# APEX 2016 MOBILE STAGE



mobilestages.miami / apex.miami

786-504-2369 786- 255-4949

## **APEX2016**



We are proud to introduce the new APEX 2016 mobile stage. Featuring a 20' x 16' stage deck (with 12' 10" of stage height) and the availability to be towed with a bumper / ball hitch by a one ton truck, this is our most economical and most versatile mobile stage. This stage is small, but produces no compromises for a stage this small. It has excellent fit and finish, solid build, can fly 700 lbs on the flybays, and additional 4,000 lbs of cargo can be secured and hauled inside the enclosed trailer.

The APEX 2016 is equipped with steel wheels, hydraulic outriggers, all steel construction trailer frame, and two single axels. The stage hydraulics are completely powered by a 12V DC battery. Aluminum stairs, back drops, 4' x 8' deck extensions, out rigger pads, and banner package can all be purchased for an additional price with this unit.

The APEX 2016 opens on the front side and has a removable modular panel back. The bottom back panels can be left in place to act as handrails.

Ease of operation, maneuverable in tight areas, and budget friendly, this mobile stage maintains APEX quality, and makes it the "perfect fit" for facilitating smaller venues.



Trailer Length	25' 6"
Trailer Width	102"
Trailer Height	11' 10"
Cargo Space	7' 6" x 4' 8'
Cargo Capacity	4,000 lbs
Trailer Weight	8,000 lbs
Tongue Weight	800 lbs

Rear Axle Rating
Front Axle Rating
GVWR
Entire Trailer Length (from

Entire Trailer Length (from hitch)

Floor Size 20' x 16'
Floor Height 45" to 69"
Ground to Roof 15' 6"
Total Floor Load Rating 50 lb/sqft

Structure Marine Plywood / Alum Floor Support (5) 8,000 lbs jacks

6,000 lbs

6,000 lbs 12,000 lbs

Covered Roof 22' 9" x 26'
Deck to Roof Top 12' 10"
Deck to Bottom of Ctr I- 11' 8"

Beam

Deck to Bottom of 11' 11"

Downstage I-Beam

Deck to Bottom of Upstage 11'5"

I-Beam

Surface Fiberglass / Alum

Fly Bays 700 lbs ea

Downstage I-Beam (Front of 1,000 lbs even dist

Stage)

Upstage I-Beam 1,000 lbs even dist

Center I-Beams no capacity
Total Roof Capacity 3,400 lbs

Slide Out Bar Length 2' 3"



3/20/2023

Progressive Products & Apex Stages 3305 Airport Circle Pittsburg, KS 66762 Attn: Todd Allison

RE: 2016 Mobile Stage – 2023 Certification

CRE Project No: 23.534.03

Dear Todd:

Clark Reder Engineering Inc. has completed our review of the Apex Stages 2016 Mobile Stage for conformance to the 2018 IBC as well as for general use in the United States in the calendar year of 2023. Our scope was to review the engineering calculations previously developed by Clark Reder Engineering in accordance with earlier versions of the International Building Code, ASCE 7, and the Aluminum Design Manual.

Our review confirms that the mobile stage structure requires no changes to the High Wind Action Plan or Allowable Loading criteria, which are included with this package. CRE has determined that the 2016 Apex Mobile Stage Unit, when built and used in accordance with the manufacturer's guidelines, represents a safe design in accordance with the structural provisions of the 2018 International Building Code and is fit for use in all 50 states. This stamped document is valid for use through December 31, 2023.

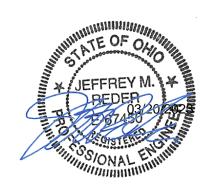
We trust this information is suitable for your needs at this time. Please do not hesitate to contact our office with any questions or comments.

Regards,

Clark-Reder Engineering, Inc.

03/20/2023 21809 21809

Daniel J. Clark, P.E. KS Registration No. 21809



Jeffrey M. Reder, P.E. OH Registration No. 67450



Phone: (513) 851-1223 Fax: (513) 297-0934 www.clarkreder.com

### Alabama



Daniel J. Clark, P.E P.E #: 31076

### Alaska



Daniel J. Clark, P.E P.E #: SE14360

### Arizona



Daniel J. Clark, P.E P.E #: 50654

### **Arkansas**



Daniel J. Clark, P.E P.E #: 14355

### California



Daniel J. Clark, P.E P.E #: S5317

### Colorado



Jeffrey M. Reder, P.E P.E #: PE0051394

### Connecticut



Daniel J. Clark, P.E P.E #: 27576

### Delaware



Jeffrey M. Reder, P.E P.E #: 17438

1 of 6

### **District of Columbia**



Jeffrey M. Reder, P.E P.E #: S2920119



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### Florida



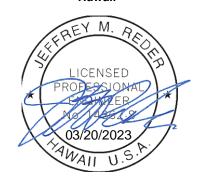
Jeffrey M. Reder, P.E P.E #: 68622

### Georgia



Jeffrey M. Reder, P.E P.E #: PE034581

### Hawaii



Jeffrey M. Reder, P.E P.E #: 14362-S

### Idaho



Daniel J. Clark, P.E. P.E #: 14947

### Illinois



Clark Reder Engineering, Inc. is a professional design firm registered in Illinois #184.006693

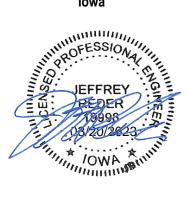
> Jeffrey M. Reder, P.E P.E #: 81006866

### Indiana



Jeffrey M. Reder, P.E P.E #: PE11600603

### lowa



Jeffrey M. Reder, P.E P.E #: 19998

### **Kansas**



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### Kentucky



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### Louisiana



Jeffrey M. Reder, P.E. P.E #: 30304

### Maine



Daniel J. Clark, P.E P.E #: 12873

# Maryland

documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland. License #38321

Jeffrey M. Reder, P.E P.E #: 38421

### Massachusetts



Jeffrey M. Reder, P.E P.E #: 48535

### Michigan



Jeffrey M. Reder, P.E. P.E #: 6201056952

### Minnesota



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Date: 03/20/2023 License #: 56104

> Jeffrey M. Reder, P.E P.E #: 56104

### Mississippi



Daniel J. Clark, P.E P.E #: 20589

### Missouri



Jeffrey M. Reder, P.E. P.E #: PE-2010003345

3 of 6

### Montana



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### Nebraska



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### Nevada



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### New Hampshire



Daniel J. Clark, P.E P.E #: 13605

### **New Jersey**



Jeffrey M. Reder, P.E P.E #: 24GE05300600

### **New Mexico**



Daniel J. Clark, P.E P.E #: 20482

### **New York**



It is a violation of law for any person, unless acting under the direction of a licensed professional engineer, to alter this drawing in any way. If any part of this drawing is altered, the altering engineer shall affix to this drawing their seal and the notation "altered by" followed by their signature, the date, and description

Jeffrey M. Reder, P.E P.E #: 097763-1

### **North Carolina**



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### North Dakota



Daniel J. Clark, P.E P.E #: PE-6586

### Ohio



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Oklahoma



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### Oregon



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Jeffrey M. Reder, P.E P.E #: 93904PE

**South Carolina** 



Pennsylvania

Jeffrey M. Reder, P.E P.E #: PE77455

### Rhode Island



Jeffrey M. Reder, P.E P.E #: 9610



Jeffrey M. Reder k, P.E P.E #: 35797

### **South Carolina**



Clark Reder Engineering #4827

### South Dakota



Daniel J. Clark, P.E P.E #: 10989

### Tennessee



Daniel J. Clark, P.E P.E #: 00113846

**5** of **6** 

### Texas



Jeffrey M. Reder, P.E P.E #: 124100

Date: 3/20/2023



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### Vermont



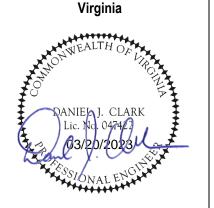
Utah

Jeffrey M. Reder, P.E P.E #: 7536302-2203



Daniel J. Clark, P.E P.E #: 31076

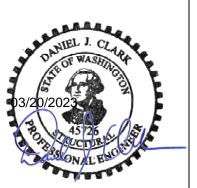
West Virginia



Daniel J. Clark, P.E P.E #: SE14360

Wisconsin

### Washington



Daniel J. Clark, P.E P.E #: 50654



Jeffrey M. Reder, P.E P.E #: 14355



Daniel J. Clark, P.E P.E #: S5317

### **Wyoming**



Jeffrey M. Reder, P.E P.E #: PE0051394

### Puerto Rico



Jeffrey M. Reder, P.E P.E #: 27576

### Guam



Daniel J. Clark, P.E P.E #: 17438

### GENERAL STRUCTURAL NOTES

### **CODES AND REFERENCE**

- 1. 2018 INTERNATIONAL BUILDING CODE
- 2. ASCE 7-16 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
- 3. ASCE 37-14 DESIGN LOADS ON STRUCTURES UNDER CONSTRUCTION
  4. ANSI E1.21-2013 ENTERTAINMENT TECHNOLOGY, "TEMPORARY GROUND-SUPPORTED OVERHEAD STRUCTURES USED TO COVER THE STAGE AREAS AND SUPPORT EQUIPMENT IN THE PRODUCTION OF OUTDOOR ENTERTAINMENT EVENTS"
- 5. ALUMINUM DESIGN MANUAL, 2015 EDITION
- 6. AISC STEEL MANUAL, 14TH EDITION

### **DESIGN LOADS**

1. DEAD LOAD: SELFWEIGHT OF STRUCTURE

- 2. ROOF RIGGING LOADS:
- A. SEE BEAM LOADING CHART ON SHEET S1-1
- NOTE: ROOF SKIN IS A SUN SHADE SYSTEM ONLY. IT HAS NOT BEEN DESIGNED FOR PERSONNEL ACCESS OR TO
- SUPPORT RAIN OR SNOW LOADS.
- 4. STAGE DECK LOADS:
- A. LIVE LOAD: 50 PSF
- 5. WIND LOAD\*:
- A. DESIGN WIND SPEED: 30 MPH (BARE STRUCTURE OR WITH ONLY BACKDROP SCRIM AND FRONT SKIRT SCRIM ATTACHED)
- B. DESIGN WIND SPEED: 20 MPH (WITH BACKDROP, FRONT SKIRT AND BANNER KIT SCRIMS\*\* ATTACHED)
- C. EXPOSURE C
- 6. SEISMIC LOADS DO NOT CONTROL THE DESIGN OF THIS STRUCTURE.
- \* SEE OPERATIONS MANAGEMENT PLAN THIS SHEET
- \*\* BANNER KIT CONSISTS OF (X1) UPPER CENTER CROSS BANNER AND (X1) LEFT AND (X1) RIGHT SIDE BANNER (3 SCRIMS TOTAL)

### **CONSTRUCTION AND SAFETY**

- 1. ENGINEER SHALL NOT BE RESPONSIBLE FOR MEANS, METHODS, OR SEQUENCE OF CONSTRUCTION UNLESS SPECIFICALLY STATED ON THE DRAWINGS.
- 2. ENGINEER HAS DESIGNED THE STRUCTURES FOR THEIR FINAL AS-BUILT CONDITION. ENGINEER IS NOT RESPONSIBLE FOR TEMPORARY STABILITY OF STRUCTURES DURING ERECTION UNLESS SPECIFICALLY STATED ON THE DRAWINGS. 3. STRUCTURE HAS BEEN DESIGNED AS A TEMPORARY STRUCTURE THAT SHALL BE IN PLACE FOR LESS THAN 6 WEEKS.

### STRUCTURAL STEEL

- 1. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS NOTED OTHERWISE ON THE DRAWINGS:
- A. ROLLED WIDE FLANGE SHAPES: ASTM A992, FY = 50 KSI
- B. MISC PLATE, BAR, ANGLES AND CHANNELS: ASTM A36, FY = 36 KSI
- C. PIPE SHAPES: ASTM A53, TYPE E OR S, GRADE B, FY = 35 KSI
- D. HSS RECTANGULAR TUBE: ASTM A500 GR B, FY = 46 KSI
- E. HSS ROUND TUBE: ASTM A500 GR B, FY = 42 KSI
- F. BOLTS OR SCAFFOLD CONNECTION PINS: SAE J429 GRADE 5 BOLTS (FY=92 KSI) UNLESS NOTED OTHERWISE
- 2. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY LATEST EDITION.
- 3. FIELD CONNECTIONS SHALL BE BOLTED OR CONNECTED WITH APPROVED SCAFFOLD CONNECTORS.

### **ALUMINUM**

- 1. ALUMINUM SHALL CONFORM TO THE FOLLOWING UNLESS NOTED OTHERWISE ON THE DRAWINGS:
- A. MEMBER ALLOY: 6061-T6 UNLESS NOTED OTHERWISE
- B. MEMBER ALLOY FOR STAGE ROOF BEAM EXTRUSIONS; 6063-T5
- C. MEMBER ALLOY FOR STAGE DECK EXTRUSIONS; 6063-T6
- D. WELD FILLER ALLOW: 4043 (MIN)
- 2. ALL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE ALUMINUM ASSOCIATION ALUMINUM DESIGN MANUAL, 2010 EDITION.
- 3. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY LATEST EDITION.
- 4. FIELD CONNECTIONS SHALL BE BOLTED UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS.

WIRE ROPE AND RIGGING ACCESSORIES

- 1. WIRE ROPE 3/8" OR LESS IN DIAMETER: 7X19 GAC, MEETING FEDERAL SPEC. RR-W-410E
- 2. WIRE ROPE 7/16" OR GREATER IN DIAMETER: 6X19 IWRC, MEETING FEDERAL SPEC. RR-W-410D, TYPE 1 CLASS 2
- 3. SHACKLES: GALVANIZED, SCREW PIN ANCHOR TYPE, ASTM A153
- 4. TURNBUCKLES: GALVANIZED, ASTM F-1145 5. FORGED WIRE ROPE CLIPS: GALVANIZED, MEETING FEDERAL SPEC. FF-C-450 TYPE I CLASS I
- 6. WIRE ROPE THIMBLES: GALVANIZED, MEÉTING FEDERAL SPEC. FF-T-276B TYPE II
- 7. WIRE ROPE THIMBLES: GALVANIZED, MEETING FEDERAL SPEC. FF-T-276B TYPE II
- 8. RATCHET STRAPS:
- a. RATCHET STRAPS SHALL BE INSTALLED PER THE MANUFACTURER'S WRITTEN INSTRUCTIONS TO DEVELOP THE RATED WORKING LOAD OF THE STRAP.
- b. RATCHET STRAPS WITH OPEN ENDED HOOKED CONNECTION SHALL HAVE A POSITIVE CONNECTION TO THE ATTACHMENT POINT. EXAMPLE: USE A 5/8" SHACKLE BETWEEN THE BARS OF A J-HOOK.

### **FOUNDATIONS**

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

### **ROOF LIFTING**

1. ROOF SYSTEM SHALL NOT BE LIFTED IN WIND SPEEDS GREATER THAN 10 MPH

### RIGGING

- 1. BRIDLES SHALL NOT BE USED UNLESS SPECIFICALLY NOTED BY THE ENGINEER OF RECORD.
  2. DO NOT EXCEED THE ALLOWABLE RIGGING LOADS SHOWN ON SHEET S1-1 WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER OF RECORD.

### **INSPECTIONS**

1. ALL TRUSS UNITS, SCAFFOLD AND/OR OTHER RIGGING EQUIPMENT SHALL BE VISUALLY INSPECTED PRIOR TO ERECTION. DAMAGED OR CORRODED EQUIPMENT SHALL NOT BE USED. FIELD MODIFICATIONS SHALL BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO INSTALLATION.

### OPERATIONS MANAGEMENT PLAN

### IMPLEMENTATION OF PLAN

- 1. PRIOR TO EACH INSTALLATION, THE VENUE/STAGE OWNER SHALL DESIGNATE A RESPONSIBLE PERSON IN CHARGE OF IMPLEMENTING ALL PHASES OF THE **OPERATIONS MANAGEMENT PLAN**
- 2. A MEETING SHALL BE HELD AT THE VENUE WITH THE PROMOTER, OWNER OR STAGE MANAGER TO DISCUSS THE HIGH WIND ACTION PLAN AND OTHER OPERATIONAL
- 3. THE METHOD OF INITIATING EVENT CANCELLATION MUST BE OUTLINED EXPLICITLY PRIOR TO THE EVENT ALLOWING FOR IMMEDIATE ACTION IF NECESSARY.
- 4. A COPY OF THIS PLAN SHOULD BE PROVIDED TO LOCAL POLICE OR FIRE DEPARTMENTS IN ORDER TO HELP USHER PATRONS IN THE EVENT OF AN EVACUATION.

### HIGH WIND ACTION PLAN WITH NO BALLAST INSTALLED

- 1. THE HIGH WIND ACTION PLAN SHALL BE IN EFFECT FOR THE ENTIRETY OF THE EVENT. AN EVENT SHALL BE DEFINED AS STARTING AT THE INITIAL COMMENCEMENT OF THE STRUCTURE INSTALLATION AND ENDING ONCE THE STRUCTURE IS COMPLETELY DISMANTLED.
- 2. A COMPETENT RESPONSIBLE PERSON FROM THE VENUE OR RIGGING COMPANY SHALL BE PRESENT FOR THE DURATION OF THE EVENT (SEE ABOVE) TO IMPLEMENT THE HIGH WIND ACTION PLAN.
- 3. A REGULAR LIAISON WITH LOCAL AIRPORTS AND/OR WEATHER INFORMATION CENTERS SHALL BE MAINTAINED TO ASCERTAIN IF ANY SIGNIFICANT WEATHER EVENTS ARE EXPECTED IN THE IMMEDIATE VICINITY OF THE STRUCTURE
- 4. AN ANEMOMETER SHALL BE PLACED ON THE STRUCTURE TO MONITOR WIND SPEEDS. THE ANEMOMETER SHALL BE PLACED AT THE TOP OF A TOWER OR AN ADJACENT STRUCTURE AT A HEIGHT EQUIVALENT TO THE HEIGHT OF THE TOWER. THE ANEMOMETER SHALL BE LOCATED WITHIN 50 YARDS OF THE STRUCTURE. 5. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 20 MPH: ALL SCRIM ASSOCIATED WITH THE BANNER PACKAGE SHALL BE REMOVED FROM THE SYSTEM. THIS INCLUDES THE BANNER SCRIM ON TOP OF THE STAGE AND THE SPEAKER WING BANNER SCRIM. LOWERING OF SCRIM SHALL BE DONE FROM THE GROUND BY MEANS OF REMOTELY ACTIVATED EQUIPMENT SUCH AS MOTORS OR MECHANICAL RELEASES.
- 6. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 30 MPH: ALL SCRIM SHALL BE REMOVED FROM THE SYSTEM. ALL RIGGING EQUIPMENT AND SPEAKER CLUSTERS SHALL BE LOWERED TO THE GROUND AND SECURED. LOWERING OF SCRIM OR EQUIPMENT SHALL BE DONE FROM THE GROUND BY MEANS OF REMOTELY ACTIVATED EQUIPMENT SUCH AS MOTORS OR MECHANICAL RELEASES. ALL SHOW OPERATIONS SHALL CEASE AND THE IMMEDIATE AREA SHALL BE EVACUATED. LOWER ROOF IF TIME PERMITS AND WIND SPEEDS ARE BELOW 10 MPH. ALL PERSONNEL SHOULD MAINTAIN SAFE DISTANCE FROM THE ROOF SYSTEM AS COLLAPSE MAY OCCUR. 7. THE HIGH WIND ACTION PLAN SHALL BE POSTED AT A CONSPICUOUS AREA ON SITE. IT MUST BE AVAILABLE AT ALL TIMES TO VENUE OPERATORS AND CREW.

### SNOW/RAIN REMOVAL

1. THE ROOF SKIN HAS NOT BEEN DESIGNED TO SUPPORTED PONDED WATER OR SNOW. REMOVE ANY AND ALL SUCH ACCUMULATIONS.

GENERAL STRUCTURE NOTES & OPERATIONS MANAGEMENT PLAN APEX STAGES APEX STAGE 16' X 20' PITTSBURG, KS

**DATE: 8.28.2018** 

**DRAWN BY: STEPHEN HINTON** 

PROJECT NUMBER: 17.534.01

FILE NAME: 1620V1PG5SD.SLDDWG



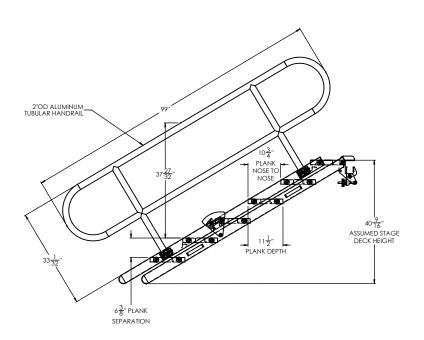
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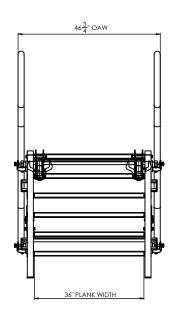
513 851 1223

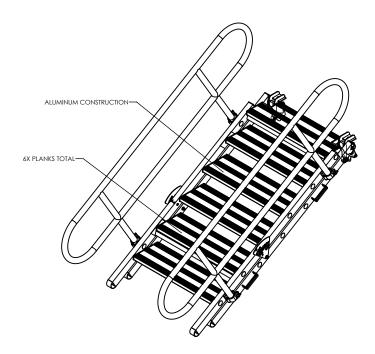
**S5-1** 5 OF 5

# APEX 2016/2420/3224 Mobile Stage

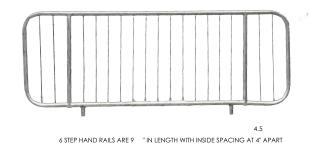








UPDATED RAILS FOR THE 6 STEP VERSION OF THE MOBILE STAGE WHEN PUBLIC ACCESS IS REQUIRED



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

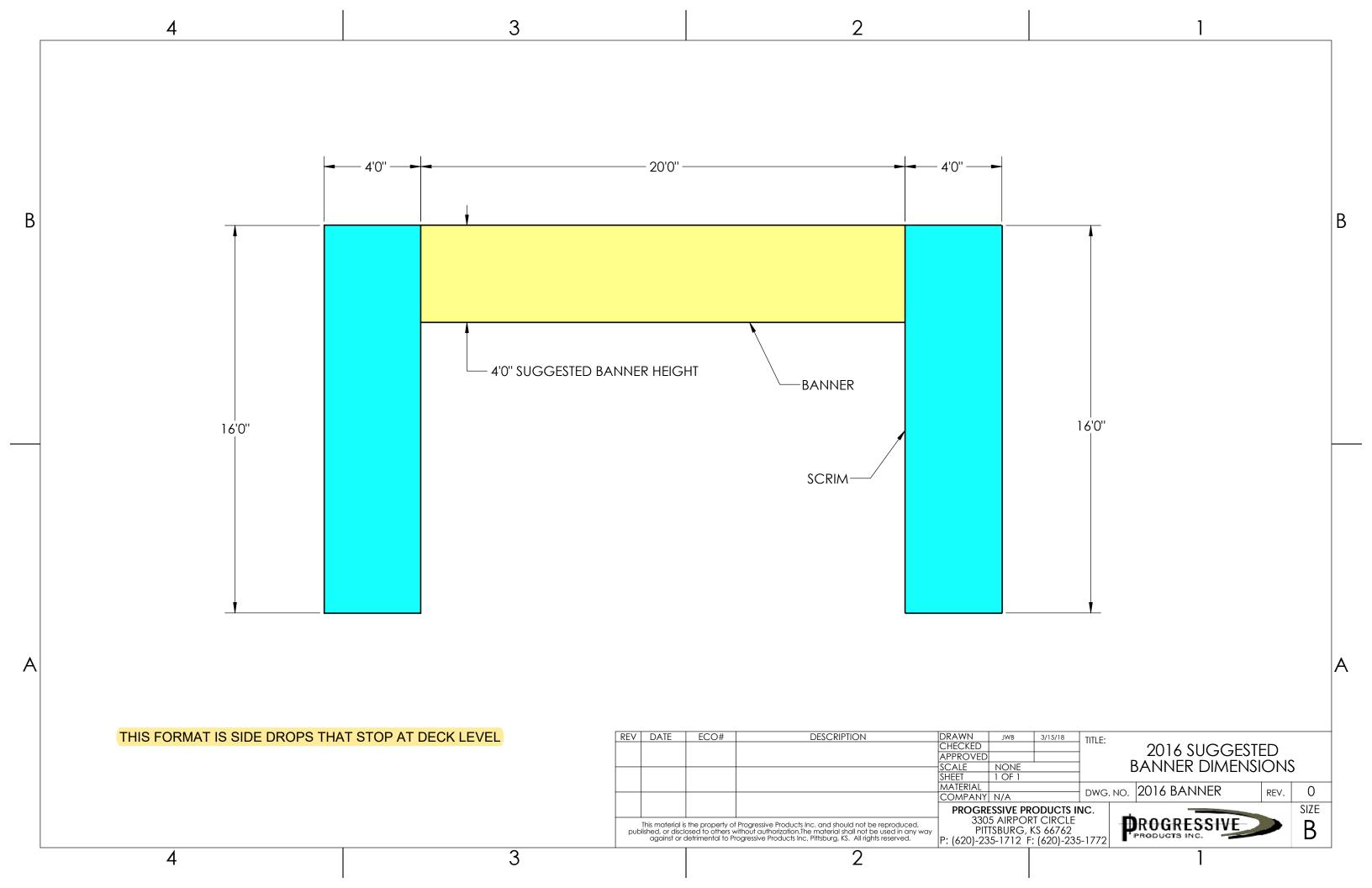


8 STEP HAND RAILS ARE 104" IN LENGTH WITH INSIDE SPACING AT 4" APART

### NOTES:

- 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.
- 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 USTED.
- 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, 4240 & 5040

STAIRCASE GENERAL DIMENSIONS STH - 9/19/17





### REGISTERED APPLICATION NUMBER F-91401 TRADE NAME OF FLAME RESISTANT FABRIC VINYLLAMINATED POLYESTER



ISSUED BY: PRECOMPLIC 24 GRANDVIEW LANE, MANCHESTER CENTER, VT 05255

THIS IS TO CERTIFY THAT THE MATERIALS DESCRIBED BELOW HAVE BEEN FLAME RETARDANT TREATED OR INHERENTLY NONFLAMMABLE

DESCRIPTION: 11oz, 13oz, 18oz, 22oz, 27oz and 32oz VLP

"Vinyl Lammated Polyester"

COLORS: White, Red. Blue, Green, Black, Yellow, Grey, Tan and Clear

SUPPLIED TO: B & J CANVAS 592 N.W. AA Hwy. Kingsville, MO 64061

The articles described on this cartificate have been made from a flame-resistant fabric registered and approved by the California State Fire Marshal, equal to or to exceed CSPN and by The Gov mark Organization to ISPA 701 - Test 2 Large Scale

The Plane Retardant Process Used WILL NOT Be Removed By Washing And is Effective For The Life Of The Fabric

PREGOMP LLC

resident