRIOR TO INSTALLATION OF THE SYSTEM IF WEATHER CONDITIONS WARRANT AND WIND SPEEDS WILL BE GREATER THAN 40 MPH. THE USER OF THE SYSTEM IS SOLELY RESPONSIBLE FOR DETERMINING WHETHER INSTALLATION OF THE BALLAST IS REQUIRED. ESG RECOMMENDS MEASURES TO INSTALL ALL BALLAST QUICKLY SHALL BE PUT IN PLACE PRIOR TO ALL DEPLOYMENTS.

ONCE WALL PANELS HAVE BEEN REMOVED FROM THE ROOF SYSTEM AND THE BALLAST INSTALLED, THE STAGE BLOCK STRUCTURES ARE SAFE FOR THE FULL DESIGN WIND SPEED.

DO NOT LOWER ROOF SYSTEM DURING CONDITIONS OF HIGH WIND.
LOWER WALL PANELS TO REDUCE WIND PRESSURE ON SYSTEM.

THIS HIGH-WIND ACTION PLAN MUST BE POSTED IN A CONSPICUOUS AREA ON SITE. IT MUST BE PROTECTED FROM THE WEATHER AND AVAILABLE AT ALL TIMES TO VENUE OPERATORS AND CREW AND ANY AUTHORITY HAVING JURISDICTION RELATING TO THESE MATTERS.

STRUCTURAL STEEL

1. ALL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO AISC SPECIFICATIONS FOR "DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", AND THE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", LATEST EDITION.

2. FIELD CONNECTIONS SHALL BE BOLTED OR CONNECTED WITH APPROVED TRUSS SYSTEM CONNECTORS.

   A. TRUSS CONNECTORS MAY BE BOLTS OR PROPRIETARY CONNECTORS SUCH AS TAPERED PINS SPECIFICALLY DESIGNED FOR USE WITH TRUSS SYSTEM.

3. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS D1.1:2000).

4. MATERIALS:

   A. PLATES UNLESS NOTED: A36

   B. PIPE SHAPES (HSS SQUARE): ASTM A500 GRADE B.

   C. BOLTS OR TRUSS CONNECTION PINS: SAE GRADE 5.

   D. DOWEL PINS – STEEL YEILD STRENGTH 75,000 PSI.

5. PAINT AND PROTECTION:

   A. STRUCTURAL STEEL UNLESS NOTED: FABRICATOR'S STANDARD PRIME COAT AND FINISH COATS.

WIRE ROPE AND ACCESSORIES

1. ALL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THESE GENERAL NOTES AND ACCOMPANYING DRAWINGS AND SPECIFICATIONS.

2. MATERIALS:

   A. STEEL WIRE ROPE: GALVANIZED 6x19 IWRC OR STRAND CORE, FED. SPEC. RR-W-410. SIZE AS INDICATED ON STRUCTURAL DRAWINGS.

   B. SHACKLES: GALVANIZED STEEL, ASTM A153.

   C. WIRE ROPE CLIPS: CROSBY FORGED STEEL WIRE ROPE CLIPS (OR EQUAL), FED. SPEC. C-450, TYPE 1, CLASS 1.

   D. THIMBLES: GALVANIZED STEEL, FED. SPEC. FF-T-276b.

   E. TURNBUCKLES: FORGED GALVANIZED STEEL, ASTM F-1145-92.

3. ALL WIRE ROPE COMPONENTS SHALL BE INSTALLED ACCORDING TO STANDARD PRACTICE (PER THE CROSBY GROUP, INC; OR EQUAL). TORQUE WIRE ROPE CLIPS TO MANUFACTURERS RECOMMENDATIONS. INSPECT ALL MATERIALS PRIOR TO USE; REMOVE ANY DAMAGED, CRACKED OR ABRADED MATERIALS FROM SERVICE.

FOUNDATIONS

1. PER CLIENT'S REQUEST, THE FOUNDATION DESIGN AND GENERAL FOUNDATION NOTES ARE BASED ON THE ASSUMPTION OF FAVORABLE SOIL CONDITIONS. ALL FOUNDATION ASSEMBLIES SHALL BEAR ON LEVEL (WITHIN 1 IN 12) GROUND.

ALUMINUM

1. MATERIALS:

   A. PLATES AND ROUND TUBE SHAPES: 6061-T6
   B. BOLTS: SAE GR5, HOT DIP GALVANIZED.

2. WELDING:

   A. ACCORDING TO THE PROVISIONS OF THE AWS, LATEST EDITION.

TEMPORARY STRUCTURES

1. THE STRUCTURES SHOWN ON THE ACCOMPANYING DRAWINGS AND DOCUMENTS HAVE BEEN ANALYZED AND REVIEWED FOR AN INSTALLATION NOT TO EXCEED 10 DAYS.

2. ASSEMBLY REQUIRED BY EXPERIENCED ERECTION PERSONNEL:

   A. PERSONNEL SHALL BE TRAINED IN THE ASSEMBLY AND INSTALLATION OF THE STAGEPRO SYSTEM.

3. TEMPORARY STRUCTURES ARE INTENDED FOR THE USE AND PURPOSE SPECIFICALLY DETAILED ON THE ACCOMPANYING DRAWINGS. THEY SHALL NOT BE USED FOR ANY OTHER PURPOSE. THEY ARE SPECIFICALLY EXCLUDED FROM REMAINING PERMANENTLY ON THIS SITE.

4. PERIODIC INSPECTION:

   A. BEFORE EACH USE:
      1. CHECK FOR BENT COMPONENTS, BROKEN OR CRACKED WELDS, TORN PLATES OR DETERIORATED CONNECTION HARDWARE.

   B. ANNUALLY:
      1. PERFORM A THOROUGH INSPECTION OF ALL COMPONENTS CHECKING FOR:
         a. WORN OR ABRADED COMPONENTS. SPECIFICALLY CHECK FOR REDUCTIONS IN AREA OF MEMBER COMPONENTS DUE TO ABBRASION.
         b. CHECK WELDS FOR CRACKS OR TEARS AT ALL LOCATIONS.
         c. CHECK HARDWARE FOR EXCESSIVE WEAR AT BEARING SURFACES AND FOR DEFORMATION DUE TO OVERLOAD.

   C. REMOVE ALL WORN OR DETERIORATED EQUIPMENT FROM SERVICE.

   D. FOR MANUFACTURED SYSTEMS: FOLLOW ALL MANUFACTURERS RECOMMENDATIONS FOR PERIODIC INSPECTION, MAINTENANCE AND REPAIR.

WOOD

1. MATERIALS

   A. FRAMING LUMBER

      1. 2x8 AND LARGER: NO. 2 GRADE OR BETTER SOUTHERN PINE KILN DIRED.
      2. 2x4 AND 2x6: STUD GRADE OR BETTER SPRUCE PINE FIR KILN DRIED.
      3. ACQ (ALKALINE COPPER QUAT), CBA-A, OR CA-B (COPPER AZOLE), OR NON-DOT BORATE PRESSURE TREATED LUMBER; PRESSURE TREAT TO 0.25 LBS/CUBIC FOOT. ALL PIECES IN CONTACT WITH FOUNDATION OR EXPOSED OT WEATHER

   B. SHEATHING AND SUBFLOORING

      1. MATERIALS

         a. FLOOR SHEATING: ¾" APA SPAN RATING 24"oc, TONGUE AND GROOVE SUBFLOOR EXPOSURE

HEAVY RAIN ACTION PLAN

1. DURING HEAVY RAIN EVENTS, ROOF PANELS SHOULD BE TILTED OR ADJUSTED TO ELIMINATE WATER PONDING. AT NO TIME SHOULD PONDED WATER BE ALLOWED TO ACCUMULATE ON THE ROOF STRUCTURE.

2. If PONDED WATER IS ALLOWED TO ACCUMULATE AND IS NOT REMOVED, ALL PERSONNEL SHOULD MAINTAIN SAFE CLEAR DISTANCE AS COLLAPSE OF THE ROOF IS POTENTIALLY IMMINENT.

FILENAME: 05gn1645.dwg
PLOT DATE:Jul 20 2016 1:09PM
PLOTTED BY: mjm

Stamp

ESG
Entertainment Structures Group
A Division of Schaefer
Engineering for the Entertainment Industry
10411 Medallion Drive Suite 121
Cincinnati, OH 45241
Phone: 800.542.3302
Fax: 513.542.5540
www.entertainmentstructures.com

Date 07/20/2016
Drawn by KRK
Project No. 1516.04
Dwg. File Name 05gn1645

REVISIONS

Sheet Title GENERAL NOTES / SITE PLAN
Project Title 2016 4240 ROOF REVIEW
NON-SITE SPECIFIC

Issue 0
Sheet No. S-5 OF 5

ESG Entertainment Structures Group
Engineering for the Entertainment Industry

March 6, 2017

4240 Mobile Stage and Roof System Review
Prepared for Progressive Products, Inc.

RE: 4240 Mobile Stage and Roof System Review
ESG Project #1616.69
United States of America

The attached drawings have been prepared for Progressive Products and pertain to the engineering review and non-specific drawing package for the 4240 Mobile Stage and Roof System. This structure has been reviewed in accordance with the International Building Code and the applicable code loads from ASCE 7 and ASCE 37. The provided seals are not intended for use in permit application but are provided to indicate previous review in the designated state.

The engineering analysis is based on the design criteria shown on the drawings and contained in the engineering calculations. The seals apply to the drawings serving as the technical basis for selected portions of the Stagepro 4240 and are not applicable to any site specific venue. It is incumbent on the owner/operator of the Stagepro 4240 to satisfy any local jurisdictional code requirements by hiring a licensed design professional. No portions of the mechanical lift system (winch, wire rope, etc.), mechanical systems as a whole (axles, wheels/rims, etc.), or the fiberglass roof panels have been analyzed by ESG. The analysis of the Stagepro 4240 was only conducted on the assembly in its final, erected condition (ready to be used for performances). The scope of ESG also consisted of review of the rigging loads indicated on the provided drawings, and stability of the structure during loading as noted in the provided general notes. The attached drawings have been updated for system updates as described by Progressive Products, including the addition of allowable loading for a video screen.

The individual trusses and system members, as noted on the drawings, have been reviewed for specific loading conditions as shown, as well as specific wind loadings with scrim and without scrim as noted on the drawings. It is the responsibility of the owner/operator of the stage to ensure that the allowable loads of the system members are not exceeded at any point during erection, production, or dismantling of the stage and roof system. The stage owner shall verify the roof construction matches the provided drawings prior to loading the system to the allowable values provided this package.

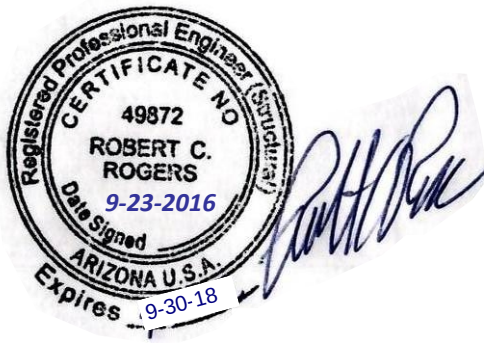
Note: It is the responsibility of the venue owner to ensure that the venue can safely support the reactions for the roof system as shown on the provided drawings. It is the responsibility of the system owner to satisfy any local jurisdictional requirements by hiring a licensed design professional to review the system for a site specific installation. ESG has not analyzed any portion of the site or existing structure that may be used to support the mobile stage and roof system. The attachment of rigging and equipment to the system is not in the scope of ESG.

Do not hesitate to contact Entertainment Structures Group should you have any questions regarding this submittal package or require further information.

NOTE:
The engineering analysis is based on the design criteria shown on the drawings and contained in the engineering calculations. The seals apply to the drawings serving as the technical basis for selected portions of the Stagepro 4240 and are not applicable to any site specific venue. It is incumbent on the owner/operator of the Stagepro 4240 to satisfy any local jurisdictional code requirements by hiring a licensed design professional. No portions of the mechanical lift system (winch, wire rope, etc.), mechanical systems as a whole (axles, wheels/rims, etc.), or the fiberglass roof panels have been analyzed by ESG.

9-23-2016

ALABAMA



9-23-2016

ARIZONA

9-23-2016

ARKANSAS

9-23-2016

CALIFORNIA

9-23-2016

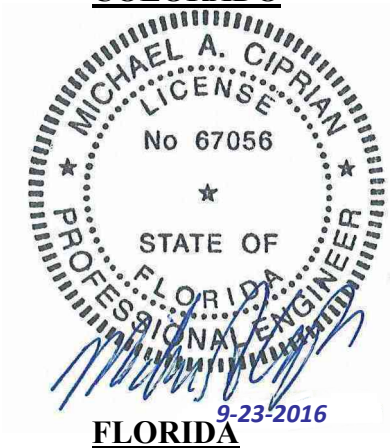
COLORADO

9-23-2016

CONNECTICUT


9-23-2016

DELAWARE

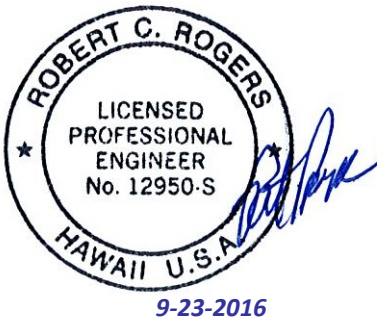


9-23-2016

FLORIDA

9-23-2016

GEORGIA



9-23-2016

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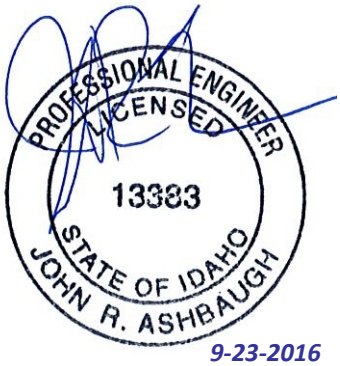
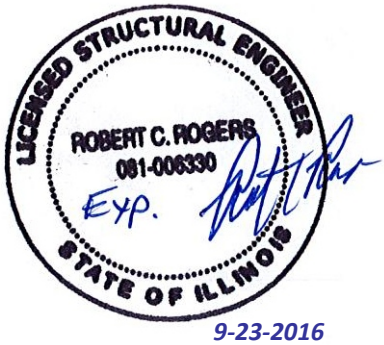


9-23-2016

IDAHO



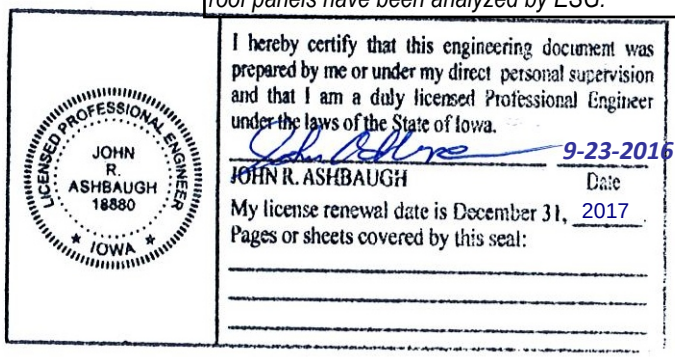
9-23-2016

ILLINOIS

NOTE:
The engineering analysis is based on the design criteria shown on the drawings and contained in the engineering calculations. The seals apply to the drawings serving as the technical basis for selected portions of the Stagepro 4240 and are not applicable to any site specific venue. It is incumbent on the owner/operator of the Stagepro 4240 to satisfy any local jurisdictional code requirements by hiring a licensed design professional. No portions of the mechanical lift system (winch, wire rope, etc.), mechanical systems as a whole (axles, wheels/rims, etc.), or the fiberglass roof panels have been analyzed by ESG.

9-23-2016

INDIANA



9-23-2016

IOWA

9-23-2016

KANSAS

9-23-2016

KENTUCKY

9-23-2016

LOUISIANA

9-23-2016

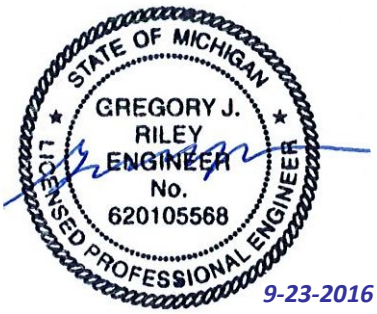
MAINE

9-23-2016

MARYLAND

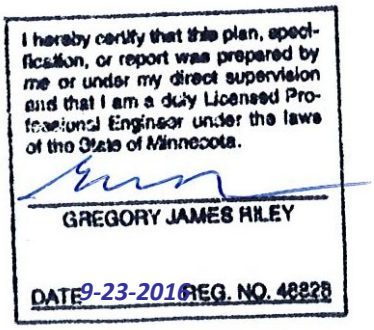
9-23-2016

MASSACHUSETTS



9-23-2016

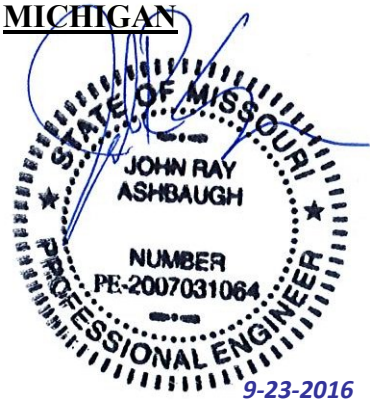
MICHIGAN



MINNESOTA

9-23-2016

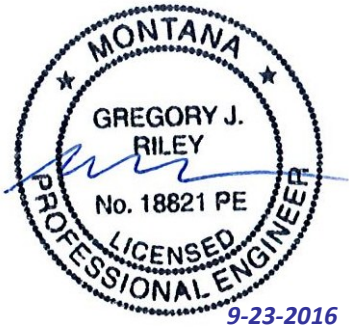
MISSISSIPPI



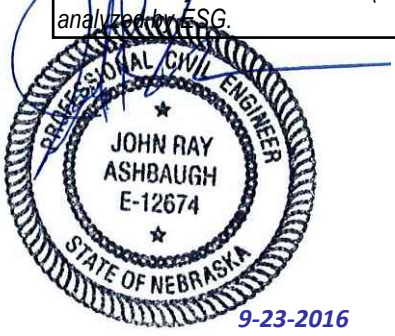
9-23-2016

MISSOURI

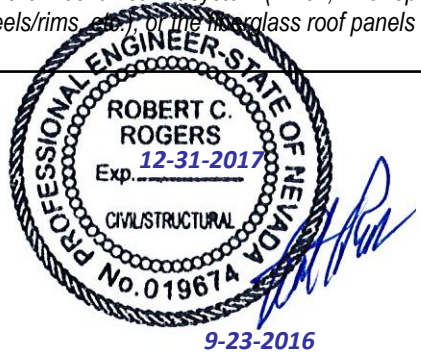
NOTE:
The engineering analysis is based on the design criteria shown on the drawings and contained in the engineering calculations. The seals apply to the drawings serving as the technical basis for selected portions of the Stagepro 4240 and are not applicable to any site specific venue. It is incumbent on the owner/operator of the Stagepro 4240 to satisfy any local jurisdictional code requirements by hiring a licensed design professional. No portions of the mechanical lift system (winch, wire rope, etc.), mechanical systems as a whole (axles, wheels/rims, etc.), of the fiberglass roof panels have been analyzed by ESG.



MONTANA



NEBRASKA



NEVADA

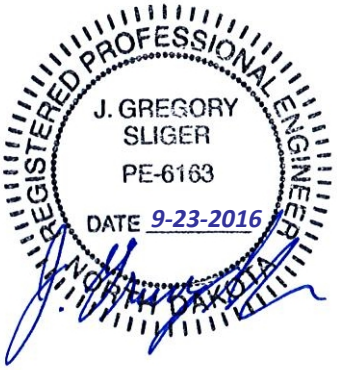
NEW HAMPSHIRE

NEW JERSEY

NEW MEXICO

NEW YORK

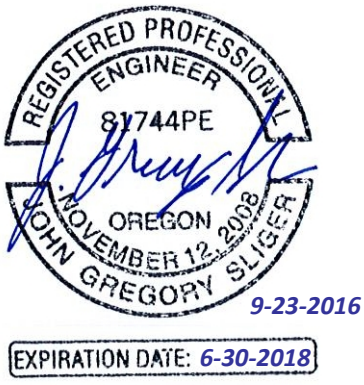
NORTH CAROLINA



NORTH DAKOTA

OHIO

OKLAHOMA

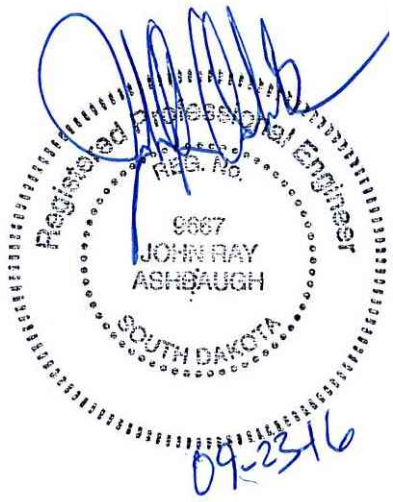


OREGON

PENNSYLVANIA

RHODE ISLAND

SOUTH CAROLINA



SOUTH DAKOTA

TENNESSEE

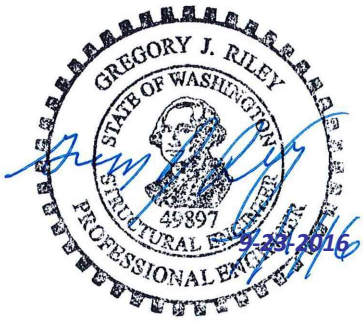
TEXAS

UTAH

VERMONT

VIRGINIA

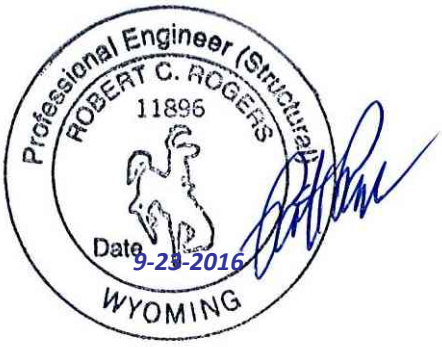
NOTE:
The engineering analysis is based on the design criteria shown on the drawings and contained in the engineering calculations. The seals apply to the drawings serving as the technical basis for selected portions of the Stagepro 4240 and are not applicable to any site specific venue. It is incumbent on the owner/operator of the Stagepro 4240 to satisfy any local jurisdictional code requirements by hiring a licensed design professional. No portions of the mechanical lift system (winch, wire rope, etc.), mechanical systems as a whole (axles, wheels/rims, etc.), or the fiberglass roof panels have been analyzed by ESG.



WASHINGTON

WEST VIRGINIA

WISCONSIN



WYOMING

Table of Contents for Review Package

ENTERTAINMENT STRUCTURES GROUP
A Division of Steven Schaefer Associates, Inc.

NOTE:
The engineering analysis is based on the design criteria shown on the drawings and contained in the engineering calculations. The seals apply to the drawings serving as the technical basis for selected portions of the Stagepro 4240 and are not applicable to any site specific venue. It is incumbent on the owner/operator of the Stagepro 4240 to satisfy any local jurisdictional code requirements by hiring a licensed design professional. No portions of the mechanical lift system (winch, wire rope, etc.), mechanical systems as a whole (axles, wheels/rims, etc.), or the fiberglass roof panels have been analyzed by ESG.

ESG Entertainment Structures Group
Engineering for the Entertainment Industry

February 21, 2017

Mr. Stephen Hinton
Progressive Products Inc.
3305 Airport Circle
Pittsburg, KS 66762

RE: Beam Clamp Review
Entertainment Structures Group Reference #: 1516.04

Dear Stephen:

Per drawing AP4240AC05-01, the 4240 Beam clamp accessory is adequate for 2000 lbs. The beam clamp accessory consists of a Fehr 2-ton beam clamp attached to two 4" long 2.5" deep A36 channels. The beam clamp is welded all around to the 4" channels. Per Fehr, the steel on the clamps is Q235A, which is acceptable for welding.

Based on our calculations and the modifications shown, the beam clamp assembly is adequate for a single 2000 lbs point load. The beam clamp should be used in conjunction with the allowable load ratings of the 4240 roof as noted in the drawing package produced by Schaefer, as well as the attachment and installation instructions provided by Fehr.

Please do not hesitate to call or email with any questions or concerns.

Sincerely,

ENTERTAINMENT STRUCTURES GROUP

Michael J. Merz, P.E.
Project Manager

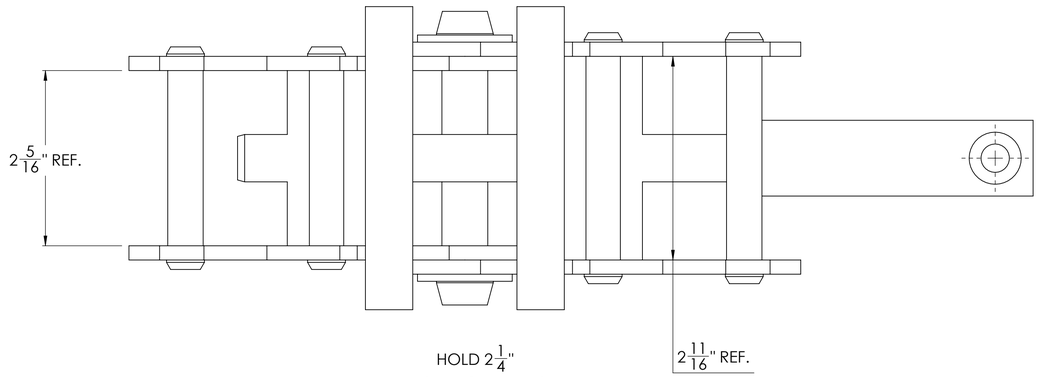
AP4240AC05-01 is provided as an addendum to this letter.

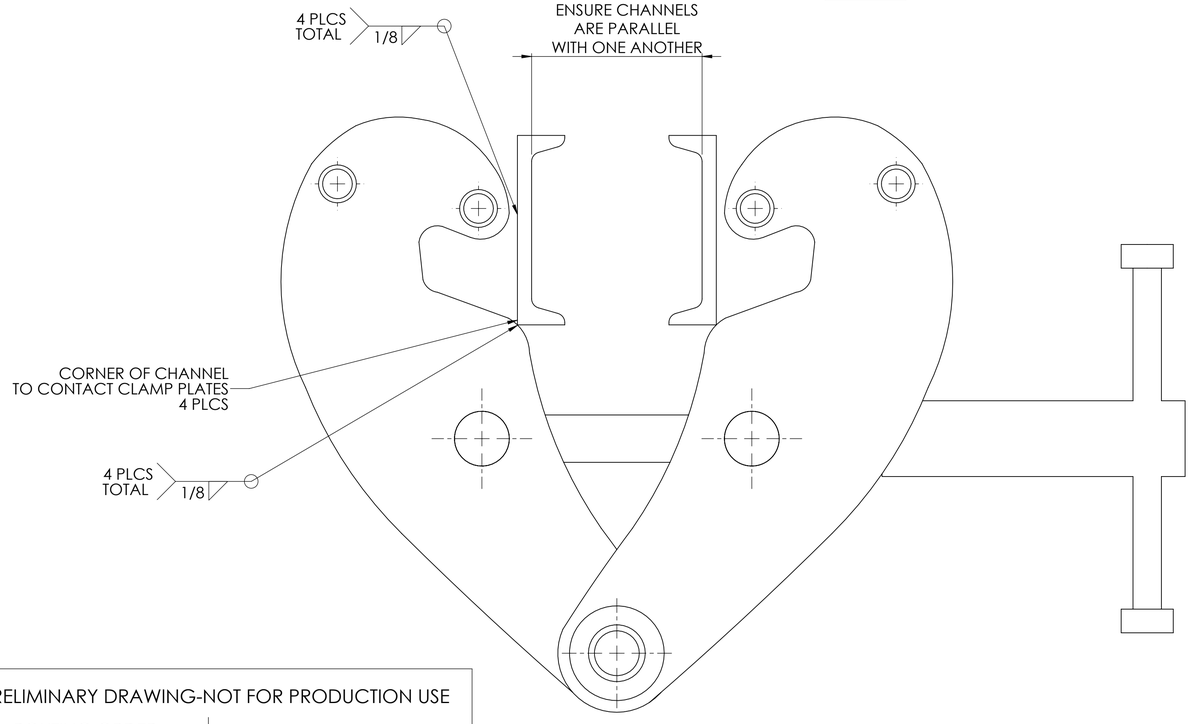
10411 Medallion Drive Suite 121, Cincinnati, OH 45241 • Phone: 513.542.3300 / 800.542.3302 • Fax: 513.542.5540
www.entertainmentstructures.com

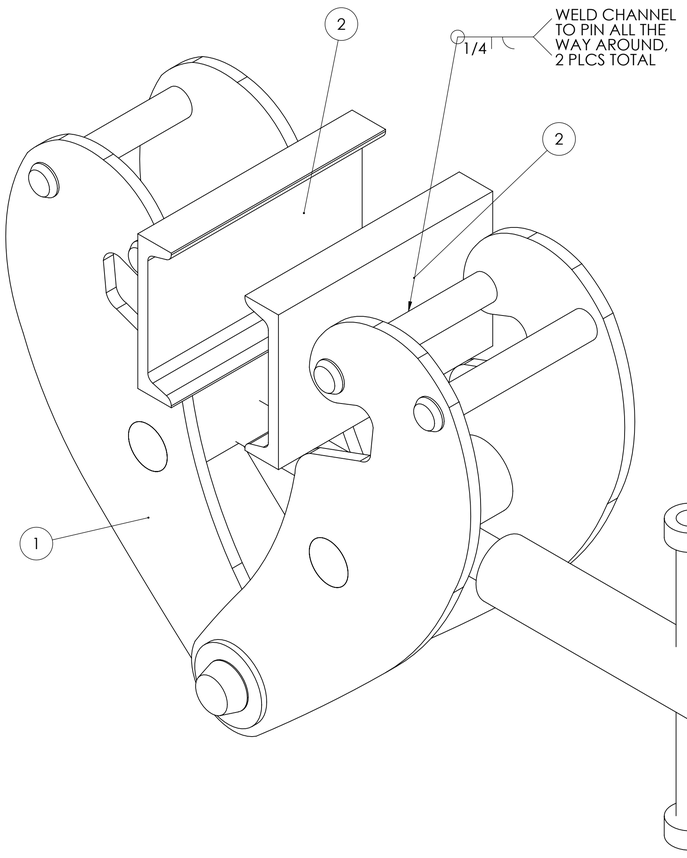
Entertainment Structures Group is a division of Steven Schaefer Associates, Inc.

QTY: 8X REQUIRED PER STAGE
MATERIAL: SEE BOM

ITEM NO.	DESCRIPTION	DWG/JB PART NUMBER	QTY.
1	FEHR BROTHERS 2 TON BEAM CLAMP	42402TBCLAMP	1
2	2-1/2" X 5/8" X 3/16" X 4" LONG BAR CHANNEL	2.5X.625X.1875 A36	2







PRELIMINARY DRAWING-NOT FOR PRODUCTION USE

ROUTING ORDER

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

APPROVED AS IS ☐

APPROVED AS NOTED ☐

RICHARD: _____

BOB: _____

OTHER: _____

REV	DATE	ECO#	DESCRIPTION

DRAWN	STH	
CHECKED		
APPROVED	STH	
SCALE	NONE	
SHEET	1 OF 1	
MATERIAL	A36 CHANNEL	
COMPANY	N/A	

TITLE: 4240 BEAM CLAMP ACCESSORY

DWG. NO. AP4240AC05-01 REV.

PROGRESSIVE PRODUCTS INC.
3305 AIRPORT CIRCLE
PITTSBURG, KS 66762
P: (620)-235-1712 F: (620)-235-1772

PROGRESSIVE PRODUCTS INC.

SIZE D

Fehr Since 1857

Quality without compromise

Beam Clamps are designed to be used as a temporary or permanent fixed position lifting point for overhead rigging without drilling or welding. Beam Clamps are designed also to reduce the I-beam flange stress by distributing loads away from the flange edges during overhead lifting applications.

Instructions for the SAFE USE of Beam Clamps

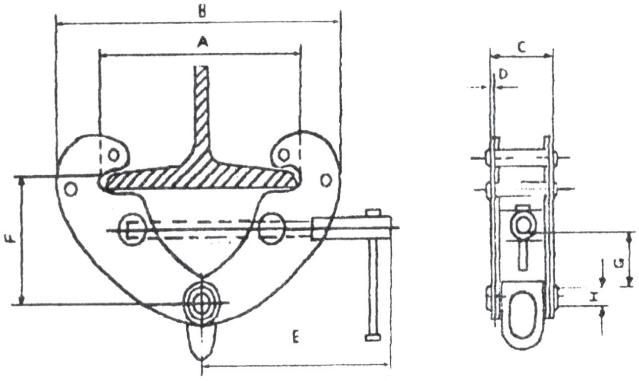
Using beam clamps safely

- Ensure that the beam clamp is of correct capacity for the load being lifted and that the beam will not be damaged by localized overloading.
- Ensure that the clamp is fitted correctly over the center of gravity of the item being lifted and will not be subjected to side loading.
- Before lifting a load, ensure that the clamp has been tightened and that the lifting appliance is fitted correctly into the eye of the clamp.

In-service inspection and maintenance

- Ensure that beam clamps are kept clean and moving parts are lubricated.
- Regularly inspect beam clamps for wear, damage, distortion, cracks, and any defects likely to cause danger.
- If any of the above defects are found, remove the beam clamp from service and refer to a competent professional.

- Rugged all-steel construction.
- Fits wide range of beam sizes.
- Black CED finish (Cathodic Electro Deposition).
- Tagged for traceability.
- Built-in suspension bar for easy attachment to load.
- Load bar diameter: 1 or 2 ton = 1 inch.
  3 ton = 1-1/4 inch.
- 1 and 2 ton fits flange width range of 3-9 inches.
  3 ton fits flange width range of 3-12 inches.



Safe Working Load (Tons)	Adjustable Beam Width mm	A Max mm	B min max	B max mm	C mm	D mm	E mm	F min mm	F max mm	G mm	H mm
1	70-230	270	183	375	66	4	210	102	165	25	20
2	70-230	270	183	375	74	6	210	102	165	25	20
3	70-320	365	240	520	103	8	258	135	225	45	22

Fehr brings you Theatrical Rigging Hardware and accessories at prices to keep you ahead of the competition.

Quality products and quick shipments from substantial inventories make Fehr your No. 1 choice for Theatrical hardware.

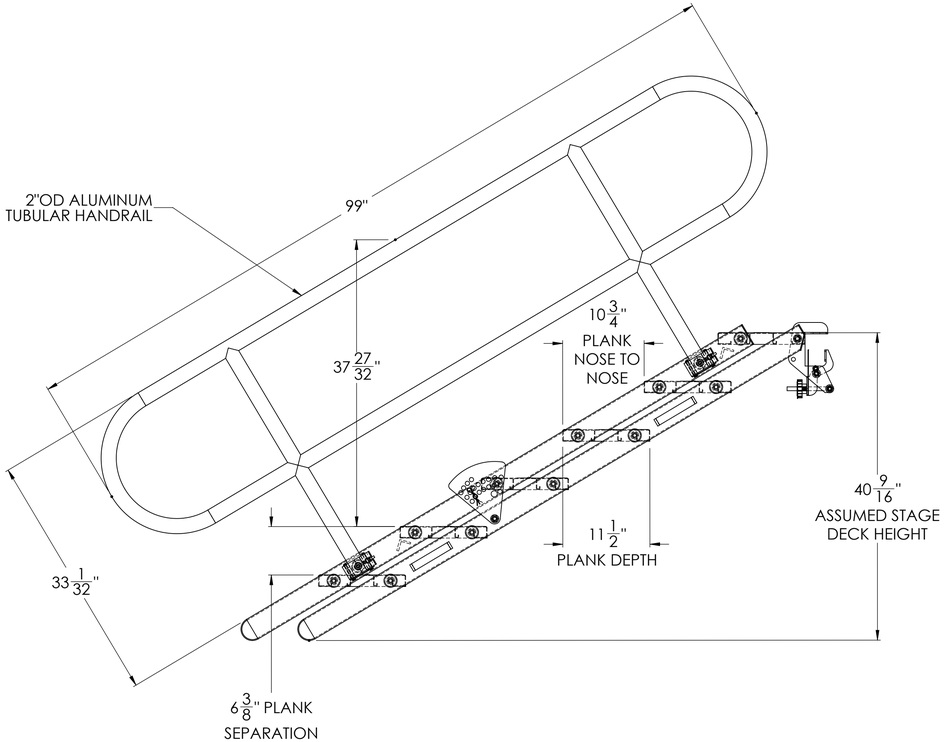
Fehr Bros. Industries, Inc., 895 Kings Hwy, Saugerties, NY 12477 Ph: (800) 431-3095 Fax: (888) 352-1790

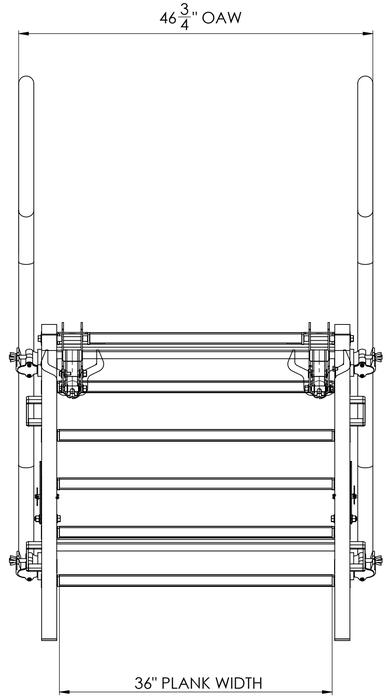
www.fehr.com

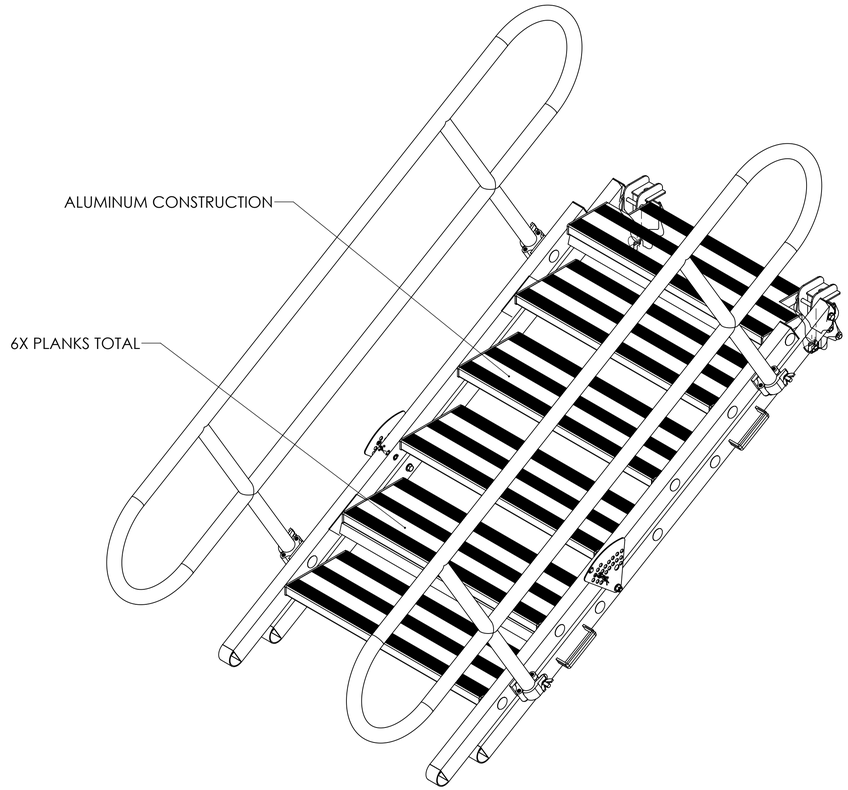
NOTES:

1. DRAWING IS MEANT TO SERVE AS GENERAL DIMENSIONAL REFERNECE ONLY. INFORMATION CONTAINED IS SUBJECT TO CHANGE WITHOUT NOTICE.
2. STAIRCASE IS PRIMARILY CONSTRUCTED FROM ALUMINUM, WITH EXCEPTION OF FASTENING CLAMPS AND ALL HARDWARE.
3. DIMENSIONS SHOWN ARE REPRESENTATIVE OF STAIRCASE SET UP AT A GIVEN SLOPE THAT CORRESPONDS TO A 40-9/16" STAGE DECK HEIGHT. DIMENSIONS WILL VARY WITH A DIFFERENT STAGE DECK HEIGHT OTHER THAN WHAT IS LISTED.
4. DETAIL IS THE SAME FOR THE 6 FLIGHT STAIRCASE USED ON THE APEX 2016 & ON THE 8 FLIGHT STAIRCASE USED ON THE APEX 2420 & 3224 STAGES

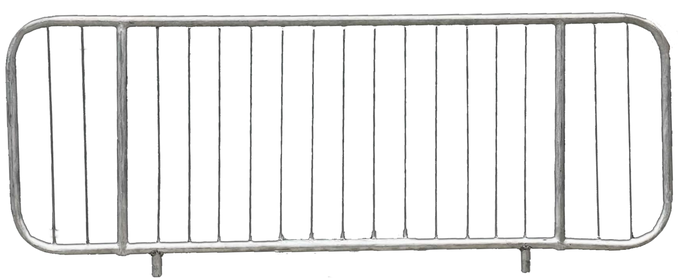
UNCONTROLLED DRAWING
NOT FOR PRODUCTION USE





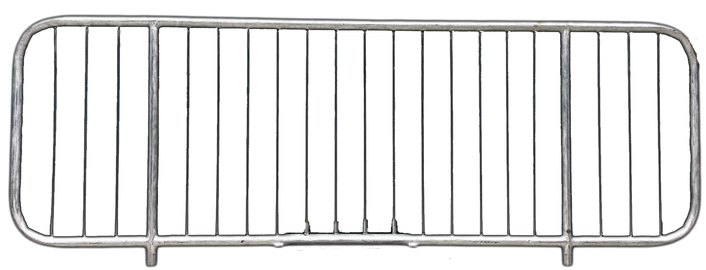


UPDATED RAILS FOR THE 6 STEP VERSION OF THE MOBILE STAGE WHEN PUBLIC ACCESS IS REQUIRED



6 STEP HAND RAILS ARE 94.5" IN LENGTH WITH INSIDE SPACING AT 4" APART

UPDATED RAILS FOR THE 8STEP VERSION OF THE MOBILE STAGE WHEN PUBLIC ACCESS IS REQUIRED



8 STEP HAND RAILS ARE 104" IN LENGTH WITH INSIDE SPACING AT 4" APART

APEX 2016, 2420 & 3224 STAGES
STAIRCASE GENERAL DIMENSIONS
STH - 9/19/17

Haulotte GROUP
BILJAX

125 TAYLOR PARKWAY
ARCHBOLD, OH 43502
PHONE: (419) 445-8915
FAX: (419) 445-0367
www.biljax.com

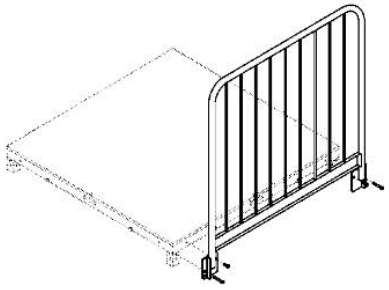
Guard Rail / Bracing

Guard Railing

4' Vertical Guard Rail

2' Vertical Guard Rail

Description	Weight
Guard Rail Panel, Vertical, 2'W x 42"H	22
Guard Rail Panel, Vertical, 4'W x 42"H	32

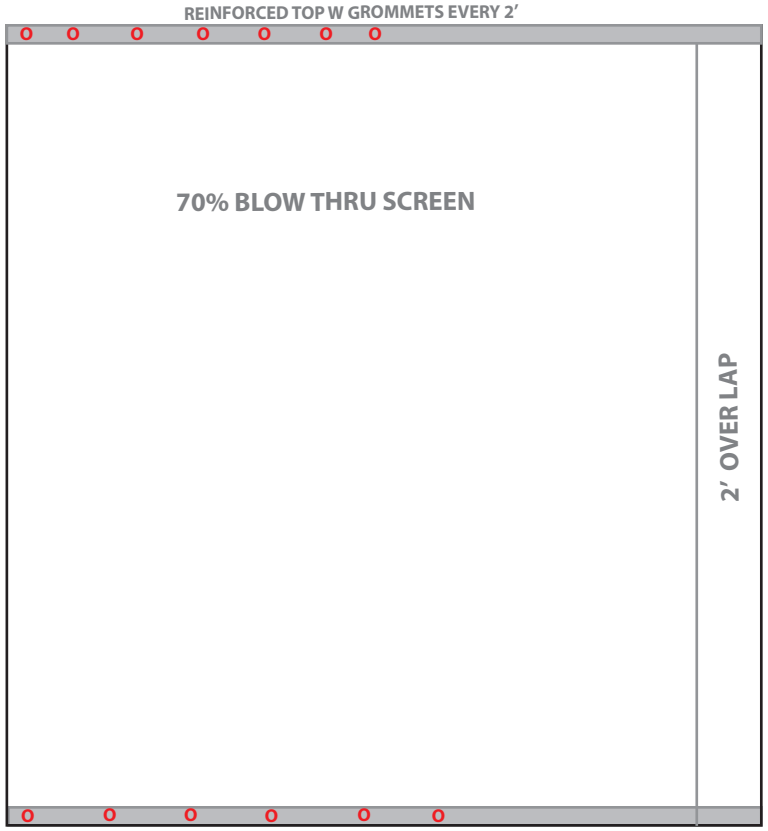


REAR 70% BLOW THRU PANELS #221
for

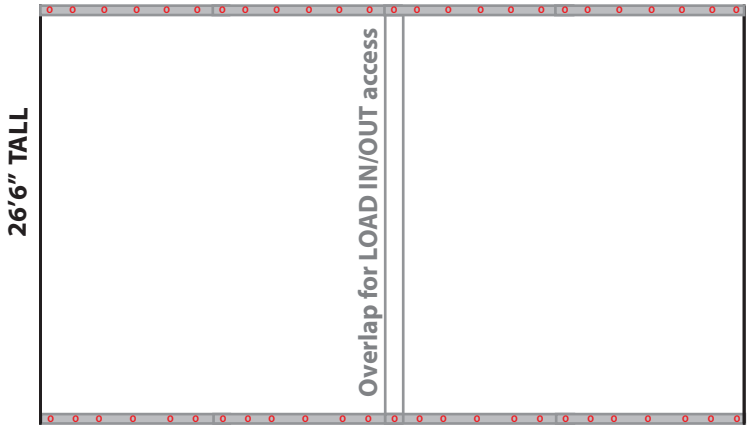
APEX 4240

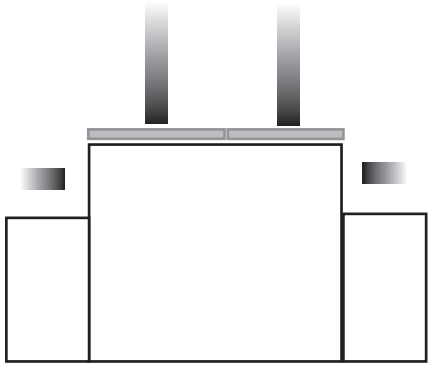
updated 1/30/2017 TM

21′ WIDE



2- 24′ panels with 2′ overlap = 40′ WIDE



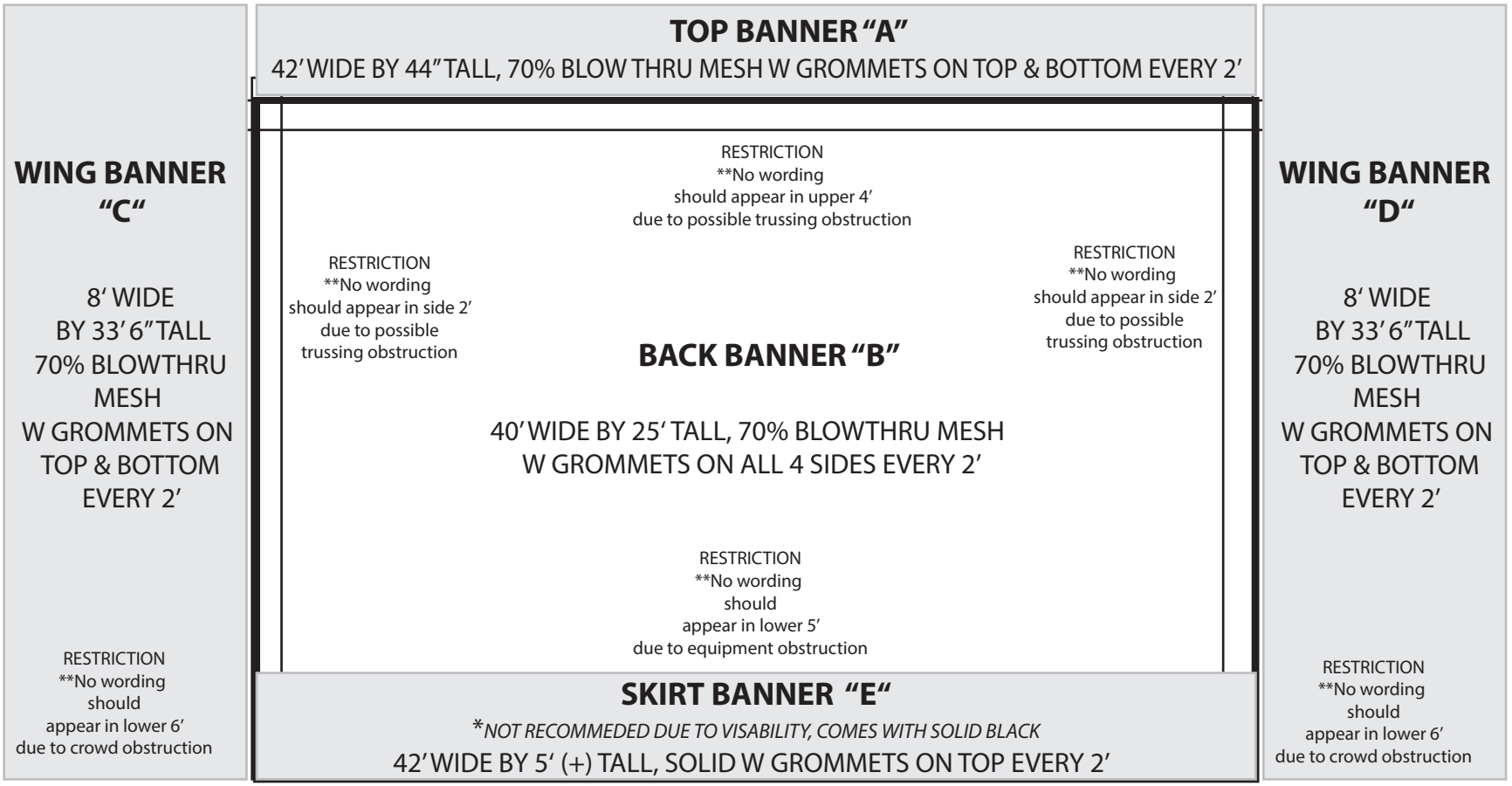


OPTIONAL

BANNER OPTIONS for

APEX 4240

updated 1/24/2017 tm



58' TO 66' WIDE

** Barricades may obstruct the lower 4' across the lower stage as well as attendees

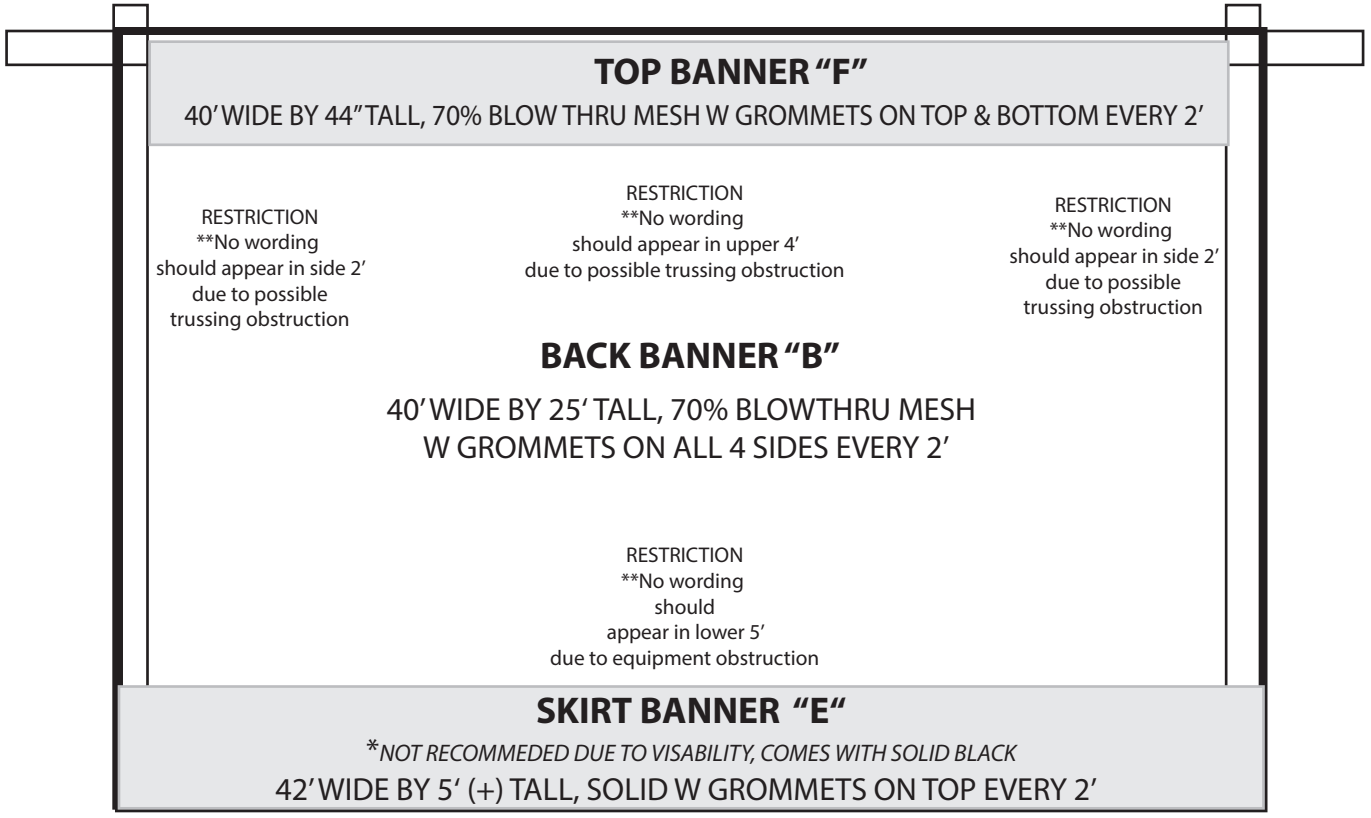
OPTIONAL

Questions? call 786-504-2369 / 786-255-4949

ADDITIONAL BANNER OPTIONS for

APEX 4240

updated 1/24/2017 tm



58' TO 66' WIDE

** Barricades may obstruct the lower 4' across the lower stage as well as attendees

OPTIONAL

Questions? call 786-504-2369 / 786-255-4949