

Product: Mezzanine

- Required tools to install a Bluff Manufacturing mezzanine.
- Quick tips for product installation.
- Refer to the installation drawings and project specific installation instructions.

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FOR SAFETY

SAFETY FIRST

Being safe benefits everyone. No insurance claims, no lawsuits, no pain. To make sure nothing happens, keep the following in mind.

OSHA

Follow OSHA guidelines.

It is important to adhere to OSHA guidelines.

Follow OSHA guidelines.

OSHA can levy fines if you are found out of compliance and fines add up quickly when installation is done without following OSHA guidelines.

Personal protective equipment (PPE)

Every worker should have the appropriate personal protective equipment for the job he is doing at the time. Whether the worker is at height or is using certain equipment, make sure you and your crew understand how important the right PPE is.

- **Hard hat:** Protects against head injury due to falling objects. There are three industrial classes. Class A provides impact and penetration resistance as well as limited voltage resistance. Class B provides the highest level of electrical protection. Class C is a lightweight hat that can protect well enough against impact but has no voltage protection.
- **Ear protection** (if necessary).
- **Safety goggles:** There are several types, use the type most appropriate to the activity. Includes welding and chipping, cutting spectacles with side shields, tinted lenses, and face shields. NOTE: OSHA specifies that eye and face protection should guard against specific workplace hazards.
- **Gloves:** Match to the nature of the work. Gloves can come in an array of materials: leather, canvas, mesh, fabric, and rubber.
- **Safety Harness:** Everyone who works at height should be wearing a safety harness. [Fall protection on construction sites](#) can include safety belts, lifelines, lanyards, and safety netting. Use the appropriate type for the activity. Check the harnesses regularly for wear and tear.

- OSHA states, “Lifelines shall be secured above the point of operation to an anchorage of the structural member capable of supporting a minimum dead weight of 5,400 pounds.”
- Work boots

Additional safety equipment includes, of course, one or more fire extinguishers. These should be checked regularly for a charge. Near the extinguisher is a good place to keep a first aid kit. The kit should contain, at a minimum:

- Bandages
- Gauze pads
- Antibiotic packs
- Antiseptic wipes
- Flashlight

Train everyone on the use of the personal protective equipment. A basic first aid course wouldn't hurt. You may need more supplies than this depending on the types of injuries that occur most often on your jobsites. **Anytime the first aid kit is used, make sure it is restocked as soon as possible.** If everyone is careful, you won't have to do that too often.

If at all possible, develop and perform a hazard assessment for each jobsite. Identify potential dangers as early as possible and work to mitigate or eliminate them. Put someone in charge of safety who can make sure everyone maintains and uses their protective equipment properly and who maintains the hazard communication policy and practice.

Erecting a metal building, no matter the size, requires attention to safety and the right tools. This post is, by no means, a comprehensive list of what you will need for every job but it does mention many of the tools that will be put to use each day. Consult your erection manual for specifics for your metal building

FOR UNLOADING AND STORAGE

The truck arrives with the mezzanine, which is packaged in pieces and bundles. Getting it off the truck in good shape and arranging it neatly will go much faster and smoother with some basic tools.

Forklift, crane, or other power loader

These bundles are not lightweight. A forklift and some nylon band slings will be needed to offload and transport each bundle to its place.

- When using a crane, make sure you are using a spreader bar of the correct length for the load
- Do not use wire rope slings, this can damage the metal and/or the finish
- Lift each bundle as close to the center of gravity as possible
- If using a forklift, position the load all the way back on the forks. **Do not drive the forklift with the forks up.**
- You may need two forklifts if you are handling beams or other pieces that are over 25 feet long

Blocking

Blocking materials protect the splice plates and the slab from damage while you are unloading. They provide a lift for the materials so you can slip slings or cables around members for lifting. You can also use blocks when bolting together subassemblies while they are on the ground.

Coverings

It's best to put everything under a roof but if that isn't possible, place the panels and members on a plastic ground cover and cover them with a waterproof tarp.

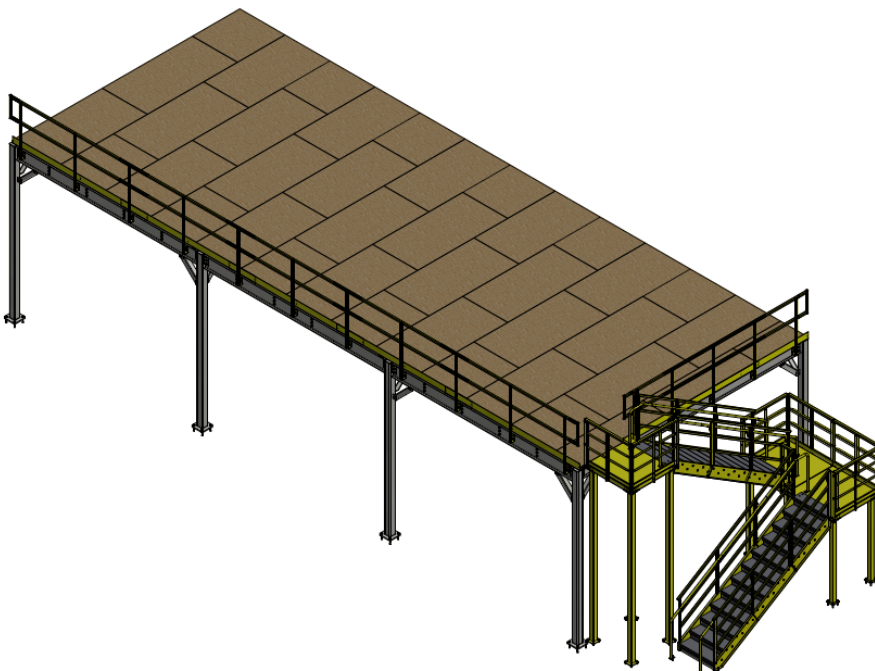
FOR ERECTION AND ASSEMBLY

Variable grip wrenches and a cordless drill with a screwdriver bit are two of the most basic tools. Here is a relatively comprehensive list of tools. You won't need all of them for every job. For larger buildings you may need a scissor lift or crane lift.

- Wrenches to tighten bolts
- Cordless drill for self-tapping screws as well as drill bits
- Long level to ensure everything is straight
- Spud wrench or large screwdriver to line up bolt holes on main beams
- Hammer
- Pry bar
- Pipe wrench
- Pliers
- Vise-grips
- Screw gun
- Impact or power wrench
- Nibbler – electric metal cutter to cut across wall and roof panels(B-Deck, Kick plate)
- Hacksaw
- Push broom and wire brush
- Chalk line
- Channel locks
- Extension cord (#10-3, 2/4 way box, 250 feet long)
- Load binders
- Plumb bob
- Snips (large bulldogs)
- Tape measure (10-25 feet, and 100 feet)
- Ladder
- Chain

- Rope
- Come-along (power pull)
- Saw horses
- Tarps
- Utility knife
- Crescent wrench
- Socket wrench
- Bull pin
- Tin snips
- Rivet gun
- Roto-hammer
- Air Compressor
- Welding Machine (for onsite welding applications)

Example of a fully assembled mezzanine



Example of mezzanine drawings. Your experier

JUNE,
 CONTRACT NUMBER:
 PROJECT NUMBER:

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| DRAWING | | PROJECT | |
| DRAWING TITLE COVER SHEET AND INDEX OF DRAWINGS | PROJECT NAME BLUFF Manufacturing | ADDRESS 10000 W. 100th St. North, Texas 75061 | PROJECT NUMBER C1.0 |
| DATE 06/10/2021 | PROJECT DATE 06/10/2021 | DATE 06/10/2021 | PROJECT DATE 06/10/2021 |
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Example of mezzanine drawings. Your experience may differ.

| 01 THE SYMBOLS INDICATED IN THIS DOCUMENT IDENTIFIED A NOTE CALL-OUT. | STRUCTURAL NOTES | ABBREVIATIONS | GENERAL SYMBOLS | SHIPPING LABEL | | | | | | | | |
|---|--|--|---|--|---|---|---|--|---|---|--|---|
| <p>[B1] ALL PARTS OF THE WORK, INCLUDING MATERIALS, MEMBERS, ASSEMBLIES, ETC., MUST COMPLY WITH THE MINIMUM REQUIREMENTS OF FEDERAL, STATE, DISTRICT AND LOCAL AUTHORITIES HAVING JURISDICTION OVER THE PROJECT AS WELL AS THOSE EXISTING IN ANY COUNTRY OR TERRITORY TO WHICH THE PROJECT IS LOCATED. THE CONTRACT DOCUMENTS MAY BE CONSULTED TO DETERMINE THE EXACT REQUIREMENTS OF ANY APPLICABLE AUTHORITY.</p> | <p>[B2] IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW AND COORDINATE THE WORK OF ALL DESIGN PROFESSIONALS AND OTHER PROFESSIONALS, TRADES AND VENDORS INVOLVED IN THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE APPLICABLE AGENCIES AND FOR THE EARLIEST POSSIBLE DATE SO AS TO ALLOW THE WORK TO PROCEED WITHOUT UNNECESSARY DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE WORK TO BE ACCORDING TO THE CONTRACT DOCUMENTS AND TO ASSURE THAT ALL REQUIREMENTS OF ANY APPLICABLE AUTHORITY ARE MET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE WORK TO BE ACCORDING TO THE CONTRACT DOCUMENTS AND TO ASSURE THAT ALL REQUIREMENTS OF ANY APPLICABLE AUTHORITY ARE MET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE WORK TO BE ACCORDING TO THE CONTRACT DOCUMENTS AND TO ASSURE THAT ALL REQUIREMENTS OF ANY APPLICABLE AUTHORITY ARE MET.</p> | <p>B-1: ALL PARTS OF THE WORK, INCLUDING MATERIALS, MEMBERS, ASSEMBLIES, ETC., MUST COMPLY WITH THE MINIMUM REQUIREMENTS OF FEDERAL, STATE, DISTRICT AND LOCAL AUTHORITIES HAVING JURISDICTION OVER THE PROJECT AS WELL AS THOSE EXISTING IN ANY COUNTRY OR TERRITORY TO WHICH THE PROJECT IS LOCATED. THE CONTRACT DOCUMENTS MAY BE CONSULTED TO DETERMINE THE EXACT REQUIREMENTS OF ANY APPLICABLE AUTHORITY.</p> <p>B-2: IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW AND COORDINATE THE WORK OF ALL DESIGN PROFESSIONALS AND OTHER PROFESSIONALS, TRADES AND VENDORS INVOLVED IN THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE APPLICABLE AGENCIES AND FOR THE EARLIEST POSSIBLE DATE SO AS TO ALLOW THE WORK TO PROCEED WITHOUT UNNECESSARY DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE WORK TO BE ACCORDING TO THE CONTRACT DOCUMENTS AND TO ASSURE THAT ALL REQUIREMENTS OF ANY APPLICABLE AUTHORITY ARE MET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE WORK TO BE ACCORDING TO THE CONTRACT DOCUMENTS AND TO ASSURE THAT ALL REQUIREMENTS OF ANY APPLICABLE AUTHORITY ARE MET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE WORK TO BE ACCORDING TO THE CONTRACT DOCUMENTS AND TO ASSURE THAT ALL REQUIREMENTS OF ANY APPLICABLE AUTHORITY ARE MET.</p> | <p>SECTION VIEW DIRECTION OF VIEW LABEL #1 SHEET WHERE SHOWN</p> | <p>BEAM CLIP ORIENTATION TOP BOTTOM SIDE SIDE</p> | <p>BEAM LABEL BEAM PART # IS ON TOP FLANGE AS SHOWN BELOW.</p> <p>DETAIL VIEW - SAME SHEET LABEL #1 SHEET WHERE SHOWN</p> | <p>BEAM LABEL NOTE PART # IS (NOT) STAMPED LETTERING AND IS SMALLER THAN SHOWN IN THESE DOCUMENTS. BEAM PART #S BELONG TO THE BEAM ENDER, NOT TO THE FABRICATOR. PART #S ARE PLACED ON THE END OF THE MEMBER CORRESPONDING TO THE MEMBER ENDER'S ORIENTATION TO REMOVAL.</p> | <p>SECTION VIEW DIRECTION OF VIEW LABEL #1 SHEET WHERE SHOWN</p> <p>DETAIL VIEW REFERENCE LABEL #1 SHEET WHERE SHOWN</p> <p>DETAIL VIEW - SAME SHEET LABEL #1 SHEET WHERE SHOWN</p> <p>LAYOUT GRID LINES GRID #1 GRID #2 GRID #3 GRID #4 GRID #5</p> <p>COLUMN LABEL COLUMN PART # IS ON BOTTOM OF BEAM FLANGE, IN THE MIDDLE PORTION.</p> <p>ITEM BALL IDENTIFICATION PART #1 LOCATION OF ITEM</p> | <p>REVISION IDENTIFICATION LABEL, SEE REVISION LOG ON THE TITLE BLOCK</p> | <p>ITEM BALL IDENTIFICATION PART #1 LOCATION OF ITEM</p> | <p>PROJECT NORTH ARROW N</p> | <p>REVISION IDENTIFICATION LABEL, SEE REVISION LOG ON THE TITLE BLOCK</p> | <p>ITEM BALL IDENTIFICATION PART #1 LOCATION OF ITEM</p> |
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Example of mezzanine drawings. Your experience may differ.

- [1.1] BUILDING CODES AND DESIGN STANDARDS
 - [1.1.1] INTERNATIONAL BUILDING CODE: IBC 2009
 - [1.1.2] MECHANICAL LOADS FOR BUILDINGS AND OTHER STRUCTURES: ASCE 7-10
 - [1.1.3] MINIMUM DESIGN LOADS FOR HEAVY AND MEDIUM STORAGE STRUCTURES: IBC
 - [1.1.4] OCCUPANCY CLASSIFICATION: IBC 2009
 - [1.1.5] STRUCTURAL STEEL CONSTRUCTION MANUAL: AISC 360 15TH EDITION
 - [1.1.6] STRUCTURAL WELDING CODE: STEEL AWS D1.1
- [1.2] OCCUPANCY CATEGORY: (I)
- [1.3] DESIGN ALLOWABLE STRESS DESIGN (ASD)
- [1.4] GRAVITY LOADS:
 - [1.4.1] GRAVITY DESIGN DEAD LOAD SHALL BE (12 PSF)
 - [1.4.2] LIVE LOAD: (12 PSF)
 - [1.4.3] RAIN LOAD: NA
 - [1.4.4] SNOW LOAD: NA
 - [1.4.5] ICE LOAD: NA
 - [1.4.6] WIND LOAD: (9 PSF) - INTERIOR
- [1.5] LATERAL LOADS:
 - [1.5.1] SEISMIC LOADING:
 - [1.5.1.1] DESIGN SPECTRAL RESPONSE ACCELERATION: (0.1)
 - [1.5.1.2] IMPORTANCE FACTOR: (1.0)
 - [1.5.1.3] DESIGN SPECTRAL RESPONSE ACCELERATION: (0.1) + (0.15)
 - [1.5.1.4] DESIGN SPECTRAL RESPONSE ACCELERATION: (0.2) + (0.25)
 - [1.5.1.5] DESIGN SPECTRAL RESPONSE ACCELERATION: (0.3) + (0.35)
 - [1.5.1.6] DESIGN SPECTRAL RESPONSE ACCELERATION: (0.4) + (0.45)
 - [1.5.2] WIND: (ASD)
- [1.6] GENERAL NOTES:
 - [1.6.1] CUSTOMER TO VERIFY THAT SUPPORTING ELEMENTS OF THE PRODUCT PROVIDED BY THE MANUFACTURER ARE ADEQUATE TO SUPPORT THE PRODUCT AND ATTACHED LOADS.
 - [1.6.2] CUSTOMER/CONTRACTOR TO VERIFY LOCATION OF EXISTING AND PROPOSED STRUCTURAL ELEMENTS IN THE FIELD COMPARED TO THE DETAIL HEREIN.
 - [1.6.3] THE LOCATION OF NEW STEEL MEMBERS AND THE CONNECTION DETAIL FOR NEW STRUCTURAL MEMBERS TO THE EXISTING STRUCTURE SHALL BE FIELD VERIFIED BY THE CONTRACTOR. NO FIELD ADJUSTMENT TO THE WELDING CONNECTIONS SHALL BE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE PROFESSIONAL ENGINEER OF RECORD.
 - [1.6.4] WHERE WORK OF OTHER TRADES REQUIRES CUTS OR DRILLS TO BE MADE IN NEW OR EXISTING STRUCTURAL STEEL, THE CONTRACTOR SHALL VERIFY THE LOCATION OF CUTS AND DRILLS ON THE STRUCTURAL DRAWINGS. APPROVAL SHALL BE OBTAINED FROM THE PROFESSIONAL ENGINEER OF RECORD PRIOR TO INITIATION OF WORK.
 - [1.6.5] SYSTEM IS NOT DESIGNED TO RESIST LOADS ASSOCIATED WITH IMPACT CONTACT. AS NOTED IN MECHANICAL SECTION 4-1.3 AND SHOULD BE GUARDED AGAINST SUCH IMPACTS.
 - [1.6.6] POINT LOADS SHOULD NOT EXCEED (80 LB) AND THE TOTAL AREA OF CONTACT SHOULD NOT EXCEED (6 IN²). LOADS APPLIED TO THE STRUCTURE SHALL BE FIELD VERIFIED BY THE CONTRACTOR. NO FIELD ADJUSTMENT TO THE WELDING CONNECTIONS SHALL BE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE PROFESSIONAL ENGINEER OF RECORD.

- [1.7] INSTALL WEDGE ANCHORS PER RESPECTIVE MANUFACTURER'S SPECIFICATIONS:
 - [1.7.1] WHEN INSTALLING STEEL ANCHORS USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING THEM INTO CONCRETE WITH EXISTING TRENCH (PER PERMITS/REQUIREMENTS) VERIFY THE LOCATION AND DEPTH OF THE EXISTING REINFORCING BARS AND USE TO MAINTAIN AT LEAST 1" CLEAR BETWEEN THE TRENCH AND THE ANCHOR. CUTTING A TRENCH ON ONE SIDE ONLY.
 - [1.7.2] IT IS RECOMMENDED THAT A (1/2") DIAMETER DRILL BE DRILLED TO CHECK THAT EXISTING REINFORCING BARS ARE NOT PRESENT AND THAT ALL BARS BE DRILLED WITH A HIGHER DIAMETER AND CHEAPER DRILL BITS.
 - [1.7.3] ALL DRILLS SHOULD BE DRILLED IN CONTINUOUS OPERATION, AVOIDING FREQUENT REMOVAL OF THE DRILL FROM THE HOLE.
 - [1.7.4] PER THE 2009 SECTION TABLE, THE POWER-OPERATED DRILL ANCHORS PROVIDED HAVE BEEN TESTED PER THE INTERNATIONAL CODE COUNCIL, EVALUATION SERVICE (ICES), PER ESR-205 FOR CONCRETE AND ARE COMPLIANT. (FIELD VERIFY TEST REPORT)
 - [1.7.5] TOUCH UP PAINT SHALL BE PROVIDED BY MANUFACTURER.
 - [1.7.5.1] STRUCTURE: SSPC SP 9
 - [1.7.5.2] REINFORCING STEEL: SSPC SP 10
 - [1.7.5.3] APPLICATION: SPRAY PAINT
 - [1.7.5.4] COLOR: BLUE GRAY
 - [1.7.5.5] COATING WEIGHT: 1.0 LB/100 SQ FT
 - [1.7.5.6] COATING WEIGHT: 0.5 LB/100 SQ FT
 - [1.7.5.7] COATING WEIGHT: 0.5 LB/100 SQ FT

- [2.1] STRUCTURAL STEEL CONNECTION, FABRICATION AND ERECTION SHALL COMPLY WITH AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) STEEL CONSTRUCTION MANUAL, "SPECIFICATIONS FOR STRUCTURAL STEEL FOR BUILDINGS," CODE OF STANDARD PRACTICE AND AISC 360 15TH EDITION, AND SHALL COMPLY WITH THE FOLLOWING STEEL CONNECTIONS:
 - [2.1.1] STRUCTURAL STEEL CONNECTION WITH THE FOLLOWING EQUIVALENT UNLESS OTHERWISE NOTED:
 - [2.1.1.1] ANGLE STEINER AS
 - [2.1.1.2] CHANNEL STEINER AS
 - [2.1.1.3] IPE STEINER AS
 - [2.1.1.4] PLATE STEINER AS
 - [2.1.1.5] SHIRT (FOOT) STEINER AS
 - [2.1.1.6] SHIRT (FOOT) STEINER AS
 - [2.1.1.7] TEE STEINER AS
 - [2.1.1.8] TEE STEINER AS
 - [2.1.1.9] W-FLANGE BEAM STEINER AS
 - [2.1.1.10] W-FLANGE BEAM STEINER AS
 - [2.1.2] ALL CONNECTIONS SHALL BE STRENGTHENED TO A SHOCK-TIGHT CONDITION UNLESS NOTED OTHERWISE.
 - [2.1.3] ALL OVERSED AND SLOTTED HOLES TO HAVE WELDS IN THE DRILL SHROUD PER SPECIFICATION FOR STRUCTURAL STEEL SHROUD FOR ANGLES OR BARS.
 - [2.1.4] WELDED CONNECTIONS WILL COMPLY TO AWS D1.1 STRUCTURAL WELDING CODE - STEEL USING A FLOW LOW HYPOKOS ELECTRODE COMPARED TO AWS SPECIFICATION A5.1.
 - [2.1.5] THE CONTRACTOR IS RESPONSIBLE FOR THE SECTION SAFETY OF ALL STEEL CONNECTIONS, INCLUDING BUT NOT LIMITED TO COMPENSATION, SEQUENCE, THE USE OF BLOCKING, THE USE OF CLAMP, ETC.
 - [2.1.6] TO AVOID SHIM BETWEEN COLUMN AND BEAM AS NECESSARY, MORE SPACING CAN BE PROVIDED DOWN REQUEST.
- [2.2] SHIM BETWEEN TOP OF COLUMN AND BEAM AS NECESSARY, MORE SPACING CAN BE PROVIDED DOWN REQUEST:
 - [2.2.1] SHIM SURFACE: 1/2" OR OTHER
 - [2.2.2] SUBSTRATE: 1/2" REIN. CONC. THICK. AND SMOOTH
 - [2.2.3] SUBSTRATE: 1 1/2" B-BOX 2X 4.
- [2.3] INSTALL B-BOX PER STEEL DETAIL NOTED IN DETAIL MANUAL. SHIM CONTROLS WERE POSSIBLE. LOWER FINISHED SURFACE OF B-BOX FINISH DOWN B-BOX TO BE SECURED TO STRUCTURE WITH THE SCOWING. (PER 2.2.2.4.6(1) REFERENCE 9-4.
- [2.4] FROM EXISTING PANELS AS NECESSARY IN FIELD.
- [2.5] SCOW WITHIN TO SECURE DOWN TO STRUCTURE SHALL BE 3/4" W/ 4" B-BOX WITH (2) 4" B-BOX SCOW SHEETS.
- [2.6] INSTALL BEAM STOP PER STRUCTURAL MANUFACTURER'S SPECIFICATIONS. BEAM STOP SHALL BE DRILLED WITH HOLEWIRE PROVIDED BY RESPECTIVE MANUFACTURER.
- [2.7] BLOCKING SURFACE TO BE PROVIDED BY OTHERS.
- [2.8] REINFORCING THROUGH MATERIAL OF USE FOR DETAILS ON REINFORCING MATERIAL AND REINFORCING FINISH PROVIDED.

- [2.9] GENERAL NOTES:
 - [2.9.1] SEE SHIM CONNECTION DETAIL ON SHEET S1.0 CONNECTION SHOWS DIMENSIONS FOR SQUARE TUBE AND ROUND PIPE. SEE (2.1).
 - [2.9.2] SQUARE TUBE PROVIDED IN STANDARD (2) 4" LONG SECTION WITH (1/2") DIAMETER ACCESS HOLES ON BOTH ENDS FOR ACCESS TO SET SCOWS ON EXISTING COUPLINGS (2.1) WHEN A SECTION OF TUBE IS CUT TO FIT AND THE HOLES ON ONE END IS CUT A NEW ACCESS HOLES WILL BE DRILLED (1 1/2") TO THE 4" FROM THE CUT END. THE CUT END OF THE TUBE WILL ALSO BE DRILLED TO FIT WITH THE BARS. SEE (2.1).
 - [2.9.3] THE SCOWING THAT ARE EXPLOD AFTER SCOWING SHOULD HAVE THE EXCESS LENGTH CUT OFF OR:
 - [2.9.4] IN ANY COMPENSATION, THE DIMENSIONS ARE TO BE SUPPORTED AT A MINIMUM OF (7) ON CENTER.
- [3.1] CONNECTIONS TO BE OBSERVED:
 - [3.1.1] CONNECTIONS TO BE OBSERVED:
 - *Standard for operations that require a rigid steel beam-to-beam and for access to operating platforms at any equipment which require attention including safety operations. (1015.2.4.1)
 - *Connections shall have a minimum minimum clearance of 12" between the top of the beam and the top of the edge of the beam. (1015.2.4.1)
 - *The working surfaces of the beam and the edge of a safety rail shall not be spaced closer than (75%) in any direction. A figure of 80% shall not be used for a vertical gap greater than (12.4) inches. (1015.2.4.1)
- [3.2] TO INSTALL THE TRUCKS AS NOTED IN [3.1] IT IS RECOMMENDED THAT THE SPRAY SYSTEM BE ASSIGNED WITH THE TRUCKS TO BE OBSERVED. THE TRUCKS SHALL BE OBSERVED IN THE LINE, EACH TRUCK AND LANDING AND BEING TO SHUT DOWN CONNECTION. CHECK THE DIMENSIONS OF NECESSARY COMPONENTS. IF NOT LATER AS NOTED IN [3.1], REPAIR PROCESS.

| NO. | DATE | BY | DESCRIPTION |
|-----|------------|-----|--------------------|
| 1 | 04/20/2015 | XXX | ISSUED FOR PERMITS |

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| PROJECT | | REVISION HISTORY | |
| PROJECT NO: | 21520215 | NO. | DATE |
| PROJECT NAME: | BLUFF | 1 | 04/20/2015 |
| PROJECT LOCATION: | BLUFF | 2 | 05/15/2015 |
| PROJECT DESCRIPTION: | BLUFF | 3 | 05/15/2015 |
| PROJECT OWNER: | BLUFF | 4 | 05/15/2015 |
| PROJECT ARCHITECT: | BLUFF | 5 | 05/15/2015 |
| PROJECT ENGINEER: | BLUFF | 6 | 05/15/2015 |
| PROJECT CONTRACTOR: | BLUFF | 7 | 05/15/2015 |
| PROJECT SUBCONTRACTOR: | BLUFF | 8 | 05/15/2015 |
| PROJECT MATERIALS: | BLUFF | 9 | 05/15/2015 |
| PROJECT EQUIPMENT: | BLUFF | 10 | 05/15/2015 |

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| DRAWING | | PROJECT | |
| TITLE: | STRUCTURAL GENERAL NOTES | PROJECT NO: | 21520215 |
| SCALE: | AS SHOWN | PROJECT NAME: | BLUFF |
| DATE: | 04/20/2015 | PROJECT LOCATION: | BLUFF |
| BY: | XXX | PROJECT DESCRIPTION: | BLUFF |
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| TITLE: | STRUCTURAL GENERAL NOTES | PROJECT NO: | 21520215 |
| SCALE: | AS SHOWN | PROJECT NAME: | BLUFF |
| DATE: | 04/20/2015 | PROJECT LOCATION: | BLUFF |
| BY: | XXX | PROJECT DESCRIPTION: | BLUFF |
| CHECKED BY: | XXX | PROJECT OWNER: | BLUFF |
| DATE: | 04/20/2015 | PROJECT ARCHITECT: | BLUFF |
| PROJECT NO: | 21520215 | PROJECT ENGINEER: | BLUFF |
| PROJECT NAME: | BLUFF | PROJECT CONTRACTOR: | BLUFF |
| PROJECT LOCATION: | BLUFF | PROJECT SUBCONTRACTOR: | BLUFF |
| PROJECT DESCRIPTION: | BLUFF | PROJECT MATERIALS: | BLUFF |
| PROJECT OWNER: | BLUFF | PROJECT EQUIPMENT: | BLUFF |

APPENDIX 3 OF 11

Example of mezzanine drawings. Your experience may differ.

| ITEM | QTY | PART NUMBER | Q1 | Q2 | Q3 | Q4 |
|---------|-----|----------------|----------|----------|------------|----|
| 1.1 | 4 | 8507-CD-1 | | | | |
| 1.2 | 1 | 8507-CD-2 | | | | |
| 1.3 | 1 | 009-8800 | 0.125 in | 7.720 in | 66.807 in | |
| 1.4 | 1 | 009-29-1 | | | | |
| 1.5 | 2 | 0208 | | | | |
| 1.6.1 | 3 | 8507-5T-01-04 | | | | |
| 1.6.2 | 1 | 517-06-102-5-1 | | | | |
| 1.6.3 | 1 | 517-06-102-5-2 | | | | |
| 1.6.4 | 1 | 517-06-102-5-4 | | | | |
| 1.6.5 | 1 | 517-06-102-5-2 | | | | |
| 1.6.6 | 2 | 517-09-1 | | | | |
| 1.6.7 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.8 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.9 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.10 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.11 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.12 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.13 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.14 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.15 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.16 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.17 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.18 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.19 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.20 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.21 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.22 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.23 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.24 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.25 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.26 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.27 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.28 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.29 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.30 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.31 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.32 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.33 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.34 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.35 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.36 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.37 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.38 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.39 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.40 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.41 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.42 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.43 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.44 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.45 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.46 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.47 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.48 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.49 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.50 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.51 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.52 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.53 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.54 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.55 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.56 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.57 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.58 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.59 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.60 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.61 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.62 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.63 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.64 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.65 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.66 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.67 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.68 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.69 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.70 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.71 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.72 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.73 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.74 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.75 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.76 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.77 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.78 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.79 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.80 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.81 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.82 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.83 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.84 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.85 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.86 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.87 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.88 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.89 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.90 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.91 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.92 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.93 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.94 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.95 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.96 | 2 | 517-09-1 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.97 | 2 | 517-09-2 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.98 | 2 | 517-09-4 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.99 | 2 | 517-09-5 | 1.950 in | 50.0 in | 120.000 in | |
| 1.6.100 | 2 | 517-09-3 | 1.950 in | 50.0 in | 120.000 in | |

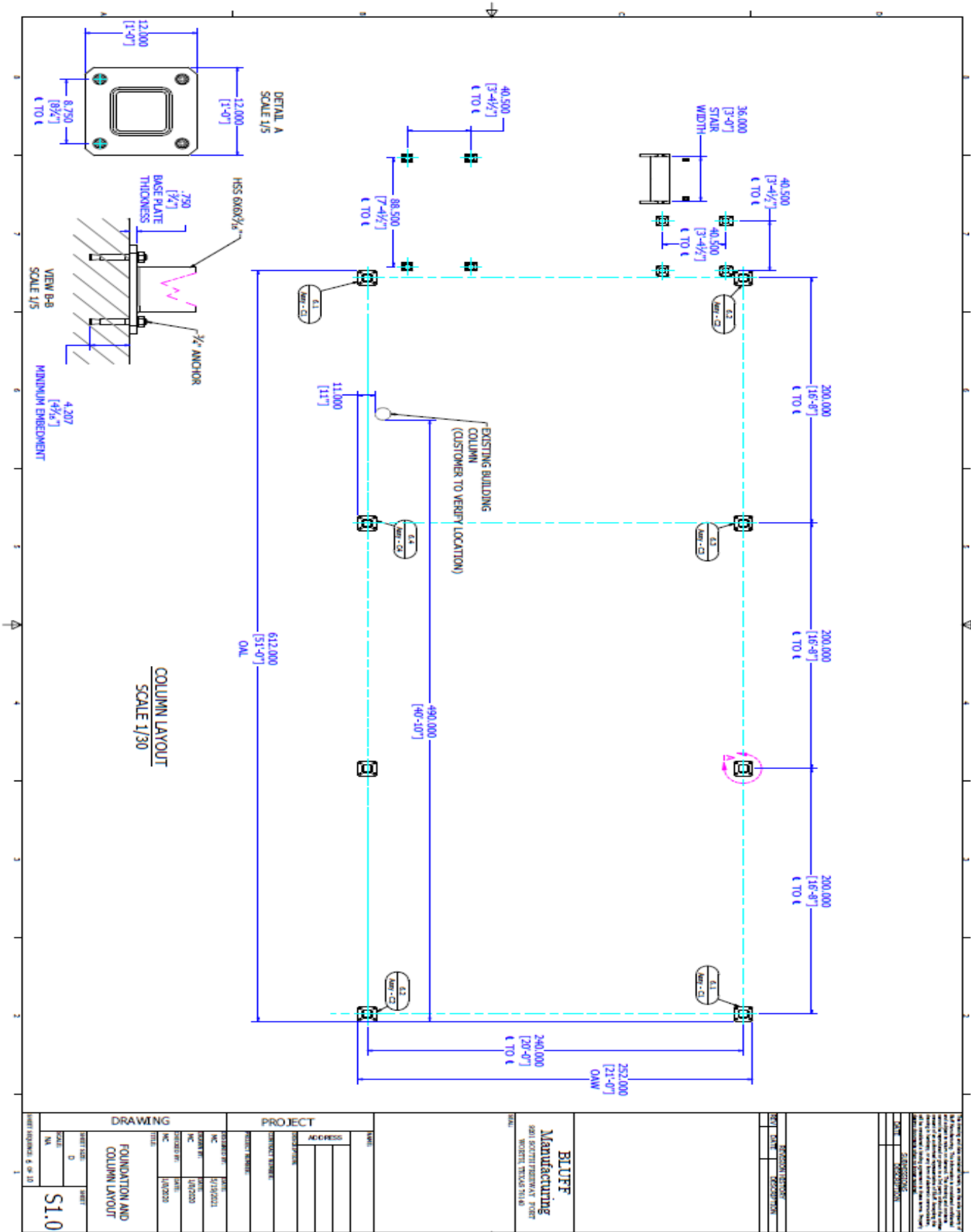


BOM LEGEND

| ITEM | DESCRIPTION | QTY | UNIT | LENGTH |
|------|-----------------|-----|------|--------|
| 1 | STAINLESS STEEL | | | |
| 2 | STAINLESS STEEL | | | |
| 3 | STAINLESS STEEL | | | |
| 4 | STAINLESS STEEL | | | |
| 5 | STAINLESS STEEL | | | |
| 6 | STAINLESS STEEL | | | |
| 7 | STAINLESS STEEL | | | |
| 8 | STAINLESS STEEL | | | |
| 9 | STAINLESS STEEL | | | |
| 10 | STAINLESS STEEL | | | |
| 11 | STAINLESS STEEL | | | |

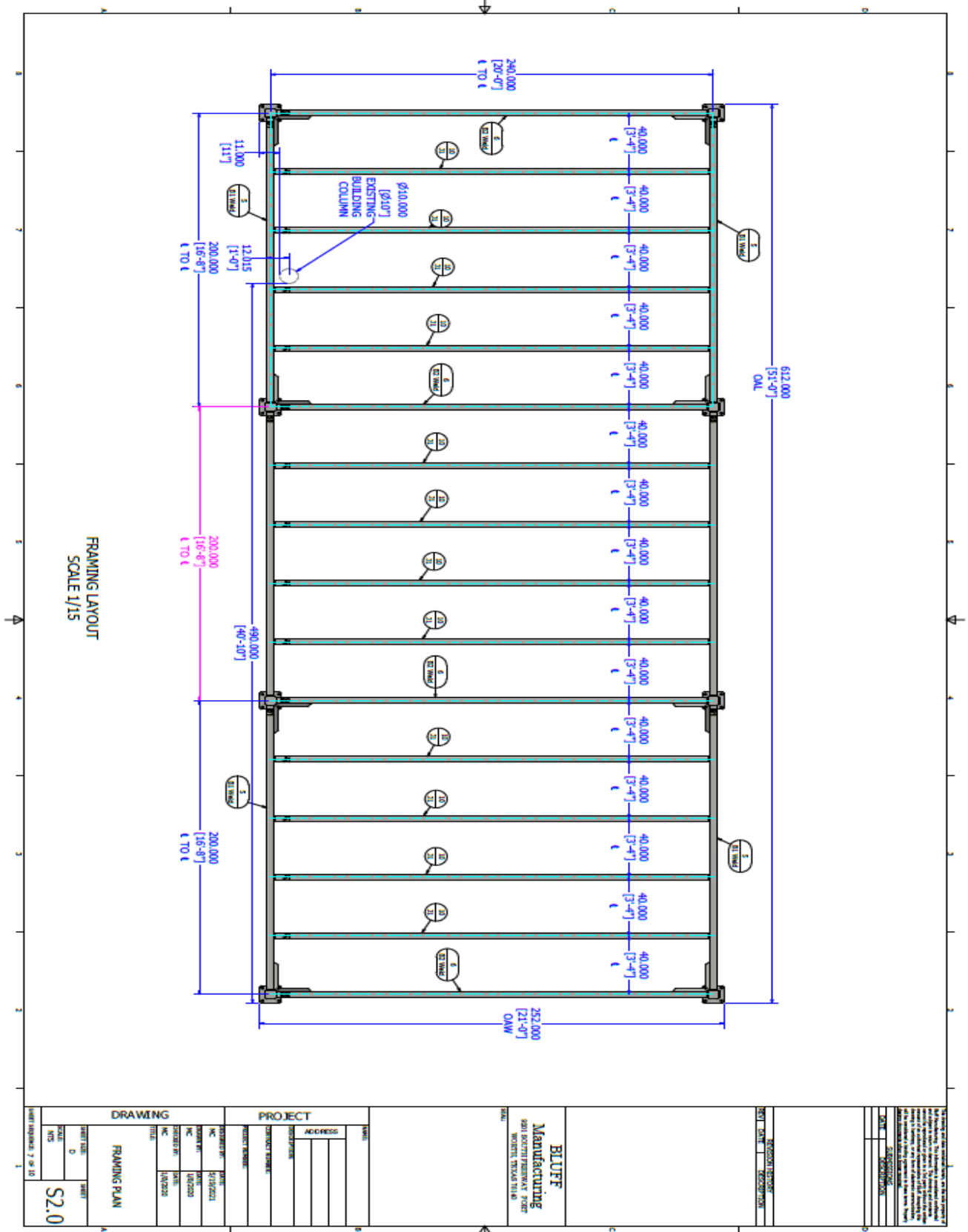
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|--|---|---|
| <p>BLUFF Manufacturing 9901 SOUTH RIVERWAY FORT WORTH TEXAS 76140</p> | <p>PROJECT CONTRACT NUMBER: [REDACTED] PROJECT NUMBER: [REDACTED] DRAWING NUMBER: [REDACTED]</p> | <p>DRAWING BILL OF MATERIALS SHEET NUMBER: 4 OF 11</p> |
|--|---|---|

Example of mezzanine drawings. Your experience may differ.

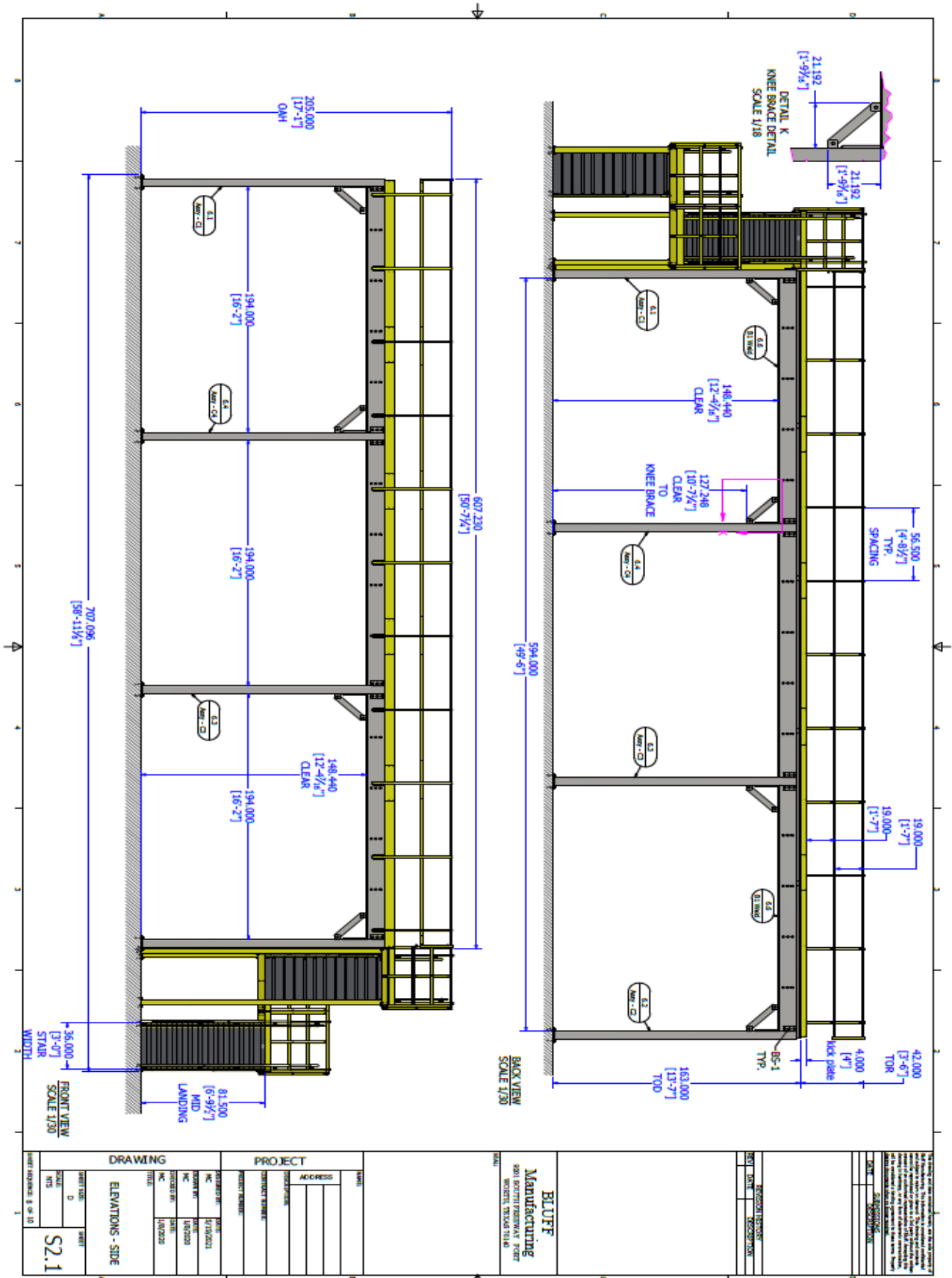


| | |
|----------------------|--|
| PROJECT | |
| PROJECT NAME | BLUFF Manufacturing |
| PROJECT ADDRESS | 881 SCOTTSMITH ROAD WORTH, TEXAS 75168 |
| PROJECT NUMBER | |
| PROJECT DATE | |
| PROJECT OWNER | |
| PROJECT ENGINEER | |
| PROJECT ARCHITECT | |
| PROJECT CONTRACTOR | |
| PROJECT SUBMITTER | |
| PROJECT DATE | |
| PROJECT SCALE | |
| PROJECT SHEET | |
| PROJECT TOTAL SHEETS | |

Example of mezzanine drawings. Your experience may differ.

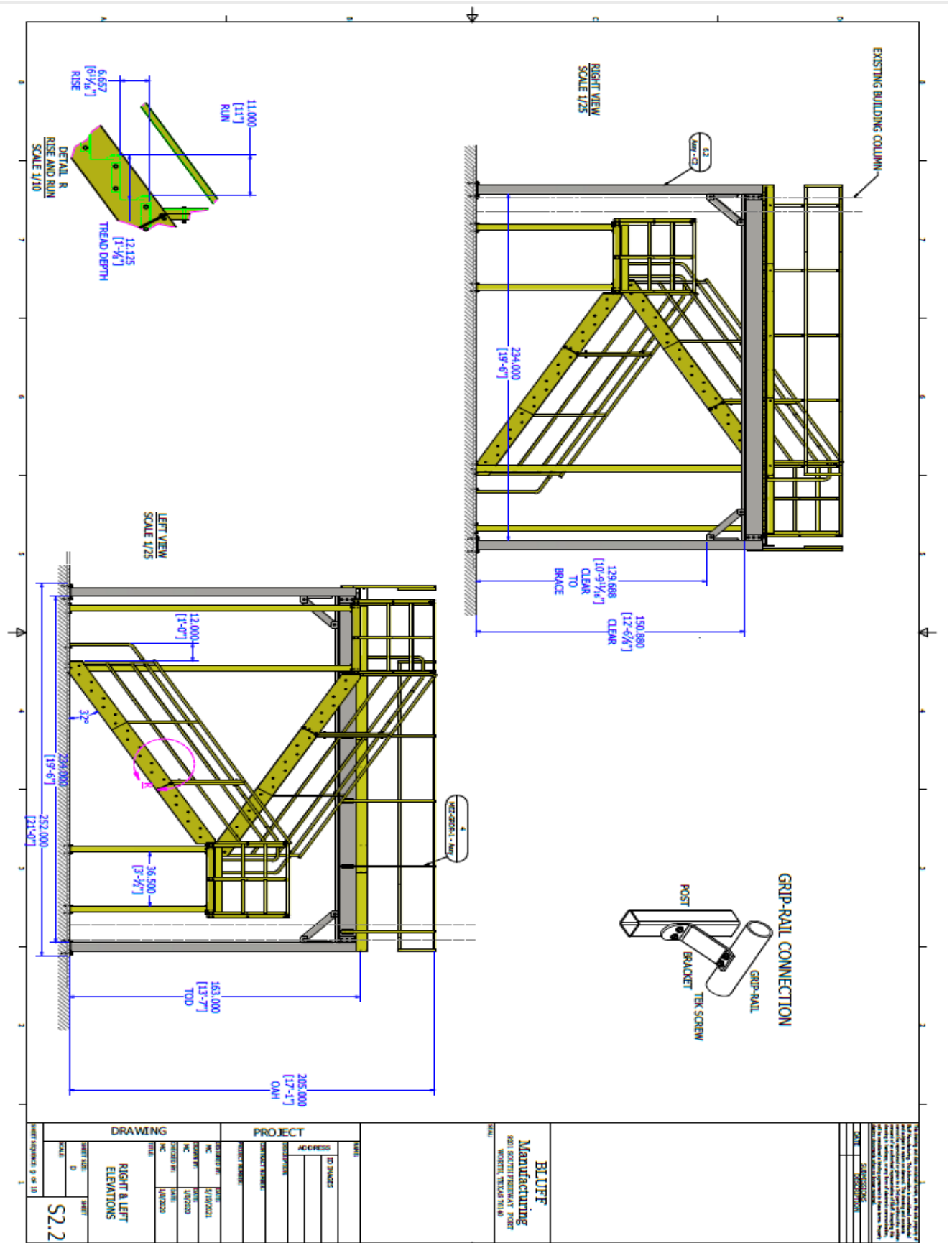


Example of mezzanine drawings. Your experience may differ.

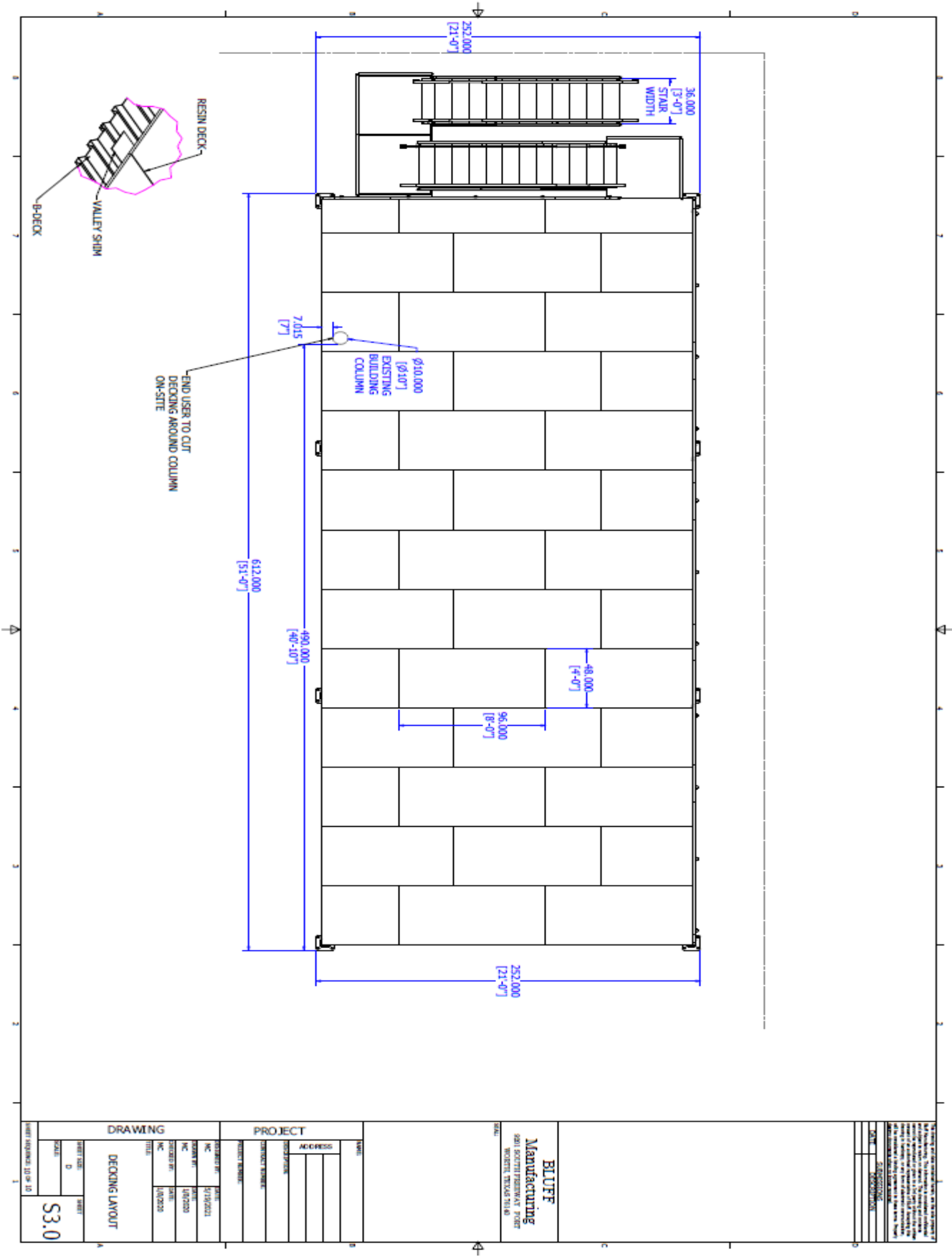


| | | | |
|---|--|---|--|
| <p>BLUFF Manufacturing 5015 SOUTH FERRIS AVENUE WORTHEN, TEXAS 75090</p> | | <p>PROJECT INFORMATION</p> <p>PROJECT NAME: _____</p> <p>PROJECT NUMBER: _____</p> <p>DATE: _____</p> | |
| <p>CLIENT INFORMATION</p> <p>CLIENT NAME: _____</p> <p>CLIENT ADDRESS: _____</p> | | <p>DESIGNER INFORMATION</p> <p>DESIGNER NAME: _____</p> <p>DESIGNER ADDRESS: _____</p> | |
| <p>DRAWING INFORMATION</p> <p>DRAWING TITLE: ELEVATIONS - SIDE</p> <p>SCALE: 1/30</p> <p>SHEET NUMBER: S2.1</p> | | <p>PROJECT INFORMATION</p> <p>PROJECT NAME: _____</p> <p>PROJECT NUMBER: _____</p> <p>DATE: _____</p> | |

Example of mezzanine drawings. Your experience may differ.



Example of mezzanine drawings. Your experience may differ.



CAUTION

IMPORTANT: ANY MODIFICATION TO THE
STRUCTURE, WITHOUT
THE MANUFACTURE'S AUTHORIZATION WILL
VOID THE WARRANTY OF THE PRODUCT.
IF A MODIFICATION NEEDS TO BE MADE BLUFF
WILL NOT PAY MORE THAN \$475
OR 6 HOURS AT \$75 PER HOUR UNLESS
AUTHORIZED IN WRITTEN FORM.
IF INSTALLER HAS ANY QUESTIONS OR CONCERNS
PLEASE CALL
BLUFF AT 800-433-2212 FOR IMMEDIATE
ASSISTANCE.

Final Specifications

All installations should reference project specific dimensions, specifications, and should receive approval of the client. Review all drawings carefully.

Anchor Bolts

Unless specified otherwise, anchor bolts are provided by Bluff Manufacturing. It is important that the concrete foundation is strong enough for the fixtures to be installed and installers adhere to the project drawings.

Bolt Tightening

Bolts must be properly aligned before tightening and should not be over or under torqued. Bolts should not over protrude or fit loose and care should be taken that all bolts on the structure are secure.

