HOUSE OF PERFORMANCE:

AN INDOOR-OUTDOOR VENUE FOR AMPLIFIED LIVE MUSIC

by

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submitted by Owen Bronson Marmorek in partial fulfillment of the requirements for

the degree of Master of Fine Arts

in Theatre

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Abstract

This thesis project is a conceptual design for a small performance venue which is specifically made for amplified live music: the House of Performance (HOP). Taking inspiration from the performance-based cultures of the Grateful Dead, Raves, and Burning Man, the project includes conceptual drawings for architectural and structural building design, as well as for live production sound, lighting, video projection, staging and rigging systems.

The HOP is designed to operate in both smaller indoor and larger outdoor configurations, able to change between them by opening or closing three large doors on the venue's rear wall. Accessibility is a major priority, with the aim to exceed building code minimum requirements. It is to be an intimate space with minimal barriers between performers and their audience. It can accommodate a wide variety of productions and events with installed equipment, reducing the amount of touring and rental gear which must be used. The ability to put on outdoor productions helps to prioritize audience safety in the era of Covid-19.

To guide the design development for the HOP, I have named the specific groups of users whose needs must be considered (Audience, Community, House crew, Industry and Performers) and principles to follow when making decisions (Experience, Access, Safety, Environment). To limit the project's scope, I have chosen to follow the BC *Architects Act* (RSBC 1996 c 17) limits for buildings which are not designed by a qualified architect. For a single storey public assembly building, the maximum gross floor area is 275 m2 (2960 ft^2) and the longest unsupported span is 9 m (29'–6"). The HOP has been designed to fit within these guidelines.

Lay Summary

This thesis project is a conceptual design for a small performance venue which is specifically made for amplified live music: the House of Performance (HOP). Taking inspiration from the performance-based cultures of the Grateful Dead, Raves, and Burning Man, the project includes drawings for the building design, as well as for sound and lighting equipment.

The HOP is able to change between indoor and outdoor by opening and closing three large doors. Accessibility is a major priority, with the aim to exceed building code requirements. It is to be an intimate space with minimal barriers between performers and their audience. It can accommodate different kinds of shows with in-house equipment, requiring less touring and rental gear. To limit the size and complexity of the project, I am following the BC *Architects Act* (RSBC 1996 c 17) limits for buildings which are not designed by an architect.

Preface

This thesis is original, unpublished, independent work by the author, Owen Bronson Marmorek.

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Acknowledgements

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Dedication

This thesis is dedicated in loving memory of Jerome John “Jerry” Garcia, Ron “Pigpen” McKernan, Keith Godchaux, Brent Mydland, Vince Welnick, John Perry Barlow, Robert Hunter, Neal Cassady, Ken Kesey, Bill “Uncle Bobo” Graham, Rex Jackson, Laurence “Ramrod” Shurtliff, Augustus Owsley “Bear” Stanley III, Bob Matthews, Dick Latvala, Larry Levan, Francis Warren “Frankie Knuckles” Nicholls, Jr., David Paul Mancuso, and Larry Harvey.

Chapter 1: Introduction

1.1 Background

In this project, my goal is to design a small venue specifically for amplified live musical performance. My intent is to create a relatively simple building design. It should be a practical and relatively affordable structure to build, as well as a flexible and inspiring performance space. Given the immense cost of construction for most entertainment buildings, this is a considerable challenge. So why do I want to do it? This excerpt from the opening chapter of Woronkowicz, Jaynes and Bradburn's *Building Better Arts Facilities* clarifies the nature of my inner desire to build a place to play:

> "The idea behind a building project is typically not a particularly rational one. Very rarely do leaders of cultural building projects go through a systematic process to determine whether the time is right, the need is there, and all the elements in place to move ahead with a new facility. In fact, the idea for a project most often arises from an inspiring vision and the subsequent passionate pursuit of it by an individual or small group." (Woronkowicz et al. p 21-22)

While *Building Better Arts Facilities* is focused on major civic and corporate-sponsored performing arts building projects, the principle is the same for venues large and small: As much as it is necessary to be economical and pragmatic in planning and design choices, the basic choice to build is often not founded in logic at all. While embarking on a venue project without

certainty of success could be seen as reckless, it is a vital contribution to live performance. Venues are not only places for art, they can be legitimate pieces of art.

So why build a dedicated venue for amplified live music? What has kept this form of art going in the face of continuing competition and change? What can keep it alive and thriving in the future? These are key questions to explore in 2022 and beyond, particularly in a world dominated by the internet and a live entertainment industry devastated by the global COVID-19 pandemic. In-person live performance creates meaningful human connections. The feeling of collectively witnessing something unique at a single moment in space and time cannot be adequately recreated with pre-recorded or virtual broadcasts (in spite of some valiant online efforts to keep the show going in the face of COVID).

My interests in both architecture and performance have grown and developed over the course of my life. Growing up as an autistic person, drawing, building, and playing felt more comfortable than verbal or written communication. As a child, my favourite toy was (and always will be) Lego for its endless possibilities in three dimensions. Imaginary worlds brought joy and comfort in the face of what was often a confusing reality. Music has found a similar place of importance in my life and identity. I have now been playing piano for more than two decades and DJing for nearly one decade.

My career and educational journey has also been somewhat varied. Throughout high school I wanted to be an architect (which would follow in the footsteps of my great uncle Walter Marmorek). As UBC's Bachelor of Environmental Design program did not start until third year at the time when I began my studies in 2009, I enrolled in a general BA program and took a wide variety of courses. These ranged from Urban Geography and Political Science to Lighting

Design and Sound Design for theatre (with Robert Gardiner and Patrick Pennefather, respectively).

However, by the time I had finished my first year of university I felt the need to pursue something more directly related to performance, sound and music. I enrolled in a one year diploma in audio engineering and music production at Nimbus School of Recording Arts (now known as Nimbus School of Recording & Media). While this move delayed my bachelor's degree by a few years, the small classes and available studio time at Nimbus built a strong foundation for the audio and music production knowledge I still rely on today. My summer job at the shop of east Vancouver's late, great Rocky Mountain Sound taught me how to wrap cable, prepare sound systems for shows, and load trucks before I started at Nimbus.

I returned to UBC in 2018 to complete a Theatre Design & Production Bachelor of Fine Arts, graduating in 2020. I continued working in theatre and live performance throughout my studies, gaining a full membership to I.A.T.S.E. Local 118 (Vancouver Stagehands) in 2019. In addition to production design in lighting, sound, video projection and scenery, I maintained an interest in architecture and urban design as well. Elective courses in sustainable communities, design thinking, and local architecture helped to engage my interest in the built environment. Ultimately, these experiences led to pursuing a Master of Fine Arts degree with the goal of developing a concept design for a permanent performance venue.

1.2 "Inspiration, move me brightly"

Buildings and spaces for the performing arts are as varied in form and characteristics as the shows which take place there. From small to large, temporary to permanent, simple to ornate, each building plays a unique supporting role in the experience of not only the attending audience,

but the performers and crew as well. A performance does not begin when the curtain opens and the house lights fade out, or even when the members of the audience begin to arrive. Its form has already been shaped long before then, in the collaboration of people, ideas, spaces, technology, and tradition.

Forms of performance and their physical containers influence each other and evolve together. In drama, a large Greek amphitheatre with an audience of thousands necessitates a different acting strategy from a small black box theatre with an audience of a hundred or less. In music, both the size and acoustics of live performance spaces dictate the most compatible types of pieces and performance ensembles. Large halls reverberate for a long period of time, while smaller rooms have a shorter but dense resonance. Both of these qualities can be used by musical performers to great effect. The resonance of stone cathedrals added a layer of "holiness" to Gregorian chants and pipe organ fugues, while smaller chambers in non-religious spaces allowed for more complex melodies and harmonies to be explored without being drowned out by reverb.

The 20th century brought rapid technological innovations that would bring permanent change to many different forms and disciplines of art. One of the most important of these for live performance was electric light. Until the advent of electrical service, theatres had to rely first on candlelight, then gas light or limelight to illuminate their performers. These forms of light allowed for indoor and night time performances that were not possible relying only on the sun. Yet they also carried considerable risk of fire, which often gave the buildings which housed them a very short lifespan. By contrast, the new electric lights were reliable, flexible and much safer for audiences, performers and crew. They also enabled new creative choices in production design including dimming, colour, focus, image projection, and (eventually) automated movement.

As with light, electric sound would come to change the nature of live performance completely. Recordings and radio also became new competition for the attention of the masses. Decades before electric sound reinforcement systems would become a standard part of live musical and theatrical performances, recordings and radio broadcasts changed the way most people would access entertainment. Up until that point, the only way to hear musical or dramatic performances was in person. Now these performances could be archived and replayed on tapes and vinyl records, broadcast over a wide area on radio, and accessed from within one's own home. The new technologies in visual media had a similar effect — film and television created new reproducible and portable forms of performance.

So where did these innovations leave live performance? Rather than being the only game in town, physical live shows now had to compete with films, records, radio and television. People could listen to music at home without knowing how to play an instrument, or take in a drama without buying a ticket to the theatre. Films could be reproduced to show one set of actors to hundreds or thousands of different screens at once. Far from destroying live performance, this threat of competition from radio, film, and television would also lead to further innovations in art, design and technology that would ultimately be incorporated into the live show.

Beyond light and sound, advances in the fabrication of metal and new materials like plastics and laminates allowed for the construction of both more elaborate scenery as well as larger venues with clear span ceilings, cantilever balconies, and uninterrupted sightlines. Steel cables and weights replaced hemp or manila rope and sandbags in counterweight rigging systems (Sapsis 116), supported in new theatres by steel and concrete structures with immense strength compared to their wood and stone predecessors .

Electricity also brought changes to the sound of music itself and the tools used to create it. A softly crooning singer could now be loud enough to compete with a big band or orchestra. A single guitar or bass could be louder than a whole section. Unified recordings could be assembled from different parts recorded at different times in different places. New instruments and effects created sounds that did not resemble any known instrument. These technological innovations have accelerated since the arrival of personal computers and cheap home studio equipment. In performance venues, sound systems of increasing precision and complexity allow for the delivery of an ever widening array of sounds to audiences around the world.

In spite of these changes that have shaped the sound of music over the past century, the architectural and acoustic design of buildings for musical performance has unfortunately continued to focus on unamplified musicians, ensembles and voices in traditional styles: symphony, opera, chamber music and ballet. There are fewer facilities designed and built specifically for amplified live music, even when it may be a venue's largest source of income. Popular music has had to adapt itself to a wide array of spaces: grimy bars, grand theatres, giant sports arenas and stadia. All of these require adaptation in both musical style and technology to put on a successful performance (Byrne; Kronenburg 2019).

For me personally, events with live music and dancing have proven to be some of the most memorable moments of my life. I have made countless memories and new friends through live music: not only inside performance venues, but also in the streets, parking lots, campgrounds, hotels, parks, and neighbourhoods surrounding them. An event with a general admission open dance floor is ideal for facilitating these social connections, which are limited to preshow, intermission, and after the show at a more traditional seated venue. A longer performance, whether at an all-night warehouse rave, a camping festival or a house party, gives

more time for the audience, performers and crew to develop connections and leave lasting memories. These positive effects can even encourage the growth of subcultures centred around live musical performance, anchored by certain core artists, venues, festivals, or promoters.

My personal and professional development has been influenced by several of these performance-based cultures, but I want to give special recognition to three of them: The Grateful Dead, Raves, and Burning Man.

1.2.1 The Grateful Dead

The Grateful Dead are a rather special case in the history of rock n' roll music, with a dedication to improvised live performance (a.k.a. jamming) and audience community. The Dead (as they are often known to their avid fans, the Deadheads) developed their sound and identity through the Acid Tests, a series of experimental performances with author Ken Kesey and his troupe of Merry Pranksters in late 1965 and early 1966 (Kreutzmann; Lesh). These were not 'concerts', even in the rock n' roll sense. The band could play as much or little as they wanted to, and they were but one of many simultaneous eclectic performances that participants ("audience members" seems far too passive here) could enjoy. Bassist Phil Lesh reflects back on the band's Acid Test experience:

> "There was no way any one individual could be aware of everything going on in the place. It was a free-for-all, with untold amounts of input quanta streaming into one's sensory cortex all at the same time." (Lesh 65).

Some aspects of these early 'happenings' found their way into an otherwise more traditional rock concert format, such as extended instrumental jams, bright clothing, colourful light shows, and the psychedelic experience (Jarnow).

The Dead also brought a few new innovations of their own in the years to come. Unlike the standard concert program made up of one short headliner set with several opening acts, they instead opted for "An Evening With"-style performances of two (or occasionally three) sets that could last as long as five hours, complete with breakfast at dawn on their New Year's Eve shows. Even a very long show was (and still is) not enough for much of their audience, who opt to attend multiple shows or even entire tours. Each concert of a tour became the focal point for a travelling nomadic community where people are able to get to know and look after each other. This elongation of the rock concert experience kept the spirit of the Merry Pranksters' Acid Tests alive. Jerry Garcia summed it up nicely to Howard Smith in 1970: "Our audience is like other versions of us." (Jarnow 37).

The Grateful Dead's achievements also extended to the world of technology. Instead of relying on venues' installed sound systems or local rentals (which were both very inconsistent at the time), the Dead began to tour with their own rig to ensure adequate volume and fidelity. This would soon become standard practice for larger concert tours. Audio innovators like sound system manufacturer Meyer Sound Labs, live touring rental house Ultra Sound, and guitar/bass/electronics maker Alembic all got their start through direct support from the Grateful Dead (Jackson).

The Dead not only archived recordings of their performances, but allowed audience members to do so as well. These amateur recordings would become one of the band's main tools for word-of-mouth marketing, to such an extent that a dedicated section was created for the "tapers" to place their microphones and tape recorders. What some might call a laissez-faire attitude by the Grateful Dead was also extended to certain aspects of their merchandising, allowing fans to use their copyrighted designs for smaller runs of handmade items such as

clothing and jewelry. These creations would be sold alongside food and other items on "Shakedown Street" in the parking lots and campgrounds on tour, allowing Deadheads to fund their travels, see more shows, and make more community connections (Allaback).

1.2.2 Raves

What is a rave? Every definition will vary somewhat, but it centres around some kind of electronic music performance. To me, a rave is a dance music event which offers something more immersive than a typical concert or nightclub. Whether it is a tiny renegade party or an elaborate multi-day production, a rave is a temporary community rather than just a performance in front of an audience.

There are noticeable parallels with Deadhead culture. While Deadheads and Ravers (people who go to raves) may listen to their chosen music in other settings, both kinds of music are primarily intended for a collective in-person environment. Rave culture has roots in the musical genres of disco, house, techno, dub, and hip-hop, which (like the Dead) were all born on the dance floor and made to be played on a loud sound system (Brewster and Broughton). For both raves and Dead shows, the intersection of inspiration (drawn from the location and audience) and improvisation (combining and transitioning between songs in new ways) makes for a unique show each night. The line between the DJ and their dancers is a fairly thin one, just like it was for the Grateful Dead and the Merry Pranksters at the Acid Tests. Unlike the Dead's shows, the method of music delivery at most raves is the selection and mixing of records.

While disco and house were born in urban "underground" venues like David Mancuso's Loft (New York City), Larry Levan's Paradise Garage (NYC), and Frankie Knuckles' Warehouse (Chicago), DJ's in both North America and in Europe would soon take that music

outdoors and out of the city to deserts, forests, beaches, and farm fields (Brewster and Broughton). Early raves were generally held secretly and unofficially, much to the dismay of local police, firefighters, paramedics, and less enthusiastic neighbours (if there were any). These ad-hoc outdoor parties have persisted to this day, alongside legal (and for-profit) electronic music festivals and nightclubs. Some events which started out as DIY raves have since grown into very elaborate multi-stage festivals. Notable of these in British Columbia are Shambhala Music Festival (first held in Salmo in 1998) and Bass Coast Festival (first held in Squamish in 2009, now held in Merritt). Both have nurtured active musical scenes which continue to grow and develop today (shambhalamusicfestival.com; basscoast.ca).

Placing traditionally "urban" dance music in a remote rural or wilderness setting increases the magnitude of the physical and mental journeys undertaken by the audience, performers, and crew. These extended trips result in an even closer bond than one might gain from an urban event, as the risks and challenges add to the overall sense of adventure. Unless the rave is only a single night, camping is the usual form of accommodation for everyone involved. Much like the parking lots on Grateful Dead tours, these campgrounds serve as an ad-hoc forum for social community which can be as essential to the overall show experience as the performance on stage (St. John).

1.2.3 Burning Man

The third subculture I take inspiration from for this project is not primarily a musical one, though music is always present there in some form: Burning Man is an annual event which takes place in the Black Rock Desert of northwest Nevada. Burning Man started as a small bonfire party on Baker Beach in San Francisco in 1986. In 1990, it joined up with the San Francisco Cacophony

Society's experimental "Zone Trip" to the Black Rock Desert and has been steadily growing every year since. Burning Man is now a temporary city of 80,000 people (Black Rock City, NV), an exhibition for massive pieces of art, and a spectacular setting for performance, including amplified sound and electric light (Burningman.org).

One can see clear parallels with the Merry Pranksters' Acid Tests here, as both events are multi-media, multi-sensory forms of integrated performance without a clear "audience": everyone is a performer or an artist in some way and active participation is expected. A performance in Black Rock City may range in scope from a single person's act or costume all the way up to the Burning Man itself, with a large fireworks show, several hundred fire performers, and elaborate technical support. The hundreds of physical art pieces brought in for the event serve as scenery for performances both planned and improvised, again with a scope that varies wildly. Many of the art pieces are mobile "mutant vehicles", able to move around the event.

Just like with Dead tour or underground raves, the journey to and from the "main event" is also a key part of the complete experience and long-term collective memory. Struggles and setbacks on the road make the triumphs in the desert even more meaningful. And now the concept and format of Burning Man is also no longer limited to just the dusty desert of Black Rock City. Since 2004, the Regional Network has supported camping and urban events of varying sizes all over the world, sharing the event's spirit but each developing their own unique variation. In British Columbia, Burn in the Forest has been steadily growing in population and organization since 2002 (Burnintheforest.com). When the network was established, Burning Man co-founder Larry Harvey established ten principles to outline the philosophy that had developed at Black Rock City over the years: Radical Inclusion, Gifting, Decommodification, Radical Self-reliance, Radical Self-expression, Communal Effort, Civic Responsibility, Leaving

No Trace, Participation, and Immediacy (Burningman.org). Unofficial events (such as campouts, raves, house parties, art exhibits, and pub nights) allow the Burning Man experience to be more loosely replicated in a wide variety of settings by individuals or camps within the community. These events also have the weirdness and eclecticism for which Burning Man is well loved, along with the ethos of the Ten Principles.

1.3 Venue Examples

1.3.1 Graceland (2010 to 2011, Vancouver, BC)

Graceland can be given some degree of credit for my dream of creating a live music venue. This particular Graceland was not the well known Vancouver club of the 1990s (for which I was a little too young at the time!), but a nondescript mid-century wood house somewhere in south Vancouver. The communal musician and artist house was leased for only one year before it was to be demolished by its owner later in 2011 (to build a much larger mansion). It took its nickname from the 1986 album by Paul Simon, a copy of which was displayed in a spot of honour on a shelf in the living room.

Graceland's transformation from house to venue was a cleverly simple one. After a couple of very wild parties encompassing the whole house, news arrived that the house was to be demolished after the one year lease was up. A plywood barrier was nailed up to block off the ground and upper floors of the house from downstairs, where parties would be held (it could be removed late each night after party guests left). The basement was covered in vibrant graffiti and murals, with the knowledge that they would not last very long.

The Graceland basement was minimally furnished, but fairly spacious. It contained a few specialized party rooms, all connected together by a hallway. Guests entered through the back

yard into a room with a door table to collect the cover charge (always five dollars), a ping pong table, and a few places to sit down and chat. A bar room offered cheap beer (always Pabst Blue Ribbon) and four person group shots from a "shot ski". The single downstairs bathroom was not the best of any underground venue… but it certainly wasn't the worst, either.

At the far end of the basement was the live music room. There was no stage, so bands would set up at the end of the room in front of the unused stone fireplace. An alcove next to the stage served as a place to stash unused gear. The small windows were covered with foam inserts to reduce leakage of sound into the neighbourhood. The ceiling was quite low, but the room was generally packed with enough people that the sound was decent enough. The PA was an old Yorkville powered mixer and speakers (not really enough power for rock n' roll, but okay for a small room). Graceland parties had four or five acts play each night, with music starting around 10pm and ending around 3am. As many as 200 party guests would come and go over the whole night, though the actual music room could barely hold a quarter of that number.

What allowed Graceland to flourish in a residential neighbourhood not usually known for parties? Access to public transit certainly helped, including the recently-completed Canada Line SkyTrain (which had a station within walking distance). A $5 cover and cheap drinks ensured that anyone who wanted to come party could afford to do so. The basement graffiti created an instant vibe that felt different from a typical house party. The knowledge that the entire thing would soon be gone forever brought a certain sense of importance to the parties there. After it was torn down, Graceland remained a fond memory and served as an inspiration for me to create my own live music venue.

1.3.2 The Bob White Theatre (2012 to 2014, Portland, OR)

The Bob White Theatre is an old cinema on Foster Road in Southeast Portland, Oregon. In 2012, entrepreneur Nick Storie and concert promoter Nick Haas reopened it as a live music venue along with the neighbouring mechanic workshop ("The Wurlitzer"). The first show I attended at the Bob White was the Portland Pranksters' Ball at the end of September 2012. It was an all-night afterparty for the three concerts played by Furthur (a band with Bob Weir and Phil Lesh of the Grateful Dead) at McMenamin's Edgefield Amphitheatre in Troutdale, OR.

Each night of the Pranksters' Ball had two rooms of psychedelic jam bands playing until around 7 in the morning, with the schedule timed so there was always at least one band playing. The main theatre had a vibrant liquid light show, blending coloured oil and water plates with recorded video content projected onto hanging screens and the whitewashed walls of the theatre itself. There were seats only at the back of the floor and on the balcony, allowing for a good sized dance floor. The Wurlitzer room next door (named for a large sign from the organ / jukebox maker) had wooden balconies and a large tie-dye backdrop, slowly morphing in appearance under the shifting colours of the stage lights.

Even the street outside the Bob White Theatre was a wild party in true Deadhead fashion, with the Merry Pranksters' brightly painted school bus "Furthur" (after which Weir and Lesh's post-Grateful Dead band was named) parked directly in front of the theatre, along with a food truck for hungry partiers. The 24 hour "Plaid Pantry" convenience store was both a useful place for snacks and essentials as well as an amusing hippie watching opportunity. Travelling Deadheads with no tickets and little money remained out on the street all night, several of them selling pins and other merchandise to fund their travels. This neighbourhood was not expecting

this kind of nightlife influx, and public opinion would end up being an ongoing issue for Haas and Storie's theatre.

I returned once again to the Bob White before it closed down. The Cascadia Psychedelic Revival on April 19th 2014 had just one night of music in one room (the main theatre) and a much smaller crowd. However, the event still went until dawn with the same charm and atmosphere of the Pranksters' Ball two years earlier. Both liquid light projections and moving head stage lights made the old theatre look spectacular. The music ranged from authentic Pink Floyd covers (Pigs on the Wing), to kinky-themed funk (Boyz II Gentlemen), instrumental acid rock (Dark Matter Transfer), show promoter Nick Haas' own band (The Real), and some of the Merry Pranksters themselves (Woodknot). The Wurlitzer had no bands playing, but was still open to hang out while bands changed over in the theatre.

Even though I did not get to see many shows at the Bob White Theatre, it left a lasting impression on me. Both the Portland Pranksters' Ball and Cascadia Psychedelic Revival showed me that the culture of the Merry Pranksters and the Acid Tests was still alive and well, and that all-night shows weren't just for raves.

1.3.3 Open Studios (2004 to 2020, Vancouver, BC)

Open Studios was a main fixture in Vancouver's underground rave scene for more than fifteen years, particularly for house and techno music (Openstudios.ca). A video and photography studio by day, it became a thumping dance floor by night. The studio occupied the second floor of a small industrial building on 252 East 1st Ave near Main Street, with the enticing smell of fresh-baked bread drifting up from the bakery on the ground floor. I was lucky enough to attend many

raves there and to work as one of their house sound techs during their last couple years of operation.

In front of the concrete block building, security guards (who were friendly, well known and trusted within the local rave scene) checked people's IDs and let them in through the door to a stairwell. The front stairs served as a space to keep people inside as they lined up for the box office and coat check at the top. With only stair access, this also posed a problem: Open Studios was sadly not wheelchair accessible nor convenient for loading in heavy items. A DJ booth and audience seating risers occupied opposite ends of the dance floor, both made of aluminum stage decks. A bar, water station, and production office were in the back corner of the room with two small washrooms off the side of the dance floor. A narrow set of steel stairs led up from the floor to a mezzanine level with some couches to chill and a lighting/projection booth.

Projected visuals were always excellent at Open Studios shows, whether it was a simple screen behind the DJ, mapped arrangements of different shapes, or multi-projector setups across three walls of the venue. Additional lighting, lasers, and scenery were occasionally brought in, but projected visuals were the most common.

The sound system at Open Studios was originally deployed as ground stacks of two mains and two subwoofers each on either side of the DJ booth. By the time I was working there the mains had been flown, allowing all four subwoofers to be coupled together in one cluster in front of the DJ booth. This configuration resulted in a more even coverage of sound across the entire dance floor. The speakers were older Yorkville TX series, with a processor (dbx DriveRack) and power amps (Crown and QSC) in a rack off to the side of the DJ booth. There was no house console other than the DJ mixer, so as the sound technician I would have to make adjustments directly on the DriveRack (not ideal!).

Doors opened at 10 or 11pm with an empty dance floor, usually packed by midnight. Most nights featured an out-of-town headlining DJ, though lineups featuring local performers were popular as well (such as the aptly named “Locals Only” series or the Vancouver Craft Beer Week afterparty). A headliner would start at 1 or 2 a.m. and play until anywhere from 3 to 5 a.m., depending on the night. It could get quite packed and hot at the busiest of times, with only a few fans to help cool the dance floor.

Open Studios will always be remembered for its place in Vancouver rave history. It has left a hole in our scene which has still yet to be filled.

Chapter 2: House of Performance (HOP)

To guide the design development for the House of Performance (HOP), I have named the specific groups of users whose needs must be considered (Audience, Community, House crew, Industry and Performers) and principles to follow when making decisions (Experience, Access, Safety, Environment). To limit the project's scope, I have chosen to follow the BC *Architects Act* (RSBC 1996 c 17) limits for buildings not designed by a qualified architect. For a single storey public assembly building, the maximum gross floor area is 275 m2 (2960 ft^2) and the longest unsupported span is 9 m (29'–6"). The HOP has been designed to fit within these guidelines.

2.1 User Groups

Audience — people who come to see a show

Community — First Nations, residents, governments, emergency services, local media

House crew — stage and front of house (FOH), the local workers who make the show happen

Industry — promoters, event producers, booking agents, entertainment media

Performers — artists and touring crew, they have seen it all (good and bad)

2.2 Design Principles

Experience — the venue will be enjoyable and memorable

Access — the venue will be welcoming to all, beyond code minimum requirements

Safety — the venue will be safe and secure

Environment — the venue will have a low environmental impact over its life cycle

2.3 Location and Capacity

One of the most important and challenging decisions for any entertainment venue is choosing where it should be located. A population base is needed to draw sufficient attendees to cover the cost of putting on shows, but land within these desirable areas is hard to find and construction costs increase in more remote locations. So real estate economics becomes a problem for venue capacity: urban locations with the capability to draw large crowds lack suitable sites for a large venue (barring an exceptionally high budget), while rural locations with enough space available are too far away to draw large crowds and lack public transportation connections. A balance must be found between the cost to both purchase and develop a property, the distance to nearby population centres, and the ideal size of venue.

Access and transportation infrastructure is fundamental for a venue's success, regardless of whether a venue is in the middle of a city or the middle of nowhere. Roads need to be convenient and well-maintained enough for large production trucks and buses. There must be enough parking to satisfy both local regulations (which can often be excessive) and audience demand. A nearby airport, train station, bus depot, or ferry terminal are all also desirable. Access to emergency services including ambulance/hospital, fire department, and police must be rapid enough to ensure the safety of audience, performers, and crew. Longer response times from local services necessitate more trained and equipped medical and security personnel on site (in addition to those typically required for a show of a given size).

Another concern in the selection of a location is the ability to develop an amicable relationship with neighbours, emergency services, and local governments, including First Nations. It is essential that the venue be considered a benefit to the local community, rather than a risk or a noisy nuisance (although there will always be some individuals who can never be

pleased). Zoning and regulatory bylaws must be followed, but these are usually quite restrictive for live entertainment. Reaching out to the community and offering benefits to local residents may help, as well as encouraging venue guests to support local businesses.

As the HOP is intended to accommodate louder amplified music outdoors, noise must be directed, controlled, and mitigated in a way that satisfies those living and working nearby. The correct placement, orientation and construction of the venue and its sound system are all critical to achieve an amicable relationship with all neighbours. The source of community disturbance is not limited to amplified sound. Ensuring that guests arrive and leave quietly is also essential to keep the peace with neighbours. Providing space for camping and vending is desirable, but this must also be situated in a way that will not disturb others nearby.

The capacity of the HOP is limited by a few factors. For indoor shows, the amount of open space is somewhat limited. Allowing for standing room space of 0.4 m^2 (4.3 ft^2) (BC Building Code 3.1.17.1), the main open floor area allows for 278 people (not including circulation areas, washrooms or the stage). When tables and chairs are used in a special event or cabaret setup, the capacity is reduced threefold to 93 people. Adding a conservatively estimated 6,000 sq ft (557 m^2) of open area for outdoor shows, the overall capacity is increased to 1,671 standing room or 557 with tables and chairs (including both indoor and outdoor areas). Doorways and ramps used as exits must have a minimum 6.1mm width per person (BC Building Code 3.4.3.2). Even with the large rolling doors closed for an indoor show, the sound lock exits allow for a capacity of up to 566 people (double the 278 allowed inside based on the indoor open floor area).

Ultimately the most limiting factor for allowable capacity ends up being the number of toilets available (BC Building Code 3.7.2.2). With only four indoor toilets, the maximum

capacity is only 100. With an additional 21 outdoor toilets (for a total of 25 toilets), the maximum capacity becomes 1550 people. Both of these two figures assume an audience with an even gender balance for the number of toilets provided, though all toilets will be gender neutral..

2.4 Stage

Occupying the focal point of the HOP, the stage provides a place for the performance to take place. The stage will be fully open to the audience, rather than a separate space separated by a proscenium. Without the need to hide scenery and lighting, both musical performers and their audience can enjoy the acoustic and atmospheric benefits of an open stage. The direct view of lights, video and rigging can even form an important part of a concert or rave's visual aesthetic. HOP will have a fixed, permanent stage such that the rest of the venue may be confidently designed around it. Typical prefabricated modular stage deck products are not ideal here, as this stage does not need to be taken apart, modified, or moved. Without the need for portability or reconfigurability, the focus is on creating a custom-designed solution for amplified music.

Determining the appropriate size is a major consideration. A stage which is too small will limit the types of performances which may occur, the comfort of performers, and the ease of changeovers between acts. However, a stage which is too large will decrease the performers intimacy with both audience and each other. The HOP's stage will be 28 feet wide by 16 feet deep. Allowing for 0.75 m^2 (8.1 ft^2) per person on stage (BC Building Code 3.1.17.1), up to 53 people may be on stage at once.

Stage height is also important, as height is capable of greatly altering the venue's character. Enough is needed for clear audience nightlines, but too high will create an unnecessary barrier. Unlike for opera and some theatre, access under the stage will not be required. Ramp

access to the stage deck is a consideration, requiring much more space to build a ramp to/from a taller stage. All of these considerations must still be taken into account within the context of the overall performance space, so the HOP will have a flat stage located two feet above the floor.

For the stage's construction acoustics have been prioritized, as this will primarily be a venue for music. With loud rock bands and DJ's, it is necessary to deal with excess vibration onstage to ensure clarity. Using the stage as an acoustic mass is a way to absorb some of this excess energy. A solid concrete slab or structure filled with sand would be effective, but quite heavy even with a low stage height. The HOP will sit on a grade-level concrete slab, so a solid concrete slab can be used for the stage itself. In order to accommodate a row of subwoofers along the front of the stage without reducing space on the floor, the first four feet of the stage will be made of steel grate on an open frame to allow for the sound of the subwoofers to pass through.

2.5 Floor

The floor for both the stage and audience areas of the HOP should be durable, shock absorbing, and easy to clean. Traditional wooden sprung dance floor construction performs very well, but it is difficult and expensive to install. Other suitable shock absorbing floor products exist designed for dance/performance or fitness/sports applications, either as an underlayment layer for other types of flooring or as a complete floor product. Some of these are even available made from recycled rubber, which is a much more attractive option environmentally than brand new material.

A floor which is forgiving and just a little bouncy under foot will keep the energy of both performers and audience members going, as well as reduce the risk of injury. It should be

textured enough to avoid slipping, but not overly rough. A properly dampened floor can also contribute to the overall acoustic isolation of the venue, particularly for low frequencies. Rugs may be added where additional high frequency absorption is needed on stage and for comfort in chill-out areas.

2.6 Building Envelope

The walls and roof of the HOP must both be durable and able to block the transmission of sound as much as possible. Cast-in-place concrete reinforced with steel satisfies both of these requirements. The more solid mass there is between a sound source and its destination, the greater the loss in sound transmission. The choice of generous one foot thick exterior walls will allow for loud concerts and raves without disturbing the surrounding area. An additional one foot thick curved concrete wall is placed behind the amphitheatre section to reduce sound transmission during outdoor shows. A “sound lock” vestibule room at both entrances allows for reduced sound leakage on indoor shows. Double door exits with push bars are included in each sound lock for ease of ingress and egress.

To preserve acoustic isolation, care must be taken to have as few physical penetrations as possible through the exterior walls and roof. Building services may be buried and brought up through the floor instead of routing them through the walls. Interior plumbing and electrical distribution may be surface mounted to minimize further holes in the building envelope and allow for easier maintenance and upgrades (fireproof pipe and conduit must be used). The quasi-industrial look of exposed building services also fits in well with both the rave and Burning Man aesthetics.

2.7 Structure and Rigging

The physical structure of the HOP must be built to handle significant point and distributed rigging loads from both permanently installed and temporary production elements (including sound, lighting, video and scenery). These rigging loads must be considered in addition to typical building loads from the weight of the building itself, wind, snow, seismic events, and occupant live loads, which may vary significantly depending on a venue's exact location and local jurisdiction. All specific design, specification, and detailing work must be conducted by a qualified Structural Engineer certified in the jurisdiction where the HOP will be built.

The reinforced concrete walls (mentioned above) will be load bearing, assisted by two foot diameter columns spaced at a distance of 28 feet in order to achieve a maximum span of under 9 metres — a requirement for assembly buildings in British Columbia which are not designed by a registered Architect (*Architects Act*, RSBC 1996, c 17). The roof, a composite slab of reinforced concrete on steel decking, is then supported by purlins on larger trusses, which are both made from wide flange steel I-beams. A rigging grid of secondary wide flange I-beams joined to the main trusses is situated 24 feet above the main floor (22 feet above the stage) to offer enough height for optimal placement of lights and speakers. These beams are placed at 7 foot intervals in both directions, matching the location of the major truss panel points. This regular spaced grid offers maximum flexibility and reduces the need to hang rigging points on bridles. As there is not a significant amount of space between the rigging grid and the roof, this grid is not ideal for climbing to hang points. Instead, points may be hung and lights may be focused by lift from below. A rolling aluminum scaffold or small electric scissor lift which may be moved while raised would be ideal for efficient work (a 19 foot platform height would be sufficient for work on the 24 foot high grid).

2.8 Bars, Washrooms, and Ventilation

Plumbing connections and fixtures are required for two main purposes at the venue: bars and washrooms. While a full kitchen would also be a desirable feature, it does not appear to be feasible within the HOP's limited footprint (food trucks may offer an effective alternative). The two bars are located between the three large roll up doors on the front of house wall. Given the limited space available, a full keg system may not be possible (but could be added on a temporary basis for certain events). At a minimum each bar will require refrigeration, a well with soft drink fountain, a sink, and a cup washer (disposable cups are not acceptable due to the waste they produce).

The venue will have four fully accessible single capacity gender neutral washrooms ("Universal Washrooms"). One washroom will be located partway up each ramp on both sides of the stage, as well as one washroom off of each of the "sound lock" vestibules at the venue entrances. The sound locks will also contain accessible drinking water fountains. Having only four washrooms would severely limit the venue's capacity (see Section 2.3), yet the limited floor area does not allow for additional washrooms to be added.

To make up the difference, an array of 21 permanent outdoor washrooms will be spread out behind the curved back wall of the amphitheatre. Traditional festival style "port-a-potties" are affordable, but not an ideal permanent solution or pleasant experience for venue guests (but could be a temporary option). Instead the HOP will use the "Portland Loo" — a prefabricated steel public flush toilet design originating from the city of Portland, Oregon. The Portland Loo is built to be fully accessible and to last for decades. The height of the back amphitheatre wall will minimize the impacts of the sounds and smells from these toilets on the rest of the venue.

Heating, Ventilation, and Air Conditioning (HVAC) is a key concern in the era of Covid, as its effectiveness becomes not only a matter of comfort but of safety as well. An air handling unit on the roof ensures that the venue is well ventilated. Supply and return ducts are oversized (two feet in diameter) to minimize acoustic impacts and located above the rigging grid to avoid interfering with lighting, sound and video.

2.9 Electrical Service and IT

Electrical service is an important planning consideration for any performance venue. Enough power must be provided where it is required for both permanently installed sound, lighting and video fixtures as well as any temporary additions for individual productions. Main power disconnects and breaker panels will be located on the ramp landings off stage left and right, including three phase camlock panels for additional portable power distribution. Power for sound, lighting/video, and building utilities must each be on separate isolated services to avoid compromising sound quality and system reliability.

Circuits must be provided in ample quantity and amperage at the following locations — on stage, offstage (left and right), under the front of the stage (subwoofers), the rigging grid, both FOH booths (indoor and outdoor), bars, washrooms (indoor and outdoor), and shore power for buses/trailers. Certain installed fixtures (such as main PA speakers, subwoofers, and projectors) will require high voltage circuits. The stage, both FOH booths, and rigging grid will also require network data lines for sound, lighting and video. As digital technologies inevitably change over time, cable trays for networking should be designed to easily facilitate future upgrades. Secure wireless networks are required for remote control of sound and consoles by tablet and point of sale systems at bars and merch booths (in addition to an open WiFi network for public use).

2.10 Sound

Acoustics and the sound system should be a top design consideration for any music venue, but these challenges are often left to be solved until after major architectural design decisions have already been made (usually to the detriment of sound quality). For the HOP, amplified sound has been a primary consideration from the ground up. The reinforced concrete floor, wall, and ceiling improve isolation between the building and the outside world, which both reduces the impacts of outside noises on performance and (more importantly) noise impacts from performances on neighbouring areas. Even when the large doors are opened for outdoor shows, the curved rear wall behind the amphitheatre reduces the extent of sound transmission. Inside the venue heavy velour drapes hung on the upstage and side walls reduce the amount of reflected sound, improving clarity and intelligibility.

The main PA system should be capable of providing stellar sound for live and recorded music of any genre. While there are several manufacturers which can meet this standard, the HOP will use equipment from Meyer Sound Labs in Berkeley, California. Their loudspeakers are very “rider friendly”, popular for live music, theatre, corporate events, cinemas, and permanent installation applications all over the world. Meyer’s speakers are all self-powered, integrating amplifiers into the speaker enclosure for improved damping factor and transient response compared with long cable runs from amplifier to speaker. Meyer PA systems have also been used to great effect by the Grateful Dead and their successors since 1980.

The HOP’s main sound system consists of two arrays of six Meyer Sound Panther speakers on the left and right sides of the stage. Panther is Meyer’s newest speaker for large venues, capable of over 150 dB SPL in a powered cabinet which weighs only 150 pounds

(Meyersound.com). While Panther is marketed as a line array speaker for medium to large venues, in this particular application with fewer boxes and larger splay angles it will function more like a point source system. Each array will be hung from two half-ton chain motors (front and rear) to allow for precise adjustments to the tilt of the entire stack once it has been hung.

On the low end, the Panthers will be joined by six 1100LFC powered subwoofer cabinets under the front end of the stage (each with two 18" speaker drivers). For outdoor shows and indoor DJ events, carts can be rolled out stage left and right with three additional subwoofers each — two 1100LFC's and one VLFC. The VLFC is the exact same size as the 1100LFC but operates over a frequency band from 15 to 30 Hz, extending the range of the entire PA system by an additional octave. With these carts in use, the entire system will have ten 1100LFC's and two VLFC's (twelve double 18" subwoofers in total). The monitor rig will consist of MJF-210 wedges, along with 900LFC single 18" subwoofers to add low end support for drum and DJ monitor rigs. All of the main speakers, subwoofers, and monitors will be fed by Meyer Sound Galaxy processors for audio routing, system processing, and remote monitoring.

The house microphone collection has been selected for both sound quality and long term durability. Choices are endless here, though a few obligatory classics from Shure (SM57, SM58, SM81, Beta 57, Beta 58, Beta 91a, etc), Sennheiser (MD421, MD441, e900 series), EV (RE20), AKG (D12, D112, C451), and Radial (JDI passive and J48 active DI's) should be made available among others. Microphone stands must be top quality (eg. K&M, Ultimate Support) and available in various configurations (tall/short, boom/straight, round/tripod base, clips, etc). Cables will be built using high quality durable stock and only genuine Neutrik connectors. Enough mics, stands, and cables must be available for both the headlining act (though they may sometimes bring their own) and a shared opening act setup.

Choices for mixing consoles are also quite varied, with different operators all having their own preference. Large format analogue consoles like a Midas XL or Heritage series offer brilliant sound, but are a significant burden in both space and weight. Top digital options include Midas Heritage-D, Digico Quantum, Solid State Logic L-series, Yamaha PM Rivage, Avid S6L, and Allen & Heath dLive. No single digital board will please all visiting techs, so rentals may sometimes be necessary. DJ events and smaller indoor shows may have just one console for both FOH and Monitors, but larger productions will require a dedicated monitor console. The FOH console will be located at the centre door between the bars for indoor shows, and at the centre of the top level of the amphitheatre for outdoor shows. The monitor console (when used) may be located on or off stage, depending on the needs of the show.

2.11 Lighting and Video

The lighting rig is designed to be as flexible as possible for concerts, raves, theatre, and special events. Sticks of 12” truss will be suspended from the rigging steel on half-ton chain motors to enable easy adjustment of fixtures or addition of additional fixtures. Fixed front, side and top washes are provided by ETC Source 4 Series 3 LED ellipsoidal spots, chosen for their top colour rendering capabilities. ETC Colorsource Linear 72 lights provide colour for the side and upstage curtains with pixel mapping capability. Moving head LED spot and beam fixtures on the upstage and FOH trusses add splash to the basic foundation along with hazers for aerial effects. A GrandMA3 compact lighting console is familiar for touring techs, but more expensive than other alternatives such as Chamsys MagicQ. The compact version of the GrandMA3 is small enough to easily fit into either the indoor or outdoor FOH booth setup without using very much space.

Video projection is provided by a 50,000 lumen Panasonic laser projector hung from the centre of the FOH truss. This truss is flown lower than the other lighting trusses so that the light from the projector does not hit them. Upstage or midstage screens may be used for projection depending on the production. Additional projectors or LED walls may be rented for specific shows. Blackmagic Design video interfaces and a Mac Studio workstation running Resolume Arena allow for integration of live, recorded and generative video content.

2.12 DJ Booth

With raves, most Burning Man parties, and even some Deadhead parties employing music from DJ's, the DJ booth (or table) becomes an important design consideration. The DJ booth must be large enough to accommodate multiple setups, but small and portable enough to be moved to where it is needed. The DJ booth may occupy a featured spot downstage centre, or the DJ may be just one part of a live band setup. If the DJ is only playing background tunes before, between, and after live sets, it may be more desirable to have the DJ booth either more offstage or at front of house.

Some of the most enjoyable aesthetic and performative aspects of DJing have been lost or diminished by the switch from records spinning on turntables to various digital players (including CDJs and laptops with DJ controllers or digital vinyl systems). While it will be necessary to accommodate these systems when requested, the HOP DJ booth prioritizes Technics turntables and an analogue rotary mixer along with built-in storage for crates and record bags so that more visiting DJ's will choose to bring records. It is simply more entertaining to watch and listen to a DJ select, cue, and play physical records than it is to see and hear them perform those same tasks digitally.

Alas, along with the beauty of glorious vinyl records there comes a problem. Vibration from nearby speakers can feed back in the turntable's cartridge (which acts much like a dynamic microphone), or someone may bump into the DJ booth. To avoid these issues, the turntables must be mechanically isolated from the DJ booth with some kind of shock absorber. The system used at Open Studios was to place each turntable onto a concrete paving slab, which was supported by two tennis balls cut in half and placed at the paver's corners. This combination of shock absorption from the tennis balls and added mass from the concrete pavers was quite effective even at very loud volumes. This type of system will be built into the HOP's DJ booth itself rather than an ad-hoc addition to a typical table, so the use of vinyl can be further emphasized. A concrete table surface will have additional mass, combined with enough shock absorption in each wheeled leg to dampen vibrations impacting the turntables (which will in turn have their own isolating feet and heavy platforms).

The booth will be centred around three Technics 1200 turntables, with additional co spares on hand. The classic Technics 1200 mk2 turntable has been a nightclub standard for decades, with many DJ's (myself included) still owning and using an old pair. The Technics 1200mk7 with a new motor is currently in production, so it may be a better choice in order to ensure an ongoing supply of replacement parts. The mk7 also changes from power and RCA cables fixed to the turntable to sockets on the back, allowing for easily swapped cables.

Despite the temptation to make the HOP DJ booth vinyl only, most DJs will want a digital option. The Pioneer CDJ has been a standard since DJs started moving away from records. The current model CDJ3000 has done away with the CD player entirely, but offers various other improvements over the previous CDJ2000NXS2. As there are still a few DJs who carry a book of CDs to play their sets, it is difficult to predict when the CDJ2000's will become

obsolete completely. Since most high end club DJ mixers have only six channels, a house setup of three Technics 1200 turntables and three CDJ's seems like a fair balance between the old world and the new. It can be easily adjusted to accommodate four of one and two of the other depending on who is playing (most DJ's will only use two turntables or two CDJ's anyway!).

The DJ mixer must be fully analogue, with stellar sound, high build quality, and features to enable varied styles of DJing — an EQ for each channel and a crossfader. Allen & Heath V6 or S6, Rane MP2016, Crest CP6210, Bozak AR-6 (all rack mounted with EQ / crossfader expander units), Formula Sound FF6.2, and Urei 1605 are top choices here. Some DJ's may prefer to use a different mixer (particularly hip-hop / scratch turntablists who opt for "battle style" two channel mixers), so there should be space on the table to accommodate one.

2.13 Backline

In addition to DJ oriented events, the HOP will be able to accommodate live acts on "fly in" style dates, as well as multiple acts with minimal changeover. Drums and percussion, bass and guitar amps, and keyboards will all be provided to a standard such that musicians feel they are being looked after well. Careful selection of backline (ie. smaller drum kits and amps) can also help to manage stage volume. Rolling stage risers will be used for efficient changeovers, along with a selection of rugs — useful for both acoustics and appearance.

Drums and percussion — at least two full drum kits with hardware are needed, so that the headliner can have a separate kit from opening acts (who may share a kit). This setup can also accommodate bands with two drummers. The kits will be fairly small in both size and number of drums, so that they may be easily accommodated in different stage layouts and aren't too loud! A well tuned jazz kit of only kick, snare, rack tom and floor tom is more than adequate for most

visiting drummers (outside of prog rock and metal). Offering two different sounding options would be ideal, such as a vintage Ludwig and a modern Yamaha. House cymbals will be economical (but not terrible) and thick to avoid breakage, since most drummers will bring their own anyway. Sets of congas, bongos, and timbales will also be available, along with a varied selection of small percussion.

Bass and guitar — while focusing on high quality amps is most important, it is worth having a few spare instruments and basic effects pedals on hand for spontaneous sit-ins or if visiting musicians have issues with their own gear. Amplifiers will be high quality tube amps that are large enough, but not too large. Ampeg's SVT has become fairly standard for bass rigs, though their smaller Portaflex is another worthy option. Fender Deluxe and Twin are most common for guitar amps, though alternatives like Vox or Mesa-Boogie are desirable to offer something different. Multi-guitar and bass stands will be made available.

Keyboards — as in the DJ realm, the HOP will move away from digital simulations with their endless menus and return to the real thing. The bare minimum will be a Hammond organ (B3, C3 or A100) with a Leslie speaker (122 or 147), along with a Rhodes piano (mk I or II, either Suitcase style or Stage along with a Fender tube amp). The new Rhodes mk 8 pianos are beautiful but incredibly pricey, so a reconditioned vintage model is more likely. Space permitting, a baby grand piano, Hohner clavinet, and Minimoog would be the next logical additions to please just about any visiting keyboard player.

Chapter 3: Conclusion

3.1 Design Process

Creating a functional and practical design for a project of this magnitude required an iterative process of research, conceptual experimentation, and continuous refinement. Much of the research that has informed the basic conceptual nature of this project was undertaken in person at numerous venues and events (some of which were discussed in Parts 1.2 and 1.3). The cultural values which guide the Grateful Dead, Rave, and Burning Man communities have also informed the physical design of the HOP: an intimate space with minimal barriers between performers and audience helps to facilitate a sense of interaction and unity.

As a working sound and lighting technician, I have also had the opportunity to observe various venues as part of the crew working behind the scenes. This experience has made me take great care in ensuring that design decisions are made to benefit everyone involved in the production of a show. In-house equipment will enable stellar quality productions with minimal rental or touring additions, but those may still be accommodated with adequate rigging and electrical infrastructure. Ramps which provide accessibility to all areas of the venue also facilitate easy load in and load out of gear.

One of the larger challenges in initiating this design project was defining an appropriate size and scope. To that end I chose to follow the British Columbia *Architects Act* (RSBC 1996 c 17) limits the size of a building which is not designed by a qualified registered architect. For a single storey public assembly building, the maximum gross floor area is 275 m2 (2960 ft2) and the maximum unsupported span is limited to 9m (29’–6”). While fitting a fully functioning music venue within these constraints has certainly been a challenge, it has also been a useful way to shape the design and move it forward. Having limited space means that every single square

foot must be used effectively. Limiting the length of span has required careful structural design, including placement of columns and load bearing walls. The conversion from indoor to outdoor venue also allows for a significant increase in capacity without affecting the actual gross square footage of the building.

While early conceptual sketches were done with pen and paper, moving on to more detailed design required the selection of design software and workflow. I began modelling in 3D with Vectorworks, hoping to eventually take advantage of their stage lighting features and entertainment library content. However attempts to achieve detail and precision using Vectorworks' BIM (Building Information Modelling) features during conceptual design became distracting. So I decided to change both software and workflow. Having competently employed AutoCAD for Mac drawing in the more traditional 2D CAD (computer-aided design) workflow on previous theatre and architectural design projects, I began redrafting my project in 2D drawings. This decision proved to be effective, and I was able to continue refining the venue's design at a more rapid pace without being distracted by precision 3D detail at the conceptual stage.

3.2 Goals and Objectives

The central goal of this thesis was to design a venue specifically for amplified live musical performance: the House of Performance. This goal is reflected in the design from site and architecture all the way through to installed electrical and mechanical services, sound, lighting, video, DJ, and backline equipment. The other goal was to create a venue which can function in both indoor and outdoor configurations. To transition from one state to the other is possible

without significant time and labour investment, as the HOP can simply open and close its three largest doors.

In Section 2.2 four guiding principles were identified to help shape the venue's design — Experience, Access, Safety, and Environment. For Experience, the goal was to facilitate enjoyable and memorable performances for audiences, artists and crew. This goal was achieved through an intimate venue design, careful consideration of acoustics and sound system deployment, a flexible lighting/video rig, and selection of dependable sound, DJ and backline gear. In addition to the experience of the performance itself, the venue is also designed to facilitate social interaction among audience members. For access, the goal was to exceed minimum code requirements and create a venue that's open and accessible for all. Ramps provide easy access to the stage and all audience areas. Every washroom on site (indoor and outdoor) is designed to be accessible, assisting in achieving the accessibility goal.

Safety has also been a guiding principle. The entire venue is built of noncombustible construction, with open space for crowd flow and ease of egress. Structure and rigging has been designed with ample capacity in mind. The ability to convert into an outdoor venue through opening the large rear doors is a real advantage in the era of COVID-19 and helps enable quicker egress in the event of an evacuation. The final guiding principle is the Environment. While steel and concrete may not be the most environmentally friendly construction materials, the HOP's permanent infrastructure provides a significant reduction in energy consumption compared with transportation for temporary festival sites and heavy touring sound/lighting rigs, helping to obtain this goal by reducing the environmental impact of events.

3.3 Strengths and Limitations

The core strength of this research is that it is focused on venue design for amplified music performance, an area which has been somewhat neglected by academic study compared with design for theatre and acoustic music. Likewise, the inspiring scenes of the Grateful Dead, Raves, and Burning Man have received critical attention in sociological and cultural studies but have not inspired as much research into their design and technology. This thesis explores both of those underserved niches and unites them in a unique conceptual building design: the House of Performance.

In spite of these strengths, this research is also somewhat limited in both detail and scope. As a specific site location was not selected for this project, the design is focused on the internal performance and audience spaces rather than integration with the surrounding landscape and community. Full architectural, structural, mechanical, and electrical detail drawings and schedules are not included, so the level of precision in those areas is limited. Instead, the focus remains on basic overall architectural design along with specific applications for theatre technology — rigging, staging, sound, lighting, and video projection. The change in workflow from 3D BIM using Vectorworks to 2D CAD using AutoCAD also meant that realistic perspective drawings and lit renderings will be added at a later date.

3.4 Potential Applications

While the physical realization of the House of Performance as a completed building may be somewhat unlikely without a significant source of funding, it is hoped that the HOP may serve as a conceptual guide for various future projects within the realm of amplified live music venues (in either newly built or adapted spaces). A flexible space which is capable of functioning for both

indoor and outdoor shows is extremely valuable in the era of Covid, with the understanding that outdoor events provide greater safety from airborne pathogens. It is also a useful concept for areas such as here in British Columbia where the outdoor show season may be somewhat limited due to weather concerns. Other aspects of this design, such as ramps for accessibility and lighting/sound system designs are also applicable to traditional indoor or outdoor entertainment venues.

3.5 Possible Future Research

Interesting future research includes conducting more practical research into event production and venue development through a temporary or ongoing protype. This research would likely be through the adaptation of an existing space, which offers the opportunity for specific research into that process. The transformation of other kinds of built spaces (residential, commercial, industrial, leisure…) into areas for performance is fascinating and requires a different approach to designing from scratch. Even at a very small scale, these design decisions can have huge impacts on how well a production or venue functions.

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Appendices

House of Performance

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A.02	Floor Plan
A.03	Ceiling Plan
A.04	Roof Plan
A.05	Centreline Section
A.06	Stage Section
A.07	Front of House Section
A.08	Front Elevation
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LX.1	Lighting / Sound Plan
LX.2	Lighting / Sound Centre Section
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LX.3	Lighting / Sound FOH Section

Notes:

REV:	DESCRIPTION:	BY:	DATE:
A	Conceptual Design	OM	22/04/20

STATUS: For Reference Only

CLIENT: UBC Theatre & Film
6354 Crescent Road
Vancouver, BC
V6T 1Z2

DESIGNER: Owen Marmorek
103 - 2256 West 7th Avenue
Vancouver, BC
V6K 1Y2

SITE: House of Performance
Location TBD

TITLE: Title Sheet

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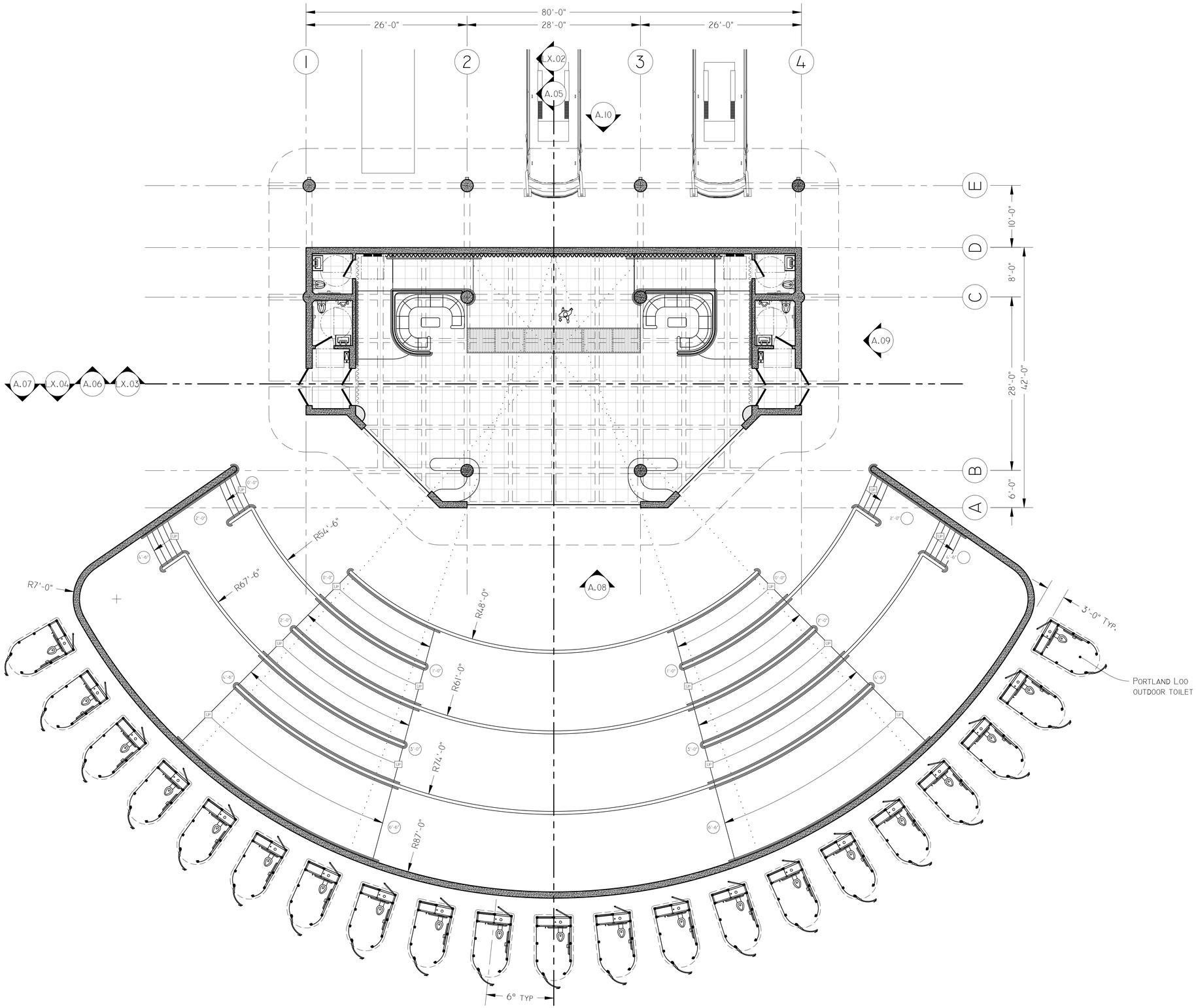

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V6T 1Z2

DESIGNER: OWEN MARMOREK
103 - 2256 WEST 7TH AVENUE
VANCOUVER, BC
V6K 1Y2

SITE: HOUSE OF PERFORMANCE
LOCATION TBD

TITLE: SITE PLAN

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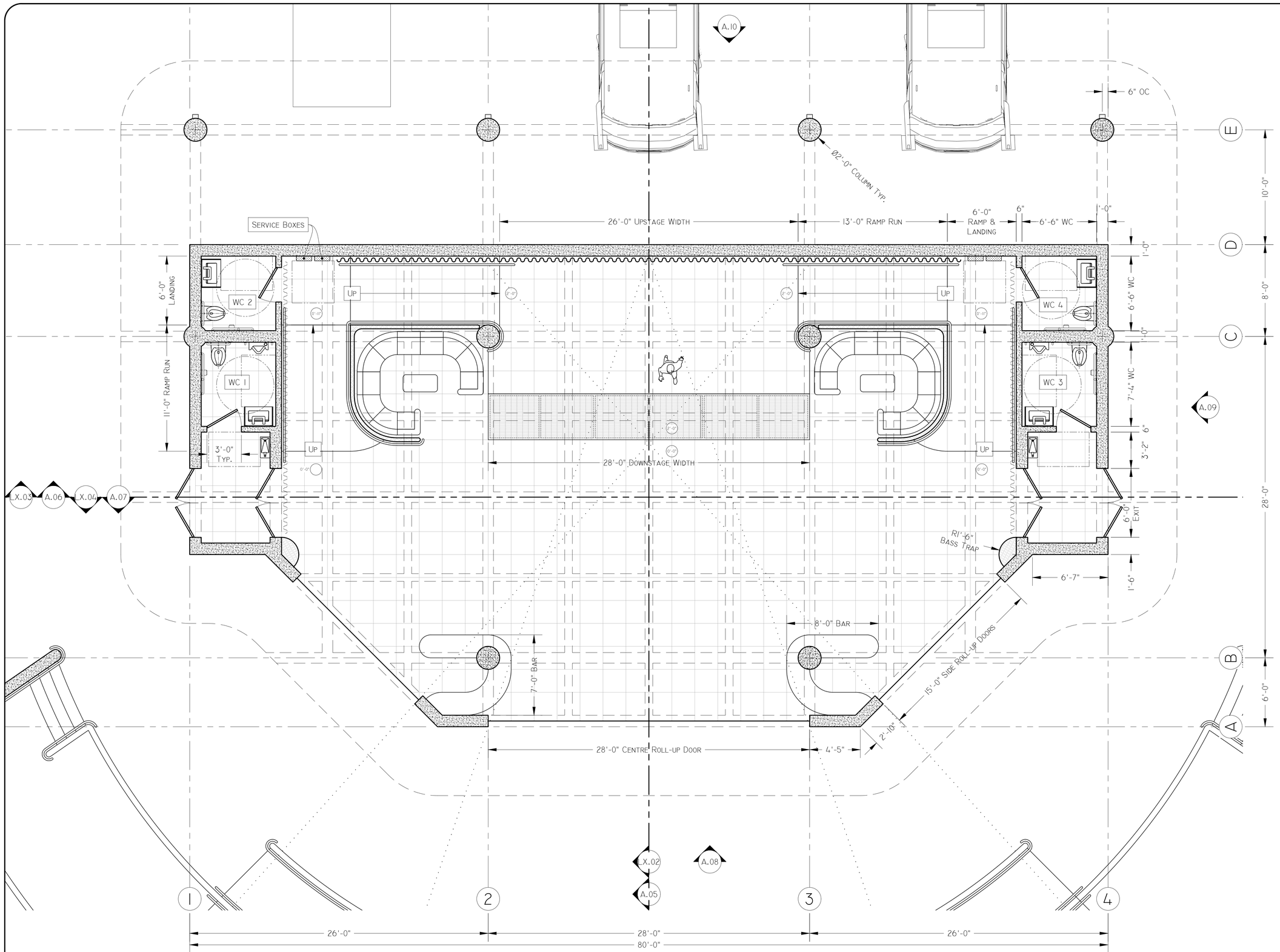

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VANCOUVER, BC
V6T 1Z2

DESIGNER: OWEN MARMOREK
103 - 2256 WEST 7TH AVENUE
VANCOUVER, BC
V6K 1Y2

SITE: HOUSE OF PERFORMANCE
LOCATION TBD

TITLE: FLOOR PLAN

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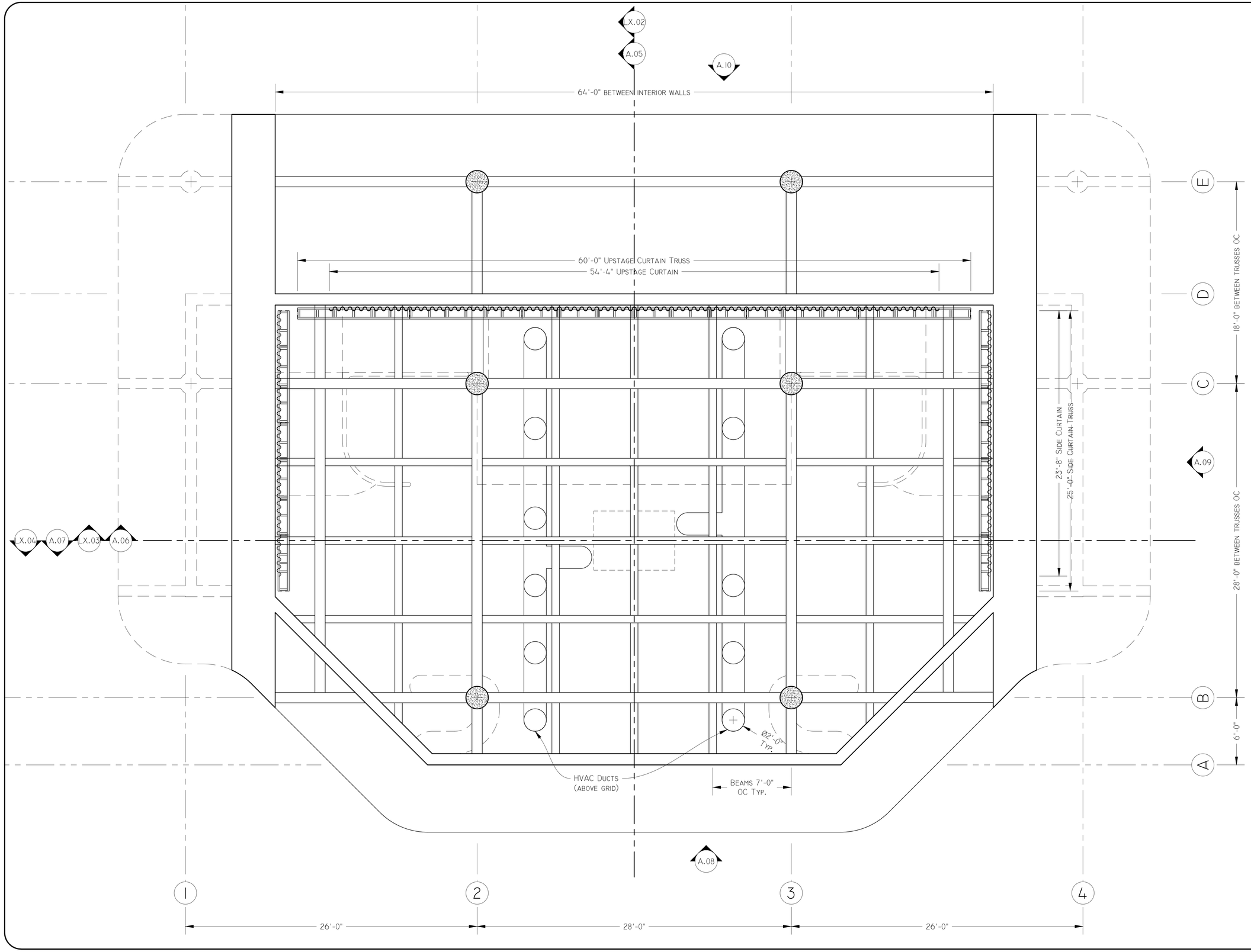

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6354 CRESCENT ROAD
VANCOUVER, BC
V6T 1Z2

DESIGNER: OWEN MARMOREK
103 - 2256 WEST 7TH AVENUE
VANCOUVER, BC
V6K 1Y2

SITE: HOUSE OF PERFORMANCE
LOCATION TBD

TITLE: REFLECTED CEILING PLAN

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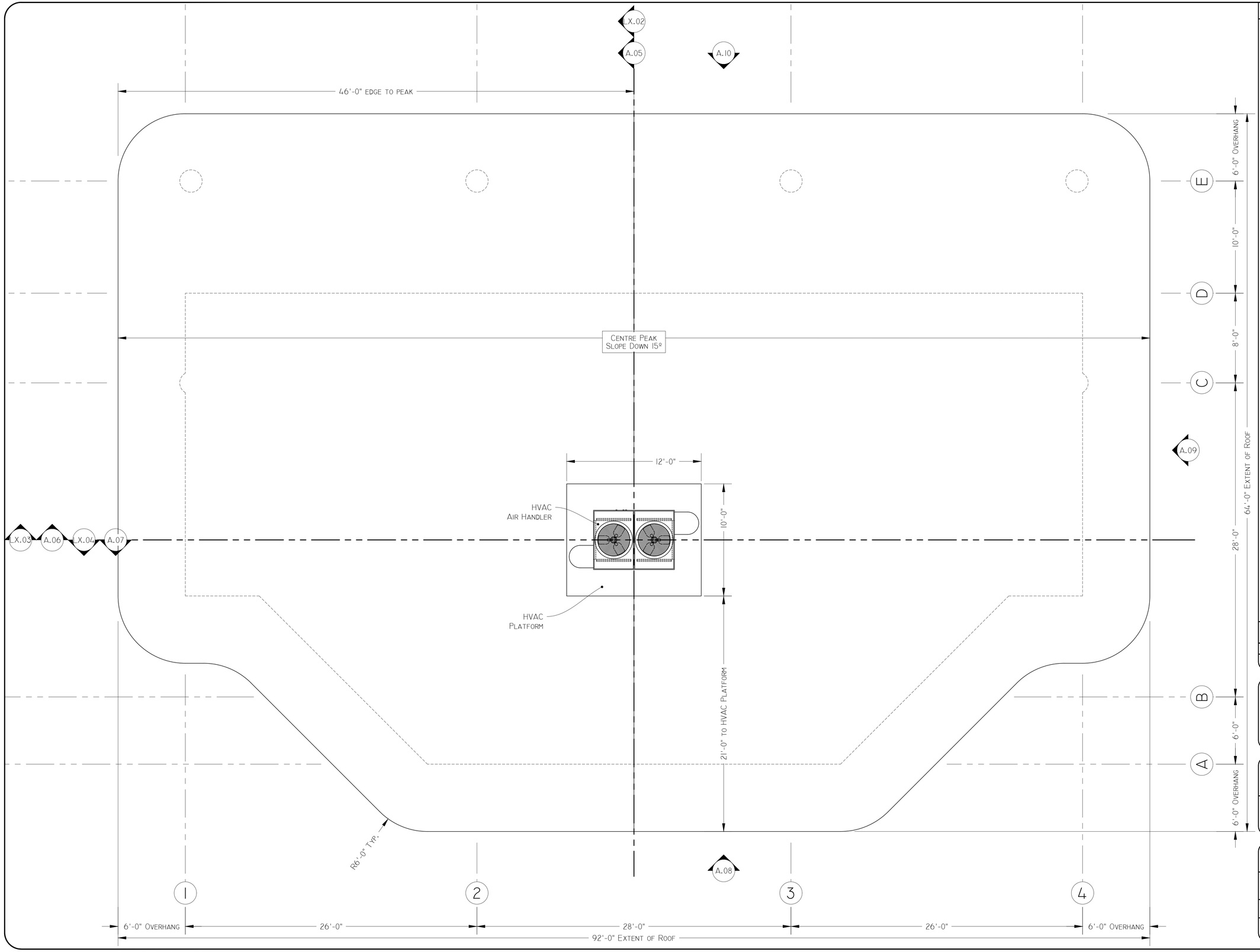

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V6T 1Z2

DESIGNER: OWEN MARMOREK
103 - 2256 WEST 7TH AVENUE
VANCOUVER, BC
V6K 1Y2

SITE: HOUSE OF PERFORMANCE
LOCATION TBD

TITLE: ROOF PLAN

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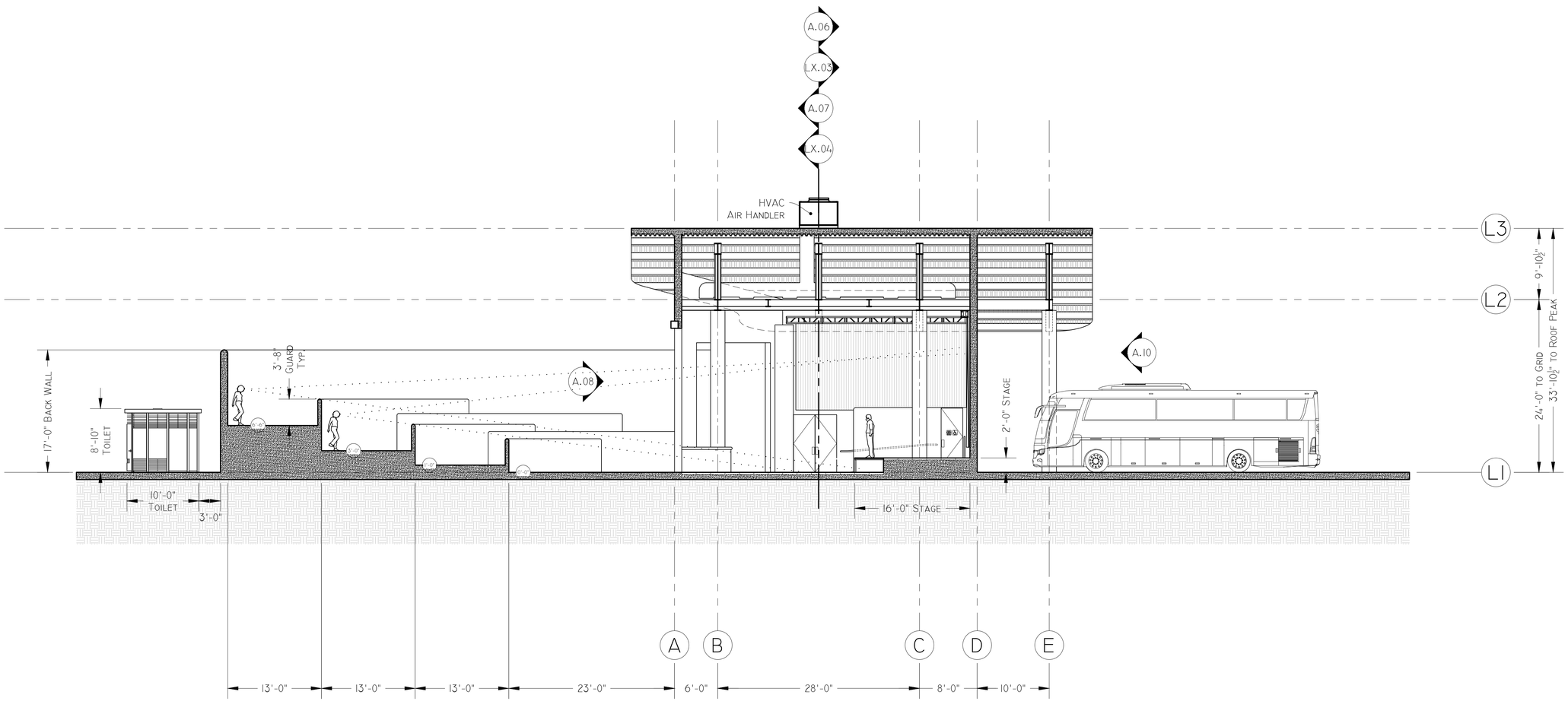

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VANCOUVER, BC
V6K 1Y2

SITE: HOUSE OF PERFORMANCE
LOCATION TBD

TITLE: CENTRELINE SECTION

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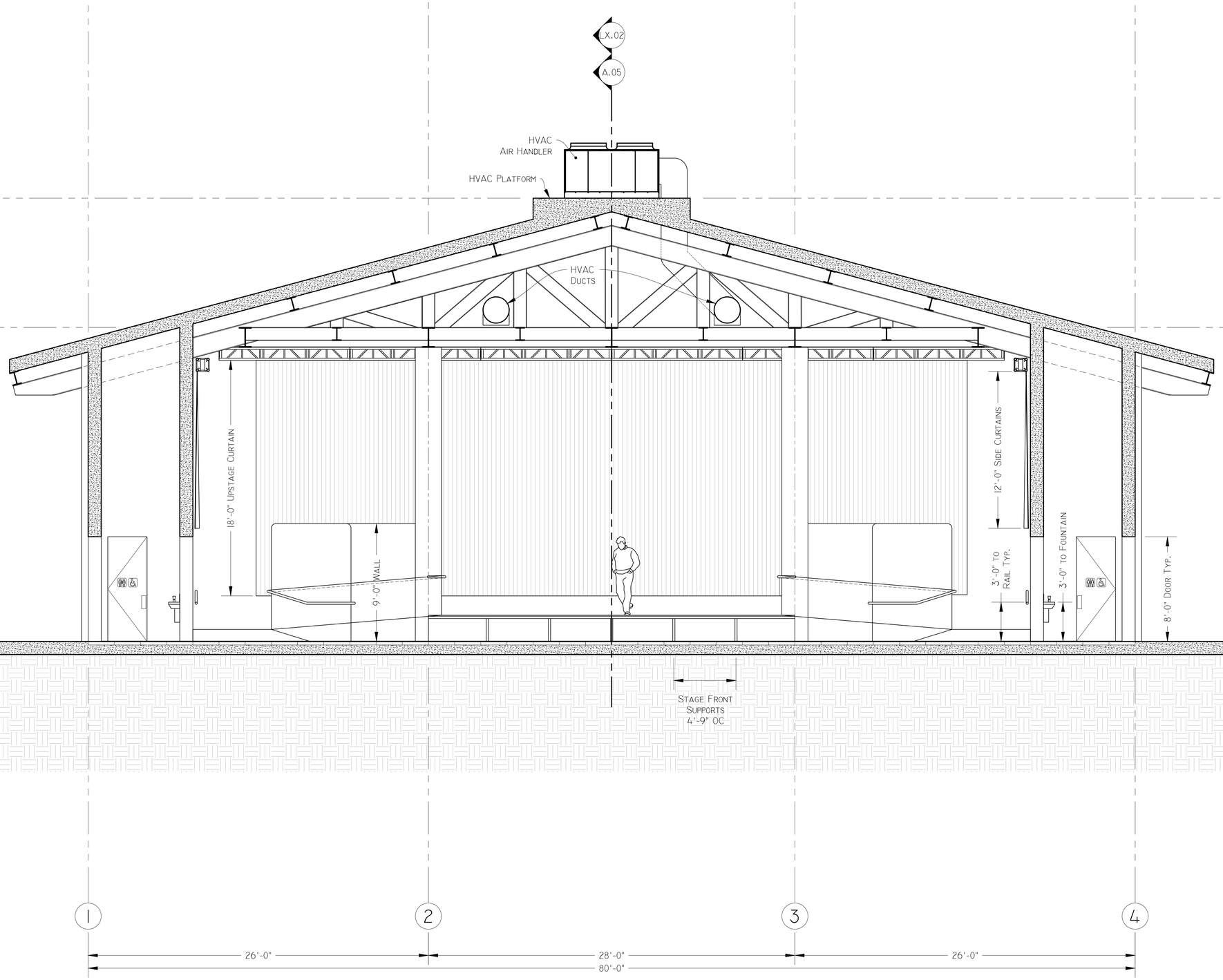

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Vancouver, BC
V6K 1Y2

SITE: House of Performance
Location TBD

TITLE: Stage Section

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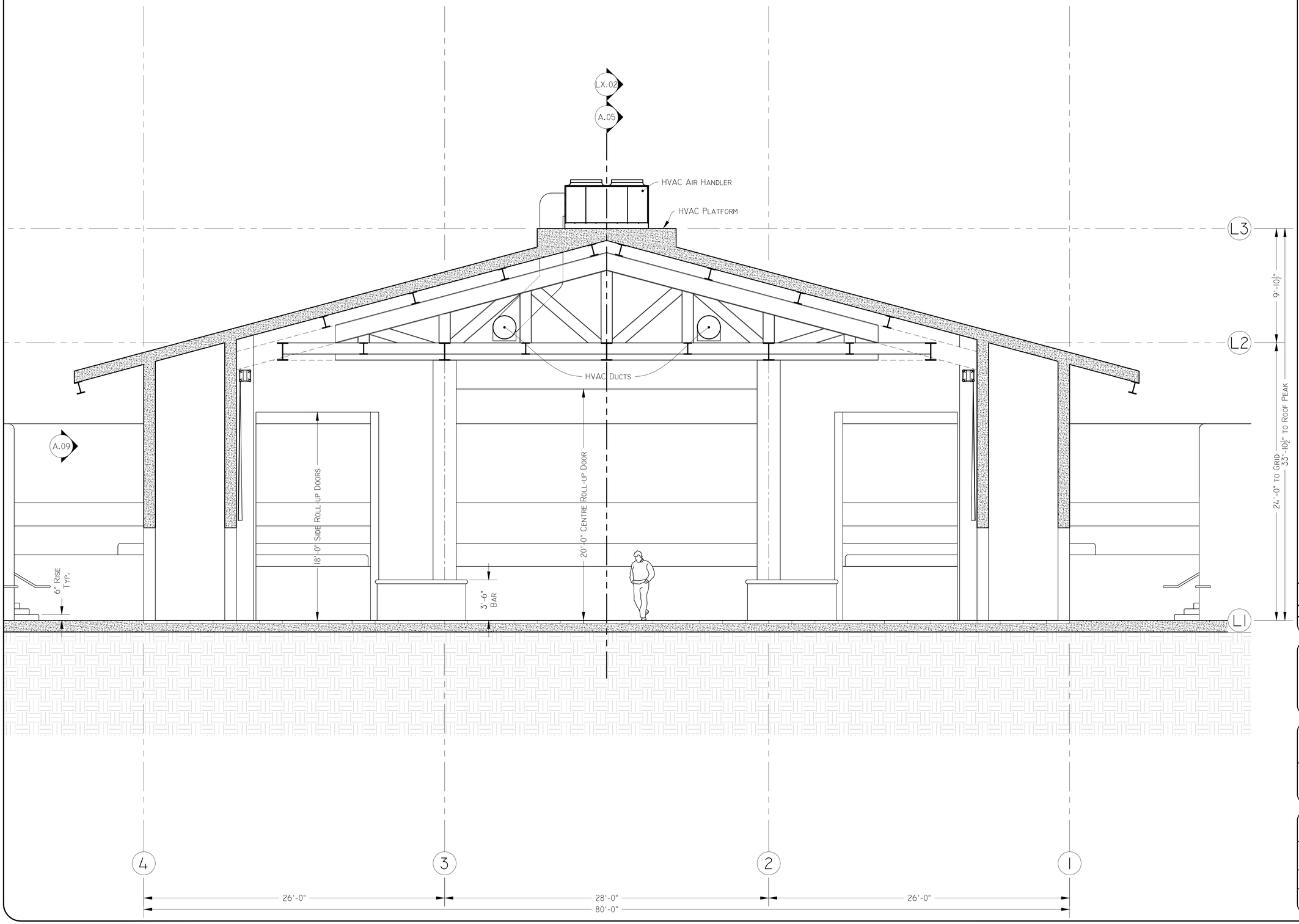

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V6T 1Z2

DESIGNER: OWEN MARMOREK
103 - 2256 WEST 7TH AVENUE
VANCOUVER, BC
V6K 1Y2

SITE: HOUSE OF PERFORMANCE
LOCATION TBD

TITLE: FOH SECTION

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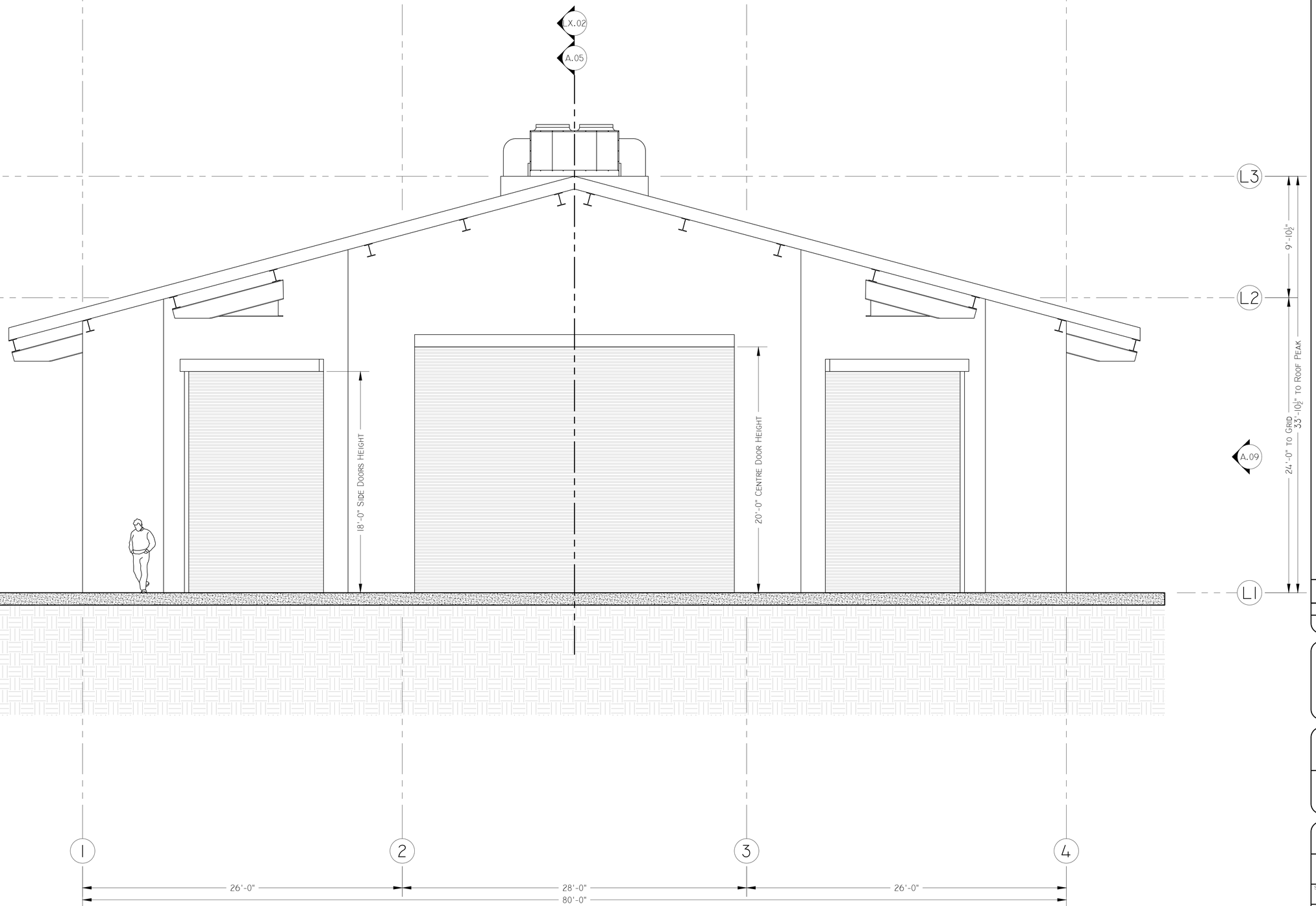

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6354 CRESCENT ROAD
VANCOUVER, BC
V6T 1Z2

DESIGNER: OWEN MARMOREK
103 - 2256 WEST 7TH AVENUE
VANCOUVER, BC
V6K 1Y2

SITE: HOUSE OF PERFORMANCE
LOCATION TBD

TITLE: FRONT ELEVATION

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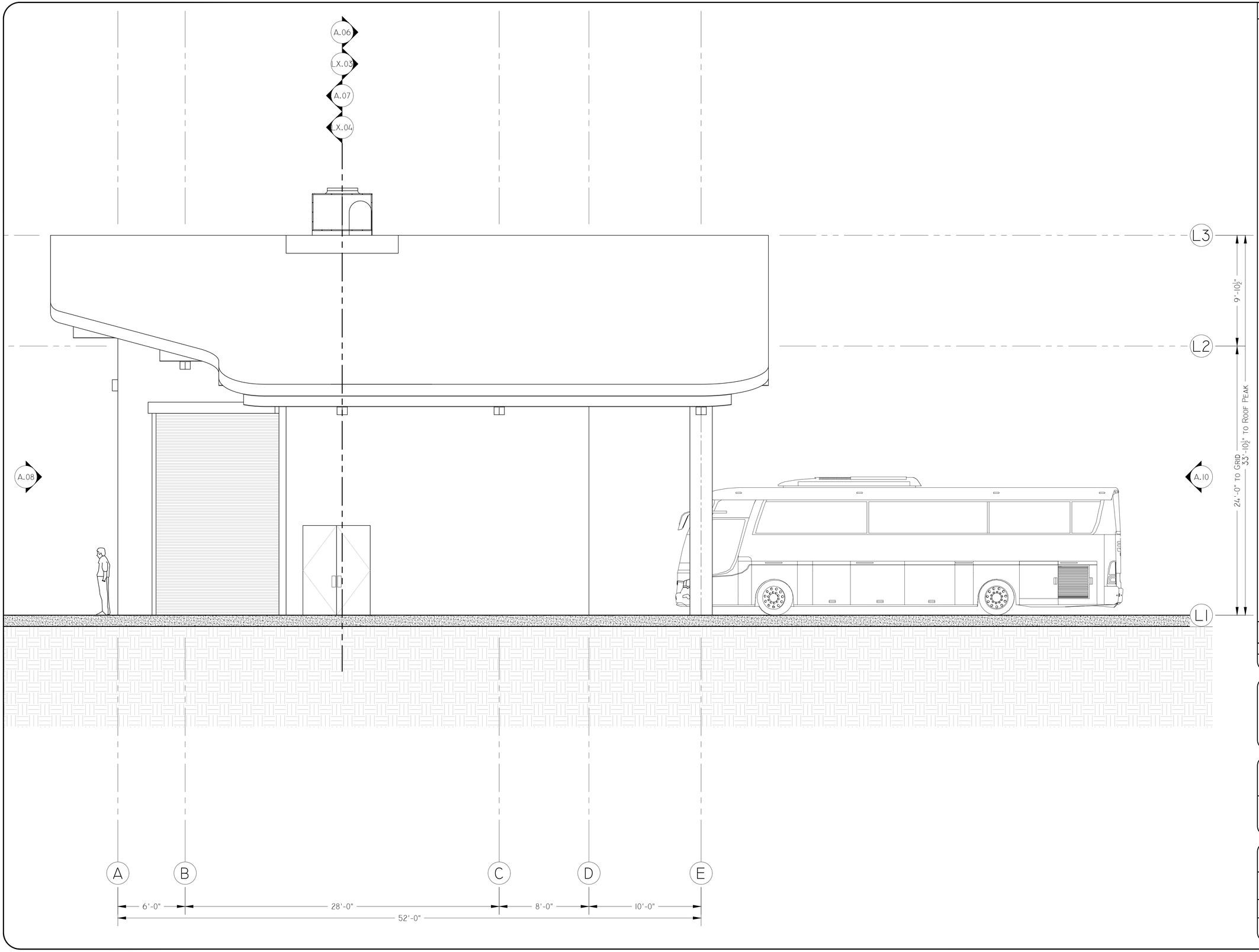

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6354 CRESCENT ROAD
VANCOUVER, BC
V6T 1Z2

DESIGNER: OWEN MARMOREK
103 - 2256 WEST 7TH AVENUE
VANCOUVER, BC
V6K 1Y2

SITE: HOUSE OF PERFORMANCE
LOCATION TBD

TITLE: SIDE ELEVATION

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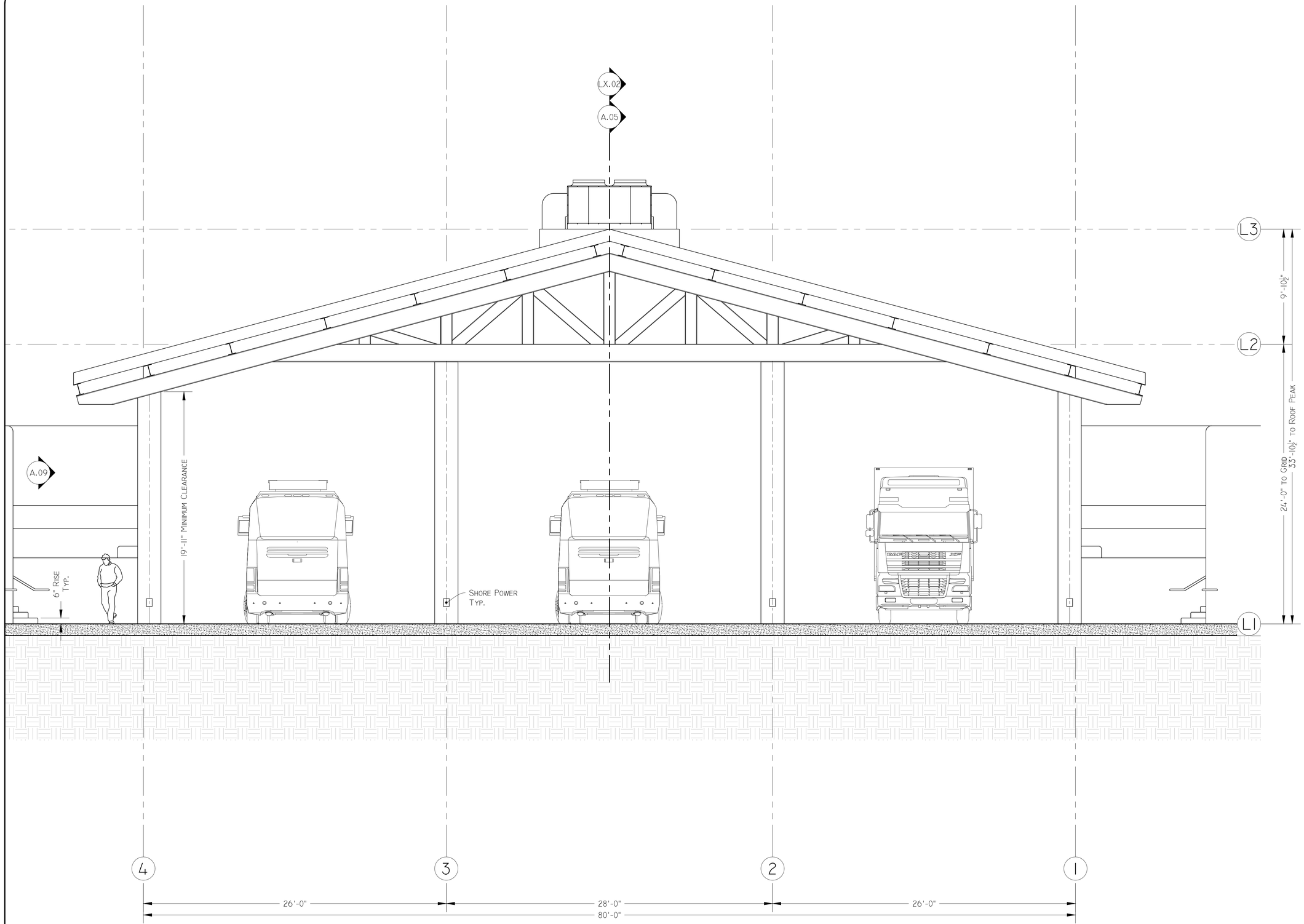

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VANCOUVER, BC
V6K 1Y2

SITE: HOUSE OF PERFORMANCE
LOCATION TBD

TITLE: FOH SECTION

SCALE:	DATE:	DRAWN:	CHECKED:
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X.02
A.05
A.10
SERVICE BOXES (BELOW)
PROJECTION SCREEN WIDTH 20'-0"
SERVICE BOXES (BELOW)
US
RB2
RB2
LB2
LB2
BOOMS 7'-0" OC
LX5
US MOVERS 2'-0" OC
RB1
RB1
LB1
LB1
LX4
LEFT MAIN PA
SUBWOOFERS (UNDER STAGE)
RIGHT MAIN PA
LEFT SUBWOOFERS (CART ON FLOOR)
LX3
RIGHT SUBWOOFERS (CART ON FLOOR)
LX.03
A.06
LX.04
A.07
SR
SL
26° TYP.
LX2
FRONTS 4'-6" OC TYP.
LX1
FOH MOVERS 4'-0" OC
PANASONIC 50K LASER PROJECTOR
A.09
A.08
E
D
C
B
A
1
2
3
4

NOTES:

12" STEEL BOX TRUSS

HALF TON CHAIN MOTOR

ETC COLORSOURCE LINEAR 72

ETC SOURCE FOUR LUSTR SERIES 3

MOVING HEAD LIGHT

PANASONIC 50K LASER PROJECTOR

MEYER SOUND PANTHER LOUDSPEAKER (X6)

MEYER SOUND 1100LFC SUBWOOFER

MEYER SOUND 1100LFC SUBWOOFER (X2) VLFC SUBWOOFER (X1)

REV:	DESCRIPTION:	BY:	DATE:
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VANCOUVER, BC
V6T 1Z2

DESIGNER: OWEN MARMOREK
103 - 2256 WEST 7TH AVENUE
VANCOUVER, BC
V6K 1Y2

SITE: HOUSE OF PERFORMANCE
LOCATION TBD

TITLE: LIGHTS & SOUND
REFLECTED CEILING PLAN

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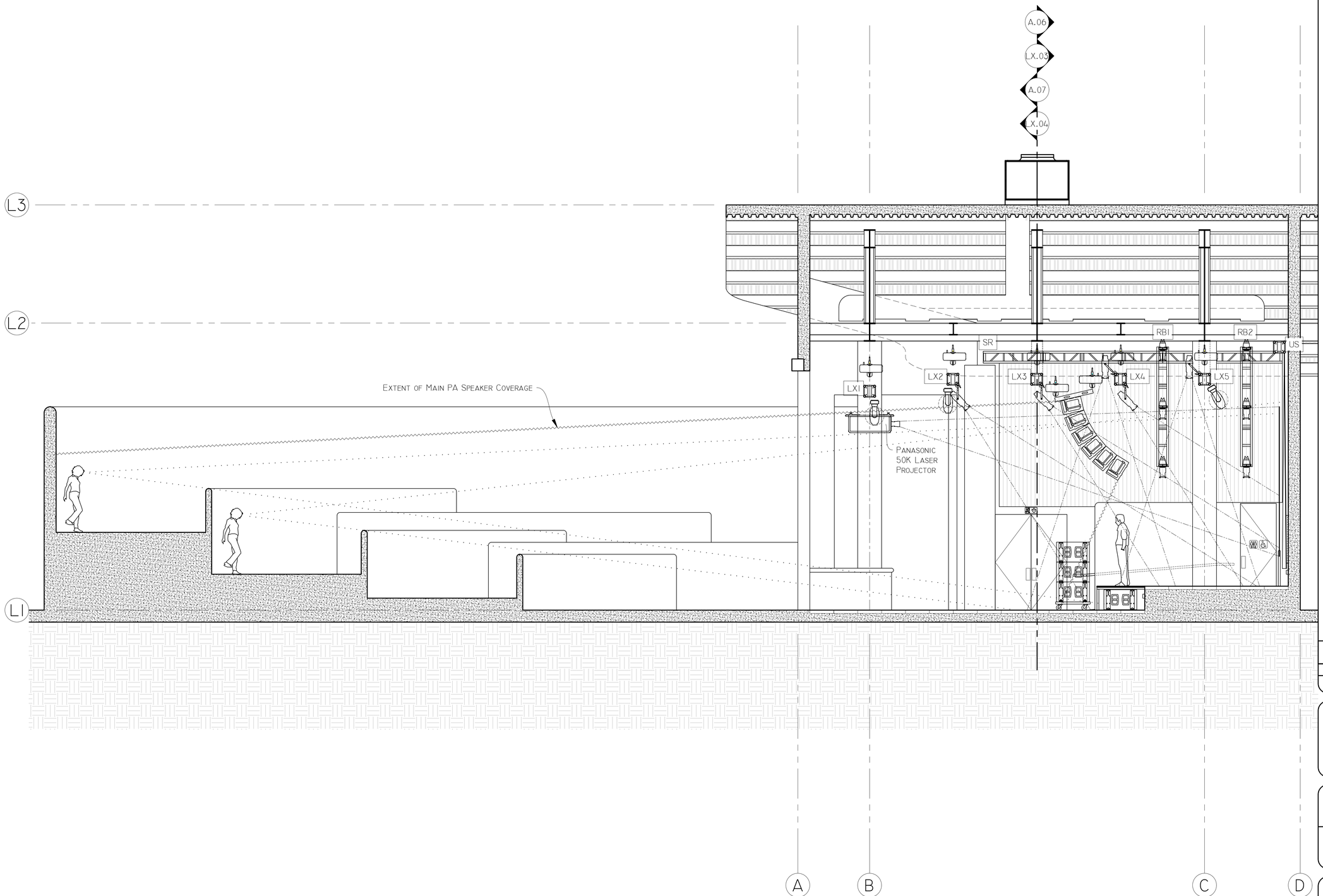

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6354 CRESCENT ROAD
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V6T 1Z2

DESIGNER: OWEN MARMOREK
103 - 2256 WEST 7TH AVENUE
VANCOUVER, BC
V6K 1Y2

SITE: HOUSE OF PERFORMANCE
LOCATION TBD

TITLE: LIGHTS & SOUND
CENTRE LINE SECTION

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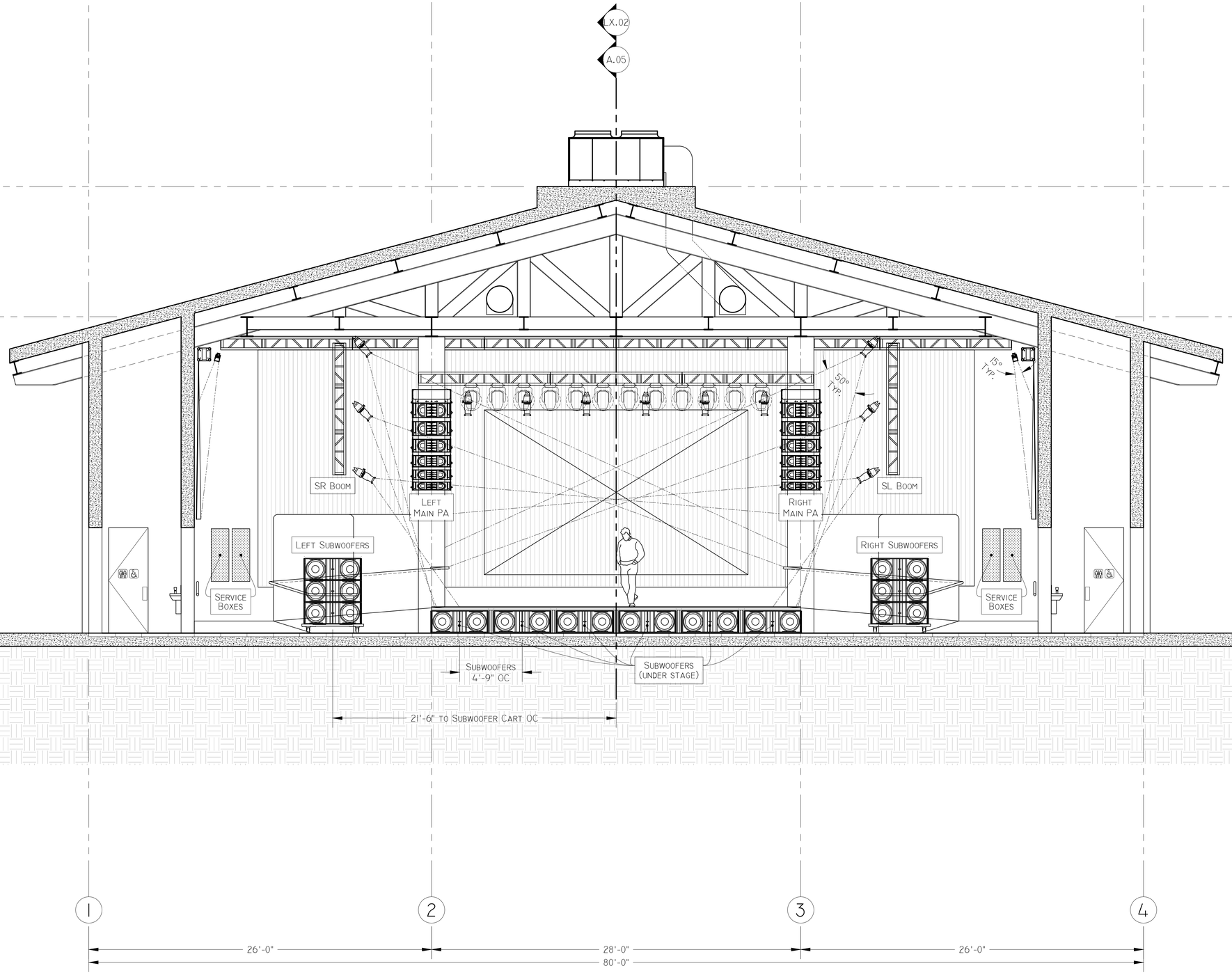

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VANCOUVER, BC
V6T 1Z2

DESIGNER: OWEN MARMOREK
103 - 2256 WEST 7TH AVENUE
VANCOUVER, BC
V6K 1Y2

SITE: HOUSE OF PERFORMANCE
LOCATION TBD

TITLE: LIGHTS & SOUND
STAGE SECTION

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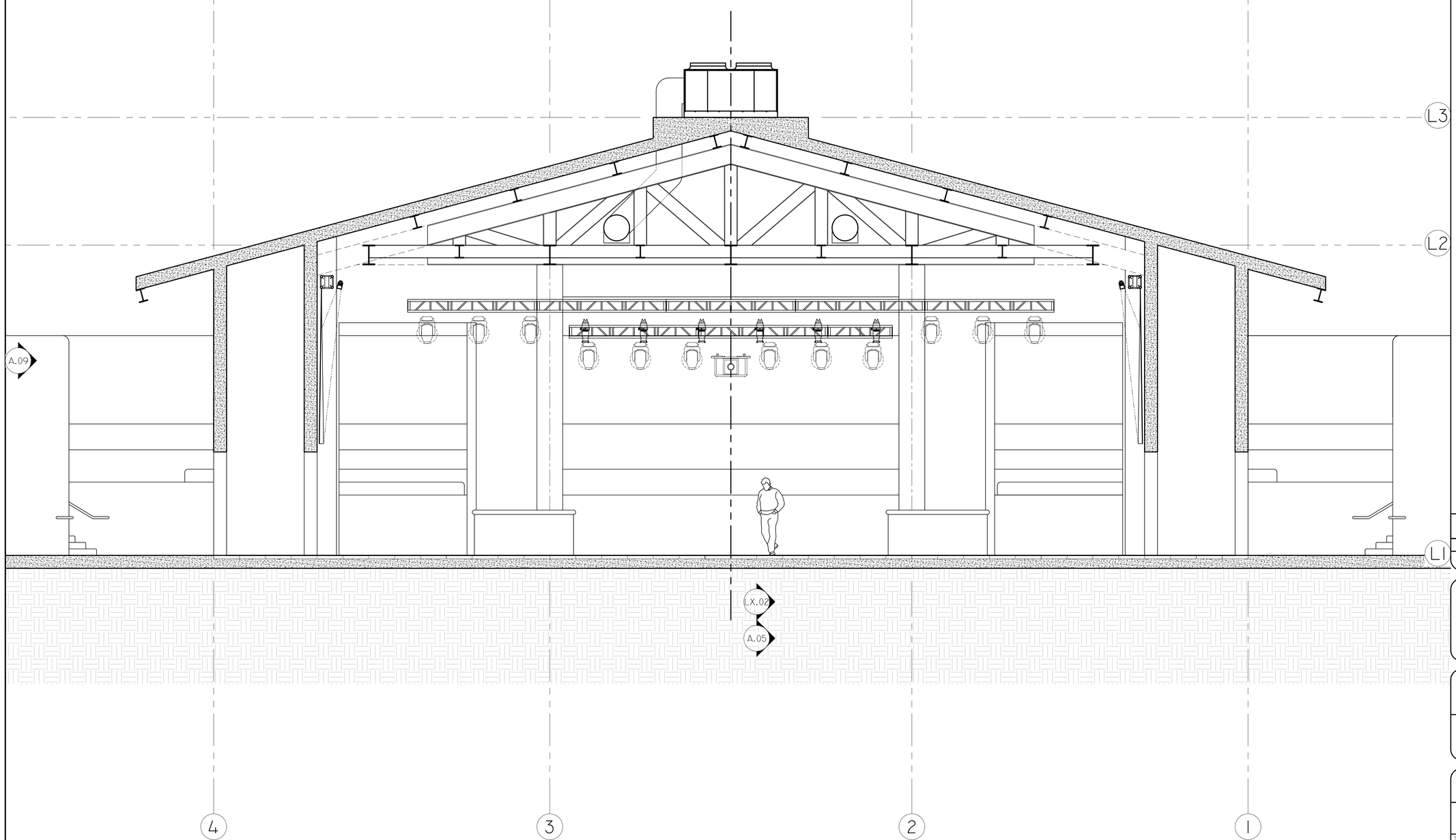

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LOCATION TBD

TITLE: LIGHTS & SOUND
FOH SECTION

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