TRAUMA-INFORMED ARCHITECTURAL DESIGN METHODS: HEALING THROUGH ARCHITECTURE, DECOLONIZING MINDSETS, AND LEARNING FROM INDIGENOUS COMMUNITIES

by

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This thesis focuses on exploring architectural design methods for healing, working with trauma, decolonizing designers' mindsets, and gaining new knowledge of design and the world from Indigenous communities. Currently, there is a lack of representation of marginalized communities in the built environments, along with related systems that continue to oppress them. It is the role of professionals in the built environment to understand how trauma manifests amongst these communities, explore how their own mindsets and previous teachings may be contributing to systems of oppression or being counterproductive, and revise methods for working collaboratively with these communities. There are guides, strategies, and design patterns to follow, yet the real work and progress comes from the designer to make changes from within, humbly listen and learn from the communities around them, and have the ability to self-reflect.

This paper explores existing research, trials and challenges within what exists, as well as applications from other disciplines into the built environment. There are also architectural examples, teachings from Indigenous communities on reframing the mindset towards designing a healthy world, as well as the application of current strategies into an architectural design project. Together, these sections represent learning from feedback, re-evaluating previous assumptions, as well as gaining new knowledge and a new perspective of our connection to the world around us. In the end, this is a piece of the puzzle to keep the conversation going and continue to explore how professionals can not only participate in breaking the cycle of oppression present in the built environment but also fight against it.

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Introduction

Historically and currently, marginalized communities and identities have been oppressed, silenced, and erased through the various systems that make up our society – including the built environment. The colonial built environment has historically oppressed marginalized communities for generations, whether it is through planning laws based on racism, cultural genocide, red-lining and biased zoning for segregation, gentrification, as well as spaces that promote exclusion or assert colonial powers. Although both the urban environments and the architectural profession are now becoming more diverse, the representation in design fields does not align with the diversity of the population . Due to this, there is a disconnect between those designing cities and those that inhabit them. In urban settings, it is common for there to be a lack of Indigenous representation in the "physical, cultural and 'storytelling structures' that constitute urban spaces" ("Anti-colonial community…"). Essentially, the elements that could reflect a city's values, history and character are not always included in the actual city design. A lot of other marginalized communities participate in placemaking and personalization in order to reflect culture and identity. While this is a positive attribute, the lack of representation in policy and existing systems of oppression can transform the narrative of this personalization, often switched out for stereotypes of criminal activity or used to further gentrification.

Both practices of not incorporating Indigenous representation and silencing other communities contributes to existing systems of oppression and communal trauma. Erasure, underrepresentation, and mischaracterization can all contribute to increased risks of violence, vulnerabilities, and safety of marginalized communities, identities, and intersectionalities in urban areas. This can include access to safe and affordable public transportation, adequate housing and shelter, meeting basic needs, and how the surrounding systems view these

communities and areas – for example with regards to law enforcement and social services. While representation in the profession can help bring additional voices and opinions into the room to consider more of the community's needs, professionals with diverse backgrounds can often be seen as the voice of the community and expected to do labor outside of the scope of their job without compensation purely because of their identities ("Anti-colonial community…"). This paper aims to research practices within our own spheres of influence to take action in our part of designing the built environment not just to prevent these issues from happening, but also to take part in the healing process.

First, it is important to understand why trauma amongst marginalized communities shows up differently than other forms of trauma. Psychological trauma is an emotional response that inhibits and overwhelms someone's ability to cope with the event or events they are experiencing. Trauma can appear in multiple psychological, emotional and physical ways, including nightmares, strong mood changes, flashbacks, headaches, and nausea. Clinical standards in Western psychology categorize trauma in connection to severe stressors, which can be helpful in some psychological practices and diagnoses, but also misses the sociocultural and historical contexts and their impact on trauma amongst marginalized communities. This is because Western psychology focuses on the traumatic event as opposed to the lived experience of trauma – "how it is remembered, embodied, and passed on generationally" (London & Brown). The American Psychological Association (APA) has now formally apologized to marginalized communities for their role in the erasure of histories, ignorance in practice and further harm due to traditional psychology practices, still the damage is already done. Reliance on Western psychology for diagnoses and healing practices not only misrepresents the reality of various types of trauma, but also allows marginalized communities to fall through the cracks of

yet another system. Additionally, due to the systemic ways in which trauma is continuously used to control and colonize communities, it is relevant to address it in a way that actually works for the communities, rather than performatively help or function as an expert savior that does not actually understand the root causes of any of these issues (Bryant).

Ethnotraumatology attempts to bridge the gap in the system to understand trauma through the "cultural, historical, and spiritual realities" of marginalized communities by considering the "cumulative effects of colonization, forced migration, systemic violence, and spiritual displacement" instead of isolating trauma to singular events (London & Brown). This method also reconciles with the fact that trauma can be current and historical due to its role in systemic societal structures. Simultaneously, it promotes healing practices that align with the culture, identity, and belief systems of these communities. Indigenous communities prioritize healing through "spiritual connections with ancestors and land, viewing wellness as holistic balance rather than merely symptom alleviation" (London & Brown). This is crucial as marginalized communities with generational trauma can have mistrust in Western standards and medical systems due to centuries of oppression and colonization. Indigenous psychology specifically emphasizes creating psychological frameworks based on the communities they are serving and learning from the community itself, as opposed to more common methods like cross-cultural psychology that often begin by examining and comparing communities to the Western standard. Internal epistemologies are at the core of Indigenous psychology and encourage grounding healing in "ancestral traditions, local languages, and communal lifeways" to affirm existing knowledge systems and authentically apply them in healing methods (London & Brown). This requires any outsiders involved to deconstruct their biases, as well as commit to curiosity, humility, learning, and justice.

As opposed to Western standards in healing, ethno-traumatology and its considerations of cultural psychology distances itself from onesize-fits-all diagnoses, and views symptoms as messages instead of disorders. This can include signs of cultural disconnection, identity loss, and intergenerational pain or mistrust. Cultural sensitivity and respect with regards to psychology is also imperative when understanding cultural trauma, which is based on a collective memory of a community's suffering and is very different from individual trauma – how Western psychology practices often frame trauma, symptoms, therapy and healing. Cultural trauma generally stems from slavery, colonization, genocide, or systemic oppression, meaning each member does not need to have experienced each event as trauma gets passed on through legacy and its imprint on collective identity. Collective suffering, however, can also be a source of strength and community support. Hence, when cultural trauma is validated and acknowledged, it can aid in communal healing through solidarity, resistance, and cultural pride. This is imperative to healing as communal trauma can be more complex since it requires both individual and collective liberations and coping methods. Most forms of therapy fail to address both, thinking only of the individual as a separate experience from the rest, and then the community as a homogenous group of people that all struggle in the same way (Bryant).

Decolonial psychology has been studied as cultural reclamation, and liberation psychology as a form of psychological reclamation, which can help people return to their cultural roots and wisdom – essentially being an act of resilience leading to holistic wellness. Healing-informed decolonial and liberation pathways embrace culture as medicine, community support, spirituality and religiosity, expressive arts, and resistance (London & Brown). Embedding healing within current practices and beliefs involves the community, encourages independent and communal expression, and can help with feelings of justice. It is important to note communities

already do a lot of these practices, and due to social, political and economical oppression, marginalized communities have produced their own study of the mind and the soul. Culture and religion are often a way of gathering with loved ones, finding forgiveness, and experiencing peace or joy through these practices. Communities naturally gather to aid each other and find other people that are going through similar struggles. Art is particularly prevalent in marginalized communities, whether it is a traditional or modern practice, a way of coping and/or expressing emotions, or an individual or communal activity (Bryant).

Despite this background being primarily focused on psychology, seeing it through the lens of the built environment begins to guide how psychology can directly show up in architectural, urban, and design practices. It is clear that healing for marginalized communities requires individual and communal spaces embedded in the culture that celebrate identity and encourage gathering, and – while the psychological background sets a clear idea of how healing can happen – the role of the built environment is to create the physical space for these practices to happen. This paper merges psychological practices with design processes to explore the pathways of creating spaces for healing.

Methodology

The methodology for this paper is based around a literature review, which will guide the implementation of design practices in a design project with a real community. The aim of this paper is to research the process of working with marginalized communities and the effectiveness of incorporating decolonized practices suggested by research. In the research field of the built environment, there is a lack of documentation of the actual process of working with communities. This is because there are so many factors that affect community collaboration and varying areas of research within this. Following real projects as research can also be difficult due to funding, design and construction deadlines, as well as prioritizing the project over the research itself. This paper will contribute to existing research by applying theories and ideas of decolonized methodologies, trauma-informed design, and healing systems in architecture to a project and discuss the effects on the design process.

The literature review will provide a background on a decolonized research mindset, and then dive into decolonized methodologies in the built environment, learning from Indigenous principles, and trauma-informed design strategies. These sections will also provide examples from the built environment in which these processes and guides were followed throughout the design process and analyze how they affected the final product. Then, these strategies will be applied to a design project in collaboration with the Northwest Indigenous Language Institute (NILI) at the University of Oregon. NILI is looking to expand their offices and develop a language revitalization center for Indigenous languages. This project is still in need of funding and will use student ideas to generate interest and continue the discussion of what the space could look like. The language revitalization center would include community rooms, a variety of classroom and event spaces, multiple auditoriums, and an elder's house to further their research

in language revitalization, host Indigenous nations from the Pacific Northwest, and pass down cultural knowledge from the elders. The project will be designed in collaboration with NILI, including a variety of checkpoints with them to receive feedback from the community and other design professionals. This process will be completed over the course of six months as a part of an architectural design studio. At the end, a discussion and reflection will reveal an exploration into the process of this design and the implementation of research from the literature review in order to analyze the theories in practice.

Literature Review

I. Introduction

This literature review section will analyze existing research and projects based on trauma-informed design, healing for marginalized communities, and decolonized methodologies. This section is split into four main areas, including decolonizing our mindset, decolonizing built environment methodologies, design strategies through the Indigenous lens, and architectural strategies for trauma-informed design. The introduction to this thesis already provided the general background of trauma amongst marginalized communities and the role of the built environment in supporting systems of oppression that further this trauma. Now that the problem has been established, this next section will focus on existing research that can help combat this. The first section is solely about a decolonized mindset and provides strategies that can be used for any field. Despite not being focused on the built environment, it is a crucial first step to unlearning pre-existing misconceptions about working with marginalized communities. The next section outlines decolonization in the built environment specifically and builds on the previous section. While both of these decolonizing sections touch on topics of Indigeneity with regards to research and methodologies, the following section goes further than decolonizing and into learning from Indigenous principles directly. Lastly, the literature review ends by analyzing trauma-informed design, including strategies found by researchers and professionals. These last three sections – due to their direct connection to architectural methodology – also provide examples of the strategy's implementation into real life projects. Essentially, the literature review is set up to guide designers through the process of approaching trauma-informed design and strategies for working with marginalized communities, and demonstrate how it has been done in the past in order to inform the future.

II. Decolonizing Methodologies Through Our Mindset

Research can have a negative connotation for many communities as it is not always just a pursuit of knowledge, rather predatory and exploitative behavior towards marginalized communities. Historically, it is not uncommon for oppression to occur in the name of research or in the guise of saving others. Research that involves marginalized communities can lack context and perspective of the community, leading to dehumanizing and stereotyping them. Members of various communities have asked researchers to reconsider their thought process: We know we are dying, but tell me why we are living? Sometimes research can be focused on benefitting and validating people not a part of this community. For example, programs built around providing aid that actually make it harder for people to reach or receive this aid, or simply painting the community in an inaccurate way.

Collaborative decolonized methodologies could include solidarity in communicative environments where "past and present learnings across oppressed populations can be used to transform" methodologies (Thambinathan & Kinsella). This requires respect, responsibility, and humility, as well as ensuring researchers do not minimize struggles through inappropriate contextualization. Recent research in South America has focused on the ecology of knowledges, which recognizes diversity in research practices and redistributes power to non-Western forms of wisdom: "What knowledge has been made part of academic agendas? And what knowledge has not? Whose knowledge is it? Who is acknowledged to have the knowledge? And who is not?" (Thambinathan & Kinsella). There have been attempts to merge Indigenous research paradigms with Western ones in order for the research to be counted in existing academic institutions and systems, which all rely on Western research standards to validate knowledge. However, integrating knowledge systems can lead to weakening of the non-dominant one, assimilating

Indigenous knowledge, over-generalization, and increasing the risk of eventual erasure of Indigenous systems. At the same time, there is a push for reinventing paradigms within academia independent of Western standards to encourage self-determination of knowledge, of course this would mean dismantling current knowledge systems as we know them. In the meantime, three more applicable strategies for decolonizing methodologies have been explored: critical reflexivity, respect for self-determination, and embracing "othered" ways of knowing.

Critical reflexivity and understanding of power imbalances are ways of decolonizing research. This includes re-evaluating how certain groups may only participate in research due to fear of retaliation or their precarious position (for example, political affiliations or immigration status), which would be taking advantage of these communities and the power imbalance to conduct research. Incentives to participate in research framed around basic needs as prizes can be another way of manipulating marginalized communities into cooperating with research they otherwise might not have. Critical reflectivity also goes beyond confessing privilege and acknowledging power imbalances, it should show up in the way that the research is conducted. For example, some researchers have shifted their interview and research questions from thinking of these communities as victims or witnesses, rather framing them as the experts or knowledge holders to avoid reverting into a savior mentality. This method further encourages researchers to avoid viewing answers as the production of a knowledge outcome and fitting with the end-goal of the research, especially when coming from a position of learning. Instead of thinking that the outcome has to either support or negate a pre-instated claim, which is how Western research is framed, this form of research encourages looking deeper into what knowledge can arise from the questions and confusion. The goal is not productivity and a profitable outcome, rather learning about what is truly there. Researchers argue that deep introspection is just as important as

actually finding answers because it breaks down colonized knowns into decolonized unknowns. This does not mean that Indigenous research is unorganized or unplanned going into the process, it is just a way of reframing the mind around humility and curiosity, coming in as a learner and not a presumed problem-solver. While this method may not align with Western-standards and could be difficult to integrate into current research systems – especially regarding receiving research funding –, it can be a more accurate research method and generate more usable knowledge.

Respect for self-determination is another method for decolonizing research that centers around receiving constant consent throughout the research process, encouraging collaboration, and establishing collective ownership of the research process and outcome. Beyond mutual trust and respect, the researchers should constantly be seeking guidance and feedback from the communities. The goal should not be framed as empowering these communities or giving them a voice as this insinuates they would be unable to do this without the researchers. In this form of research, listening is the core factor to healing the wounds of colonialism and past exploitative research practices. Researchers note that, traditionally, the one that talks is listened to, and the one that is listening is being silenced. While this can be an overgeneralization, it is especially true when occurring in existing power imbalances. Researchers should be able to actively listen and participate in an emotional and trusting relationship between all parties. This includes having open minds and hearts, taking accountability, and being committed to growth. Self-determination also helps add a humanistic approach to research, which Western-standards lack when it comes to marginalized communities.

Embracing “othered” ways of knowing can also aid in decolonial research with these other practices. It can include cultural insiders and more diversity in researchers as a way to

bridge the gap between the participating parties, following and understanding local practices, as well as check-ins regarding published works to assure the community feels they are being represented accordingly. However, it is important to remember to not rely on people that are both researchers and part of the community to do all of the emotional and decolonial labor as that is just putting the work on the community once again. Also, communities are not homogenous and cultural insiders may not all have the same experiences despite their intersectional identities (Thambinathan & Kinsella). To recognize "othered" ways of knowing, it is also crucial to understand that this includes the way in which communities store knowledge and how that knowledge was acquired, as well as take it seriously even if the methods deviate from Western standards of research and knowledge. This is particularly important for knowledge passed down orally and story telling, which are more likely to get dismissed and labeled unreliable. Part of decolonizing research includes recognizing knowledge presented in a different medium with varying language standards – regarding expert vocabulary and formality – and uncommon formatting.

Overall, these methodologies and guidelines for decolonizing research are not specifically made for architecture; nevertheless, they can apply directly to it as architecture relies on project research and constant revision, which can be improved by these strategies. Critical reflexivity, respect for self-determination, and recognizing "othered" ways of knowing can be laid down as foundational mindset changes that generally prepare professionals in the built environment for working collaboratively with communities. Ultimately, we can provide architectural guidelines and set strategies for practice, but they will not be as effective unless the participants have a fundamental understanding of trauma and a decolonized mindset.

III. Research in Decolonization of Built Environment Methodologies

Focusing on the built environment, researchers note inclusivity, listening to others, diversification within the practice – both in participants and methodology –, and reframing our modes of thinking. There is a large focus on unlearning and undoing colonial modes of thinking, including "extractive behavior, competition over resources, and valuing hierarchies," ("Decolonising the built…") emphasizing the need to learn from psychology and other decolonized methodologies. University professors also mention that colonization is rooted in learning as well as research, which guides what examples and architecture process designers are more likely to follow post-graduation. Because of this, learning what it actually means to decolonize is an ongoing process, involving other voices and understanding the need for constant reflection. There is no necessary end to this process either, it is something that constantly evolves and we learn through practice as well as making mistakes and reevaluating our actions.

Professionals working in decolonizing the built environment specifically have emphasized the importance of communicating with others from various parts of the world to see how they view decolonization and expand the discussion of it. They have often found that these discussions, like most parts of the design process in architecture and design, bring up constant feedback and revisions. For example, some professors have worked on creating what they view as a more decolonized curriculum, only to realize that it is not decolonized as long as it is not accessible, which in turn has brought the question of accessibility in the built environment and in designs that specifically aim to decolonize. The translation of a decolonized theory of architectural practice into actual practice in an accessible way has proved to be a challenge due to existing systems and design processes – including timelines, budgeting, and constant education or learning of the subject. Researchers worldwide have specifically struggled to

compare findings regarding decolonization due to a lack of funding: cultural-led research can be more difficult to fund, or can have disparate distribution across regions, making it harder to come together. This is precisely what decolonization criticizes of current research and design practices: some groups are simply left out from the conversation, and researchers continue to experience it as they are attempting to fight against the existing systems. Capitalist and biased funding systems have been a problem decolonization has been pointing out since it was first brought up in academia, and yet, it is now getting in the way of the new research itself. Part of research in decolonization includes finding ways for decolonization to grow even under existing systems and obstacles; however, how can this be done if, once again, the most impacted communities continue to be silenced? How can we learn if people continue to be excluded from the conversation?

Collaboration is mentioned as particularly necessary for designing the built environment to involve different viewpoints and most importantly decide what questions to ask and what each project's main goals are. There is no exact answer to the obstacles found in this decolonization process; nonetheless, experts encourage taking initiative and exploring methodologies and different approaches, while constantly re-evaluating and sharing the process. A more radical suggestion includes assuming nothing prior and trying to not come in with the values of the discipline you have been working on, rather coming in as a humble learner. Deconstructing the values that have been engrained in one's learning and current practice can be helpful in this process, and – most importantly – avoiding assumptions to what the project will look like beforehand ("Decolonising the built…"). This can be a major jump for some designers in the profession, especially when they are used to producing similar kinds of buildings and assume their prior expertise is just a way to aid the design process. Furthermore, designers are often

encouraged to produce ideas from the beginning as a way to organize their thoughts and creativity, even if these ideas are revised and become completely different in the end.

Ethical space is a practice in the built environment that can help bridge gaps between communities, as well as the tangible and intangible struggles between them. Ethical space of engagement is "formed when two societies, with disparate worldviews, are poised to engage each other", in the built environment it encourages the creation of space between knowledge systems. This is not a particularly new idea considering designers that contribute to the built environment are already used to designing for multiple types of people in one space, whether it is a multifunctional park, playground and public concert space, or a city office building with food options that also contribute to weekend activities. It is, however, an uncommon practice when designing for marginalized communities specifically, especially because – as previously discussed – it can be difficult to incorporate multiple different knowledge systems in one space, not just due to their potential contradictions but also due to the risk of erasure of the less dominant system. Because of this, ethical space focuses on a multidirectional flow of knowledge that transforms the communities into the authors of their space and designers as the learners ("Anti-colonial community…"). At the same time, framing this method around something that is already familiar in practice can help designers transition into new methods without feeling like all of their expertise is completely worthless in a new environment. This is also important for reframing a designer's mindset when working with marginalized communities. We have established that designers are not here to save and empower these communities but to listen, simultaneously the language and attitude when approaching this matters so that working with marginalized communities does not turn into something that designers view as an obstacle or special case that is unrelated to everyone else. In general, everyone benefits from decolonization

and more accessible and considerate spaces, so learning from working with marginalized communities is not a process that ends with the project or that should be discarded for future projects.



Figure 1: Big House "Atyaro Pankotsi" by Semillas in Rio Tambo, Peru.

The Semillas architecture firm in Peru has received worldwide recognition for its work with marginalized communities and decolonized approaches to design. The Big House "Atyaro Pankotsi" or Otica Community Center in Rio Tambo, Peru is one of these. It was designed for the Otica community in the central jungle of Peru, where the community participated in design workshops and gave feedback to collaborate on the design of the final product. Community members heavily suggested the use of their local construction practices used for building their homes, which included elevated floors for flood protection and large overhanging roofs for the strong fluctuating weather. They also requested large multi-use spaces that could fit the entire community for major events, along with consideration for their cultural principles that relied on being one with the land and seeing the forest as their home. The final design revolved around

these inputs of multifunctionality, local construction practices, and use of materials from the land. Their main diagrams below follow these ideas in order.

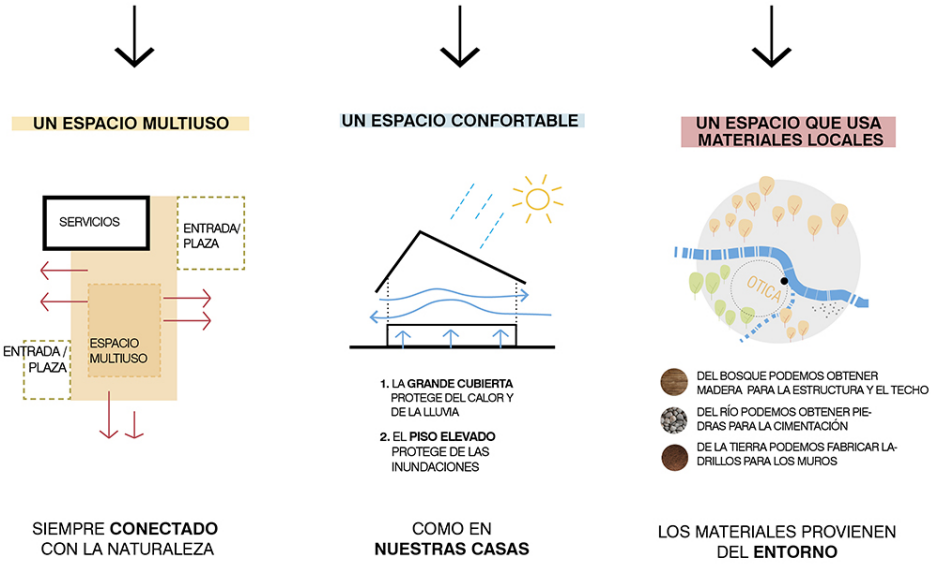


Figure 2: The main ideas for the Otica community center. The diagrams are visual representations of these ideas, although the descriptions are in Spanish – the architecture firm's main language. The first diagram is about multifunctional spaces and always being connected to nature, the second diagram depicts comfortable space following local housing construction, and the third diagram communicates creating a space with local materials – wood from the forest for the main structure and roof, river rocks for the foundation, and bricks made of the land for the main walls.

The contributions from locals were mixed with architectural design and the firm's expertise to develop a space that worked well for the community. The raised floor and construction style was suggested by the community, which the architects used to generate elevation changes and double the raised floor as amphitheater grandstands. The style of overhanging roof was extended even more to create in-between covered spaces and expand the shelter of the building for environmental comfort and maximization of space and materials. There are also two access plazas – one including a ramp to meet the community's needs – with benches and native trees. The architects also incorporated additional services that support the events of the community center and attached another module with a kitchen, office, and craft workshop for everyone to use ("Community Center, Otica"). Semillas is a firm that is known for taking initiative and making the most of ethical space techniques, bringing their expertise of

working with marginalized communities, effective use of funding, and multifunctional architectural design that can grow with the community. Their previous knowledge – in collaboration with the community's knowledge of the land, local construction, and context – helped them successfully design a community center that represented the occupants and met their needs. Without the trust, communication, and knowledge of both parties, and the decolonized mindset of the architects, the project would not have functioned as well or provided a precedent for effective collaboration and lifelong relationships.



Figures 3 & 4: Two different configurations for the main space, one featuring benches facing one direction, the other with large tables for community dining. The community center can also be used as a central performance space with the steps as seating and the overhanging roof as shelter.

IV. Designing Through an Indigenous Lens

An Indigenous lens in design is focused around the idea of universal inclusivity. Universal inclusivity begins by taking humans away from the top of the pyramid and putting them in a circle at the same level as other factors. To start out, a colonial process of thinking and designing leads from one stage to the next without the stages really interacting with each other. The point of this process is to move the design along, meet deadlines, and fit within capitalistic standards. Indigenous ways of thinking about time revolve around nature: the changing seasons, the cycles of the moon, the life cycle of growth and death. This can be described as Seventh

Generation Thinking, which revolves around the idea that everything we do now will affect seven generations into the future. This is crucial in understanding that we – as humans – are connected to everything around us in a non-hierarchical way of thinking, we are simply part of the cycle. In colonial systems of thinking, humans are generally at the top of the pyramid, insinuating that everything else has less value than us, which unintentionally describes the one of main issues with colonial systems: we make selfish decisions that benefit us in the process and not only does everyone else below get negatively impacted, our future also suffers. This may sound simple or obvious, but to fundamentally live by the indigenous principles it takes more than recognizing that humans are part of the cycle. It can be more difficult for people with privilege (at the very top of the hierarchical pyramid) to truly understand this way of living. Anyone can recognize that we should care about the future and that humans are equal, but can anyone truly believe in putting every part of the circle of life in equal value? Can anyone actually live by the Indigenous idea that "humans are not worth more than a drop of rain" and stand by that in their actions?

New research regarding the built environment can center around new technology, how we make our cities more environmentally conscious, what kind of power we use, what revolutionary technological advancement will change the way we live forever. On the other hand, Indigenous ways of thinking focus on using universal inclusivity to solve some of the same issues. It starts by re-evaluating the core of what makes a city a city, what would happen if all the power went out, and what makes a city smart then? According to the Indigenous design lens, the way to make cities smart is to center them around food, flora, fauna, family, fun, and flexibility. Food is at the core of Indigenous culture and identity. In current society, there is a prevalence of food insecurity, environmentally-damaging agricultural methods, and poisonous practices that

affect our health along with the organisms around us. By colonial standards, urban farms and bringing the food closer to the city are new strategies to involve communities and help fight against food insecurity. Indigenous methods of planning and designing go beyond that by going back to the circle of life, particularly with the design of The Three Sisters: corn, beans and squash. This is an agricultural strategy that Indigenous communities have been practicing for thousands of years and revolves around using corn as the stalk for the beans to grow on, the beans provide nitrogen to the soil, and the squash helps keep the soil moist and full of water to aid in supporting the other crops. This technique is called milpa and can be used to support fields with even 20 or 30 different crop species.

Flora and fauna are connected to food, but also important for biodiversity and supporting spaces for everyone to live in. Flora and fauna drive our ecosystems and smart cities should account for a variety of ecosystems to support them, including migration, breeding areas, and varying lifestyles (nocturnal and diurnal). Family and community are crucial to the guidance of experiencing everyday life by Indigenous culture. In current Western systems, people are encouraged to move out of their homes at an earlier age, and the built environment can reflect this through the more individualized design of single family homes and residences that do not establish places for community and human interaction. Fun is connected to many of these values as well because it is based on community and environmental interaction, often resulting in unintentional learning and social development. In cities, this includes creating ways for active living like parks, bike paths, and public access to nature. Lastly, flexibility is based on our cities and designs being able to adapt over time in a free or cost-effective way. Ideally, a city or design that centers all six principles, while following Indigenous beliefs, would be smart, functional and a part of the existing world ecosystem.

Furthermore, Indigenous processes for approaching design begins by understanding what is already there – intangible and tangible – in the ecosystem, culture, and identities, as well as the core values that they represent. This includes things that may not even be related to the built environment itself, such as hunting practices, clothing and use of materials: What does it say about the values of the community and respect for life? What does it say about comfortability and climate? How have people dealt with the struggles of the area before?



Figure 5: The Biindigen Well-Being Center designed based on Indigenous principles.

In practice, a system and project called Biindigen – meaning welcome in Ojibwe – has been used by a group of service providers to collaborate and create a project that provides a combination of diverse uses (such as housing, health, childcare, and family-centered spaces). This means creating spaces that support community and events, push for multi-generational connections not just in the final product but in the design and build process as well, while also being guided by a connection to the land, urban agriculture and site walkways. The Biindigen project features a variety of agricultural spaces, community terraces for muti-generational support and interaction, as well as childcare and family spaces that sustain community and event spaces. The landscape was heavily integrated into the design, which included rain gardens, pollinator beds, and medicine gardens to develop a habitat as part of the building design and

reinforce the relationship between humans and the natural world. To further foster intergenerational connections to the food and land, mature trees were preserved and naturalized play areas were set up along the urban farm.



Figure 6: A render of Indigenous agricultural practices being implemented in the landscape of the Biindigen Center.

Overall, Biindigen creates its own ecosystem following the guiding principles of food, flora, fauna, family, fun, and flexibility, while incorporating sustainability technology. Cross-laminated timber and glulam columns were used to reduce embodied carbon, and the geothermal heating and solar panels to generate renewable energy ("Design Through…"). Following Indigenous principles does not mean ignoring new sustainable technology and material advancements. In fact, sometimes these supposedly new discoveries align with original Indigenous building practices, like wood construction and incorporating renewable resources. Although current large-scale building strategies are different, their sustainable principles connect to Indigenous ideas. Additionally, the main point of incorporating Indigenous design principles is

not to ignore new technology or not incorporate it at all, rather to make sure there is still a sustainable and culturally relevant building without the technological additions.

V. Trauma-Informed Design

The role that the built-environment can play in reducing trauma and healing includes addressing historical disinvestment in underserved communities, considering contextual challenges, creating spaces that do not contribute to trauma and focus on positive experiences, being equipped to support a range of needs, and developing comfortable and accessible spaces. The Substance Abuse and Mental Health Services Administration (SAMHSA) and the non-profit Design Resources for Homeless (DRH) have made guides for public service programs and the architectural implementation of trauma-informed approaches respectively. Combining their guides provides a set of six principles trauma-informed design can follow.

1. Empowerment and personal control focuses on giving occupants the ability to adjust the built environment to their needs and shape their experience in the space. This can include writable surfaces, furniture types and movability, operable windows, areas for hands-on activity, and customizable lighting.
2. Security, privacy and personal space can help with the balance of inclusivity and personal space. A lot of architectural design already has privacy gradients and includes this strategy through clear wayfinding, open versus enclosed areas, inclusive restrooms, and more.
3. While architects cannot create community, working on spaces that develop a sense of community or facilitate community events can contribute to healing. For

this strategy, accessibility and multifunctional spaces that adapt to the community are crucial.

4. Incorporating beauty and meaning can help design memorable spaces that reflect the occupants identities by including culturally relevant designs, local artwork, natural finishes, color schemes fitting for the area and mood, as well as connection to the outdoors.
5. Providing dignity and self-esteem helps celebrate the occupants, and communicate the value of the space and the care put into the design. This can be done through a welcoming entry sequence, a variety of amenities, and deep analysis of the program needs based on the community.
6. Stress management through the built environment helps create calming spaces, which is particularly important for communities experiencing high stress. Natural lightning and relaxing views, transition zones in between spaces, materials fitting to the ambiance, appropriate acoustic mitigation, and calming colors are all ways to achieve this.

Most of these strategies already exist within architecture and are crucial strategies for creating comfortable spaces in general, not just for trauma-informed designs. Still, sometimes these design aspects are treated as additions or luxuries, and – when it comes to real life projects – these can be traded for a lower cost, faster timeline, or just less time spent caring about these communities ("Trauma-Informed Design…"). Even if the principles could appear repetitive to some professionals, the reality is that marginalized communities do not often get spaces that follow these design strategies. Reframing these strategies as standards for the built environment

as opposed to luxuries only some get to experience can help mitigate the gap in design for marginalized communities.

Some architectural firms have started to follow these ideas and form their own standards to follow when participating in trauma-informed designs. HMC Architects has even published a book that frames trauma-informed design around a pattern language of design – a technique architects use to understand spaces and develop ideas for making functional, safe, and comfortable designs based on human patterns and building strategies. Although their pattern language of design is divided into three sections (experiential, environmental and engagement) of multiple patterns each, it is very similar to the ideas presented by mental health focused organizations like SAMHSA and DRH. On the experiential side of their pattern language, HMC suggests designing around self-identity/dignity, agency/empowerment, areas of refuge, safety and security, creating community, personalized scales, and play spaces. For environmental design, they suggest enriched environments, grounded areas, incorporating biophilic design, optimizing light, appropriate acoustics, and ambiance through materiality. Engagement relies on flexible spaces, customizable furniture experience, preparing for project-based activities, incorporation of displays and technology for interaction, and thoughtful transparency. HMC has developed these ideas through continuous research on trauma and healing, as well as the adaptation of healing techniques into physical space ("Architecture of Healing").



Figure 7: Entrance to Spruce Elementary School community entrance embedded in the landscape.

A building designed by HMC that exemplifies the use of these strategies is Spruce Elementary School in Lynnwood, Washington. This campus is designed to flourish alongside nature, celebrate the existing landscape, feel inspiring and safe for the community, as well as include the local culture. The design process included input from the staff, parents, students, and district administration to create a new school that improved on the design of the previous one while maintaining the character of the community. Construction of the new school was split into two phases so the school could continue operating, maintain student safety, and work best with community needs. Play areas specifically were preserved, and construction activities were designed to keep a safety perimeter, while also allowing students and community members to view the construction process from a safe distance. This was achieved through protective strategies that incorporated a sixteen-foot barrier made with natural materials that enhanced play areas and provided viewing areas. In this way, the community could remain involved and the progress remained transparent to all without being disruptive to daily activities.



Figure 8: Mural made with student participation and community input.

The new design of the school had improved circulation, better access to natural light, flexible learning spaces, parking and traffic strategies to reduce congestion, reframed views to the natural landscape, and access to the outdoors for interactive learning. The circulation was redesigned to have a community entrance with access to a welcome area, administration, community rooms, and student commons with a representative mural. The other main entrance was designed for students to have direct access to the classroom wing, gyms, student commons and supporting rooms, as well as the courtyard. This was designed to regulate the flow of circulation, add a layer of security, and provide easier access to each occupant's needs. The existing landscape was very important to the community, which was reflected in the final product that kept both the design and construction activities away from the mature trees. Landscaping was designed around these and later incorporated into the final cohesive design by turning the trees into a courtyard and integrated informal play structure. In the end, the priority was to meet the school's current and growing needs, along with enhancing the sense of community pride and the school as a symbol of it (“Spruce Elementary School”).



Figure 9: Courtyard view with integrated outdoor play area.



Figure 10: Double entrance with interactive learning wall that reflects the importance of nature to the community, while also recognizing the history of the land.

The school design incorporated strategies from all three core areas of trauma-informed design (experiential, environmental, and engagement) according to the firm's research. Throughout the design, there are a variety of customizable areas, access to the environment, and interactive spaces developed in collaboration with the community. This is reflected in the ambiance of the spaces, the student participation in details like the mural and decor, and even the organization of the construction process. The integration of trauma-informed design strategies in

a school with a variety of occupants is also relevant as these strategies do not have to be used only on communities that are considered underserved. The reality is that the occupants all experience different situations and have diverse intersectional identities, at the same time trauma-informed design is not just for those with trauma. Personalization, natural environments, and fun interactive spaces can benefit everyone. Furthermore, part of the point of trauma-informed design is that it can help address factors that could cause trauma through the built environment before it even happens. Of course this does not mean the built environment can control or mitigate all trauma-contributing factors, but it can play its own role in countering systems of oppression.

VI. Conclusion

Overall, the literature review revealed the importance of having a decolonized mindset, decolonized architectural methodology, direct input from Indigenous communities, and implementation of trauma-informed design strategies. Although it can be easier to simply implement the strategies and guidelines provided, the real progress is made through the mental labor and preparedness of the professionals prior to working with communities, along with their continued willingness to learn and reflect. In the built environment, constant feedback and revision is common; however, it is not as commonly welcomed when working with marginalized communities as it often means a more fundamental analysis of our practices as designers and our personal prejudices. Still, in the same way we strive to become better designers by receiving feedback from other experts, we should put the same amount of care into improving as people and designers to make a difference in the collaboration with diverse communities and people.

Discussion & Implementation into a Design Project

The Northwest Indigenous Language Institute (NILI) has been a part of the University of Oregon for years and has worked with the Native American studies department to expand research on Pacific Northwest Indigenous languages. Due to Indigenous histories, colonization, and systems of oppression like the American Indian boarding schools, a lot of language and cultural parts of these communities have been lost. Still, some knowledge has been passed down through generations and there are still elders that remember these communities' Native languages. NILI works with communities across the Pacific Northwest, elders from these communities, researchers interested in expanding Indigenous language knowledge, and new generations who want to learn these languages. Currently, NILI has their offices in a repurposed house directly off campus, meaning they have to hold their events and language workshops at the campus longhouse or rent out other rooms within the university. While NILI makes these spaces work for their needs, they are forced to go through more bureaucratic processes and paperwork in order to do their job, leaving them less time to work towards their language revitalization missions. Furthermore, they are often faced with more activity restrictions when renting out spaces throughout the university, which prevents them from fulfilling certain cultural practices due to campus policies. In general, the community is in need of a space that is truly their own, reflects a mixture of Indigenous principles from across the Pacific Northwest – without favoring one community over another –, and meets their spatial requirements for their current and future events.

This process began with regular informal meetings with NILI, as well as fostering a relationship with NILI and Native American Student Union (NASU) members. This included regular chats, attending events led by NASU and NILI at the longhouse, as well as receiving

tours of the current NILI house and longhouse. The visit to these spaces revealed the need for more space and multifunctional spaces that could grow with NILI. The current longhouse, despite its design meaning to NASU and loved design, is now too small for all the Indigenous communities it represents and events it hosts. With regards to personal relationships with members of NASU and NILI, it became easier to connect with them by having regular conversations and understanding what their daily life in these spaces was like, as opposed to trying to interview them and extract information that seemed relevant to the project. In reality, because I went into this process with a mindset that followed the decolonization guidelines outlined in the literature review section, everything they told me about was noted as I did not yet know what would be important to inform the final design. It was a challenge to make the conversations feel more casual while trying to take notes as it reminded both parties that there was an end goal we were supposed to be working towards. Throughout the process, I began switching to making mental notes and experiencing the interactions in the moment, rather than trying to write everything down. This was very helpful for placing myself as an occupant in the existing spaces and noticing what architectural details helped or hindered the events and interactions hosted by NILI/NASU.

Doing my own research on Indigenous languages and then openly discussing these findings – along with my own experiences – was very helpful for connecting to the members of the NILI/NASU community on a more personal level. According to the research from the literature review, I could be considered somewhat of a cultural insider as I am part Indigenous, which helped me connect to the community when I also opened myself up to them and let them know me as a person. However, I am not Native American, I am mestiza – mixed Indigenous, European, and African – from Mexico, and have a very different lived experience from the

members of NASU and NILI. Still, I could relate to them in some ways and I was able to hold interesting cross-cultural conversations with them. I connected with members over being raised with primarily Indigenous cultures and ideals, while also having missing pieces of the story with regards to our lineages. These conversations let us become closer and discuss deeper topics regarding intersectional identities, struggles with identity crises, as well as the role that language played in our identity, culture, and community. Part of the discussion with NILI included how language revitalization does not necessarily mean getting Indigenous languages back to how they were prior to colonization, instead it is about preservation of culture and sometimes even putting that above language accuracy. With language, this can mean adapting to new cultures and eras, for example adapting Indigenous languages so that even people who speak English as a first language are able to learn them and keep the essence of the language alive. Languages are more than just the actual words, some languages have experiences, emotions, and values that cannot be expressed in other languages. In my conversations with NILI, we bonded over how sometimes there is more value in passing down the identity of our cultures – whether it is through languages, traditions, art, or food – than focusing on being accurate and potentially excluding more of us in the process. The reality is that a part of our cultures is forever gone, but we are not, and we can continue our history in a way that recognizes we are living in a new reality.

These discussions did not appear to have direct connections to architecture originally, but they established a relationship with the community that will never be forgotten. It also provided us with familiarity, which allowed for open dialogue about the design later on. The first draft of the design revolved around themes of community, understanding identity, and developing a design program that worked for the practice of staying in language – which is when language learning happens outside of the classroom and through cultural practices, including doing

activities like basket weaning, beading, and cooking in the Indigenous language being practiced. Based on this, language for this project became a whole ecosystem, and the architecture was a supporting tool that provided the spaces for this ecosystem.

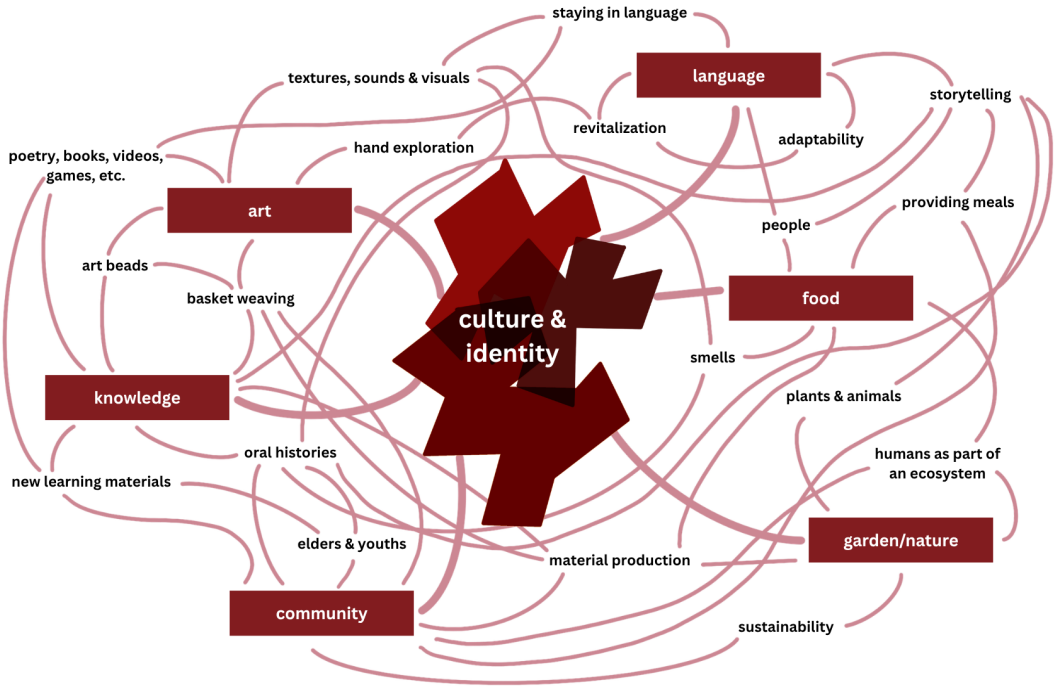


Figure 11: This word cloud represents the connections and notes that were made while having conversations with community members and NILI representatives. At the beginning, language was at the center of the discussions, but then we slowly shifted into connecting everything back to culture and identity: food, activities, histories, people, and the environment around us. We discussed struggles with defining identity due to life experiences, as well as lost languages, adaptations, and how we shift as a community to adapt to new complicated feelings of identity/culture due to complicated histories. This word cloud developed the idea of viewing language as an ecosystem, a crucial part of this project.

The NILI community also emphasized the importance of nature to all Indigenous communities, particularly in the Pacific Northwest. Historically, western red cedars and salmon have been crucial to these communities, not just culturally, but also as resources that provided the conditions for these communities to flourish and expand their language, traditions, and art. Learning the historical impact of these and how they are still celebrated today was crucial for understanding the roots of Pacific Northwest Indigenous identities and NILI's connection to the land, community, and world around us. NILI representatives also described the organization as a

river, guiding people and changing with time, furthering the connection between languages and ecosystems.



Figure 12: A visual representation of key objects of inspiration and observations of important values to the community.

Based on these observations, the guiding principles for this first design were growth and adaptability for current and future NILI needs, physical and visual connections to nature, as well as a design that fits in the land and comes from the land. The following page has the initial floor plans, featuring a central pedestrian walkway that splits the site into the more public area – guiding into the main NILI office, community rooms, as well as indoor and outdoor auditoriums – and a more private area with the elder houses and additional community spaces. The design was made to encourage outdoor experiences and reflect the character of the community.

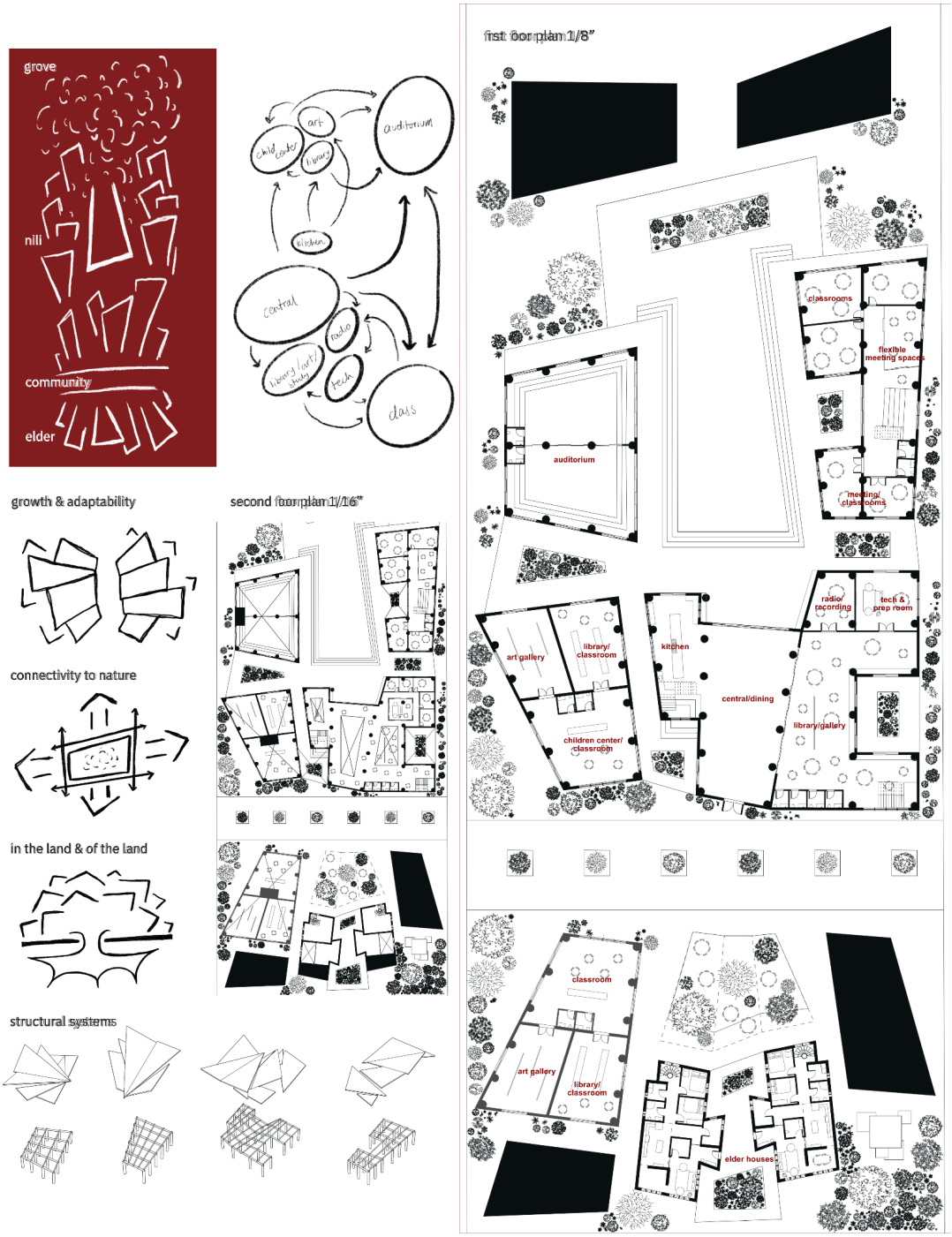


Figure 13: The original design poster with diagrams, site planning and proximities, structural diagrams, and floor plans. The scale on this paper is not the same as the one reflected on the poster as it has been resized to fit this format.

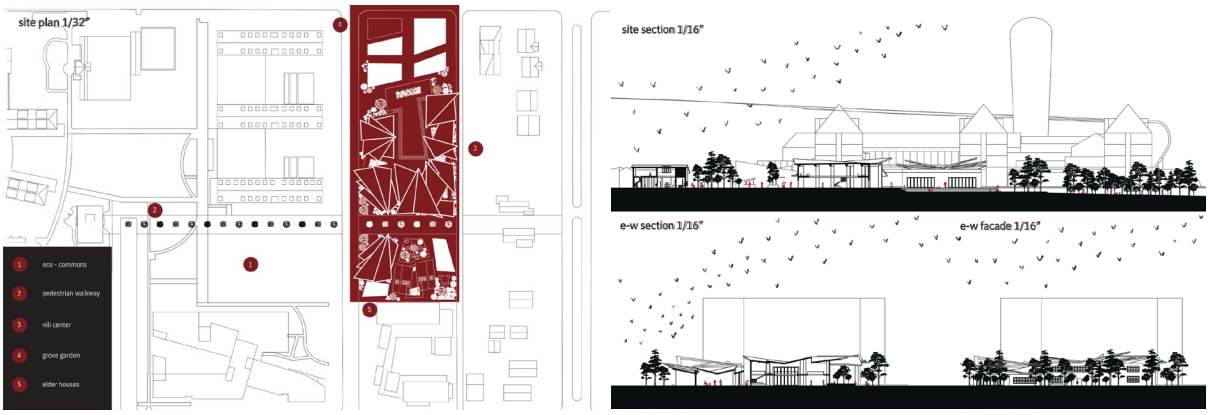


Figure 14: The site plan in context of the surrounding campus buildings, along with the sections of the original design.

Furthermore, the pedestrian walkway suggested a connection to the longhouse and supported the University of Oregon's new development plans in the area, which included emphasizing this area of campus as the "Native Quad" by developing physical connections between buildings designated for celebrating Indigeneity. The University of Oregon already has widely loved pedestrian streets that are active on the daily and can be transformed into a campus-wide outdoor event space that also incorporates the local community. A similar idea is presented for this area, except with the Pacific Northwest communities in mind. The connection between the NILI buildings and the longhouse could help connect the spaces for larger events or even community street fairs. On the other hand, the more private outdoor auditorium space was meant to create a multifunctional outdoor space that could be used as a learning courtyard, event space, and play area.

In reality, this design lacked a lot of Indigenous ideals, functionality for the community, and incorporation into the existing landscape. While there were attempts at all of these, the community's requirements were not met. Discussions with NILI members revealed that the thought process and pre-design analysis deeply aligned with them, but it was not reflected in the design in the way they had expected. They expressed to me that the passion and soul were there, but there were functional issues throughout. For example, the NILI offices were way too far from

the main NILI building entrance, the pedestrian walkway design language did not fit with the expressive building language, the building angles could become an issue when choosing appropriate furniture, and the outdoor spaces were not well integrated with the design. This original proposal presents an awkward combination of free shapes and rigid landscape control, along with structural patterns that could not be replicated throughout the rest of the project and could prove difficult to build.

Personally, I agreed with their feedback and took time to listen and reflect about what they were communicating to me. I had to take some time away from the project as well because I realized how difficult it had become to make design decisions that would actually incorporate all of the ideas, represent the community well, and could be realistically built. From afar, the project seemed simple – it does not have a large space requirement, it is mostly made up of classroom and community rooms, and there is a huge site to spread out and work with –, however it proved to be harder than expected due to all of the layers. Even though I was applying the decolonized mindset techniques, trauma-informed design strategies, and connections to the community, there was a gap between the research and the final design. For starters, I realized the pressure of being one of the people that could relate to the community members began to hinder my ability to make decisions as I constantly felt the need to do more for the community that had entrusted me with this project, which got to the point where I was doing so much I had strayed off path and was not collaborating with them anymore. I originally thought that it would be obvious I would not have a savior mindset because of my equal relationships and participation with NILI, yet I still ended up there even with good intentions. I had done so much research on how difficult it could be for organizations like NILI to receive the funding and space to build a project like this, and in turn felt the need to serve them in the same way I would want my communities at home to

be served. While the intentions were good once again, I lost sight of their true goals and created more issues to solve in the process. For example, I designed buildings with interesting shapes to reflect their community's character and instead created awkward angles that could provide furniture issues for them in the future.

At the same time, I realized that no amount of prior research could have prepared me for the emotional connection to this project, the people involved, and my own experiences. My own trauma and bringing up the ways in which I connected to the community at times meant I was doing emotional labor I was not originally prepared to do. I was also expected to be the voice of marginalized and oppressed communities even though I am not a part of the NILI or the Pacific Northwest Indigenous communities. In another way, I also put pressure on myself to be a sort of cultural insider because others expected me to, even though this was not my place, I was just a part of another unrelated marginalized community. The combination of the background research I did for the literature review and my connection to the community led me to believe that I was more prepared for this project and held more knowledge than I actually did, despite my background research suggesting to go into the process with an open mind and without assumptions. Throughout this process – and especially after receiving community feedback for the original design proposal – I reflected on my process and mindset, realizing how true it was that decolonization and trauma-informed design is an ongoing process. Because of my past research and personal experiences in relation to these topics, I thought I was better prepared and fell into the mistakes I had specifically read about. This experience was humbling, frustrating and took a lot of reflection to realize my faults, but it only made me stronger for the next iteration of the design.

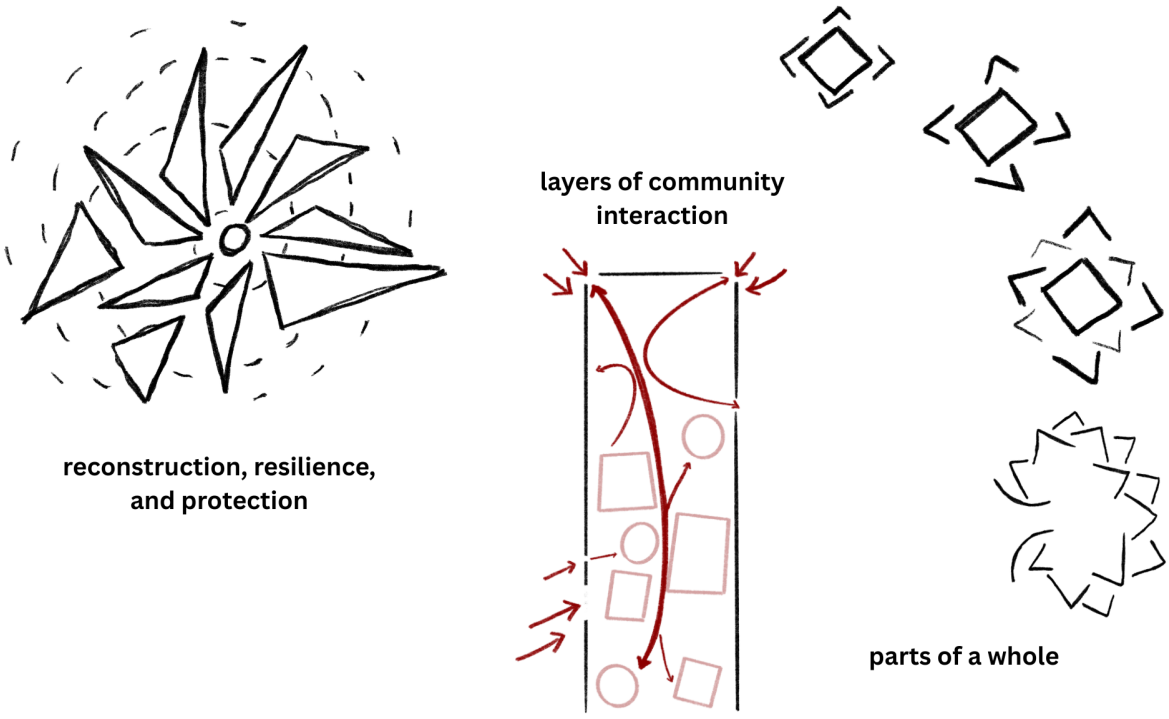


Figure 15: The new diagrams that represented the guiding ideas for the updated design.

The improved design centered around themes of reconstruction, resilience, and protection; layers of community interaction; and forming an ecosystem and individual factors that worked as parts of a whole. Not only does NILI represent reconstruction, resilience, and protection as an organization, the new design had to exemplify these as well. This included reconstructing the site and parking lot into a real forest that can continue to grow with the NILI buildings and community. In this design, the site, soil and landscape will feature native plants and bioremediation as a sign of resilience and connection to the land. In turn, this will also be protection for the surrounding environment and create a space for community interaction and NILI events. NILI interacts with other organizations on campus and works effectively to have a diverse reach with their mission and be conscious of the organizations around them. Hence the layout of the site will provide spaces for central interaction, smaller areas for more privacy, and forest paths for more exploration. For the whole site design, Grove Garden – an agricultural

organization partnering with NILI – has been located on the northern part of the site with more access to the dorms, university residences, and the rest of the Eugene community. On the western side of the site, there is direct access to NILI from the longhouse to further emphasize the Native Quad, while the elder's house is located on the South-east portion of the site for more privacy and peace. Additionally, NILI represents a community that forms part of different identities and interactions. It forms a part of the larger system within the Native Quad, while also being a part of the larger university community and the Native community in the state of Oregon. One of the goals of this project is to have different parts that work as a system together, for example the buildings being an integrated part of forest regeneration through the green roofs and rain water collection. A key part of the forest regeneration strategy is being tree-centered, which is mimicked in the floor plans of each building being centered around courtyards and trees. These adjustments were just the beginning of the changes made to the original design.



Figure 16: A bird's eye view and breakdown of the new components of the design for the language revitalization center, including the updated name honoring the elder Dr. Virginia Beavert and her contribution to Indigenous language research.

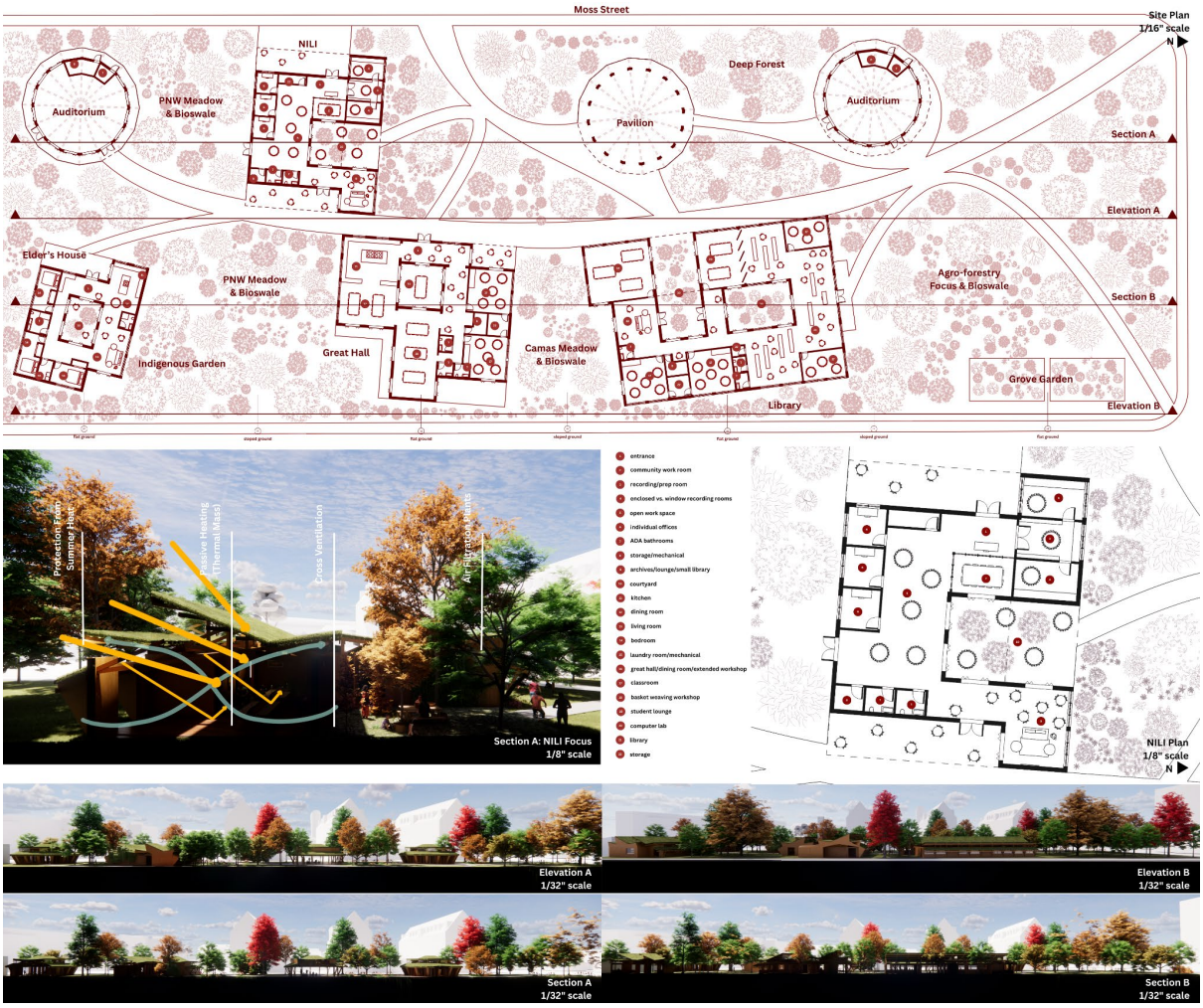


Figure 17: Part of the final poster with the updated design. This section includes an updated site plan, close-up NILI floor plan, sections, and elevations.

The new project design still featured crucial points that the community enjoyed from the first design, including direct access leading to the longhouse and Native Quad, but adjusted them to fit the feedback. For example, with regards to walkways within the site, they were redesigned to appear more natural and fit the ambiance of walking through the forest to get to each of the buildings. The forest also creates more privacy for the elder's house and smaller community gathering areas, while reducing the amount of concrete and increasing the positive environmental impact. The new design also prioritizes the incorporation of the trauma-informed strategies explored in the literature review section.

1. Empowerment and personal control: Operable skylights, movable furniture, sliding doors that open up spaces to the outdoors, and customizable lighting.
2. Security, privacy, and personal space: Privacy gradients for the individual buildings, such as a more private elder's house, as well as private study and meeting room within larger community and study spaces. The forest adds another layer of privacy and reinforces the community's values surrounding the natural environment.
3. Sense of community: Accessible and multifunctional spaces, auditoriums with varying ambiances, and diverse indoor and outdoor gathering areas throughout the site.
4. Beauty and meaning: Local artwork and inspiration from Pacific Northwest Indigenous architecture based on materials from the local environment.
5. Dignity and self-esteem: Welcoming entrance into NILI offices or the forest, which represents the value NILI places on the natural environment. Program organization was specifically designed based on community conversations and their needs.
6. Stress management: Natural lighting, relaxing nature views, calming wood materials, and transitional indoor/outdoor spaces that can be used throughout the year even in this climate.

Furthermore, the new design incorporated more Indigenous inspiration for recognizable forms and materials that fit into the existing environment. Historically, Pacific Northwest Indigenous architecture relied on western red cedars and post-and-beam construction, which interlocked wood members to reinforce larger structures. This construction system also incorporated a separate overlapping layer on top of the structure. The structural system for the new design gathers inspiration from this by interlocking common wood beam sizes that are

easily accessible. On top of this interlocked structural design is a wood layer that then supports a green roof.

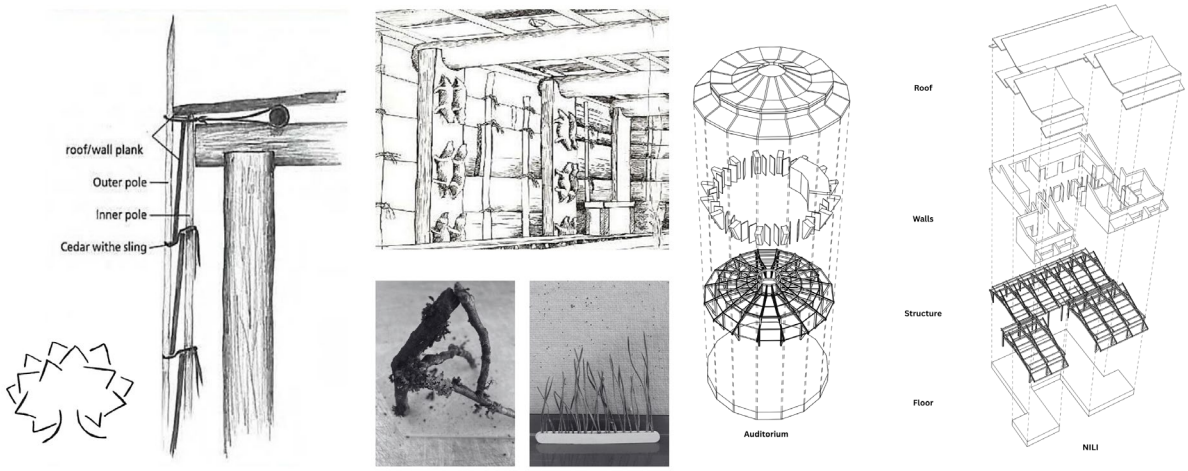
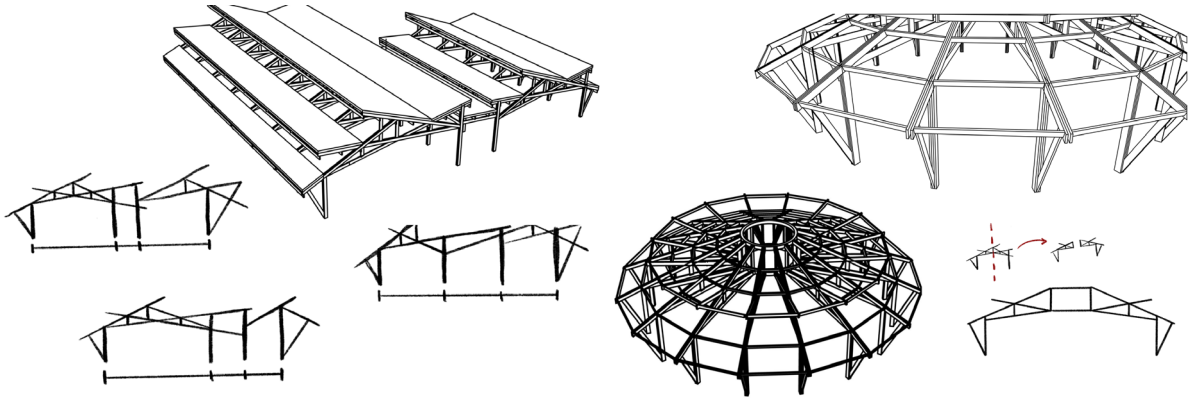


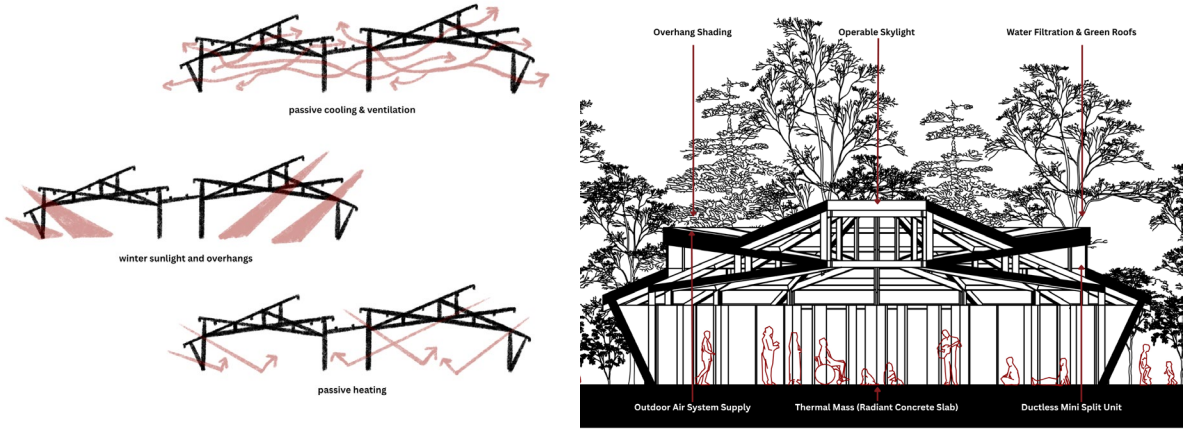
Figure 18: The inspiration images from Pacific Northwest Indigenous post-and-beam longhouse construction techniques and the natural environment. Next to these are the exploded axons of the structural system for the updated design.



Figures 19: Diagrams depicting the two structural systems, the one on the left is for the main buildings and the one on the right is for the auditoriums.

The internal truss design formed by the interlocked wood members is repeated for the buildings around the site. Most of the buildings are two rectangular truss systems joined by a central space – essentially dividing all buildings into three sections and repeating the pattern throughout. The pattern changes for the auditoriums, which require a larger central space without wood column interruptions. This is achieved by splitting the original truss design in half and repeating it to create a circle. This design was favored and appreciated by NILI as it made the

auditorium spaces more special to be in and developed forms similar to those of baskets woven by the NILI community.



Figures 20: Passive and active systems integrated into the design. The passive systems include passive cooling and ventilation, access to winter sunlight and overhangs, passive heating through thermal mass, overhang shading, green roofs, and operable skylights. Active systems include outdoor air system supply and a ductless mini split unit.

The ethical space of engagement practice and further incorporation of the Indigenous lens were included through passive environmental design, active mechanical systems, and site reforestation. The passive and active systems are very typical of the built environment in the Pacific Northwest, which was based on my past knowledge of designing buildings in this area and integrating sustainable systems. However, the reforestation system is not common and was encouraged by NILI members continuously stating that nature is their only inspiration. The previous design for this project also attempted to incorporate the natural environment, but it was very controlled and prioritized concrete outdoor areas. The new design proposes using the large site – previously a parking lot – to regenerate a forest system inspired by Indigenous principles of agriculture and current fire reforestation strategies. Not only is it not common for sites to attempt a forest regeneration project alongside the built environment, it is also rare for projects involving marginalized communities to include so much landscaping due to funding restrictions.

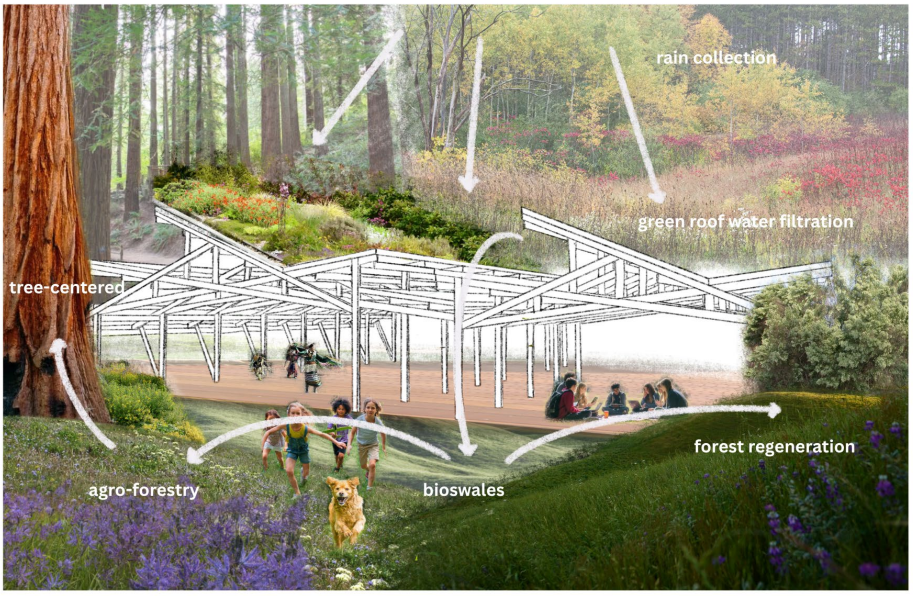


Figure 21: Perspective collage imagining how the buildings would be integrated into the forest ecosystem.

In this project, funding is addressed by reducing care and water costs by developing a symbiotic building and nature system based on Indigenous beliefs of Seventh Generation Thinking outlined in the literature review. This system relies on angled green roof designs for rain collection and water filtration, which then feeds the water into bioswales that then lead into the rest of the forest. Regenerating a forest can take a long time – which NILI is prepared to experience alongside their own growth – ; however, it can also be accelerated. Because the current soil is damaged due to the parking lot construction on top of it, it lacks nutrients and should be regenerated by celebrating all parts of the natural cycle of life. This begins with embracing weeds and pioneer species, and then using fungal remediation to decontaminate the soil. This helps improve the soil and water quality, preparing the landscape for bioswales and agro-forestry for water-management and sustainable land use. Agro-forestry practices like The Three Sisters and milpa (Indigenous strategies for crop polyculture) mixed with bioswales (vegetated drainage channels designed for urban contexts) can promote water filtration, improve soil health, sequester carbon, increase crop resilience, and aid in food production. With improved soil quality it can be easier to incorporate tree-centered landscape designs that regulate soil

nitrogen and accelerate forest regrowth. This process helps assure a healthy forest that relies on undergrowth, middle growth, and top growth to address all parts of the cycle of life and the reliance of all living species on other organisms.

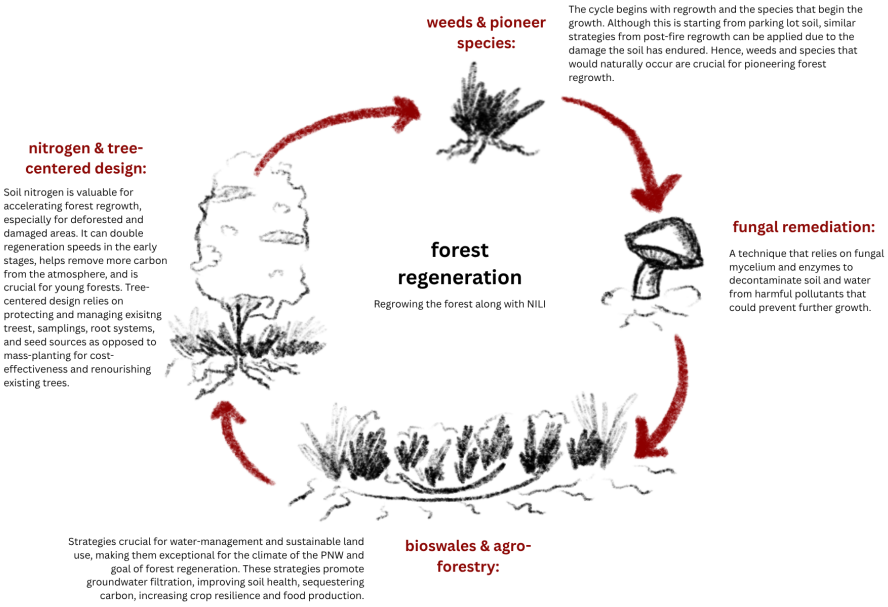


Figure 22: The forest regeneration process the new forest design would follow.

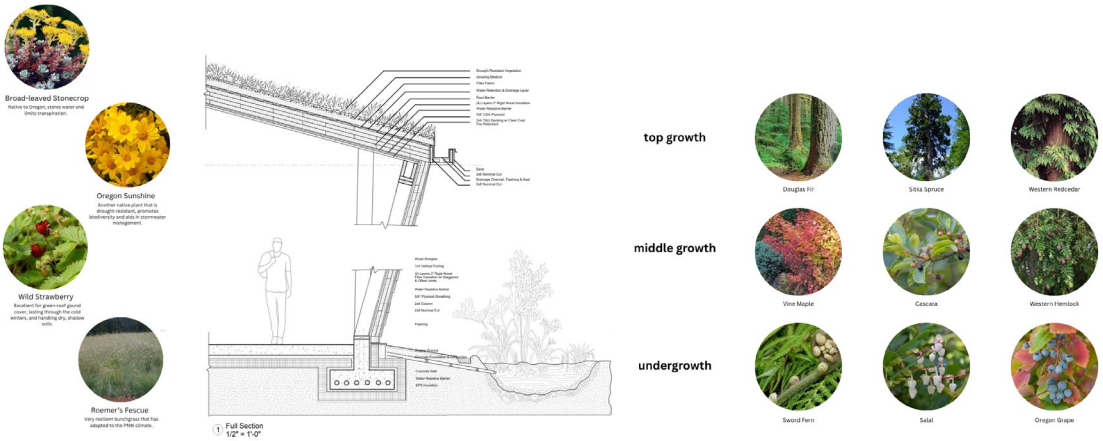


Figure 23: The detail section featuring the construction details for the walls and the buildings' connection to the surrounding natural environment and new forest. The plants featured are native to this area and promote forest health.



Figures 24: Architectural renders of the exterior and interior perspectives of the new design.

Overall, this redesign of the project successfully featured more of the strategies delineated in all sections of the literature review and received better feedback from the NILI community and design professionals alike. Although the guidelines and strategies were the same, the main difference in the practices that led to the redesign were revision and personal reflection. This does not mean that the second round of revisions did not feature any of the challenges from the first; nevertheless, the reflection that occurred after the first attempt and actually listening to the community led to a completely different outcome. This does not mean that the revised design could have been achieved if the original strategies were followed with the mindset of the second attempt, instead the key was in reflecting and revising the process for this specific project.

Conclusion

Ultimately, this research revealed that there are a variety of methods to approaching decolonized methodologies and trauma-informed design practices in the built environment. This includes learning about the background of trauma regarding marginalized communities, decolonized mindsets, decolonized methodologies in the built environment, designing through an Indigenous lens, implementing trauma-informed guidelines and pattern languages, as well as continuous reflection and revision. The literature review provided insight into what professionals have found regarding practices for working with trauma, healing through architecture, and collaborating with marginalized communities. There were multiple strategies for changing the way we view the world as people, the questions we ask as designers, and the steps we take towards addressing systems of oppression within design. However, the application of these strategies into a design project revealed that, while the guidelines were helpful for approaching collaborative design with a marginalized community, the key is in the ability for the designer to reflect, listen to feedback, and improve. This was repeatedly mentioned by professionals and past research throughout the literature review; nonetheless, in the end, topics that are framed as guides can be taken as checklists or steps to follow, rather than a recurring process that relies on personal development. The research and strategies can only do so much, it is on designers to take the step forward towards making an impact and learning from their experiences.

This research is limited by time constraints and a lack of sample sizes. The experience of a designer throughout an architecture project is rarely documented and can make it difficult to analyze or discuss the details of our actions as designers. This paper explores research and theories through a design project and documentation of the process. It is meant to expose a part that is rarely documented within architecture, not to be a guide for others to follow as it is clear

that every project is different. Still, this adds to the conversation we have as designers about our processes and experiences, opening up about how it goes beyond the physical strategies and into our mindsets as well. Further research in this area can include interviews and hearing from other professionals' experiences to truly explore how we show up as designers. Overall, it is evident it is our role to put the same amount of care into trauma-informed design and decolonized methodologies as we do into exploring other topics and strategies within the built environment, and it is on us to continue the conversation.

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