THE SPRINGFIELD PUBLIC LIBRARY

by

SOPHIA WENTLANDT

A THESIS

Presented to the Department of Architecture
and the Robert D. Clark Honors College
in partial fulfillment of the requirements for the degree of
Bachelor of Architecture

June 2020

AN ABSTRACT OF THE THESIS OF

Sophia Wentlandt for the degree of Bachelor of Architecture
in the Department of Architecture to be taken June 2020

Title: The Springfield Public Library

Approved: _____*Virginia Cartwright*_____
Primary Thesis Advisor

The current Springfield Public Library building is spatially and organizationally inadequate considering the evolving and diverse needs of the library. This thesis lays out a design proposal for a new building, integrated with a new Head Start Early Learning Center. First, understanding the historical, urban, cultural, and climatic context of the new library frames its current goals. A precedent review, several interviews, and on-site data collection inform this background. Next, the design proposes creating a building composed of three north-south oriented bars, echoing the surrounding urban fabric, with the middle bar acting as a “living room” for the library. From the initial concept, five sections—site design, program organization, structure, sustainability, and user experience—develop the proposal and show specific solutions for each goal.

ACKNOWLEDGEMENTS

First of all, I'd like to thank Professor Virginia Cartwright, my primary thesis advisor, who has poured dozens of hours into guiding this project. Your prodding, encouragement, suggestions, and questions have been behind each success of my design. Your teaching has made me a better designer. I'm also grateful for Dr. Dare Baldwin and Randy Nishimura, my other two committee members, for their continued support. Thank you, Dare, for being a voice of "You can do it!" Randy, thank you for generously giving your time to educate me about the Eugene Library, and then staying on to help with the Springfield Library. I'd like to thank the several people I interviewed to gain insight for the project, who each gave me lots of time and a unique perspective, from the Eugene Library, Springfield Library, and Head Start of Lane County. Finally, I'd like to thank my husband, Tanner, who has listened to more information about libraries than he ever asked to hear, and supported me in more ways than I can name. As this 73-page chapter comes to a close, I'm excited to take on the next one together.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF FIGURES, CONT.

LIST OF FIGURES, CONT.

LIST OF TABLES

INTRODUCTION

"Libraries store the energy that fuels the imagination. They open up windows to the world and inspire us to explore and achieve, and contribute to improving our quality of life."

Sidney Sheldon

Monday, 6:47 PM. Preschoolers and parents overflow the story corner, spilling into the surrounding aisles, laughing at a rousing rendition of *Dragons Love Tacos*. In the teen zone, three freshmen are deep in animated conversation, drawing glances from the adults trying to focus at the adjacent computers. Two librarians weave through the sections, returning books. A young professional is camped out by the windows, charging an impossible number of devices. A steady stream of people hesitate at the front desk, wondering where the Wordcrafter's Workshop is happening. The librarian pauses work to print a sign.

The Springfield Public Library is a vibrant piece of its community, bringing together people from all across the city's demographic lines in one of the only true public spaces in the city. With 20,000 active library cards, robust programming, and crucial services, it's a major contributor to quality of life in Springfield. However, the library's current facilities have become a barrier to providing these assets. A 50% increase in programs over the last decade has not come with any increase in space. The library struggles to find room for large community events like Día de los Niños, or even for day-to-day programming like story times and staff meetings. Several sections that

have increased in usage (teens, computer spaces, etc.) need expansion, and new sections (makerspace, teaching kitchen) should be added. More general problems—like minimal natural light, little acoustic separation, and insufficient electric outlets—also demand attention.

In response to these issues, the Springfield Library is hoping to build a new facility with adequate space and updated design. Due to budget pressure, the library is teaming up with Lane County's Head Start program to create a joint building, with the benefit of pooling resources and encouraging crossover in services. In 2017, the library worked with FFA Architecture + Interiors to create a basic design proposal, and are now working with John Stapleton of Pivot Architecture to create an integrated Head Start and Library design.

This thesis will lay out a detailed proposal for the new library's design, given the currently selected site and program. After covering several background issues, the thesis will present the suggested site and program response, and then move through a number of specific issues like structure, sustainability, and material palette. The project's aim is both to synthesize the first four years of my training in a realistic project, and to contribute useful ideas to the library's final design.

A BRIEF HISTORY OF PUBLIC LIBRARIES IN THE UNITED STATES

Similar to the bodies of research that provide foundations for new scientific hypotheses, the past and current built environment gives new architecture roots. Understanding the library typology and its evolution in the US not only fills out the question "what makes a *good* library?" but helps anchor the new library in its historical context. Looking at the last 180 years of public library trends elucidates the function of libraries in America, how that has changed, and what a library is today.

The earliest libraries in the US were designed around a single function: storing books. Libraries like the Astor Library (1848) and Harvard's Gore Hall (1841) were more accurately called "book halls," as they were tailored to the task of storing books as efficiently (and grandly) as possible, with very limited public access.[1,2] Many libraries were only open a few hours a week.[3] These halls were generally one rectangular room, sometimes with multiple gallery levels, and shelving arranged perpendicular to

Figure 1: Cincinnati Public Library (1868)--one of the largest "book halls"

[1] David Kaser, *The Evolution of the American Academic Library Building*, (Lanham, MD: The Scarecrow Press, 1997) p. 16
[2] Donald Oehlerts, *Books and Blueprints; Building America's Public Libraries*, (Westport, CT: Greenwood Press, 1991) p. 18
[3] Kaser *Evolution* p. 9

the walls, leaving an open space in the center.[4] Librarians were in charge of retrieving books for patrons. In the 1880s, library architecture switched decisively away from the "book hall" typology, favoring multiple spaces for books, reading, and librarian duties.[5] As public libraries became an increasing fixture in American cities, the focus of new buildings shifted from book storage to accommodating readers. This created a new "reading room" typology, with voluminous, multistory spaces dedicated to reading, and book rooms branching off from those.[6] Larger libraries began arranging shelves to create separate rooms for different subjects or collections. Dedicated "children's areas" began cropping up in the 1890s.[7] The new profession of "librarian" also led to many developments in the theory of library building.[8]

The next major factor in the development of public libraries in the US was Andrew Carnegie's funding of 1,679 new libraries built between 1899 and 1917.[9] Before this time, most libraries were located in large cities, such as Boston and New York. Carnegie's philanthropic program allowed small and mid-size towns across America to build their own facilities. Many towns saw the library as an opportunity for the improvement of their populace, providing community spaces for learning and recreation, and discouraging patronage of the local saloons.[10] Several proposals sent to Carnegie included plans for gymnasiums, city halls, or eating areas.[11] A few actually

[4] Kaser *Evolution* pp. 4-5
[5] Kaser *Evolution* p. 36
[6] Oehlerts *Books* p. 36
[7] Martha Conner, *Outline of the History of the Development of the American Public Library*, (Chicago: American Library Association, 1931) p. 31
[8] Conner *Outline* pp. 46-54
[9] Oehlerts *Books* p. 61
[10] George Bobinski, "Carnegie Libraries: Their History and Impact on American Public Library Development," *ALA Bulletin*, Vol. 62, No. 11 (Dec. 1968), p. 1363
[11] Bobinski "Carnegie" p. 1364

were built to include recreation facilities, meeting rooms, or swimming pools, effectively turning the library into a full community center.[12] These rare instances prefigured the 21st century conception of libraries as a key community "third place" (place besides work and home).

Figure 2: Children's reading room at the Enoch Pratt Free Library

Libraries built between 1900 and World War II settled into a comfortable pattern of large reading rooms, with tall windows and open book shelving around the perimeter, and tables, chairs, and table lamps filling the center. The majority of the book collection was held in smaller rooms of bookstacks. This approach is typified by the Enoch Pratt Free Library in Baltimore, completed in 1933, and still in use today.[13] Library building slowed during World Wars I and II and the Great Depression, limiting innovation.[14]

Post-war, the reading room method gave way to a new modular approach to library design.[15] This often led to a "sandwich" or "layer cake" design: stacked single-height spaces instead of the multistory volumes used by earlier buildings.[16] These

[12] Oehlerts *Books* p. 62
[13] Oehlerts *Books* pp. 78-79
[14] Oehlerts *Books* p. 83
[15] Kaser *Evolution* p. 129
[16] Oehlerts *Books* p. 104

changes were assisted by a couple key innovations. First, until the post-war era, bookshelves had been constructed as structural bookstacks, made of iron or steel that supported the weight of the books and channeled it to the ground. This made higher spaces much more efficient than single story book rooms—or if the space was vertically divided, the bookstacks needed to remain in a direct vertical line.[17] Post-war, buildings moved to a system where the dead load of books was transferred to the overall structural system of the building, instead of being an independent structure.[18] This meant that bookshelves did not have to have any particular order between floors, and could be interspersed with reading and service spaces. A rapid departure from the rigid division of functions followed. A second innovation that allowed for even more flexibility involved building materials. Carpet and suspended ceilings created an acoustic deadening effect, meaning that reading and study spaces did not have to be quarantined in dedicated quiet spaces.[19] The District of Columbia Public Library by Mies van der Rohe (completed 1972) translates these innovations into a three-story stack of completely open-plan floors, punctuated only by the regular column grid.[20]

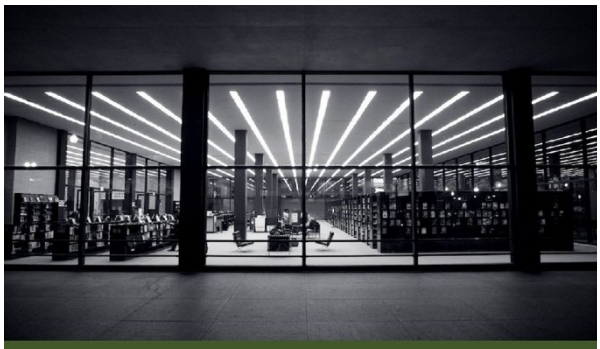

Figure 3: District of Columbia Public Library, showing open plan

A 1970 treatise on the modern library distills the function of a public library to facilitating a cycle of four operations: "1. the location of the information, 2. the retrieval

[17] Kaser *Evolution* pp. 107-111
[18] Kaser *Evolution* pp. 111-116
[19] Kaser *Evolution* p. 121
[20] Oehlerts *Books* p. 112

of the information from storage, 3. the communication of the information to the user, 4. the return of the information to storage."[21] Library theorists have seen the library's role as the improvement of the general population through learning for most of the 19th and 20th centuries.[22] These four elements seem to capture the functions needed to help that goal. Yet, the rise of the internet shook this conception to the core. With access to a far greater store of information than any physical library on the internet, and the beginning of computers in private homes, the information-centric mission of the library became nearly obsolete. Many theorists in the 1990s and early 2000s argued that the library as a typology might no longer be necessary—"not only is its physical presence as public space questionable, but its immaterial reality is debatable as well, as it either stands at the brink of a new frontier, or at the point of disappearing altogether."[23] A new movement of "anti-buildings" has performed radical experiments in what a library can be and how it functions. Designs like the Seattle Public Library (OMA/LMN, 2004) or the Brabant Library (MVRDV, unbuilt) examine how the library can integrate books and technology, and find new ways of interacting with the community.[24]

[21] Michael Brawne, *Libraries: Architecture and Equipment*, (New York: Praeger Publishers, 1970) p. 31
[22] Michael Harris, *The Role of the Public Library in American Life: A Speculative Essay,* (Champaign: University of Illinois, Graduate School of Library Science, 1975) pp. 2-3
[23] Rients Dijkstra, *The Architecture of Knowledge: The Library of the Future*, (Rotterdam: NAI Publishers, 2010) p. 11
[24] Dijkstra, *Architecture,* pp. 62 & 97

CASE STUDY: THE EUGENE PUBLIC LIBRARY

What is a library today? With the past three decades of questioning the library's usefulness, the Eugene Public Library hasn't seemed to suffer. Currently, the library provides vital services for an ever-increasing number of people—the number of visitors increased 10% just over the last measurement period in 2017.[25] This case study will examine how the physical building, programming, and personnel work together to create a successful library in 2020. Studying a thriving local precedent provides additional context and understanding to design the Springfield Library.

To gather information on the library, I interviewed three people critical to the library's development and current functioning. The first, Randall Nishimura, is an architect at the Eugene firm Robertson Sherwood Architects. Along with East Coast firm SBRA (now called Shepley Bulfinch), he designed the current library, opened in 2002. The second, LaVena Nohrenberg, has been the library's Customer Experience Manager for a decade, and oversees all aspects of the library's functioning that directly affect patrons. The third, Hadley Brown, works as a Youth Services Librarian. Finally, I drew from personal experience. I conducted focused observation to supplement my knowledge as a regular library patron (cardholder since 2003).

The library in its place: time and geographic location. Before 2002, the EPL (Eugene Public Library) was housed in a 37,000 square foot single story building

[25]"About the Library," Eugene Public Library Foundation website

from 1959 (that had in turn been built to replace a tiny 1906 Carnegie Library).[26] The city of Eugene began looking to replace the library in the late 1980s, hiring Robertson Sherwood to analyze three potential downtown sites.[27] After several starts and stops, the city chose a block at the southwest corner of Eugene's downtown area, next to the city's main bus terminal. This location, also close to pedestrian and bike streets, allowed the library to be accessible to elderly and disabled residents who rely on the bus system, besides people traveling by car, bike, or on foot. The nearby Broadway Avenue is also a corridor for the unhoused, placing the library in a convenient spot to provide shelter and places to be. Although the downtown Lane Community College campus wasn't built for another decade after the library, the library's position next door creates a sort of educational hub for the community. Eugene's downtown is low-density, so the edges of the block are not high-traffic zones. The architects chose to focus the building's street engagement on the northeast corner, which had the highest pedestrian traffic. The west face is removed from the street edge to allow room for the children's courtyard, and the south side presents a minimally open façade on to the alley behind. In form and material, the architects sought to avoid building a trendy exterior (in the process offending both the traditionalists and the avant-garde).[28] The barrel vaulted roof "might allude to old mills at one time," but

Figure 4: Eugene Public Library exterior

[26] "Library FY09 Service Profile," Citizen Subcommittee of the Budget Committee, Feb. 27, 2008, p. 1
[27] Randy Nishimura, "The Library Chronicles—Part 1," SW Oregon Architect, Dec. 30, 2012
[28] Nishimura, "Library"

the choice was mostly intuitive—the shape just fit with the building and surroundings.[29] The choice of brick as an exterior finish was more intentional: the scale and craftsmanship gave the library a welcoming human touch, and the connection to local historic buildings grounds the structure in its location. On the interior, the double height reading room on the second floor hearkens back to the reading rooms of the pre-WWII era. The floor plan teases apart functions and groups them in zones, leaving behind the free plans of libraries like van der Rohe's District of Columbia Public Library.

Sustainability. The EPL was the first project in the area to attempt LEED certification, while the LEED program was still in beta. While a variety of complex factors prevented the building from receiving the designation, it included several pioneering strategies. Most centered around lighting. Professor G.Z. Brown of the University of Oregon's Energy Studies in Buildings Laboratory consulted on the project, and provided input on daylighting and ventilation.[30] The building's electric lighting is programmed to respond to daylight levels, providing even light levels throughout the space and cutting down on wasted energy. Shading is also mechanized and coordinated with light levels. On a more basic level, the bookshelves are arranged to allow the greatest daylight penetration down the aisles.

The library in the community. According to Norhenberg, "the one role [only] we play is equal access. This is the one place where the rich doctor, the unhoused teen, the mom of six kids all get the exact same access. That is the beauty…of our library." This

[29] Kelly Kenoyer, "Eugene Design: The Good and the Awful," Eugene Weekly, Mar. 8, 2018.
[30] Roman Gohkman, "A New Page for Eugene's Library," The Daily Emerald, Jan. 6, 2003

is a sharp contrast to the 20th century view that defined the library by the information it contains. Instead of framing the library's role in terms of *what* it holds, the EPL looks at *who* it's for. Then, from this community-centric starting point, more specific roles emerge. One of the most critical functions of the library is providing internet access to those who cannot afford it. Today, the internet is a prerequisite for functioning in the world. Online, you can apply for a job or an apartment, look up your school assignments, or sign up for healthcare. Internet access at the library gives low-income individuals agency to perform those tasks, as well as communicate on social media or email. A second crucial role is helping kids learn to read. Studies have shown that reaching a third-grade reading level on time is a major predictor of future success in school, work, and society. To reach that third-grade goal in turn requires consistent language learning from infancy. The library comes alongside caregivers with programming tailored to boost early learning. Beyond these two major functions, the library's roles are as diverse as the people they serve.

Programming. The library's programming is designed to support the needs of the community. Specific to the role of providing internet access, the library provides large banks of reservable computers on the second floor. They also provide adaptive technology for users with disabilities, and even have a small laptop lending program. Computer classes, geared towards older adults, are offered periodically. To support their role helping kids learn to read, the library provides (first of all) books! Initiatives like the Dolly Parton Imagination Library, the summer reading program, and the new no-fine rule for children's books, all create opportunities for kids to have books in their

home. Their second major kid program is providing twice-a-day story times, for infants through early elementary. Depending on the target age, these offer chances for kids and caregivers to bond, chances for kids to play with each other, crafts, and more, besides listening to a book read by library staff. Beyond the children's area, books remain absolutely central to the library's programs. The library holds over 500,000 physical items (mostly books), with an annual circulation over 2 million.[31] The reading room, as well as comfortable furniture positioned near the windows on every level, encourage patrons to stay and read. Nishimura felt that even in the 21st century, an essential experience of the library remained "the act of removing a book from the shelf and taking it to a light-filled place to read" (to paraphrase Louis Kahn). Many adult and teen events build community through author visits, book groups, or discussion. A varied array of other events center on recreation (like an afternoon last year where staff turned the second-floor reading room into a lasertag course), or cultural experiences (like the many concerts and dance performances that take advantage of the central atrium's vibrant acoustics). Finally, the newest addition to the library's offerings is the makerspace on the second floor. Featuring equipment like a 3-D printer, sewing machines, and recording equipment, nearly 1,500 people used the space in 2017.[32] These programs are rapidly expanding, and the library is innovating each year (the first literature on library makerspaces was only released in 2014).[33]

[31] "Library FY09," p. 1
[32] "About the Library"
[33] Caitlin Bagley, *Makerspaces: Top Trailblazing Projects*, (Chicago: ALA TechSource, 2014)

Figure 5: Eugene Public Library back of house

Back of house & maintenance.

To allow the forward-facing library programs to run smoothly, the library needs its service spaces to function efficiently. The library's automated book return and sorting system was state-of-the-art at its installation in 2003, costing $2 million, and continues to function well.[34] Books are brought from drop-off points in the lobby, by the front doors, and at the drive-through alley onto a single belt. RFID scanners register the book and then it's automatically sorted onto carts labelled by section (i.e., second floor CDs). These carts are then alphabetized, wheeled to the corresponding section, and the books go back on the shelf. Besides the book sorting area and spaces for book labelling and repair, the rest of the service spaces are devoted to administrative offices and storage. Office and work areas for the 130 staff are distributed along the south side of the building, giving them consistent natural light, while insulating the larger spaces from massive heat gain. The library also requires constant maintenance to keep patrons comfortable. A dedicated crew performs nightly cleanings, as well as multiple bathroom cleanings through the day. An easily discolored material on the bathroom floors creates frequent requests for cleanings. Other than the bathroom floors, the building has proved to be well-built, with very minimal need for expensive maintenance projects. Because of the library's heavy traffic, the furniture creates the greatest long-term needs for repair and replacement.

[34] Gohkman, "New Page"

Getting along: security. As Nohrenberg explains, when 3,000 diverse people rub shoulders in the same building each day, conflict is unavoidable. The library has carefully focused its security measures on the goal of helping every patron, even those who have caused trouble, to be able to enjoy the library in safety. Only 2-8 cases each week (remarkably low for the number of users) result in month-or-more restrictions from library use. Without a network of security cameras, the library relies on two strategies: security measures built in to the building's design, and trained personnel. Personnel are stationed at the single library entrance to monitor who comes and goes. They also wander the building checking on patrons, and are encouraged to develop relationships with regular users. The library floor plans are also designed to maximize sightlines for librarians standing at the information counters, so staff can keep an eye on happenings.

The children's section. How does the physical structure of the children's area support the library's literacy-focused programming? First off, the area needs to be safe for all children. Continuing the topic of security, the children's section is built to prevent dangerous situations. There is a bottlenecked entrance, right next to the children's librarians, so the staff can monitor everyone who comes and goes. The bookshelves are significantly reduced in height, both so children can reach all the books and so that librarians can see the location of any adults. As in the adult sections, the aisles are oriented to maximize sightlines. The outdoor courtyard is only accessible from the kids section, with high walls blocking it from street access. Beyond creating a

safe space, the children's area is designed to let kids be kids without intruding on the rest of the library. The space is acoustically isolated from the rest of the building, and large, absorbent "clouds" hang from the ceiling to dampen noise. Snacks are also allowed in the kids section. There are places to sit on windowsills and in short chairs, and toys available. Aside from the main space, an event room houses the story times, with storage for crafts and props. The event space is in need of expansion, though, as staff regularly have to turn families away because the space is full.

Figure 6: Eugene Public Library children's section

Accommodating disabilities. The entire library is designed to comply with current ADA (Americans with Disabilities Act) requirements. Given its accessibility, combined with sheltered disability parking spots and proximity to the bus terminal, the library welcomes a high number of patrons with disabilities. Beyond allowing physical access throughout the building, the library also provides adaptive resources so users can enjoy the same services. The library has large collections of audiobooks and adaptive technology for computer use. Spots to slide a wheelchair up to a table are interspersed through the reading areas. But is the experience of a disabled user truly equivalent to a non-disabled patron? The main difference in experience centers on the atrium. The library's showstopper architectural move is a four-story spiral staircase, covered with a glass roof, allowing daylight to pour down into the heart of the building. The floor and ceiling patterns of the lobby are all shaped to emphasize the atrium space. For a user with limited mobility, this atrium is removed from their experience of traveling through the building, as they cannot use the stairs. The elevator bank, while functional (it's not at all hidden) is relegated to an outside corner of the lobby. Integrating the elevators into the atrium space would have allowed for a more equivalent experience of the library for

Figure 7: Eugene Public Library atrium

disabled patrons. This does come with other considerations, though: creating a central, beautiful staircase (and moving the elevators away) encourages more people to take the stairs, cutting down on energy usage and integrating much-needed exercise into people's day.

What's next? Currently, the Eugene Library occupies the first three floors of its building, with the fourth floor rented out to other city offices. The space was left as undesignated room for future expansion. The library is in the very beginning phases of that project—looking for new homes for the departments currently located in the space. Given the function-specific design of the first three floors, they aren't easily transformed into large event venues or lasertag arenas. Nohrenberg's mantra for future expansion is "flex" space. As the library's roles multiply, programming needs are becoming increasingly diverse. In its position as a place of unparalleled access, event attendance grows every year. The makerspace is poised for expansion. With all of these considerations, the fourth floor needs to be designed to adapt for changing day-to-day and year-to-year purposes. Nohrenberg hopes the lighting will be similarly adaptable. In the current spaces, lighting is largely automated in sync with daylight, preventing fine-grain flexibility. Future spaces would ideally allow for more control, and offer a variety of options to transform the space, like spotlighting or stage lights. Finally, the new space needs a sizeable amount of storage. With the frequent reorganizing of the library's spaces and large amounts of event equipment, the library has had to rely on rented storage spaces for several years. Storing as much as possible on-site makes setting up events and rearranging shelves way more efficient. With the new space—

storage, lighting, flex zones and all—the EPL hopes to continue expanding its role as a place for all members of the community to learn, build relationships, and have fun.

The Eugene Public Library is growing in to a new era of libraries—not as merely places to gain information, but places of equal access and community growth in a segmented period. The EPL is well-loved and well-used by its community. Its positive impact is inextricably tied to the success of its building. Creating an effective physical framework is fundamental to the library's growth, usability, and beauty. In designing the Springfield Public Library, I hope to learn from the many technical details that allow the EPL to function smoothly and thrive. Studying the EPL in its historical context and in the community also provides a basis to root my design in its time and place. Looking at the questions of "what were the libraries of the past?" and "what is a library today?" prepares me to tackle the next question: what will be the library of the future?

THE NEW SPRINGFIELD LIBRARY: GOALS & PROGRAM

Woven into the fabric of a unique community and landscape, the Springfield Library's needs and goals don't always follow the template of other precedents. Before launching into design, my studio classmates and I spent time talking with the Library Director, Emily David, and the current project architect, John Stapleton, to better understand the project's goals and challenges. Additionally, we toured the current library and studied the proposed site and surrounding area. We also examined the needs assessment and programmatic design created by FFA in 2017.[35] In combination, these resources create clear guidelines for the new design.

Basic statistics. Basic data about the library's usage is a crucial starting point for determining spatial needs. Currently, the library (with a staff of 15) serves a population of 61,000 people, with 20,000 holding active library cards. The library is well-used, hosting about 170,000 visits a year. Printed materials remain the core of the library's program, with 338,000 items checked out annually, three times the number of online materials checked out. Their 507 events per year draw around 22,000 people, showing that events are becoming another core piece of the library's role. The largest event of the year, Día de los Niños, draws 850-1,000 people. The second largest, Día de los Muertos, currently peaks at 450 people.[36] In the next 20 years, Springfield's population

[35] "Public Library Needs Assessment of Services and Programmatic Facility Design – Phase I" (Portland, OR: FFA Architecture and Interiors, 2017)
[36] All previous Springfield Library Statistics are from Emily David.

is projected to grow by 10,000 people, so the new facility should anticipate a corresponding growth in library usage.[37]

Demographics. While the library welcomes patrons across Springfield's demographic range, there are a few notable populations the library is particularly concerned about accommodating. For the Latinx community, the library has worked to develop a large collection of Spanish books and resources. The library's two largest events are also centered around this community, although they draw people from every demographic. Second, the majority of the library's programming is focused on youth, all the way from zero to 18. Providing space and education for kids, families, and teens is central to the library's mission. Third, the library serves a large population of people with mental or physical disabilities. This has major implications for building design, influencing issues like acoustics, accessibility, and materials. The library provides resources for EZ Cares, a program for kids with disabilities, so that impacts requirements for the children's area. Finally, the library provides shelter and a place to be during the day for many of the area's unhoused residents. Welcoming these people alongside the rest of the library's users requires careful spatial arrangement, plentiful access to resources like charging outlets and restrooms, and thought put into furnishings.

The current library: positives. While the current library's many problems form the drive to build a new facility, there are a couple aspects of the current building that

[37] Xiaomin Ruan, "Coordinated Population Forecast for Lane County, its Urban Growth Boundaries (UGB), and Area Outside UGBs; 2015-2065" (Portland, OR: Population Research Center, Portland State University, 2015) p.7

the community would love to see carried over. Emily David explained that the current library feels inviting and unintimidating, without a big institutional presence. The library does not present a big street-front façade, but is approached through a plaza, up a broad set of stairs, across a covered balcony area, and then through a short corridor. Upon entering, you're immediately greeted by bookshelves and the librarian desk. All one story and tightly fit into the space, the building feels cozy and welcoming to the public. Second, Springfield's city government appreciates that the library brings the public into regular proximity with government spaces. The library is currently housed in the same building as city hall and several other government functions, providing an unintimidating entry point. City officials hope to maintain this connection, even with the library's relocation next door.

The new library building: challenges. FFA, in their needs assessment for the new library, outlined an overarching set of nine goals defined by the library's leadership (see next page). Besides these broad targets, Emily David mentioned six practical measures the library is hoping to see implemented in the new building. First of all, the library needs more space. The building's current 25,000 square feet is just not cutting it —FFA's assessment recommended more than doubling the area to total 52,000 square feet. Second, the building needs flexibility for programming. As the diversity of the library's offerings grow, the space must be able to adapt for events of all types. However, the library must maintain acoustic separation (third), to help varying activities and populations exist in harmony. Accommodating diverse needs also requires accessibility, keeping the library and all its services within reach for everyone.

Community
Engage and reflect the diversity of the Springfield community, that all may feel both welcome and a sense of ownership. The Library is accessible to all.

Stewardship
Honor the public's investment and ensure sustainability by incorporating quality materials, efficient systems, and flexible planning.

Image
Reflect Springfield heritage, culture, and history in an attractive, iconic design.

Children
Provide comfortable, inspiring, and secure environments for kids. Make it easy for parents to say "yes" to their children.

Teens
Expand teen programs. Attract teen patrons with collaborative spaces, computer labs, and college and career resources.

Staff
Improve workspace efficiency and comfort. Provide adequate, functional spaces for both collaboration and quiet, focused work.

Urban Design
Serve as a catalyst for downtown development, engaging the sidewalk from a pedestrian and retail perspective, accessible to local businesses.

Technology
Emphasize ease of use, providing tech-friendly access and connectivity for both patrons' personal technology and library equipment.

Look Beyond
Recognize that the library is a flagship service of the city, an international welcome point with a view to the wider world.

Table 1: Major goals. *Text taken from "Springfield Public Library Needs Assessment" by FFA*

Fifth, the building needs to use and have space for new technology, as that realm has expanded dramatically since the current building's debut in 1979. Finally, the new space should maximize use of natural light, to conserve energy and to make the library a more pleasant place to enjoy.

The new library building: wish list. Diving even deeper into the specifics, David lined out several spatial ideas the library leadership is hoping to fit in the new space. Some qualify as needs, integral to the design of the new building, others are easily accommodated, and a few (specifically those relating to integration of Head Start and

NEEDS:	CAN BE ACCOMMODATED:
- Active children's center	- Covered play area
- Computer lab with classes	- Cafe, or other space for parents to hang out
- Acoustic separation, specifically to accommodate autistic patrons	- Parent resource section in the children's area
- Teen space	- Space for adult cooking classes
- Staff meeting space	- No carpet in program areas
- "Friends of the Library" bookstore	
- Street level presence	**UNLIKELY:**
- Makerspace	- Use early learning area to help activate ground level
	- Shared Head Start and library space

Table 2: Library needs

library functions) are rendered unlikely by code or security restrictions. The table above shows which items fall in each category.

The new library building: Head Start. Besides the 52,000 square feet of proposed space for library function, the current plans call for an additional 10,000 to 13,000 square feet devoted to Head Start. With mostly distinct programming from the library, Head Start brings its own needs and goals to the table. To get an understanding beyond the given program documents, I interviewed Johanna Talbert, a current teacher at Head Start of Lane County, and studied the Head Start Design Guide put out by the U.S. Department of Health and Human Services. From this information, I distilled seven goals for the new facility, depicted in the graphic below.

Table 3: Head Start needs

The new library building: program. Bringing together the basic calculations by FFA, the current working program from John Stapleton at Pivot, and information from my own discussions with library and Head Start staff, the table below gives a

comprehensive list of square footage requirements for the new building. This foundational chart creates the puzzle pieces to be fit together into a complete design.

PROGRAM TABLE

Public Support		4600
Lobby	*2900*	
Service	*400*	
"Friends of the SPL" bookstore	*200*	
Restrooms	*1100*	
Meeting Rooms		3600
Event Space	*2600*	
Classroom	*1000*	
Group Study		1200
Adults		19000
Collection	*11000*	
Seating	*8000*	
Young Adults		1600
Collection	*600*	
Seating	*1000*	
Children's Section		6600
Collection - kids	*2900*	
Collection - parent resource	*100*	
Seating & other	*3600*	
Spanish		1000
Collection	*600*	
Seating	*400*	
Staff		7400
Workstations	*2000*	
Support	*5400*	
Building Support		1000
Head Start		10000
Classrooms	*6000*	
Classroom Support	*1500*	
Kitchen	*500*	
Admin & Circulation	*2000*	
TOTAL		**56000**

Table 4: Program list

THE URBAN LIBRARY: SITE ANALYSIS

"7. Urban Design: Serve as a catalyst for downtown development, engaging the sidewalk from a pedestrian and retail perspective, accessible to local businesses."

In its new site, the Springfield Library aims to activate the intersection of 5th and A Street, expanding the downtown with a new node off of Main Street. Looking at the nine main goals for the library, several relate to the library's exterior relationship to the site and community. The new library should be accessible to all, a catalyst for development, highly engaging, and reflective of Springfield's heritage. Breaking down

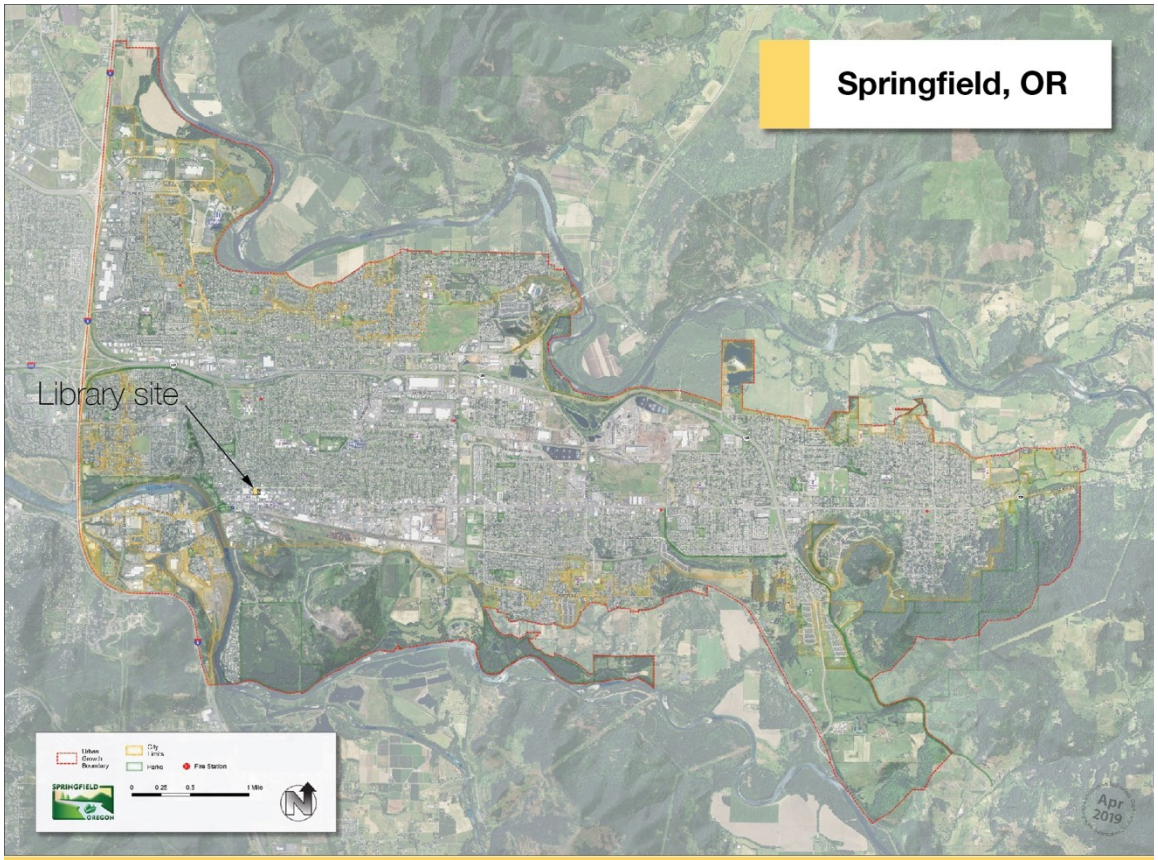

Figure 8: City map

these big goals, we can look at specific architectural tools to accomplish those objectives. Understanding the site allows for the most effective use of those tools.

The site: relationship to the city. Within the city of Springfield, the library is located at the western edge (off of 5th Street, while the city extends east to 79th Street), one block north of Main Street, which is the central E-W axis uniting the city. It's two blocks east of Pioneer Parkway, one of the largest N-S streets. Locating near these axes gives better access to users coming from Thurston (west) or Gateway (north). With proximity to downtown, Springfield Station (the city's main bus terminal), and the residential Washburne neighborhood, the new library is also positioned to be accessible to pedestrians and cyclists.

Figure 9: Neighborhood map

The site: heritage. Springfield's history is inextricably tied to the timber industry. The library's site is just a few blocks from the former Booth Kelly sawmill, the city's largest employer for most of the 20th century.[38] The millrace and ponds are now a park, and are slowly being restored to native wetland. While the environmental protections put in place for the Northern Spotted Owl in 1990 devastated Oregon's timber industry, wood remains a vital part of Springfield's economy, whether through sawmills, lumber distributors, a paper mill, or an acoustic wood ceiling manufacturer.[39] 9Wood, Swanson Group Manufacturing, and Rosboro are all within walking distance of the library's site. This heritage gives "Plank Town" (as Springfield is nicknamed) a gritty fabric, where industrial areas, retail, homes, and public spaces all exist in close proximity. Often stereotyped as the blue-collar sister of Eugene, the city lacks pretentiousness.

[38] Michelle Dennis, Springfield Historic Context Statement, (Springfield, OR, 1999) p. 23-24

[39] Rob Manning, "Spotted Owl Surviving 20 Years After Controversial Decision" (Oregon Public Broadcasting, 2010)

Figure 11: Public House

The site: urban design. Located in

Figure 12: City Hall

the oldest section of Springfield, the

Figure 13: Stevens Perkins

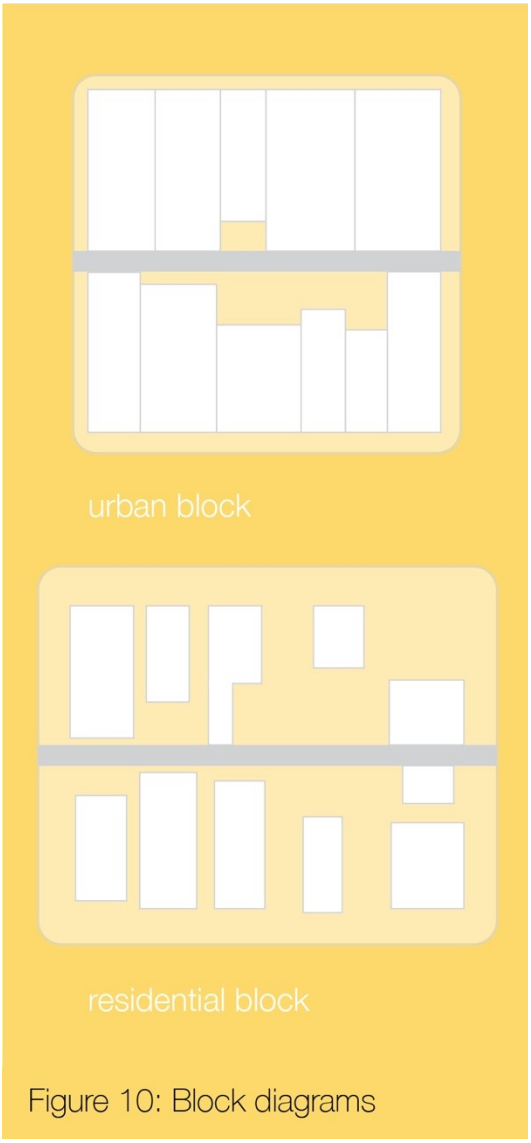

Figure 10: Block diagrams

library's site is near several historic buildings and is within the zone of intact block structure, which dissolves further from the core. Along Main Street, and to a lesser extent along A Street, the buildings share party walls, presenting a continuous façade that comes right up to the sidewalk. Service access is through a midblock alley parallel to the E-W street. Most of the buildings are one to two stories tall, with one five-story building a block away. The

residential blocks north of the library follow a similar pattern of buildings facing the E-W street with a mid-block service alley, but the homes are all separate and set back from the street. Notable buildings in the library's vicinity include Public House, the city hall, and the Stevens Perkins building. Public House, a family-friendly food and beer hall immediately adjacent to the library, is in a historic former church from the 1930s.[40] Carefully restored, the building's pitched roofs, textured exterior, and tall stained glass windows are a local landmark. The city hall, originally designed as a shopping mall in 1979, is a less beloved but equally distinctive feature in the landscape. Perched on columns above a sea of parking, the pancake building spans multiple city blocks, covering the intersection of 6th and A Street. Covered in white stucco, it gives a monolithic presence. Its most welcoming feature is the generous plaza at the corner of 5th and A. A fountain, trees, and a cascade of broadening stairs contribute to make the space a popular summer living room.[41] Finally, the Stevens Perkins building, completed in 1911 and located a block away on Main Street, is one of the oldest buildings in downtown and a defining part of the urban language. Its light, sandy brick, which amplifies the light along Main Street, has been picked up by other important structures, like the Springfield Station terminal.[42]

[40] Michael Tobin, "Church of Beer" (Eugene Weekly, Sept. 19, 2018)
Image: Joel Gorthy, "Tastings: Taking it to the Streets" (The Register Guard, Sept. 1, 2019)
[41] Image: "Springfield Public Library" (Eugene, Cascades & Oregon Coast Visitor Information)
[42] Image: Tom, Adams. "We're Trying to Really Change the Culture and Texture of Who's Downtown in Springfield" (KVAL, Jan. 5, 2019)

THE URBAN LIBRARY: SITE PLAN

Inspiration for the new library's site plan comes directly from the surrounding block plans. The building is divided into three 36' wide bars, roughly the lot width of the storefronts along Main Street. Each three-story bar has a gabled roof, with the pitch matched to the roof of Public House next door. The main façade faces A Street, continuing the pattern of buildings facing the E-W streets. However, the middle and east bars are pulled back slightly from the street edge, creating an open space that connects with the city hall plaza across the street. The street-front façade and open spaces form the beginning of an urban node, encouraging development of the empty lots south of the building. The mid-block alley, while it is blocked by the building, is acknowledged with an indent that houses outdoor service functions and an interior circulation corridor.

Figure 14: Parti diagram

Figure 15: Node diagram

Zooming in, the site plan addresses each

side of the building uniquely, based on the surrounding conditions and the program needs of the library. The south edge, as discussed, is focused on creating an urban node. In relation to the library building, though, the plaza and landscaping are used to create a welcoming entry sequence, and define separate spaces for the library entrance and event space entrance. Along the east edge, the sidewalk is separated from the building by a bioswale, which helps process runoff from the building's pitched roof. It also gives a degree of privacy and separation for the building's interior spaces. Bike parking, book drop-off, and a bus stop are accommodated along this side. The alley-capping "indent" hides service functions like garbage collection. The north side, facing the Washburne residential area, is designed to allow Head Start functions. The middle and west bars are stepped back to provide space for children arriving or leaving by bus. Contrasting materials define the boardwalk area against the building as separate Head Start space, while the concrete sidewalk is for pedestrians just moving through. This side is also easily accessed from the parking lot in the northwest quarter of the block, allowing staff and parents a direct path into the Head Start area. The west side of the library, facing the interior of the block, is the most secluded, and therefore the best area to provide outdoor spaces for Head Start. The building on this side has two "gaps," giving each of the six classrooms direct access to outdoor play areas. Four boardwalk sections and a large expanse of grass provide a variety of settings for different activities. A six-foot wall separates the play area from Public House and the parking lot, keeping the space secure.

Figure 18: Entry rendering

THE LIBRARY BUILDING: BASIC ORGANIZATION

Functionally, the library is organized with program elements that need immediate outdoor access on the first floor, noisier library functions on the second floor, and quieter library functions on the third floor. On the ground floor, Head Start takes up the west bar and part of the middle bar, staff functions take up part of the middle and the back half of the east bar, event space occupies the front half of the east bar, and the front of the middle bar is the public atrium/entry point for the library. The second floor is dedicated to kids, teens, the makerspace, and the teaching kitchen. The

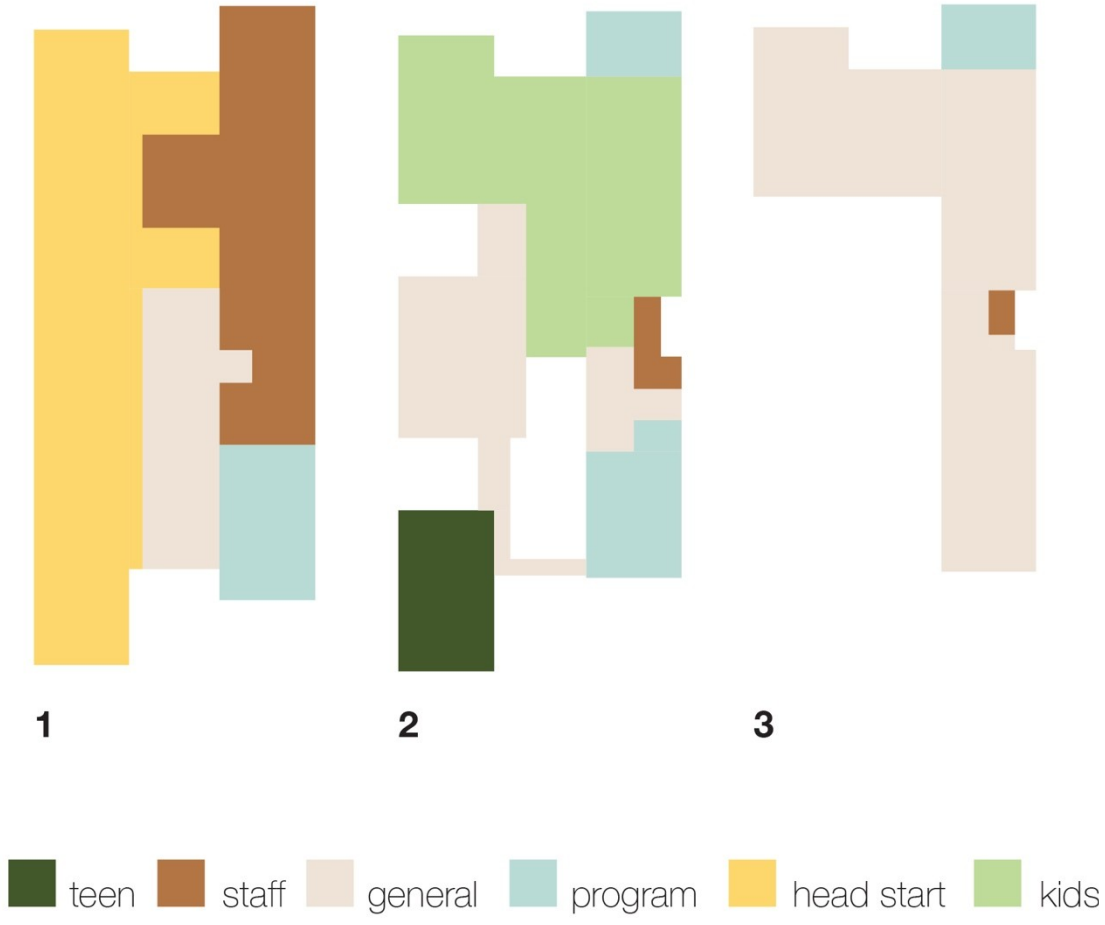

Figure 19: Program diagram

quiet third floor houses the adult collection, study spaces, and tech lab. Altogether, the

56,000 sq. ft. facility arranges all of the library's requested program elements in an order that best meets the library's major goals.

First floor. The first floor functions as the welcome point for all library patrons. With a café, information/check-out desk, and generous amphitheater-style stairs, the entry atrium communicates the library's first goal: "The library is accessible to all." This is a highly public and flexible space, that can be adapted to function as performance or event space, or as a lobby for the main event room. A large portion of the first floor is dedicated to staff and service areas, seeking to "Improve workspace efficiency and comfort" (goal six). The book sorting and repair room is directly connected to the outdoor book drop, allowing for an automated sorting system to be put in place. Head Start, accessed separately from the north side, is organized to minimize transitions through the day. Each classroom has its own bathroom facilities, a small enclosed teacher office, storage, and direct access to the outdoors.

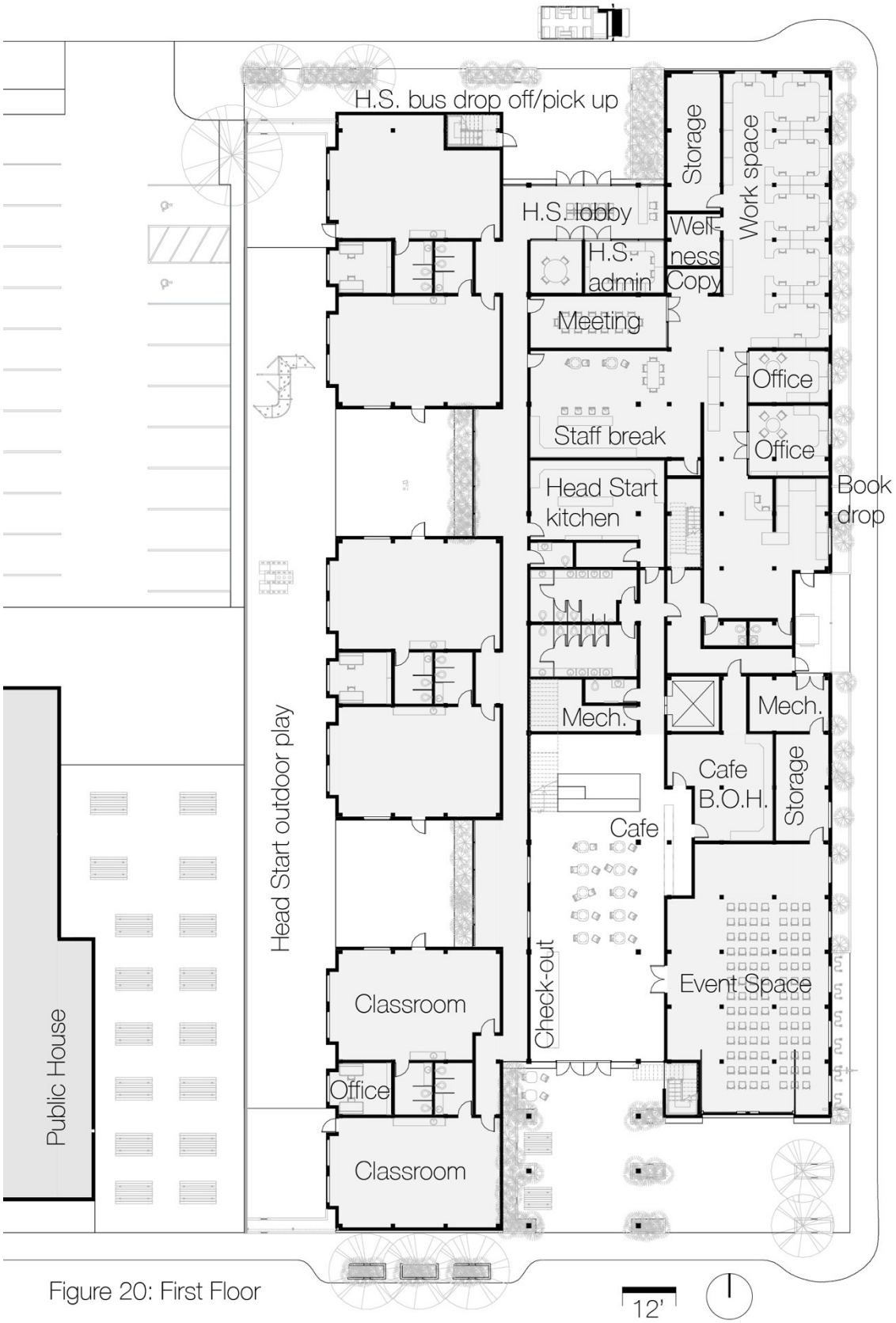

Figure 20: First Floor

Second floor. The second floor is really the true “arrival” at the library. The atrium on this level houses the “Friends of the Springfield Library” bookstore, reading spaces, and a family play area. The central play area branches off to a space for older kids and an area for younger ones, allowing clear lines of visibility, making it “easy for parents to say ‘yes’ to their children” (goal four). The teen space is located at the opposite end from the kids area, giving an important sense of separation from the younger patrons, and allowing easy access to the makerspace and teaching kitchen (tying in to goal five).

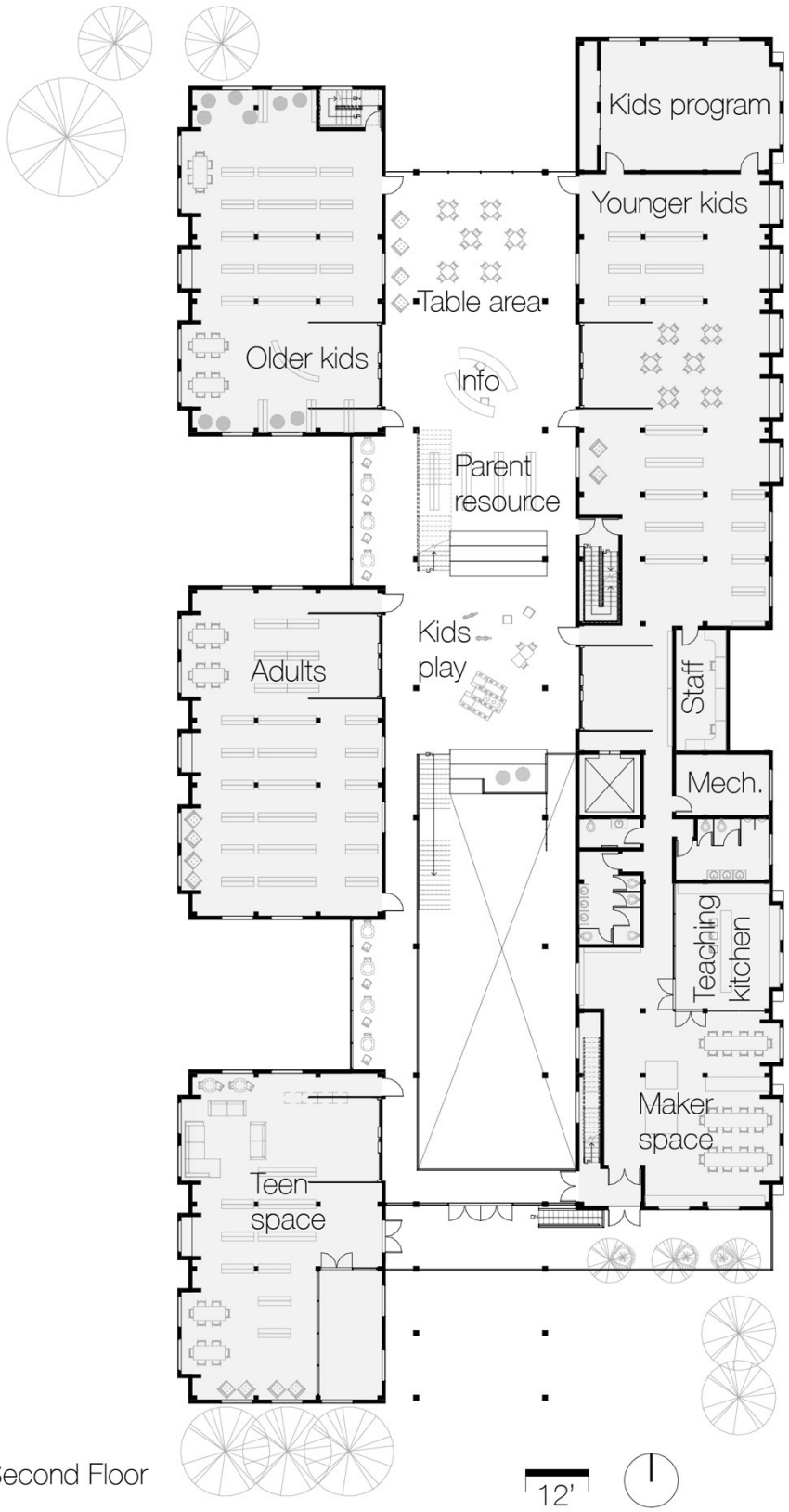

Figure 21: Second Floor

Third floor. The quiet third floor, with vaulted wood ceilings and abundant natural light, houses the majority of the adult collection, and has the most spots for reading. The east bar holds most of the bookstacks, with ample window nooks to read, while the middle atrium functions as a larger reading room. The west bar has tech and study spaces, accommodating classes or small groups. Currently, the front two thirds of the west bar are open to below, but could have flooring put in as the library needs more capacity, keeping the building adaptable to future changes.

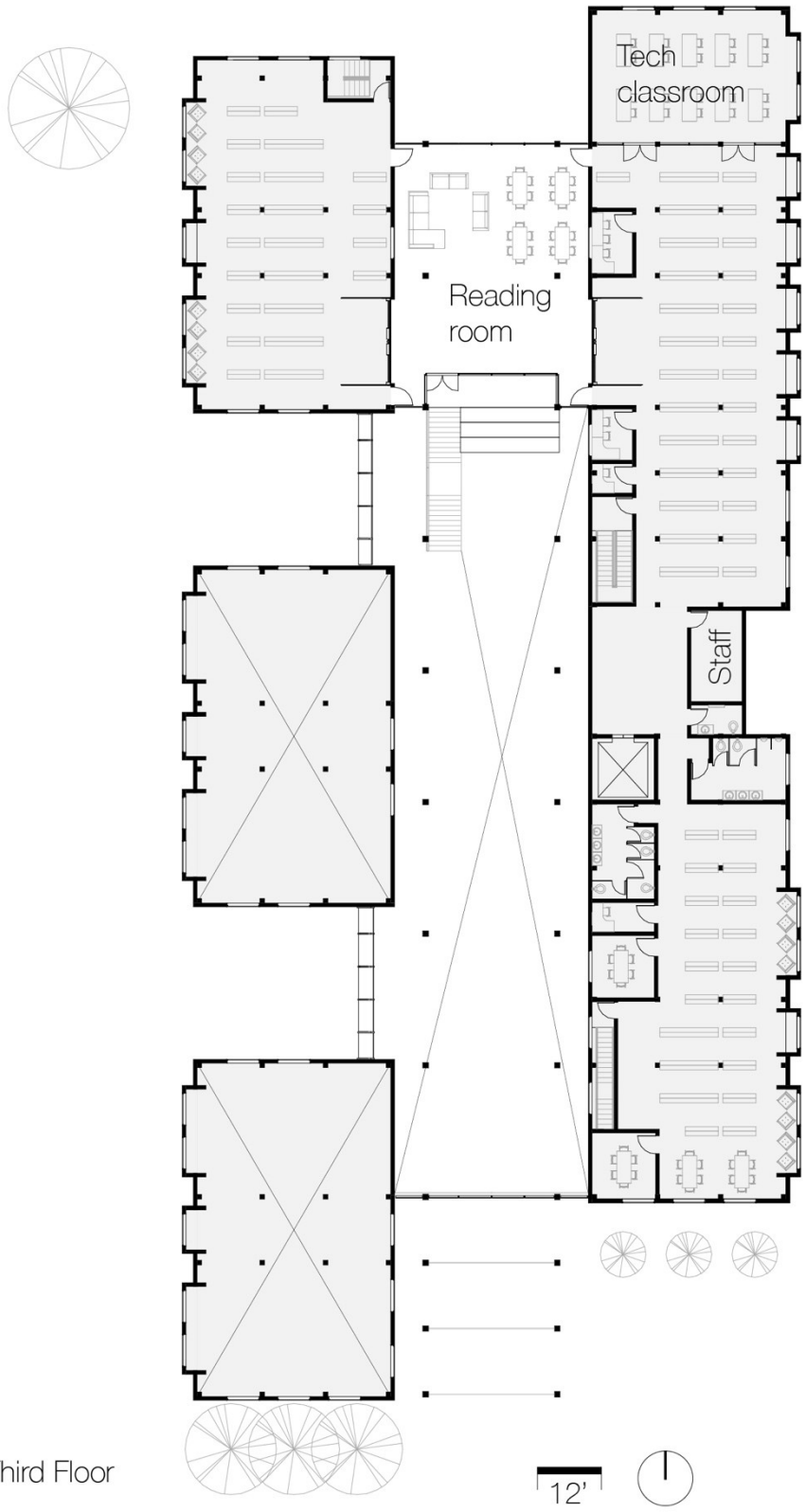

Figure 22: Third Floor

Sections. The N-S section through the center of the building highlights the progression of atrium spaces. The wide staircases draw patrons up and in to the building, with tiers of public space at each level. This open central space improves wayfinding, allowing people to see where they want to go and a clear path to get there. Light also penetrates deeper into the building, giving the east and west bars natural light from both sides. The E-W section shows how, from the atrium, quieter, dedicated spaces branch off on either side. These enclosed spaces provide fire barriers from the atrium, and allow for better acoustic control. The window nooks on either side go down another step in scale, creating very private and cozy places to be.

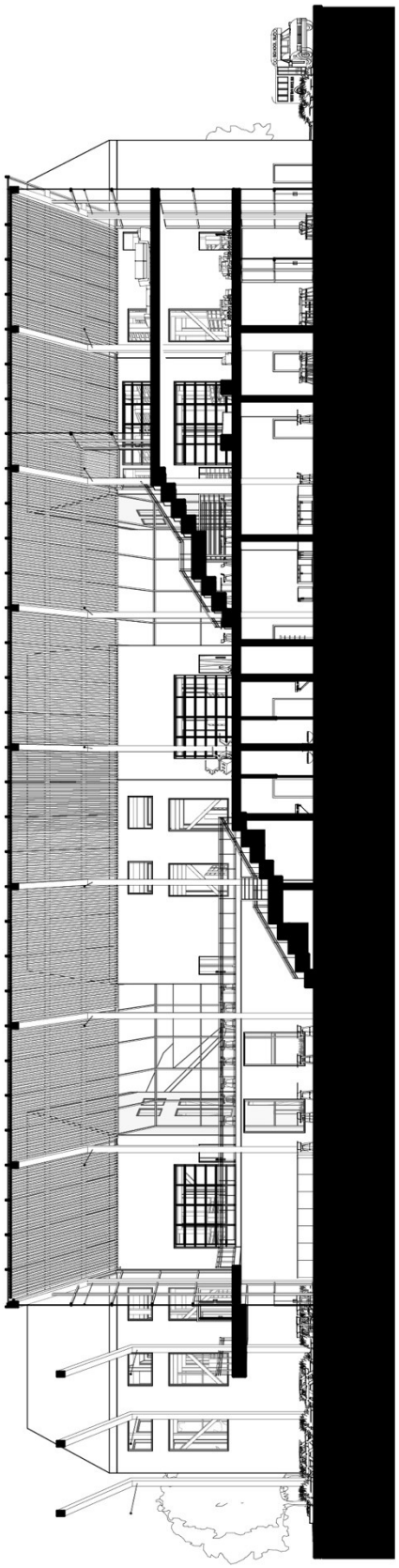

Figure 23: N-S Section

Figure 24: E-W Section

THE LIBRARY BUILDING: STRUCTURE

Since all buildings are constructed under the laws of physics, structural systems are one of the first considerations for a new design. Structure is the necessary framework to accomplish any spatial goals. But rather than being a limiting factor, structural constraints are an opportunity to bring order, form, character, sustainability, and more into the building.

Materials. The mayor of Springfield has connections to D.R. Johnson, a timber company located 90 miles south of the city. D.R. Johnson is an early pioneer of CLT (cross-laminated timber) manufacturing, an emerging sustainable building material. CLT and other mass timber technologies have potential to revitalize Oregon's timber industry, and so have been vigorously encouraged by the state government, with Kate Brown deeming their development "essential" to the economy in 2015 legislation.[43] Wood also sequesters carbon, reducing the carbon footprint of the structure. Given Springfield's ties to the timber industry, local connections to D.R. Johnson, and seismic and environmental considerations, CLT is a natural choice for the new library's primary structural system. CLT floor and roof slabs are supported by a grid of glulam columns and beams (another mass timber product made by D.R. Johnson). Diagonal bracing, to resist lateral loads (wind and seismic), is also glulam. The exterior walls are non-load bearing and are made of light steel framing and hung off of the primary structure.

[43] Jeff Manning. "Problems at Peavy: Faulty Timber Panels Raise Stakes for Promising New Oregon Market." (OregonLive, Aug. 12, 2018)

System. The basic structural system is a braced frame structure. Unlike a moment frame, which relies on rigid connections for stability, a braced frame uses pin connections paired with diagonal bracing or shear walls to handle loads. Beyond the basic system, the building is broken into three structurally independent sections, allowing each to move separately during an earthquake. At the joints between sections, the floor plates are buffered by steel U-plates that are designed to hold their shape under normal loading, but to buckle during an earthquake, cushioning the floor plates.

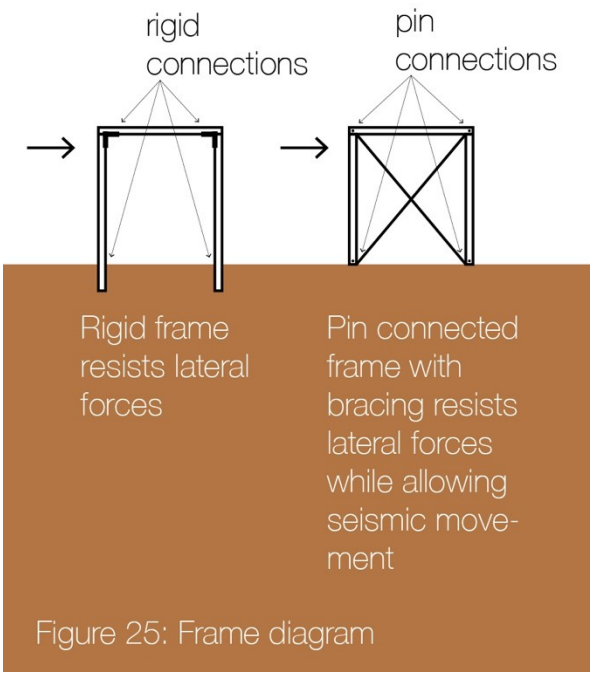

Figure 25: Frame diagram

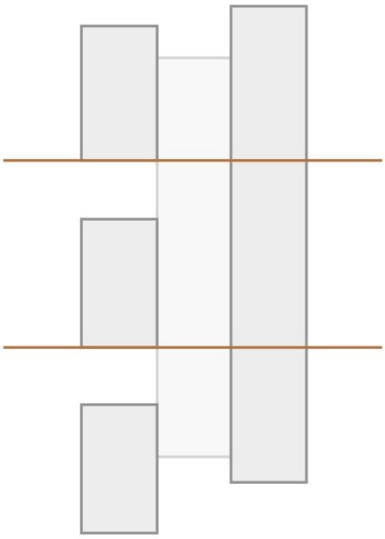
Figure 26: Separation diagram

Grid. The basic structural grid unit in the building is 12’ x 12’. This unit is easily spanned by 3-ply CLT floor slabs, supported by 5 1/16” x 9” glulam beams and 10” x 10” columns. In the central bar of the building, the maximum span is 24’, with 6’ spans on either side. This is spanned with 7-ply CLT. The unnecessary depth over the 6’ span (which could easily be


Figure 27: U-plate at seismic joint

spanned with 3-ply) can be removed and used as channels for electrical systems. The 24” span is supported by larger (6 ¼” x 15”) glulam beams and 1’ x 1’ columns that extend upwards to form a custom truss supporting the roof. Along the side bars, beam spans vary between 12’ and 24’, giving variation in indoor spaces, and corresponding to the pop-out window bays along the outside edges. Adhering to a basic unit that can be multiplied and divided different ways gives unity and simplicity to the overall design.

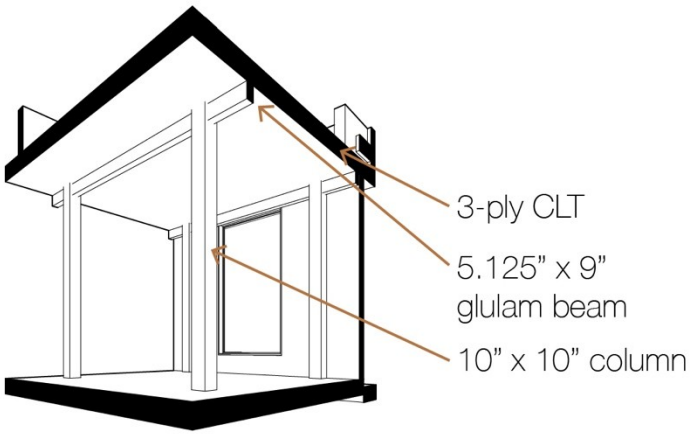

Figure 28: Structural bay diagram

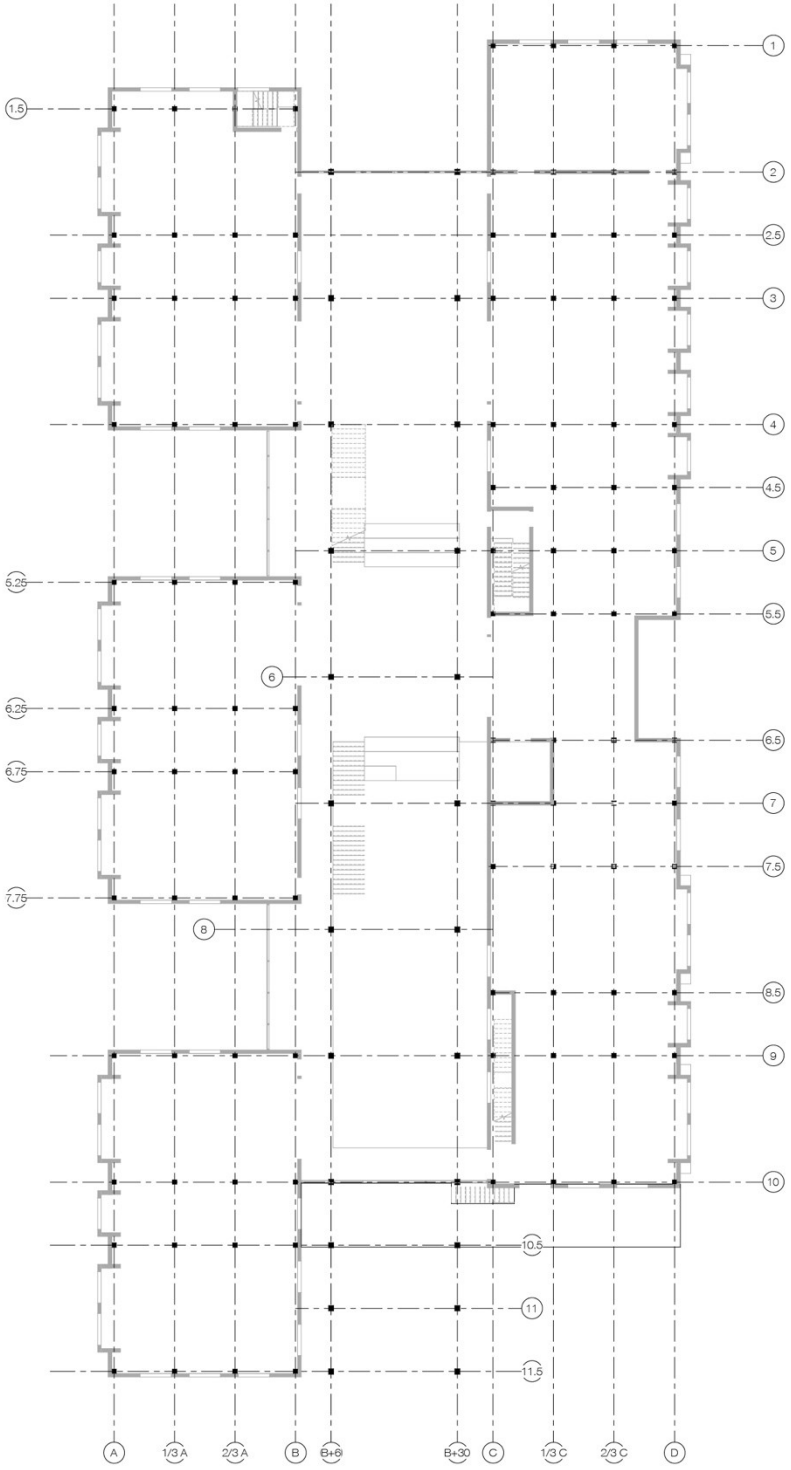

Figure 30: Structural plan - second floor

12'

Atrium roof. The atrium roof is a unique structural feature that impacts the light and scale of the building. First, the soaring custom glulam trusses create the largest open span in the structure, making a space that feels wide-open and is big enough to double as a performance or event space. At the roof level, the trusses are connected by glulam beams, supporting the glazed roof panels. From the beams hang a grille of closely spaced (two per foot) 2 x 4 wood members. These louvers filter the sunlight during the day, keeping the space from being unusably bright while still allowing adequate daylighting. At night, the wood reflects electric light to prevent light loss through the glass roof and keep the building bright.

Figure 31: Atrium rendering - daytime

Figure 32: Atrium rendering - nighttime

THE LIBRARY BUILDING: GREEN STRATEGIES

"Stewardship" is one of the library's nine central goals for the new building, asking the design to "Honor the public's investment and ensure sustainability by incorporating quality materials, efficient systems, and flexible planning." Integrating passive strategies for heating, cooling, lighting, and water filtration reduces the building's environmental impact, lowers lifetime costs, and, for the library, provides an opportunity to educate the public.

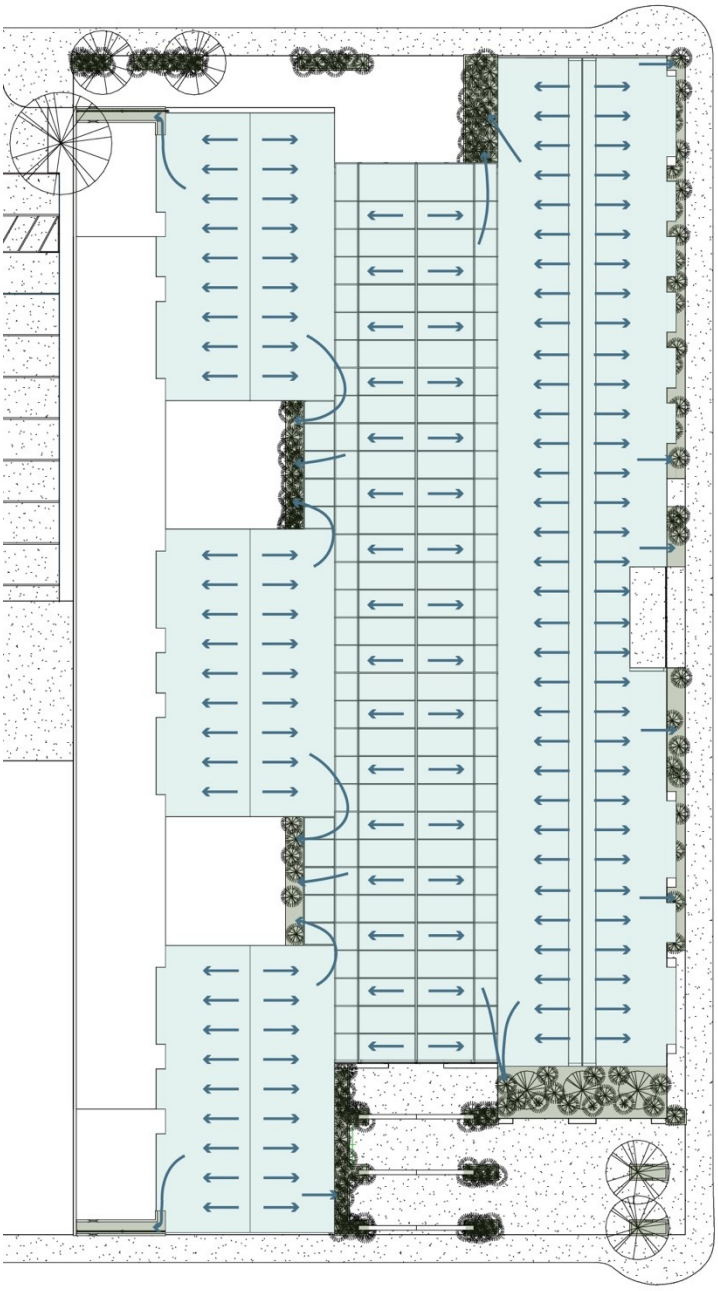

Figure 33: Roof drainage

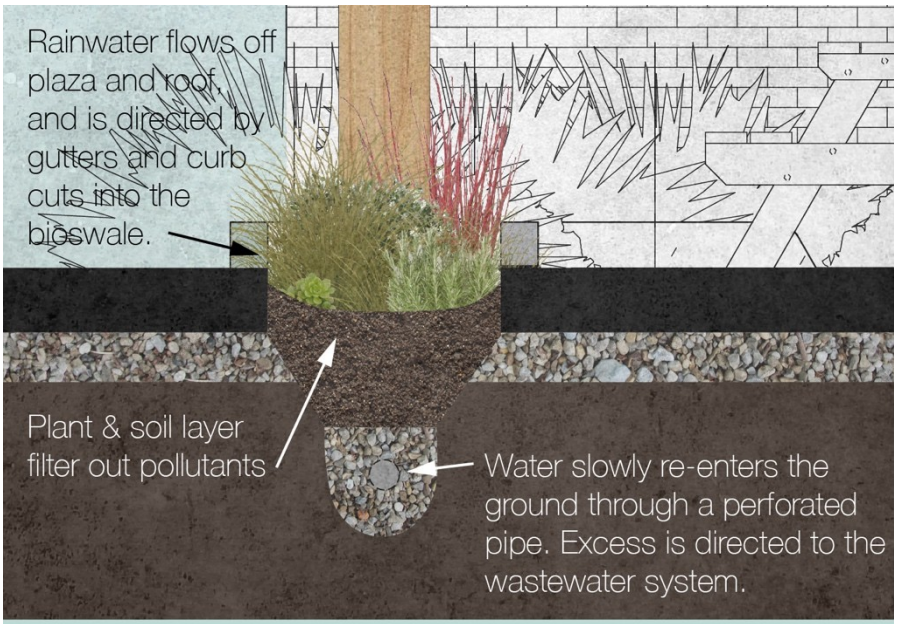

Figure 34: Bioswale section

Water runoff and filtration. Rainwater falling on the site is collected and directed to bioswales. Runoff from the gabled roofs travels through gutters to the nearest swale. The sidewalk and plaza are very slightly sloped to direct water through curb cuts. The bioswales are planted with native vegetation that can handle lots of water. Rainwater filters through the plants and soil, allowing pollutants to settle out of the water before entering a perforated drain pipe. The drain pipe allows water to slowly exit, returning to the supply of groundwater. In overload conditions, excess water flows into the city's stormwater collection system.

Daylighting. The basic form of the building, with three 36' wide bars, allows daylight to penetrate deep into the space. The "2.5H" rule of thumb states that "the [useful] daylight penetration into a space will be 2.5 times the

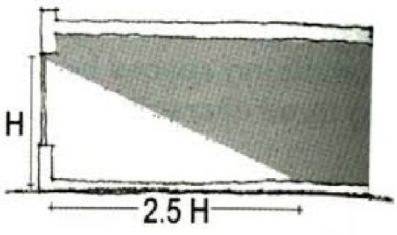

Figure 35: 2.5H rule

head height of the window."[44] For the first and second floors of the library, the exterior windows have a head height of 12'6". This means that 31'3" of the floor depth should have adequate daylighting from the exterior windows at most times. The remainder of the 36' is made up for by windows opening onto the light-filled atrium. When the light is too bright, though, or is creating too much solar heat gain, exterior roller shades concealed in the window head can come down. On the south side, deciduous columnar maples (*Acer platanoides* 'Columnare'; from the list of Springfield's approved street trees[45,46]) let light through during the winter months but provide additional shade in the summer. In the atrium, as described in the "structure" chapter, a system of slats filter sunlight. The building's orientation doesn't lend itself to extensive use of solar panels, but the south-facing atrium façade will house tiny PV panels in the curtain wall, a system proved to be effective at Lillis Hall on the University of Oregon campus.[47] The PV panels, besides generating electricity, will reduce solar heat gain in the atrium.[48]

[44] Bobby Astrich, Alex Morris, Briana Walters, "Daylight Performance in Mid/Large Buildings" (University of Texas at Austin, School of Architecture, n.d.) p. 7
[45] "Columnar Norway Maple" (conservationgardenpark.org, 2017)
[46] "Appendix 6A: Approved Street Tree List" (City of Springfield, May, 2012)
[47] Kent Duffy, "Making Business" *High Performing Buildings* (Summer 2008)
[48] Edward Clark, "Analysis of the Curtain Wall Photovoltaic Array on the Southern Façade of the Lillis Building Complex Atrium" (University of Oregon School of Architecture, n.d.)

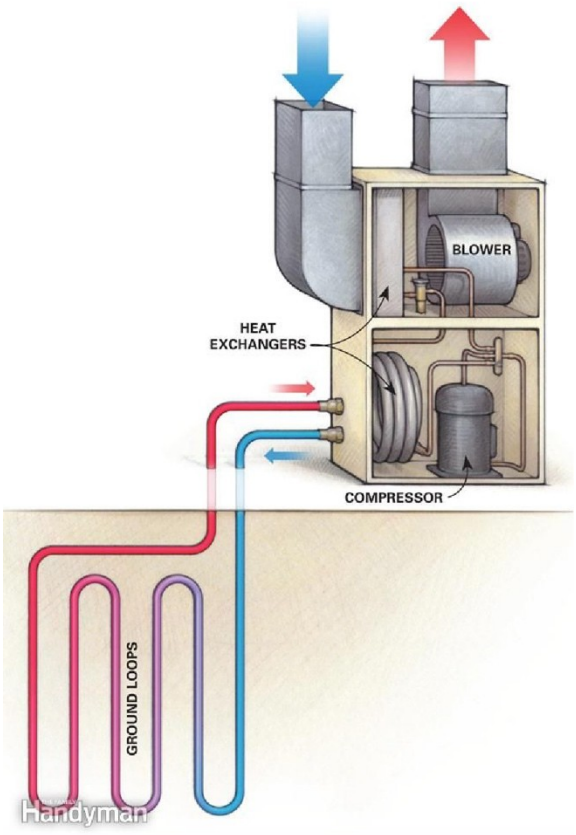

Figure 36: Simplified geothermal heat pump diagram. ©The Family Handyman

Heating and cooling. The design employs multiple strategies to maintain thermal comfort in the building while minimizing energy use. The first is simply to insulate the building well. A high R-value protects against heat gain or loss, requiring less energy to heat or cool the building. Insulated walls between the outer bars and the atrium prevent heat loss into the atrium. The second strategy is to use thermal mass to balance heat gain and release through the day. Dense materials like concrete or brick absorb heat through the day, keeping the space cooler, and then slowly release it at night.[49] Thermal mass is integrated seamlessly into the building, with a concrete atrium floor, and brick, concrete and plaster in the wall construction.[50] A third strategy is installing a geothermal heat pump. GHPs take advantage of the constant 54 degree temperature of the earth below 25' underground. A loop of pipes filled with water circulate below ground and up to the building's heating unit. In the summer months, the water absorbs heat and then is cooled below ground, bringing cold water back up to cool the air. In winter, the system works in reverse, bringing warmth from underground to heat up the

[49] C.A. Balaras, "The role of thermal mass on the cooling load of buildings. An overview of computational methods" Energy and Buildings 24 (1996), p.1
[50] Mustapha Karkri, "Thermal properties of smart microencapsulated paraffin/plaster composites for the thermal regulation of buildings" Energy and Buildings (2015) p. 183

air. This process takes a significant load off the standard HVAC system, reducing energy use.[51]

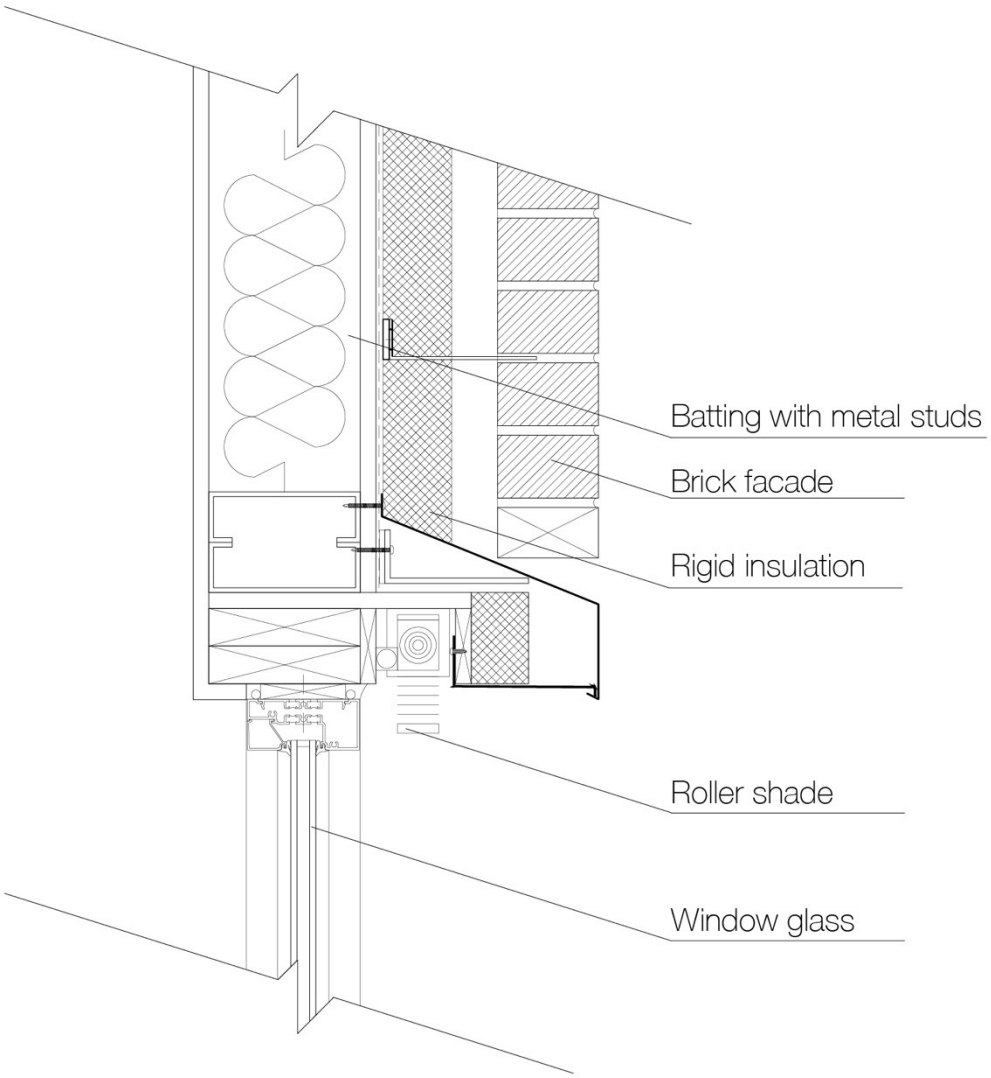

Figure 37: Section through window head, showing insulation, exterior rolling shades, and brick facade.

Ventilation. The design uses both the stack effect and Bernoulli's Principle to optimize natural ventilation. The stack effect, caused by warm air rising, draws warm

[51] "5 Things You Should Know about Geothermal Heat Pumps." (Energy.gov, n.d.)

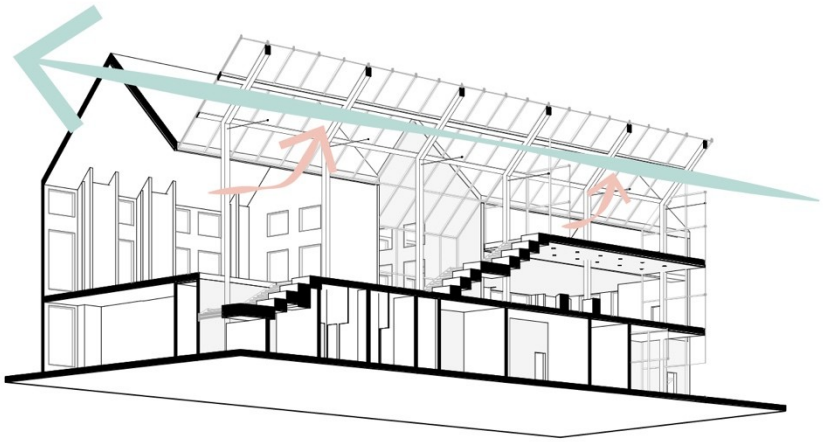

Figure 38: Natural ventilation

air from spaces around an atrium up to the top of the multi-story space. Bernoulli's Principle states that high velocity fluid will have lower pressure than lower velocity fluid below it. In a building application, this means that wind, traveling above a building, can draw air up and out, creating an air current through the building.[52] Springfield, located in the N-S oriented Willamette Valley, has consistent north or south wind directions. This matches the building's alignment, allowing a consistent current drawing air through the atrium space. In tandem, these two systems create effective ventilation to cool the building.

[52] A. Bhatia, "HVAC—Natural Ventilation Principles" (CED Engineering, n.d.) p. 4-5

THE LIBRARY BUILDING: EXPERIENCE

Materials, furniture, and lighting build on the framework of structure and organization to bring texture and livability. On the exterior, the building finishes communicate with the context and give the building identity. Inside, materials shape the tactile experience of the space, as well as a plethora of factors like acoustics, warmth, and brightness. Interior organization and furniture facilitate a variety of activities, from active play to conversations to solo reading, and create a wide range of places to be. Electric lighting supplements daylight and produces different moods across spaces.

Façade goals. Four of the library's nine central goals apply directly to the building's exterior face. Goal number one covers accessibility and making the whole community feel "welcome." Goal three asks the design to "Reflect Springfield heritage, culture, and history." Goal seven emphasizes the importance of "engaging the sidewalk." Finally, goal nine covers the library's role as "a flagship service of the city, an international welcome point." The design attempts to bring together all of these considerations, creating an exterior that is deeply rooted in context, accessible, and iconic. The initial move of dividing the building into three equal-width bars is clearly expressed in the façade, nodding to the narrow lots adjacent on B St., A St., and Main St. These three bars break down the scale of the building, helping it feel more welcoming and less monumental, while the matched widths and roof pitches keep the overall building unified. The roof pitch, matched to Public House next door, and the light brick, echoing the historic Stevens Perkins Building, are both direct ties to Springfield's history and

identity. The use of CLT and glulam throughout, extending into the front plaza, reflects Springfield's deep connections to the timber industry.

South and north elevations. The south façade is the most publicly-oriented face of the building, visible from Main Street and housing the main entrance to the library. It also receives the most daylight. In addition to the three-bar strategy, this façade uses trees to create shade and depth. The trees shade the windows on the east and west bars, filtering sunlight during the summer months and reinforcing the rhythm of the windows. A big glass garage door on the east bar opens up the event space onto the plaza, further activating the outdoor space. In the middle section, scaled-down glulam trusses extend the structure from the building's interior into the plaza, framing the main entrance, becoming a "porch." The balcony extending across the middle and east sections shades the entrance and creates a sense of compression before opening into the voluminous atrium. The north façade, facing the residential B Street, gets almost no direct sunlight, and so requires the least shading. As the main entrance for Head Start, it will be busy at drop-off and pick-up times, but relatively quiet the rest of the day. The trees on this side are moved away from the front of the building, to avoid blocking daylight. The glazed middle bar is also left uninterrupted to maximize light penetration.

Figure 39: South elevation facing A St., main entrance.

Figure 40: North elevation facing B St., Head Start entrance.

12'

East and west elevations. The east elevation is the longest public side of the building. The lightweight concrete bump-outs, which on the interior function as individual or group study nooks, on the exterior serve to provide rhythm and variety to the elevation. The smooth, grey concrete contrasts with the very textured, warm brick. On the lower floor, where the nooks aren't needed on the interior, the windows are all evenly spaced. Above, the windows are grouped by the bays. Lintels at the base of each bay extend to cover the windows below, bridging the asymmetry and creating a horizontal datum line across the building. The alley terminus in the center of the façade breaks up the brick pattern with a stretch of lightweight concrete. This indent gives variety to the design, as well as housing necessary service functions, like garbage bins and loading entrances, that need easy access to the street. With around ten feet between the building edge and the street, there isn't room for tall street trees, but exterior rolling shades protect the interior from excessive sun. The west elevation, facing the interior of the block, is the most private face of the building. Large stretches of glazing provide a view out to the Head Start outdoor play space. On this side, the bump-outs are used on each floor, and so extend up the whole façade. Like the east elevation, exterior rolling shades protect the interior from glare when necessary.

Figure 41: East elevation facing 5th St. and current City Hall.

Figure 42: West elevation facing the interior of the block, opening onto the Head Start outdoor play area.

Progression of rooms. While the scope of this thesis doesn't cover the nuances of interior design, choreographing an example patron's path through the building shows how the variety of spaces can be developed with material, light, and furniture to craft a range of experiences. Moving from the exterior to the interior, the emphasis moves from just creating a visually pleasing composition to making spaces to move through, touch, and interact with.

Entering. As someone crosses the plaza and approaches the entry, they'll pass under the second floor balcony. Moving into the shade opens up views into the atrium beyond. The constricted space provides a strong threshold before going through the door into the

Figure 43: Entering

expansive atrium. At night, the underside of the balcony is brightly lit, acting as a beacon for the main entrance.

Going up. Moving past the café and service desk, people progress up into the atrium, to access library services on either side. The process of moving up, though, is designed to be more than just getting from floor to floor. Stadium seating, with periodic extended platforms, turns the spaces between floors into occupiable space, where people can read, work, have conversations, or people watch. As the “living room” part of the building, this is an extroverted space designed to bring together diverse parts of the community.

Figure 44: Going up the stairs

Transitioning from public to private. While the building has a spectrum of public and private spaces, spatial cues signal specific transitions into quieter or more supervised space. Figure 46 shows the north end of the middle bar, behind the stadium seating, which is part of the children's section. Moving into this space, the ceiling height drops from the atrium ceiling to a lower, one-story ceiling. A library service desk greets families coming in, monitoring access. The CLT structural slabs above and below create a warm environment. Electric lighting supplements the daylight.

Figure 45: Moving from public to private

Arriving. Moving from the central bar to a side room of the children's section, the acoustics are more controlled, creating a quieter space to read and play. A variety of

nooks around the edge of the room tie into the human love for "prospect and refuge," cozy spots where we feel protected but can survey the rest of the room or look at the outdoors through a window.[53] White, plastered walls amplify the daylight through the warm CLT structure. A variety of chair sizes and types, as well as a warm floor, accommodate all sizes of kids and adults.

Figure 46: Arriving at the destination

Color. Looking ahead to finer-scale design development, interior color choices can function as another important tie to Springfield's identity. Even if the specific reference

[53] Annemarie Dosen, "Prospect and refuge theory: Constructing a critical definition for architecture and design" International Journal of Design in Society, Vol. 6, Issue 1, 2013, p. 9

in each color doesn’t translate through to the library patrons, pulling colors from the surrounding environment keeps the building rooted in its place and unifies the interior.

Each color corresponds to a specific piece of Springfield's identity, whether natural, historical, or contemporary.

Tall, native Douglas Fir trees coat the lush Cascade foothills surrounding Springfield. More than any other tree, they're a symbol of the Willamette Valley's forests.

Native Western Red Cedar, fragrant and brightly colored, is a staple of Springfield's wood industry, both past and present. Its structural properties, water tolerance, and bug resistance make it an ideal material for the Willamette Valley.

The 1911 Stevens Perkins building, recently refurbished, uses a light, sandy brick that amplifies the sunshine along Main Street. More recent structures like the EmX terminal have picked up on the material, beginning to create an urban language.

The McKenzie River's pure blue-green water provides the city with drinking water, and is deeply woven into the culture of Springfield. Locally made (and world renowned) McKenzie Driftboats are a common sight, headed out for flyfishing or Steelhead.

The recently established Washburne Cafe has become the heart of Springfield's downtown revitalization, creating a sunny, family-friendly space in an area struggling to remake itself.

Hardy lavender adapts well to the Willamette Valley climate, and encourages local honey bee populations. Several small farms along the Willamette and McKenzie grow lavender for commercial uses and local florists.

Blue-gray volcanic basalt is the literal bedrock of Springfield, and rounded basalt river rocks line the banks of local waterways.

Figure 47: Color palette

CONCLUSION

The Springfield Public Library is a key institution in its community, bringing together a diverse population and providing crucial resources. With a new facility, the library can provide more services to more people, increasing its positive effect in the community. This design proposal creatively addresses each of the library's central goals. From efficient staff spaces to inspiring kids' areas to a welcoming exterior, the proposal brings together diverse functions in a design that's deeply rooted in Springfield. In its new space, the library can not only expand the excellent resources it provides now, but become a true living room for the city.

BIBLIOGRAPHY

"5 Things You Should Know about Geothermal Heat Pumps." Energy.gov. Accessed May 21, 2020.

"About the Library." n.d. Eugene Public Library Foundation. Accessed December 3, 2019.

Adams, Tom. "'We're Trying to Really Change the Culture and Texture of Who's Downtown' in Springfield." KVAL. KVAL, January 5, 2019.

Astrich, Bobby, Alex Morris, Briana Walters, "Daylight Performance in Mid/Large Buildings: Basics, Strategies, Technologies" Center for Sustainable Development, University of Texas at Austin, n.d.

Bagley, Caitlin A. 2014. *Makerspaces: Top Trailblazing Projects: a LITA Guide*. Chicago, IL: ALA TechSource.

Balaras, C.A. "The Role of Thermal Mass on the Cooling Load of Buildings. An Overview of Computational Methods." *Energy and Buildings* 24, no. 1 (1996): 1–10.

Bhatia, A. "HVAC—Natural Ventilation Principles" CED Engineering, n.d.

Brawne, Michael. 1970. *Libraries: Architecture and Equipment*. London: Pall Mall Press.

Columnar Norway Maple. Accessed May 21, 2020. https://conservationgardenpark.org/plants/1385/columnar-norway-maple.

Conner, Martha. 1931. *Outline of the History of the Development of the American Public Library*. Chicago: American Library Association.

Dijkstra, Rients. 2010. *The Architecture of Knowledge: the Library of the Future*. Rotterdam: NAI Publishers.

Dosen, Annemarie S., and Michael J. Ostwald. "Prospect and Refuge Theory: Constructing a Critical Definition for Architecture and Design." *The International Journal of Design in Society* 6, no. 1 (2013): 9–24.

Duffy, Kent. "Making Business." *High Performing Buildings*, Summer 2008, p. 4-13

Gorthy, Joel. “Tastings: Taking It to the Streets.” Guard. The Register-Guard, September 1, 2019.

Gokhman, Roman. 2003. “A New Page for Eugene's Library.” Daily Emerald. January 6, 2003.

Harris, Michael H. 1975. *The Role of the Public Library in American Life: a Speculative Essay*. Champaign: University of Illinois, Graduate School of Library Science.

Karkri, Mustapha, Mohamed Lachheb, Fethi Albouchi, Sassi Ben Nasrallah, and Igor Krupa. “Thermal Properties of Smart Microencapsulated Paraffin/Plaster Composites for the Thermal Regulation of Buildings.” *Energy and Buildings* 88 (2015): 183–92.

Kaser, David. 1997. *The Evolution of the American Academic Library Building*. Lanham, MD: Scarecrow Press.

Kenoyer, Kelly. 2018. “Eugene Design: The Good and the Awful.” Eugene Weekly. March 9, 2018.

“Library FY09 Service Profile.” 2008. Citizen Subcommittee of the Budget Committee.

Manning, Jeff. “Problems at Peavy: Faulty Timber Panels Raise Stakes for Promising New Oregon Market.” Oregonlive, August 12, 2018.

McDonald, Rachael. “Springfield Seeks Public Input to Help Plan New Library.” 2019. Eugene, OR: KLCC.

Nishimura, Randy. 2013. “The Library Chronicles.” SW Oregon Architect. December 30, 2012 -April 7, 2013.

Oehlerts, Donald E. 1992. *Books and Blueprints: Building Americas Public Libraries*. Westport, CT: Greenwood Press.

Ruan, Xiaomin, Risa S. Proehl, Jason R Jurjevich, Kevin Rancik, Janai Kessi, Carson Gorecki, David Tetrick, “Coordinated Population Forecast for Lane County, its Urban Growth Boundaries (UGB), and Area Outside UGBs; 2015-2065” Population Research Center, Portand State University, 2015. p. 7

“Springfield Public Library.” Eugene, Cascades & Oregon Coast Visitor Information. Accessed May 21, 2020.

"Springfield Public Library Strategic Plan 2017-2022." 2017. PDF Document.

Tobin, Michael. "Church of Beer." Eugene Weekly, September 19, 2018.

Williamson, W. L. 1969. "Carnegie Libraries: Their History and Impact on American Public Library Development. George S. Bobinski." *The Library Quarterly* 39 (4): 365–66.