



2020 JAMES D. MACCONNELL AWARD

# Minnehaha Academy: Upper School Reconstruction

Minneapolis, Minnesota

It is a rare event in an architect's career to work on a project for which the goal is so clear and the need so compelling that it moves us on a deep, personal level.



Photos courtesy of Epoch Times, Fox 9 News, and Star Tribune (clockwise, starting in upper left)

# Executive Summary

On August 2, 2017, the historic Upper School of Minnehaha Academy was rocked by a natural gas explosion that killed two, injured numerous others, and destroyed its esteemed 1912 and 1922 buildings and academic spaces. In support of their mantra “Together We Rise,” the school decided to embark on hiring a design-construction team in December of 2017 to help the school sort through its options of moving forward. Unlike most project briefs, where the number of learners, grades to be housed, budget, and site are known, the school was seeking a team that would help them identify and evaluate their options, plan, program, design, and build their preferred option within 18 months - without having these parameters in place. Inspired by their rallying cry of “Together We Rise,” the selected design-construction team expanded this mantra: Together We Plan - Together We Design - Together We Build - TOGETHER!

Minnehaha was grieving both the loss of lives, as well as the loss of two beautiful historic red-brick structures that were an integral thread of the school’s community fabric for over 100 years. Simply replacing what was lost would have been easy. However, Minnehaha was resolute in their belief that this was an opportunity to fundamentally re-think how the school supported learning. They wanted to move forward with buildings that re-interpreted the school’s rich history in a new and vibrant way.

## Goals

*The school was resolute in its goals to:*

- Celebrate Minnehaha’s legacy
- Honor the past while looking to the future
- Turn tragedy into triumph

## Challenges

*The challenges were many, not least of which included:*

- Allowing space for grieving from loss of lives and buildings
- Balancing competing goals of rethinking the future of learning with the innate need to hold on to some semblance of the school’s history
- Adhering to a “Flash-Track” schedule with 18 months to fully vet their range of options, plan, program, design, and construct
- Navigating a rigid community and city approval process where missing any of the target dates would have delayed the project and missed the start of the 2019 school year

## Keys to Success

- A process grounded in Minnehaha’s Vision, Principles and Core Values
- Accessibility to all stakeholders with a shared sense of urgency
- Leader with vision who created the safe space to think differently and test new ideas
- Willingness to look beyond one’s own needs for the good of everyone
- Resilience
- Integrated project delivery based on respect, collaboration, communication, teamwork, and trust

## Grounded in their Vision for Learning for the Future

The process started by re-evaluating the Facility Vision and Principles from Minnehaha’s 2013 master plan and bringing them forward. Every conversation began with their review in order to ground decisions in the right priorities. Centering decisions around the learner was key to navigating this ambitious schedule.



Aerial view of former campus. The explosion occurred at the heart of the original 1912 and 1922 buildings, destroying the historic portion of the campus (shown shaded in the above photo).

## EXECUTIVE SUMMARY

The updated Facility Vision and Principles that guided the entire process are as follows:

*"We see a community-focused environment that is vibrant and inviting, blending old and new, merging outside with inside, with a logical flow and organization of space. It is innovative and flexible with scalable, adaptable infrastructure which serves a variety of learning and teaching styles and encourages collaboration and ownership for all Minnehaha Academy stakeholders."*

### Facility Principles

1. Minnehaha Academy is committed to fostering collaboration and creativity in its facilities and environments while maintaining the integrity of academic excellence and small class sizes.
2. Minnehaha Academy is committed to consistently providing spaces that are environmentally healthy, conducive to learning, secure, and inviting.
3. Minnehaha Academy is committed to creating a welcoming and attractive outdoor environment that expresses our hospitality.
4. Minnehaha Academy is committed to providing space that promotes connections among learners, faculty and staff, families, guests, neighbors, and the larger Minnehaha Academy community.
5. Minnehaha Academy is committed to *NEXT* Century learning environments that are flexible and adaptable with a robust technology infrastructure that is seamlessly integrated with curriculum.
6. Minnehaha Academy is committed to learning environments that integrate our Christian faith.

### Unparalleled Accessibility

Also key to success was accessibility for learners, staff, teachers, the board of trustees, parents, alumni, local community members, and the city to participate in over 40 meetings around the holidays to envision, plan, and program the new school. Everyone felt a personal stake in the outcome, and, while dealing with their grief, focused their energy on imagining a brighter future for the entire Minnehaha community.

### Visionary Leader

For teachers, having a leader at the top who created a safe space to probe deeply and test new ideas around teaching and learning allowed them to think differently, let go of their "classrooms," and consider a more collaborative, holistic approach to delivering instruction.

### One Community

The neighborhood community had harbored distrust toward the school for over 20 years, spanning back to when Minnehaha Academy implemented its last building project. Because of this tension, it was crucial that the neighborhood was integrated into the planning, design, and construction conversations in a way that genuinely valued their input and helped heal old wounds. Originally perceived as two disparate communities – the internal school community and the external neighborhood community – these two groups were joined as one through a process founded on respect and empathy. Together, they listened and then responded with solutions that united them as one community moving forward.

### Integrated Project Delivery Approach

Integrating a construction team into the planning and design process from the very beginning proved invaluable to meeting this ambitious schedule. With a member of the construction team sitting side-by-side the design team in the architect's office for the planning and design phases, and then having the architect sitting alongside the contractor at the job site during construction was unusual, to say the least. Having the contractor meaningfully engaged from the beginning and hearing Minnehaha's Vision and aspirations allowed them to seamlessly contribute their expertise with solutions that proved instrumental in enabling the team to meet the "Flash-Track" schedule.

### Our Response

A poem by Ella Wheeler Wilcox that was read at Minnehaha's first graduation ceremony in 1912 and presented again on the school's 100th anniversary was looked to once more after the explosion. It inspired the forms, organization, and materials of the final design.

*On ship sails East,  
And Another West,  
By the self-same winds  
that blow.*

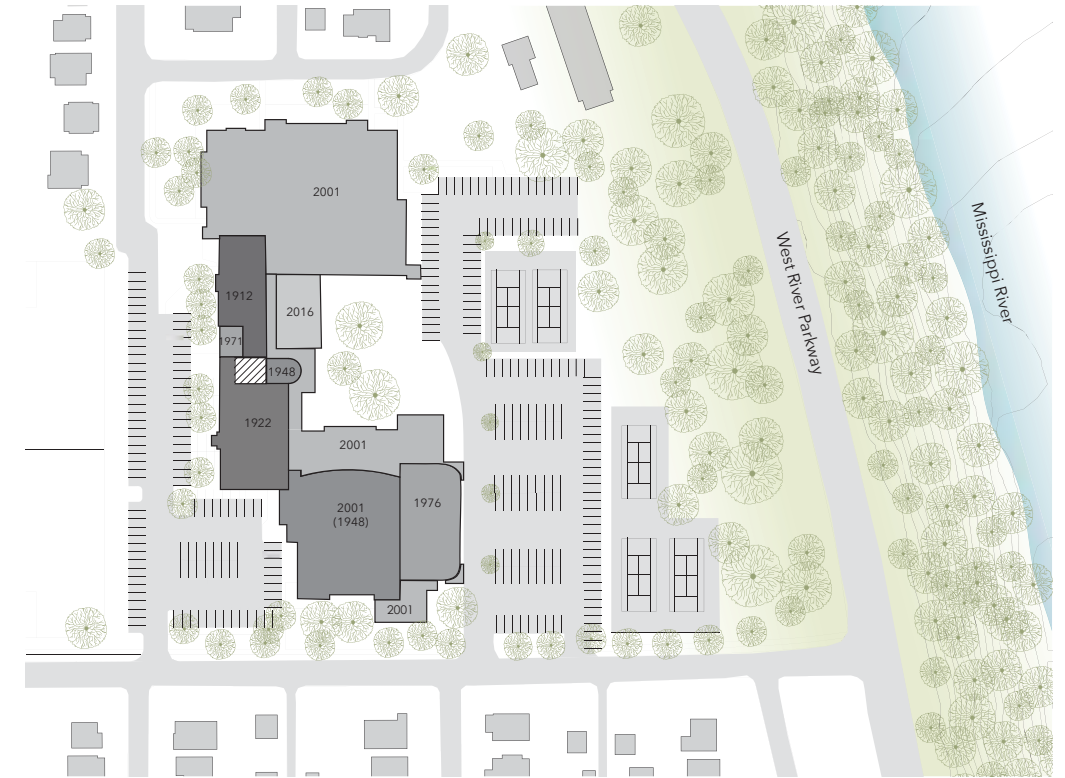
*'Tis the set of the sails  
And not the dials  
That tells the way we go.*

*Like the winds of the sea  
Are the waves of time  
As we journey along  
through life.*

*'Tis the set of the soul  
That determines the goal*

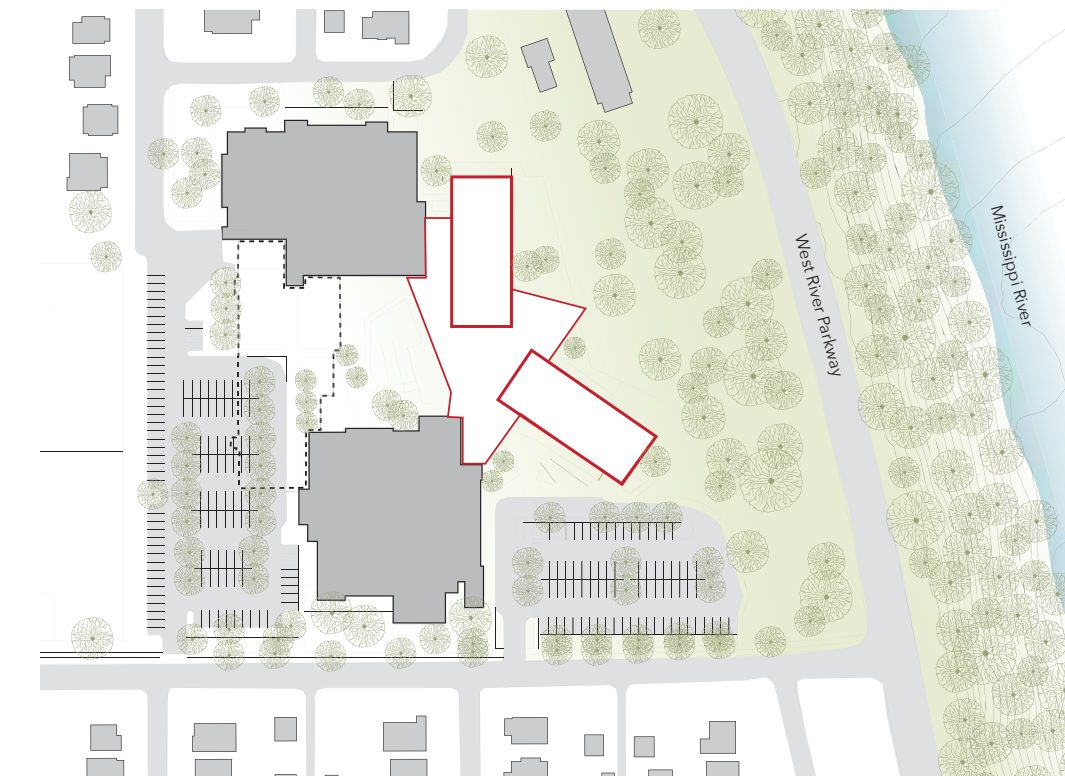
*And not the calm or the strife.*

Given the speed with which the project was proceeding and decisions were being made, the design-construction team took the time to capture their big moves in a design story. This proved to be a turning point in the project as it helped crystallize the 'why' of their approach and gave the entire Minnehaha community the words they needed to confidently share the story with others and keep the momentum going.



Site Plan Before

▨ site of explosion



Site Plan After

▭ new construction

▭ buildings severely damaged or destroyed that required demolition

**Design Story**

The design theme is about being bold and looking forward to a bright and amazing future. The design reflects the spirit of that future while also respecting the past. This space represents what is seen and unseen, guiding life at Minnehaha Academy through a delicate weave of texture, material and light.

The central tower is the “stake” in the ground for what Minnehaha Academy stands for: a new spiritual marker for the next century, not the last one. The two forms of the new addition represent not only the two ships in the poem, but also the two buildings lost, re-born and re-cast on the river side, where they always belonged. The different angles embrace the river, creating a sacred space reminding students and families that there is not just one single way forward in a community of faith, because **Together We Rise.**

**Design Response**

Contrary to the original buildings, which had limited daylight and few windows, classrooms and common areas are now filled with floor-to-ceiling windows, giving students views to the Mississippi and the surrounding river gorge. To maintain a natural feel, the design-construction team kept the material selection simple and honest with a primary palette of concrete, wood and daylight. The finish palette adds pops of color only where appropriate for definition and wayfinding.

This simplified palette reflects the school’s Scandinavian heritage and the creative implementation of bright, supplemental colors helps carry daylight deep within the space. The clean and simple design aesthetic was extended to the building’s exterior where brick shingle tile was proposed as cladding for the upper two stories with charcoal brick as the base on the main level. The brick shingle is a modern interpretation of the original buildings’ red brick and represents a blend of old and new.

## Outcomes/Results: What difference did we make?

To best understand the impact that this planning process and design has had on the Minnehaha community is to seek their insights. What follows are quotes taken directly from the post occupancy evaluation. It is their voice that truly matters.

*“A beautiful facility is nice, but more important is what the facility accomplishes - what students are able to learn because of the design. The design-construction team was super thoughtful over every aspect of the design from the outside in, and from the biggest to smallest details. The team incorporated history, best practices, forward thinking and input from many stakeholders. The result is a wonderful, welcoming, beautiful space that allows learning to be front and center. Students have a conducive environment to learn in, and also to grow in - relationally, spiritually, and emotionally.”*

– Minnehaha Academy Parent

*“No space has only one use, but every space is exceptionally useful.”*

– Minnehaha Academy Student

*“I love the creativity that I feel when I come to work and teach everyday. Each new day I feel inspired because of my surroundings and I also feel so lucky and blessed to work in such a beautiful facility that really speaks to the strength of our community and goals of our school towards an excellent academic experience.”*

– Minnehaha Academy Teacher

# An Opportunity

## The Challenge

Whereas most projects begin with a defined set of parameters, including grades to be served, scope, budget and schedule, the only thing set in this case was the schedule. The temporary building lease was to expire in August 2019 and the school needed to be turned over to the owner in time for the first day of school that month. The project began on December 11, 2017.

Driven by its goal to not just replace what was lost but to look to the future, the school decided it had an opportunity to fully explore all options. The Upper School where the explosion occurred served grades 9-12. The Lower School, located a mile down the road, served grades K-8. Having long struggled with students split across two campuses, the administration decided it was time to also consider consolidating and asked the design-construction team to study whether all grades could fit at either campus, or if a new site would be needed.

To respond to that request, additional issues needed to be addressed, including: What properties existed? Were there existing buildings to be renovated or were there any greenfield sites available? Would families be willing to drive further if it meant a continuous campus experience? What about budget? How much could they raise? Would they be able to count on any insurance dollars? Even with all these unknowns, the board asked for a presented recommendation by January 11, 2018.

## Weighing the Opportunities

In the end, six options with multiple configurations were studied. For each option, programmatic scenarios were also created and tested to understand how teaching and learning would be supported.

To guide the analysis, the design-construction team utilized the Facility Vision and Principles to create a set of criteria that would guide the selection. The matrix summarizing this analysis is shown on this page.

In the discussions, three configurations (with multiple variations) rose to the top:

**Configuration 1:** Re-locate and create one campus with grades PK-12

- 3 "new sites" were tested
- 2 existing sites were evaluated

**Configuration 2:** Re-build the Upper School with grades 9-12 (restoration option)

**Configuration 3:** Re-define the Upper School as an Upper / Middle Campus with grades 7-12

Ultimately, a combination of Options 2 and 3 was chosen and the project shifted to a 6-12 Upper/Middle Campus, but with a focus on restoring grades 9-12 immediately.

Options Comparison Report Card JANUARY 8, 2017	Upper School	Relocate Schools			Upper School	Lower/Middle Schools	Upper School		Lower/Middle Schools
	E	1	2	3	4	5	6A	6B	6C
OPTIONS	Re-Build Grades 9-12 at Upper School in Kind Replacement	New Build PK-12 Facility	Renovate Optum Campus to Grades PK-12 Facility	Renovate Target Campus to Grades PK-12 Facility	Build Grades PK-12 Facility at Upper School	Build Grades PK-12 Facility Lower/Middle Schools	Re-Build Grades 9-12 at Upper School	Re-Build Grades 7-12 at Upper School	Remodel Lower/Middle Schools to PK-6
Renovation Space SF	0	0	230,000	219,000			35,122	35,122	59,500
New Build Space SF	56,000	264,800	43,800	50,000			68,000	94,000	2000
Total SF	56000	264,800	273,800	269,000	Not Feasible	Not Feasible	103,122	129,122	61,500
Estimated Construction Cost	tbd	tbd	tbd	tbd	tbd	tbd	tbd	tbd	tbd
Schedule - Ready August 2019	●	●	●	●	●	●	●	●	●
Extent of Remodeling	●	●	●	●	●	●	●	●	●
Ability to House Athletic Facilities on One Site	●	●	●	●	●	●	●	●	●
Sufficient Parking	●	●	●	●	●	●	●	●	●
Future Expansion Potential	●	●	●	●	●	●	●	●	●
Ease of Access Geographically	●	●	●	●	●	●	●	●	●
Ability to Foster NEXT Century Learning; Collaboration, Creativity, Personalized Formal/ Informal Learning, Interdisciplinary	●	●	●	●	●	●	●	●	●
Community-Focused Environment that Reflects Our Christian Faith	●	●	●	●	●	●	●	●	●
Welcoming; Indoors and Out	●	●	●	●	●	●	●	●	●
Heart; Spaces/Places to Gather (whole school)	●	●	●	●	●	●	●	●	●
Environmentally healthy/safe and secure/daylit-infused/sustainable; Flexible and Adaptable	●	●	●	●	●	●	●	●	●
Architectural Integrity	●	●	●	●	●	●	●	●	●
Wow	●	●	●	●	●	●	●	●	●



Multiple grade-level configuration and site options were tested to meet the vision of the future of Minnehaha Academy's Upper School.

GRADES  
**9-12**  
HOUSED

SITE AREA  
**10.5**  
ACRES

DATE OF COMPLETION  
**08.02.19**

ADDITIONAL FLOOR AREA  
**72,000**  
GSF

**3**  
STORIES

EXISTING BUILDINGS  
THAT REMAINED  
**96,620**  
GSF

REMODELED PORTION  
OF EXISTING BUILDINGS  
THAT REMAINED  
**35,000**  
GSF

CAPACITY  
**540**  
STUDENTS

TOTAL  
PROJECT COSTS  
  
CONFIDENTIAL

# "Flash-Track" Schedule

Having been part of the fabric of this urban neighborhood for more than 100 years, Minnehaha Academy was deeply committed to both its internal community, as well as the surrounding neighborhood. However, there were several unique challenges to the school's attempt to meaningfully engage all voices in the design and construction process.

### Challenges

- Balancing an accelerated schedule while also meaningfully gathering everyone to get their input.
- Seemingly opposing goals, namely:
  - Committing to seeing this event as an opportunity to rethink the future of learning.
  - Balancing grief and maintaining some semblance of what was familiar.
- Community's distrust and opposition stemming from the school's last building project.
- Rigid city approval process schedule with the added pressure of meeting every date or face delays in the schedule.

### Unprecedented Pace

Given the speed with which the planning, programming, and design conversations needed to happen, the term "Flash-Track" was coined. Despite the daunting schedule, the school and the design-construction team were committed to involving both the internal and external communities not just in the planning conversations but also in the design discussions. To that end, workshops that involved students, teachers,

faculty, and alumni from the internal community, and workshops that involved members of the local neighborhood from the external community were held throughout the process to capture their voices. Moreover, Minnehaha used these workshops as an opportunity to bring together the entire Minnehaha community representing all K-12 grades, believing that learning needed to be looked at holistically and not broken into the traditional silos. Juniors and seniors who would not be able to experience the new building meaningfully contributed to the process so that younger students could benefit.

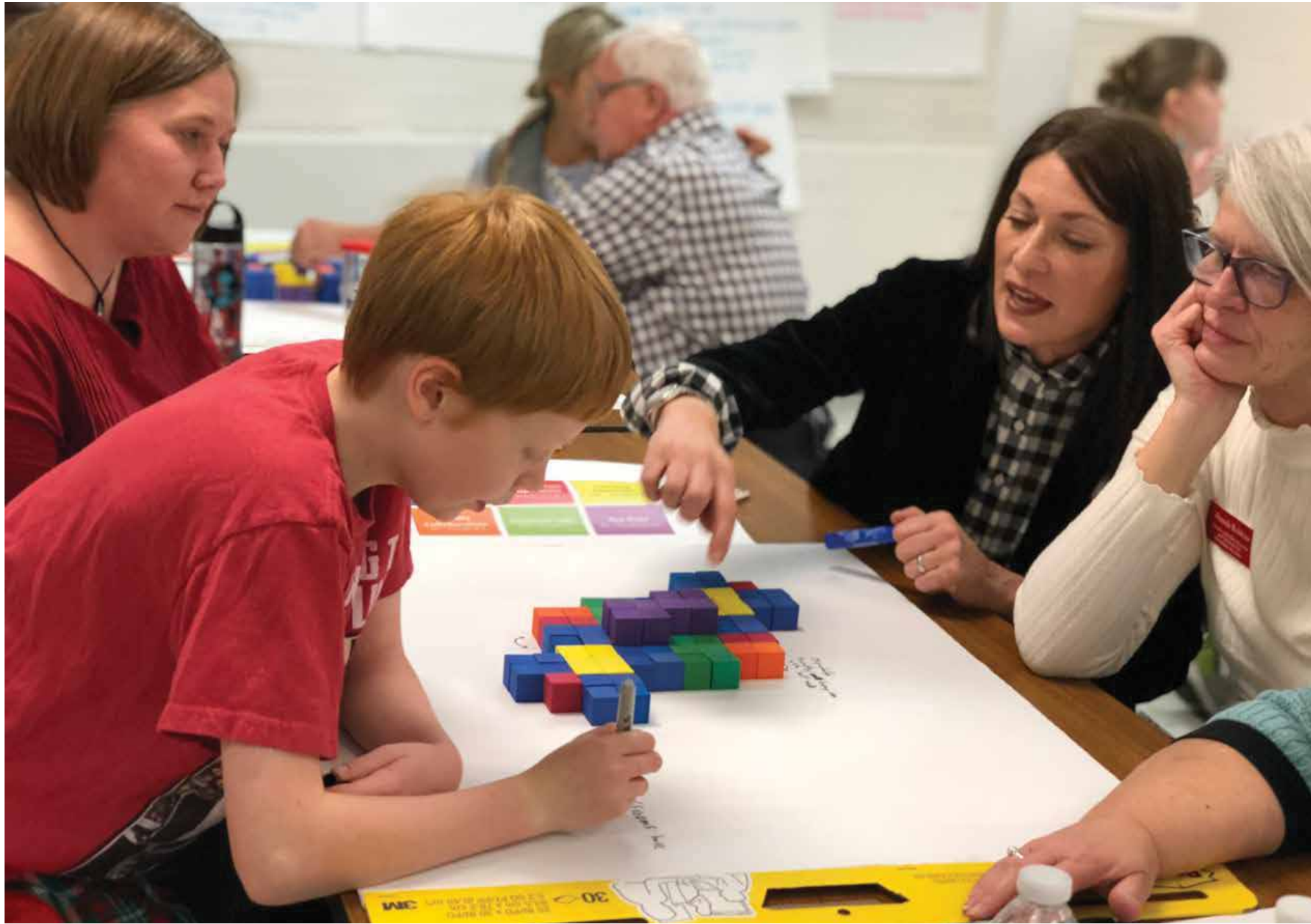
The need to gather everyone's input was exacerbated with the impending holiday season and the need to conduct programming meetings that would support a new model for learning. Key to success was the accessibility to which students, parents, whole families, teachers, administrators, and alumni availed themselves. **As a result, by Christmas 2017, over 40 meetings and workshops took place to program and design the school with the community.** The graphic shows not only the quantity of meetings that took place, but also how the phases had to overlap significantly to meet the schedule.

### Unity Walks

A unity walk from the Upper School to the Lower School was held after the explosion occurred to gather the community and start the healing process. The walk was reversed when the project was complete to signify coming full circle - coming home.







## Rethinking the Future of Learning While Managing Grief and Loss

It is challenging enough to ask teachers who have operated within a set structure for decades to let go of the past and imagine a new future. Change is difficult. These teachers were balancing functioning in a temporary environment while imagining a new landscape for learning.

At the same time, they were managing their grief, both the loss of lives and their historic classroom buildings that they perceived as a loss of their history. A lot was thrust upon them, but key to success was a strong leader and a team solidly anchored in their Vision and Principles, which gave them the freedom and permission to imagine.

The school made a conscious decision to not just replace what was lost, but to recognize this as an opportunity to focus on the future of learning and those *NEXT* Century skill-sets that would best prepare students for success.

The design-construction team recognized the significance of their role in asking difficult questions and challenging the more than 100-year status quo.

They integrated the conversations that members of A4LE were having around similar issues to help inform Minnehaha's approach. Then, leveraging the Facility Vision and Principles, they determined the solutions that best fit Minnehaha's community of learners.



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When this project started, the design-construction team understood that this was not about a building, or rebuilding, it was about healing the community.

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## A Public Process Success Story

The animosity neighbors harbored against the school was formidable. It stemmed from the school's last building addition project 20 years ago and had been festering ever since. The extent to which the neighbors would go to thwart the progress of rebuilding the school was felt early in the process and continued into construction.

A key point that the design-construction team learned early on was that the neighbors also felt a sense of loss for the historic structures that had been an integral part of the fabric of their community. This understanding cultivated a sense of empathy that solidified the team's resolve to engage them in the process and listen and address their concerns.

The neighbors had several concerns, including:

- Traffic (will it increase?)
- Environmental (how will the birds be protected?)
- Design (where is the red brick?)

In response, the design-construction team and the school community formed a joint task force with the neighborhood community to address their concerns.

By working together, the design incorporated many shared features, including:

- Variance to provide additional parking spaces
- Bird-safe glass throughout the facility to protect a major migratory pathway
- A public memorial garden accessible to the entire community in honor of the two lives lost
- Reduced height of the buildings to allow everyone to enjoy their views of the Mississippi River
- Moving the building back from the river to preserve additional trees
- Selecting exterior materials that evoke the original brick structures
- Repurposing of the felled trees into furniture, panels, and doors.

## Challenging City Approval Process & Schedule

The Flash-Track schedule was further complicated by a rigid city approval process that necessitated meeting every target date or risk not opening on time. While the neighborhood community understood this well, and many did their best to continually throw in roadblocks to slow the process, the school was committed to its neighbors and was determined to use this process to knit them together as one community.

In the end, the value of this intense engagement period served to heal the community, faculty, and staff and rally support from one another.

Integrating the neighborhood into the entire process and having them see the development of the plans generated excitement about the future.

Also key to success was that the community engagement didn't stop after the first 30 days, but continued throughout all phases, including the minute details of the project.

*"We've been going on a journey, and while our buildings may have changed, our communities have stayed the same," said incoming senior Zac Anderson. "This building is where we can plant our feet and is the glue that holds us together."*



City of Minneapolis Mayor Jacob Frey (right) spoke at the school's opening, touting the project as a successful partnership with the neighborhood and praising the building as a community asset. He joined Minnehaha leaders in cutting the ribbon. (Photo courtesy of Star Tribune)



## Always Begin with "Why?"

Starting with the question "why?" brought strength to the Minnehaha team and was invaluable in coalescing its design efforts in support of their Vision and Shared Principles.

For Minnehaha, the "why" was the students. Putting the learner at the center allowed them to focus all decisions around learning first, and served as their compass to successfully navigate the tumultuous time. It exemplified the value that taking the time up front to craft a Shared Vision and Principles has in successfully guiding teams through the planning and design process. Without it, the team would never have met the demanding schedule forced upon them.

### Shared Vision Statement

"We see a community-focused environment that is vibrant and inviting, blending old and new, merging outside with inside, with a logical flow and organization of space. It is innovative and flexible with scalable, adaptable infrastructure which serves a variety of learning and teaching styles and encourages collaboration and ownership for all Minnehaha Academy stakeholders."

### Guiding Principles

1. Minnehaha Academy is committed to fostering collaboration and creativity in its facilities and environments while maintaining the integrity of academic excellence and small class sizes.
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6. Minnehaha Academy is committed to learning environments that integrate our Christian faith.



# WHAT: A Community of Learners

If there is one word to describe the spirit of Minnehaha Academy, it is *community*.

From the building's scale to its massing and materials, the new environment helps foster Minnehaha's tight-knit connections between learners, teachers, administration, and the Minnehaha community at-large. *Community* is manifested on a range of scales, both indoors and outdoors.

## All-School

Minnehaha is organized into two three-story academic wings around a commons where students pass through multiple times a day, supporting serendipitous interactions. The commons opens directly to an outdoor amphitheater that supports both learning and performance. The flow helps strengthen existing relationships between learners, as well as foster new ones.

## Learning Neighborhoods

The design-construction team was determined that the architecture not dictate how Minnehaha would deliver learning. As a result, each learning neighborhood is organized around the same kit-of-parts, including a variety of different scaled spaces ranging from S, M, L, to XL that support community, collaboration, and student agency. Learning is not confined to a single space. Rather, it expands to include a variety of spaces with a variety of furniture and material treatments to support the range of learning activities.

## Flexible Design

The goal of not replicating the past but looking to the future came with a number of challenges. Having delivered instruction using the industrial model for over 100 years, many teachers were reluctant to change. Therefore, the architecture had to be flexible to allow them to experiment and grow regardless of where they were on the continuum of instructional delivery. Once again, a clear vision proved invaluable in helping teachers successfully navigate change.

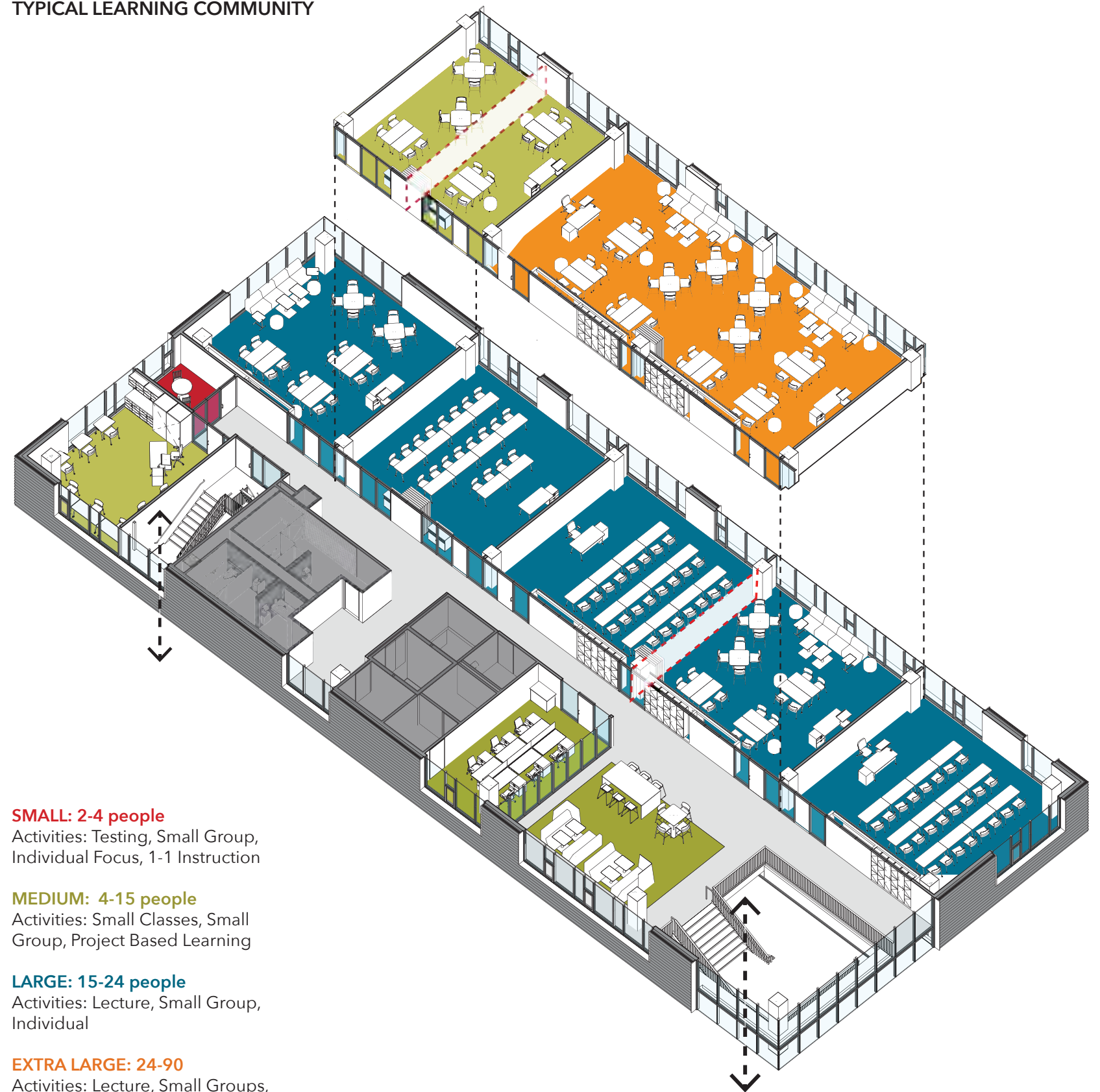
## Challenges

More specifically, three of the challenges that stand out include:

- **Classroom Ownership**

Given the school's desire to accommodate additional learners before they would need to build an addition, the design-construction team leveraged several tools to objectively present the concepts to help the board and teachers understand use and utilization. Once the impact of letting go of owning their classrooms was demonstrated, everyone committed to a model with non-assigned learning studios, as long as they were accompanied with teacher collaboration spaces where their personal belongings and workspace could be accommodated. It was a huge shift that afforded them the framework within which they could continue to evolve as a learning community.

## TYPICAL LEARNING COMMUNITY

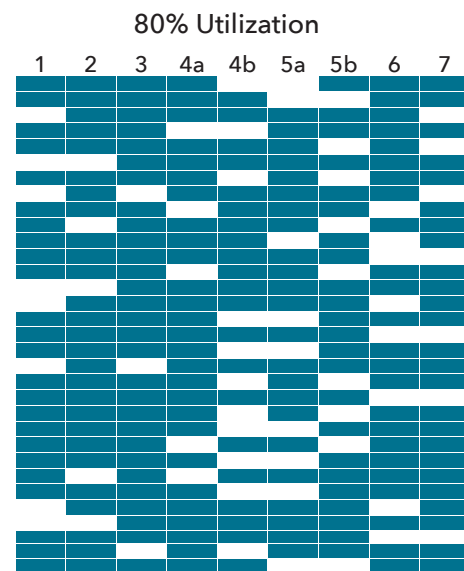
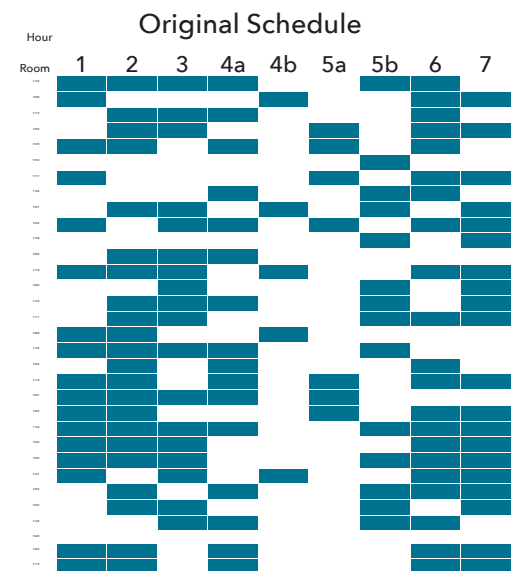


**SMALL: 2-4 people**  
Activities: Testing, Small Group, Individual Focus, 1-1 Instruction

**MEDIUM: 4-15 people**  
Activities: Small Classes, Small Group, Project Based Learning

**LARGE: 15-24 people**  
Activities: Lecture, Small Group, Individual

**EXTRA LARGE: 24-90**  
Activities: Lecture, Small Groups, Large Groups, Presentation



*(Challenges, cont'd)*

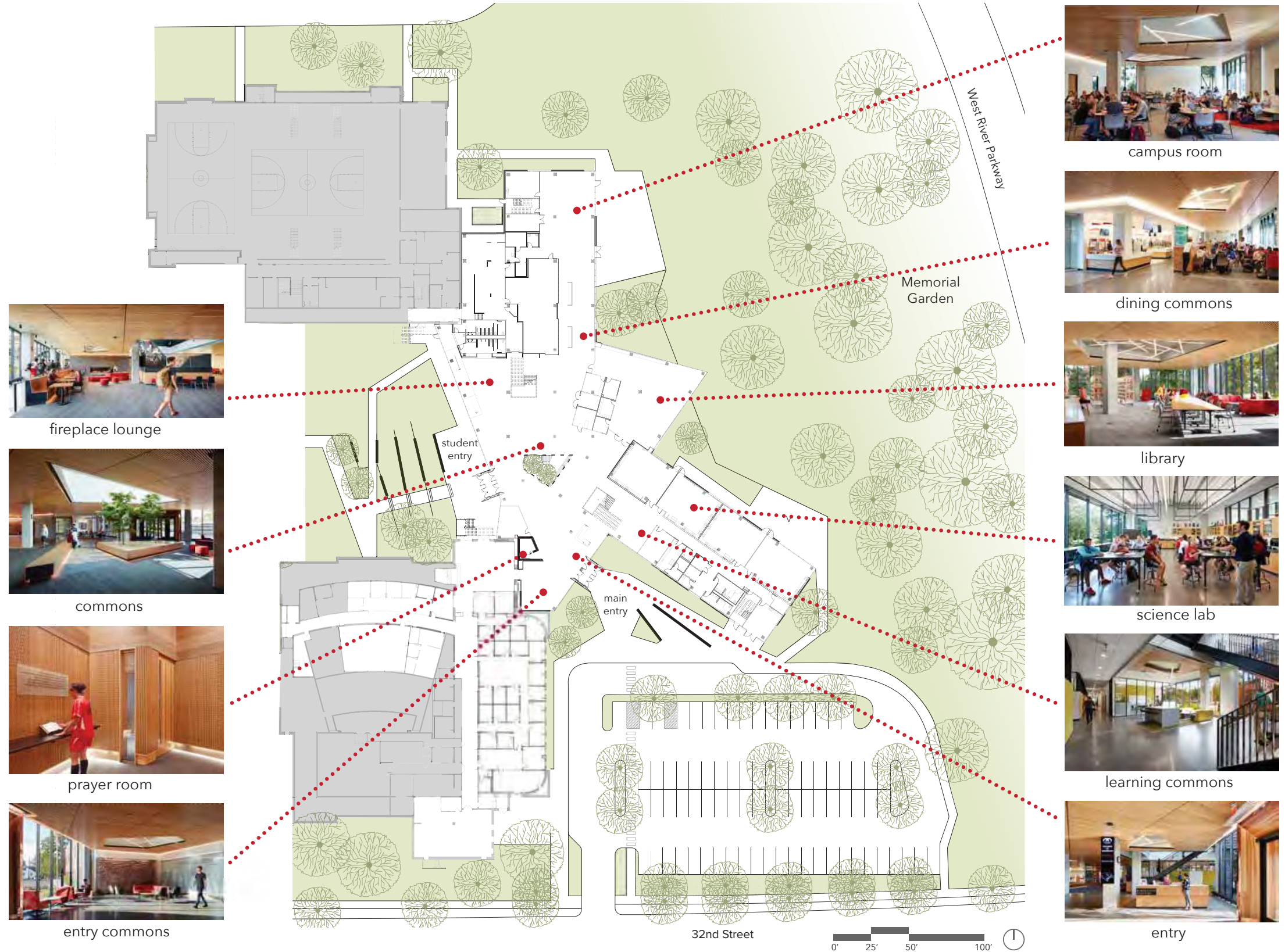
- **Distribute or Co-locate Science?**

As important as the responsibility to ask the right questions and challenge the status-quo was for the design-construction team, it was even more important to listen. While the desire for a purely identical kit-of-parts approach across all learning neighborhoods with distributed science was strong, the design-construction team needed to demonstrate flexibility, too. Ultimately, the science teachers' desire to flow between inside and outside and collaborate across subject matter necessitated that all science labs be located together on the first floor of one of the academic wings with direct access to the outdoors for experiments.

- **Library or Redistributed and Repurposed Areas for Media and Technology?**

Similarly, the design-construction team was eager to share their recent experiences with media centers that were re-imagined and reallocated into multiple spaces designed to support a range of hands-on learning activities, ideation, and technology. It was clearly articulated that Minnehaha's library, was not a media center, but had been the heart of their school. They implored the design-construction team to keep their library.

*"The library is my space," said senior Grace Anderson. "The windows look out to the trees and it's peaceful and centering for me. It's where I could work and be thoughtful in my work, but also reflect on our community and the beauty we created from a disaster."*



**Navigating a New Reality: Providing Social Distancing Guidelines**

The design-construction team is currently assisting Minnehaha in understanding what the student capacity of the school's campuses are given social distancing guidelines expected to be in place when school resumes in the fall. Because of the plethora of flexible spaces in the design, the school easily flexes to accommodate 115 percent of planned capacity. This allows the school to use the Upper School to also accommodate middle school learners in addition to grades 9-12. The byproduct of flexibility allows them to maintain their capacity in a healthy way as cohort groups.

## HOW: The Environment Supports *NEXT* Century Learning

Minnehaha was determined to concentrate on the future and the skillsets its learners would need moving forward.

Focusing on the desired attributes of critical thinking, communication, creativity, collaboration, citizenship, empathy, and curiosity, Minnehaha rallied around an environmental response to the question:

**“How can we design a building for an unknown future?”**

Inherent in this response is the importance of flexibility and agility, along with a nimble mindset

of providing spaces that could transform as their needs and methods of instructional delivery continued to evolve.

This mindset manifested into the following spatial attributes:

- Rapidly (re)configurable
- Mobile furnishings and technology
- Visual transparency
- Relentless variety
- Invites inquiry (not passive)
- Shared ownership of space
- Learning happens everywhere

*“The new space allows for students to learn in ways they feel most comfortable,” said senior Dani Robinson. “There are so many places in the building where people are innovating in ways they didn’t before.”*





**Rapidly (re)configurable**

Minnehaha's educational spaces are flexible, adaptable, and agile in order to effortlessly support a range of learning activities.

"This building is perfectly equipped for everyone's needs," said senior Grace Anderson. "The break-out spaces have facilitated great discussions and gatherings. They've led to more active engagement."

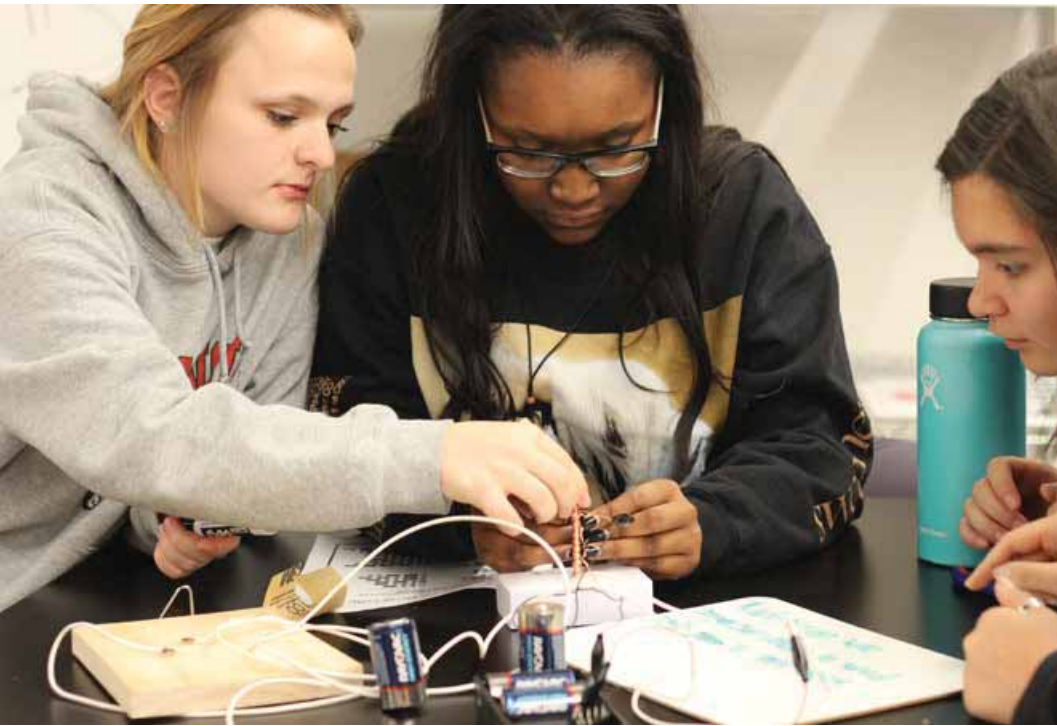
**Mobile furnishings & technology**

Research speaks to the important role furniture plays in learning. Minnehaha's light and easy-to-move furniture embraces movement, which is critical to brain function. Technology is robust and ubiquitous to support the range of learning activities.



**Relentless variety**

ONE size fits NO one. Today, learners are encouraged to be involved in the construction of their learning and not just the instruction. It fosters a culture where students are encouraged to own their space and adjust it to fit their unique needs.



***Encouraging inquiry and active learning***

Today's learning is much more hands-on and project-based. Research shows the significance of making, doing, and connecting across subject areas in helping Learners retain concepts. These activities often require spaces, robust technology and finishes to encourage Learners to ideate, test their ideas and fabricate their projects with enough area, storage and durable materials.

***Shared ownership of space***

It is vital to maximize the utilization of our spaces with a shift away from single ownership to sharing of spaces. There are many more areas that support collaboration at a variety of scales, and flexible spaces with the resources necessary to support the range of possible activities. This flexibility also allows Minnehaha to safely transition Learners back after COVID-19 as learning will be spread out through the entire school.

***Learning happens everywhere***

Learning is no longer confined to just the classrooms. Rather the challenge and opportunity exists to maximize the learning potential of every square inch. Consequently, even the corridors are re-sized and re-designed to support learning. Additionally, learning is not confined to the physical walls of the school but easily integrates the outdoors, as well.

# Community Partnerships

Minnehaha firmly recognizes the value of providing opportunities for learners to connect their learning with real-life experiences and to partner with members of the community. These opportunities manifest themselves in a number of ways, inside and out. Two of the most prominent examples include:

- International Space Station:** Minnehaha is the first and only high school in the Midwest to offer a program that allows students to design a science experiment for the International Space Station. To support its commitment to student agency, experiential learning and the fabrication and testing of ideas, Minnehaha created a range of places sprinkled around the school to support these initiatives. "Students were calling the shots, and they were excited," said science teacher Sam Terfa.

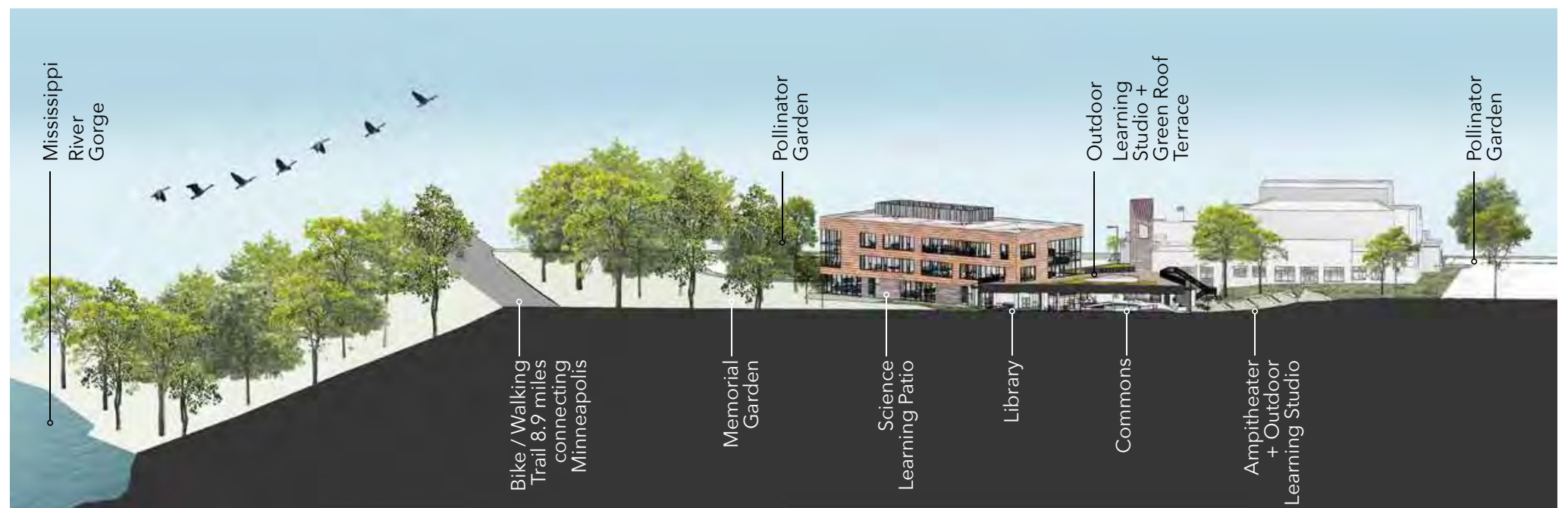
Learner engagement was especially important. "We learned so much about what it's like to be an adult and work in a lab," said junior Poppy Anema. Having places sized appropriately with access to robust technology and supported with the right resources, furniture and materials allows programs like this to flourish.

- Pollinator Gardens**  
 The design-construction team led a collaborative effort with learners, faculty, community and stakeholders to design pollinator gardens that will serve as part of the school's curriculum and as an important community asset. The pollinator gardens were designed to strategically blend in with the site, serving as a natural buffering between the school and adjacent residents.

## Indoor/Outdoor Connections

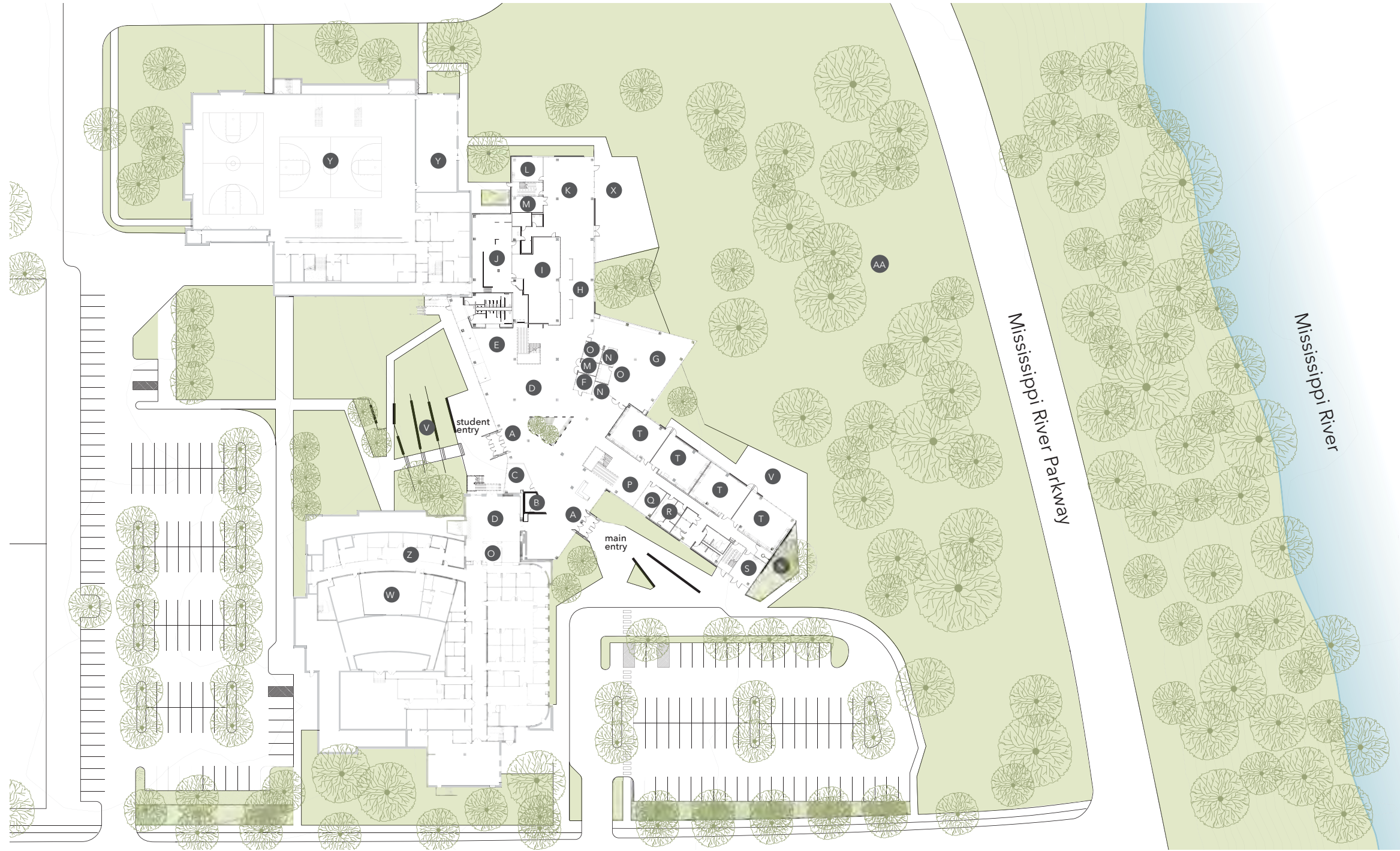
Minnehaha's learners were especially resolute in their desire to create a welcoming and attractive outdoor environment that expresses their hospitality and blurred the lines between inside and outside. Historically, the buildings had turned their back to the river. Now, they seized the opportunity to integrate the river and river bluffs into their learning.

- Outdoor Amphitheater:** An outdoor manifestation of the Minnehaha community serving a range of learning, collaboration and performance activities.
- Memorial Garden:** In response to both the internal and external communities, a special garden was created to honor the two lives lost and support reflection and meditation activities.
- Science Patios:** Science teachers desired immediate access to the outside, enabling them to broaden the range of their science experiments.
- Green Roof Terrace:** Provides another opportunity to extend the learning outside and embracing the magnificent views of the Mississippi River. The space serves multiple functions including outdoor learning, as well as assembly space where alumni, family, friends and the community can gather to experience the magnificent setting.

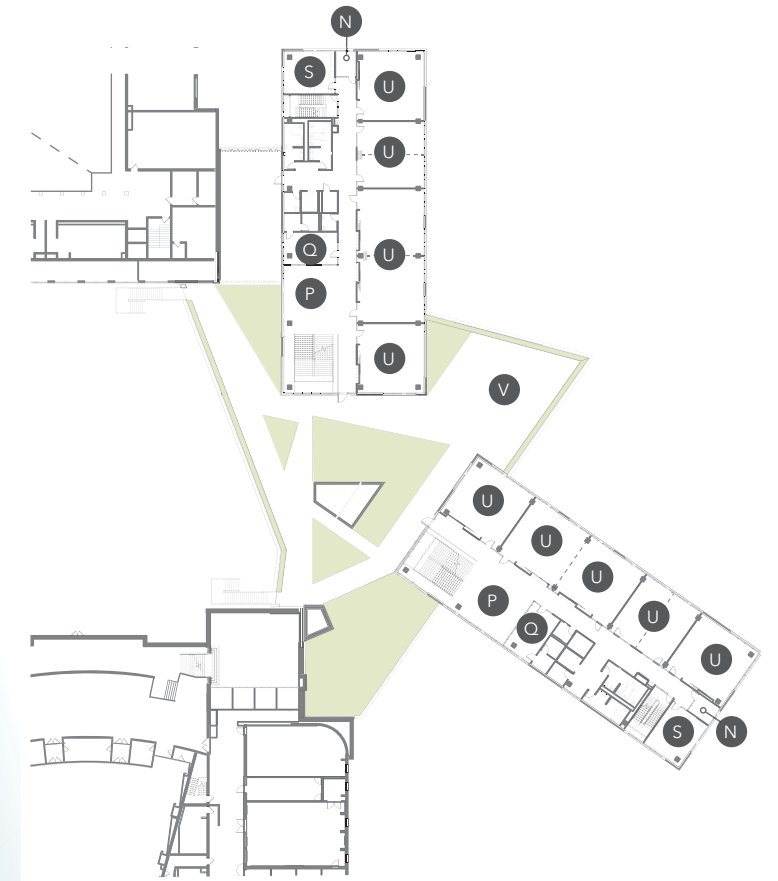


PHYSICAL ENVIRONMENT

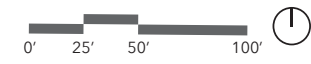
SITE PLAN / LEVEL 1



LEVEL 2 / 3



- |                    |                  |                  |                         |                           |                    |
|--------------------|------------------|------------------|-------------------------|---------------------------|--------------------|
| A Entry            | F Spirit Store   | K Campus Room    | P Learning Commons      | U Learning Studio         | Z Student Services |
| B Prayer Room      | G Library        | L Faculty Lounge | Q Faculty Collaboration | V Outdoor Learning Studio | AA Memorial Garden |
| C Conference Room  | H Dining Commons | M Storage        | R Prep                  | W Maker Space             |                    |
| D Commons          | I Servery        | N Small Group    | S Medium Group          | X Outdoor Commons         |                    |
| E Fireplace Lounge | J Kitchen        | O Office         | T Science Lab           | Y Activity Spaces         |                    |





## Scandinavian Heritage

Minnehaha Academy was founded in 1913 by Swedish immigrants and is one of Minnesota's oldest private schools. The school's founders were inspired by Rev. Erik August Skogsbergh who in 1884 created a vision for quality education with faith at its center. The school's Scandinavian roots and the importance of nature are reflected throughout the new design.

### A Strong Connection to Nature

The new school blurs the lines between an indoor and outdoor space. Nestled against the historic West River Parkway, the site feels natural and secluded yet inherently connected to the greater urban context of Minneapolis. Contrary to the original buildings, which had limited daylight and few windows, learning studios, and common areas are now filled with floor-to-ceiling windows, giving students and staff views to the Mississippi and the surrounding gorge.

"We're really connected to the outdoors," said incoming senior Zac Anderson. "All the science rooms have a door to the outdoors so we're able to bring the learning that we were doing in the lab outside in the real world. The chance to take our biology class outside really enhanced our learning."

The design-construction team gave special consideration to the natural systems around the school. The team researched migratory patterns of birds, leading to an unobtrusive bird-safe glazing applied to transparent surfaces. This helps to ensure that the school blends into the site without negatively impacting wildlife.

### An Honest Design Palette

To maintain this natural feel and reflect the school's Scandinavian heritage, designers pushed to keep the material selection simple and honest, limiting the primary palette to concrete, wood and daylight. The finish palette adds pops of color only where appropriate for definition and wayfinding, while softer

carpeting, fabric-wrapped panels and upholstered furniture soften the line between the two.

The simple material palette extends to the building's exterior. Seeking to reflect the iconic red brick of the school's original Georgian-style buildings, designers reached out to a Danish brick manufacturer who has made bricks by hand since 1791. Their masonry combines traditional veneer techniques with a brick shingle rain screen and copper flashing details. The resulting aesthetic is simple, yet idiosyncratic - each brick its own unique element, working together to ground Minnehaha in an earlier time and place.



# A Healthy Environment

One singular academic mass would have been too large and imposing not only to the surrounding neighborhood, but also the migratory birds and visual serenity of the historic Mississippi Parkway.

Therefore, the design-construction team envisioned two learning wings to help preserve an appropriate building scale with the historic campus and maintain a positive community presence.

## Preserving the Mississippi Viewshed & Environmental Stewardship

Two rational, efficient rectilinear learning wing volumes are arranged in relationship to each other that embrace the historic landscape and create outdoor rooms between the program volumes and existing oak savanna. The building geometries shape and support a variety of exterior learning environments including science labs, dining, and large group performance spaces.

Respect for the local ecology and environment was critical in the design to preserve the river bluff viewshed, provide a safe pathway for migratory birds, reinforce the natural oak savanna and incorporate a variety of insect pollinator plants and gardens.

*The design-construction team had a strong obligation to honor the principles and vision established by Horace Cleveland, who was commissioned by the City of Minneapolis in 1870s to design Minnehaha Park and the system of parkways that became known as the "Grand Rounds National Scenic Byway," a 51-mile network of landscaped roadways and parks that connect and encircle the Minneapolis lakes.*

**KEY**

- A Advanced building automation system tracks and adjusts need for heating and cooling based on demand from individual thermostats.
- B Pollinator gardens are community/school amenities and support biodiversity and teaching.
- C Envelope has above-code insulation levels with high-performance glazing to reduce glare and maximize daylight.
- D Healthy dining options feature local food options and composting.
- E Existing oak savanna grove preserved. The grove provides shade to the new addition. The few trees that were impacted were salvaged and re-used on site as furniture and prayer room door.
- F Interior trees provide oxygen and biophilic environment.
- G Outdoor learning amphitheater utilizes existing grade to create usable program space; results in minimal disruption to site and preservation of existing trees.
- H Bird-safe glass is used throughout the addition to protect major migratory pathway.
- J Operable windows and shades allow temperatures to regulate during spring and fall months. Automated LED lighting systems use occupancy and ambient light sensing for optimal illumination and energy savings.
- K Green roof reduces heat island effect and reduces ventilation demand and supports outdoor learning and gathering.
- L Daylight-filled stairwells promote physical activity. Feature stairs are larger than the WELL-required width, promoting use, physical activity and personal interaction.
- M Solar ready: vertical electrical pathways are designed to connect to future PV panels (layout created in partnership with Minnehaha alum at Tesla).
- N Two existing boulders were unearthed during excavation. They were salvaged and re-used on site for the Memorial Garden.
- O Salvaged materials from former buildings are used throughout the facility, including: bricks, stair treads, and a display showing two of the original lockers from 1912.
- P Bike racks are located at student and main entries, encouraging use of the adjacent Mississippi West River Parkway, which is a 8.9 mile bicycling commuter trail connecting Minneapolis.





## Intentional & Meaningful Design

### The Building as a Learning Tool

- Many of the building's systems (mechanical, electrical, structural, etc.) are strategically exposed to facilitate a better understanding by students of the many technical elements that compose a modern building.
- A large vegetated roof deck and garden above the main-level commons allows the two learning wings to connect and provides a space for students to learn, gather, relax, and celebrate.
- Floor-to-ceiling glazing and operable windows connect occupants with nature and support a transparent relationship with the surrounding community.
- Important historical artifacts were salvaged in the destruction and it was a priority to incorporate these elements throughout the new building. Cornerstones, stair treads, lockers, bricks and other objects were carefully orchestrated.

### Design Details

- Playful geometry ceiling cutouts are filled with sculptural arrangements of LED light fixtures that give an artful disruption to the field of acoustic wood slat ceiling system.
- Neutral finishes with pops of bold color reinforcing school values were also used for wayfinding.
- A large centrally-located angular skylight with two olive trees below in the heart of the commons integrates nature and distributes daylight, but more importantly symbolize peace and friendship.

### Faith & Core Values

Faith and visible mission were important elements for the school. Minnehaha has

strong religious convictions and they were motivated by their faith.

- A small prayer chapel situated at the base of the new steeple is an intimate space where staff, students and parents can find solitude and silence. The 46-foot tall steeple is visible from the entry providing a strong visible "stake in the ground." The concrete steeple structure figuratively and literally (structurally) supports the new and old buildings.
- A public memorial garden is marked by two found boulders on site. They were altered into benches and each feature a psalm imprinted into the leading edge of the seat. They were created for the community to honor and remember the two staff members who lost their lives in the explosion.
- A fireplace, welcome desk and lounge embrace and enhance the school's tradition of a strong community culture, intentional social interaction and hospitality.
- Floor-to-ceiling glazing throughout the common spaces and learning studios give students unencumbered views of the tree-lined river bluffs.

### Safety & Security

Safety and security was a top priority for Minnehaha and the design incorporates both passive and active measures. Recognizing the importance of the socio-emotional aspects of learning and supporting their priorities around community and connections, everyone is welcomed by a staff member at the reception desk. Minnehaha's commitment to the whole person (mind, body, and spirit) is also reflected in the transparent, flexible spaces where learners, teachers, and staff can collaborate at a variety of scales and where learning and relationships are celebrated.





## Ensuring Development Blends In with River Gorge

Friends of the Mississippi River, a local non-profit whose mission is to engage the community to protect, restore and enhance the Mississippi and its watershed, was actively involved in ensuring that the new campus design would blend in with the surrounding landscape. After the project was completed, they deemed the process a success:

"It's not often that a heated community debate about development along the Mississippi River Gorge leads to a building that fits well into this picturesque landscape, but the new addition to Minnehaha Academy does just that. It fits in so well that it's actually hard to see the new building from the parkway..."

"Although planning for the new building was challenging at times for both the school and the community, the project turned out to be a positive addition for both. Democracy can be messy, but in this instance the process worked. The efforts of FMR River Guardians and neighborhood activists were well worth the time."

--Friends of the Mississippi River newsletter



## Facility Responds to Academic, Social & Emotional Needs

“With input from members of the school community and the expertise of Minnehaha’s design and construction partner, the newly-constructed Upper School is once again home in the picturesque location nestled near the banks of the mighty Mississippi River. The facility is responsive to students’ academic, social, and emotional needs.

The student-centered design is rooted in best-practice research that suggests how students best learn and teachers best teach in spaces that are multi-use, welcoming, dynamic and flexible. Student-centered learning means that students are active participants in their learning. In this type of learning environment students are allowed to guide their own learning—teachers are the ‘guides on the side’ rather than the ‘sage on the stage.’ The wide variety of activities students can access and personalize improves student engagement in learning, allowing them to learn at a deeper level.

Learning is more applied and personalized and students are solving real-life problems. Multi-use spaces that support this kind of applied learning are welcoming, dynamic, and flexible. Students who provided design input have expressed often how much they appreciate the well-organized layouts that support a variety of activities and various learning and teaching styles, particularly the open, restorative areas that nourish the mind and spirit.

The Upper School project met a number of Minnehaha Academy’s strategic goals related to the school’s Christian mission, the ‘why’ of its mission, and its core values. It was designed with a clear understanding of how the facilities support Minnehaha Academy’s mission for the school, a desire for a 21st Century learning environment that would match the quality of its programs, and to reflect the aspirations of our community members. **The innovative, adaptable, and technology-infused infrastructure extends the reach of teachers, embraces the future, stimulates the imagination, enhances exploration, and sparks curiosity**

**to address problems and create solutions, a platform for the highest-quality teaching and learning.** The design underscores the joy, beauty and grace of God, Minnehaha’s foundation.

The project has inspired the generosity of the Minnehaha Academy community to raise additional funds to advance subsequent phases of Minnehaha’s Facilities Master Plan. In addition, it has provided an opportunity to reimagine, enhance and sustain excellent programming, address the challenges of aging facilities, attract new students, grow Minnehaha’s endowment through inspired giving, and strengthen the School’s value proposition, all key strategic goals. Achieving these goals has resulted in Minnehaha’s elevated profile within the landscape of independent schools. Ultimately, this project supports the hope we have for students.

**The Upper School design has set the bar for all educational spaces.** One of the unintended results was the numerous requests to tour the building. Because it is viewed as a model educational facility to support collaboration, connections, and high-quality learning the school has welcomed more than 50 outside groups who have made visits.

The 21st Century design and the evidence of the honoring of our legacy has inspired alums, community members, architects, and builders. We enjoy that we have become more of a community asset as we have welcomed our neighbors to utilize Minnehaha’s space and to collaborate with us on new projects, such as an outdoor preservation project. The building has won several architectural and construction awards. Our walls are being filled the many articles and publications that have featured this amazing project born out of a tragic event.”

- Dr. Donna Harris, Ed.D., President,  
Minnehaha Academy

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The design of the Upper School underscores the importance of a functional, efficient, and aesthetically pleasing educational facility to address the needs of the whole child.

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# Stories

The qualitative data collected from this survey asked respondents to tell any stories they would like to share about the facility. Below are some of the responses from faculty, parents, and students.

*"It delivers on the promise of creating an open, flowing, attractive space. It is inviting. It is flexible. It does take advantage of natural light. It uses the beauty of the site well. It's obvious much more than looks -- it functions better in every way. Specifically, I most love the library. I have seen people -- adults and students -- walk in, sit in a chair facing the windows, and just look outside."*

*"It's great. Coming into high school this year it was an incredible learning environment and it helped my learning a ton."*

*"The open spaces as well as the smaller rooms makes each floor unique and it's easy for someone to find a favorite spot of the building. I also love the big windows as you can see everything that's happening either outside or hallway, and you're never isolated from anything. It enhances the community feel of our school."*

*"The integration with the natural environment. Sometimes when you are in a classroom, you sometimes forget that you are in the building and feel like you are in the trees."*

*"Tons of open and common space that is functional yet not utilitarian. There are no hidden spaces in the new buildings apart from the elevators yet every seating area has a pleasant vibe where one can be comfortable being themselves, study privately, or socialize with others."*

*"I love how it combines tradition with forward thinking. It's both a nod to our heritage while embracing 21st century learning environment."*

*"The final design stayed true to the vision. A creative and energizing space to learn and dream."*

## Post Occupancy Evaluation

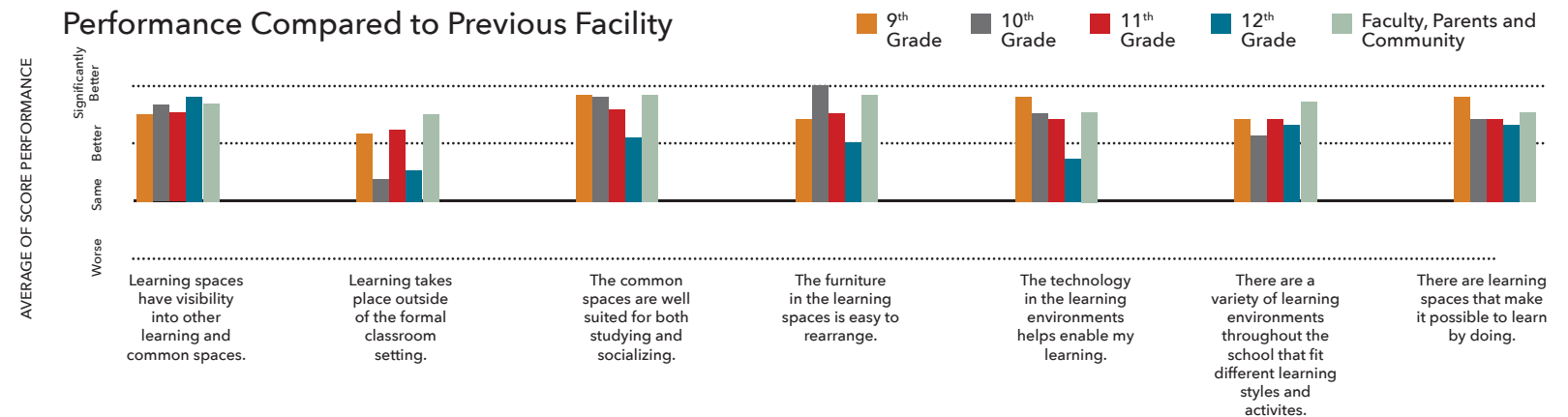
A Post Occupancy Evaluation (POE) was conducted 10 months after occupancy.

The POE had two primary objectives: (1) getting feedback on how well the design had met the Vision and Facility Principles determined in the community workshops, and, (2) sourcing qualitative feedback from the community about the new addition to inform future design efforts. This information was collected through an online survey distributed to students, faculty, parents and

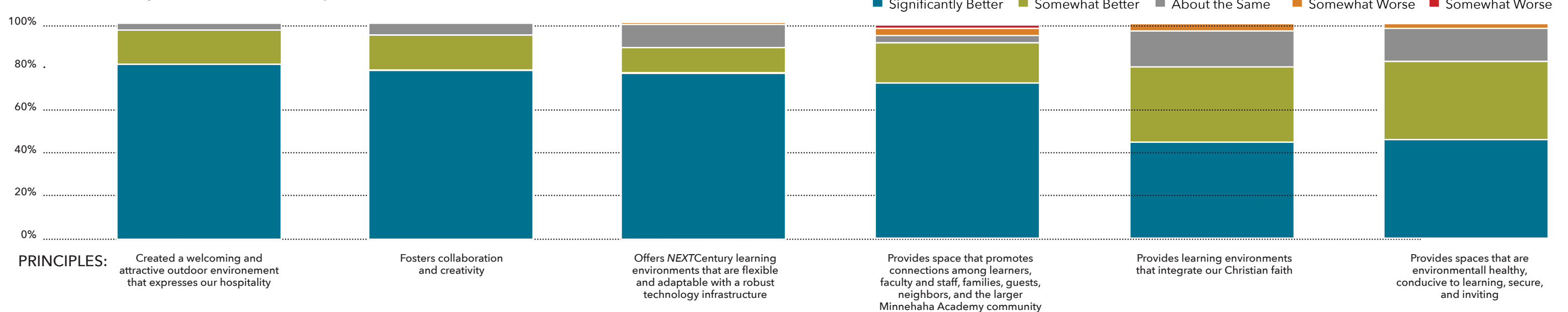
alumni. Of the surveys received, 52 percent of respondents were current students.

The survey indicates that respondents believe the new addition is performing better, and in many cases significantly better than the previous facility. **The top responses reflect that the new design creates a welcoming and attractive outdoor environment, fosters collaboration and creativity, offers NEXT Century learning environments and that promote connections across the entire Minnehaha community.**

Performance Compared to Previous Facility



Performance Compared to Previous Facility



# EDUCATIONAL SPECIFICATIONS

Discussions with Minnehaha centered around spaces that can manifest community. The design-construction team probed more deeply into its meaning. For the students, this meant a space that is comfortable for both loud and quiet activities, is connected to nature, and conveyed a visceral feeling of warmth. For the faculty, this meant a space that is a conduit for natural contact with students, not forced, a space with a "core." An idea generated from the community workshops that the first floor is the glue that holds the community together and the learning neighborhoods be places that foster different sized groups and activities to foster different levels of community. The program is a direct result of those ideas.

*"We need ways to manifest different levels of community."*  
 -- David Hoffner, Director of PK-12 Sacred Studies

LEARNING COMMUNITY			
Learning Commons	5	700	3,500
Small Group (1-4 people)	5	100	500
Medium Group Room (4-15 people)	4	350	1,400
<b>20 Learning Studios</b>			
Medium	8	450	3,600
Large	8	900	7,200
Extra-Large	4	1,800	7,200
1 Maker Space (located in existing building)	1	1,400	1,400
4 Labs ((2) Life Science, (1) Chemistry, (1) Physics/STEM)	4	1,100	4,400
Resource Lab Storage	1	150	150
Shared Prep	1	250	250
ISS Lab	1	375	375
Faculty Collaboration (6 faculty)	5	350	1,750
Curriculum Storage	4	75	300
<b>Subtotal</b>			<b>32,025</b>
LIBRARY			
1 Library	1	3,000	3000
Small Group (1-4 people)	1	100	100
Medium Group Room (4-8 people)	1	150	150
Shared Workroom	1	125	125
<b>Subtotal</b>			<b>3,375</b>
COMMONS / COMMUNITY HEART / FOOD SERVICE			
Campus Room	1	3,000	3,000
Faculty Lounge	1	400	400
Food Service + Kitchen	1	2,700	2,700
Fireplace Lounge (Future MS Dining Commons)	1	750	750
Welcome Area			
Reception	1	1,800	1,800
Conference Room (1-15 people)	1	375	375
Student Commons	1	7,000	7,000
Spirit Store	1	200	200
<b>Subtotal</b>			<b>16,225</b>
VISIBLE MISSION			
Prayer Room (1-8 people)	1	115	115
<b>Subtotal</b>			<b>115</b>
ADMINISTRATION (located in existing building)			
Administration	1	6,500	6,500
Student Services	1	1,500	1,500
<b>Subtotal</b>			<b>8,000</b>
PERFORMING ARTS (located in existing building)			
Learning Commons / Gallery	1	6,000	6,000
Faculty Collaboration (4 faculty)	4	100	400
Performing Studios			
Small Practice Studios	5	150	750
1 Medium Studios	1	1,000	1,000
2 Large Studios	2	1,300	2,600
<b>Subtotal</b>			<b>10,750</b>
<b>29</b>	<b>TOTAL</b>		<b>70,490</b>
	Circulation / Resource Factor 1.35		95,162



# Together We Rise

## The Brief

On August 2, 2017, the Upper School campus was rocked by an explosion caused by a natural gas leak. The explosion damaged the central core Upper School building(s) beyond repair. Two newer wings attached to the core, one wing housing the gymnasium and athletic complex and the other wing housing an auditorium/chapel and fine arts programming, escaped the accident relatively unscathed. The entire Upper School building contained approximately 135,442 square feet of which 55,000 square feet were irreparably damaged.

Minnehaha considered all reasonable available options for replacing the damaged facilities. These included rebuilding the Upper School in its present location, relocating the Lower, Middle, and Upper School at the current Upper School or Lower and Middle School location, or seeking an alternative site capable of housing both the Upper and Lower and Middle Schools in a single location. Due to extreme time restraints, exploration of all viable options proceeded expeditiously and simultaneously. The design firm selected to provide the described services needed to provide all of the services necessary to achieve these objectives.

A permanent new Upper School facility needed to be in place by August 1, 2019.

## The Response

For this project to be successful, it needed to be a result of authentic engagement with a genuineness that respects all voices, both in the planning and in the design process itself resulting in trust. The design-construction team believed in the power of listening and that asking the right questions was every bit as important as having the right answers.

The mission of #TOGETHERWERISE resonated strongly with the design-construction team's purpose of designing WITH, not for. Its mission in this collaborative process was to continue Minnehaha's motto by offering that it include #TOGETHERWEPLAN, #TOGETHERWEDESIGN, and #TOGETHERWEBUILD.

## A Bold Facility Vision and Principles

The re-imagined Minnehaha was designed around the bold vision for transformation:

**"We see a space that is vibrant and inviting, blending old and new, merging outside with inside, with a logical flow and organization of space. It should be innovative, flexible and serve a variety of learning and teaching styles allowing for technological integration and encouraging collaboration and ownership for all Minnehaha Academy stakeholders."**

## Facility Principles

Minnehaha is committed to:

1. Collaboration and Creativity
2. Spaces that are environmentally healthy, conducive to learning, secure, and inviting
3. Welcoming and attractive outdoor environment that expresses our hospitality
4. Promoting connections
5. NEXT Century learning environments
6. Learning environments that integrate our Christian faith

The facility Vision and Principles enabled Minnehaha's community to navigate this process confidently and expeditiously. It laid the foundation for efficient and effective decision making.



Top Photo: Nearly 1,000 people attended a Unity Walk, which started at the Upper School and ended at the Lower School to gather the community after the explosion. Bottom Photo: The walk was reversed when the project was completed to invite the community back home to the Upper School. More than 1,200 people participated in the Celebration Walk. (photos courtesy of Northwest Conference and Star Tribune)



*"The new Upper School reflects our celebrated history, while meeting the current and future needs of our students, faculty and staff. We are thrilled to welcome everyone back to where we've called home for over 100 years, and we are excited for what the next century will bring to Minnehaha Academy."*

*Donna Harris, Ed.D., President, Minnehaha Academy*