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Directing a Technical Cyclone

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DIRECTING A TECHNICAL CYCLONE

by

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A Thesis
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In October 2023, the Southern Illinois School of Theater and Dance produced Ride the Cyclone. This thesis documents the participation of the technical director, Leonard Lively, in this collaborative production process. The project involved multimedia construction, CNC technology to manufacture custom components, curtain fabrication, engineering inspiration from anatomical structures, and advanced AutoCAD drafting techniques.

Chapter one explores the play's text, past productions, and the production's possibilities. The design process is documented in the second chapter. The third chapter covers the production process and the fourth chapter reflects and evaluates the effectiveness of the production.

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STATEMENT OF PROJECT

Ride the Cyclone by Jacob Richmond and Brooke Maxwell is a dark musical *Ride the Cyclone* is a modern vaudeville cavalcade, resplendent in its morbid eccentricities.

Since *Ride the Cyclone* is a relatively recent popular culture phenomenon, becoming widely known during the Covid-19 pandemic, this play has acquired a large fan base of predominantly young (Gen Z) fans, primarily due to its "viral" prevalence on social media platforms, namely TikTok. Many describe *Ride the Cyclone* as a new cult classic of the social media age (Playbill). The chance to realize a production with so few previous iterations was a unique and exciting opportunity. It felt almost exploratory because regional theaters are only just beginning to work with the piece, but also predetermined because the original productions are so ingrained in expectations of the fans due to social media bootlegs.

My role in this production was as technical director. In this role I planned the build process, ordered material, drafted the show, managed the shop staff, and facilitated and ensured that the set realized the production's design on schedule and safely. This was the first production of the third year of my MFA, and as such this was the first time that I would be the most senior employee in the scenic studio. The role of primary scene shop supervisor for the year, along with my role as technical director of *Ride the Cyclone*, pushed me to improve my attentiveness, managerial skills, organization, and facility stewardship.

The setting for *Ride the Cyclone* remains constant and unchanging throughout the show. The set does not deviate from the amusement park warehouse. For the most part, the performers remain onstage throughout the show, except for during the primary songs of other characters.

Karnak remains planted in their spot throughout the entire show. Because of the static nature of the play, it makes more sense to analyze the action of the musical in terms of scenic effects desired at different moments. Scenery and actors are not tracked on and offstage, but the show has several scenic effects described in the stage directions. Performers are prone to exit during the introductory projection montages preceding the characters' signature songs. Performers exit for their costume change during Karnak's monologue, and then re-enter for the song. The character montage/Karnak's monologues function thusly throughout the show.

Table 1 – SCENIC BREAKDOWN

Scenic Effect	**Pg.**	**Description**	**Notes/Questions**
Jane Doe Apparition	9	*"We barely see a figure with its back to the audience in a Saint Cassian girl's tunic, as if she is lit by the faintest beam of moonlight. Although we see her body her head seems to be entirely missing in her silhouette"*	Lights
Karnak Animation	9	First time that Karnak speaks. Whichever method is used to animate Karnak, it begins here.	Arduino? Teddy Ruxpin?
Curtain Opens	10	*"The curtains part and the choir appears"*	Traveler track
Projection #1	10	*"Resurrection sounds and video"*	Projecting on the sign?
The Other Side	16	*"Behind the curtain a blinding white light and a tunnel of smoke… a howling wind can be heard"*	Smoke machine behind curtain.
Curtain drops	16	The curtain drops	Curtain on traveler, travels vertically. Fly ops.
Curtain rises	19	*"The curtain slowly rises spilling with smoke"*	
Preparations for Ocean's bio & Ocean's Projection	22	*"The rest of the characters rearrange the scene and also participate in a visual retelling of the mini-biography"*	Modular scenery. Crates. Projection shoots.

Noel's Follow Spot	33	*"The follow spot swings over to Noel"*	Spot ops.
Noel Projection	34	*"A linear photomontage of baby pictures, child pictures, young teen, to current yearbook photo"*	
Curtain drops	44	*"Curtain shuts down on Noel"*	On him? Is this literal actor collision with a curtain?
Mischa Projection	47	Same.	
Autotune	48	Song is autotune. Make sure sound is prepared.	
Talia Projections	53	"*Projected on a white fabric which is used as a veil and a table and onto the white skirts worn by the female characters and long white skirts that can be used as projection surfaces."* Bucolic. Patriotic.	Maybe haze? Is this white fabric a scrim? Cyc? Is this on its own line set and flies in?
Mischa enters projection	57	*"Mischa appears to enter the video projection, joining hands with Talia as they run away into a field"*	Filming the projections will be an extensive part of the production process. Possible collaboration with media arts?
Ricky Projection	60	Same. Comic book montage.	
Grand Piano	60	*"A Grand Piano rolls out on stage, with smoke and a Candelabra"*	Stock fake pianos. Upright or the backwards baby grand from *Hayfever*?
Helium	68	*"Ricky sucks in the helium from the balloon...releasing a high note."*	Is this safe/allowable? Helium tank backstage to fill up balloons during preshow?

Curtain "open-ended"	71	*"Curtain is slowly open-ended to reveal a funeral picture."*	Open-ended? Does this mean curtain parts on the traveler? Or is it drawn to the side with a swag?
Set comes to life	73	*"As the beat kicks in, this next sequence is staged to feel that all the rides in the warehouse are coming to life, creating the image of a fairground at night. All the children's umbrellas light up with LED's: a large patio umbrella lights up making it look like a carousel, another umbrella looks like a Ferris wheel, another closed umbrella that lights up to resemble the Salt and Pepper shaker. The CYCLONE sign, the Proscenium, and any practical that can light up in the context of design, lights up."*	There will be a lot of practical lights incorporated in the scenic design. Expect a lot of collaboration with electrics, or this will become a potential challenge.
Ricky's Harmonium	77	*"RICKY at the harmonium."*	Another fake instrument. *Sweeney Todd* harmonium?
Glockenspiel	78	*"Cross-fade to RICKY and JANE playing with a glockenspiel."*	Another one. Could make fake one out of lauan.
Constance Projection	81	Photomontage.	
Trombones	85	*"MISCHA and NOEL should ideal* [*Sic*] *play trombones."*	Need backstage trombone handling procedures.
Confetti Cannons/Sunrise	87	*"JANE and OCEAN release confetti cannons over the audience."*	Must be approved by facilities. CO_2 cannister?
Curtain Rise	90	*"The curtain slowly rises, revealing a majestic light and smoke."*	
Scrim	92	*"JANE looks confused as the kids urge her into the proscenium. She enters it, a scrim comes down and we see her transform."*	Scrim upstage of the proscenium. Haze.

Jane Doe Projection	92	Dizzying speed. Transfixing.	Determine if this could affect sensory sensitive audience members, if so, an epilepsy warning should be displayed.
Other Side Button	96	*"The children disappear from the stage, we see the curtain shoot up with the eternity light with only the sound of howling wind for a brief moment ... The curtain suddenly shoots down with the sound of the roller coaster track, the instant it hits the floor, snap blackout."*	
Possible final curtain?	96	Big Red come in for final button?	If we use Big Red, it could be for preshow and post-show.

PLAY ANALYSIS

The fantastical given circumstances of *Ride the Cyclone* require the audience to suspend their disbelief and enter the world of the play and abide by its rules. Elinor Fuchs, a dramatic scholar at Yale University, emphasizes the singular unique nature of plays and the need to understand them on their terms – entering into the world of the play. "When you 'see' this other world, when you experience its space-time dynamics, its architectonics, then you can figure out the role of language in it" (Fuchs 6). So, what does it mean to take the world of *Ride the Cyclone* seriously? The play's vague warehouse setting is not much help, except that the play is a remembering of long forgotten lives – literally stored away. The play's action takes place in a middle place between the living and the dead. How do we make sense of the liminal circumstances of the play?

I think the primary way that the world of *Ride the Cyclone* functions is by its vaudeville structure. By considering its breakout songs, eclectic monologues, and outlandish premise, one understands how *Ride the Cyclone*, although widely embraced by Gen-Z, is not wholly a contemporary creation, rather it participates and belongs in the theatrical traditions known as vaudeville. *Ride the Cyclone* was originally produced by Jacob Richmond's production company, Atomic Vaudeville, which self-describes *Ride the Cyclone* as vaudeville (Atomic Vaudeville). Homage to its vaudeville dramatic structure is found in the show's production style. The script calls for an ornate proscenium arch – a distinct scenic gesture which indicates traditional vaudeville performance of the early twentieth century. The vaudeville structure of *Ride the Cyclone* is fitted within a competitive framework, which is a dramatic structure that is shared by several musicals including *Cats*, *25th Annual Putnam County Spelling Bee*, *A Chorus Line*, *Follies*, etc. "The lineaments of the plot bear a slight resemblance to that of "Cats" (Isherwood). The show lacks an action-driven plot, instead it relies on the variety of its vaudeville characters and its outlandish premise to pronounced effect.

The conflict of this show stems from the competition to gain Karnak's favor, so that one student out of the group of Choristers can be reincarnated – undoing their tragic fate. Each character justifies why they should be chosen by explaining their backstories in entertaining ways. The goal of all the student characters is to be chosen, and it is unclear whether Karnak's objective is to determine who will survive by his willpower or if Karnak is only reading what is predetermined.

The action of the play is predicated by a tragic and violent accident. The contingent nature of the violence adds to the play's feeling of absurdity. It is also important to note that all the characters share a common goal: to be reincarnated – defying destiny by undoing their

accidental deaths. The contingent nature of this freak disaster is a powerful existential theme that recurs throughout the play. The characters (and the audience) wrestle between free will and predeterminism, in the wake of a tragic accident that robbed five children of their lives. The North American cultural milieu is significantly affected by the prevalence of school gun violence. Although the violence discussed in this show is an accident, such a basis is pregnant with the Derridean silence of these school aged victims. A show based on the premise of tragic lethal violence against school children and the plight of these student's eternal plights after their lives were cut short. The Cyclone disaster can be understood as being in dramatic discussion with the plague of meaningless gun violence being perpetrated against school children in the United States. *Ride the Cyclone,* although a rollercoaster accident rather than a school shooting, tells the stories of young victims after their deaths. The play gives a possibility of redemption – a reversal of history. *Ride the Cyclone* is rife with existential themes and the limits of human will.

Moral growth is a prominent aspect of *Ride the Cyclone's* narrative arc. It is significant that Ocean gives up being the chosen one so that the play should have a moral. Is this Ocean gaining moral integrity or merely a convenient *deus ex machina* to award the only non-choice (anonymous Jane Doe)? It is also significant how this theme plays into the larger theme about free will and determinism. Is the election of Jane Doe to be reincarnated a predetermined inevitability or was Ocean's free will to choose to give up her chance to be reincarnated? I am not sure. It brings up larger questions about the deterministic power of the omnipotent Karnak.

The script of *Ride the Cyclone* has been altered and the world has changed since the show's nativity in 2008. For instance, it will be interesting to see how Misha's Ukrainian rap played to an audience in a world after the Russian invasion of Ukraine. When *Ride the Cyclone* originally premiered in 2008, I believe the power of song "Talia," which is heavily indicating

Ukrainian folk music and culture, resided in its cultural obscurity. It functioned as added variety in a show that feeds on variety. However, after Putin's invasion of Ukraine in 2022, the western world no longer views Ukraine as an unconsidered country on the fringes of eastern Europe. The west has rallied around the country of Ukraine in a larger geopolitical competition between global powers. I believe the nationalistic anthem of "Talia" has

Ride the Cyclone's script was updated by the writers in January of 2023. The major change concerned Ricky's backstory. The authors deemphasized Ricky's physical disability. Previously Ricky was described as "suffer[ing] from a degenerative disease that has left him speechless and mostly immobile" (Broadway Licensing). The update changes the reason for Ricky's muteness to trauma induced by witnessing his father, a snake-handling Pentecostal pastor, be bitten by, "their saw-scaled Viper snake named Jojo" (*Ride the Cyclone* 60). Relocating the humor in Ricky's muteness from a disability to religious trauma does not sanitize the gag of its uncouthness. It is notable that this change went out just as *Ride the Cyclone* was beginning to be widely performed in regional theaters across the United States.

PRODUCTION HISTORY

Ride the Cyclone was written by Jacob Richmond with music and lyrics written by Brooke Maxwell. Richmond operated a monthly cabaret theatrical company in Victoria, British Columbia called Atomic Vaudeville, which was the organization responsible for the genesis of *Ride the Cyclone* (Atomic Vaudeville). Richmond has directed cabarets and vaudeville-style performances across Canada and has since cut ties with the Atomic Vaudeville organization. Brooke Maxwell is a reclusive artistic who currently works as the music director of the Esquimalt United Church in Victoria, British Columbia (Esquimalt).

Ride the Cyclone is a new show, thus most productions of it are notable. The play was originally premiered in 2008 in Victoria, British Columbia. The play received a subsequent performance in 2011 at the Theatre Passe Muraille in Toronto, and in 2013 *Ride the Cyclone* toured western Canada (Atomic Vaudeville). And now a Toronto producer wants to mount a New York production of Ride the Cyclone. A Toronto newspaper from 2011 describes the show's prospects: "Morris Berchard, who's optioned the show, was impressed by the musical at the SummerWorks Theatre Festival in Toronto. "It's not inconceivable that this could land on Broadway," said Berchard" (Chamberlain). Berchard goes on to opine, "I think it's the kind of show that will be received well by a New York theatre-going audience, there's so many elements that make a great show" (*Ibid).*

The show made its American debut in 2016 at the Chicago Shakespeare Theater. This production was directed and choreographed by Rachel Rockwell, who would later accompany *Ride the Cyclone* for its Off-Broadway residency at the Lucille Lortel Theater (Isherwood). The show made its west coast debut in Seattle in 2018 at the 5th Avenue Theater and in 2019 *Ride the Cyclone* was performed at Atlanta's Alliance Theater. For many of these runs, the show retained the core of its original cast.

The show received a boost of notoriety over the Covid-19 pandemic. In 2020, Brooke Maxwell and Jacob Richmond released an innovative cast album of *Ride the Cyclone,* featuring Karnak's interstitial narrations. Bootleg recordings of the show became popular on the media sharing app TikTok. *Ride the Cyclone* became an underground cult classic during the pandemic. "Eventually, *Ride the Cyclone* reached the pinnacle of online acclaim nowadays, as a generation that was arguably too young to have encountered this musical during some of its earlier runs discovered it for the first time and immediately became captivated" (Playbill). Recently, the

show opened licensing rights for American regional theaters. From my personal social media traffic, I have seen many regional theaters producing this show lately. Many theaters feature this show in their season 2023 season lineup. A lot of the show's current popularity is due to its strong social media presence and the cult following it has grown on apps like TikTok. This show energizes a demographic that theater has found difficulty in attracting – teenage and young adult audiences.

Ride the Cyclone is the second play of a trilogy written by Jacob Richmond entitled *Uranium Teen Scream Trilogy*, of which only two have been written. The preceding play is called Legoland, which tells the story of Penny Lamb, a character in Ride the Cyclone as Jane Doe. It tells how Penny was homeschooled on a hippie commune outside of Uranium City, Saskatchewan, and her escape into the larger outside world – Legoland (Review: Legoland). It is important to understand the widely more popular *Ride the Cyclone* in the context of its preceding work *Legoland* because characters and themes brought up in the former are readdressed in the latter.

POTENTIAL TECHNICAL CHALLENGES

A production that emphasizes the puppetry, projections, and extensive lighted scenery presents several challenges, but there are several plays that contain similar effects from which it might be possible to gain some perspective on *Ride the Cyclone*'s technical challenges. The Karnak character could present a couple of unique challenges. If the designer pursued the route of making Karnak an automated puppet controlled by an offstage voice and operator, this could take the shape of a puppet head whose mouth can open and close and the head can turn, much like a ventriloquist dummy. The head could swivel on a servo motor that is controlled by a switch located backstage. The mouth movement of the puppet would have been determined by

the method which we gave a voice to Karnak. An appropriate example of this frequently faced challenge can be found in the voicing of the Audrey II puppet in *Little Shop of Horrors.* Normally this is voiced by an offstage live performer and is controlled by a team of onstage puppeteers stationed inside the puppet. In the instance of Karnak, I believe that the puppet could have been automated to eliminate the need for additional puppeteers. If a live performer was cast to voice Karnak, the puppet, can be controlled directly by the performer's microphone. The mouth could be controlled by a sonic sensor that detects each time a vocal spike occurs triggering a solenoid attached to the jaw of the puppet to detract and then release when no sound is detected. The same method could be used for a prerecorded track, but instead of a sonic sensor detecting the performer's voice directly, it could be enabled through the spikes in the recording. Either way, this method will require some time to home in the correct sensitivity settings and require the actor to be consistent in their delivery. The advantage of using the sonic sensoris it allows for more freedom of delivery in timing.

If automation had been the avenue pursued to animate Karnak, this would affect the amount of time I, as the technical director, could allot to other elements of the design. It is hard to estimate how long this project would require, but all the time I'd be coding and futzing with the Karnak puppet, the less time I could spend on the rest of the set.

Alternatively, recent productions, namely at the Alliance Theater in Atlanta, portrayed Karnak with a live actor who remained within the fortune teller booth through the entire show. As this was the avenue pursued, it would allowed for a more extensive set overall. It also gave another performance opportunity to a Southern Illinois University theater student.

> To the side of the proscenium is a carnie prize booth with a light up marquee that reads "Prizes" ... (this is where the band lives) The booth should have a scrim in front of it, so in sequences where we choose not to see the band this is possible (6).

This “band hut” presents a couple of challenges. For example, the sound muffling of an onstage band hut could affect acoustics and actor/band communication. The main challenge is the scrim for which the script calls. I did not at this point know the budget of this show; however, scrim could be an expensive element. Painting on scrim could be a good learning opportunity for the paint department, as we haven’t painted scrim during my time at SIU thus far. The lights called for in the script could also be an opportunity for interdepartmental collaboration between carpentry and lighting. Conversely, the designer could forgo this element, choosing to locate the orchestra in the pit.

Looming over the proscenium, or the “picture frame” that contains the stage and set, hangs the mangled remains of the Cyclone roller coaster – a constant scenic reminder of the show’s predicating tragedy. The scenic description reads:

> Over all of this colorful rust is a massive broken iron girder of the Cyclone roller coaster; it stands in massive relief to the scale of the other rides at the fair ground. This colossal curved girder alludes to a horrible accident with the grotesque nature in which the iron bends at a specific place in its curvature--it too is covered in rust--yet upon the girder a thick patch of vines has grown at its base.... The vines intertwine in the curvature, almost growing throughout the girder (6).

Creating a mangled rollercoaster support beam is a challenging proposition for a scenic team. There was the possibility of bending metal beams. Using actual metal was probably cost prohibitive. Another option could be heat-bending PVC pipes to create the mangled shapes. This process, which I first learned about in a workshop at SETC 2022, involves filling PVC pipes with heated sand, which softens the PVC making it malleable. If the designer pursued a metal rollercoaster design, the PVC could work well to depict its tubular tracks; however, a wooden rollercoaster traditionally has flat track made of a steel rail affixed to a laminated wooden base. The support structures of wooden and steel rollercoasters vary significantly. Steel coasters typically have steel column supports, while a wooden roller coaster has an extensive wooden

truss structure. The script gives us some clues to what kind of coaster the Cyclone is, namely, the fact that there is a loop. Typically, loops are only found on steel coasters; however, some modern wooden coasters incorporate loops by technically being a hybrid-style coaster that has the aesthetics of a wooden coaster while having the steel support structure in key areas, like loops or corkscrews (Bennett 68).

If the aesthetic of a wooden coaster is chosen by the scenic designer, the mangled remains of the Cyclone could include a variety of busted wooden boards with visible fasteners. The difference being that creating a mangled steel coaster would involve a lot of bending, while a destroyed wooden coaster would involve broken and snapped boards, which are much easier for a typical scene shop to accomplish. A wooden coaster has more material that would be destroyed in a catastrophe. A wooden coaster track is very similar to a railroad with many cross-tiles supporting it, which would create a mess of broken boards, flotsam, and bent flat metal track.

Either way the design goes, weight will be an issue and I will attempt to minimize the weight if it is rigged and hangs overhead. There might be a need to create a steel frame to join the mangled elements of the rollercoaster. Extruded polystyrene, commonly known as insulation foam, could be used as a lightweight material to construct the destroyed structure. Since the show is taking place in the McLeod Theater, there could be a rollercoaster header rigged to the counterweight rigging system, flown out to trim, and then the line locked out, since other scenic elements might connect to the header. This means that a proscenium element could be partially supported by the rigging system, while also remaining affixed to the floor.

Ride the Cyclone's setting section describes a central proscenium arch that dominates the space: "at the center of the stage is a miniature proscenium, (the former band shell for

community events) with a lush red scallop curtain that opens upwards. Its once grand moldings are cracked, and the plaster chipped away...” (6). Antique prosceniums are often gilded and very sculptural, which can be a challenging proposition for a scenic carpenter. If the scenic design calls for a sculptural proscenium arch, the CNC (Computerized Numerical Controlled) router table will come to possess great utility. I have not previously explored the advanced 3D carving capabilities of our Laguna Smart Shop I CNC, and I think this could present a great opportunity to explore those functions. For instance, if I could use 2-inch-thick extruded polystyrene insulation foam board sheets to create the carved proscenium façade, then the shop would only have to construct a proscenium frame onto which we could apply the foam façade.

This production also incorporates projections in a much more pervasive way than I have done before. “A note about projections: unlike standard projection sequences in shows that serve as an enhancement to narrative, these sequences are pivotal in the narrative of this show” (7). The setting describes the main projection surface thusly: “above the miniature Proscenium is a withered round billboard that once stood above the entry gate for the fair. It reads “WONDERVILLE! World Class Fun at Prairie Prices!” and has the image of a looping roller coaster on it. This sign shall serve as the main projection screen for projection sequences unless otherwise specified” (6). The experience of drafting a set geared towards multimedia presentation is an area I was excited to explore. I could execute projections by projecting the image from the back or from the front. Many considerations go into choosing between the two methods – space requirements, screen placement, and screen’s paint treatment. All this was contingent on the specifics of the design.

STATEMENT OF GOALS

This experience was to be my first opportunity to technical direct a Southern Illinois University Carbondale season production in the McLeod Theater. Through this experience I intended to focus on growing in several areas: improving my AutoCAD drafting skills by exploring advanced tool functions, paying special attention during the bidding process, creating a more detailed build schedule than I have previously utilized, furthering my managerial skills with a shop with new employees, and to maximize the rate of scenic progress.

Ride the Cyclone offered the chance to explore advanced 3D AutoCAD functions. I wished to further my AutoCAD – a computer-aid drafting software – skills on this production by incorporating refedit, viewbases, and other more advanced 3D tools into my scenic production workflow. I desired to fine-tune my drafting and be "knit-picky" about the USITT recommended drafting conventions and line weight, with clear dimensions and notations. I would also like to use the batch publish function, because in the past I have plotted each plate individually.

Of course, all productions intend to be within budget both financially and temporally, but I intended to pay special attention to the bidding and build schedule process. In the bidding process, the technical director determines the amount of material and labor necessary to construct the scenic elements and calculates an expected cost of the project. The scheduling process is an essential portion of the production process because it helps to ensure the set is realized on time and in a way that works with other departments in the production. These are the technical direction skills which I see the most pressing need of improvement, so I sought to further home in my time, money, and labor estimation abilities while performing my part as technical director on this production.

The build scheduling process was an element in which I expected to see a lot of growth. As assistant technical director for *Little Women,* I did not assist in the construction of a comprehensive build schedule for the production. I had previous experience making a build schedule in the technical direction class and in professional contracts, but on productions at SIU. The prospect of utilizing a digital build schedule for communication interested me. There are several programs I could use, like Trello, Calendar, and Project Libre. I considered that Project Libre or Excel would be helpful in constructing the primary build schedule's Gantt chart, a bar chart that tracks a project's schedule toward completion. Conversely, I could go paper-based and create detailed daily plans on printouts or on the shop whiteboard.

The school year of 2023-24 presented some alterations to the shop staff. Preceding the 2023 semester, we had difficulty filling positions in the scenic studio, and as such we have relied heavily on the graduate assistants in the technical direction MFA program. Most of the scenic studio staff graduated in the spring of 2023 and as such would not be returning the next year. This presented the opportunity to welcome in a group of new shop personnel. Onboarding carpenters into a shop is not something in which I have extensive experience, outside of undergraduate stagecraft students. Managing a group of new carpenters excited me and I looked forward to the opportunity to build a shared bond of camaraderie – elevating morale and mutual support.

Conversely, if a new group of reliable scenic studio staff did not get hired the next academic year, the prospect of building this show with severely limited staff was daunting. In this scenario, I would have the goal of improving my resource management skills by finding solutions to our labor shortages. These skills could present themselves in the form of conversations with the scenic designer that negotiate the build into something accomplishable,

construction techniques that preserve quality while minimizing time/labor, and a strict time management schedule for the build and load-in process.

Most technical work has the goal of punctuality in both paperwork (draftings) and the build progression (realization of the scenic design). Ideally, if the design package was finalized before summer break, I intended to begin the preproduction process. This could entail material research, bidding, scheduling, and drafting. However, if the design package was delayed, I would spend the summer incubating the project and I intended to finish the preproduction work as soon as possible once the fall semester of 2023 began.

This production relied heavily on projections. I do not have much prior experience building multi-media productions, other than flying in a rear projection screen. I appreciated the opportunity to collaborate fully with the lighting department in the realization of these projection surfaces, since they are as crucial as any other scenic elements. This set could also be heavily decorated by decay. I sought to collaborate with the scenic artist throughout the production but put special emphasis on the importance of the paint scheduling and space management. This often is a place of slippage in our past production processes, but I would like to explore methods of minimizing miscommunication and challenges of sharing space and resources.

MODES OF EVALUATION

All technical directors intend to be within budget, on time, and with quality scenery that the are excited to be seen by an audience; however, I intended to take note of my performance as technical director of *Ride the Cyclone* via the use of a daily journal and progress tracking. The areas of my performance which I intended to measure include the accuracy of my bidding process, the difference between the build schedule and process that occurred in the shop, expediting scenic progress, the clarity of my drafting, and my performance as a shop manager.

The technical direction process begins, after the designer has submitted a design, with a scenic bid, in which the technical director estimates time, labor, and materials necessary to realize the scenic design. I utilized the standard Southern Illinois University scenic bid Excel document which conveniently populates data tables in an easy-to-read manner. The act of estimating labor is a particular area in which I sought to focus my attention on improvement. The productivity of a worker is highly variable, and I previously found my labor and time estimations to be inaccurate. I consistently overestimated the productivity of my workers. I sought to encourage my carpenters to keep track of the time and labor consumed in the construction process of each unit.

As my grandfather always said, "plans are made for changing;" however, the effects of deviation from the build schedule can quickly grow to impact collaborating departments and the entire production. It is important to measure how the production process differs from the schedule and the reasons for such deviations. Sometimes in the act of collaboration, departments need to amend their plans to accommodate the work of their colleagues. Adaptability is an essential quality for a successful technical director. The ability to pivot while not impeding scenic progress is an area in which I could gather data. I made a note of when I deviate from the build schedule, I will provide a justification for the change, and how I mitigated the impact it would have on my build schedule. This gave me a record on which I can reflect on my in-the-moment decisions and to evaluate their impact on the build schedule.

Another area of measurable data could be found in how scenic units are stored and moved throughout the production process. In my experience, a lot of shop time and labor is expended in moving built scenic pieces to different areas of our shop for storage while waiting on the next step in the production process. I intend to record how long units are stored in static

state, and how much time is expended relocating scenery when we need to clear out our production spaces for various events with which we share space. Most of this recording will be completed in the process of writing my daily shop journal.

The feedback I received from my carpenters concerning my drafting would be incredibly valuable information for me to improve the clarity of my drafting. When a carpenter came to me with a question about the drafting, I would note what was asked and how I could have improved my drafting to increase its legibility. These contributions would also be notated in my daily journal.

In my performance as shop manager, I sought to maintain a positive morale in the shop, and I remained cognizant of how my managerial decisions affected my production staff. I would foster a feeling of approachability and at the conclusion of the production, I would ask for feedback from my carpentry crew.

In conclusion, I hoped to gather data helpful in the evaluation of my performance as technical director. My thesis is a capstone project through which I wanted to grow as much as possible, and accurate reflection based on data is an extremely valuable asset. I set several personal goals for this project – areas in which I wanted to improve through this process: clear communication, improve my managerial skills, expediting scenic progress, increasing my ability to adapt to changing circumstances, further develop my ability to estimate time, labor, and money, and to push myself to create an outstanding set.

CHAPTER 2

DESIGN PROCESS

DESIGN MEETING 1

As of the first design meeting the production had not yet secured a scenic designer. The meeting was a valuable chance to hear the director's, Darryl Clark, perspective on the project and what inspires him about the project. The piece's popularity with a younger demographic appealed to Darryl and we anticipated that it would excite the student body. Darryl was drawn to astrological imagery and cyclical and circular imagery, which were aspects common to several of the designers' remarks. By the language the design team used in this preliminary design meeting, the production team seemed inspired to craft an existential, macabre, spectral, circular, filmic, fluid, decayed, and performative world of the show. I chimed in to offer my design perspective to the conversation in lieu of the scenic designer. Darryl also was drawn to envisioning this story as a Wizard of Oz/Coming Home-type story. The sense of created community spoke out and would be a driving metaphor in his creative process forthwith. Jaemin shared an image of circles of lights which later would inspire the scenic designer to create the light portals in the final design. Jaemin spoke of the Hindu religious conception of *samsara,* the endless cycle of reincarnation which speaks to the piece's existentially liminal setting.

The question of whether Karnak would be portrayed by a human performer or a puppet was answered in this meeting. Wendi expressed costume's preference for Karnak to be portrayed by a costumed performer as opposed to costumes attiring a puppet crafted by the properties department. The director agreed that Karnak should be a costumed actor, so my preparations for that path, although exciting, would not be necessary for this production. The conclusion at this point of the process was no puppet.

I did not leave this meeting with a clearer sense of what the scenic requirements of this show might be. I offered technical possibilities including a turntable, or a revolving platform, that I thought might speak to the common cyclical revolving themes common throughout the designers' remarks. I spoke of scenic approaches of past productions and things that inspired me as a scenic designer; however, I understood I was speaking outside of my role as the technical director.

DESIGN MEETING 2

We were introduced to the scenic designer, David Goldstein, who participated in his first meeting concerning this show via Zoom. The scenic designer resided in Connecticut and as such completed the design off site. This required a thorough line of communication between the technical director and the scenic designer. The scenic designer shared his initial thoughts and impulses toward the show. He did not seem responsive to the vaudeville proscenium idea, instead favoring what David termed "prosceniums of light" which were inspired by a photo from Jaemin's lighting research.

At the end of this meeting, I sent David the base file for the McLeod Theater in Vectorwork 2018. I sought to gather information about our stock 8-foot diameter revolve and I estimated the cost of a 24-foot diameter turntable. The estimated cost associated with building such a large turntable was financially prohibitive, $2,073 and 37-hours to construct the turntable (not including automation calibration and load in). This would have been approximately 80 percent of my allocated materials budget.

David contributed several exciting artistic impulses in this meeting including that Karnak is a larger-than-life puppet controlled by multiple puppeteers. Darryl seemed more attracted to the idea of projections and filmic elements. HD Motyl, the director of SIUC's School of Theater

and Dance, tempered the group's expectation by confirming the feasibility of "filmic elements" but not an extensive multimedia production. HD also confirmed cross-disciplinary collaboration with the School of Media Arts in creating these custom filmed sequences. Another contribution by David was that the play's action takes place within a crystal ball. I found this idea intriguing, because it places the play into the liminal space where fortunes are told – between knowing and unknowing in a conception like Schrödinger's Cat. David did not provide any imagery, since this was the first design meeting since he joined the project, but he told us that he would provide research images at the next design meeting but not scenic sketches.

This meeting introduced the need for a projection surface for filmed projections. If this production takes the multimedia route, even for brief protracted sequences, I must consider the requirements of the projectors we have in stock and which projection surfaces we have available. I might need to purchase a custom projection fabric to accomplish the intended "crystal ball" allusion. After this meeting, I made myself available to David for questions as he began his creative process.

DESIGN MEETING 3

David showed us some scenic sketches at this meeting, which included a pair of curved ramps which flanked a central turntable. He seems very drawn to the cyclical aspect of this production. He did not see a purpose to utilize our stock 8' revolve. It was simply too small to create the effect he desired. Tom offered the use of our stock passerelle, a staging arrangement in a proscenium configuration in which the stage extends in front of the foot of the stage and around the orchestra pit – creating a "runway" perpendicular to the audience. David seemed interested in this possibility, and Tom said he would upload the technical specifications of our stock passerelle to David after the meeting.

David's scenic conception did not include a projection surface, so I took note of this adjustment in David's plan. The sketch did include a series of portals which he talked about tracking on and off stage horizontally on a traveler track. I made note of this element, but it did not prompt me to worry about its feasibility. He also showed the group a picture of the gigantic Karnak puppet he envisioned. It was something akin to a Bread & Puppet Theatre creation with a large central head with adjoined torso supported by a pole and two hands supported by flanking poles for a total of three puppeteers needed to manipulate this version of Karnak. I found the idea truly unique, but Darryl did not express a shared sense of excitement concerning this direction.

Darryl told David that he wanted the design to go in a different direction as he did not feel the passerelle or the puppets to fit the production he envisioned. David countered with a suggestion of shadow play behind a backlit screen, which Darryl did not seem to embrace. David asked Darryl to give him more concrete direction to guide his adjustments. Darryl latched onto a sketch research image of a sign reading "RIDE THE CYCLONE" in a fancy vaudeville-y, circus-esque lettering style. Darryl also mentioned Riverside Park in Chicago as a childhood memory that he felt fit the world he was trying to build for the show. David, while screensharing in the zoom call, rapidly researched images of Riverside Park in Chicago and Coney Island in New York City. David found a picture of a statuesque lady who decorated the entrance to an attraction in Riverside Park entitled Creation. He imported and clipped the portion of the image he needed, and he populated them into his model. It was a marvel at how he created a completely different scenic arrangement that adapted to the director's input in such a succinct and rapid fashion.

I was excited to get a glimpse of what David was thinking, although Darryl requested an alternative direction, I gained an idea of the type of world we sought to create. I did not have

anything that I could use to prepare a preliminary bid yet because we lacked the necessary information to create such a document. More communication between the director and design team was needed to settle on design specifics before I could prepare a bid and present to the production team. David assured me he would send me his Vectorworks file so that I could gather the information I needed to ascertain the project's feasibility.

DESIGN MEETING 4

According to the collaboration guidelines, I should have presented my preliminary bid to the production team; however, David was not able to send me his files. This was no fault of his own. He had not received payment from the School of Theater and Dance as part of his contract, thus he was not able to relinquish his creative contributions. I understand his impasse, but it postponed my workflow by one design meeting.

Most of this meeting was utilized in discussing the projections and filmed sequences. Darryl, HD, and Gennie, SIU's scenic design faculty until the 2023-24 academic year, and I discussed the possibility of using found, Pathé-esque footage that could lend the production a creepy, vintage feel and be in the public domain. Darryl desired to film sequences that detailed Penny Lamb's story and Mischa's elegy to Talia. HD consented to the scope of the proposed filmed elements. The rest of the projections would be slideshow-style. Darryl discussed his desire to use both filmed projection and shadow play. Jaemin and I discussed the preference for the projections to be rear projected and the design team agreedunder whose purview the design of the projections fell, and we explained that the design of the slides would be delegated to a student in the School of Media Arts and the implementation of the projections would be a joint project between the electrics department and technical direction.

David presented complete scene-by-scene elevations. The design included the two tall statuesque ladies conceived in the previous meeting, a large central, tapered rake, and four round truss-like portals representing the spinning tracks of the Cyclone rollercoaster, one of which supported the letters “RIDE THE CYCLONE”. The design also featured a large quantity of black masking curtains, and David described a dynamic moment at the end of the show in which the black masking concealing the cyclorama is flown out in an iris, meaning that the effect begins at the center and radiates outwards like a ripple in a pond revealing the bright expanse of the cyclorama. I voiced my concern about the paucity of quality masking curtains in SIU’s inventory but, I did not feel the need to voice the concern in greater terms than as “something of which to be aware.” Later Tom would inform me that the School intended to purchase a full stage black traveler curtain. There was a central circular projection surface that doubled as a canvas for shadow play. David discussed his desire for a central slit which would provide an upstage center entrance. I feared the effect of cutting this fabric in the middle wouldh ave on the projected image. The projection surface also looked dirty and deteriorated, but I was not sure if this was a projected image or if the projection surface was intended to be tattered. I did not voice concerns about the projection surface, because many elements of the projections had not been finalized. There was also a stage-width boardwalk spanning the entire downstage area.

Darryl asked about the Karnak box, and there was a group discussion about how Karnak should function in relation to it. Costumes would like for more of Karnak than just his torso to be displayed and Darryl expresses a similar desire to have Karnak walk out of the front of the box. I asked about how Karnak enters the box and if there are masking curtains inside the box that might conceal some sort of entrance. Darryl expressed the desire for the front wall of the box to open like a door to allow for an actor to walk downstage.

We also discussed the level of the orchestra pit for the show and the needs of the orchestra. At first, the creative team said it should be the height of the orchestra for Little Women, approximately six feet below the audience floor level and almost 10 feet feet below the front lip of the stage. The director posed the question of having the orchestra members portray the rats mentioned periodically in the show and the costume department contributed the idea of "rat hats" which would allow the audience to see the top of their heads, bedecked with rat ears, but most of their person is concealed beneath the orchestra rail. I noted the necessary level for such an effect which was not the level of Little Women. I did not find this discrepancy as concerning and would be sorted out when the music director takes the rehearsal space. At this time I would call facilities to manually lock the pit at a predetermined level for the duration of the performance.

I did not have much immediate feedback for David or the group. I had a lot of information from which to go toward. David sent me his Vectorworks file which I exported to AutoCAD as a ".dwg;" however, manipulating this file challenged AutoCAD, and my program heavily lagged to an extent that I was not able to glean much useful information about the three-dimensionally model units. I attempted to get as accurate estimations as possible from the program which would inform my preliminary bid which I would present in the proceeding and final design meeting.

Figure 2.1 – Front elevation of Ride the Cyclone – Property of David Goldstein

DESIGN MEETING 4.5

It was determined that it would be advantageous to have an intermediate meeting between design meeting 4 and 5 between the scenic design, technical direction, producer, and direction teams so we can be sure to have enough of a formulated plan from which to bid the show and to finalize plans for the filmed aspects. Before this meeting I prepared a preliminary bid based on the information I struggled to harvest from an imported file of foreign origin. My preliminary bid showed that we were over budget by about $350 and I expressed my concern about the contingency of shop labor availability in the fall. I proposed several areas in which I thought our production could conserve money and labor resources. One being that I was not sure I would be able to afford purchasing plexiglass, clear acrylic sheets and afford enough ¼ inch Masonite hardboard to cover the entire stage area. David expressed his preference for windows in the Karnak booth over floor covering on the boardwalk. I proposed a plan to not cover the boardwalk with Masonite, instead painting directly on the plywood lids of our stock SteelDeck. This would allow us to use the Masonite budget solely on the raked portion of the stage and I

would use 1/8” Masonite hardboard to skin the deck. I was trepidatious about making this adjustment because I felt like this omission might compromise the artistic scenic standard I have observed and embraced at SIU. Tom was supportive of this adjustment, however, which encouraged my faith in this choice.

I posed the option of cutting one of the light portals, bringing the total from four to three. The portals were the largest budget consumer so such a cut would have been significant. David was not receptive to this suggestion, and it was agreed to continue with the total four light portals as designed.

David also discussed the possibility of not using legs or high sides, black curtains perpendicular to the proscenium arch concealing backstage (or wing) space. His priority was achieving the final scenic gesture of revealing the cyc by removing the masking, and not backstage obscuration. Cutting such curtains could make this effect accomplishable with the black curtains in our inventory. He felt that this show could utilize a more performative style which does not hide the stage machinery and lighting instrumentation. Darryl seemed receptive, but after the meeting I heard Jaemin express his preference for an alternative solution which would obscure offstage lighting structures.

At the conclusion of this meeting, I sent David images of the raw plywood deck of our stock SteelDeck and he consented that painting this surface would be sufficient to accomplish his design. Gennie, Tom, and I discussed the necessity of procuring a roller bender for this production. David had described the portals as being bent round pipe, but I planned to use 1” bent box tube and cover it in an ethafoam jacket, pool noodle, if a curved cylindrical sweep is desired. Either way, this would be an extensive amount of roller bending; an amount that exceeds the ability of our manually cranked roller bender to accomplish the objective humanely. Gennie

graciously planned to utilize the rest of her start-up money to procure such a tool for the School of Theater and Dance. In honor, we have dedicated the roller bender to her.

DESIGN MEETING 5

This was an uneventful meeting for the technical direction team. I did not have much to present to the group as I have not yet received a design package from David. I presented my preliminary bid which was completed to the best of my ability based on the information I had thusly received. Darryl inquired about the possibility of bare feet onstage. I discouraged this idea due to our choice to not cover the plywood tops of our stock SteelDeck in the boardwalk. Costumes seemed to concur with my sentiment due to shoeless actors leading to a greater chance of onstage injury especially on the production's constructed platform structure.

I discussed the slope of the rake. It was approximately six degrees which exceeds Actor's Equity's stage safety mandate (4.5 degree maximum). I mentioned this point to David and Darryl and asked Darryl, as the choreographer, if this steep slope would inhibit dancing and if an adjustment should be sought. Both assured me that the slope was not excessive. Six degrees does not sound like much in the abstract. In hindsight, I should have provided an example of a six-degree rake for the design team to stand on to base their decisions on concrete experience; however, that is not what I did. I took their instructions to carry on with the six degree rake as planned.

The banality of the final design meeting surprised me, especially considering its feeling of importance. I did not have a design – I am not certain whether David had been paid by the university at this point. I hold no blame on any individuals. To maximize my available productivity, I had to do the most I could with the information I had. I was assured I would receive the design package shortly, which ended up being truthful. I left SIU to travel to my

summer stock contract as technical director at the Sharon Playhouse in Sharon, Connecticut, where along with producing the shows included in that contract, I would continue to mull over my approach to *Cyclone*, construct a plan, and prepare sufficient drafting for when I resumed the project in August.

POST DESIGN WORK/DRAFTING

The scenic design package was submitted and finalized shortly before the summer break of 2023. It was my intention to work on *Ride the Cyclone* in the interstices while at my summer stock contract as the technical director of the Sharon Playhouse in Sharon, Connecticut. Considering the size of the production and the limited availability of labor resources in the shop, I understood the importance of utilizing every minute of available shop time – meaning, we needed to hit the ground running. I bid and drafted most of the set before commuting back to Carbondale on August 19, 2023, and I achieved my goal of drafting and bidding most of the show before arriving back on campus.

Before leaving campus for my summer contract, I compiled a preliminary bid with David's final design package. This was by no means complete as I had not finely combed through the design package yet, which would come later as part of the drafting/bidding process. This project's summer timetable afforded me the opportunity to do a simultaneous drafting and bidding process which is commonly a two-step process of bidding and then drafting. This method, I find, relies heavily on forethought and the prescient ability to know the requirements of projects. The combination process utilized on *Ride the Cyclone* allowed for a greater interdependence of these two types of documentation, in so much that one directly informs the other. This tandem documentation steered the technical approach on several scenic units and scenarios. The simultaneous bidding/drafting process has its downfalls, in that there is a greater

potential for wasted work on drafting a unit that needs to be later reconsidered; however, I enjoyed and took advantage of the luxury of having the ability to utilize a simultaneous pre-production planning process. Subsequently I shall describe the information this process gathered and how I utilized said data in crafting a feasible production plan.

The drafting for SIU's production of *Ride the Cyclone* occurred in my grandparent's guestroom in Millbrook, New York, with whom I was residing for the summer. Much of the communication between technical director, scenic designer, director, and faculty supervisor was communicated via email over the summer. This communication is customarily done during the design meetings; however, it did not have a considerable negative impact on the production. It did have its impacts though, as I shall describe subsequently. I consulted with Thomas Fagerholm and graduate school colleagues occasionally when brainstorming engineering concepts, but what I needed most was the time and space in which to draft and refine my bid. Following is a review of the pre-production drafting processes for several scenic units:

STATUESQUE LADIES

The first units that I drafted were what I called "The Ladies," two mirroring 17-foot-tall statues that flank the central rake and portals. The scenic design package was determinate about the shape and size of the units, but David was open to compromise as to the three-dimensionality of the units. To conserve resources, I proposed for the face of the statues to be flat and to be painted in such a way to appear three dimensional. This led me to conceive these units as traditional Hollywood flat construction, a construction style in which the framing members are oriented on-edge. The framing of these units was not especially novel. There was a vertical seam buster, a board intended to attach adjacent pieces of facing to a frame, to accommodate piecemeal facing pieces I planned for the Ladies' downstage faces. The drafting process started

with planning a facing layout and designing a frame to properly support my components. I chose for each Lady to be bipartite – a top and a bottom with the connection of the two being across the shoulders. The top section included an outstretched arm that presented an opportunity to explore a CNC solution that I will discuss later in this section.

I chose to utilize the CNC routing table to cut out the facing pieces. For this process I needed to create two-dimensional polylines (shapes) in AutoCAD that I was then able to import into VCarvePro, a Vectric software for 2D and 3D carving/cutting, to create toolpaths which I could cut out on the shop's Laguna Smart Shop I CNC router table. I divided the overall shape of the Ladies into pieces that would conserve the most amount of material (3/16" lauan). Along with the facing pieces I cut out an experimental structural framing member out of lauan which helped to support the Ladies' outstretched arms. The arms protruded approximately four feet from the shoulder of the top section. To support this cantilevered member, I investigated how the body supports an outstretched arm and designed a custom lauan rear support fashioned after a human scapula that covered the rear of the framing around the shoulder, creating a stress-skin, or "double-faced," section that was intended to minimize torsional shaking.

The flats were identical except that the stage right Lady had an opening the size of the back of Karnak's box. The director expressed that he did not need the rear entrance to Karnak's box, rather he favored a hinged front entrance to Karnak's box. I asked about the necessity of the rear entrance in the stage right Lady. We decided to preserve the rear entrance as designed. This meant that the bottom section of each Lady was distinct, but the top sections were identical but mirrored. These units were preliminarily bid as costing $329.47 and taking 28 hours to construct.

LIGHT PORTALS

The focal point of the scenic design was a series of four concentric circular portals. These four portals were scaled with the largest one (nearly 17-foot height) being the downstage-most portal and the smallest one (9-foot diameter) being the upstage-most portal. These portals formed a conical canopy that conformed to the angled sides of the central rake and further sold the illusion of forced perspective towards the upstage circular projection surface. These portals represented the tracks of the rollercoaster and looked like they were comprised of two tracks with connecting crossties. They also featured a series of LED Pars, a lightweight lighting fixture that offers a vast variety of color and intensity, (approximately 81 total instruments) that hung in between the tracks and crossties of the portals. The requirements for these units led me to design a circular three-cord truss structure with two downstage cords and a central upstage cord which supported the LED Pars. The connecting truss apparatus was to be hidden behind the crossties. I knew that this project needed an amount of roller bending steel, so I was fortunate that SIU procured an industrial roller bender prior to this production process.

I originally conceived of these truss structures as being entirely constructed of mild steel 1” box tube, and it was going to be an extensive welded construction. I had drafted most of this unit before I had put it in the necessary steel in the bid sheet. After I did, I quickly found that my all-steel truss design was financially prohibitive. My rough calculation determined the material cost would be around $1,700 which was too large a portion of the budget proportionally to be a justifiable choice. I was also worried about the challenges of getting an accurate result from the roller bender and the over accuracy of an entirely welded circular structure with no square starting point from which to start. I decided to scrap my current strategy and the drafting I had completed in the pursuit thereof in favor of a new hybrid truss design comprised of two plywood

cords made from CNC'd sweeps of overlapping layers of ½" CDX plywood, exterior grade inferior quality plywood that may contain voids. These cords are the two downstage cords that support only the crossties, made of lauan and foam, and the letters of the first portal. The central rear cord that supported the LED Pars was a roller bent piece of 1" box tube with drilled holes to accommodate each of the lighting instruments. I considered this to be the only cord that truly needed to be of mild steel, because it was the only cord that bore significant weight.

To combine these disparate materials in a singular structure, I had to formulate a strategy of fastening plywood to mild steel. I again turned to anatomy for my engineering inspiration. I found the anatomical structure of a human vertebra – specifically how it encloses the central spinal cord and how it also has robust attachment points for muscular structures -- to be a useful model for a style of structural bracket I could use to join the desperate materials of the truss. I designed a custom bracket, which I termed "the vertebrae," that I could mass produce quickly on the CNC. This bracket was comprised of two pieces: an isosceles triangle structure that had space to accommodate the 1" thick plywood cords on the downstage side and a central rear recess sized to fix the dimensions of bent 1" box tube. The second piece of the bracket apparatus was a wishbone-shaped component that entrapped the rear steel cord and could be fastened to the triangular body. I formulated this conception through collaboration with peers and my academic advisor over the summer in which we discussed the feasibility of this unorthodox approach. I also planned to add small wooden blocks at the cord attachment points to add more surface area in the joint and for the fasteners to attach to natural lumber, not the end grain of laminated which would tend to delaminate or split. The brackets were to be painted black and hidden behind each foam and lauan crosstie. The connection of the plywood bracket to the perpendicular plywood sweeps was to be accomplished with wood glue and staples with added 1x material for aided

attachment. The entrapped steel cord was to be fastened by liberally coating the joint in construction adhesive. I planned to allow the construction adhesive to thoroughly set and I hoped it would provide a sufficient structural joint considering the repetition and redundancy of the connection behind adjacent crossties.

Through shifting my strategy, I was able to design a truss construction technique that I could bid at $820.42 and taking 57-hours to construct. I figured the adjustment would conserve labor because I feared the accuracy and time-effectiveness of the roller bender, and I thought the CNC could produce these laminated sweeps in a faster manner. It was a consideration of which machine would be faster, and I placed my bets on the familiar CNC over the unfamiliar roller bender.

This project was exciting and a motivating force in the preproduction process. I was fully invested and was genuinely curious about its potential effectiveness.

RAKE AND PLATFORM LAYOUT

The scenic design included the front boardwalk spanning the entire stage front at 8 inches. This stage spanning platform was also cantilevered one foot off the front of the stage. To accommodate the forces applied to a cantilevered member I chose to utilize SIU's stock of SteelDeck platforms (4'x8') laying directly on the floor. The steel truss members ensured the safety of the cantilever. To secure the platform on the deck and to prevent the platform pivoting on its fulcrum point (the lip of the stage) I designed a custom welded bracket that was able to lag into the stage floor thus securing the platform to the floor. The one downside of this approach was that SteelDeck sitting directly on the floor without a hardboard covering is not eight inches; it is seven inches. I reasoned that as I am creating a new lowest stage area – a new zero, so to speak – that I adjust the height of the downstage section to preserve the 1-inch deficit and then

make up the lacking inch over the course of the rake and end the rake at the as designed level. I would put 8-inch facing on the downstage of the boardwalk to preserve its appeared thickness while only really being seven inches above the deck. This would not affect the aesthetic of the show or be noticeable, so I informed my faculty supervisor and proceeded.

I approached the rake differently. I chose to not utilize SteelDeck, in favor of our wooden platform stock although these older wooden platforms might require an amount of repair. I wanted to be able to directly fasten the platforms to their supporting members. I broke the overall shape of the rake into portions that corresponded to some of our stock platforms. The sides of the rake are angled in toward the upstage in a way to create a forced perspective effect as an actor travels upstage. These angled sides required me to build custom side platforms that connected to a core of stock 3'x8' platforms. These platforms were then to be covered with 1/8" Masonite hardboard in a perpendicular layout to the layout of the stock platforms to mask the seams of the stock platforms comprising the rake. This would further tie the structure together.

To support this bed of platforms I designed a collection of raked knee walls made of 2x4s on vertical 3' centers. The center of the rake was supported by knee walls running parallel to the center line. I divided the knee walls at 12foot alternating intervals which connected to create the approximately 17-footlong knee walls. Typical 2x4 lumber comes to the shop at 16-feet length, The side knee walls required me to calculate the angle of the rake on an intersecting non-perpendicular angle. This was by far this most difficult aspect of designing the rake and caused considerable anxious turmoil until installation. Because of the angled sides, I should have drafted two knee walls with a compound angle to offer a flat plane on which to rest all the platforms . I three dimensionally modeled the rake in AutoCAD and saw that the interference, if I were to omit the compound angle, was less a sixteenth of an inch. Building these with simple angles

simplified the project and allowed a beginning student carpenter to construct, rather than one of the skilled graduate assistants. I desired 2x4 knee wall and platform construction so we could connect the platforms directly to the knee walls with 2 ½" drywall screws.

My bid price for the custom platforms was $401.67 using 25 labor hours. I did not need to build many platforms, but I thought I needed to buy more plywood than I ended up needing. My bid for the rake was $108.66 which I knew would be low if there was not scrap 2x4 stock I could utilize after the McLeod Summer Playhouse season. I calculated a 25-hour labor requirement for the rake, while functionally I always tended to consider the platforms and rake as a combination of units. I thought of the rake and platforms as a single unit, because they are components of a single scenic unit.

KARNAK BOX

The box in which Karnak resides was conceived as an assembly of Hollywood-style flats (on-edge construction) – two sides and a front panel. The entire front panel was hinged as a door, except for the crown molding. All walls featured a plexiglass window through which Karnak was seen. The side panels were intended to attach to the stage right Lady around its doorway opening, of which the box sits directly downstage. The downstage had a 3/16" gap around the doorway to allow for clear opening. There was a significant amount of decoration and detail on the Box, which I chose to accomplish with strips and squares of ¼" Masonite hardboard ripped at a 22.5-degree bevel. Other applique details on the front panel included the speaker box, the cash receiver, and a service panel. After a conversation with the scenic designer, I conceived of these details as stacked layers of CNC cut appliques, or pieces of a material painted and attached to the face of a unit, as opposed to a painted detail directly on the face.

I assumed the dimensions of the box were accurate to the actual dimensions of a mechanical fortune telling machine; however, our box had to contain an actual human actor. The scenic design package prescribed to box to only 6-feet as designed without giving much thought to how it would function with an actor inside of the box, and as you will read in the next chapter, amendments were necessary.

I bid the Karnak Box as $194.67 and a labor total of 18-hours. The largest material cost was going to be in the plexiglass windows as I anticipated using scrap and offcuts of lauan for the facing of the flats.

WRECKAGE, LETTERS, AND PYLONS

The design contained a series of wreckage from the Cyclone rollercoaster disaster that was suspended from the rigging, seeming to hang in the air. These units were planned to be constructed from carved and CNC cut extruded polystyrene insulation sheets (XPS), hard foam insulation available at many home improvement stores. When needed I included a lauan core layer to reinforce foam assemblies especially to create a rigid core spanning an area broken by a seam in the laminated foam. These units required me only to make drafting plates for the CNC operator, which was to be myself. The custom shrapnel pieces of wood were comprised of an assortment of raggedly broken boards and custom lengths. I planned to let carpenters carve foam boards according to the design on the design plate. These foam constructions were budgeted to cost $167.24 and take 7 hours to create.

On the downstage most portal (P1) there was a series of 1’x2’ letters that spelled out “RIDE THE CYCLONE”. These letters were to be attached directly to the outermost plywood sweep of the portal and each letter supported a series of light bulbs within holes in the letters. A challenging aspect of the design of the letters was a six-inch reveal that went around the

perimeter of the letters, meaning that this material had to be able to navigate the turns of the “O” and the “R” and the “Cs” without breaking. I attempted this using a recycled material that I had not previously utilized in such a context: cardboard. I planned to rip cardboard to theappropriate thickness and to staple it to CNC cut out letters. I budgeted $55.68 to purchase the necessary ½” CDX plywood.

In the original design, there were a series of six large faux wooden columns underneath the cantilevered boardwalk platform that represented large pylons supporting the boardwalk over some coastal water. These pylons were to be built of 14” Sonotube, a common brand name for cylindrical cardboard concrete form, that were to be bisected and its surface painted and textured to represent weathered wood. These were to be attached to the downstage face of the stage where the orchestra lift is lowered to its orchestra position. The Sonotube forms would cost around $200. Considering this and the fact that these components were atmospheric, meaning that actors do not physically interact with them during the action of the play, I considered these units for possible downsizing. Over a summertime email, I suggested cutting the pylons as a way of getting us within budget and the director and scenic designer agreed to the change. This component was marked least priority and was considered in the “if possible” category.

CUSTOM MASKING AND PROJECTION FABRIC

There was a need for a custom black masking portal, a full stage black traveler, and a projection surface. The scenic designer desired for all the upstage black masking to fly out in a way that it grew from the center outwards. To accomplish this, I planned on having a full stage black curtain created by a series of legs and a custom portion of the black masking that features a circular opening sized to the inside of the upstage most portal. This curtain would fly out while an traveler curtain is hanging upstage. As the downstage circular full stage black curtain is

raised, the traveler is seen separating, thus creating the illusion of an iris expanding. This sequence was determined in the design meetings and was a consideration from the beginning. I had originally bid $500 and 15 labor hours to produce a custom circular masking portal and a projection surface that could be distressed and aged and would support rear projection. I planned to order a bulk roll of Duvetyne, a black twill fabric commonly used for masking, from a theatrical supply company and cut and sew the custom black masking portal that forms the aperture of the circular projection surface at the head of the rake. I planned to go for the best Duvetyne weight I could afford while also affording the rear projection fabric. I ascertained the necessary size and amount of fabric to construct the drops and had the geometry ready to plate when I got back to school. I did not, however, know what material I would turn to for the paintable and affordable rear projection fabric. I planned to investigate that topic when I got back to school and could ask advice from my faculty supervisor.

RAILING

There was a railing on the upstage of the boardwalk, which I did not bid as a priced construction because my plan was to utilize stock schedule 40 pipe with Kee Klamp connections, structural pipe fitting intended for railings, that we already had at the shop's disposal, although I had not investigated the shop's inventory personally. This unit was spaced out and rough drawings began but was not ready for construction at the beginning of the semester.

PREPRODUCTION BID

Upon the terminus of the summer and my preproduction bidding process I was under budget by $61.55 and had a surplus of 21 hours out of a total budgeted $2,590.00 for material and 210 total work hours. Although this was a comforting figure, I knew there were still units for which I had yet bid nothing. I also had not considered what available stock was present in the

shop following the McLeod Summer Theater's season over the summer. Whatever surplus material procured for or reclaimed from those productions was considered free and available for the purposes of this production, and thus could have a considerable impact on how the budget would be determining which material purchases were necessary.

CONCLUSION

See chapter four for an evaluation of the achievement. There were plates to be built at the beginning of the semester. Since my preproduction preparation was done in New York, I knew I would have some adjustments I would need to make to my plan regarding the availability of stock materials present in the shop at the beginning of my production process. I crafted a budget that I knew did not account for stock material and did not include a totality of the necessary elements – it was not a complete document, but it was sufficient to act as a navigating force. The budget was tight but accomplishable with measured concern paid towards unexpected contingencies.

The uncertainty of labor was a primary concern of mine over the preproduction process. I knew that Charlie Lockridge would be an incoming first year technical direction graduate student, but I was not familiar with the peer with whom I would entrust so much faith and reliance in the subsequent production process. I knew I would have a competent returning student carpenter, Uriel Achilleus, to whom I wanted to assign the totality of the portal construction. There was a returning core of student workers working in the paint and props department, who all previously earned my trust. Everything else regarding labor was an uncertainty and was a source of anxiety about the unknown.

CHAPTER 3

PRODUCTION PROCESS

WEEK 1

At production meeting one, I presented the finalized working bid from which I plan to from which I planned to proceed I was prepared with a well-informed plan formulated over the last few weeks of the summer vacation. We were within budget, and I felt no need to bring up any concerns.

During the summer I focused on the necessity of having projects ready to build on day one of shop because of this production's abbreviated time frame and ambitious nature. As such I came to the first shop meeting prepared with tasks to delegate and work to begin. I forgot our customary practice of the first and last weeks of the semesters being "dark weeks," meaning that the shop staff are not working on a show, but rather they are completing shop maintenance or improvement projects. I did not expect this. Fortunately, I was over generous and built in a labor contingency of a few days of not working so this oversight did not put us drastically off schedule. I needed to take stock of our scrap material inventory and formulate the material orders. This was also the first time I met MK Hughes, the scenic design faculty, and Charlie Lockridge, a first-year technical direction student. I was excited to work with both on this project and the entire school year.

On Monday August 21st after the meetings, Charlie and I proceeded with a preliminary "soft good shuffle," meaning we began taking down all the black masking curtains that remained from the McLeod Summer Theater's productions. We hung many of the black borders and legs, but we did not adjust Big Red, our name for the full stage red curtain, or the scrim, a drop with variable opacity.

I took inventory of the scrap construction materials available in the shop and I calculated what material I needed to order. We had a lot of 1x6 boards that were nearly 12-feet long and many 2x4 boards of acceptable quality. I did not have to buy stick lumber initially. I made a material order from RP Lumber, a local lumber supplier with a branch in Murphysboro, IL, and the lumber arrived later that week – an order of mostly sheet goods. This order was for approximately 10 sheets of plywood and 15 sheets of lauan. This initial purchase constituted a substantial portion of my total budget.

In general, I had a planned departmental division of labor in the shop. Charlie was to be the production's primary carpenter. Uriel would be the production's primary metal fabricator, whose daily job would be working on the custom truss portals. I sought for Uriel to have complete ownership of this project and for him to have pride in this impressive construction. I was worried about the availability of shop labor and the build's short time span, which informed my decision to assign the CNC work to myself. I knew how the tool operated and I could navigate the plethora of cuts needed for this production. I would be the CNC operator daily, at least for the first few weeks of the build.

There were several projects that required continuation from the previous semester. A welded steel pallet to easily maneuver the school's new roller bender was begun but not completed. I assigned Uriel to complete that project so we could mount the roller bender on its base and begin the process of constructing the portals. Charlie spent a day assisting the costume shop in improving their facilities. Charlie also took some time during our initial "dark week" to tune up some of our tools that might have lacked a scheduled maintenance regime over the summer.

I prioritized the “Statuesque Ladies,” as the first component on the build schedule. I had anticipated paints needing an extensive amount of time to paint these units because of their size and complexity. I assigned Charlie to start constructing the frames of the Ladies using the scrap stick lumber available to us, and I began cutting out the custom facing pieces on the CNC. Charlie built the frames extremely quickly, so to compensate for his speed I had him start building custom platforms out of available scrap until I had cut out all the lauan facing and plywood “nubbins” for the Statuesque Ladies. I had not used a CNC all summer, so coming back to the tool was a bit of a relearning process. I relearned the necessity of adding an extra 5 hundredths of an inch to the depth of your cut after several initial cuts not cutting through the obverse veneer.

The shop at the top of fall semester 2023 was *hot*. It was a struggle to work in this stifling and humid condition. All the shop workers were drenched in sweat by the end of the workday, and we all took liberties to keep cool and maintain composure during this period of trying indoor environmental conditions. Uriel withstood the worst of the heat’s wrath. During our “soft good shuffle,” I assigned Uriel to climb to the load-rail to load and unload stage weights. The load rail is about 56-feet above the stage floor and is hotter than at stage level. I felt bad for asking him to climb up there and then for his next project to be welding the metal pallet structure for the roller bender – a job in which he would need to wear a protective jacket, gloves, and helmet which would be very hot during the present shop conditions. Uriel did not protest, but managerially, I noted the large amount of discomfort I asked of him and sought to avoid making this habitual. My faculty advisor instructed me to organize a shop design presentation, in which I would talk through the scenic design and discuss the construction strategies and approach to the upcoming build. We sought to go through the scenic design along with applicable construction approaches

in order to orient the carpenter. The technical direction faculty made this adjustment in the production before my thesis project. I discussed all the components and described the world of the show David wished to create. I also discussed the extensive CNC utilization and the anatomical inspiration of several structural aspects of the set. I also discussed the hybrid truss structure and explained the project to Uriel. This presentation excited the production team, including the paint and props department who had not yet seen scenic elevations.

I anticipated the lack of undergraduate student workers present in the shop for the first two weeks. Students in the scenic construction class (218A, which I taught during said semester) would turn in their safety tests, a prerequisite for safe shop operations, by this point of the semester. Tom had rehired a couple of paid student workers who were returning, but for the first week of shop it was just Charlie, Uriel, and myself. The paint crew had a returning undergraduate named Grace, who acted as paint charge, and properties had a returning undergraduate named Rebecca, who acted as properties head. I expected to make considerable progress during this week of uninterrupted shop work, and I intended to capitalize on the ability for our most skilled workers to work unfettered before the students entered the shop later in the semester. I expected this condition of the shop, a condition without students fulfilling course requirements, to last no longer than two weeks.

WEEK 2

No project reached completion during the first week of shop so we all continued our projects from the previous week. Charlie continued framing the Lady flats, Uriel kept fabricating the custom steel pallet for the roller bender, and I intended on continuing the CNC cuts along with my supervisory rolls. Tom, our faculty supervisor, would volunteer his time in the shop to help calibrate the new roller bender and instruct us on its operation.

We had a production meeting on Monday morning. David and Darryl were both in attendance and I asked David about the necessity of side masking and how the final reveal moment would work – a combination of traveler tracks and flying out a downstage line set which I will discuss subsequently. At the meeting we also discussed our stock benches and trashcans and sent pictures of these units to David.

The cast list was announced over the weekend, and we discussed the casting choices. The performer playing Karnak was taller than the dimensions used to size Karnak's fortune telling box. David gathered dimensions from an actual fortune telling box which only has correct proportions in the torso but did not accommodate the proportional bottom half of a performer behind the box, meaning that the fortune telling box was designed for a torso or a seated human. As drafted, the actor's eyes would be looking over the top of the box. I then consulted the scenic designer, David, and he instructed me to make the box fit the actor and to preserve the pattern and spacing on the original design – just "scale it up." I knew I must redraft the box construction and add an additional foot of height and about six inches of width.

Karnak's box was one of the units I had scheduled to build later in the week. On Monday I spent the morning after the production meeting redrafting the box based on the proportions of the performer. I borrowed the performer's measurement sheet from the costume shop and approximated a model of his size in my AutoCAD file and scaled the box until the performer fit comfortably. I knew the costume involved a turban and that the design of the front window panel had the word "KARNAK" painted on the face, so I had to account for this additional height to ensure it did not peek out the top and that the actor's face would be seen below the lettering. These adjustments were made entirely in AutoCAD based off measurements provided by the costume shop. The function or construction of the unit did not change. It was a flat with on-edge

construction that had an open back and a hinged door front – only the scale changed. At the time I did not think about how this adjustment might affect other scenic elements; however, later I realized the implications of my adjustment. I printed off drawings for the updated version of the Karnak Box and went back to CNCing.

When we received the roller bender at the end of the previous academic year the control panel was broken so Tom ordered a replacement from the manufacturer. Tom installed the replacement control panel and began setting up and calibrating the new machine. In the purchase of the bender Tom also ordered a series of drive wheels and spacer plates for the roller which we could use to bend a vast variety of sizes and shapes of steel. This was a greasy task, and I am fortunate for Tom's assistance in getting this tool operational. This was my first experience with such a tool and his expertise and labor was appreciated while I redrafted units in the shop. Tom discerned there was a piece that we needed that we did not have, another spacer plate. Uriel completed the roller bender pallet that afternoon and I instructed him to move on to welding the custom brackets that would secure the upstage side of the boardwalk platforms to the deck. This would enable us to cantilever the platforms one foot off the front of the stage. By the end of the day, we moved the roller bender on to the new pallet, which was not an easy task considering the roller bender weighed half a ton and offered no advantageous hand holds from which to move the machine. We used J-bars, a large wooden beam with a metal hook on one side and wheels near the hook that created a large lever arm, and many people to get the roller bender on its new home, and we secured it with bolts.

Figure 3.1 – Photo of rear of stage left Lady flat. – Property of author

I finished CNCing the facing piece for both Ladies and I delivered the pieces to Charlie. Charlie finished building the ladies on Thursday and moved on to building the newly redrafted Karnak box. Uriel finished the brackets on Thursday and I told him to start looking at the plates for the portal construction and begin to digest the information. I encouraged him to ask me any questions he may have. I moved on to cutting out the portal bases and the facing for the Karnak Box and its associated appliques. I attempted to cut out some of my portal brackets, "vertebrae;" however, my pieces began sliding around after they had been cut from the larger piece. This sliding caused the pieces to become misshapen and was potentially dangerous for the machine and its operator. I decided the pieces needed more space between them and they needed tabs, a

small portion of the work piece that is purposefully left connecting the cut piece to the work piece.

On Friday I felt incredibly poor. I had a migraine all day and felt weak and tired. I continued to work at the CNC. Charlie continued the box and I asked Uriel to do our monthly maintenance on Friday because next Monday was Labor Day and we would not be in the shop. Suddenly I had a fearful realization that I was not completely sure if Karnak was supposed to stand or sit in the box. I assumed he was to stand; however, Tom expressed to me that it was his understanding that he would sit. I told Charlie to move to another project in the meantime. I quickly wrote an email to the scenic designer and director inquiring about this and the director informed me that he was to stand. Phew! Crisis was averted and I told Charlie to continue constructing the Karnak Box.

The paint charge, Grace Reuter, finished most of the painting of the stage left Lady on Friday, which was much faster than I had anticipated. This rapid development augmented how scenic progression would occur forthwith.

WEEK 3

The third week of production began with a day off due to Labor Day. This lost day of shop did not affect the build schedule because I had accounted for this absence when making the build schedule. We returned to the shop on Tuesday, September 5.

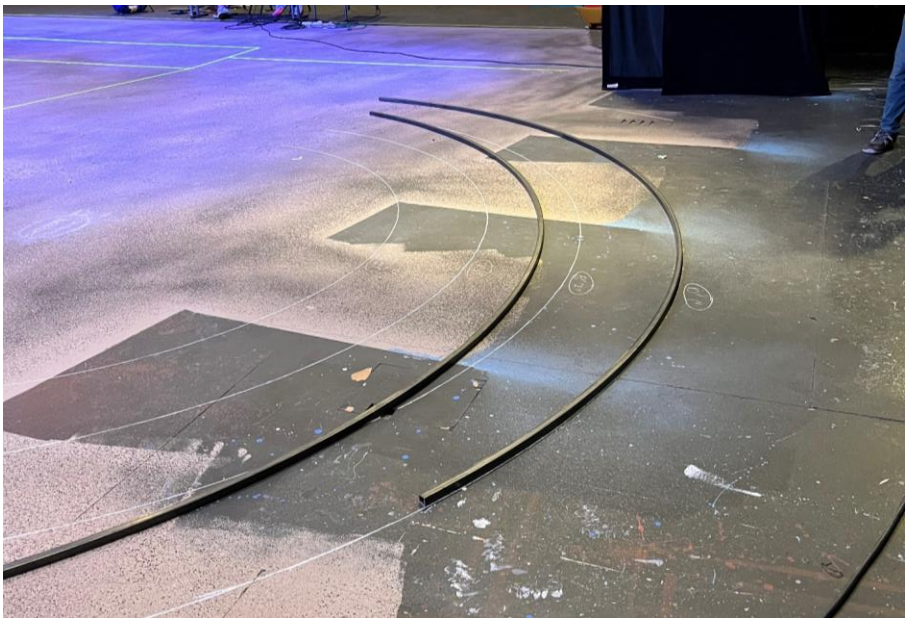

Figure 3.2 – Roller bent steel with scribed radius lines on the stage floor. – Property of author

Roller bending was put on hold until some necessary bolts arrived form McMaster Carr, a mechanical component supplier. Tom said he needed to rearrange the spacing plates and incorporate the new bolts to bend the 1-inch box tube. I instructed Uriel to go ahead and scribe, or mark, the radius arcs on the stage floor of the McLeod. As the roller bender is analog, an external measure for the steel's bend is needed. Each portal had one radius, for the rear cord which supported lights, so Uriel scribed four radii onto the floor with a chalk pen. He nested the radii together so that they were spooning to take up a minimum amount of space on stage right. On Thursday the spacing disc arrived, and we were able to begin bending. Tom instructed Charlie, Uriel, and I on the new tool and I was surprised at the ease with which this machine bent our one-inch mild steel box tube. Soon Uriel began bending the steel pieces to the correct radii with the assistance of an undergraduate student worker fulfilling their practicum requirement. Together they bent all the steel precisely and expeditiously, and they were done with all the roller bending by 4 o’ clock on Friday. This was incredibly quicker than I had expected or

accounted for. As he bent the steel, Uriel wrote the benchmark calibrations and got a feel for how much to turn the crank to bend an intended amount.

Figure 3.3 – Uriel bending 1" box tube with the new roller bender – Property of author

During the week, Charlie continued building the Karnak box and by Friday it was almost done. As he built the individual walls of the box, he attached them onto a scrap piece of plywood as a base and we had a functional mockup of the box. We realized that there was a discrepancy on the pattern of the appliques from the sides to the front – the front appliques were 3/8-inch above the corresponding side appliques. We resolved to rectify this by shimming the side walls with maso, thus bringing the appliques onto a similar plane. On Thursday, costumes had a fitting of the performer playing Karnak in his costume. They brought the actor in costume up to the shop, while I was absent attending to other shop matters, and had a scenic fitting in the mockup. I received a picture of the performer in the box, but I was not privy to the conversation that

occurred during the fitting. I later came to learn that Wendi, the costume design professor, thought the box was too tall and cut off too much of his costume. I had accounted for extra space on top for the letters spelling “Karnak” to be painted on the front window, which was not apparent in the mockup. I maintain that it was appropriately scaled up especially considering the unknown and mutating plan of sitting versus standing within the box.

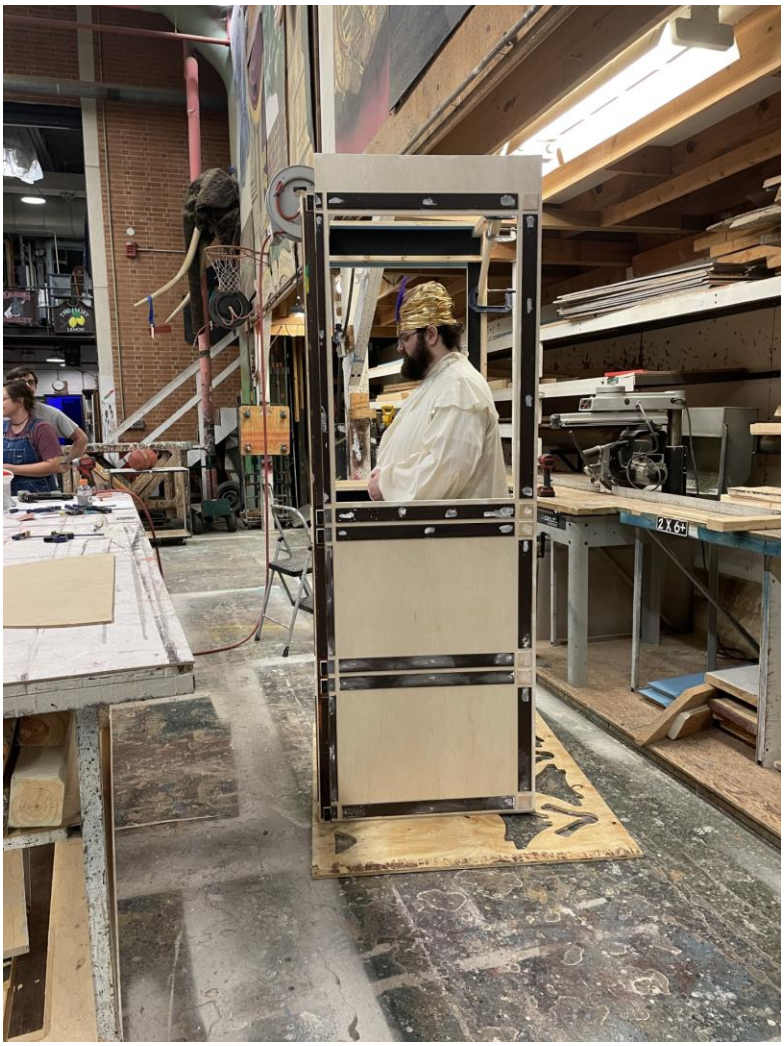

Figure 3.4 – Performer portraying Karnak in the box –Property of author.

This week the CNC catastrophe began. On Tuesday, I tried to cut out the portal brackets with added tabs again, but the machine began routing beneath the workpiece and into the spoil board. I noticed this discrepancy aurally and ended the cut. I removed the workpiece and saw

that it had cut into the spoil board approximately three quarters of an inch. I thought that I had chosen the wrong reference point for the CNC when creating my toolpath, the material surface not the machine bed. Honestly, I had a great feeling of embarrassment and shame attached to this mistake. Cutting into the spoil board is potentially catastrophic to the machine as its open loop system does not inform the machine that it may be cutting into itself and such a mistake is evident to anyone who looks at the spoil board. The mistake remains a present reminder of itself. It made me feel frustrated, but I resolved to install a new spoil board, as we had a replacement in stock on the rack. By the end of shop I had installed and milled a new spoil board onto our CNC. Tom came in at the tail end of shop and informed me that I should have just flipped the first spoil board over and milled that side. I will note this for next time.

On Thursday I came to the CNC with a refreshed attitude and an optimistic spirit; however, the CNC continued its habit of cutting into the spoil board. I eliminated the possibility of a faulty setting in the tool path. Tom volunteered his assistance in resolving this issue. We determined that the machine's ability to raise and lower the spindle was beginning to fail. Our CNC machine is controlled by three stepper motors (X, Y, Z) which are controlled by a central processor which tells each stepper motor how many steps to the left or right it will move. As the CNC completes a toolpath that features tabs, the spindle was failing to lift upwards. This causes the spindle to begin cutting into the spoil board as the problem repeated through successive cuts. We opened the G-code created by the CAM, or computer aided machining, software but did not observe any irregularities. I diagnosed that the stepper motor for the Z-axis was not sufficient to lift the heavy spindle. Over time these lost vertical steps accumulate to a considerable cut into the material. It was noticeable that where the cut started, the spindle was not cutting into the spoil board; however, as the cut progressed the machine cut farther and farther into the spoil

board. The machine, having an open-loop system, was not aware of the malposition of the spindle. When the machine retracted vertically to move to the subsequent cut, the spindle would not lift enough to freely pass to the next location. Instead, the workpiece would be inscribed with a gash marking the spindle's path. This was a considerable problem which to fix could include an extensive rebuilding of the CNC's internal components. Tom and I agreed that we needed a temporary fix which would not impede scenic progress. We devised a plan involving a system of bungie cords around the spindle attached to a piece of angle iron which was attached to the gantry. This would help raise the spindle and motor assembly back up after a downward cut. This home-made repair was not pretty but it succeeded in its goal (for the most part). I was able to proceed with my CNC cuts and the CNC projects were not put too far behind the build schedule after our sojourn into equipment repairs. By the end of the week, I was able to cut out all the letters and most of the portal brackets.

Figure 3.5 – CNC cutting a sheet of portal brackets/"vertebrae" – Property of author

WEEK 4

Over the weekend, I bought one 4'x8' sheet of 1/8" transparent acrylic sheeting from the local Lowes ($168.68) for the Karnak box windows. I also planned to place a lumber order with a local lumber supplier, RP Lumber in Murphysboro, on Tuesday. Each academic year the credit card information must be updated, and *Ride the Cyclone* was the first production of the year. I requested my purchasing supervisor to update the information before I could purchase my

necessities: more ½" CDX plywood for the portal sweeps and more 2x4s to build the rake knee walls. I called on Monday and placed the order at the end of the day, approximately 4:45 PM, and I was told that the order would arrive tomorrow. The next day, I received a call from RP and was told there were problems with the credit card information. My purchasing supervisor remedied this and the order was processed on Tuesday and delivery was scheduled for Thursday, which arrived as scheduled.

Each of the regularly scheduled shop workers continued the same projects from last week. Uriel continued working on the portals primarily onstage. I continued cutting ½" plywood for the portal sweeps and on the CNC, closely monitoring the condition and operation of the machine. Charlie completed several units over the week, remaining on the carpentry side of the shop or running necessary errands. This was the first day I had had additional labor in the shop. Several undergraduate students fulfilling their practicum or stagecraft requirements came to the shop on Monday. A paid undergraduate worker who had worked the previous year, Z, returned. These students assisted Charlie and Uriel in their respective projects. We also had two new graduate assistant workers from the computer science department, Veejay and Meghana, who were enthusiastic. They helped the undergraduate students sand the CNC'd components.

Uriel continued working on the portals. The largest portal, Portal One, was of a size that it was necessary to weld two pieces of bent steel together to give us the length we needed. The bottom of the cord, the part that rests on the floor, had to be angled. On Monday he began this process by cutting the pieces on the McLeod stage using a cutting disc. He then took the pieces into the metal shop to weld them together. Uriel contacted me prior to shop on Monday to tell me that he would not be in shop because he had to get a tire replaced. I told him it was not a problem; life happens. I did not have a plan to continue the construction process on the portals in

lieu of Uriel's absence. The portals were simply put on pause while Uriel was not there, which was a weakness of my build plan; however, it was necessary that Charlie continue his project so the stage would be ready for the in-space date, September 25, and I had to continue the CNC so Uriel would have the sweeps when he was ready. On Thursday he finished welding the cut pieces together and on Friday he began drilling the holes that would accommodate the hex bolts that would secure the lighting instruments on the portal truss.

Charlie finished the Karnak box on Monday and then moved on to building the custom platforms for the rake. On Tuesday Charlie cut the windowpanes for the plexiglass. He marked them and delivered them to the paints department to get the "KARNAK" painted on its face. We did not have any additional labor Tuesday so I asked Charlie to go buy several things for me from the local Ace Hardware: white lithium grease, staples, screws, and hardware for the portal lighting instruments. This totaled $152.00. After RP Lumber delivered the 2x4s on Thursday, Charlie built the angled knee walls for the central raked platform. On Friday I asked Charlie to start putting the traveler track together and get it ready to hang on an upstage line set.

I continued cutting the ½" plywood sweeps for the portals. On Monday I cut the sweeps for Portal One. On Tuesday, the CNC demonstrated some disconcerting behavior. Instead of continually losing vertical steps and dropping, the spindle was now steadily rising above the workpiece. I loosened the tension of the bungie cords thereby reducing the upward force, but still exerted enough upward force to hopefully give the Z-axis stepper motor the necessary assistance to rise the spindle assembly. The Laguna representative with whom Tom conferred about this problem recommended we lubricate the vertical drive screw with white lithium grease, which Charlie bought on his trip to Ace Hardware. By the end of Tuesday, I had all the pieces for Portal Two, and by the end of Thursday I had all the pieces for Portal Three. On Friday I cut out the

remaining pieces for the final portal. They were done, and the next step in the portal construction process could begin. Now these sweeps had to be connected to form a single long continuous sweep two layers of plywood thick. I was happy to have reached this milestone in the building process. I then prepared to begin load-in, the process of installing the scenery in the theater, on Monday September 18.

WEEK 5

We began the load-in process this week. I would soon be done with the CNC cut components; however, there were just a few more. Tom, the technical direction faculty, would be out of the country for the next two weeks.

A scenic component that had not been started yet were the letters which spelled out "RIDE THE CYCLONE." These were attached to the first portal. These letters also had lightbulbs populating a pattern of holes on the front face and each had a six-inch reveal which wrapped around the perimeter of each letter. I had planned to utilize scrap cardboard ripped to six inches and staple them to a plywood letter which I cut on the CNC. During my office hours I did a proof-of-concept test and found that it was difficult to wrap the letters in cardboard, but possible. I thought this was a very "crafty" project that required attention to detail. I figured the props department would be useful in this task so I asked the props artisan, Becca, to oversee the process of stapling the cardboard reveal around the letters. Because I was utilizing free recycled cardboard, the cardboard we used was a variety of thicknesses. This was not ideal.. The cut edge of the corrugated cardboard could soak up paint, thicken, and look unsightly. To remedy this possibility, I asked the team to tape the edge with masking tape. This process did not take as long as I had initially anticipated because there was a large group working on them. All the letters had their reveal and were ready to paint by end of shop on Tuesday.

During the previous week, the costume design professor, Wendi Zea, asked me how the production was going, and I expressed that I was getting ready to start creating custom masking curtains and I asked if I could get her advice. I had never drafted fabric construction, and I do not have much experience with fabric media. I described the goal – a black masking curtain made of duvetyne, a black fabric, with a central circle portal. Wendi told me that fabric would not drape how I needed it to naturally, I would need to introduce a backer that I could affix to the fabric to maintain a consistent radius of the opening. Her guidance inspired me to produce a two-layer lauan backer which I would glue and staple to the upstage side of the cut opening. I would cut the central hole with tabs that I could fold around the backer and fasten the construction with a slurry of one-part white glue to two parts warm water. I cut out the lauan backer sweeps and put them aside till we are ready to affix it to the cut and sewn fabric.

Later this week, I compiled the fabric material order – duvetyne (a black masking fabric) and some kind of an affordable projection surface that supported rear projection. I did research into various fabric and landed on a polyester fabric called Celtic Cloth from RoseBrand. This fabric supported front and rear projections and could be painted without much distortion of the image. I asked my purchasing supervisor to make the purchases.

On Monday, I cut out ¾" plywood stringers on the CNC using one sheet of CDX plywood. Several of my 218A students helped me construct these plywood escape stairs that would go on either side of the upstage platform at the head of the rake. These went together very quickly and were done by the end of shop on Monday.

At the top of the week, we began the load-in process. While I was operating the CNC, Charlie began loading in the downstage boardwalk platforms. These were steel deck platforms that were to be laid directly onto the stage floor. This was a challenge because the platforms were

large, heavy, and could be unwieldy to manipulate for an individual. Each platform must be connected to each other with bolts and their upstage end affixed to the deck with the custom brackets that Uriel welded. We were unable to install the final boardwalk platform on stage left because the stock platform would not fit between the proscenium leg and the other platforms. I planned to use a wooden platform that I could trim a channel in to accommodate the obstructive proscenium leg. On Tuesday, Charlie and I loaded-in the rake. We first installed the raked knee walls and then lifted the stock wooden platforms into place and fastened it all together. On Thursday we were able to finish the rest of the platforms and install the escape stairs we built on Monday and install the lauan on the sides of the rake. Friday morning, during my usual class time for advanced design which was not meeting due to Tom sailing the Danube, I went to Lowe's and purchased 1/8" hardboard to cover the rake. I bought the cheapest material that Lowe's carried, Eucaboard. It looked adequate but as we began to lay it on the rake, we realized the amount of warpage these unpainted, new sheets had. Flattening the surface became an arduous process of sinking a screw wherever you found a bubble in the flooring, which were everywhere. The material was an economically viable choice; however, it frustrated the carpenters.

Figure 3.6 – The rake before paints and skinning the top with Eucaboard – Property of author

The portal still had a long way to go before being ready for installation; however, Uriel would continue the portal project everyday he was present. Unfortunately, Uriel called out sick on Tuesday. I helped Charlie with loading in platforms instead of taking over portal construction for Uriel in his absence, so no progress on portal construction was made on Tuesday. On Thursday, Uriel began attaching the CNC'd brackets to the curved steel box tube with construction adhesive. We discovered that construction adhesive has a set time of twenty-four hours so we would have to glue the joints and then set them aside for a day before attaching the plywood sweeps. This constituted a considerable additional amount of time that I had not anticipated. Uriel began this process and continued it for the rest of the week.

Figure 3.7 –"Vertebrae" attachment to steel with construction adhesive – Property of author.

WEEK 6

Week six began like most weeks, with a weekly shop meeting. In this meeting, electrics expressed that their progress would stagnate until the portals were constructed and in place. Instead of finishing the remaining CNC files, I pivoted to assist Uriel in portal construction, with the hopeful goal of getting the smallest portal, Portal 4, installed by Friday so Jaemin could begin his process. The platforms and the ladies were installed in the space the previous week, and the stage was ready for actors to take the stage on Monday night's rehearsal, September 25, sans the railings on either side of the stage. Charlie constructed those railings out of available stock 1-1/2" steel pipe and Kee Klamp connections in the shop on Tuesday and installed them on Thursday. Forty-five minutes before the end of the workday on Monday, Jaemin requested an addition of several borders to mask his lighting instruments. This spontaneous request overwhelmed me as I felt I could not stop my progress on the portals, so I asked Charlie to hang the additional borders where Jaemin requested. Charlie did a fantastic job and completed the task

before the end of shop that same day. I stayed after shop hours for the first portion of the rehearsal to give a brief safety walkthrough of the set with the actors. This went well and I allowed the actors an opportunity to walk around the space, especially the rake, to adjust to the pitch of the stage.

Figure 3.8 – Ride the Cyclone with actors rehearsing in space for the first time – Property of author

The workflow of the portal construction was modified following Monday's meeting: Z would attach the CNC cut sweeps of the portals together, I would measure and mark where the brackets met the sweeps, Uriel would attach the sweeps to the brackets, and maybe an additional carpenter, usually Gabriel, would continue attaching the brackets to the steel cord with construction adhesive. This increased the amount of simultaneous labor on the project. I was initially hopeful it would be enough to be able to install a portal by the end of the week, but I was doubtful. The portals still needed to be painted, and the brackets needed to be painted black which were left unpainted during the construction process to allow for proper wood glue

adhesion. I knew this paint treatment would be much easier if it could be done prior to installation. This would postpone the portal installation, which at this point is what I expected.

Figure 3.9 – Letters with their cardboard reveal attached – Property of author

The reveals of all the letters were attached and on Monday the painting process began. After they were all painted, we began the process of mounting lights in the holes of the letters. I had found a large amount of light bulb bases that spanned the hole of the letters well. At first, we were using only those light bulb bases, until we ran out of them, which happened before the end of Monday. During my office hours on Tuesday September 26, I created an easily achievable construction that would allow us to mount other stock light bulb bases we had. During shop, I instructed Gabriel on their construction, and he made all the necessary light bulb mounts plus a few extra.

A designer run occurred on Wednesday night, September 27th. I attended this rehearsal, watched the performance, and made personal notes about how the production utilized the space. I wondered how and when the scrim would be used. The scrim was slated to hang on a far

downstage line set that had trouble negotiating around a mechanical box that protruded from the upstage side of the proscenium. To guide the batten around this obstacle, guide wires were required to push it upstage. Upon observing the set from the audience, I realized how narrow of a lane that the scrim had to fly in unobstructed. There was about a 4-inch-wide area that crossed the stage where the scrim *needed* to be. I realized how David had placed and sized components that this space would be free, and at that moment I realized that I had not considered the implications of scaling up the Karnak Box. Where it currently sat, the box crossed into the 4-inch window where the scrim needed to move. I decided I should push the Karnak box upstage approximately 6 inches so that the upstage opening could be attached directly to the stage right Lady flat. I would have to build a small plug platform, which I would build the next day during my office hours.

Thursday was a good day in shop. The portal construction continued with Uriel, Gabriel, and I all working on them. There was one portal that had been painted and was ready for installation, Portal 4, which we were able to install by the end of Thursday. This was the smallest and farthest upstage portal. Due to its manageable size, Uriel and I were able to install them with only the two of us and without using the counterweight system. The portals were built in two pieces which met at the top, connected by Uriel on a ladder. This portal was laterally braced by a jack on the upstage side which connected to the upstage platform. This then gave the lighting designer, Jaemin Park, one portal on which he could install the lighting instruments. On Thursday, Charlie adjusted the placement of Karnak's box upstage, installed the plug platform, and attached the box to the stage right Lady flat.

Figure 3.10 – Uriel installing Portal 4 – Property of author

Friday was a busy day. Charlie installed the pipe railings on either side of the stage, installed the front acrylic window on the Karnak Box, and made the cables and associated hardware for the scrim guide wires. Uriel, Gabe, and I continued portal construction. Portals 2 and 3 were almost ready for installation, and Portal 1 was being assembled. Z attached front facing to the steel deck boardwalk.

The large custom masking portal required machine sewing and fabric manipulation, which I had no prior experience. I asked MK Hughes if she and the prop department could assist with the cutting and sewing of this curtain. Hughes agreed and the duvetyne was cut and sewn in accordance with my drafting. This project only took Friday with the amazing assistance of the prop department.

Because I had pivoted my labor toward portal construction, I had not gotten the chance to cut out the remaining CNC files, so I planned to come into the shop to work on Saturday morning. I needed another competent individual in the shop with me while I worked and Gabriel wanted an opportunity to get more hours in the shop, so we planned to come in together. When Uriel heard of our plan, he said he would join as well. This workday was not obligatory, so I did not ask Charlie to join. Tom returned from his European research trip on Friday.

On Saturday, Uriel welded floor mounting brackets for Portal 3. I CNC'd the wreckage – two large railroad construction pieces, which can be seen in the final page of the scenic design package. When creating my toolpaths, I had accidentally selected an inside profile toolpath instead of an outside, so after my cut, I had to pad out an area with ½" rips of extruded polystyrene. The amendment would not be visible from the audience and it looked fine. Gabriel constructed the lauan fabric backer for the custom masking curtain. This was only two layers of overlapping lauan, so traditional fasteners were not a possibility. I instructed Gabriel to thoroughly glue the pieces together and then to compress the construction with several stage weights as the glue dried. This method was successful in creating the lauan backer but was not the strongest construction.

WEEK 7

This was the final week of build before tech week, and as such it was busy and hectic. Only the smallest and most upstage portal was done. Lighting could only proceed with writing their cues when we had all the portals in place with their lighting instruments. At the Monday morning shop meeting, it was explained to me that I must shift my focus and priorities to getting the portals done and install them as soon as possible. I asked Charlie to assist me in the installation of the portals while Uriel continued the portal construction process. We planned to

work from upstage to downstage, thus increasing the size of each portal as we went. On Monday we were able to install portals two and three. Portal three we attached the two halves together on the ground and then hung both sides to a batten and slowly flew it out while moving the halves to a vertical position. This worked but created a lot of torsional stress at the joint. I did not want to attempt this with a larger portal, so for portal two we rigged each piece to the batten but did not attach the halves on the ground, rather we would get each piece vertical and then connect the halves in the air. This worked better. On Tuesday we were able to install the final and largest downstage portal. Lighting was now able to install and wire their lighting instruments on the portals, and I vowed to allocate some of carpentry's additional shop labor to assist lighting with their instrument hang.

Figure 3.11 – Photo of the rear of the portal sequence (P2-4) – Property of author

After the properties department's help with cutting and sewing the custom masking curtains, the only steps that remained were to glue and affix the lauan circle backer to the portal masking, and to grommet the top. I did this on Thursday during my office hours. Unfortunately, tragedy struck when I accidentally broke the lauan backer when I caught my foot on the excessive folds of duvetyne. The backer broke in two places and so I cut lightweight scabs out of scrap 1x material. I attached these scabs to the upstage side of the masking portal. This remedy was effective and the damage was not evident from the front.

Tom helped in the shop on Tuesday by adding metal jacks to the upstage side of the light portals. These would be minimal, but necessary to minimize the amount of "wobble" the portals had. I asked Charlie to create a guidewire system to move line set one, the scrim, upstage several inches so it could travel unencumbered around an electrical box protruding from the plasterline. Charlie described a guidewire mechanism made of ultra-high molecular weight plastic that attached to the bottom pipe and the batten. I said, "Go for it." On Thursday we got the scrim adjusted on line set 1. Tom told me that the dust mop heads needed to be washed prior to the beginning of tech week. I contacted the costume shop supervisor, Jane Pivovarnik, about the possibility of accomplishing this request. She told me to bring them down the next morning, which I did. The dust mop heads we not something I had considered prior to beginning a tech, which in the future I will try to remember. Tom also told me that I needed to construct a counter-rake so we could position a ladder safely on the rake to reach the lights. As this was the first rake I had ever constructed, I had not thought of the necessity of having a counter rake. I said I would build one during my office hours.

Thursday night was Cue to Cue; however, lighting had no cues programmed so we were unable to have a full cue to cue. Additionally, one of the principal performers was absent due to

illness. I knew that I was responsible for this delay because of how late I delivered the portals which pushed lighting behind. I took note of the consequences of my mistake and moved forward. Looking forward to the next week, I would need to install the letters around the first portal and hang a lot of wreckage, which I would do in the interstices of my schedule.

WEEK 8/TECH

Tech week (referring to the week in which technical rehearsals to incorporate lighting, sound, etc. would begin) in the shop consisted of several remaining tasks, namely: the upstage traveler, wiring and hanging the "Ride The Cyclone" letters on portal one, hanging the projector, assisting with the hanging light instruments on the portals, and rigging the remaining wreckage. There was not much shop time remaining and there were several tasks to be done, so I planned to work during all the free hours of my day.

I assigned the hanging and calibration of the upstage traveler to Charlie and Uriel. I gave them a skilled undergraduate shop worker each dayfull stage traveler curtain was incredibly oversized. Both sides were approximately thirty-five feet tall, grossly large for a seventeen-foot-tall proscenium. This situation taught everyone involved the value of double checking the measurements before placing the order. This made manipulating the curtain more difficult. The second challenge was that we had forgotten to include rubber bumpers in between the carriers. This omission caused the curtain carriers to bind inside the traveler track, inhibiting motion. We found a bucket of these rubber bumpers in the rigging cabinet and inserted them into the system. This greatly improved the traveler's function. The last challenge was that there were several in-air obstacles, namely a cable swag on each side of the stage that had to be moved out of the way each time the batten needed to come in for the traveler mechanism to be adjusted. The incredible mass of the curtain meant that overhauling the curtain to the deck was an arduous task.

Calibrating the mechanism required to repetively bring the traveler track in and out. We got the effect to function, and it was successful in production.

After the first tech rehearsal, the scenic designer requested that the projection screen be "dirtied up." I worried that the dirt would obscure the projected image; however, the scenic designer assured me that this was not a concern he shared. He would like tatters, rips, and stains on the projection screen. So, the following day the paints team sponged on a grime texture and attacked the Celtic cloth with rasps. Due to Celtic cloth being a polyester fabric, it did not rip in the way a woven fabric would. It stretched and distorted in the areas of disruption. It distorted the image but not enough to inhibit its legibility.

The letters needed to have their light bulbs installed, wired, and rigged around the first portal. I had little prior experience with wiring, but I had wired lightbulbs in sequence before. We planned to wire these letters with a 120-volt circuit wired in parallel. Each letter would be on a circuit, so we had the ability to selectively illuminate individual letters. There were fourteen letters with several lightbulbs each, that needed to be prepared. Charlie, Tom, Jaemin, Mitchell Brandon, and several 218A students assisted in the mounting of the light bulb bases (an assortment of models that I found in our lighting stock) and the wiring. The designer determined that not every hole needed a lightbulb, which helped us by limiting the number of lightbulbs we needed to wire. As they were wired, I attached small black wooden boards that I could attach them to the outermost plywood sweep of Portal One. I then would take these letters and attach them to portal one in space, which was a tricky process. Much trial and error was involved in finding appropriate positions to place a ladder to reach the letters' attachment points. When I had the piece positioned correctly, I simply screwed the letters' black attachment boards to the plywood sweep. Electrics then came by after me and wired the letters in sequence.

Tom assisted the electrics department by hanging the projector on a line set upstage of the distressed projection surface. This was on a line set that is not able to travel all the way to the deck, but this was not a problem because it was directly beneath the upstage platform, so Tom and a student assistant could stand on the platform to hang the large projector.

Figure 3.12 – Silhouette on distressed projection surface during tech rehearsal – Property of author

After the first technical rehearsal, I recognized that the gate latch I had used to secure the front door of the Karnak box was not acceptable. Because the latch was on the upstage side of the door, the door could not be opened from the outside. This created an awkward moment in rehearsal when Karnak could not enter his box. I exchanged this for two magnetic latches which worked well. Another adjustment to the Karnak box was its interior decoration. The sides and upstage sides of the door were painted black, but a gold glittering curtain was used as a backdrop

for Karnak. The scenic designer also wanted the box to shine internally, so he asked the lighting designer to add small lighting instruments on the interior of the box. These lights shown brilliantly against the golden curtain.

The last element that remained before opening night was rigging the wreckage from line sets so that they appeared to hang in space. These pieces were made of extruded polystyrene, so their weight was negligible. I originally planned to attach these to the batten with black tie line because of the low weight of the wreckage. However, as Tom pointed out, its 1/8 inch diameter and color would make it easily seen by the audience. Tom suggested I use fishing line. I found a spool in the props shop labeled “catfish line” that I grabbed and began hanging the pieces to battens. This line was labeled as having a test strength of 40-pounds which would easily carry the foam wreckage. This was a process of experimentation because there was not clear drafting as to the arrangement of these flown elements. I asked several 218 students to assist me in arranging the wreckage not only horizontally along the batten but spaced appropriately vertically to create a balanced stage picture. This was challenging at the beginning but became easier as time went on. We found our rhythm and started progressing. The pieces hung without apparent attachment, which was the intention.

Dress rehearsals went well and there were no scenery notes that I did not anticipate. The show ran over the weekend and had its final production on a Sunday afternoon, which was directly followed by strike.

Figure 3.13 – Completed set of Ride the Cyclone – Property of author.

STRIKE

I had never organized a strike at SIU prior to this one, so I was unsure about procedure. I found the strike form on the scene shop OneDrive and created strike assignments for all the 218 students, practicum students, and shop workers. These documents can be found at the end of Appendix B. I was worried people would not show up, but my fears were unwarranted because we had plenty of help.

Strike took three and a half hours but went smoothly. I organized three groups led by Charlie, Uriel, and Gabriel. Charlie's group was primarily in charge of striking the lights from the portals and taking the portals down. After this was done, they began striking the raked platforms. Uriel's group struck the lady flats and Karnak's box, and then began striking soft goods. Gabriel's group was stationed in the shop and they were tasked with demolition. Help was distributed among these groups, and I was tasked with directing the strike, ensuring safe

practices, and motivating progress. Strike went smoothly although some participants, primarily those on crew, got tired and hungry toward the end. The glass of the Karnak box, the letters, and the fabric was kept. All else was destroyed and disposed of in the dumpster. Further discussion of strike is discussed in the following chapter.

CHAPTER 4

POST-PRODUCTION ANALYSIS

I had preconceived goals when coming into this production of *Ride the Cyclone.* I sought to find ways to maximize scenic progress and to not allow scenery to accumulate in stored piles around the shop in various stages of production. I also prioritized improving my drafting, bidding, and scheduling skills.

I appreciated all the feedback I got from my carpenters about the legibility and style of my drafting. This was the first production at SIU that I have drafted in entirety, and this group of carpenters would be the most scrutinizing eyes that have worked with my drafting before. Charlie is an experienced draftsperson with many years of experience interpreting and drafting shop drawings. He suggested that I utilize more colors in my drafting to which I completely agreed. I should have been more precise with my layer attribution and color manipulation; however, in the haste of creating drafting, I oftentimes fight the urge to plot in grayscale and not parse through my polylines and assign each to the proper layer. I know this is not an ideal drafting habit; I will improve my layer attribution in the future. He also said that I should use smaller scales to fit more information on a sheet. I agree with this. I tend to make my plates in a large scale, so the drawing is as easily understandable as possible. The portal series is a good example of this. This limits the amount of information on a plate, so I end up with a mountain of 11”x17” papers which I must rifle through to locate the plate with the necessary piece of information. I could have condensed my drafting so there were not so many sheets of paper to this production. I also could have printed on a larger size paper. Another critique was that I could improve my drafting organization. The sheet numbers fit into a numerical system; however, at the end of the day all shop drawings got pinned to the same cork board. There were delineations

between new drawings, in progress plates, and completed plates. These broad organizational categories were obeyed, but build plates were pinned together in unrelated piles. The extra chore of having to search out the necessary drafting could have been reduced by implementation of a more digitally focused approach or more stringent rules and standards associated with how build plates were to be stored. I also could have created a title plate with a list of all the units and their number which could have acted as a table of contents.

Another stated goal of mine was to further my drafting acumen in AutoCAD. I had made it a goal that the drafting for this projection would be done before I returned to school in August 2023, which was accomplished except for several scenic changes that occurred after we returned. I had intended to utilize some tools in AutoCAD that were new to me, such as viewbases and refedit. The scenic design did not eventuate the exploration of these tools, but I still intend to explore these functions when a future situation necessitates their use. Instead, I gained experience creating an expansive set of drafting to construct each portion of the four portal trusses. These units comprised the 200 series, a collection of eighteen drafting plates needed to construct the portal series, which can be seen in the construction drafting section of the appendices. This was the largest drafting series I had ever produced, and it was the first project I drafted that was not built off a linear structure. I first experimented with how to dimension the curved sweeps of the portals to line all components up. The thought of how the carpenter would be able to measure out the lengths, a process that I imagined would involve attaching an end of a soft tape and pulling it taught around the outside (or convex) face of the sweep. This ability to tension allowed the measuring tape to hug the outside face, giving the most accurate measurements. This worked well, but it necessitated the use of CAD tools I had not previously used, such as the circumference tool and the divide tool. The circumference tool produces the

ability to measure the length along a curve. I was then able to use the divide tool, which allowed me to split the circumference into segments to distribute the lights and crossmembers evenly. Each sweep required their own drawing. As previously mentioned, my drafting style prefers large clear images, which limited the amount of information and contributed to the number of plates in this series. I utilized isometric 3D modeling to demonstrate my CNC'd design for the portal brackets; however, most of my drafting for this show was two dimensional. The scenic designer submitted a detailed two-dimensional design package, and it made sense for me to draft the show in two dimensions because there were not any interfacing components.

Previously I had struggled with the bidding and budgeting process. This time I intended to give this process much more attention. Over the preceding summer, I gained valuable practice in the bidding process for the Sharon Playhouse's summer season. I built off the skills gained over the summer to produce an accurate bid and budget for *Ride the Cyclone*, which was evidenced by the final scenic expenditure report. The production came within the scenic budget (with a surplus of approximately eleven dollars). There were several overlooked elements not incorporated into my initial bid which I eventually had to purchase, such as Kee-Klamps for the railings and sash cord for the traveler track. I also overestimated the amount of plywood that I needed to build the platforms and underestimated the amount of scrap material we had in the shop. This misdirection eventuated a large plywood purchase at the top of the build process that sat on the shelf unutilized until the next production. Moving forward I will investigate the shop's material resources more thoroughly and create a plan for how our available material is to be utilized. This would have better informed my material purchasing. I am fortunate that I allowed myself enough room in the budget that the extra plywood at the beginning of the build did not

derail my budgeting plans, and I will endeavor to do allow for the budget to have an ample contingency fund.

Another stated goal was to improve my task delegation and scheduling ability. I observed moderate progression on this front; however, I continually struggled to find jobs for the large group of unskilled labor we had at the tail end of this production. Most of the carpentry was done at the top of the semester by Charlie when it was only shop employees working, so when 218 students entered the shop to complete their lab hours, as part of their curricular assignments, there remained more "crafty" projects and painting, which I regret became where they were assigned to most frequently. Charlie, Uriel, and I continued at our respective continual positions (carpentry, portals, and CNC respectively). When Uriel was absent, I did not adjust the task delegation to allow for continued progress of the portals which inevitably caused workflow problems closer to tech week.

The streamlining of units' scenic progress was a stated goal when approaching this project. Special attention was paid to planning the active progress (time spent advancing the project toward completion) and passive progress (effective inactive time when the project was stalled). I did not fully realize this intention because of several misjudgments on my part during the scheduling process. I prioritized the construction of the lady flats, anticipating that their painting process would take a considerable amount of time. This did not turn out to be the case. The paint process was three days faster than I had anticipated. These painted units then sat stacked against the upstage wall of the McLeod until close to the load-in date. They did not need to be done that early. It also was not a particular issue that they were completed so soon other than they sat against the back wall from the beginning, but this was not a possibility without taking someone away from the CNC or from carpentry construction. This also would have

compromised my philosophy of project ownership which I was committed to maintain as a principle on this production.

One of the largest conclusions I have learned from this process was the drawbacks of the approach I championed from the beginning of this process. My “project ownership” philosophy of task delegation was the guiding principle with which I organized the build schedule. When the portals were taking longer than anticipated, I had to reckon with the strategy’s foibles, and I had to abandon the principle by putting more people on the project simultaneously to expedite scenic progress.

CONCLUSION

The week after we closed the show, the SIU School of Theater and Dance had a postmortem, or a meeting discussing the production process of the previous endeavor. This discussion included all production faculty, graduate students, and undergraduate participants. Not much critical feedback concerning the set was given besides commendation at this meeting. I received a compliment from a faculty advisor about my execution of the portal truss and I had an opportunity to share the anatomical inspiration of some of the support structures. This moment of appreciation furnished me with a grateful feeling of accomplishment, and it felt a fitting end to a challenging production process.

Upon coming to SIU, I was an inexperienced Technical Director who had recently inherited that position at a regional theater during the COVID-19 pandemic. My drafting skills were nil, and I had limited shop experience outside of being a production carpenter in a regional non-union scenic studio. I have observed tremendous growth through my graduate school career; improving in all areas applicable to technical direction. This production required me to use AutoCAD drafting skills learned from Robert Anderson and Thomas Fagerholm’s drafting

classes and modeled my organizational and managerial paradigm on material gleaned from Thomas Fagerholm's Technical Direction class.

I am the technical director I am today, because of all the collaborators with which I have worked. I am thankful for all who have taught, inspired, and pushed me to become the artist I am today.

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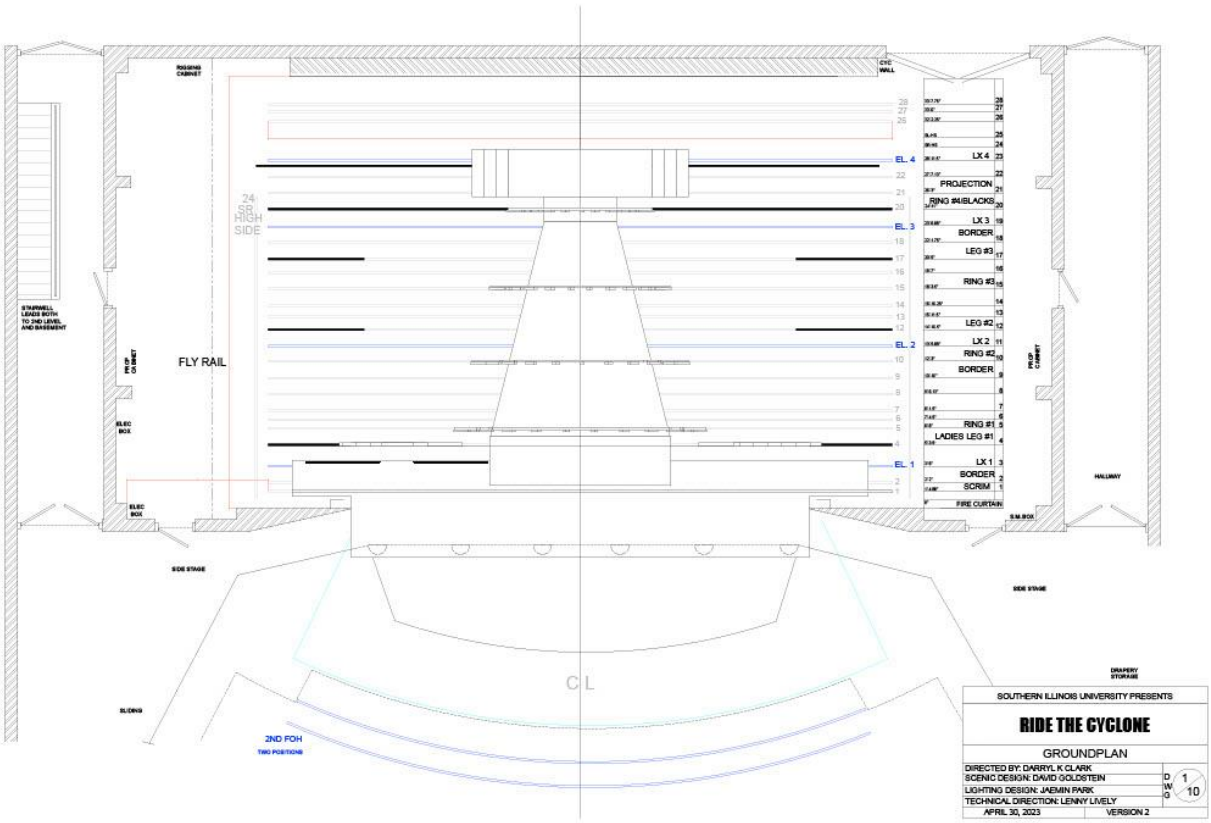
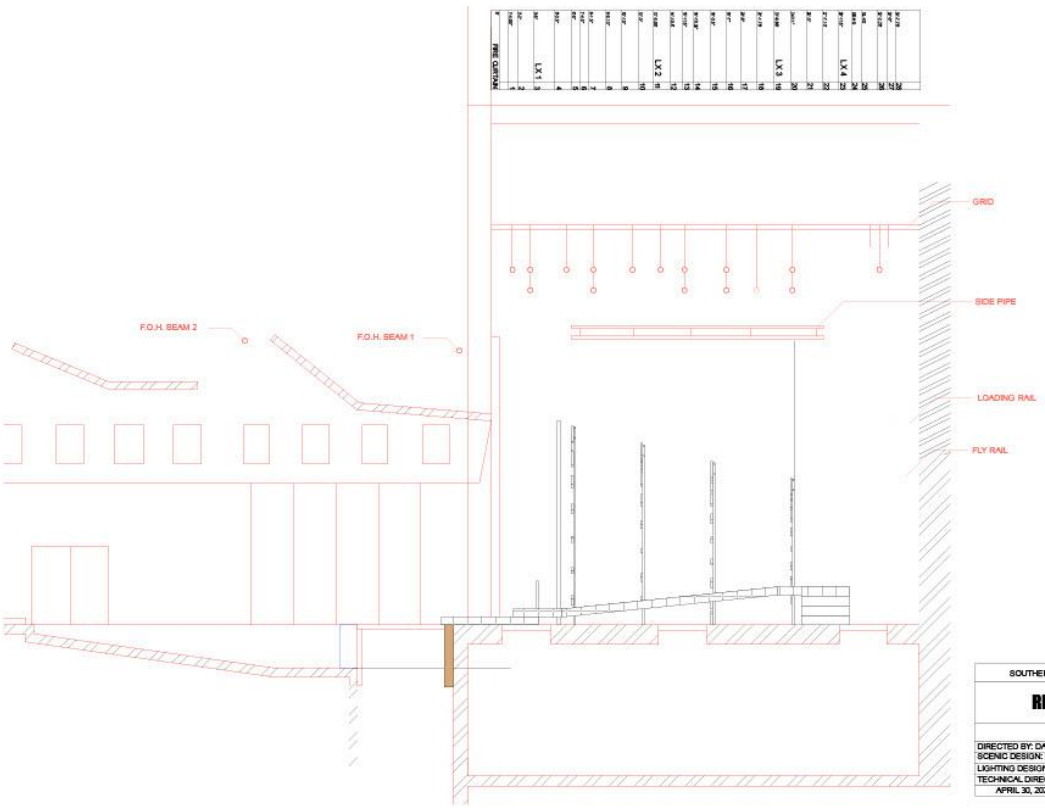
APPENDIX A

SCENIC DESIGN PACKAGE

(Not to scale)





SOUTHERN ILLINOIS UNIVERSITY PRESENTS

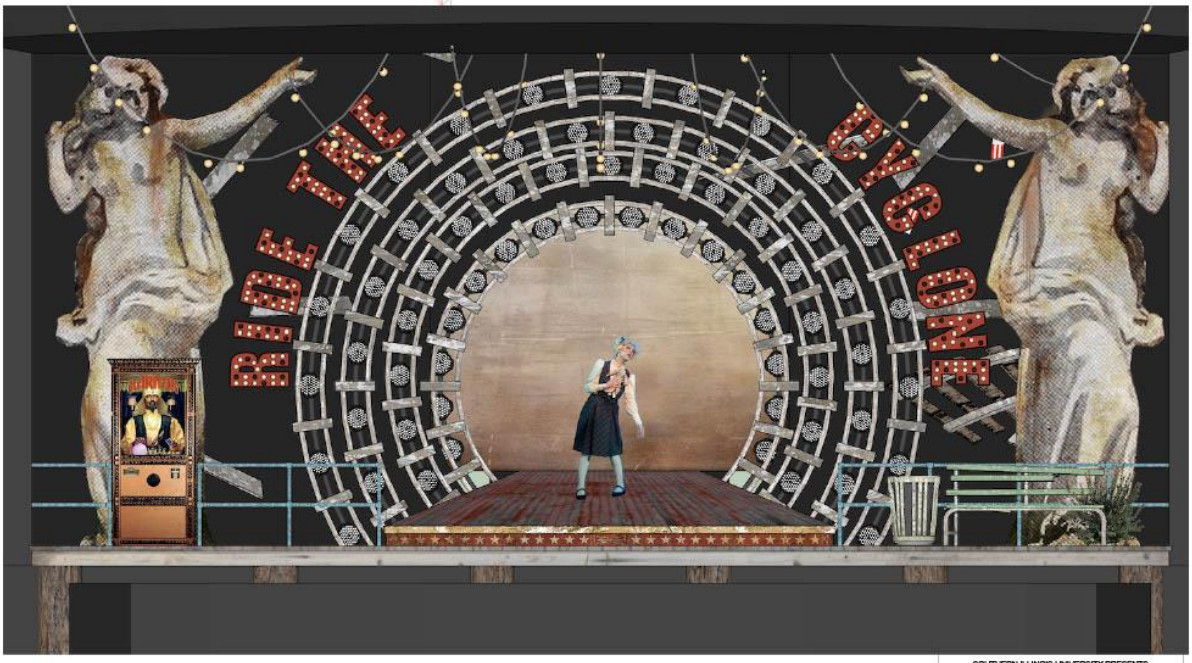
RIDE THE CYCLONE

SECTION

DIRECTED BY: DARRYL K CLARK
SCENIC DESIGN: DAVID GOLDSTEIN
LIGHTING DESIGN: JAEMIN PARK
TECHNICAL DIRECTION: LENNY LIVELY

DWG 2/10

APRIL 30, 2023 | VERSION 2



SOUTHERN ILLINOIS UNIVERSITY PRESENTS

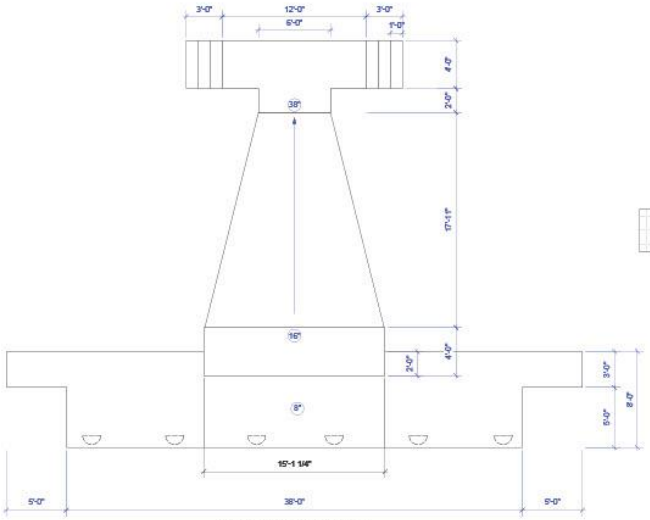
RIDE THE CYCLONE

FRONT ELEVATION RENDER

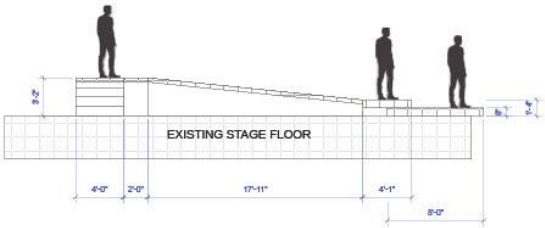
DIRECTED BY: DARRYL K CLARK
SCENIC DESIGN: DAVID GOLDSTEIN
LIGHTING DESIGN: JAEMIN PARK
TECHNICAL DIRECTION: LENNY LIVELY

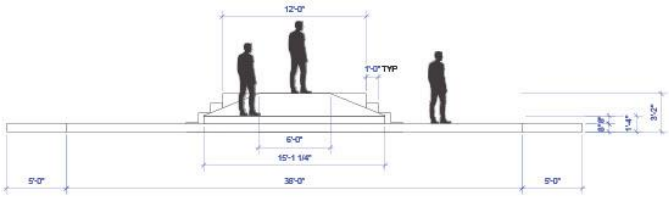
DWG 3/10

APRIL 30, 2023 | VERSION 2



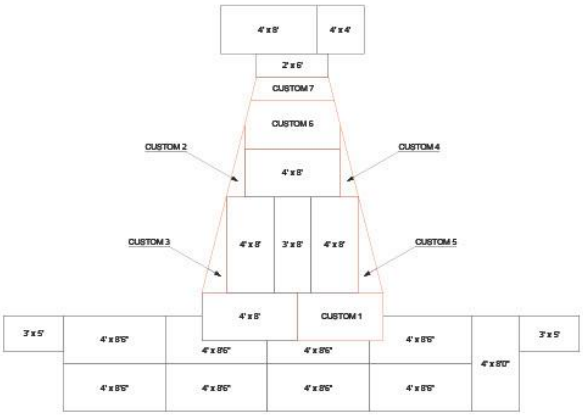
PLATFORM GROUNDPLAN



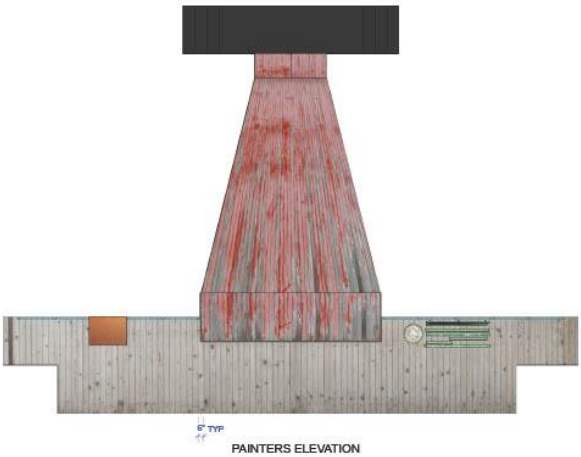


PLATFORM FRONT ELEVATION

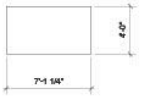
SOUTHERN ILLINOIS UNIVERSITY PRESENTS		
RIDE THE CYCLONE		
DECKING CONSTRUCTION		
DIRECTED BY: DARRYL K CLARK	D W G	4 / 10
SCENIC DESIGN: DAVID GOLDSTEIN		
LIGHTING DESIGN: JAEMIN PARK		
TECHNICAL DIRECTION: LENNY LIVELY		
APRIL 30, 2023	VERSION 2	



STOCK PLATFORMING BREAKDOWN



PAINTERS ELEVATION

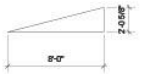


CUSTOM ONE

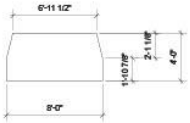
CUSTOM TWO

CUSTOM THREE

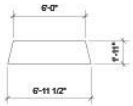
CUSTOM FOUR



CUSTOM FIVE

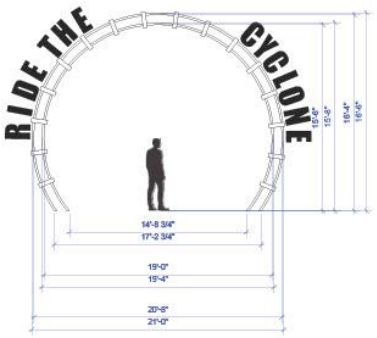


CUSTOM SIX

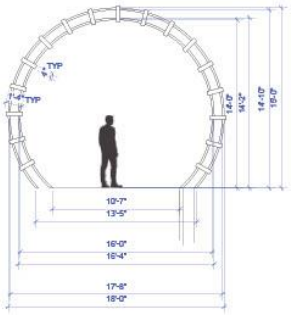


CUSTOM SEVEN

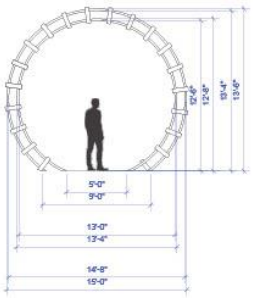
SOUTHERN ILLINOIS UNIVERSITY PRESENTS		
RIDE THE CYCLONE		
DECKING DETAIL AND PAINT		
DIRECTED BY: DARRYL K CLARK	D	5
SCENIC DESIGN: DAVID GOLDSTEIN	W	10
LIGHTING DESIGN: JAEMIN PARK	G	
TECHNICAL DIRECTION: LENNY LIVELY		
APRIL 30, 2023	VERSION 2	



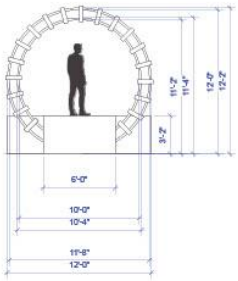
RING ONE ELEVATION



RING TWO ELEVATION



RING THREE ELEVATION



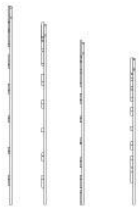
RING FOUR ELEVATION

RING ONE GROUNDPLAN

RING TWO GROUNDPLAN

RING THREE GROUNDPLAN

RING FOUR GROUNDPLAN

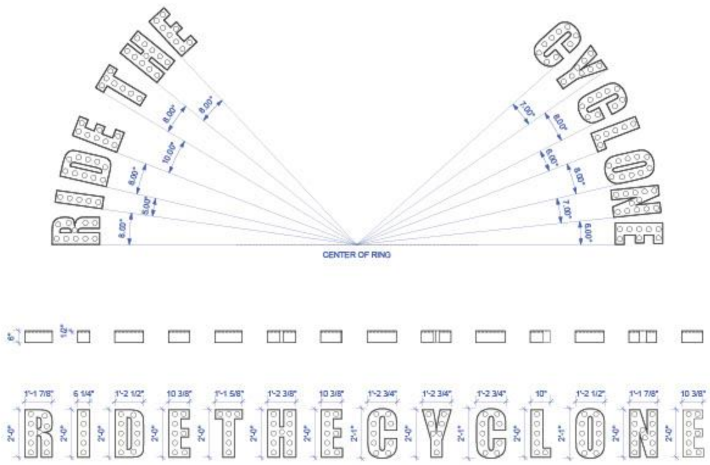


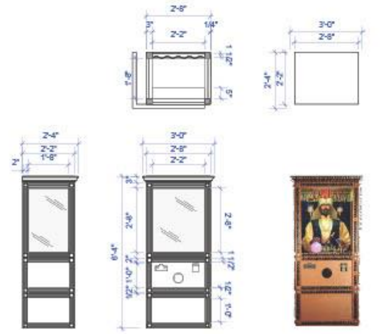
SOUTHERN ILLINOIS UNIVERSITY PRESENTS

RIDE THE CYCLONE

PORTALS CONSTRUCTION PLAN

DIRECTED BY: DARRYL K CLARK	DWG	6/10
SCENIC DESIGN: DAVID GOLDSTEIN		
LIGHTING DESIGN: JAEMIN PARK		
TECHNICAL DIRECTION: LENNY LIVELY		
APRIL 30, 2023	VERSION 2	



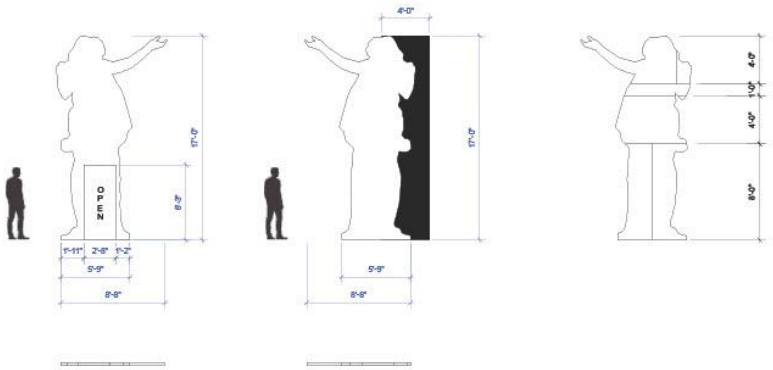


SOUTHERN ILLINOIS UNIVERSITY PRESENTS

RIDE THE CYCLONE

KARNAK, LETTERS, HANGING TRACKS

DIRECTED BY: DARRYL K CLARK	DWG 7/10
SCENIC DESIGN: DAVID GOLDSTEIN	
LIGHTING DESIGN: JAEMIN PARK	
TECHNICAL DIRECTION: LENNY LIVELY	
APRIL 30, 2023	VERSION 2



SOUTHERN ILLINOIS UNIVERSITY PRESENTS

RIDE THE CYCLONE

GIANT LADIES CONSTRUCTION PLAN

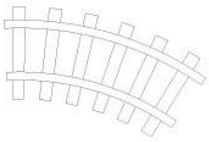
DIRECTED BY: DARRYL K CLARK	D 8
SCENIC DESIGN: DAVID GOLDSTEIN	W 10
LIGHTING DESIGN: JAEMIN PARK	G
TECHNICAL DIRECTION: LENNY LIVELY	
APRIL 30, 2023	VERSION 2

SOUTHERN ILLINOIS UNIVERSITY PRESENTS

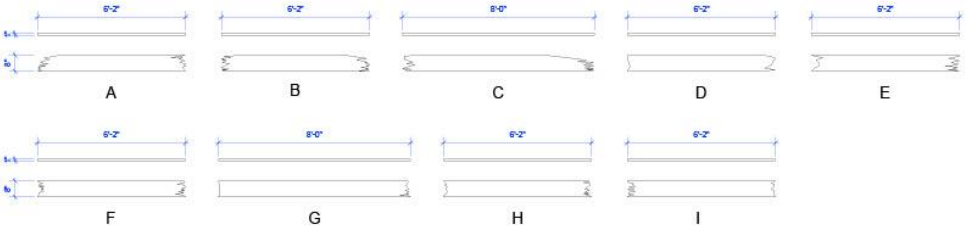
RIDE THE CYCLONE

GIANT LADIES PAINT ELEVATION

DIRECTED BY: DARRYL K CLARK		
SCENIC DESIGN: DAVID GOLDSTEIN	D W G	9/10
LIGHTING DESIGN: JAEMIN PARK		
TECHNICAL DIRECTION: LENNY LIVELY		
APRIL 30, 2023	VERSION 2	



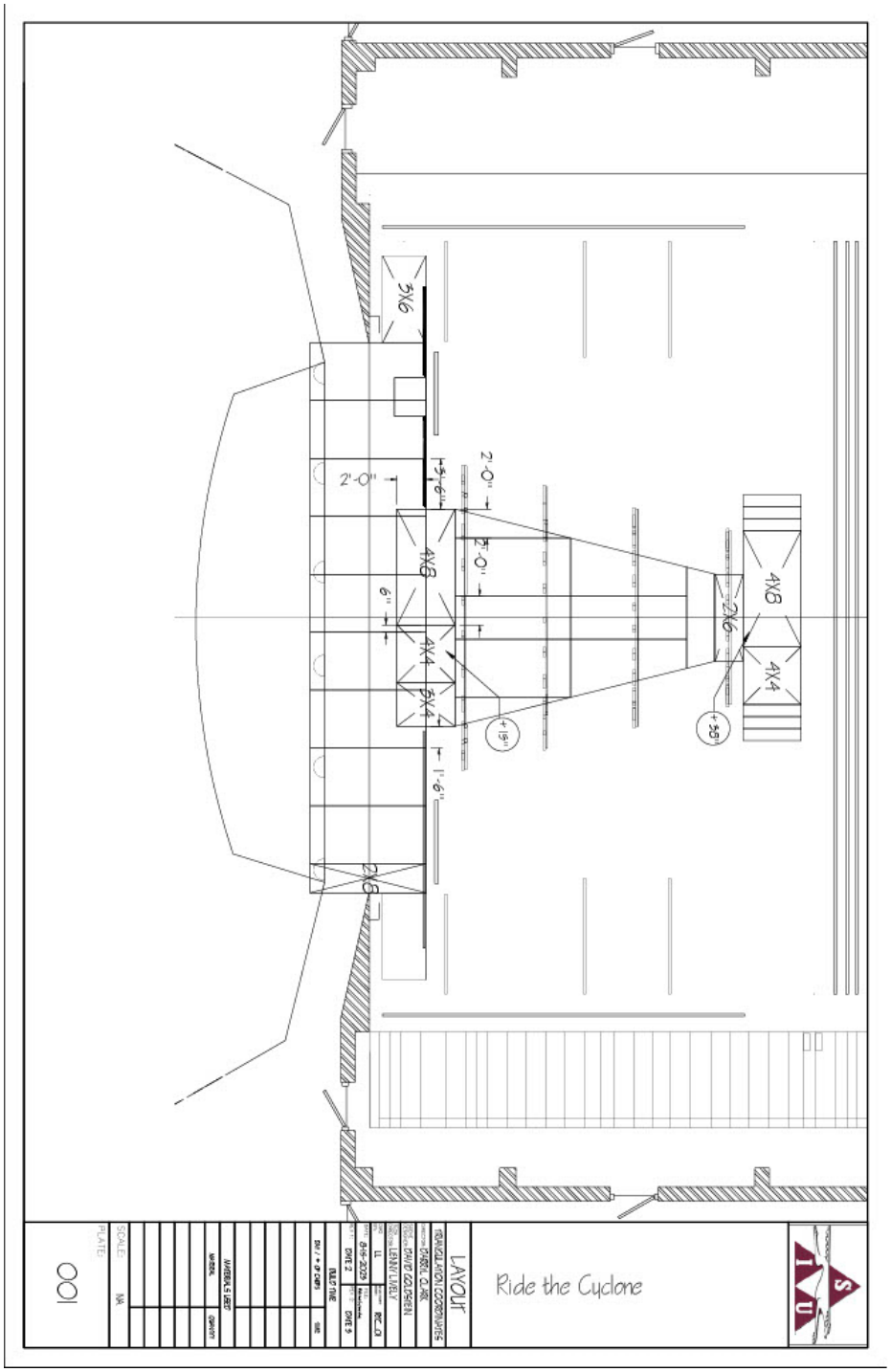
IDENTICAL BUT MIRRORED

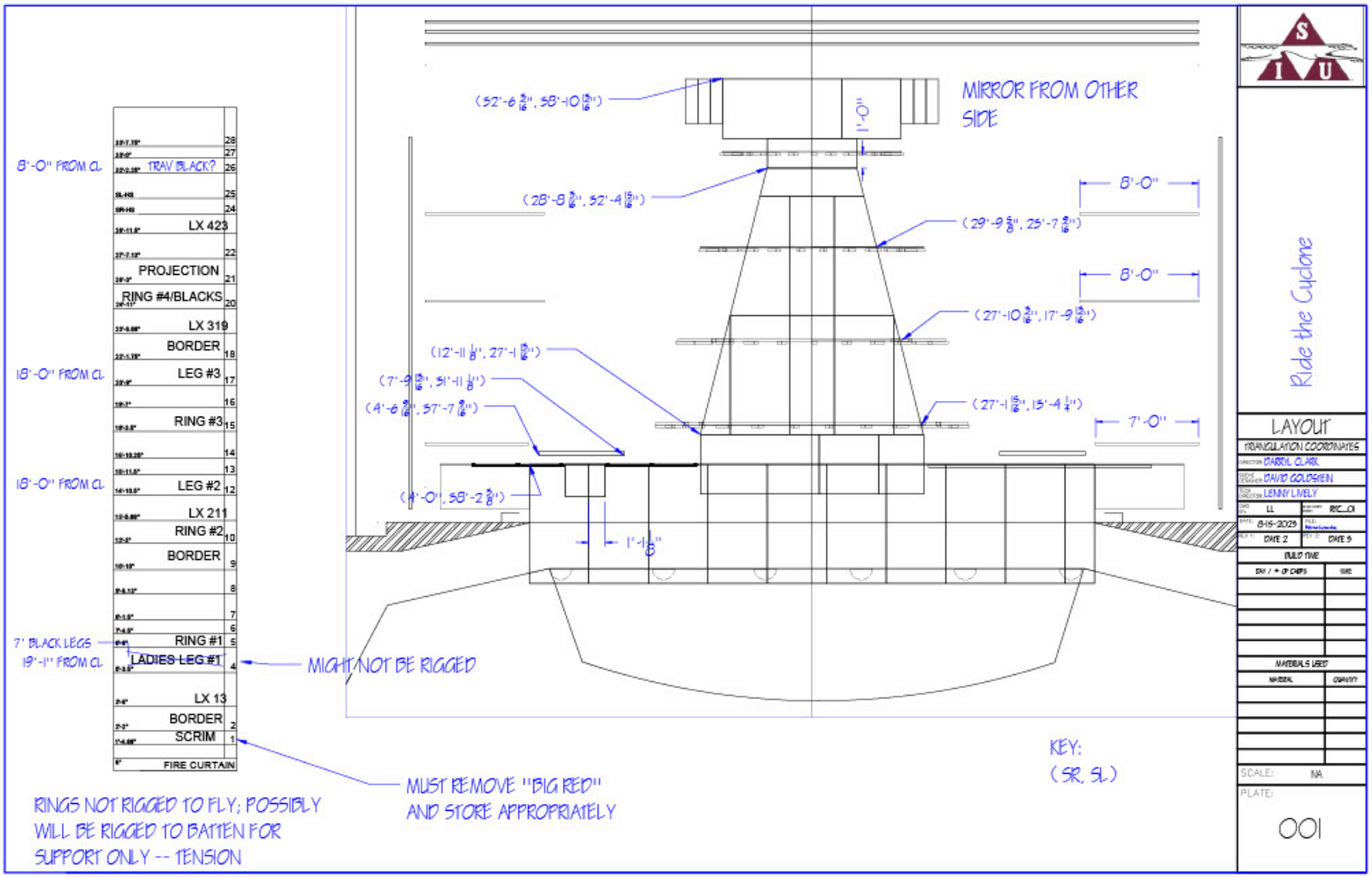


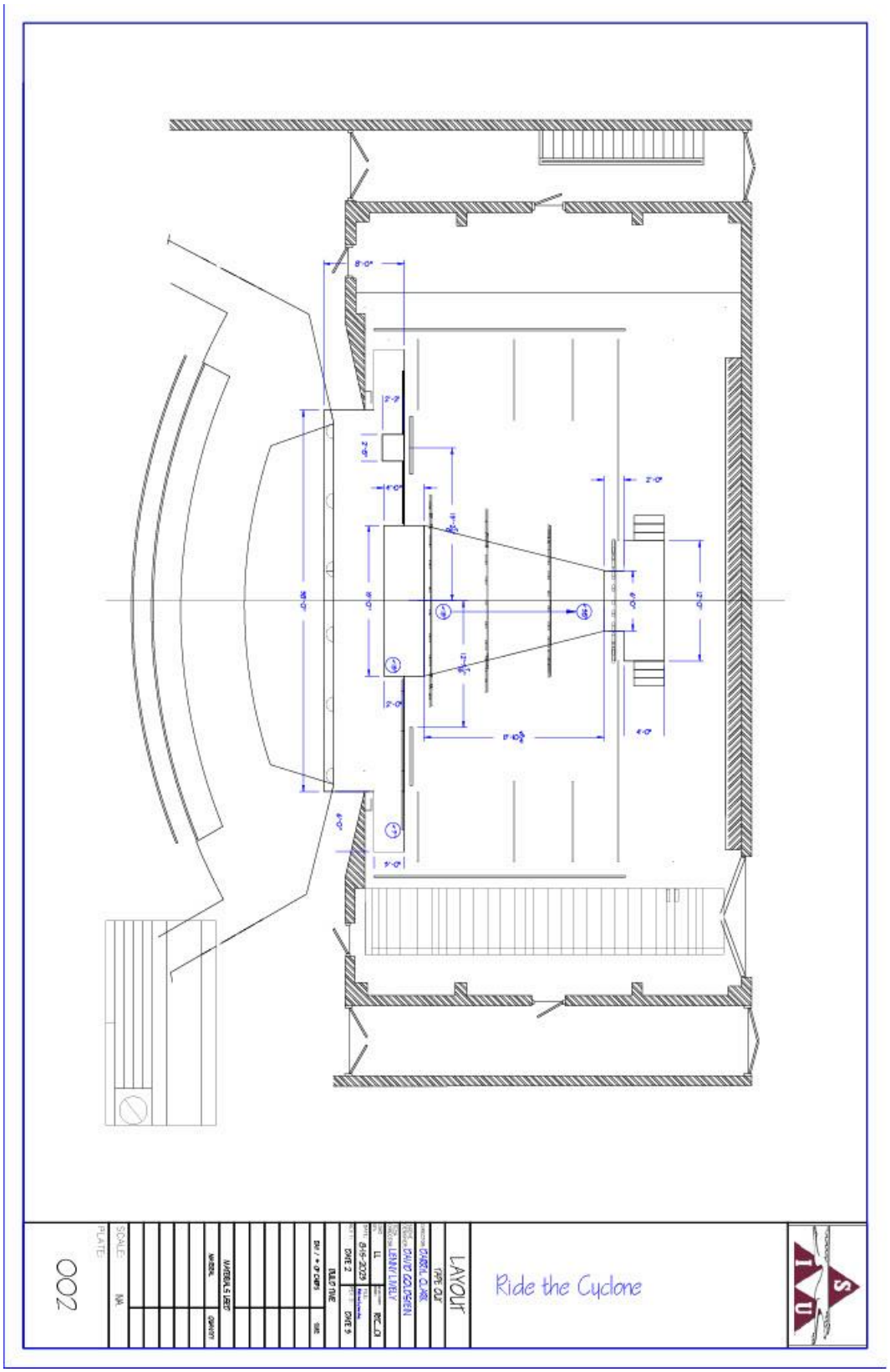
APPENDIX B

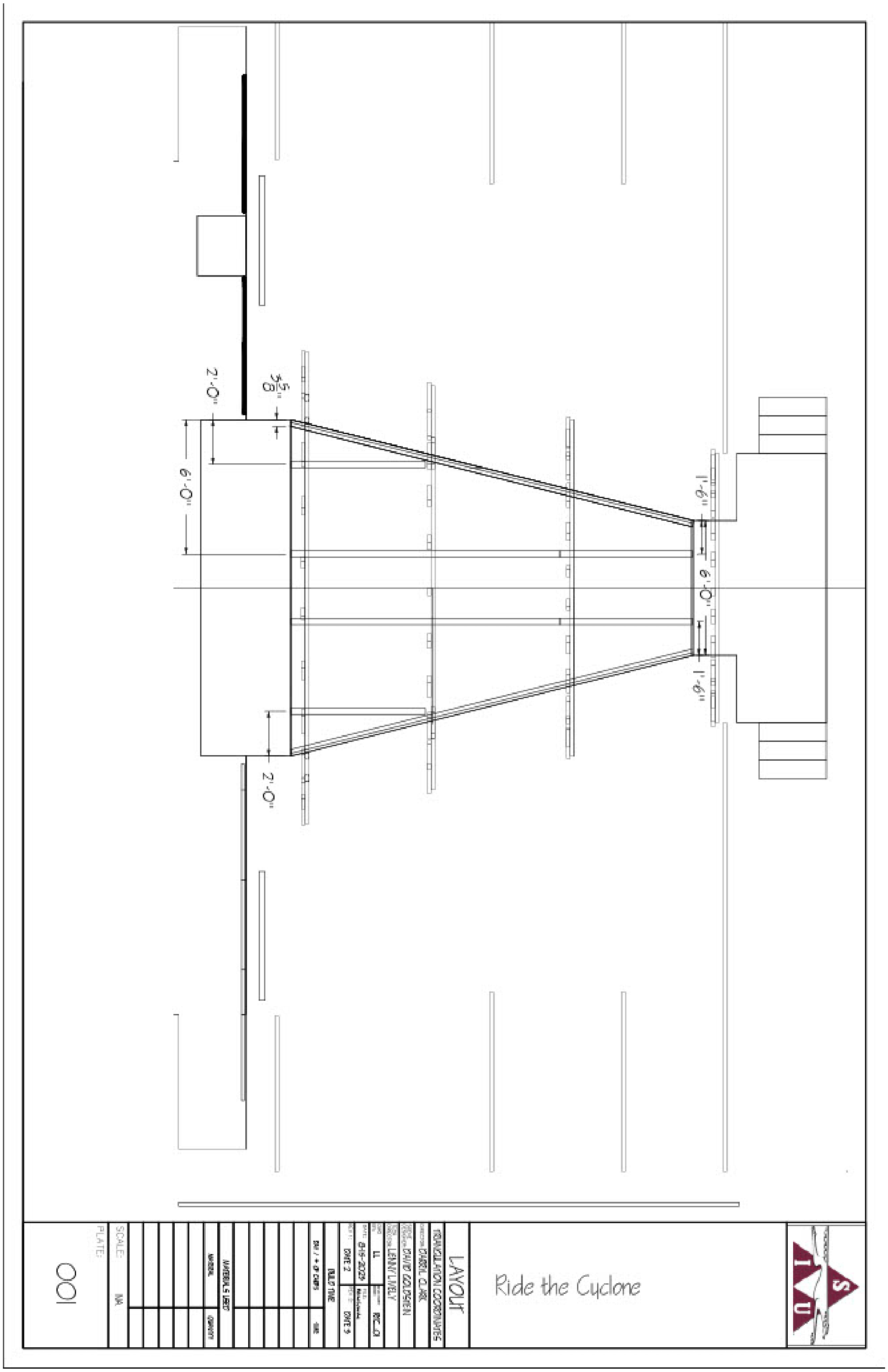
CONSTRUCTION DRAFTING PACKAGE

(Not to scale)

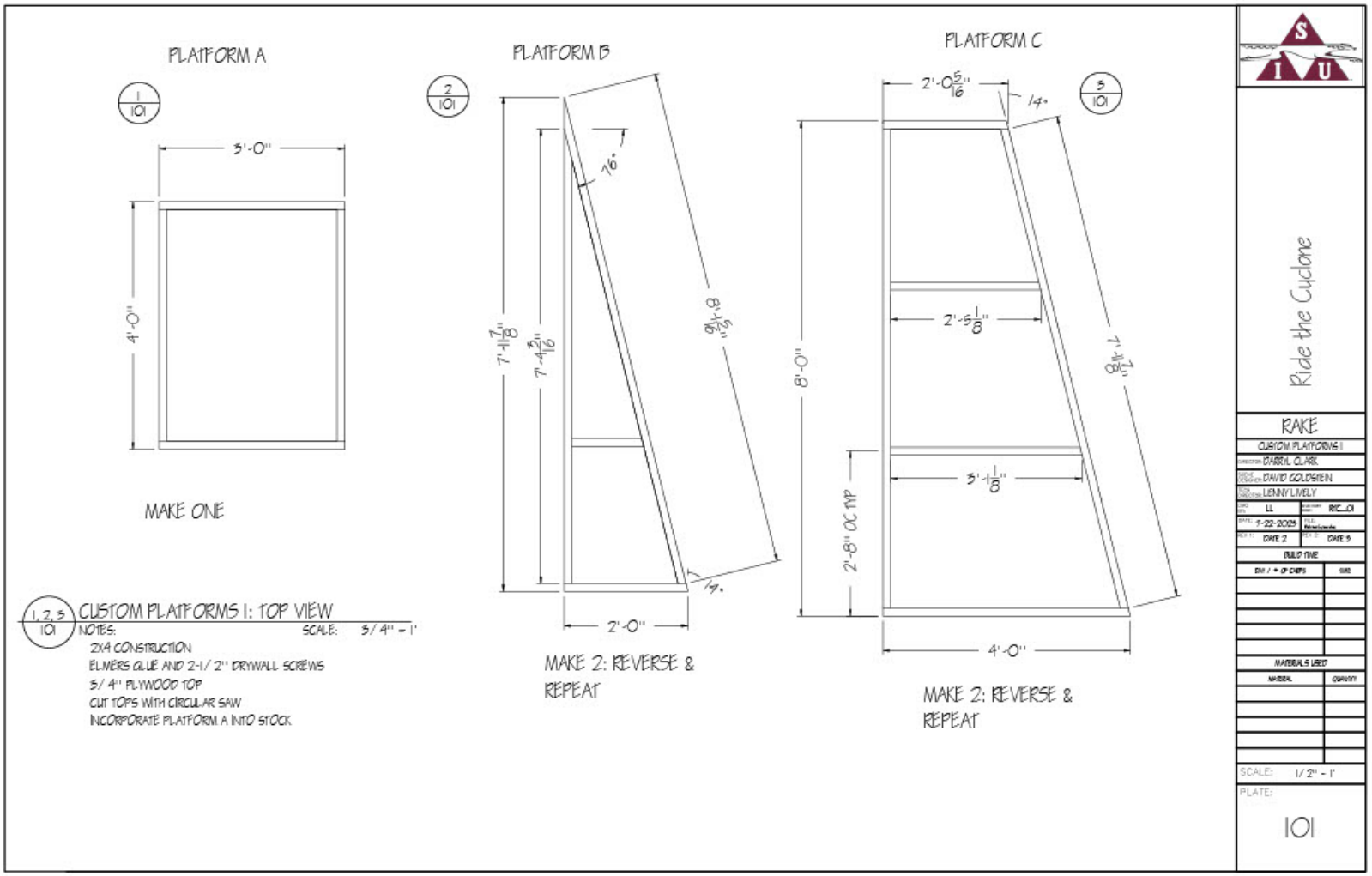


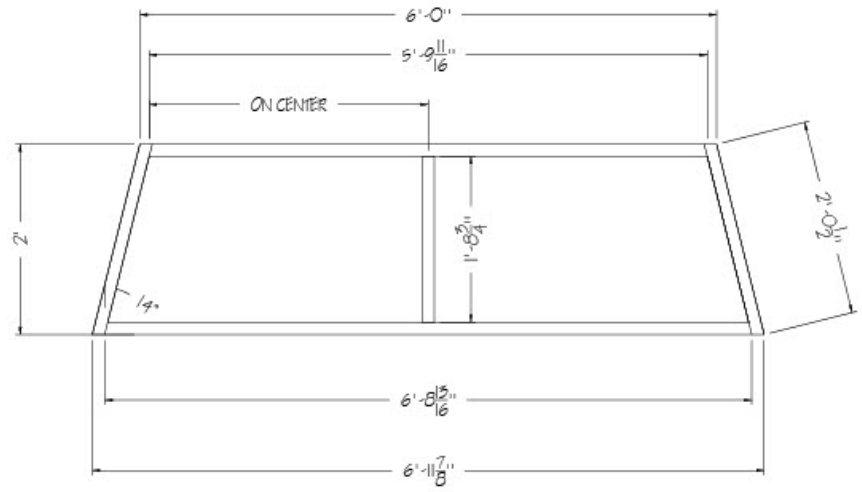

8'-0" FROM CL
TRAV BLACK?
LX 423
PROJECTION
RING #4/BLACKS
LX 319
BORDER
18'-0" FROM CL
LEG #3
RING #3
18'-0" FROM CL
LEG #2
LX 211
RING #2
BORDER
7' BLACK LEGS
19'-1" FROM CL
RING #1
LADIES LEG #1
LX 13
BORDER
SCRIM
FIRE CURTAIN
MIGHT NOT BE RIGGED
MUST REMOVE "BIG RED"
AND STORE APPROPRIATELY
RINGS NOT RIGGED TO FLY; POSSIBLY
WILL BE RIGGED TO BATTEN FOR
SUPPORT ONLY -- TENSION
(52'-6 2/16", 58'-10 13/16")
1'-0"
MIRROR FROM OTHER
SIDE
(28'-8 2/16", 52'-4 15/16")
8'-0"
(29'-9 5/8", 25'-7 2/16")
8'-0"
(27'-10 2/16", 17'-9 13/16")
(12'-11 1/8", 27'-1 12/16")
(7'-9 12/16", 51'-11 1/8")
(4'-6 2/16", 57'-7 2/16")
(27'-1 15/16", 15'-4 1/4")
7'-0"
(4'-0", 58'-2 2/8")
1'-1 6/8"
KEY:
(SR, SL)
Ride the Cyclone
LAYOUT
TRIANGULATION COORDINATES
DARRYL CLARK
DAVID GOLDSTEIN
LENNY LIVELY
8-15-2023
DATE 2
DATE 3
BUILD TIME
MATERIALS USED
SCALE: NA
PLATE:
001


Ride the Cyclone
LAYOUT
TAPE OUT
002


2'-0"
3 5/8"
6'-0"
2'-0"
1'-6"
6'-0"
1'-6"
Ride the Cyclone
LAYOUT
TRIANGULATION COORDINATES
DANIEL CLARK
DAVID GOLDSHEIN
LENNY LIVELY
MATERIALS USED
BUILD TIME
SCALE
N/A
PLATE
001

27'-11 3/4"
RAKE 6 DEGREES
15'-0"
12'-0"
6'-0"
4'-0"
4'X8'
4'X4'
3'X8'
2'X6'
PLAT A
PLAT B
PLAT C
PLAT D
RAKE PLATFORM IDENTIFICATION
SCALE: NA
NOTES:
USE STOCK WHERE MENTIONED
RAKE IS COVERED IN MASO
BUILD CUSTOM PLATES. SEE 101 & 102
SCREW PLATFORMS TOGETHER IN SPACE
RAKE SITS ON RAKED KNEE WALLS
Ride the Cyclone
RAKE
CUSTOM PLATFORMS
DRAWN: DAKOTA CLARK
REVIEWED: DAVID GOLDSBURY
APPROVED: LEANN LIVELY
DATE: 9-22-2020
DWG #: 100
SCALE: 1/2" = 1'
PLATE:
100


PLATFORM A
1/101
3'-0"
4'-0"
MAKE ONE
PLATFORM B
2/101
7°
7'-11 7/8"
7'-4 3/16"
8'-5 1/2"
14°
2'-0"
MAKE 2: REVERSE & REPEAT
PLATFORM C
5/101
2'-0 5/16"
14°
8'-0"
2'-5 1/8"
2'-8" OC TYP
5'-1 1/8"
7'-8 1/8"
4'-0"
MAKE 2: REVERSE & REPEAT
1, 2, 5/101 CUSTOM PLATFORMS 1: TOP VIEW
SCALE: 3/4" = 1'
NOTES:
2X4 CONSTRUCTION
ELMERS GLUE AND 2-1/2" DRYWALL SCREWS
3/4" PLYWOOD TOP
CUT TOPS WITH CIRCULAR SAW
INCORPORATE PLATFORM A INTO STOCK
SIU
Ride the Cyclone
RAKE
CUSTOM PLATFORMS 1
DIRECTOR GABRIEL CLARK
TECH DIRECTOR DAVID GOLDSTEIN
SET DESIGNER LENNY LIVELY
DRAWN BY LL
DRAWING NO. RTC_101
DATE 1-22-2025
REVISED
SHEET # SHEET 2
OF # SHEETS 9
BUILD TIME
QTY / # OF CHIPS
TIME
MATERIALS USED
MATERIAL
QUANTITY
SCALE: 1/2" = 1'
PLATE:
101



1/102 CUSTOM PLATFORM D: TOP VIEW

SCALE: 1" = 1'

NOTES:

2X4 CONSTRUCTION

ELMERS GLUE AND 2-1/2" DRYWALL SCREWS

5/4" PLYWOOD TOP

CUT TOP WITH CIRCULAR SAW

MAKE 1

USE TOP TO SQUARE UP FRAME

Ride the Cyclone

RAKE

CUSTOM PLATFORMS I

DIRECTOR: GABRIL CLARK

SET DESIGNER: DAVID GOLDSTEIN

SET DECORATOR: LENNY LIVELY

LEAD: LL | ASSISTANT: CN

DATE: 1-22-2025

DWG #: DWG 2 | REV #: DWG 9

BUILD TIME

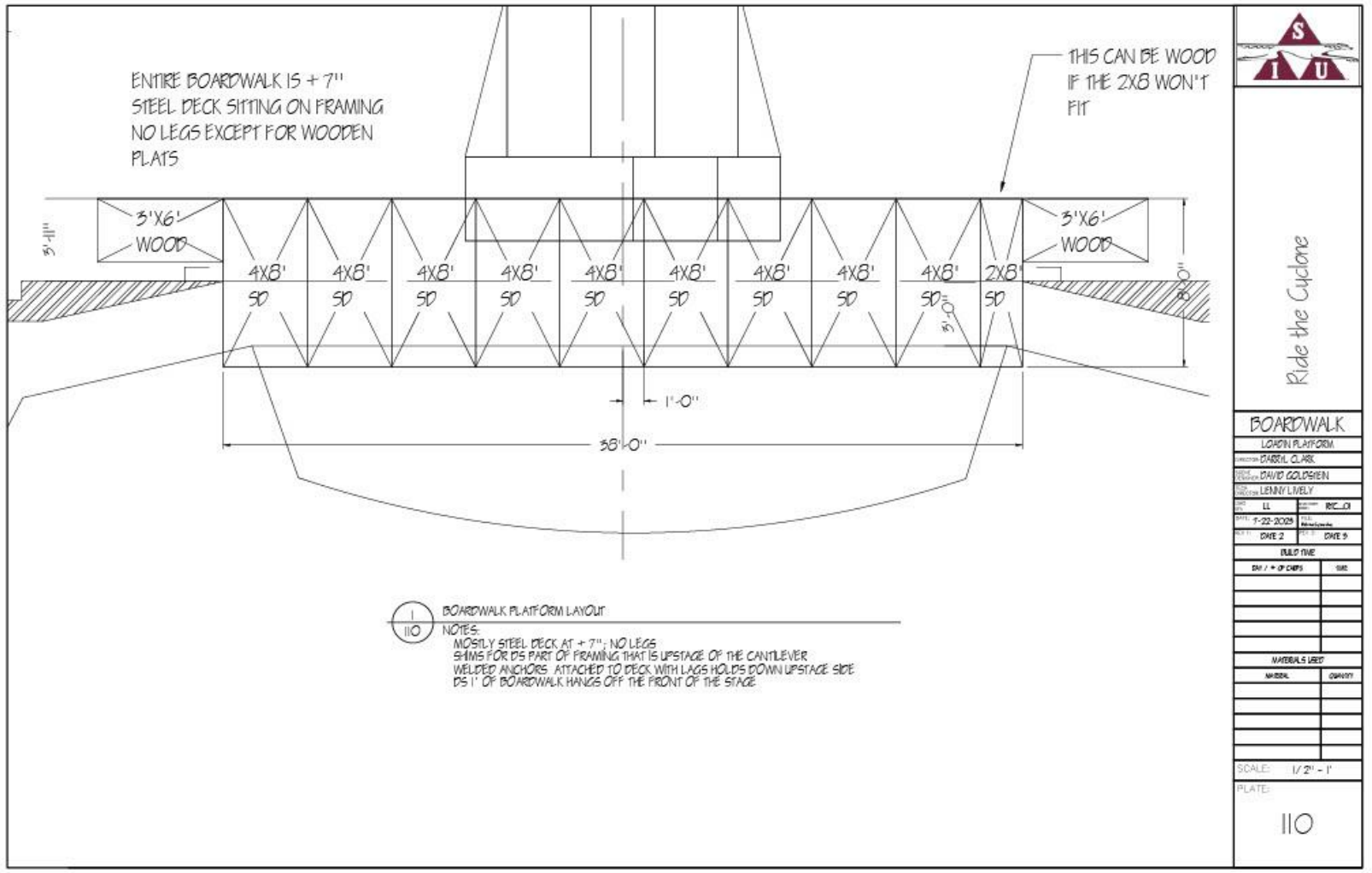
DAY / # OF CHIPS	TIME

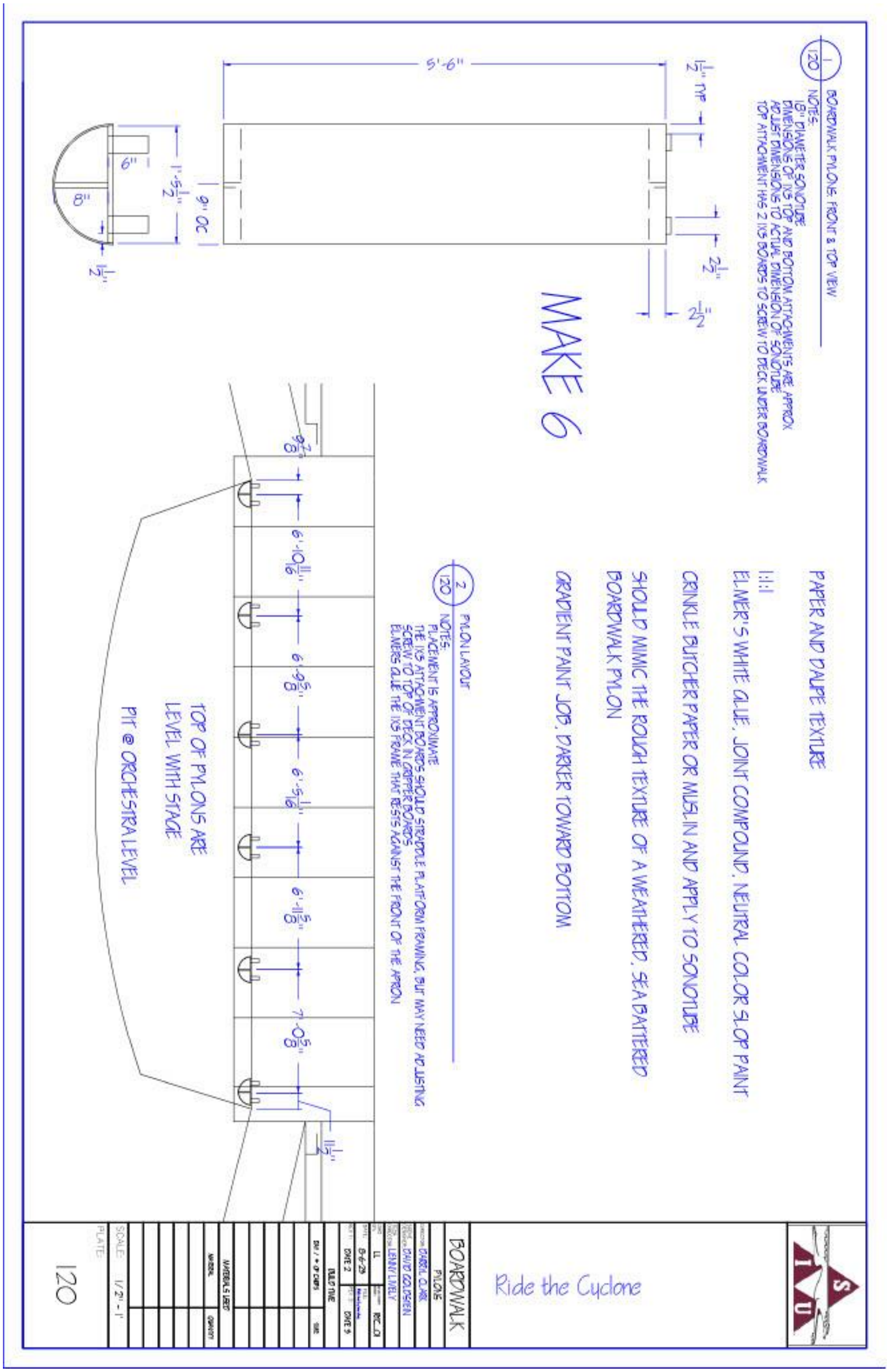
MATERIALS USED

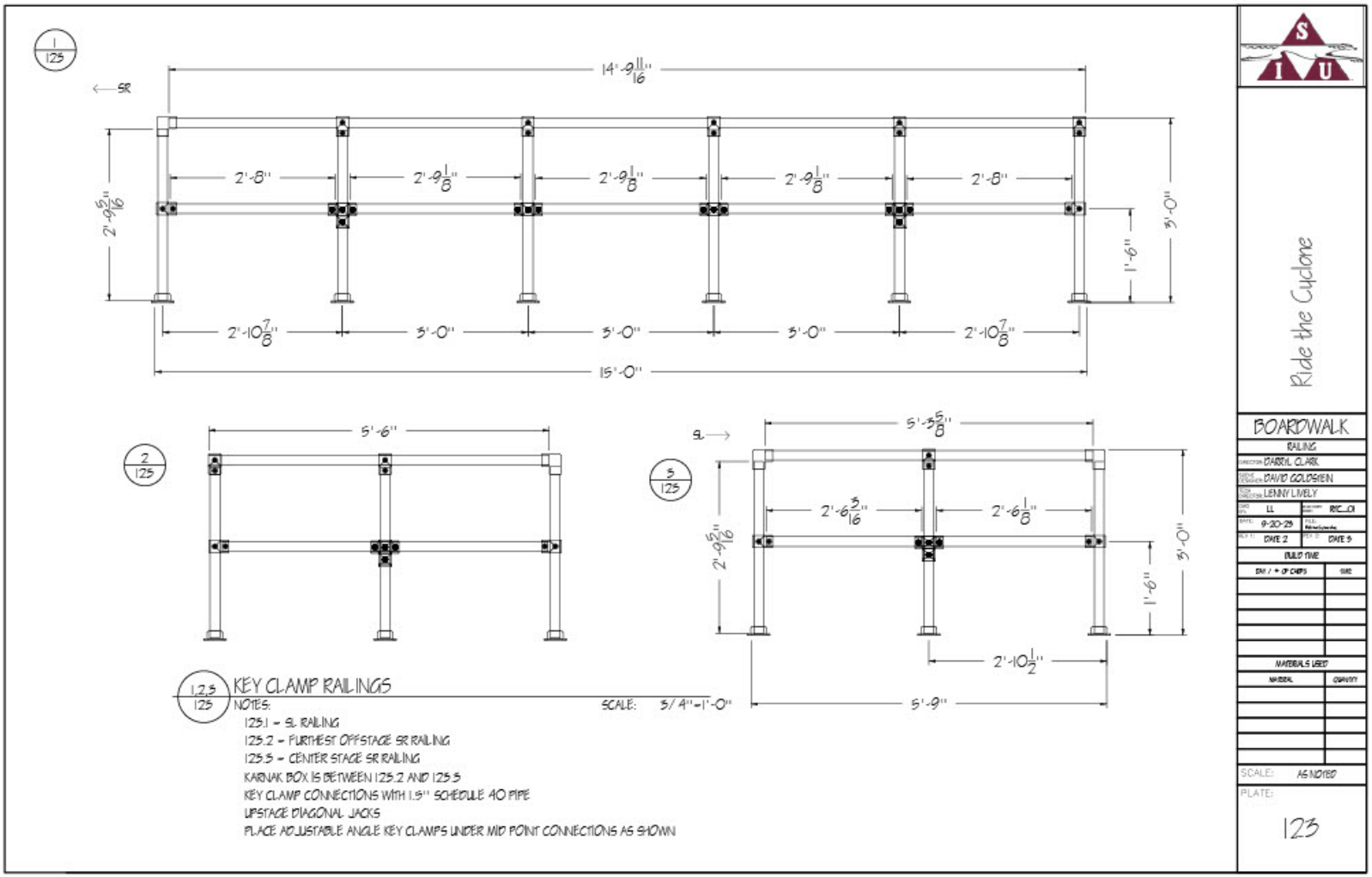
MATERIAL	QUANTITY

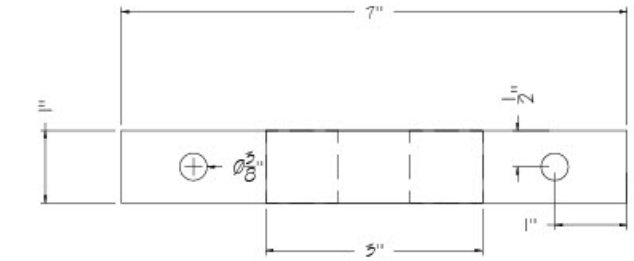
SCALE: AS NOTED

PLATE: 102


ENTIRE BOARDWALK IS + 7"
STEEL DECK SITTING ON FRAMING
NO LEGS EXCEPT FOR WOODEN
PLATS
THIS CAN BE WOOD
IF THE 2X8 WON'T
FIT
3'X6'
WOOD
3'X6'
WOOD
4X8'
5D
2X8'
5D
3'-11"
3'-0"
8'-0"
1'-0"
58'-0"
1
110
BOARDWALK PLATFORM LAYOUT
NOTES:
MOSTLY STEEL DECK AT + 7"; NO LEGS
SHIMS FOR DS PART OF FRAMING THAT IS UPSTAGE OF THE CANTILEVER
WELDED ANCHORS ATTACHED TO DECK WITH LAGS HOLDS DOWN UPSTAGE SIDE
DS 1' OF BOARDWALK HANGS OFF THE FRONT OF THE STAGE
S
I
U
Ride the Cyclone
BOARDWALK
LOADIN PLATFORM
GABRIL CLARK
DAVID GOLDSHEIN
LENNY LIVELY
LL
1-22-2025
DATE 2
DATE 3
BUILD TIME
DAY / + OF CHIPS
HRS
MATERIALS LIEST
MATERIAL
QUANTITY
SCALE: 1/2" = 1'
PLATE:
110

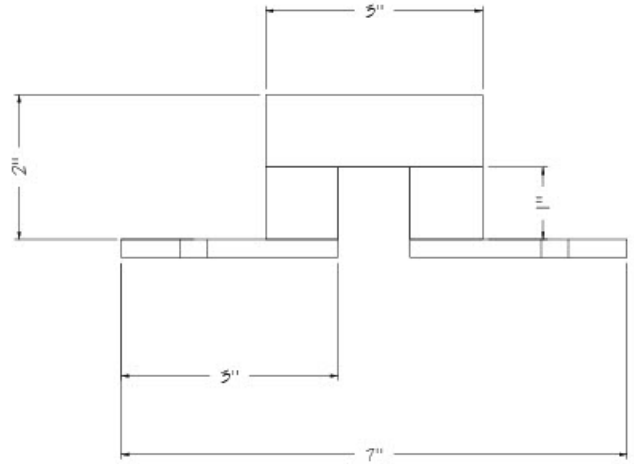

1/120 BOARDWALK PYLONS FRONT & TOP VIEW
NOTES:
18" DIAMETER SONOTUBE
DIMENSIONS OF 1X3 TOP AND BOTTOM ATTACHMENTS ARE APPROX
ADJUST DIMENSIONS TO ACTUAL DIMENSION OF SONOTUBE
TOP ATTACHMENT HAS 2 1X3 BOARDS TO SCREW TO DECK UNDER BOARDWALK
5'-6"
1/2" TYP
2 1/2"
2 1/2"
9' OC
1'-5 1/2"
6"
8"
1/2"
MAKE 6
PAPER AND DAUPE TEXTURE
1:1:1
ELMER'S WHITE GLUE, JOINT COMPOUND, NEUTRAL COLOR SLOP PAINT
CRINKLE BUTCHER PAPER OR MUSLIN AND APPLY TO SONOTUBE
SHOULD MIMIC THE ROUGH TEXTURE OF A WEATHERED, SEA BATTERED BOARDWALK PYLON
GRADIENT PAINT JOB, DARKER TOWARD BOTTOM
2/120 PYLON LAYOUT
NOTES:
PLACEMENT IS APPROXIMATE
THE 1X3 ATTACHMENT BOARDS SHOULD STRADDLE PLATFORM FRAMING, BUT MAY NEED ADJUSTING
SCREW TO TOP OF DECK IN GRIPPER BOARDS
ELMERS GLUE THE 1X3 FRAME THAT RESTS AGAINST THE FRONT OF THE APRON
9 7/8"
6'-10 11/16"
6'-9 5/8"
6'-5 1/16"
6'-11 5/8"
7'-0 5/8"
11 1/2"
TOP OF PYLONS ARE LEVEL WITH STAGE
PIT @ ORCHESTRA LEVEL
Ride the Cyclone
BOARDWALK
PYLONS
DARYL CLARK
DAVID GOLDSTEIN
LENNY LIVELY
LL
8-6-29
DATE 2
DATE 9
BUILD TIME
MATERIALS USED
SCALE 1/2" - 1'
PLATE
120

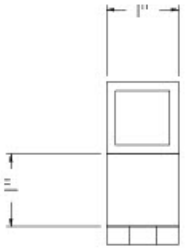

1/125
SR
14'-9 11/16"
2'-8"
2'-9 1/8"
2'-9 1/8"
2'-9 1/8"
2'-8"
2'-9 5/16"
1'-6"
3'-0"
2'-10 7/8"
3'-0"
3'-0"
3'-0"
2'-10 7/8"
15'-0"
2/125
5'-6"
SL
5/125
5'-3 5/8"
2'-6 5/16"
2'-6 1/8"
2'-9 5/16"
1'-6"
3'-0"
2'-10 1/2"
5'-9"
1,2,5/125
KEY CLAMP RAILINGS
SCALE: 3/4"=1'-0"
NOTES:
125.1 = SL RAILING
125.2 = FURTHEST OFFSTAGE SR RAILING
125.5 = CENTER STAGE SR RAILING
KARNAK BOX IS BETWEEN 125.2 AND 125.5
KEY CLAMP CONNECTIONS WITH 1.9" SCHEDULE 40 PIPE
UPSTAGE DIAGONAL JACKS
PLACE ADJUSTABLE ANGLE KEY CLAMPS UNDER MID POINT CONNECTIONS AS SHOWN
S
I
U
Ride the Cyclone
BOARDWALK
RAILING
DIRECTOR CARRIL CLARK
SET DESIGNER DAVID GOLDSTEIN
TECHNICAL DIRECTOR LENNY LIVELY
CAD BY: LL
DRAWING NO.: RTC_01
DATE: 9-20-29
FILE:
REV 1: DATE 2
REV 2: DATE 3
BUILD TIME
DAY / + OF CREW
HRS
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE:
123



1/50 STEEL DECK FLOOR BRACKETS

NOTES:
1" TUBE STEEL & 1/4" BAR STEEL
MIG WELD
DRILL 5/8" DIAMETER HOLE WHERE NOTATED





MAKE 10

Ride the Cyclone

BOARDWALK

RAILING

DIRECTOR: DARRIL CLARK
SCENIC DESIGNER: DAVID GOLDSTEIN
COSTUME DESIGNER: LENNY LIVELY
CAD BY: LL
DRAWING NO.: RTC_01
DATE: 8-15-25
FILE: Railing.dwg
REV #: DWG 2
REV #: DWG 3

BUILD TIME

DAY / # OF CREPS	HRS

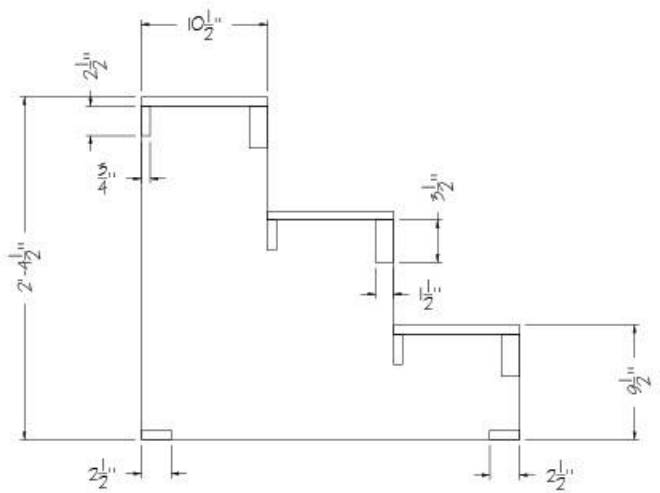
MATERIALS USED

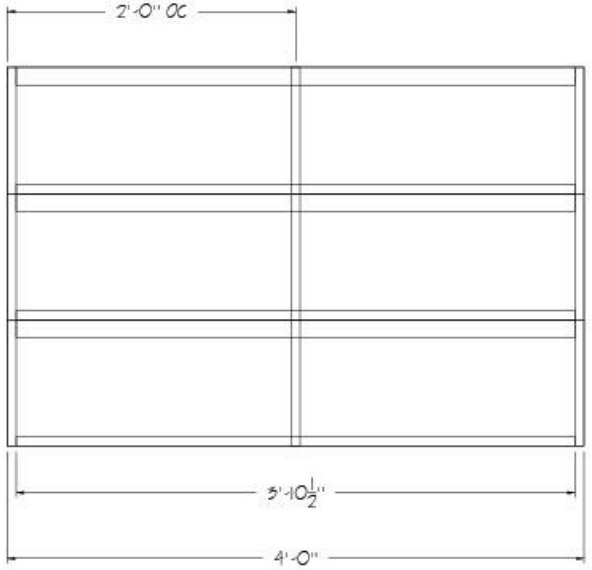
MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE:

121





1&2 / 141 CNC ESCAPE STAIRS

SCALE: 1-1/2"=1'-0"

NOTES:

CNC'D 5/4" CDX STRINGERS
5/4" CDX TREADS (NOT CNC'D)
2X4 SPACER ON FRONT SIDE OF EACH TREAD
1X5 SPACER ON BACK OF TREAD
2X & 1X FIT INTO SLOTS IN CENTER STRINGER
1X5 BOTTOM ATTACHMENT BOARDS
MEDIUM CROWN STAPLE AND WOOD GLUE
MAKE 2

S I U

Ride the Cyclone

PLATFORMS

ESCAPE STAIRS cnc

DIRECTOR: GABRIL CLARK
ASSOC. DESIGNER: DAVID GOLDSHEIN
TECH DIRECTOR: LENNY LIVELY

CNC OP:	LL	ASSEMBLED BY:	RSC...CK
DATE:	9-14-25	FILE:	
REV 1:	DATE 2	REV 2:	DATE 3

BUILD TIME

DAY / # OF CREWS	TIME

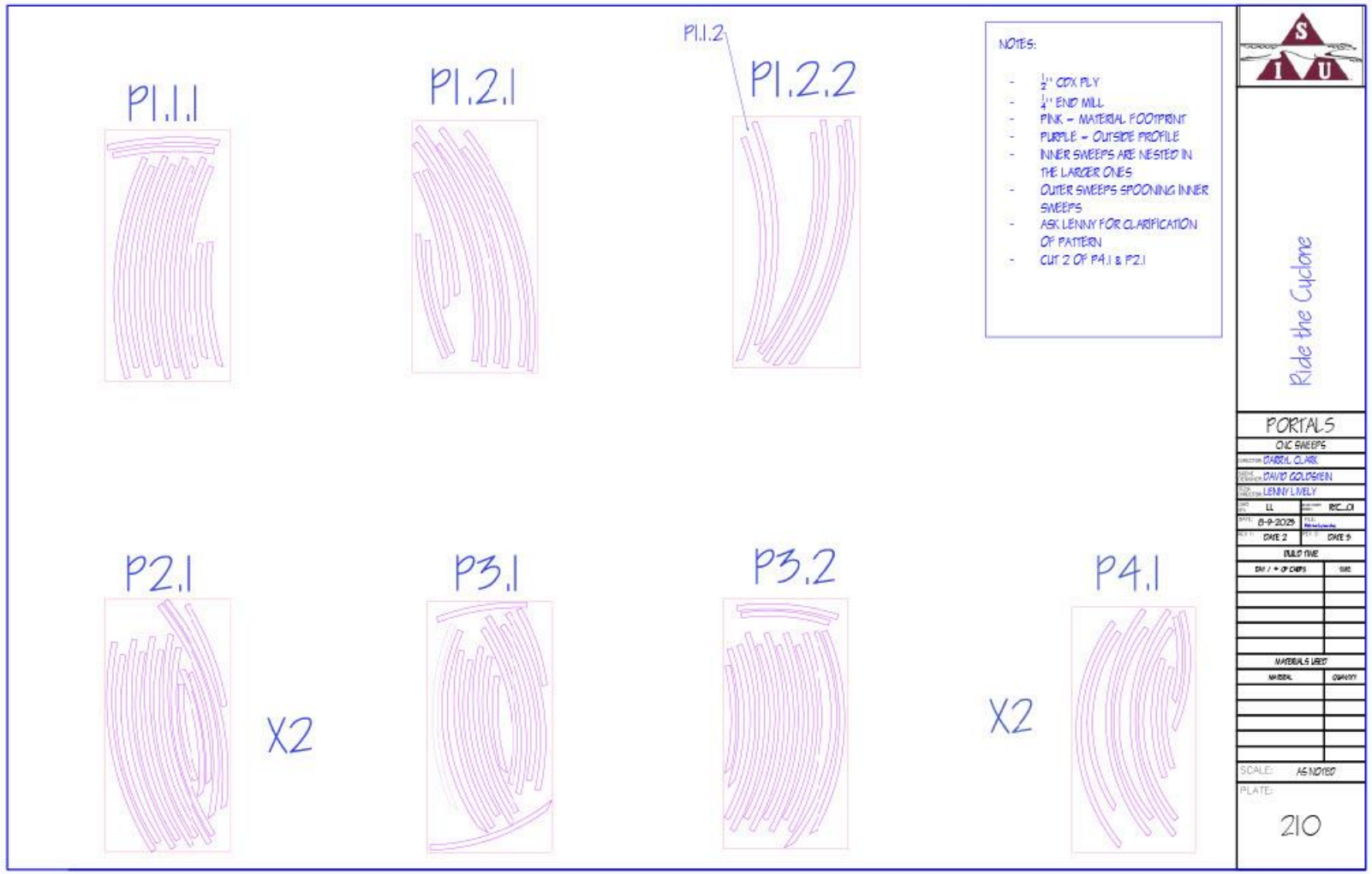
MATERIALS USED

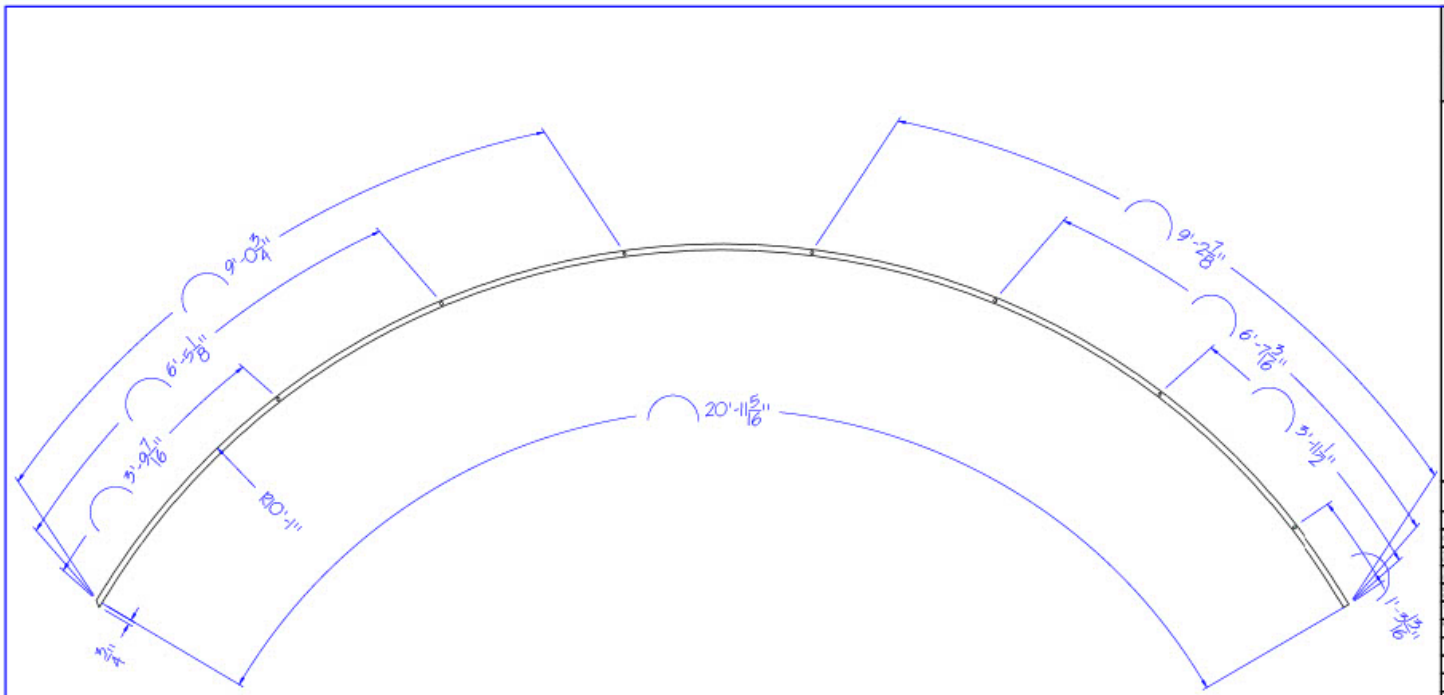
MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE:

141


P1.1.1
P1.2.1
P1.1.2
P1.2.2
NOTES:
- ½'' CDX PLY
- ¼'' END MILL
- PINK = MATERIAL FOOTPRINT
- PURPLE = OUTSIDE PROFILE
- INNER SWEEPS ARE NESTED IN THE LARGER ONES
- OUTER SWEEPS SPOONING INNER SWEEPS
- ASK LENNY FOR CLARIFICATION OF PATTERN
- CUT 2 OF P4.1 & P2.1
P2.1
X2
P3.1
P3.2
P4.1
X2
Ride the Cyclone
PORTALS
CNC SWEEPS
GABRIEL CLARK
DAVID GOLDSTEIN
LENNY LIVELY
LL
8-9-2025
DATE 2
DATE 9
BUILD TIME
DAY / # OF CHIPS
TIME
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE:
210



1/211 PORTAL 1 STEEL CORD PART 1 (P1.1)

SCALE: 5/4" = 1'

NOTES:

1" STEEL BOX TUBE
CIRCUMFERENCE MEASUREMENTS ARE TO THE OUTSIDE EDGE
USE THE NEW ROLLERBENDER
SCRIBE ARC ON MCLEOD FLOOR AS A GUIDE / TEMPLATE FOR THE ARC
DIAMETER OF HOLES TBD
DRILL HOLES BEFORE ASSEMBLING TRUSS STRUCTURE
MAKE ONE
BUTT JOINT WELD THE CURVED STEEL PIECES, AVOIDING THE HOLES

S I U

Ride the Cyclone

PORTALS

STEEL CORD P1

DIRECTOR: GABRIL CLARK
DESIGNER: DAVID GOLDSHEIN
DESIGNER: LENNY LIVELY

DRG NO.: LL | ASSEMBLY NO.: RYC...01
DATE: 8-1-2025 | REV.:
REV 1: DATE 2 | REV 2: DATE 3

BUILD TIME

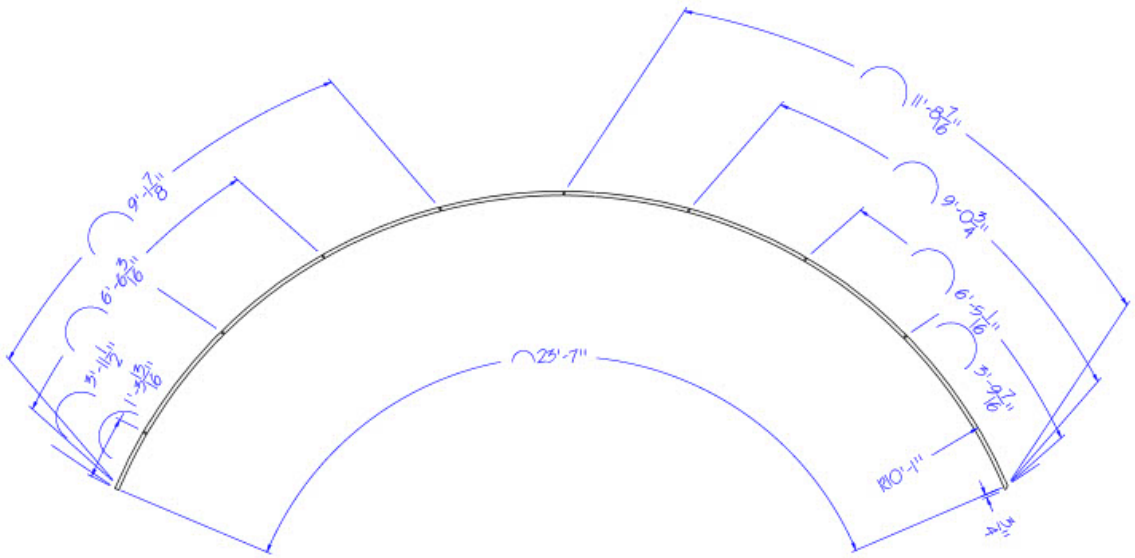
DAY / # OF CREWS	HRS

MATERIALS USED

MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE: 211



1/212 PORTAL 1 STEEL CORD PART 2 (P1.2)

SCALE: 1/2" = 1'

NOTES:

1" STEEL BOX TUBE
CIRCUMFERENCE MEASUREMENTS ARE TO THE OUTSIDE EDGE
USE THE NEW ROLLERBENDER
SCRIBE ARC ON MCLEOD FLOOR AS A GUIDE / TEMPLATE FOR THE ARC
DIAMETER OF HOLES TBD
DRILL HOLES BEFORE ASSEMBLING TRUSS STRUCTURE
MAKE ONE
BUTT JOINT WELD THE CURVED STEEL PIECES, AVOIDING THE HOLES

Ride the Cyclone

PORTALS

STEEL CORD P1

DIRECTOR: GABRIEL CLARK
STAGE DESIGNER: DAVID GOLDSTEIN
TECH DIRECTOR: LENNY LIVELY
DRAWN BY: LL
CHECKED BY: RMC...CK
DATE: 8-8-2023
REVISED:
REV 1: DATE 2
REV 2: DATE 3

BUILD TIME

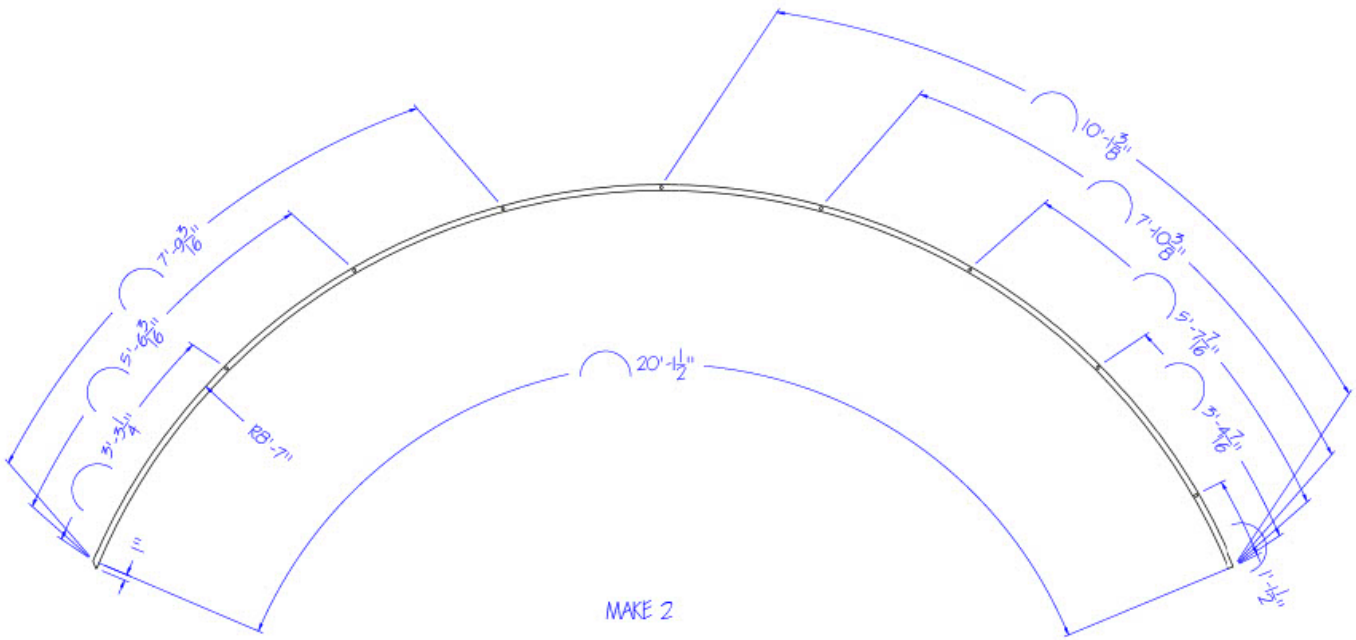
DAY / # OF CREWS	HRS

MATERIALS USED

MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE: 212



MAKE 2

1 / 215 PORTAL 2 STEEL CORD (P2)

SCALE: 5/4" = 1'

NOTES:

1" STEEL BOX TUBE
CIRCUMFERENCE MEASUREMENTS ARE TO THE OUTSIDE EDGE
USE THE NEW ROLLERBENDER
SCRIBE ARC ON MCLEOD FLOOR AS A GUIDE / TEMPLATE FOR THE ARC
DIAMETER OF HOLES TBD
DRILL HOLES BEFORE ASSEMBLING TRUSS STRUCTURE
MAKE TWO
BUTT JOINT WELD THE CURVED STEEL PIECES, AVOIDING THE HOLES

S I U

Ride the Cyclone

PORTALS

STEEL CORD P2

DIRECTOR: DARRIL CLARK
DESIGNER: DAVID GOLDSHEIN
PROJECT MANAGER: LENNY LIVELY
CAD: LL
DRAWING NO.: RYC_01
DATE: 8-8-2025
REV. #: DATE 2
REV. #: DATE 3

BUILD TIME

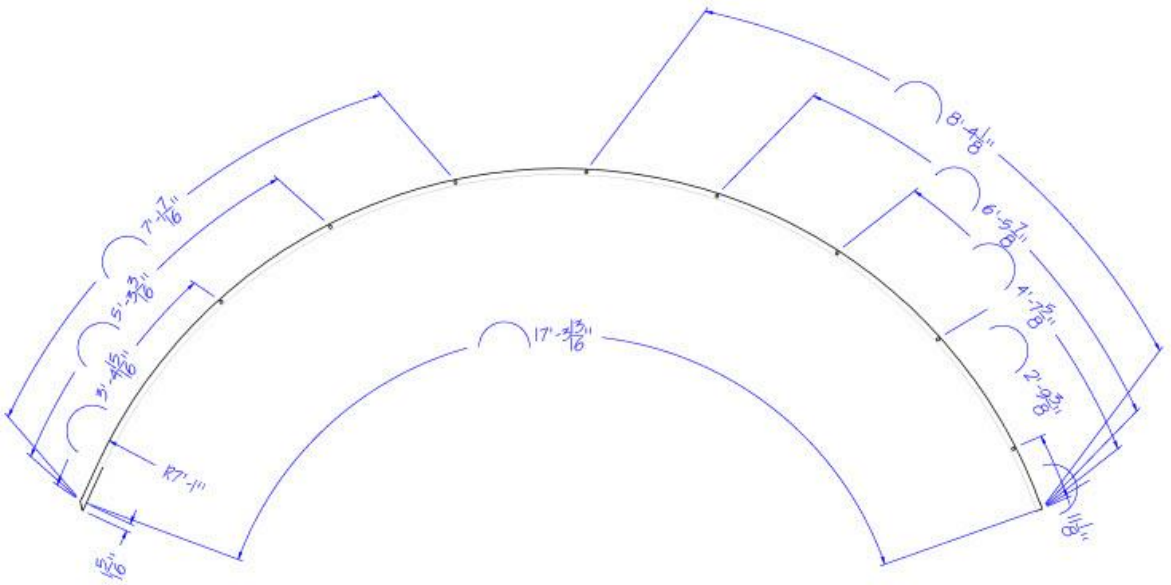
DAY / # OF CREWS	HRS

MATERIALS USED

MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE: 213



1/214 PORTAL 3 STEEL CORD PART 1 (P3.1)

SCALE: 5/4" = 1'

NOTES:

1" STEEL BOX TUBE
CIRCUMFERENCE MEASUREMENTS ARE TO THE OUTSIDE EDGE
USE THE NEW ROLLERBENDER
SCRIBE ARC ON MCLEOD FLOOR AS A GUIDE/ TEMPLATE FOR THE ARC
DIAMETER OF HOLES TBD
DRILL HOLES BEFORE ASSEMBLING TRUSS STRUCTURE
MAKE ONE
BUTT JOINT WELD THE CURVED STEEL PIECES, AVOIDING THE HOLES

Ride the Cyclone

PORTALS

STEEL CORD P3.1

DIRECTOR: GABRIEL CLARK
PRODUCTION DESIGNER: DAVID GOLDSTEIN
TECHNICAL DIRECTOR: LENNY LIVELY
DRAWN BY: LL
DOCUMENT NO.: RTC_01
DATE: 8-8-2025
FILE:
REV 1: DATE 2
REV 2: DATE 3

BUILD TIME

DAY / # OF CREWS	TIME

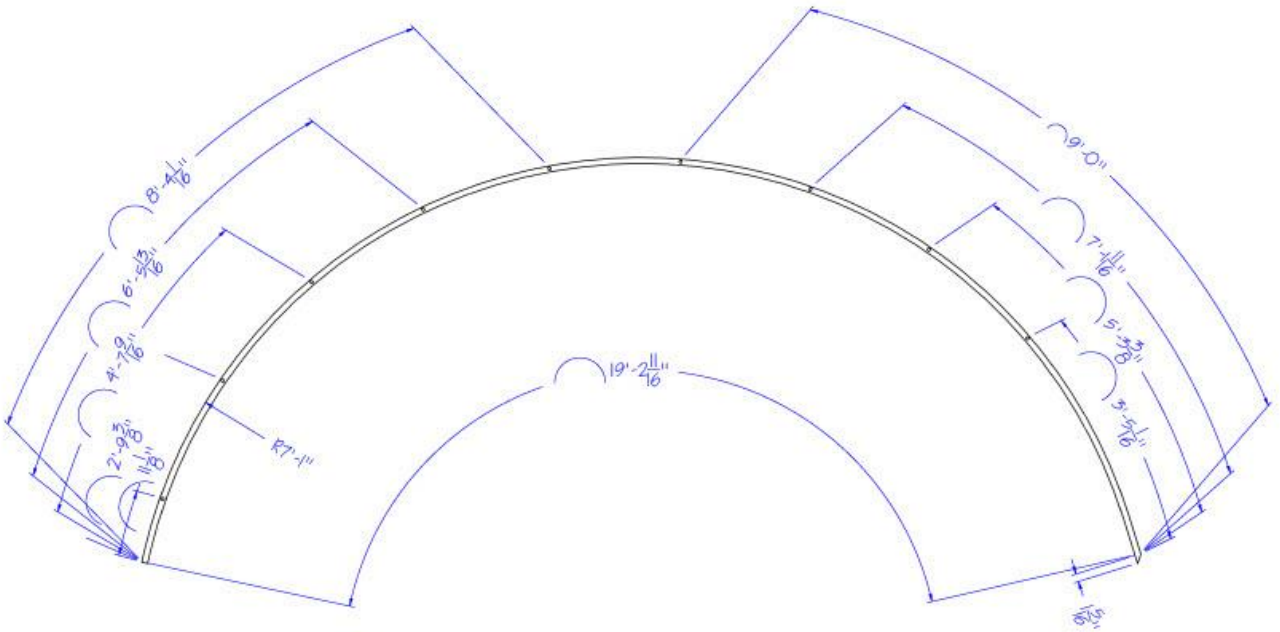
MATERIALS USED

MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE:

214



1/215 PORTAL 3 STEEL CORD PART 2 (P3.2)

SCALE: 5/4" = 1'

NOTES:

1" STEEL BOX TUBE
CIRCUMFERENCE MEASUREMENTS ARE TO THE OUTSIDE EDGE
USE THE NEW ROLLERBENDER
SCRIBE ARC ON MCLEOD FLOOR AS A GUIDE / TEMPLATE FOR THE ARC
DIAMETER OF HOLES TBD
DRILL HOLES BEFORE ASSEMBLING TRUSS STRUCTURE
MAKE ONE
BUTT JOINT WELD THE CURVED STEEL PIECES, AVOIDING THE HOLES

S I U

Ride the Cyclone

PORTALS

STEEL CORD P3.2

DIRECTOR: GABRIEL CLARK
SCENIC DESIGNER: DAVID GOLDSTEIN
TECH DIRECTOR: LENNY LIVELY
DRAWN BY: LL
DATE: 8-8-2025
DATE 2
DATE 3

BUILD TIME

DAY / # OF CREWS	TIME

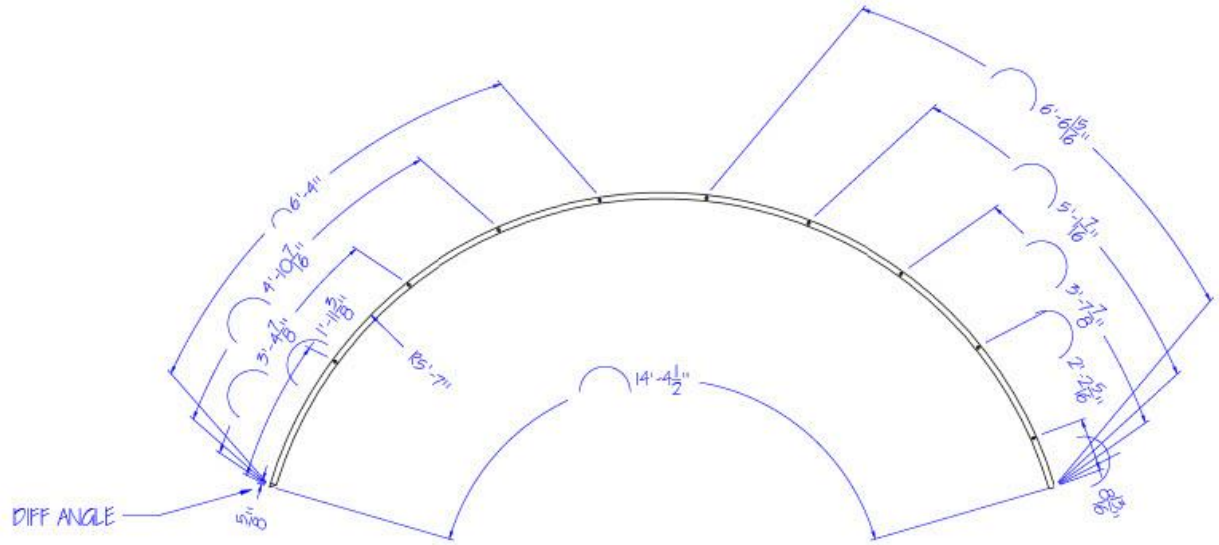
MATERIALS USED

MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE:

215



MAKE 2

1/216 PORTAL 4 STEEL CORD (P4)

SCALE: 5/4" = 1'

NOTES:

1" STEEL BOX TUBE
CIRCUMFERENCE MEASUREMENTS ARE TO THE OUTSIDE EDGE
USE THE NEW ROLLERBENDER
SCRIBE ARC ON MCLEOD FLOOR AS A GUIDE / TEMPLATE FOR THE ARC
DIAMETER OF HOLES TBD
DRILL HOLES BEFORE ASSEMBLING TRUSS STRUCTURE
MAKE TWO
BUTT JOINT WELD THE CURVED STEEL PIECES, AVOIDING THE HOLES

S I U

Ride the Cyclone

PORTALS

STEEL CORD P4

DIRECTOR: GABRIEL CLARK
SCENIC DESIGNER: DAVID GOLDSTEIN
TECH DIRECTOR: LENNY LIVELY
DRAWN BY: LL
CHECKED BY: RSC...CK
DATE: 8-8-2023
REV 1: DATE 2
REV 2: DATE 3

BUILD TIME

DAY / # OF CREWS	TIME

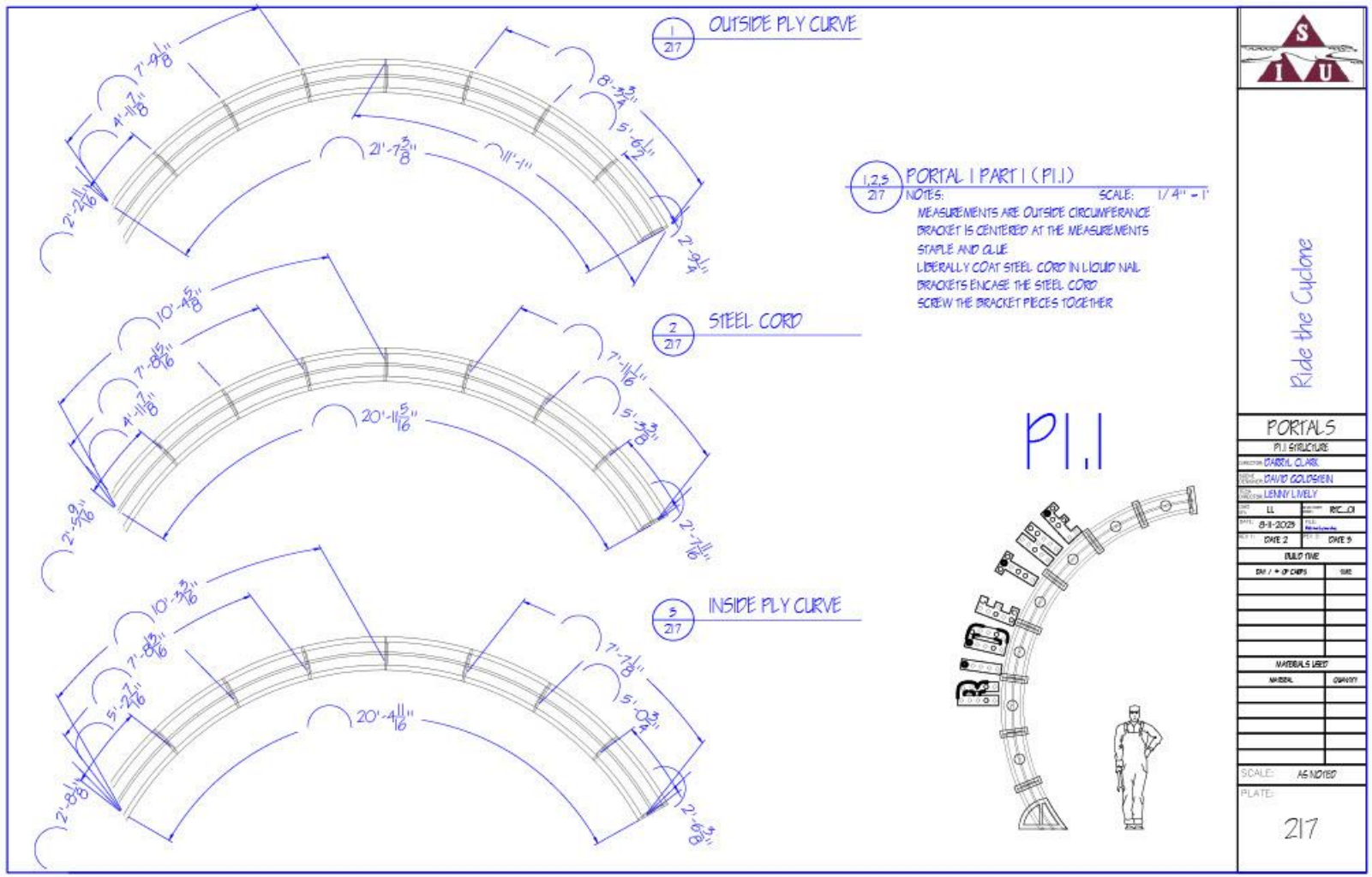
MATERIALS USED

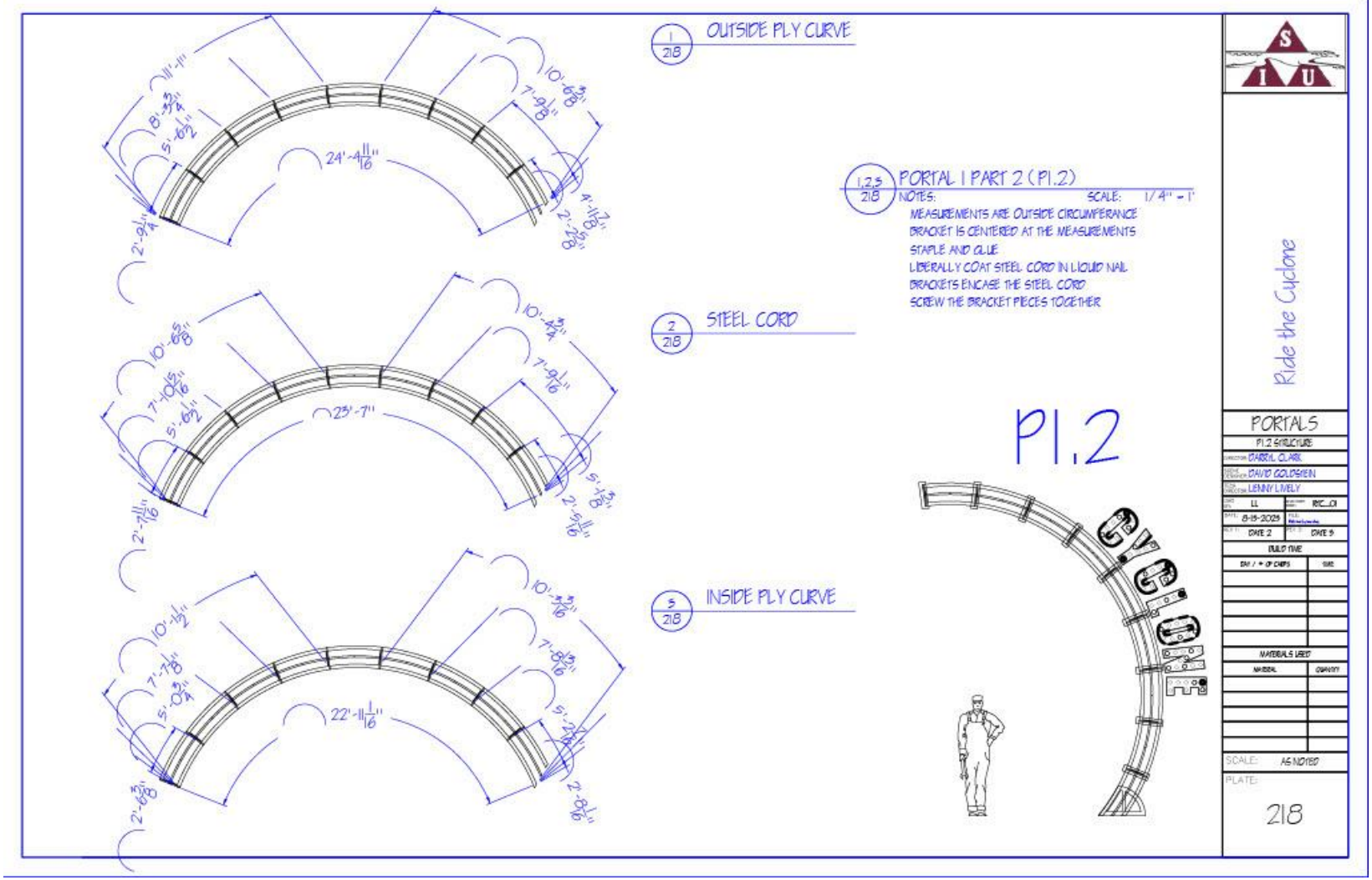
MATERIAL	QUANTITY

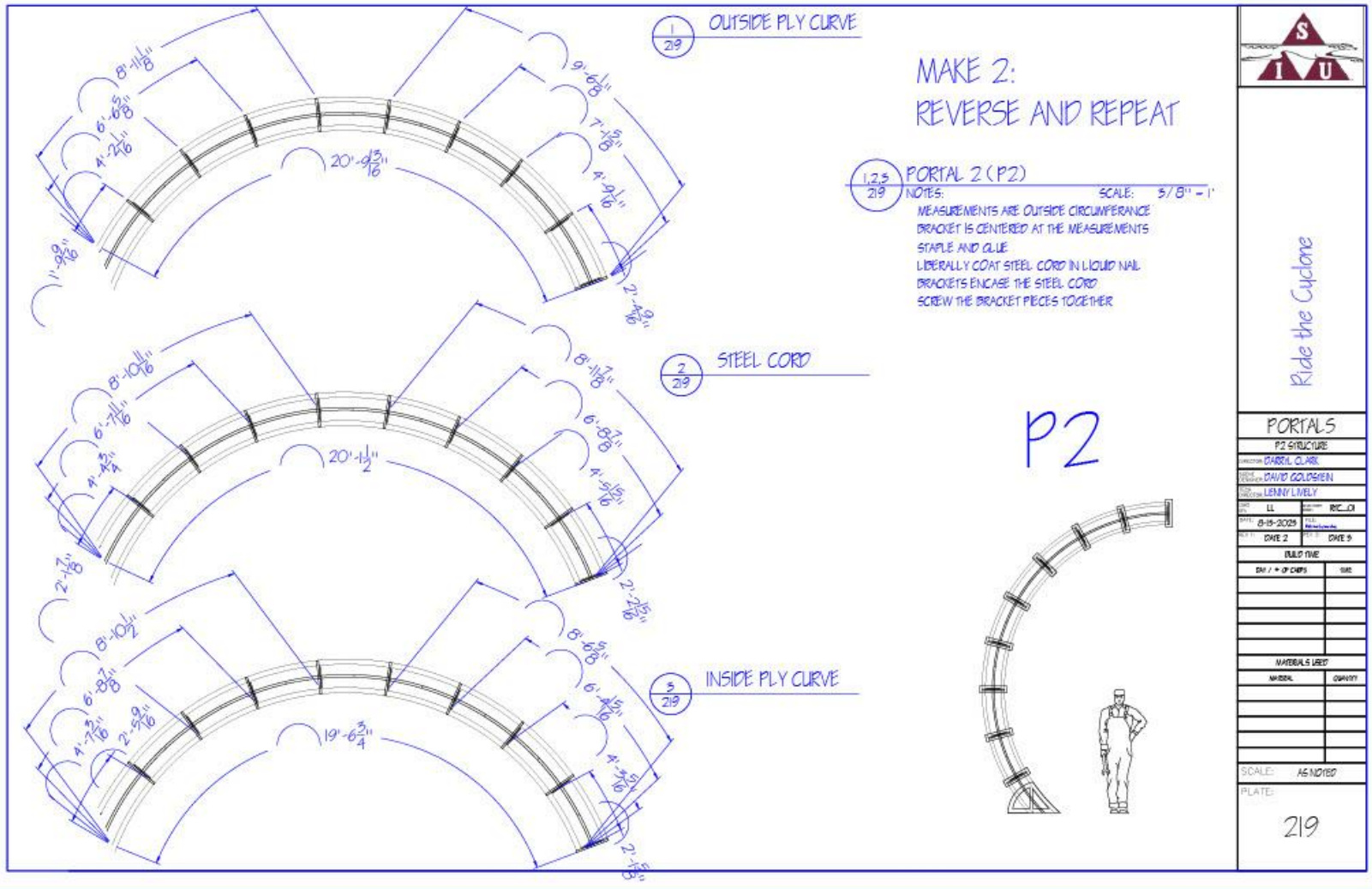
SCALE: AS NOTED

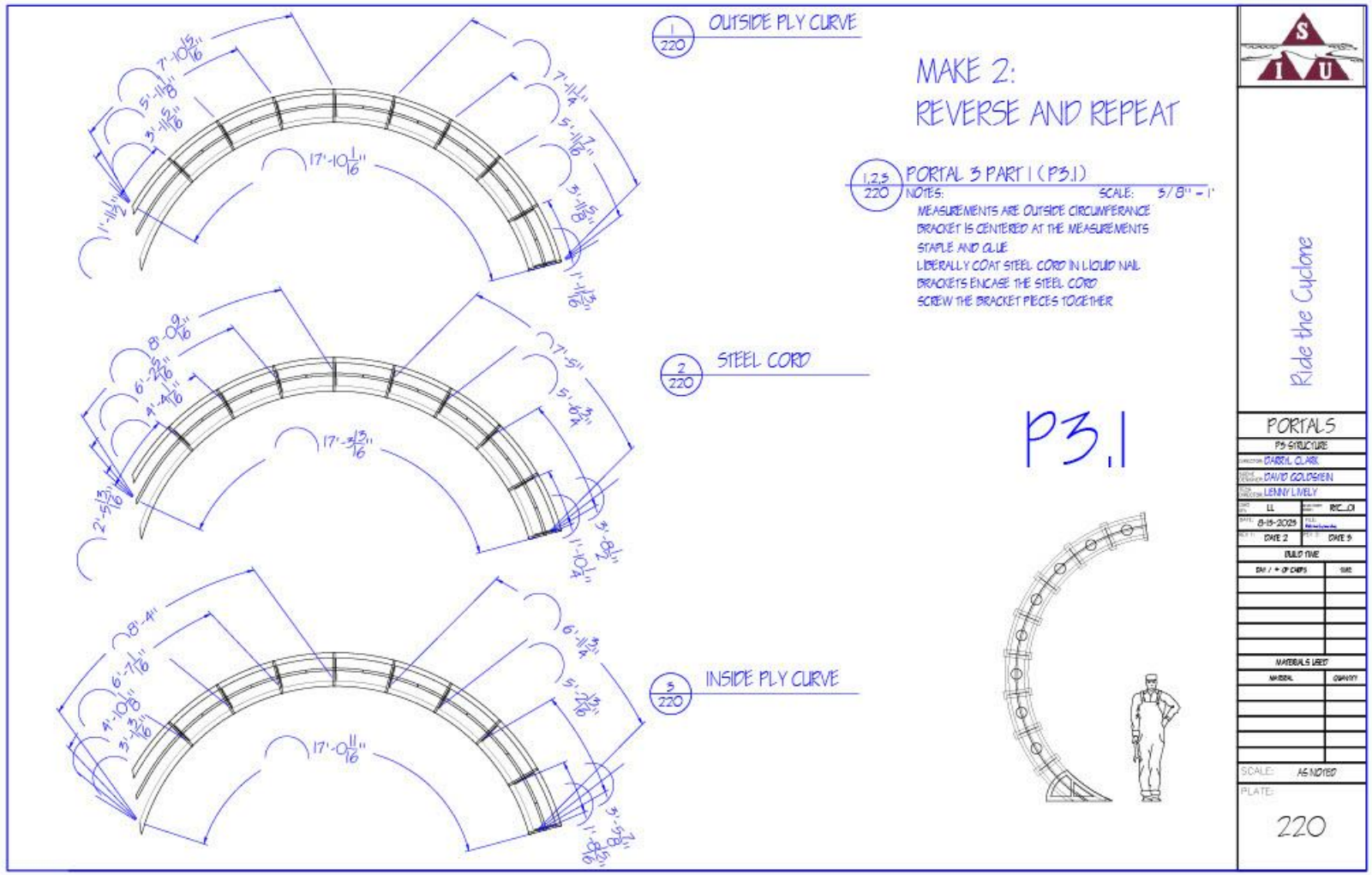
PLATE:

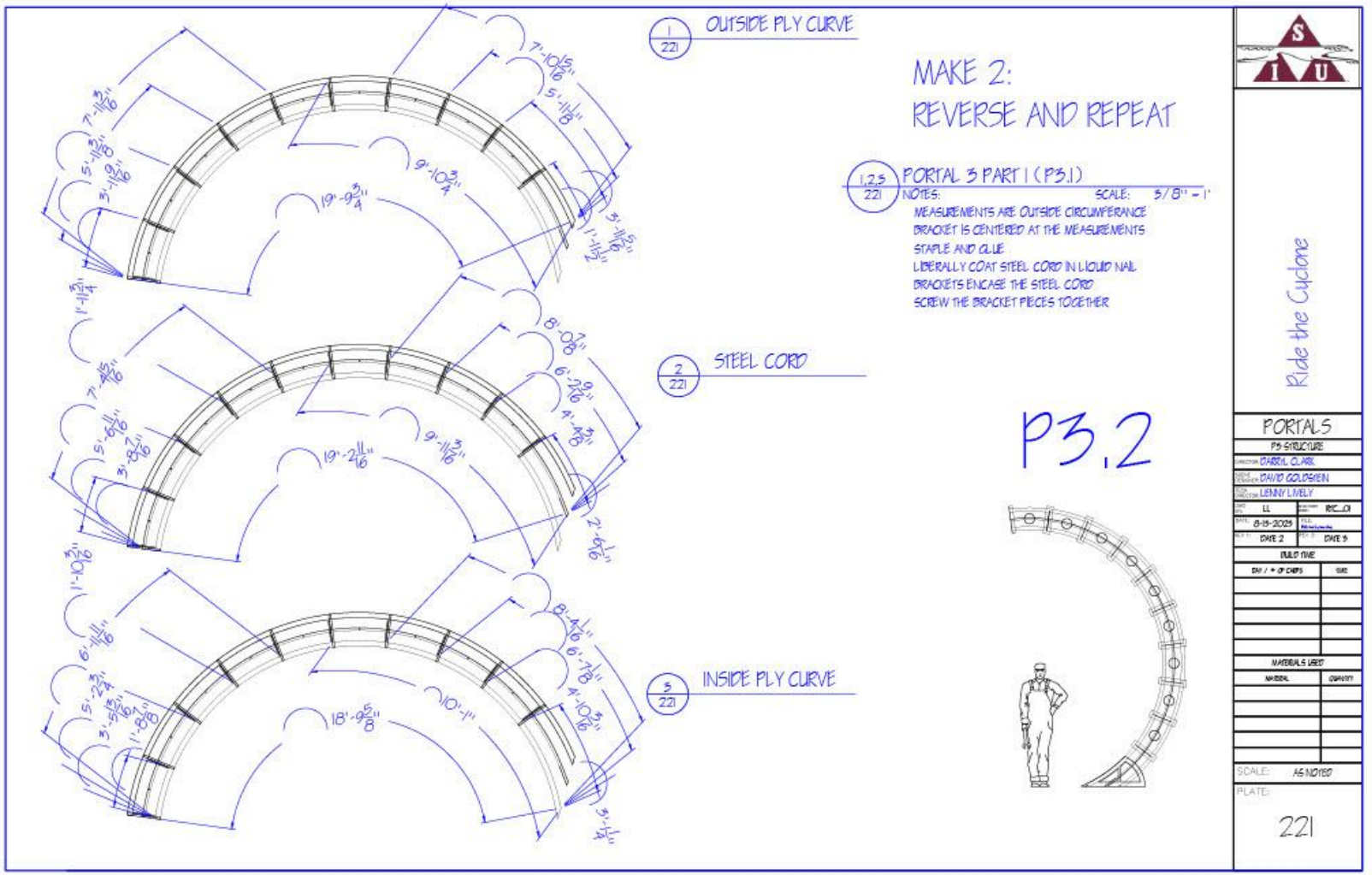
216

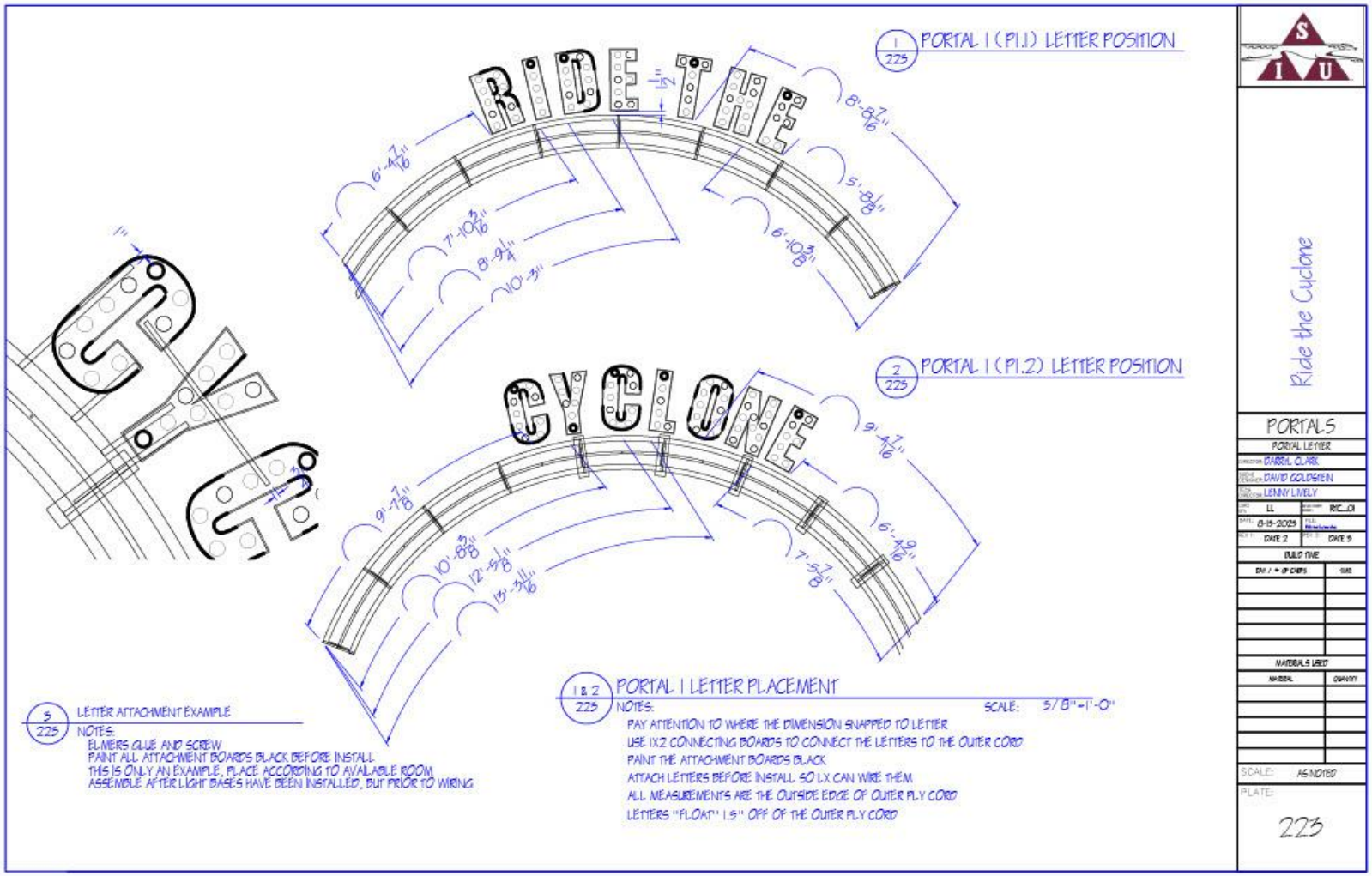

1/217 OUTSIDE PLY CURVE
7'-9 1/8"
4'-11 7/8"
2'-2 11/16"
21'-7 3/8"
11'-1"
8'-3 3/4"
5'-6 1/2"
2'-9 1/4"
2/217 STEEL CORD
10'-4 5/8"
7'-8 5/16"
4'-11 7/8"
2'-5 9/16"
20'-11 5/16"
7'-11 1/16"
5'-3 3/8"
2'-7 11/16"
3/217 INSIDE PLY CURVE
10'-3 3/16"
7'-8 3/16"
5'-2 7/16"
2'-8 1/8"
20'-4 11/16"
7'-7 7/8"
5'-0 3/4"
2'-6 3/8"
1,2,5/217 PORTAL 1 PART 1 (P1.1)
NOTES:
SCALE: 1/4" = 1'
MEASUREMENTS ARE OUTSIDE CIRCUMFERANCE
BRACKET IS CENTERED AT THE MEASUREMENTS
STAPLE AND GLUE
LIBERALLY COAT STEEL CORD IN LIQUID NAIL
BRACKETS ENCASE THE STEEL CORD
SCREW THE BRACKET PIECES TOGETHER
P1.1
S
1
U
Ride the Cyclone
PORTALS
P1.1 STRUCTURE
DIRECTOR GABRIEL CLARK
SCENIC DESIGNER DAVID GOLDSTEIN
TECH DIRECTOR LENNY LIVELY
DRAWN BY LL
REVISIONS
DATE: 8-1-2025
DATE 2
DATE 3
BUILD TIME
DAY / # OF CREWS
HRS
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE:
217


1/218
OUTSIDE PLY CURVE
11'-11"
8'-3 3/4"
5'-6 1/2"
24'-4 11/16"
10'-6 3/8"
7'-9 1/8"
4'-1 7/8"
2'-9 1/4"
2'-2 5/8"
2/218
STEEL CORD
10'-6 5/8"
7'-10 5/16"
5'-6 1/2"
25'-7"
10'-4 3/4"
7'-9 1/16"
5'-1 3/8"
2'-7 11/16"
2'-5 11/16"
5/218
INSIDE PLY CURVE
10'-1 1/2"
7'-7 7/8"
5'-0 3/4"
22'-11 1/16"
10'-3 7/16"
7'-6 5/16"
5'-2 1/4"
2'-6 5/8"
2'-8 1/16"
1,2,5/218
PORTAL 1 PART 2 (P1.2)
NOTES:
SCALE: 1/4" = 1'
MEASUREMENTS ARE OUTSIDE CIRCUMFERANCE
BRACKET IS CENTERED AT THE MEASUREMENTS
STAPLE AND GLUE
LIBERALLY COAT STEEL CORD IN LIQUID NAIL
BRACKETS ENCASE THE STEEL CORD
SCREW THE BRACKET PIECES TOGETHER
P1.2
CYCLONE
Ride the Cyclone
PORTALS
P1.2 STRUCTURE
DIRECTOR GABRIEL CLARK
SCENIC DESIGNER DAVID GOLDSTEIN
TECH DIRECTOR LENNY LIVELY
DRAWN BY LL
CHECKED BY RKC...CK
DATE 8-15-2023
FILE
REV 1 DATE 2
REV 2 DATE 3
BUILD TIME
DAY / # OF CREPS
HRS
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE:
218

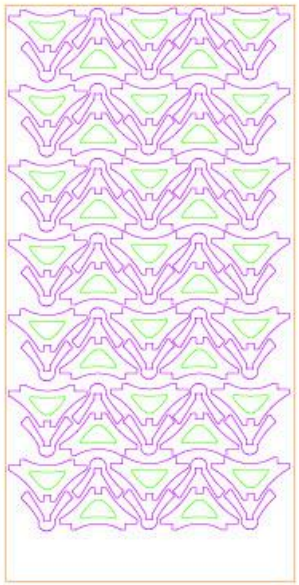

1/219 OUTSIDE PLY CURVE
2/219 STEEL CORD
5/219 INSIDE PLY CURVE
MAKE 2:
REVERSE AND REPEAT
1,2,5/219 PORTAL 2 (P2)
NOTES:
SCALE: 5/8" = 1'
MEASUREMENTS ARE OUTSIDE CIRCUMFERANCE
BRACKET IS CENTERED AT THE MEASUREMENTS
STAPLE AND GLUE
LIBERALLY COAT STEEL CORD IN LIQUID NAIL
BRACKETS ENCASE THE STEEL CORD
SCREW THE BRACKET PIECES TOGETHER
P2
Ride the Cyclone
PORTALS
P2 STRUCTURE
GABRIEL CLARK
DAVID GOLDSTEIN
LENNY LIVELY
8-15-2023
DATE 2
DATE 5
BUILD TIME
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE:
219


1/220 OUTSIDE PLY CURVE
2/220 STEEL CORD
3/220 INSIDE PLY CURVE
MAKE 2:
REVERSE AND REPEAT
1,2,5/220 PORTAL 3 PART 1 (P3.1)
NOTES:
SCALE: 5/8" = 1'
MEASUREMENTS ARE OUTSIDE CIRCUMFERANCE
BRACKET IS CENTERED AT THE MEASUREMENTS
STAPLE AND GLUE
LIBERALLY COAT STEEL CORD IN LIQUID NAIL
BRACKETS ENCASE THE STEEL CORD
SCREW THE BRACKET PIECES TOGETHER
P3.1
Ride the Cyclone
PORTALS
P3 STRUCTURE
DIRECTOR GABRIEL CLARK
SCENIC DESIGNER DAVID GOLDSTEIN
COSTUME DESIGNER LENNY LIVELY
DRAWN BY LL
REVISION
DATE 8-15-2023
FILE
DWG # 2
DWG # 3
BUILD TIME
DAY / # OF CHIPS
TIME
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE:
220


1/221 OUTSIDE PLY CURVE
2/221 STEEL CORD
3/221 INSIDE PLY CURVE
MAKE 2:
REVERSE AND REPEAT
1,2,5/221 PORTAL 3 PART 1 (P3.1)
NOTES:
SCALE: 5/8" = 1'
MEASUREMENTS ARE OUTSIDE CIRCUMFERANCE
BRACKET IS CENTERED AT THE MEASUREMENTS
STAPLE AND GLUE
LIBERALLY COAT STEEL CORD IN LIQUID NAIL
BRACKETS ENCASE THE STEEL CORD
SCREW THE BRACKET PIECES TOGETHER
P3.2
Ride the Cyclone
PORTALS
P3 STRUCTURE
DIRECTOR GABRIEL CLARK
SCENIC DESIGNER DAVID GOLDSTEIN
TECHNICAL DIRECTOR LENNY LIVELY
DRAWN BY LL
DATE 8-15-2023
DATE 2
DATE 3
BUILD TIME
DAY / # OF CREWS
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE:
221

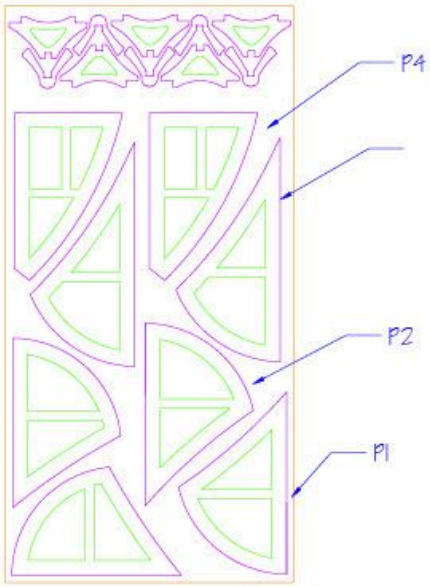

1 / 225 PORTAL 1 (P1.1) LETTER POSITION
RIDE THE
6'-4 7/16"
7'-10 3/16"
8'-9 1/4"
10'-3"
8'-8 7/16"
5'-8 1/4"
6'-10 3/8"
2 / 225 PORTAL 1 (P1.2) LETTER POSITION
CYCLONE
9'-7 7/8"
10'-8 3/8"
12'-5 1/8"
13'-3 11/16"
9'-4 7/16"
6'-4 9/16"
7'-5 7/8"
5 / 225 LETTER ATTACHMENT EXAMPLE
NOTES:
ELMERS GLUE AND SCREW
PAINT ALL ATTACHMENT BOARDS BLACK BEFORE INSTALL
THIS IS ONLY AN EXAMPLE, PLACE ACCORDING TO AVAILABLE ROOM
ASSEMBLE AFTER LIGHT BASES HAVE BEEN INSTALLED, BUT PRIOR TO WIRING
1 & 2 / 225 PORTAL 1 LETTER PLACEMENT
SCALE: 5/8"=1'-0"
NOTES:
PAY ATTENTION TO WHERE THE DIMENSION SNAPPED TO LETTER
USE 1X2 CONNECTING BOARDS TO CONNECT THE LETTERS TO THE OUTER CORD
PAINT THE ATTACHMENT BOARDS BLACK
ATTACH LETTERS BEFORE INSTALL SO LX CAN WIRE THEM
ALL MEASUREMENTS ARE THE OUTSIDE EDGE OF OUTER PLY CORD
LETTERS "FLOAT" 1.5" OFF OF THE OUTER PLY CORD
S I U
Ride the Cyclone
PORTALS
PORTAL LETTER
DIRECTOR GABRIEL CLARK
SCENIC DESIGNER DAVID GOLDSTEIN
LIGHTING DESIGNER LENNY LIVELY
DRAWN BY LL
DRAWING NO. RTC_01
DATE 8-15-2023
FILE
REV 1 DATE 2
REV 2 DATE 3
BUILD TIME
DAY / # OF CREWS
TIME
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE:
223

1/224 70 TRUSS BRACKETS CNC



CUT 2

2/224 5 TRUSS BRACKETS & JACKS CNC



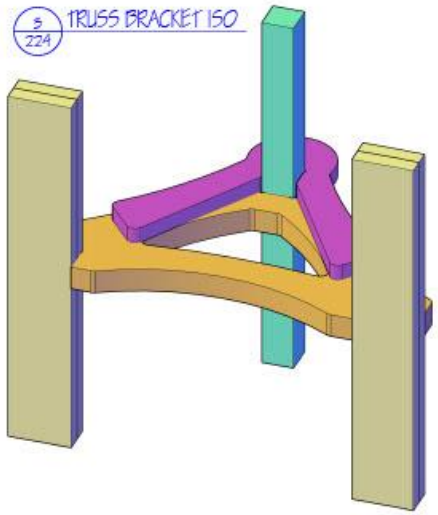
1 & 2/224 TRUSS BRACKETS AND JACKS CNC

NOTES:
PURPLE = OUTSIDE PROFILE
GREEN = INSIDE PROFILE
1/4" END MILL
5/4" COX PLY
CUT TWO OF 224.1
CUT ONE OF 224.2

SCALE: 5/4"=1'-0"

NOTES:
- EACH TRUSS BRACKET HAS TWO PIECES
- THE TWO PIECE SANDWICH THE ROLLERBENT 1" BOX TUBE
- WOOD GLUE AND SCREW THE BRACKETS
- PAINT BRACKETS AND JACKS BLACK BEFORE INSTALL
- LIBERALLY COAT THE BRACKET AROUND JOINT WITH STEEL IN CONSTRUCTION ADHESIVE (LIQUID NAILS)
- POSITION THE BRACKETS ON CENTER ACCORDING TO DIMENSIONS ON 217-221

5/224 TRUSS BRACKET ISO



Ride the Cyclone

PORTALS

TRUSS BRACKETS

DIRECTOR: ISABEL CLARK
SCENIC DESIGNER: DAVID GOLDSTEIN
TECH DIRECTOR: LENNY LIVELY
DRAWN BY: LL
CHECKED BY:
DATE: 5-14-2025
FILE:
REV 1: DATE 2
REV 2:
REV 3: DATE 3

BUILD TIME

DAY / # OF CREWS	HRS

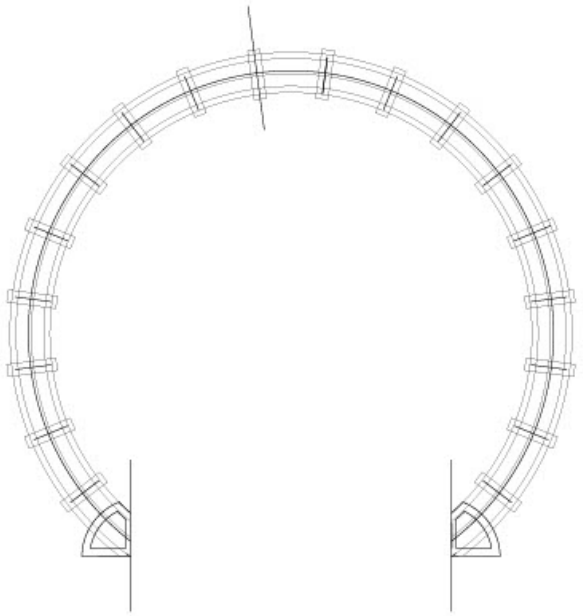
MATERIALS USED

MATERIAL	QUANTITY

SCALE: AS NOTED

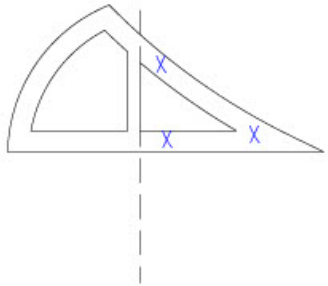
PLATE:

224



BUILD P3.1 & P3.2 AS DRAFTED
BUT THEN CUT OFF PORTION INDICATED

CUT ALONG THIS LINE



Ride the Cyclone

PORTALS

P3 AMENDMENT

DIRECTOR: DARRIL CLARK
SCENIC DESIGNER: DAVID GOLDSTEIN
TECH DESIGNER: LENNY LIVELY
DWG BY: LL
DRAWING NO.: RTC_01
DATE: 8-15-2025
FILE:
REV 1: DATE 2
REV 2: DATE 3

BUILD TIME

DAY / # OF CREWS	HRS

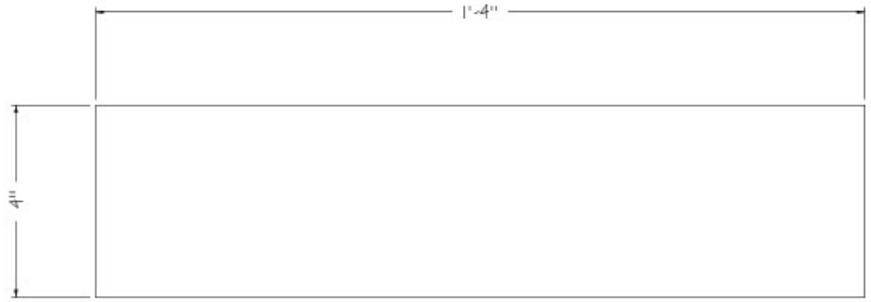
MATERIALS USED

MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE:

225



CUT 70 OF FOAM AND LAUAN

1/510 XTIES

NOTES:

SCALE: 6"=1'-0"

5/16" LAUAN & 1" XPS FOAM
CUT 70
GIVE FOAM TO PAINTS, LAUAN TO TOAST
WILL ATTACH FOAM TO LAUAN WHEN WE ATTACH IT TO PORTALS
LAUAN IS STAPLED TO PLY RAILS AND FOAM IS ATTACHED TO LAUAN FROM BACK

Ride the Cyclone

PORTALS

P3 AMENDMENT

DIRECTOR: GABRIEL CLARK
ASSOC. DESIGNER: DAVID GOLDSTEIN
TECH DIRECTOR: LENNY LIVELY
DRG NO.: LL
REVISION NO.: REC...01
DATE: 8-15-2025
FILE:
SHT #: SHT 2
REV #: SHT 9

BUILD TIME

DAY / # OF CHIPS	HRS

MATERIALS USED

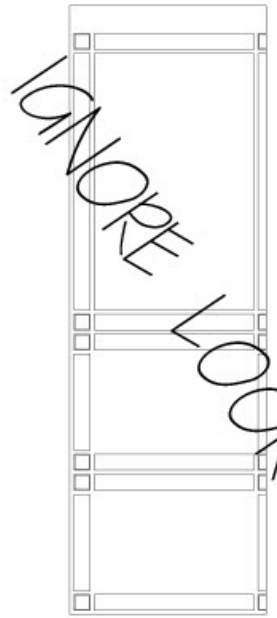
MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE:

225

1/300 KARNAK BOX APPLIQUES SIDE



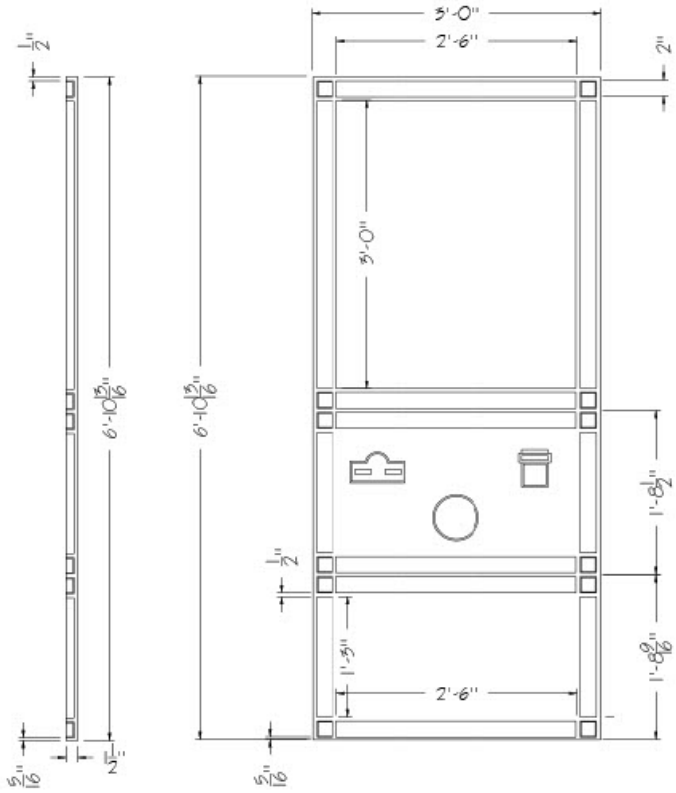
RECTANGLES = BEAD BOARD
LINE OF BEAD BOARD GOES
WITH DIRECTION OF THE PIECE

LAUAN SQUARE DETAILS 303.4

1/2" GAP BETWEEN APPLIQUES

APPLIQUES ARE SPLIT IN HALF
AT THE DOOR BREAK

2/300 KARNAK BOX: APPLIQUE DETAILS FRONT



Ride the Cyclone

KARNAK BOX
DETAIL
DIRECTOR: DARRYL CLARK
SCENIC DESIGNER: DAVID GOLDSTEIN
COSTUME DESIGNER: LENNY LIVELY
DRAWN BY: LL
DOCUMENT SIZE: ANSI D
DATE: 1-26-2023
FILE: Karnak Box
SHEET #: SHEET 2
REV #: SHEET 9

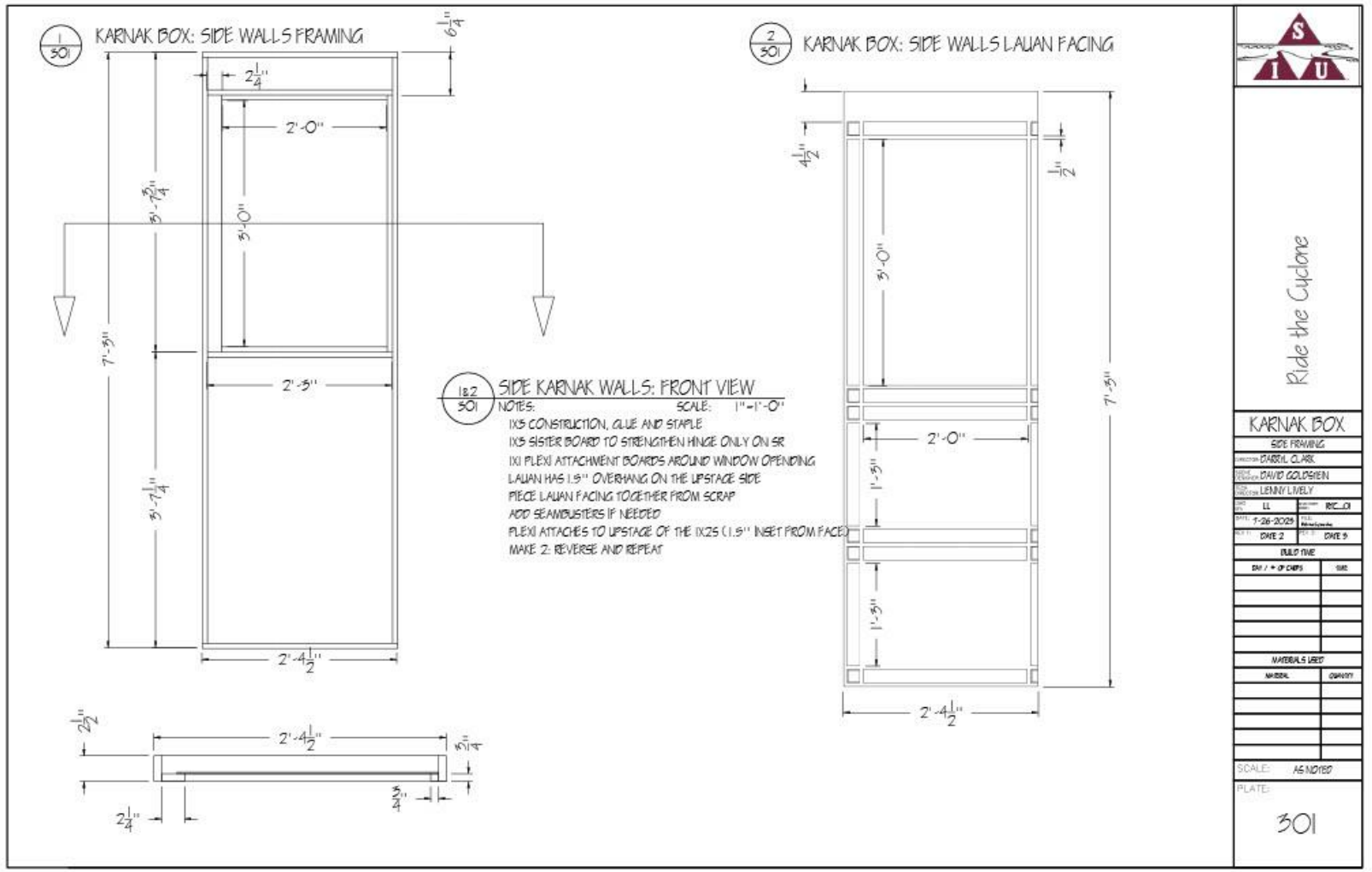
BUILD TIME

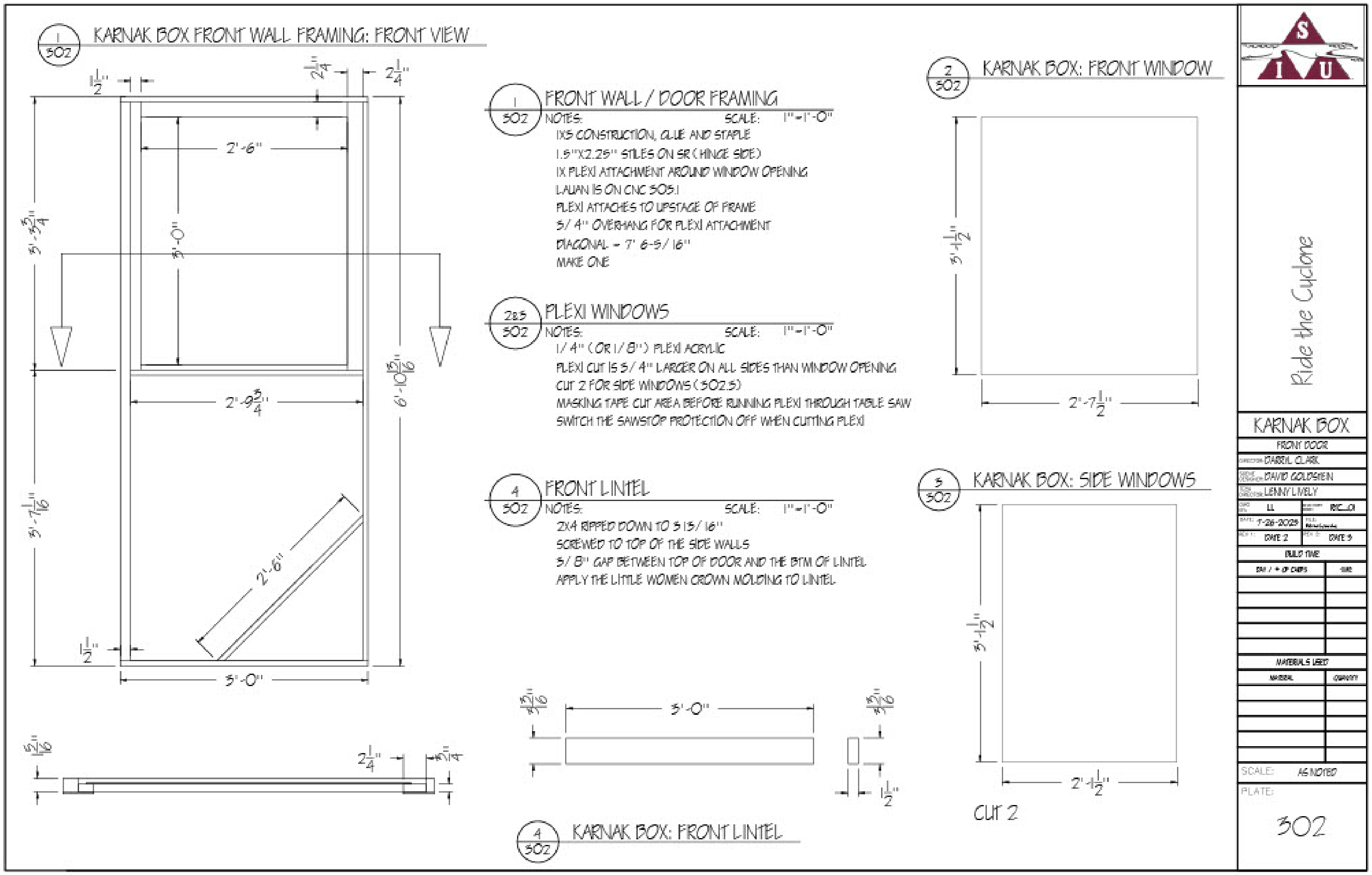
DAY / # OF CREWS	HRS

MATERIALS USED

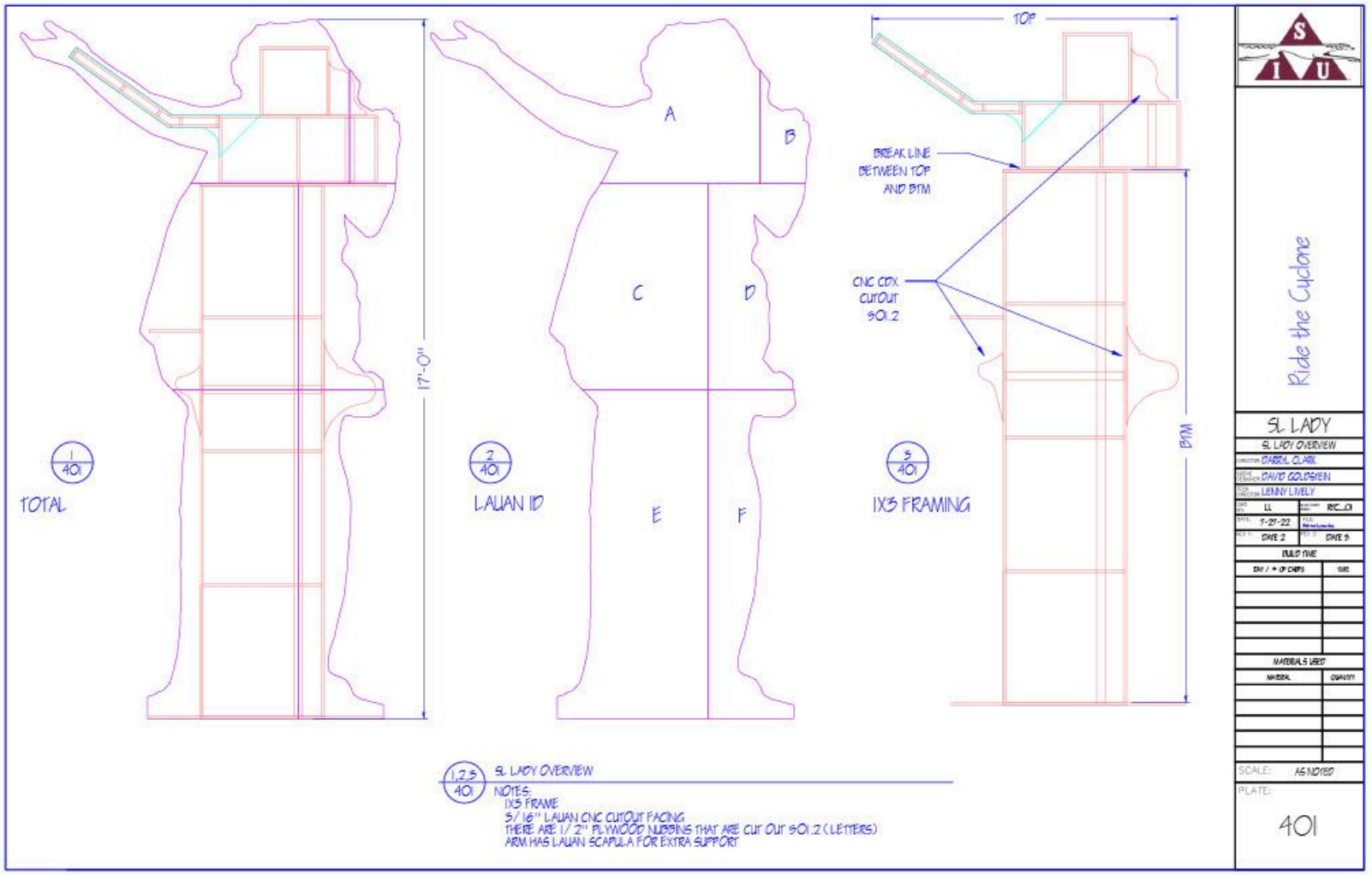
MATERIAL	QUANTITY

SCALE: AS NOTED
PLATE:
300

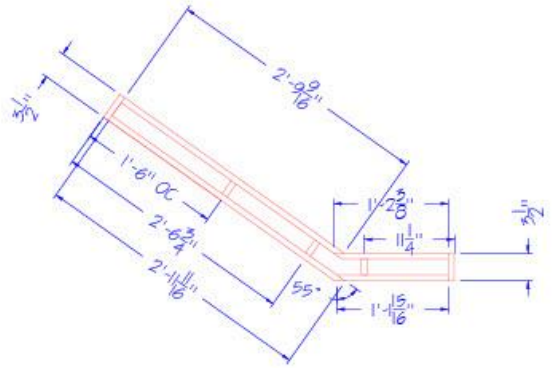

1/501
KARNAK BOX: SIDE WALLS FRAMING
2 1/501
KARNAK BOX: SIDE WALLS LAUAN FACING
1&2/501
SIDE KARNAK WALLS: FRONT VIEW
NOTES: SCALE: 1"=1'-0"
1X5 CONSTRUCTION, GLUE AND STAPLE
1X5 SISTER BOARD TO STRENGTHEN HINGE ONLY ON SR
1X1 PLEXI ATTACHMENT BOARDS AROUND WINDOW OPENDING
LAUAN HAS 1.5" OVERHANG ON THE UPSTAGE SIDE
PIECE LAUAN FACING TOGETHER FROM SCRAP
ADD SEAMBUSTERS IF NEEDED
PLEXI ATTACHES TO UPSTAGE OF THE 1X2S (1.5" INSET FROM FACE)
MAKE 2: REVERSE AND REPEAT
6 1/4"
2 1/4"
2'-0"
5'-7 3/4"
5'-0"
7'-5"
2'-5"
5'-7 1/4"
2'-4 1/2"
4 1/2"
1/2"
1'-5"
2 1/2"
5/4
3/4"
Ride the Cyclone
KARNAK BOX
SIDE FRAMING
DIRECTOR GABRIEL CLARK
SCENIC DESIGNER DAVID GOLDSTEIN
TECH DESIGNER LENNY LIVELY
DRAWN BY LL
DATE 1-26-2025
DATE 2
DATE 3
BUILD TIME
DAY / # OF CREPS
HRS
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE:
301



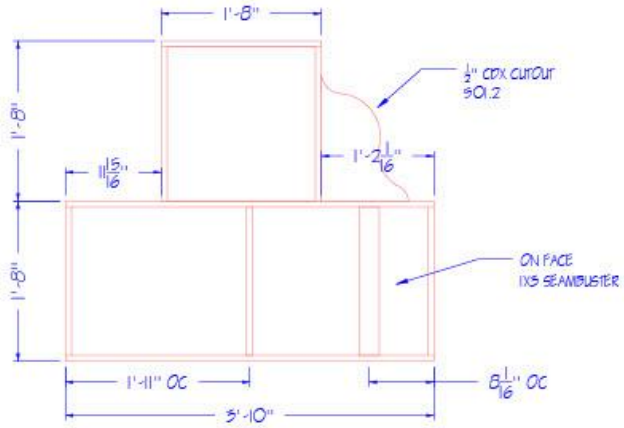
1/302 KARNAK BOX FRONT WALL FRAMING: FRONT VIEW
1/302 FRONT WALL / DOOR FRAMING
NOTES: SCALE: 1"=1'-0"
1X5 CONSTRUCTION, GLUE AND STAPLE
1.5"X2.25" STILES ON SR (HINGE SIDE)
1X PLEXI ATTACHMENT AROUND WINDOW OPENING
LAUAN IS ON CNC 303.1
PLEXI ATTACHES TO UPSTAGE OF FRAME
3/4" OVERHANG FOR PLEXI ATTACHMENT
DIAGONAL = 7' 6-5/16"
MAKE ONE
2&3/302 PLEXI WINDOWS
NOTES: SCALE: 1"=1'-0"
1/4" (OR 1/8") PLEXI ACRYLIC
PLEXI CUT IS 3/4" LARGER ON ALL SIDES THAN WINDOW OPENING
CUT 2 FOR SIDE WINDOWS (302.3)
MASKING TAPE CUT AREA BEFORE RUNNING PLEXI THROUGH TABLE SAW
SWITCH THE SAWSTOP PROTECTION OFF WHEN CUTTING PLEXI
4/302 FRONT LINTEL
NOTES: SCALE: 1"=1'-0"
2X4 RIPPED DOWN TO 3 13/16"
SCREWED TO TOP OF THE SIDE WALLS
3/8" GAP BETWEEN TOP OF DOOR AND THE BTM OF LINTEL
APPLY THE LITTLE WOMEN CROWN MOLDING TO LINTEL
4/302 KARNAK BOX: FRONT LINTEL
2/302 KARNAK BOX: FRONT WINDOW
3/302 KARNAK BOX: SIDE WINDOWS
CUT 2
Ride the Cyclone
KARNAK BOX
FRONT DOOR
DIRECTOR DARRIL CLARK
DAVID GOLDSTEIN
LENNY LIVELY
LL
7-26-2023
DATE 2
DATE 3
BUILD TIME
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE: 302


17'-0"
A
B
C
D
E
F
TOP
BTM
BREAK LINE BETWEEN TOP AND BTM
CNC CDX CUTOUT SOL.2
1 401
TOTAL
2 401
LAUAN ID
3 401
IX3 FRAMING
1,2,3 401
SL LADY OVERVIEW
NOTES:
IX3 FRAME
5/16" LAUAN CNC CUTOUT FACING
THERE ARE 1/ 2" PLYWOOD NUBBINS THAT ARE CUT OUT SOL.2 (LETTERS)
ARM HAS LAUAN SCAPULA FOR EXTRA SUPPORT
Ride the Cyclone
SL LADY
SL LADY OVERVIEW
GABRIEL CLARK
DAVID GOLDSHEIN
LENNY LIVELY
LL
11-21-22
DATE 2
DATE 3
BUILD TIME
DAY / # OF CHIPS
TIME
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE:
401

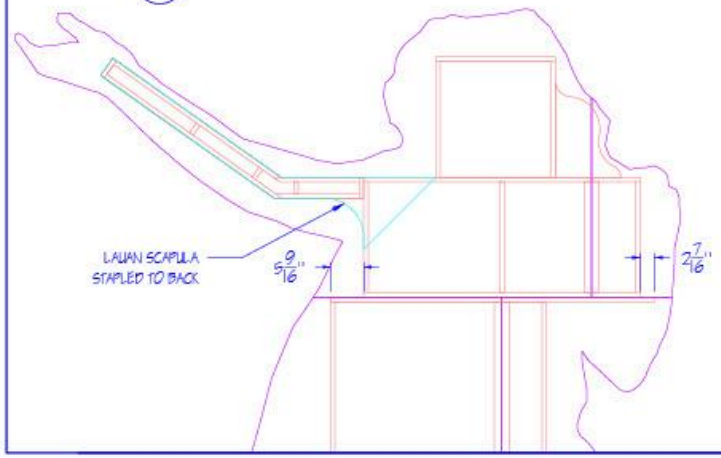
1/402 LADY ARM FRAMING: FRONT VIEW



2/402 LADY HEAD AND SHOULDERS FRAMING: FRONT VIEW



5/402 LADY TOP ASSEMBLY: FRONT VIEW



1,2,5/402 LADY TOP FRAMING: FRONT VIEWS

SCALE: 1"=1'-0"

NOTES:

IX5 (.75X1.5") FRAMING
STAPLE AND GLUE
ATTACH ARM TO "SHOULDER" WITH THE LAUAN SCAPULA CNC CUTOUT
AMOEBA-LIKE SHAPE IS A 1/ 2" CDX CNC PLY SEAMBUSTER - FLUSH TO FRONT
MAKE TWO
REVERSE AND REPEAT
SL LADY IS DEPICTED, SR WILL BE THE REVERSE OF WHAT IS PICTURED
GLUE LAUAN TO FRAME - NARROW CROWN STAPLE

S I U

Ride the Cyclone

LADIES

LADY TOPS

DIRECTOR: ISABEL CLARK
SCENIC DESIGNER: DAVID GOLDSTEIN
TECHNICAL DIRECTOR: LENNY LIVELY
DRAWN BY: LL
DATE: 1-28-22
DATE 2
DATE 3

BUILD TIME

DAY / # OF CREWS	TIME

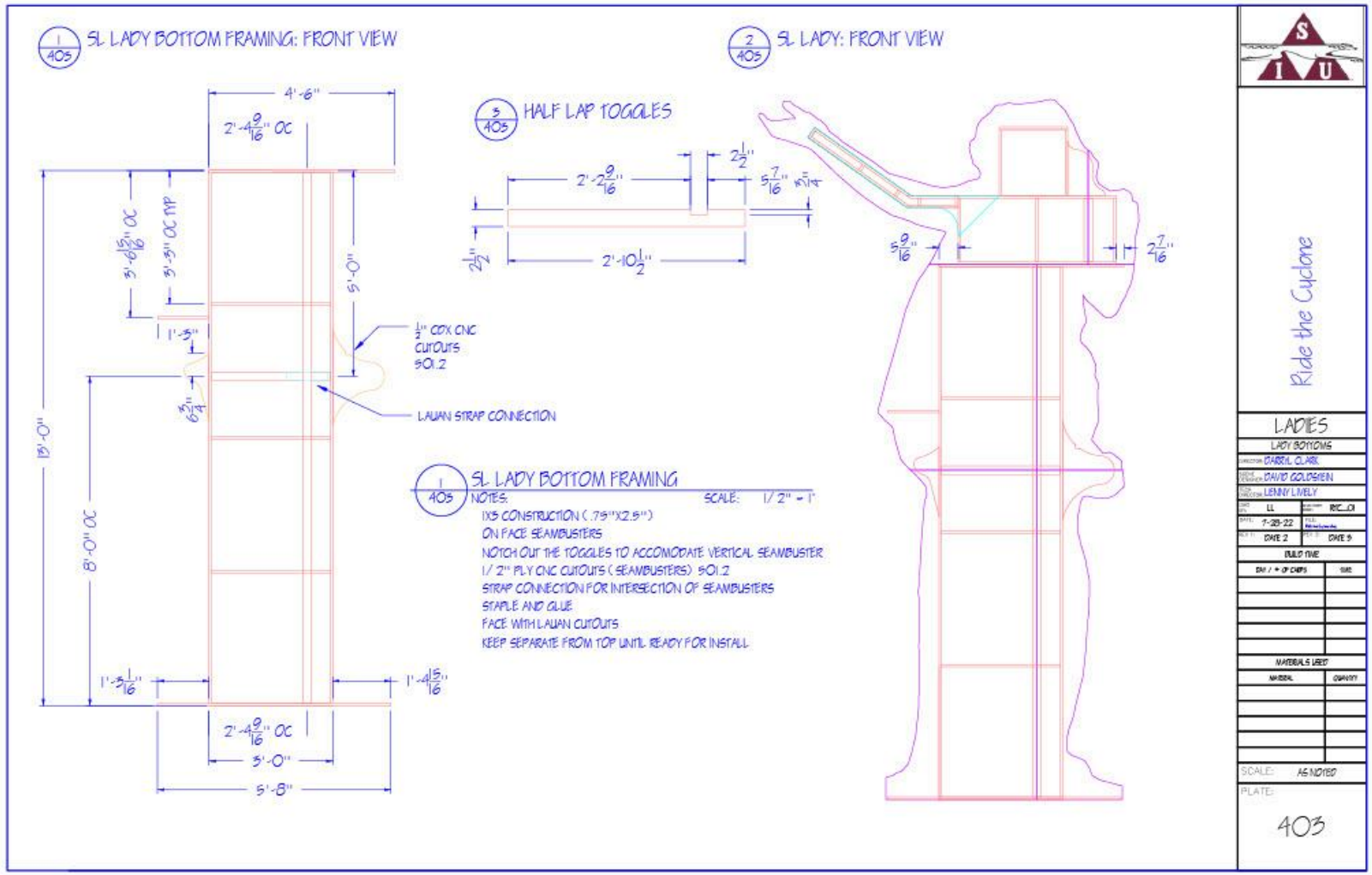
MATERIALS USED

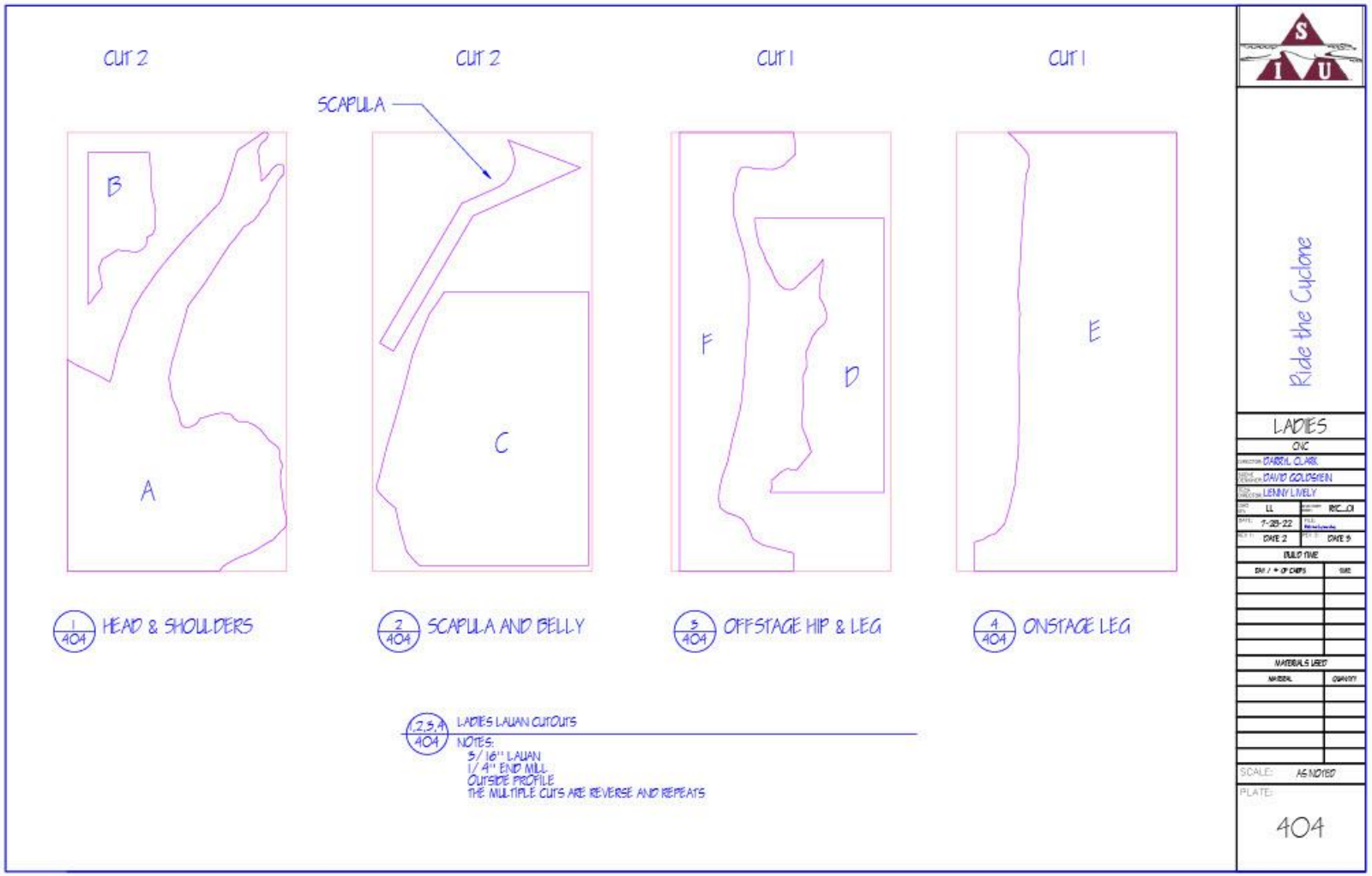
MATERIAL	QUANTITY

SCALE: AS NOTED

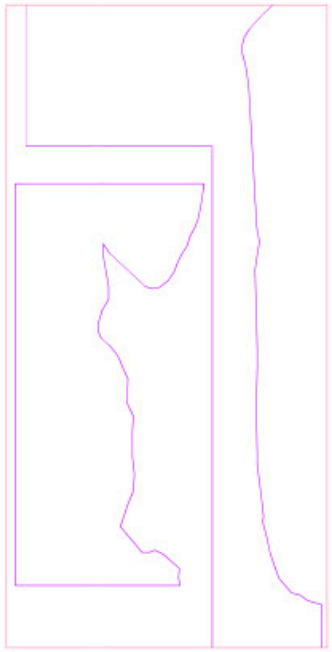
PLATE:

402

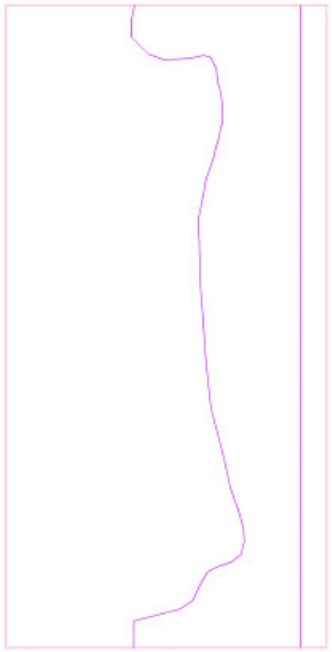

1/405 SL LADY BOTTOM FRAMING: FRONT VIEW
2/405 SL LADY: FRONT VIEW
5/405 HALF LAP TOGGLES
4'-6"
2'-4 9/16" OC
5'-0"
15'-0"
8'-0" OC
1'-3"
1'-5 1/16"
1'-4 15/16"
5'-8"
1/2" CDX CNC CUTOUTS SOL.2
LAUAN STRAP CONNECTION
1/405 SL LADY BOTTOM FRAMING
NOTES: SCALE: 1/2" = 1"
IX5 CONSTRUCTION (.75"X2.5")
ON FACE SEAMBUSTERS
NOTCH OUT THE TOGGLES TO ACCOMODATE VERTICAL SEAMBUSTER
1/2" PLY CNC CUTOUTS (SEAMBUSTERS) SOL.2
STRAP CONNECTION FOR INTERSECTION OF SEAMBUSTERS
STAPLE AND GLUE
FACE WITH LAUAN CUTOUTS
KEEP SEPARATE FROM TOP UNTIL READY FOR INSTALL
Ride the Cyclone
LADIES
LADY BOTTOMS
GABRIEL CLARK
DAVID GOLDSHEIN
LENNY LIVELY
1-28-22
DATE 2
DATE 3
BUILD TIME
MATERIALS USED
SCALE: AS NOTED
PLATE:
403


CUT 2
CUT 2
CUT 1
CUT 1
SCAPULA
B
A
C
F
D
E
1/404 HEAD & SHOULDERS
2/404 SCAPULA AND BELLY
3/404 OFFSTAGE HIP & LEG
4/404 ONSTAGE LEG
1,2,3,4/404 LADIES LAUAN CUTOUTS
NOTES:
5/16" LAUAN
1/4" END MILL
OUTSIDE PROFILE
THE MULTIPLE CUTS ARE REVERSE AND REPEATS
Ride the Cyclone
LADIES
CNC
GABRIEL CLARK
DAVID GOLDSTEIN
LENNY LIVELY
1-28-22
DATE 2
DATE 3
BUILD TIME
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE:
404

1/405 SR LADY ONSTAGE LEG & HIP



2/405 SR LADY OFFSTAGE LEG



18.2/405 SR LADY LAUAN CUTOUTS DOOR

NOTES:
5/16" LAUAN
1/4" END MILL
OUTSIDE PROFILE
CUT ONE OF EACH

Ride the Cyclone

LADIES

ONE 2

DIRECTOR: GABRIEL CLARK
SCENIC DESIGNER: DAVID GOLDSTEIN
SOUND DESIGNER: LENNY LIVELY
DRAWN BY: LL
CHECKED BY: RYC...CK
DATE: 1-28-22
FILE:
REV #: ONE 2
REV #: ONE 3

BUILD TIME

DAY / # OF CREPS	TIME

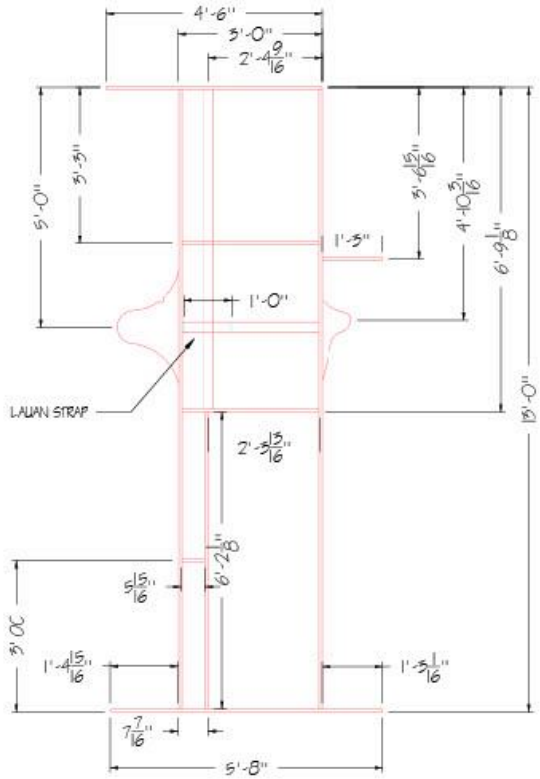
MATERIALS USED

MATERIAL	QUANTITY

SCALE: AS NOTED

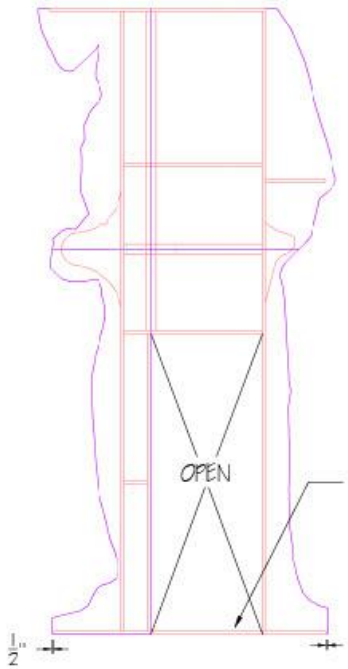
PLATE:

405



1/406 SR LADY BOTTOM FRAMING: FRONT VIEW

NOTES:
1X5 CONSTRUCTION, GLUE AND STAPLE
1 HALF LAPPED TOGGLE (SEE 405.5)
NUDS ARE 1/ 2" CDX PLY CNC CUTOUTS (SEE 501.2)
MAKE ONE



2/406 SR LADY LAUAN LAYOUT

NOTES:
FACE WITH CUTOUT'S FROM 405.1&2 AND 404.2&5
DOOR WAY IS OPEN
ELMERS GLUE AND NARROW CROWN STAPLES
KEEP SEPARATE FROM TOP UNTIL INSTALL

S I U

Ride the Cyclone

LADIES

SR LADY BTM FRAMING

DIRECTOR: GABRIEL CLARK
ASSOC. DESIGNER: DAVID GOLDSTEIN
TECH DIRECTOR: LENNY LIVELY
DRAWN BY: LL
CHECKED BY: RKC...CK
DATE: 7-25-22
REVISIONS
DATE 2
DATE 3

BUILD TIME

DAY / # OF CREPS	TIME

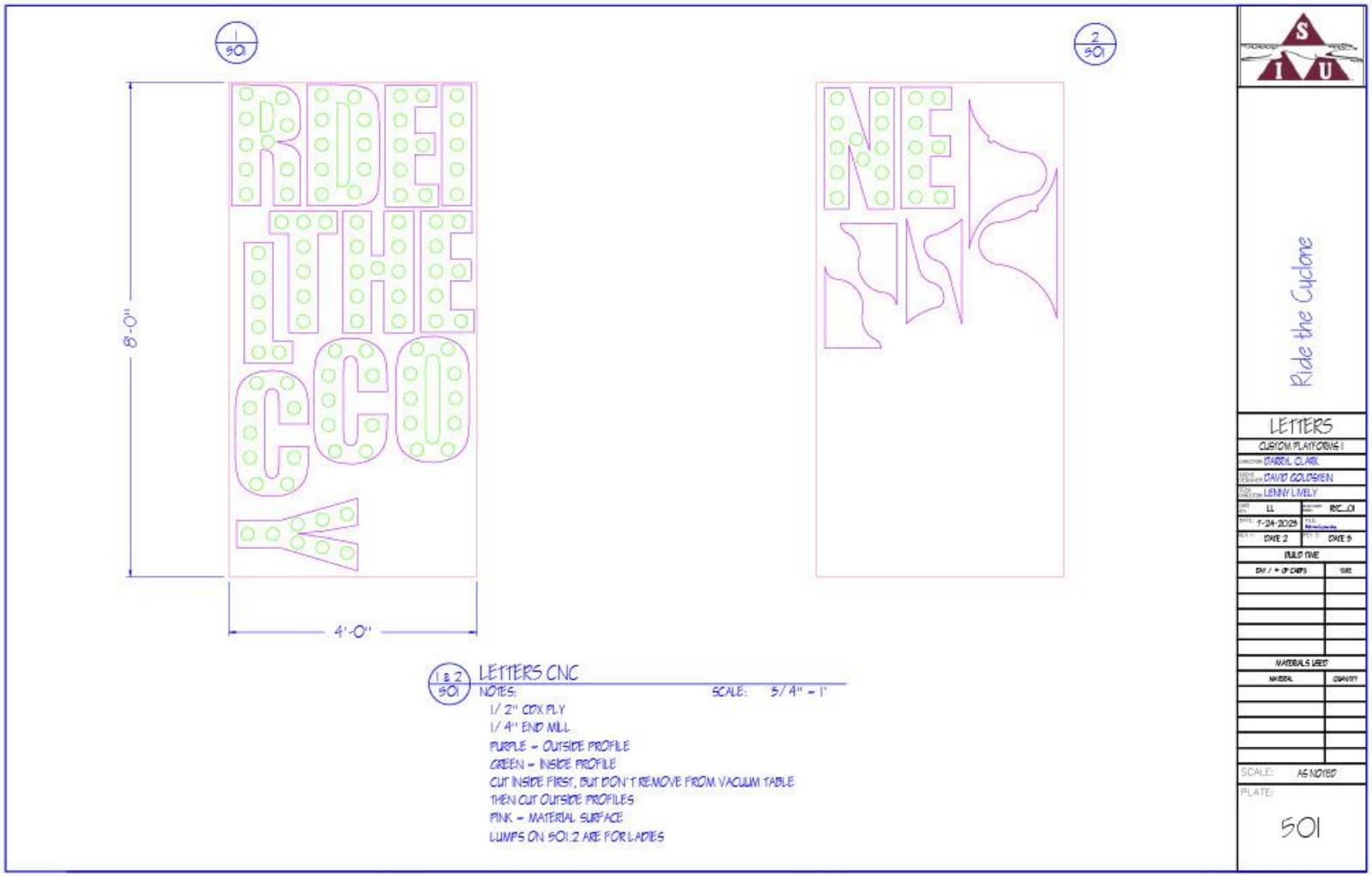
MATERIALS USED

MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE:

406



1 & 2 / 501 LETTERS CNC

NOTES: SCALE: 5/4" = 1'

1/ 2" CDX PLY
1/ 4" END MILL
PURPLE = OUTSIDE PROFILE
GREEN = INSIDE PROFILE
CUT INSIDE FIRST, BUT DON'T REMOVE FROM VACUUM TABLE
THEN CUT OUTSIDE PROFILES
PINK = MATERIAL SURFACE
LUMPS ON 501.2 ARE FOR LADIES

Ride the Cyclone

LETTERS

CUSTOM PLATFORM 1

DIRECTOR: GABRIEL CLARK
SCENIC DESIGNER: DAVID GOLDSTEIN
COSTUME DESIGNER: LENNY LIVELY
LIGHTING DESIGNER: LL
SOUND DESIGNER: RSC...CK
DATE: 1-24-2025
DATE 2
DATE 3

BUILD TIME

DAY / # OF CHIPS	TIME

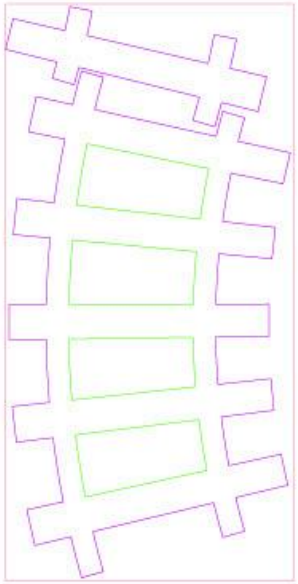
MATERIALS USED

MATERIAL	QUANTITY

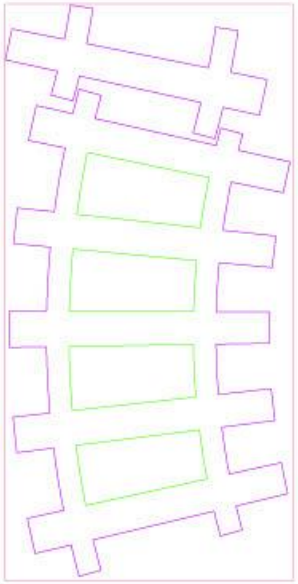
SCALE: AS NOTED

PLATE: 501

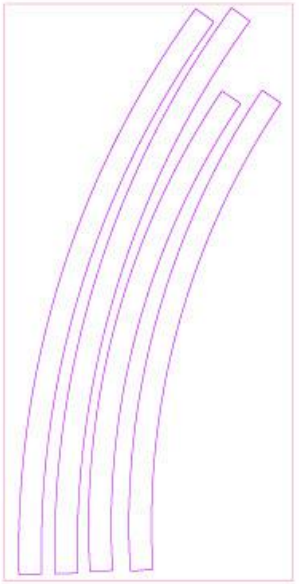
1/502 CUT 2; 1" XPS



2/502 CUT 2; 3/16" LAUAN



5/502 CUT 1; 2" XPS



1,2&5/502 WRECKAGE CNC

NOTES: SCALE: 5/4" = 1'

1" AND 2" EXTRUDED POLYSTYRENE
5/16" LAUAN
PURPLE = OUTSIDE PROFILE
GREEN = INSIDE PROFILE
CUT INSIDE FIRST, BUT DON'T REMOVE FROM VACUUM TABLE
THEN CUT OUTSIDE PROFILES
PINK = MATERIAL SURFACE
502.1 & 502.2 = CUT 2

S I U

Ride the Cyclone

WRECKAGE

WRECKAGE CNC

DIRECTOR GABRIEL CLARK
SCENIC DESIGNER DAVID GOLDSTEIN
TECH DIRECTOR LENNY LIVELY
CNC OP'S LL
DRAWN BY CN
DATE: 1-24-2025
REV 1: DATE 2
REV 2: DATE 3

BUILD TIME

DAY / # OF CREWS	TIME

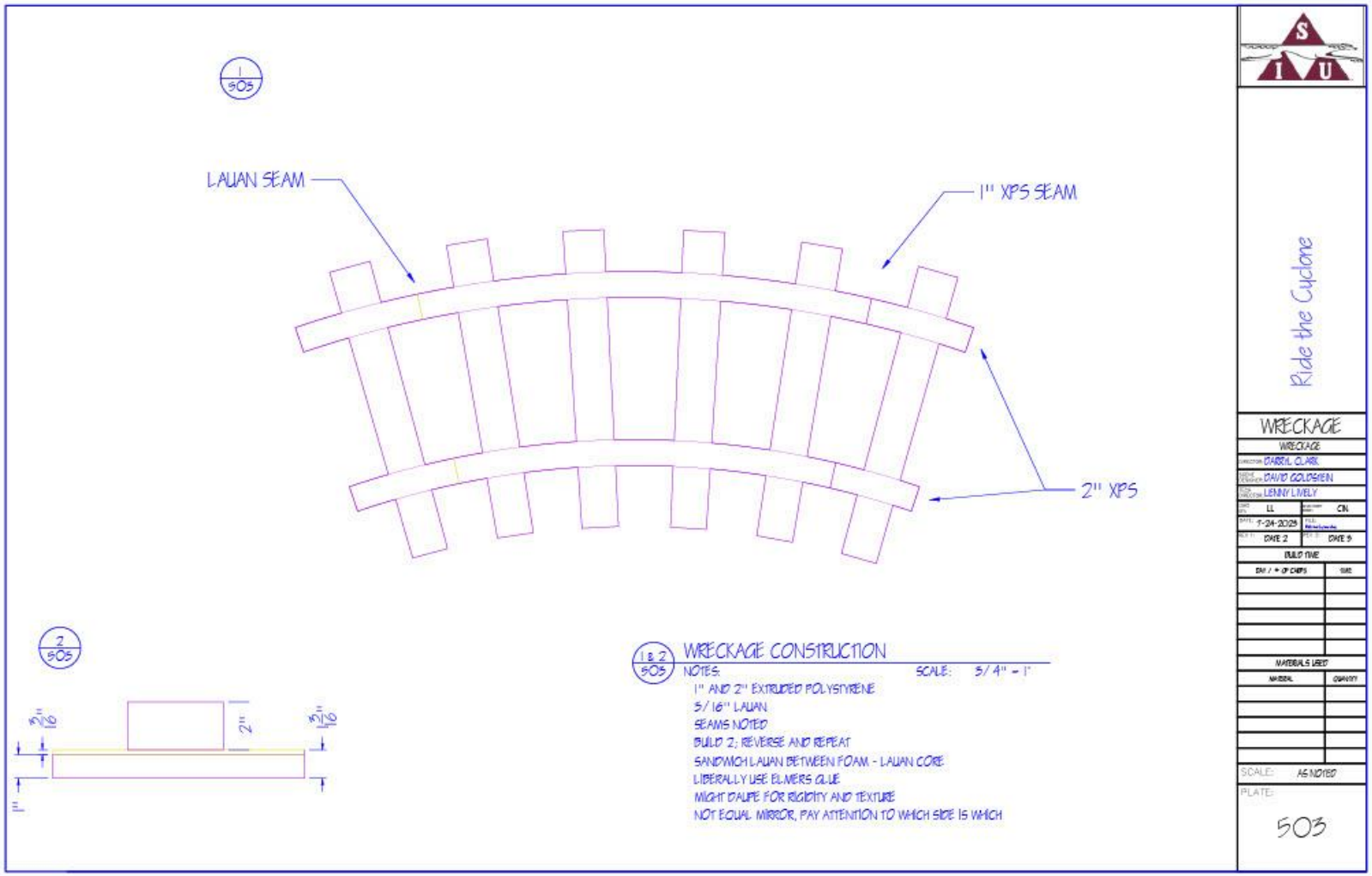
MATERIALS USED

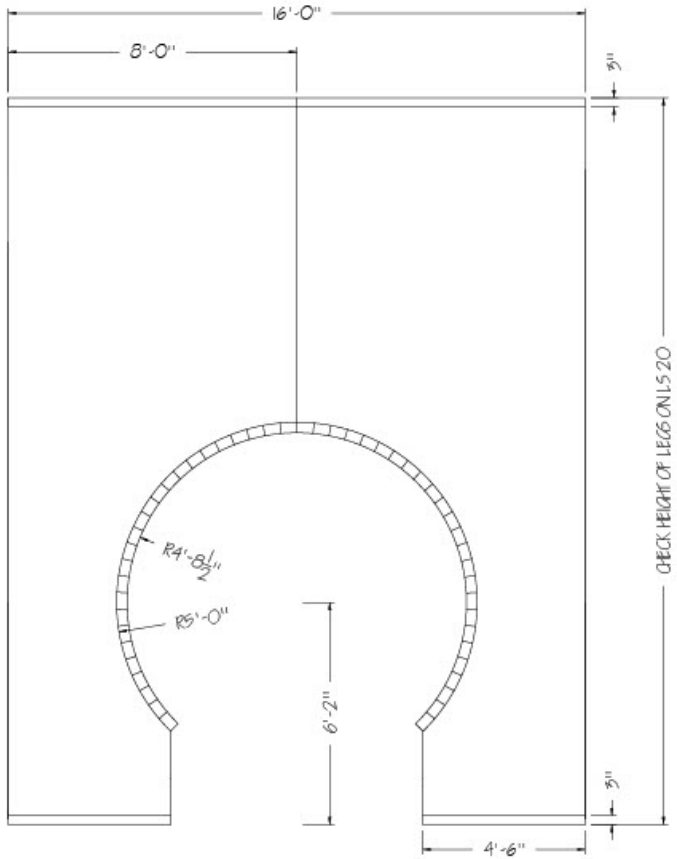
MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE:

502


1
505
LAUAN SEAM
1" XPS SEAM
2" XPS
2
505
3/16"
2"
3/16"
1"
1 & 2
505
WRECKAGE CONSTRUCTION
NOTES:
SCALE: 5/4" = 1"
1" AND 2" EXTRUDED POLYSTYRENE
5/16" LAUAN
SEAMS NOTED
BUILD 2; REVERSE AND REPEAT
SANDWICH LAUAN BETWEEN FOAM - LAUAN CORE
LIBERALLY USE ELMERS GLUE
MIGHT DALPE FOR RIGIDITY AND TEXTURE
NOT EQUAL MIRROR, PAY ATTENTION TO WHICH SIDE IS WHICH
S
I U
Ride the Cyclone
WRECKAGE
WRECKAGE
DIRECTOR GABRIEL CLARK
SCENIC DESIGNER DAVID GOLDSTEIN
COSTUME DESIGNER LENNY LIVELY
LIGHT DES. LL
SOUND DES. CN
DATE: 1-24-2025
DATE 2
DATE 3
BUILD TIME
DAY / # OF CREWS
TIME
MATERIALS USED
MATERIAL
QUANTITY
SCALE: AS NOTED
PLATE:
505

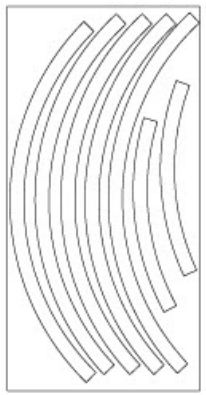


1/601 BLACK MASKING PORTAL

NOTES: SCALE: 3/8"=1'-0"

8 OZ DUVETYNE
SIMPLE SEWN SEAM DOWN MIDDLE
5" POCKET SEWN AT BOTTOM AND TOP
TOP FOR GROMMET REINFORCEMENT
BOTTOMS TO CONTAIN BOTTOM PIPE
SMALLER RADIUS IS FOR CUT TABS
5' RADIUS IS ACTUAL SIZE OPENING
WILL GLUE AND STAPLE LAUAN BACKER AND FOLD TABS OVER

2/601 LAUAN BACKER CNC



Ride the Cyclone

MASKING

CUSTOM PORTAL MASKING

DIRECTOR GABRIEL CLARK
SCENIC DESIGNER DAVID GOLDSTEIN
COSTUME DESIGNER LENNY LIVELY
CAD LL
DRAWING NO. RTC_01
DATE 9-20-2019
REV. BY
SHEET DATE 2
REV. DATE 9

BUILD TIME

DAY / # OF CREWS	HRS

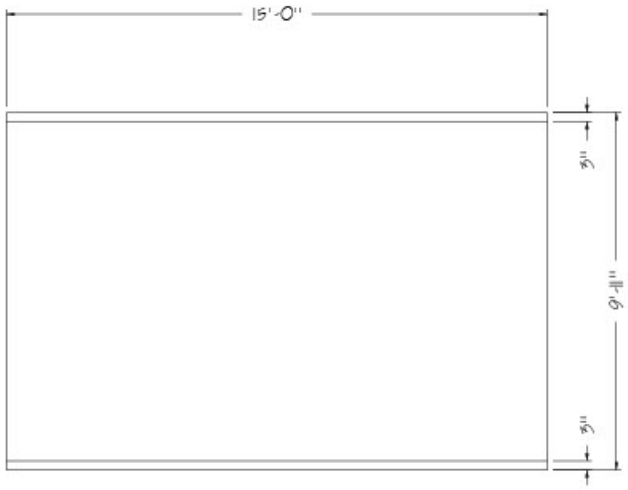
MATERIALS USED

MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE:

601



1/602 BLACK MASKING PORTAL

SCALE: 3/8"=1'-0"

NOTES:

WHITE CELTIC CLOTH
WHOLE PIECE
5" POCKET SEWN AT BOTTOM AND TOP
TOP FOR GROMMET REINFORCEMENT
BOTTOMS TO CONTAIN BOTTOM PIPE
GROMMET EVERY 6" ON TOP

Ride the Cyclone

CURTAINS

RP SCREEN

DIRECTOR: GABRIEL CLARK
SCENIC DESIGNER: DAVID GOLDSTEIN
TECH DIRECTOR: LENNY LIVELY
CAD BY: LL
DRAWING NO.: RTC_01
DATE: 9-20-2025
FILE:
REV #: DATE 2
REV #: DATE 3

BUILD TIME

DAY / # OF CREPS	TIME

MATERIALS USED

MATERIAL	QUANTITY

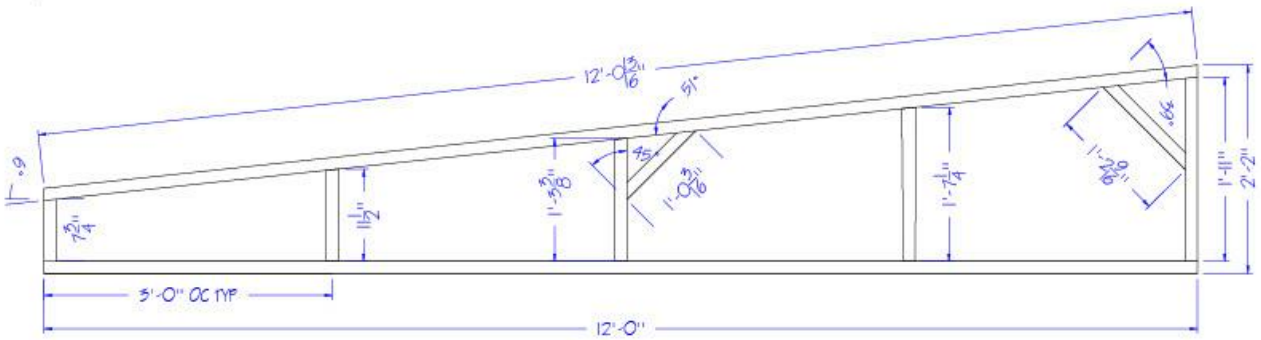
SCALE: AS NOTED

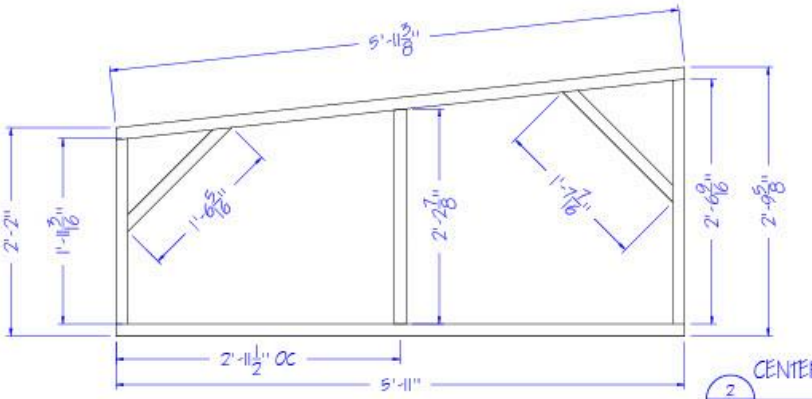
PLATE:

602

CENTER RAKE KNEE WALLS: PART 1

1/702





CENTER RAKE KNEE WALLS: PART 2

2/702

CENTER RAKE KNEEWALLS

1 & 2 / 701

NOTES:

SCALE: 1"=1'-0"

2X4 CONSTRUCTION

WOOD GLUE AND 2.5" DRYWALL SCREWS

MAKE 2 OF EACH

Ride the Cyclone

RAKE

RAKE KNEE WALLS

DIRECTOR GABRIEL CLARK

SCENIC DESIGNER DAVID GOLDSTEIN

COSTUME DESIGNER LENNY LIVELY

CREW NO. LL

DRAWING NO. RKC_01

DATE: 1-22-2025

FILE:

REV 1: DATE 2

REV 2: DATE 3

BUILD TIME

DAY / # OF CREWS	TIME

MATERIALS USED

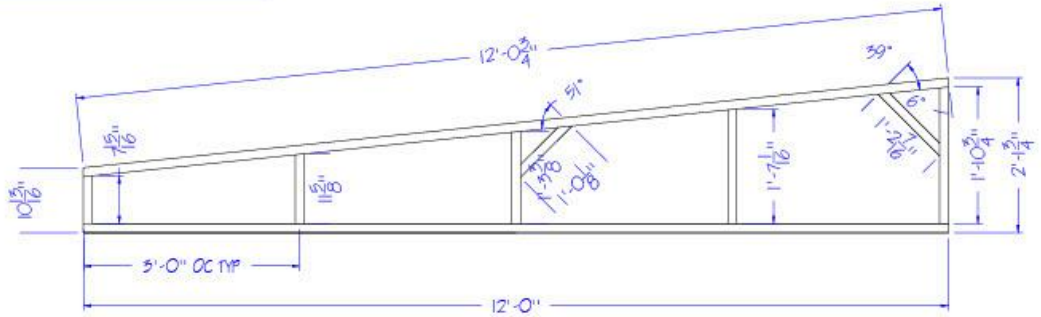
MATERIAL	QUANTITY

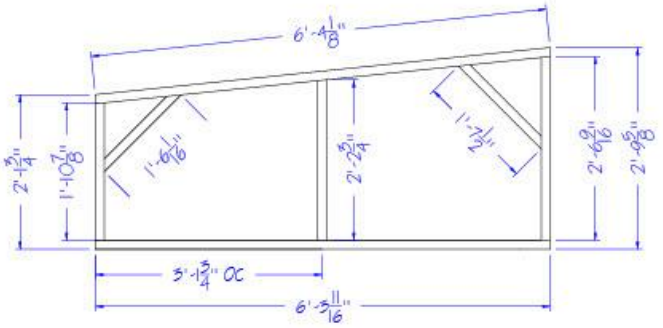
SCALE: AS NOTED

PLATE:

701

1/702 SIDE RAKE KNEE WALLS: PART 1





2/702 SIDE RAKE KNEE WALLS: PART 2

1 & 2/702 RAKE SIDE KNEE WALLS

SCALE: 3/4" = 1'

NOTES:

- 2X3 CONSTRUCTION
- MAKE 2 OF EACH
- RAKE IS 6 DEGREES
- GLUE AND DRYWALL SCREW
- GO ON THE DIAGONAL EDGE OF RAKE PLATFORM
- WILL FACE WITH LAUAN AFTER INSTALL

SIU

Ride the Cyclone

RAKE

RAKE KNEE WALLS

DIRECTOR: ISABEL CLARK

SCENIC DESIGNER: DAVID GOLDSTEIN

TECHNICAL DIRECTOR: LENNY LIVELY

CREW: LL

DRAWN BY: RMC...CK

DATE: 1-22-2025

FILE:

REV 1: DATE 2

REV 2: DATE 3

BUILD TIME

DAY / # OF CREWS	HRS

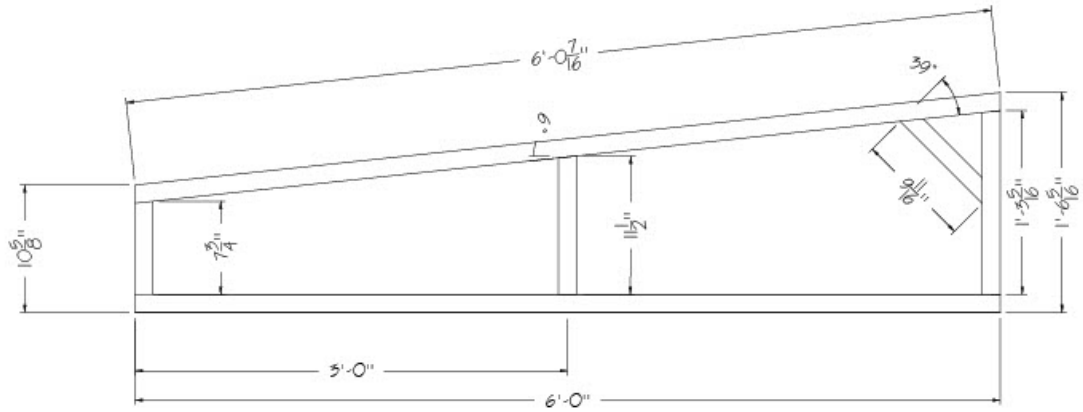
MATERIALS USED

MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE:

702



1 / 705 SHORT KNEE WALL

NOTES:

2X4 CONSTRUCTION

WOOD GLUE AND 2.5" DRYWALL SCREWS

MAKE 2

SCALE: 1.5"=1'-0"

Ride the Cyclone

RAKE

RAKE KNEE WALLS

DIRECTOR: DARRYL CLARK

SCENIC DESIGNER: DAVID GOLDSTEIN

SCENIC DESIGNER: LENNY LIVELY

DWG NO.: LL

DRAWING NO.: RKC_01

DATE: 1-22-2025

REV 1: DATE 2

REV 2: DATE 3

BUILD TIME

DAY / # OF CREPS	HRS

MATERIALS USED

MATERIAL	QUANTITY

SCALE: AS NOTED

PLATE:

703

RTC STRIKE ASSIGNMENTS

Start @ 3:30pm – Sunday, October 15th

READ FIRST

BEFORE YOU START

1. **Read this list to know your task in its entirety**
2. **Sign in with Tom and Lenny**
3. **Get a Hard Hat – REQUIRED**
4. **Find your Supervisor**

EVERYONE KEEP BUSY. IF YOU NEED A JOB, ASK! Check with Lenny Lively about where to put materials and which are saved or trashed. When your task is done, see Tom or your supervisor.

SAVE ALL SHEET GOODS OVER 2'x2' AND LUMBER OVER 2'

DON'T SAVE SCREWS!!!

CREW 1

- Fly out legs and borders
- Help LX remove lights from Portals – return to their cardboard boxes neatly
- Remove letters from P1 – coordinate with Mitchell and Jaemin
- Remove jacks from portals right before we take down each portal – have someone hold portal steady
- When letters and lights have been removed from portals, disconnect at apex, unscrew from floor, and have someone lower it to the deck from the fly rail. Have your crew assist the portals in their descent – move to shop for disassembly
- Strike scrim guide wires
- After boardwalk is closed, remove plumber's strap from beneath the boardwalk
- After boardwalk is closed, remove upstage brackets from boardwalk steel deck
- Unbolt steel deck and make pile with casters on bottom upstage, will move to pit when pit is unlocked
- When stage is clear, sweep the stage and use magnet to pick up screws
- Join with group 2 for soft good strike.
    - Move scrim to lineset 2
    - Strip legs and borders
    - Take traveler off, fold, and put back in box

CREW 1:

CHARLIE LOCKRIDGE

Miles Bengston
Amelia Baron
Seth Worthington
Lucas Reilly
Dominic Tomeczek
Hannah Searles
J'kuion West
Ty Lunn
Phoenix McCoy

RTC STRIKE ASSIGNMENTS

Start @ 3:30pm – Sunday, October 15th

READ FIRST

BEFORE YOU START

1. **Read this list to know your task in its entirety**
2. **Sign in with Lenny**
3. **Get a Hard Hat – REQUIRED**
4. **Find your Supervisor**

EVERYONE KEEP BUSY. IF YOU NEED A JOB, ASK! Check with Lenny Lively about where to put materials and which are saved or trashed. When your task is done, see Tom or your supervisor.

SAVE ALL SHEET GOODS OVER 2'x2' AND LUMBER OVER 2'

DON'T SAVE SCREWS!!!

CREW 2

- Strike Karnak Box and move to shop for disassembly.
- Strike Railings – return key clamps to appropriate bins
- Strike Ladies and move to shop for disassembly
- Strike the projection screen – fold up and give to paint/props
- Strike border on orchestra rail – fold up and return to pit storage
- Strike center masking curtain
- Take up Masonite
- Strip facing/nosing from platforms and rake
- Strip facing from boardwalk and return OSB inserts to shop
- Strike wreckage and throw directly into dumpster
- Remove stock platforms from rake and make a pile upstage (will move down to pit)
- Unscrew rake knee walls from floor and move to shop
- Amputate the legs of all platforms
- When stage is clear, sweep the stage and use magnet to pick up screws
- Combine with crew 1 for soft good strike
    - Move scrim to lineset 2
    - Strip legs and borders
    - Take traveler off, fold, and put back in box

Crew 2:

Uriel Achilleus
Blake Zappa
James Medwedeff
Sydney Ryan
Hayden Hotchkiss
Bella Morris
Bianca Schultz
Lindsey M. Bergman
Gaige Lage

RTC STRIKE ASSIGNMENTS

Start @ 3:30pm – Sunday, October 15TH

READ FIRST

BEFORE YOU START

1. **Read this list to know your task in its entirety**
2. **Sign in with Lenny**
3. **Get eye and hearing protection – hardhat if you go onstage**
4. **Find your Supervisor**

EVERYONE KEEP BUSY. IF YOU NEED A JOB, ASK! Check with Lenny about where to put materials and which are saved or trashed. When your task is done, see Lenny or your group leader.

SAVE ALL SHEET GOODS OVER 2'x2' AND LUMBER OVER 2'

DON'T SAVE SCREWS!!!

CREW 3: DEMOLITION!!!! Lumber and Cleaning Crew

- Distribute Trash Bins around Stage
- Collect lumber from crews
- Clean sheet goods and lumber of **ALL STAPLES & SCREWS**
- Rack sheet goods and lumber when clean
- Empty trash as it fills up
    - If Dumpster is full, neatly stack trash on dock out of way
- Return hardware to appropriate bins in shop
- Cut up bent steel with portaband and put in metal recycling
- Save plexiglass from Karnak's box
- Recover all hardware from units and return to hardware area
- Cut out the lauan arc backer from the center masking portal and save all the black fabric
- The top portion of the ladies do not get destroyed – Grace Reuter wants them
- Escape stairs go straight in dumpster

SAVE ALL SHEET GOODS OVER 2'x2' AND LUMBER OVER 1'

Crew 4:

GABRIEL PRYOR – GROUP LEADER

Abby Ohlau
Malia Jones
Phoenix McCoy
Tae Cotton
Shane Thompson
Imogen Perry
Van Leonard
Grace Reuter (after paint/props strike)
Becca Frye (after paints/props strike)

APPENDIX C

BUDGETING

RIDE THE CYCLONE

General Information

Show Name:	Ride the Cyclone	
Theatre Name:	McLeod Theater	
Estimate by:	Lenny Lively	
Material Budget:	$2,590.00	
Contingency:	10%	$259.00
Shop Time:	210	
Time Contingency:	1.639	*added to each unit*

Show Budget Breakdown

Show Budget		$ 3,700.00
		$ -
Hardware	5%	$ 185.00
Paints	15%	$ 555.00
Props	10%	$ 370.00
Subtotal		$ 1,110.00
Material Budget		$ 2,590.00

Shop Time Available

Date	Workers	Hrs	Wks of Build	Total
Monday	1.75	8	6	84
Tuesday	1.75	4	6	42
Wednesday	1.75	0	6	0
Thursday	1.75	4	6	42
Friday	1.75	4	6	42
		Total:		210

ITEMS NOT BID or NOTES:

Portal Masking needs to be solidified -- bid an even $5

Nothing bid for railings -- use S40 pipe w/ key clamps

Page	Unit	Cost Estimate	Time Estimate
1	1 - Platforms	$401.67	25
2	2 - Portals	$820.42	57
3	3 - Karnak Box	$194.67	18
4	4 - Ladies	$202.31	31
5	5 - Letters & Wreckage	$223.22	18
6	6 - Portal Masking	$577.50	15
7	7 - Rake	$108.66	25
8	8	$0.00	0
9	9	$0.00	0
10	10	$0.00	0
11	11	$0.00	0
12	12	$0.00	0
13	13	$0.00	0
14	14	$0.00	0
15	15	$0.00	0
16	16	$0.00	0
17	17	$0.00	0
18	18	$0.00	0
19	19	$0.00	0
20	20	$0.00	0
	Total:	$2,528.45	189
	Budgeted Amount:	$2,590.00	210
	Surplus (Deficit):	$61.55	21

Theatre:	**McLeod Theater**			**Production:**	**Ride the Cyclone**
Date:	**20-Mar-24**			**By:**	**Lenny Lively**
Unit:	**1 - Platforms**			**Assist:**	
Notes:				***Page:***	*1*

Time Estimate Explanation:

Jump To:

Wood	Hrs.	**Metal**	Hrs.	**Load-IN**	Hrs.
Cutting	3.00	Clean	1.50	Transport	
Layout		Cutting		Finishing	
Assemble	4.00	Drill		Rigging	
Skin	3.00	Jig		Install	0.75
Face		Weld		Automation	
Detail	3.00	Grind		Trouble Shoot	
Molding		Rig		Designer Notes	0.25
Rig					

Main
Price Sheet
Build Schedule
Bill of Materials
Summary Sheet

15.50	Est. Time
* 1.639	Contingency
25	Total Time
Current:	$ 401.67

Call Name	**Materials**	**Unit**	**Unit Pric**	**Quantity**	**Weight**	**Cost**
maso 1/8			$15.00	9.00		135.00
18" SONOTUBE @			$39.99			
2x4x16			$8.80	4.00		35.20
Ply_3/4_CDX	3/4" CDX Plywood	Sht.	$38.99	5.00	352.00	194.95

Total Weight (lbs):	352.00	
Sub-Total:	$	365.15
Contingency:	$	36.52
Total:	$	401.67

Theatre:	**McLeod Theater**				**Production:**	**Ride the Cyclone**			
Date:	**20-Mar-24**				**By:**	**Lenny Lively**			
Unit:	**2 - Portals**				**Assist:**				
Notes:					***Page:***	*2*			
Time Estimate Explanation:						**Jump To:**			
Wood	Hrs.	**Metal**	Hrs.	**Load-IN**	Hrs.	Main			
Cutting	8.00	Clean	4.00	Transport		Price Sheet			
Layout		Cutting	11.00	Finishing		Build Schedule			
Assemble		Drill	4.00	Rigging		Bill of Materials			
Skin		Jig		Install		Summary Sheet			
Face		Weld		Automation					
Detail		Grind		Trouble Shoot			35.00	Est. Time	
Molding		Rig	8.00	Designer Notes			* 1.639	Contingency	
Rig							57	Total Time	
							Current:	$	820.42

Call Name	**Materials**	**Unit**	**Unit Pric**	**Quantity**	**Weight**	**Cost**
Stl_STS_1"_16g	1" SQ Tube, 16 Gauge (.065)	20	$25.00	11.00	181.94	275.00
Lauan_3/16"	3/16" Lauan; 4' x 8'	Sht.	$22.99	1.00	18.00	22.99
FoamPink 1"	1" Pink Foam; 4' x 8'	Sht.	$22.99	1.00	4.16	22.99
Ply_1/2_CDX	1/2" CDX Plywood	Sht.	$27.99	11.00	440.00	307.89
Ply_3/4_CDX	3/4" CDX Plywood	Sht.	$38.99	3.00	211.20	116.97

Total Weight (lbs):	855.30		
Sub-Total:		$	745.84
Contingency:		$	74.58
Total:		$	820.42

Theatre:	**McLeod Theater**	**Production:**	**Ride the Cyclone**
Date:	**20-Mar-24**	**By:**	**Lenny Lively**
Unit:	**3 - Karnak Box**	**Assist:**	
Notes:		***Page:***	*3*

Time Estimate Explanation:

Jump To:

Main
Price Sheet
Build Schedule
Bill of Materials
Summary Sheet

Wood	Hrs.	**Metal**	Hrs.	**Load-IN**	Hrs.
Cutting	2.00	Clean		Transport	
Layout	1.00	Cutting		Finishing	
Assemble	2.00	Drill		Rigging	
Skin	1.00	Jig		Install	
Face		Weld		Automation	
Detail	4.00	Grind		Trouble Shoot	
Molding	1.00	Rig		Designer Notes	
Rig					

11.00	Est. Time
* 1.639	Contingency
18	Total Time
Current:	$ 194.67

Call Name	**Materials**	**Unit**	**Unit Pric**	**Quantity**	**Weight**	**Cost**
Pine 1x6x16	1x6x16' #2 White Pine	16'	$19.52			
Lauan_3/16"	3/16" Lauan; 4' x 8'	Sht.	$22.99	3.00	54.00	68.97
Plexygalss 1/8"	1/8" Plexyglass 3'x6'	Sht.	$108.00	1.00	23.70	108.00

Total Weight (lbs):	77.70	
Sub-Total:	$	176.97
Contingency:	$	17.70
Total:	$	194.67

Theatre:	**McLeod Theater**				**Production:**	**Ride the Cyclone**			
Date:	**20-Mar-24**				**By:**	**Lenny Lively**			
Unit:	**4 - Ladies**				**Assist:**				
Notes:					***Page:***	*4*			
Time Estimate Explanation:						**Jump To:**			
Wood	Hrs.	**Metal**	Hrs.	**Load-IN**	Hrs.	Main			
Cutting		Clean		Transport		Price Sheet			
Layout		Cutting		Finishing		Build Schedule			
Assemble		Drill		Rigging	9.00	Bill of Materials			
Skin	2.00	Jig		Install		Summary Sheet			
Face		Weld		Automation					
Detail	8.00	Grind		Trouble Shoot			19.00	Est. Time	
Molding		Rig		Designer Notes			* 1.639	Contingency	
Rig							31	Total Time	
							Current:	$	202.31
Call Name	**Materials**			**Unit**	**Unit Pric**	**Quantity**	**Weight**	**Cost**	
Lauan_3/16"	3/16" Lauan; 4' x 8'			Sht.	$22.99	8.00	144.00		183.92
Pine 1x6x16	1x6x16' #2 White Pine			16'	$19.52				
						Total Weight (lbs):	144.00		
						Sub-Total:		$	183.92
						Contingency:		$	18.39
						Total:		$	202.31

Theatre:	**McLeod Theater**	**Production:**	**Ride the Cyclone**
Date:	**20-Mar-24**	**By:**	**Lenny Lively**
Unit:	**5 - Letters & Wreckage**	**Assist:**	
Notes:		***Page:***	*5*

Time Estimate Explanation:

Jump To:

Main
Price Sheet
Build Schedule
Bill of Materials
Summary Sheet

Wood	Hrs.	**Metal**	Hrs.	**Load-IN**	Hrs.			
Cutting		Clean		Transport				
Layout		Cutting		Finishing				
Assemble		Drill		Rigging				
Skin		Jig		Install				
Face		Weld		Automation				
Detail	1.00	Grind		Trouble Shoot			11.00	Est. Time
Molding		Rig		Designer Notes			* 1.639	Contingency
Rig	10.00						18	Total Time
							Current:	$ 223.22

Call Name	**Materials**	**Unit**	**Unit Pric**	**Quantity**	**Weight**	**Cost**
Ply_1/2_CDX	1/2" CDX Plywood	Sht.	$27.99	2.00	80.00	55.98
FoamPink 1"	1" Pink Foam; 4' x 8'	Sht.	$22.99	2.00	8.32	45.98
FoamPink 2"	2" Pink Foam; 4' x 8'	Sht.	$54.99	1.00	8.32	54.99
Lauan_3/16"	3/16" Lauan; 4' x 8'	Sht.	$22.99	2.00	36.00	45.98

Total Weight (lbs):	132.64	
Sub-Total:		$ 202.93
Contingency:		$ 20.29
Total:		$ 223.22

Theatre:	**McLeod Theater**	**Production:**	**Ride the Cyclone**
Date:	**20-Mar-24**	**By:**	**Lenny Lively**
Unit:	**6 - Portal Masking**	**Assist:**	
Notes:		***Page:***	*6*

Time Estimate Explanation:

Jump To:

Main
Price Sheet
Build Schedule
Bill of Materials
Summary Sheet

Wood	Hrs.	**Metal**	Hrs.	**Load-IN**	Hrs.
Cutting		Clean		Transport	
Layout		Cutting		Finishing	
Assemble		Drill		Rigging	4.50
Skin		Jig		Install	
Face		Weld		Automation	
Detail		Grind		Trouble Shoot	
Molding		Rig		Designer Notes	
Rig	4.50				

9.00	Est. Time
* 1.639	Contingency
15	Total Time
Current:	$ 577.50

Call Name	**Materials**	**Unit**	**Unit Pric**	**Quantity**	**Weight**	**Cost**
Custom Masking Po			$500.00	1.00		500.00
Muslin extra wide			$25.00	1.00		25.00

Total Weight (lbs):		
Sub-Total:	$	525.00
Contingency:	$	52.50
Total:	$	577.50

Theatre:	**McLeod Theater**			**Production:**	**Ride the Cyclone**
Date:	**20-Mar-24**			**By:**	**Lenny Lively**
Unit:	**7 - Rake**			**Assist:**	
Notes:				***Page:***	*7*

Time Estimate Explanation:

Jump To:

Wood	Hrs.	**Metal**	Hrs.	**Load-IN**	Hrs.
Cutting	3.00	Clean		Transport	
Layout	2.50	Cutting		Finishing	
Assemble	4.00	Drill		Rigging	
Skin		Jig		Install	4
Face		Weld		Automation	
Detail		Grind		Trouble Shoot	2
Molding		Rig		Designer Notes	
Rig					

Main
Price Sheet
Build Schedule
Bill of Materials
Summary Sheet

15.50	Est. Time
* 1.639	Contingency
25	Total Time
Current:	$ 108.66

Call Name	**Materials**	**Unit**	**Unit Pric**	**Quantity**	**Weight**	**Cost**
2x4x16			$8.80	6.00		52.80
Lauan_3/16"	3/16" Lauan; 4' x 8'	Sht.	$22.99	2.00	36.00	45.98

Total Weight (lbs):	36.00	
Sub-Total:	$	98.78
Contingency:	$	9.88
Total:	$	108.66

Ride the Cyclone

Receipt Report - Scenic

Technical Director: Lenny Lively
Southern Illinois University
McLeod Theater
Date: Date of First Receipt Received
Updated on 3/20/2024 11:22

#	Receipt Date	Company	Description	Amount
1	8/22/2023	RP Murphysboro	sheet goods	$1,109.63
2	8/29/2023	JMS Paducah	steel	$264.88
3	9/8/2023	RoseBrand	fabric	$419.46
4	9/9/2023	Lowe's	plexi	$160.68
5	9/12/2023	Ace	Hardware	$152.00
6	9/12/2023	RP Murphysboro	Ply and 2x4s	$206.84
7	9/14/2023	Grainger	Key Clamps	$111.00
8	9/22/2023	Lowe's	Masonite	$69.90
9	10/2/2023	BMI	Sash Cord 200'	$84.50
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Total Budgeted	$2,590.00

Total Spent	$2,578.89
Remaining Budget	$11.11

APPENDIX D

PRODUCTION PHOTOS

VITA

Graduate School
Southern Illinois University Carbondale

Leonard Lively

Lively.leonard@gmail.com

Maryville College

Bachelor of Arts, Theatre/Religious Studies, May 2019

Special Honors and Awards:

Outstanding Senior Thesis Award, 2019

Thesis Paper Title:

Directing a Technical Cyclone

Major Professor: Thomas Fagerholm