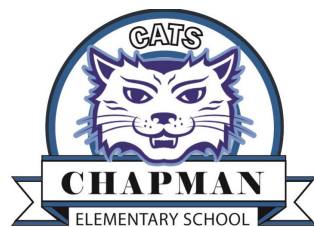




Schematic Design



DLRGROUP



CHAPMAN ELEMENTARY SCHOOL

CHICO UNIFIED SCHOOL DISTRICT

SCHEMATIC DESIGN
OCTOBER 2025





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AMD

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Landscape Architect

Structural Engineer

Electrical Engineer & Fire Alarm

Mechanical and Plumbing Engineer, and Fire

Food Service





01

INTRODUCTION & DESIGN RESEARCH



Introduction

Executive Summary

Chapman Elementary School celebrates its diverse and inclusive community school of multi-generational students who take pride in their campus. Located in Chico, California the campus is located.

Project Overview

The Chapman Elementary School project re-imagines the existing campus to create a modern, flexible learning environment that reflects its neighborhood character and strengthens community connection. Guided by the concept Generations, Gather, Grow, the design honors the school’s legacy while fostering collaboration, inclusivity, and lifelong learning. The plan balances new construction with revitalized outdoor areas, integrating learning, play, and gathering throughout the site.

Design Vision

Rooted in the guiding principles to maintain Chapman’s identity, embrace its context, fortify from adjacent areas, and provide safe, welcoming access, the design establishes a concentric site layout organized around shared courtyards and outdoor learning zones. Classroom buildings radiate from central gathering spaces and surround the communal hub, symbolizing growth and unity. Shaded porches and semi-sheltered courtyards extend learning outdoors, creating seamless transitions between indoor and outdoor environments.

Learning Environments

Versatile classrooms, breakout spaces, and collaboration zones support diverse teaching methods and encourage hands-on exploration. Flexible spaces and shared project areas promote creativity and problem-solving, while outdoor extensions offer daily opportunities for learning in nature. The campus design emphasizes adaptability, allowing educational spaces to evolve with changing needs.

Safety and Security

A layered safety strategy prioritizes visibility, clear access points, and natural surveillance. The main entry provides a secure, welcoming arrival experience, and the concentric layout enhances supervision and ease of movement while maintaining an open, connected atmosphere.

Community and Legacy

Chapman Elementary’s modernization embodies the idea of Generations, Gather, Grow honoring its legacy while creating a forward-looking, inclusive environment. The campus becomes more than a school; it serves as a community hub where learning, connection, and growth thrive together.

Chapman Elementary School’s Mission Statement

To create a safe, inclusive, and inspiring learning environment where diversity is celebrated and every student is valued and empowered to thrive academically, socially, and emotionally. We invite you to explore all the incredible things happening on campus!





Design Research

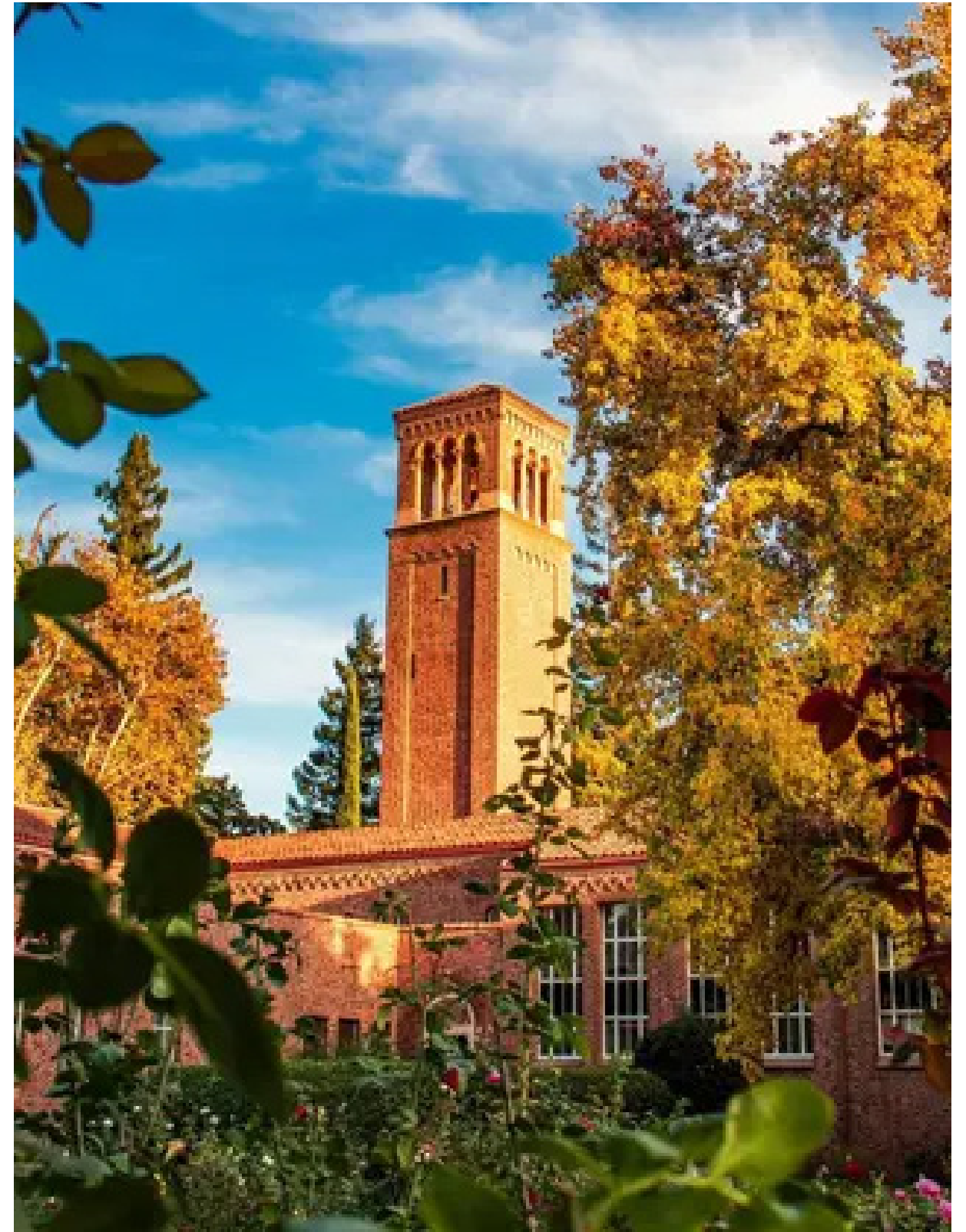
History

Chico, California, is located in the northern Sacramento Valley, a region long inhabited by the Mechoopda Maidu people who lived along local streams and relied on the valley's fertile resources. The city was formally established in 1860 by General John Bidwell, a pioneer and landowner whose influence shaped the town's early development. Bidwell's planning, agricultural innovation, and civic investment laid the foundation for the community that followed.

Chico quickly grew as an agricultural and trade hub. The area's rich soils supported orchards, vineyards, and grains, while the arrival of the railroad in the 1870s connected Chico to larger regional and state markets. This growth was accompanied by the development of lumber and milling industries, as well as civic and cultural institutions. A key milestone came in 1887 with the establishment of the Chico Normal School, now California State University, Chico, which continues to define the city's character as an educational and cultural center.

The built environment of Chico reflects its layered history. Historic structures downtown, the grid of Bidwell's original plan, and the presence of California bungalows and early 20th-century commercial buildings all speak to its periods of growth. Equally influential is Bidwell Park, donated to the city in 1905, which remains one of the largest municipal parks in the nation. This integration of urban fabric and natural landscape is central to Chico's identity, offering a balance of civic life, education, and access to open space.

Established in 1950, Chapman Elementary School has long served as a cornerstone of one of Chico's oldest and most culturally diverse neighborhoods. Rooted in a community shaped by working-class families and agricultural traditions, the school reflects the area's resilience and rich multicultural identity. Over time, Chapman has evolved to meet the needs of its neighborhood, emphasizing inclusivity, bilingual education, and community engagement. More than a place of learning, it stands as a social and cultural anchor—embodying Chico's enduring values of connection, diversity, and shared place-making.

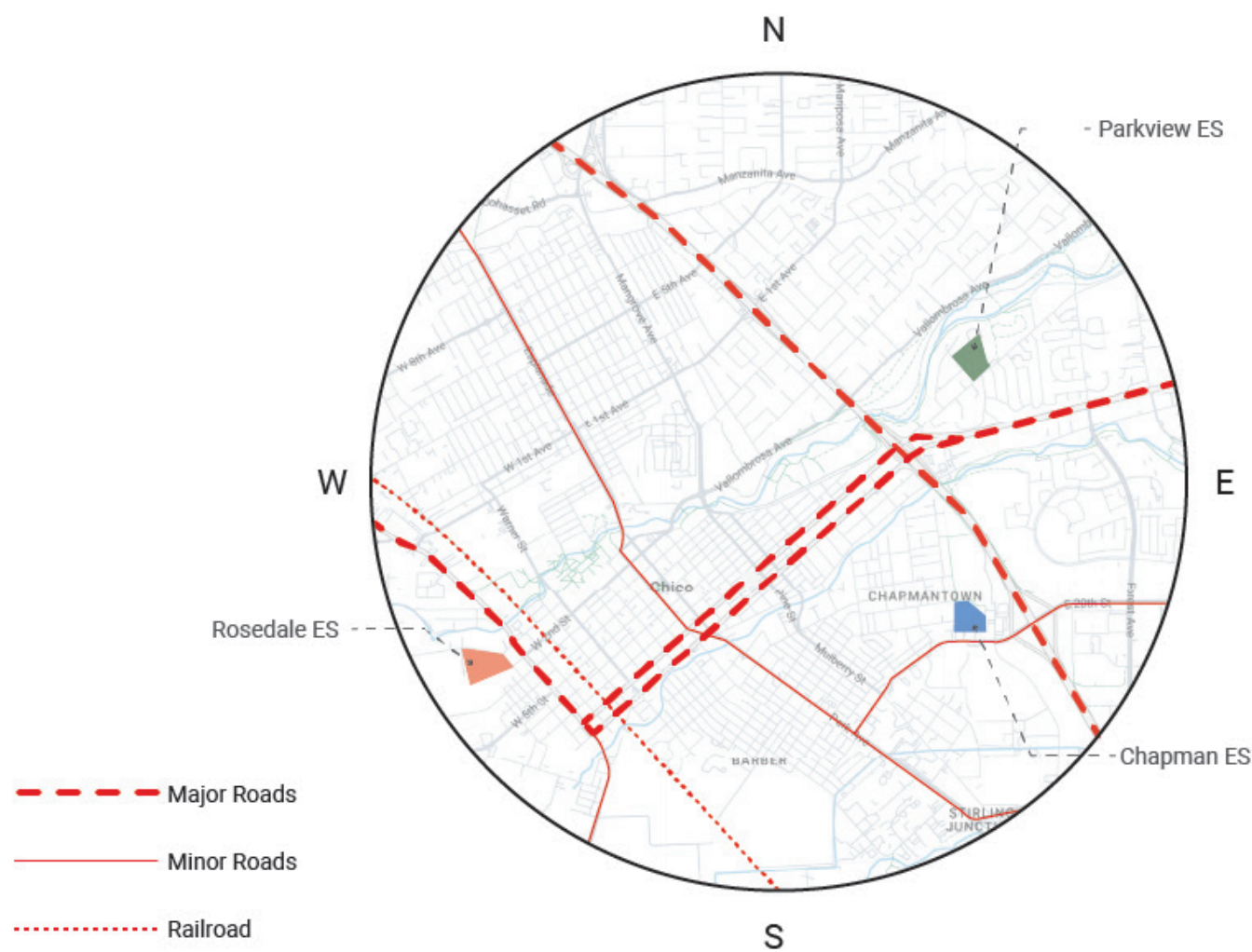


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Site Research Diagrams

Transportation



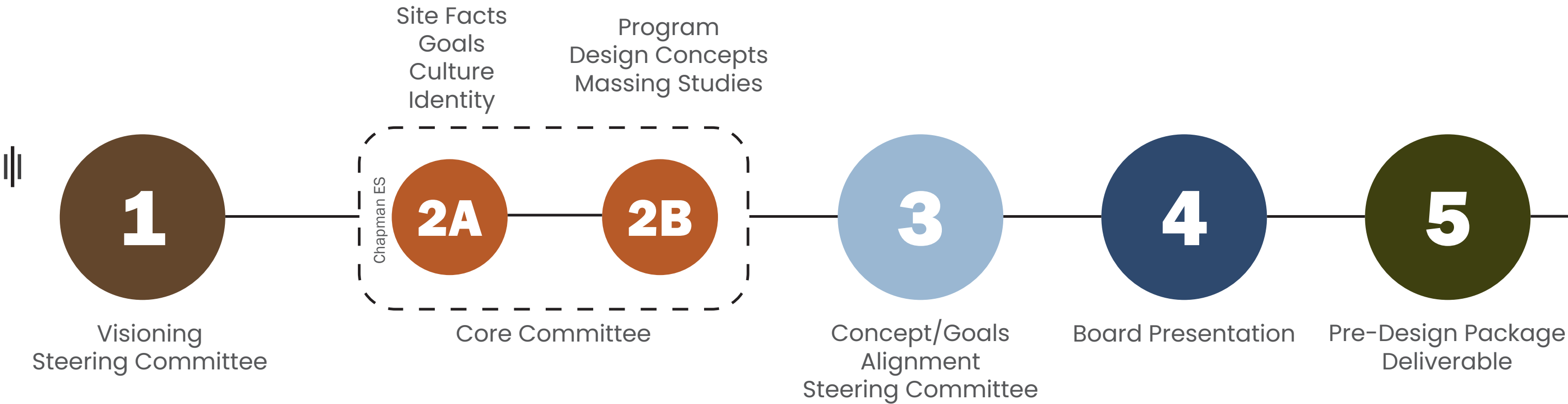
Natural Features and Green Spaces



Process Overview

PRE-DESIGN COMMUNITY ENGAGEMENT

During the Pre-Design phase, the district and DLR Group engaged in series of meetings to establish the foundation for the project. The first session was a visioning workshop with the Steering Committee to define goals and priorities for the new school. Meetings 2A and 2B engaged the Core Committee in refining educational needs, site opportunities, and design principles. The Steering Committee then regrouped in Meeting 4 to align on key takeaways and direction. In conclusion the Architect’s presented the Pre-Design findings and conceptual framework to the School Board for feedback and approval to proceed into Schematic Design.



SCHEMATIC DESIGN COMMUNITY ENGAGEMENT



In August/September participants gathered for a Schematic Design community meeting. Parents, teachers, students, and local stakeholders were invited to review and discuss early concepts for the new elementary school. The design team presented site plans, floor layouts, and imagery that reflect feedback from previous visioning sessions. Attendees were encouraged to share ideas about learning environments, campus safety, outdoor spaces, and community use. The discussion helped refine priorities and ensure the design captures the school's unique identity and educational goals.

Following the community meeting, The Steering Committee and Architect's convened to review the feedback collected from participants. The group analyzed recurring themes and key priorities—such as safety, flexibility, and connection to nature—to determine how they could be reflected in the evolving Schematic Design. Architects and district representatives discussed potential design refinements, weighing community input against budget, program, and site constraints. This collaborative session ensured that the ideas shared by stakeholders directly informed the next iteration of the school's design.



02

PROPOSED PROGRAM



Proposed Space Program

Chico Unified School District									10/6/2025
Spatial Program - Chapman Elementary School									320 Student Population
Space/Functional Area	No. of Spaces	Net S.F.	Total Net S.F.	Actual No. of Spaces	Actual S.F.	No. of T.S.	No. of Students	Capacity	Notes
ADMINISTRATION									
Main Office									
Main Office Lobby / Visitor Waiting	1	200	200	1	301				visitor waiting, single point of entry
Admin /Open Office/Reception	1	250	250	1	420				Counter, 2-3 workstations - Office Manager / Attendance
Office 1 - Principal	1	200	200	1	218				Principal and 4 visitors
Office 2	1	130	130	1	138				
Office 3	1	130	130	1	131				
Office 4	1	0	0	1	108				
Nurse/Health	1	200	200	1	256				2 desk/1-2cots/ 2-4 chairs
Toilet	1	65	65	1	69				
Storage	1	60	60	1	61				
Counselor	1	160	160	1	177				
Case Manager	1	100	100	1	102				
Case Manager Storage	1	50	50	1	50				Clothes, etc for students in need
Workroom /Mail Room	1	400	400	1	352				Mail distribution, workroom. # of mail slots?
Supply Storage	1	80	80	1	83				
File Storage Room	1	80	80	1	78				
Staff Room/Lounge	1	400	400	1	415				
Lactation Room	1	80	80	1	73				
Conference Room	1	250	250	1	236				25 sf per occupant (10 occupants)
Parent/Community Services	1	500	500	1	254				Accessible from lobby
Staff Restrooms	2	65	130	2	132				Adjacent to Staff Room or Workroom
Public Restrooms	1	65	65	1	69				Direct access/superviseable from the Main Lobby
Wellness Center									
Wellness Waiting	1	300	300	1	567				
Quiet Room	1	100	100	1	104				Combined with Hotelling Office
Speech Therapist	1	150	150	1	136				
Psychologist	1	150	150	3	249				Next to SPED Classroom
Hotelling Office	1	130	130	0	0				
Administration Sub Total			4,360		4,779				

Chico Unified School District									10/6/2025
Spatial Program - Chapman Elementary School									320 Student Population
Space/Functional Area	No. of Spaces	Net S.F.	Total Net S.F.	Actual No. of Spaces	Actual S.F.	No. of T.S.	No. of Students	Capacity	Notes
K-5 INSTRUCTIONAL COMMUNITY									
TK-Kindergarten Instructional Community									
TK Classroom	1	1,220	1,220	1	1,265	1	24	24	District capacity 24; direct access to playground and restrooms; per Ed Spec 1200 sf Classroom restroom
TK Restroom	1	65	65	1	48				
Kindergarten Classroom	2	1,220	2,440	2	2,530	2	24	48	Direct access to playground and restrooms Classroom restroom
K Restroom	2	65	130	2	95				
Teacher Collaboration / Workroom	2	200	400	2	353				
Outdoor Learning									Varies
Single- Use Restrooms	0	0	0	3	189				Student and Staff
TK-Kindergarten Sub Total			4,255		4,291	3		72	
Grade 1-5 Instructional Community									
1-3 Classroom	6	960	5,760	6	5,928	6	24	144	District Capacity 1-3: 24; 4-5: 28, sink, 2 CLR's per grade
4-5 Classroom	3	960	2,880	4	3,952	3	28	84	1 classroom to house a 4-5 grade class.
Small Group Collaboration	5	120	600	3	2,538				Central combined space connecting a pod of classrooms. Includes circulation space.
Outdoor Learning									Varies
Instruction Community Sub Total			9,240		12,418	9		228	
FLEX Classroom									STEM, ART
Classroom	2	1,350	2,700	2	2,721	2	0	0	classroom; storage in room, 8-10 computers, 2-6 sinks, dry/clean area
FLEX Cllsroom Sub Total			2,700		2,721	2		0	Not Loaded for School Capacity per Master Plan
Bubble Classroom									
Classroom	1	960	960	1	988	1	0	0	This is a classroom that can adjust to any grade level as needed year to year.
Bubble Classroom Sub Total			960		988	1		0	Not Loaded for School Capacity per Master Plan
Restrooms									
Grades 1-3 Restrooms	2	200	400	0	0				May adjust per code.
Grades 4-5 Restrooms	2	200	400	0	0				May adjust per code.
Staff Single- Use Restrooms	2	65	130	3	240				
Student Single-Use Restrooms	0	0	0	12	339				4 stalls per pod
Boy Restrooms	0	0	0	3	159				Exterior Access, 2 toilets and sink area.
Girl Restrooms	0	0	0	3	159				Exterior Access, 2 toilets and sink area.
Restrooms Sub Total			930		897				
SPECIAL EDUCATION									
SPED Severe	2	1,250	2,500	4	5,056	2	10	20	large group, Conf space. Add an operable partition in middle to divide into two equal spaces.
Restroom	2	100	200	4	404				Restroom with changing table.
SPED Mild/Mod	2	1,350	2,700	0	0	0	0	0	small group, full class seating, one to one instruction, includes restroom.
Special Education Sub Total			5,400		5,460	2		20	

Chico Unified School District									10/6/2025
Spatial Program - Chapman Elementary School									320 Student Population
Space/Functional Area	No. of Spaces	Net S.F.	Total Net S.F.	Actual No. of Spaces	Actual S.F.	No. of T.S.	No. of Students	Capacity	Notes
LIBRARY									
Possible adjacency to a Flex/STEM Lab									
Circulation / Charge Desk / Control	1	120	120	1	0				
Librarian Office	1	100	100	1	110				
Learning Commons / Stack Space	1	600	600	1	0				book cases on perimeter, floating book cases.
Reading Area/Presentation Space	1	960	960	1	0				Space for 35 students to sit / wall space for digital display like a classroom setting. Staff Meetings
Large Group Collaboration	1	420	420	1	0				24-28 students; 15 net sf/student = 420 sf Separate enclosed space off of the library
Library Area	0	0	0	1	2,002				Circulation / Charge Desk / Control, Learning Commons / Stack Space, Reading Area/Presentation Space, & Large Group Collaboration
Workroom/Storage	1	250	250	1	229				
Library Sub Total			2,450	2,341					
MULTI-PURPOSE (MPR)									
Direct access from parking and street.									
Multipurpose/Dining									
Dining/Basketball Court	1	5,700	5,700	1	5,775				Sized for a full Basketball Court, In wall tables. Base on Neal Dow ES MPR.
Exterior - covered dining	1	0	0	1	0				Roughly 1900 sf of exterior space
Stage	1	700	700	1	637				Raised stage, ramp. Roll-Up door to the ext. with access to exterior raised platform.
After School Program Office	1	100	100	1	80				
After School Storage	1	200	200	1	207				
Storage									
Music/Chair Storage	1	130	130	1	137				Stage Storage
PE/MPR Equipment Storage	1	300	300	1	262				Access interior and exterior
Restrooms	2	400	800	2	662				Access to MPR and the Exterior
Single-Use Restroom	0	0	0	1	72				
Custodial	1	100	100	1	71				
Kitchen									Kitchen is a District Standard layout. Use McManus ES layout.
Servery	1	212	212	0	0				4' W Doors
Kitchen	1	1,142	1,142	1	1,361				4' W Door to the Service Yard. Combined with Servery
Walk-In: Freezer	1	140	140	1	124				
Walk-In: Cooler	1	140	140	1	124				
Dry Storage	1	140	140	1	138				
Office	1	100	100	1	103				Visibility into kitchen
Custodial	1	50	50	1	108				
Single-Use Restroom	1	65	65	1	84				3-4 Lockers outside of restroom in hallway
Exterior Service Yard with Can Wash	1	0	0	1	0				Service yard door to kitchen 4'-0"
Multipurpose Room Sub Total			10,019	9,945					
GENERAL SUPPORT SPACE									
MDF	1	120	120	1	111				
IDF	4	60	240	6	424				May vary depending on number of buildings
Electrical - Main	1	160	160	0	0				
Electrical - Secondary	1	60	60	6	350				May vary depending on number of buildings
Campus Storage	2	400	800	5	279				Throughout campus.
Custodial	3	80	240	5	352				Throughout campus.
Custodial Supply	1	180	180	0	0				Could be the custodial space at MPR.
General Support Sub Total			1,800	1,516					
Sub Total Square Footage			42,114	43,840		17		320	
Circulation & Grossing Factor (25%)			10,529	7,144					
Campus Total Square Footage			52,643	50,984		17		320	Includes circulation, fire rises, and building structure.



03

**SITE ANALYSIS, SITE
DESIGN & PROPOSED
PROJECT PHASING**





Existing Chapman Elementary School Site Aerial and Images



Street View



Hard court View



Street View - Mural



Playground View



Courtyard View



Courtyard View



Playground View

Site Plan - Overall



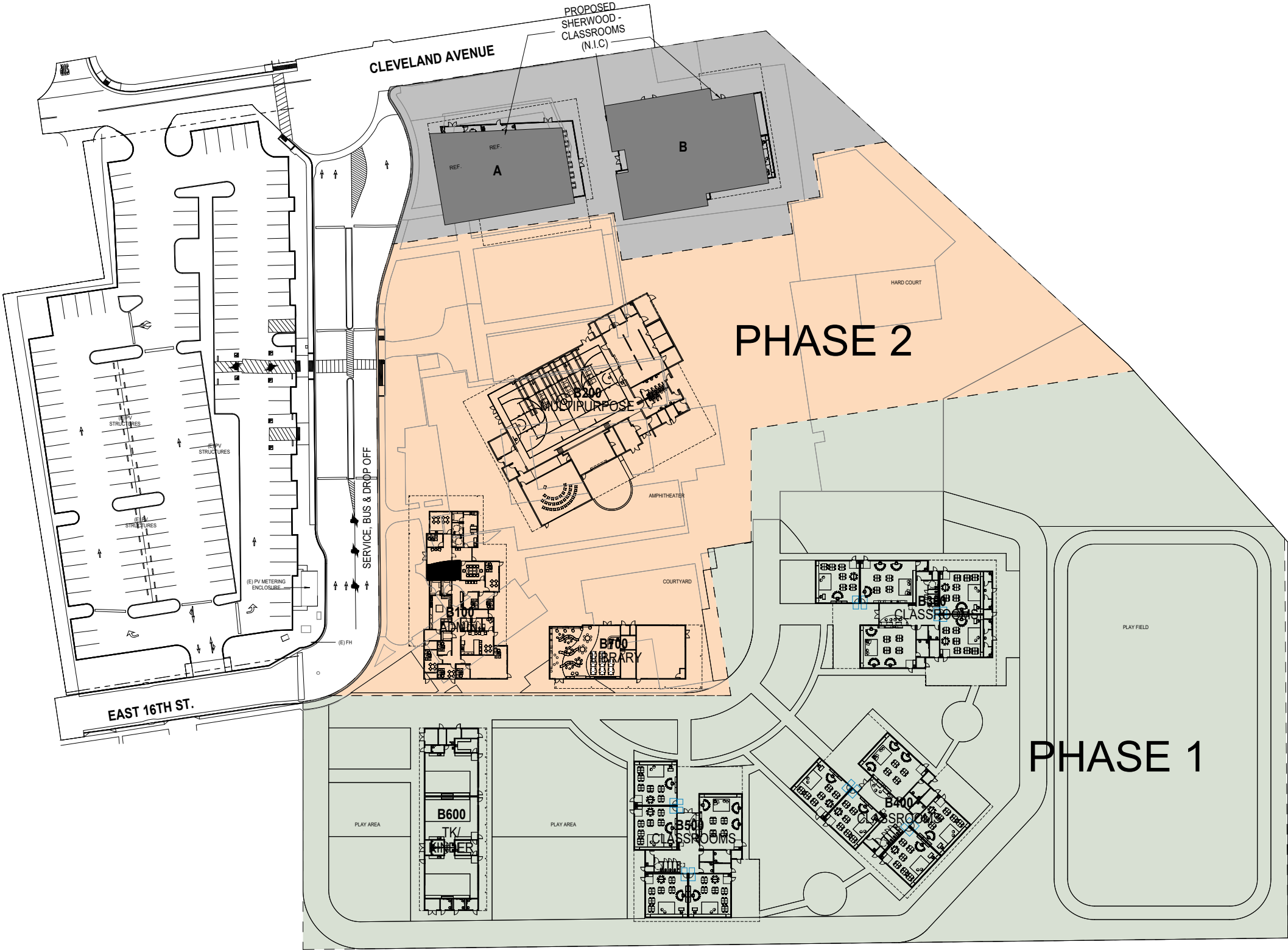
	TOTAL SITE
Elementary School:	9.77 Acres
Projected Enrollment:	320

Legend

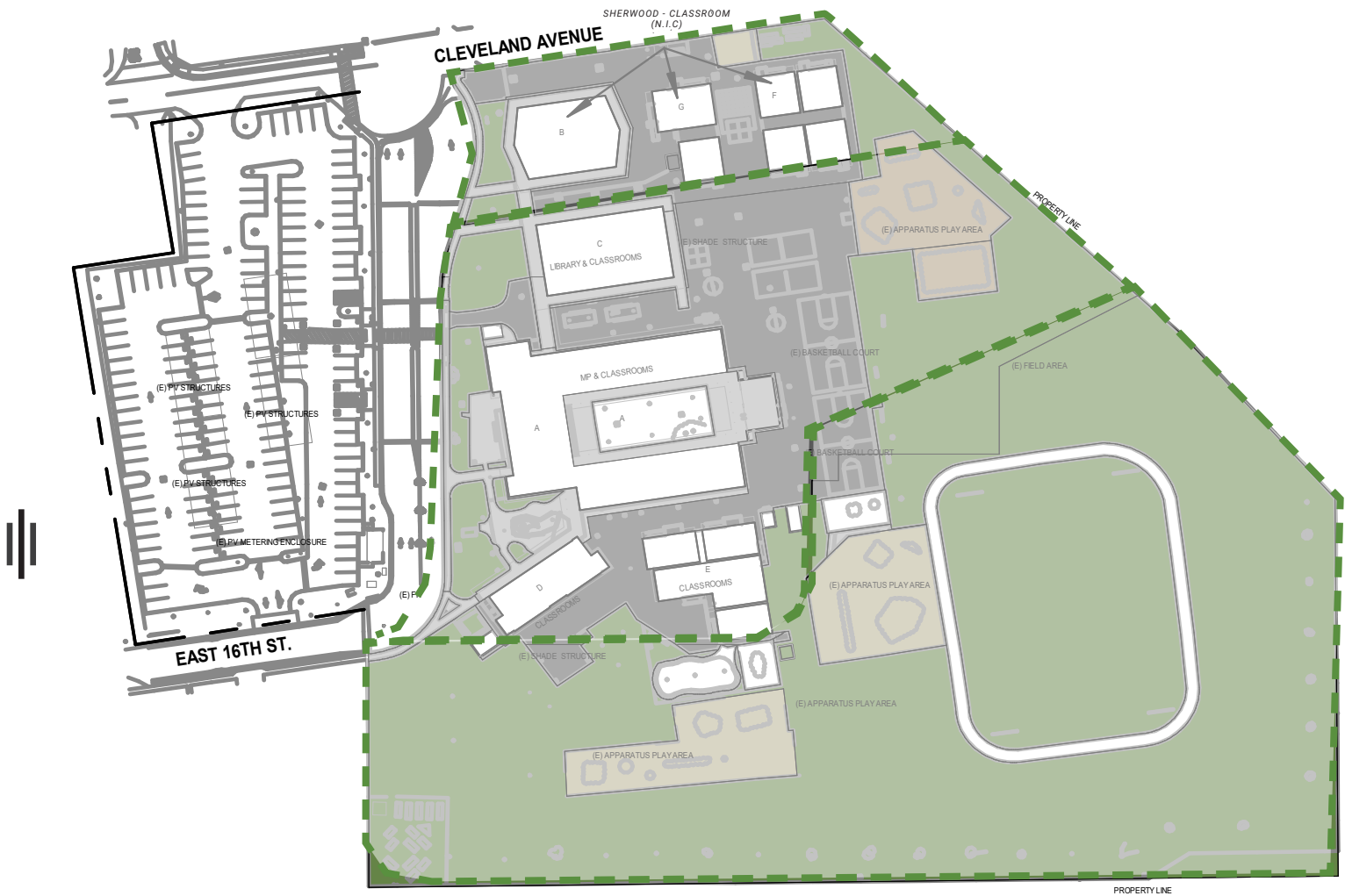
- Pedestrian Entry
- 6'-0" Fence
- Property Line



Site Plan - Overall Phasing



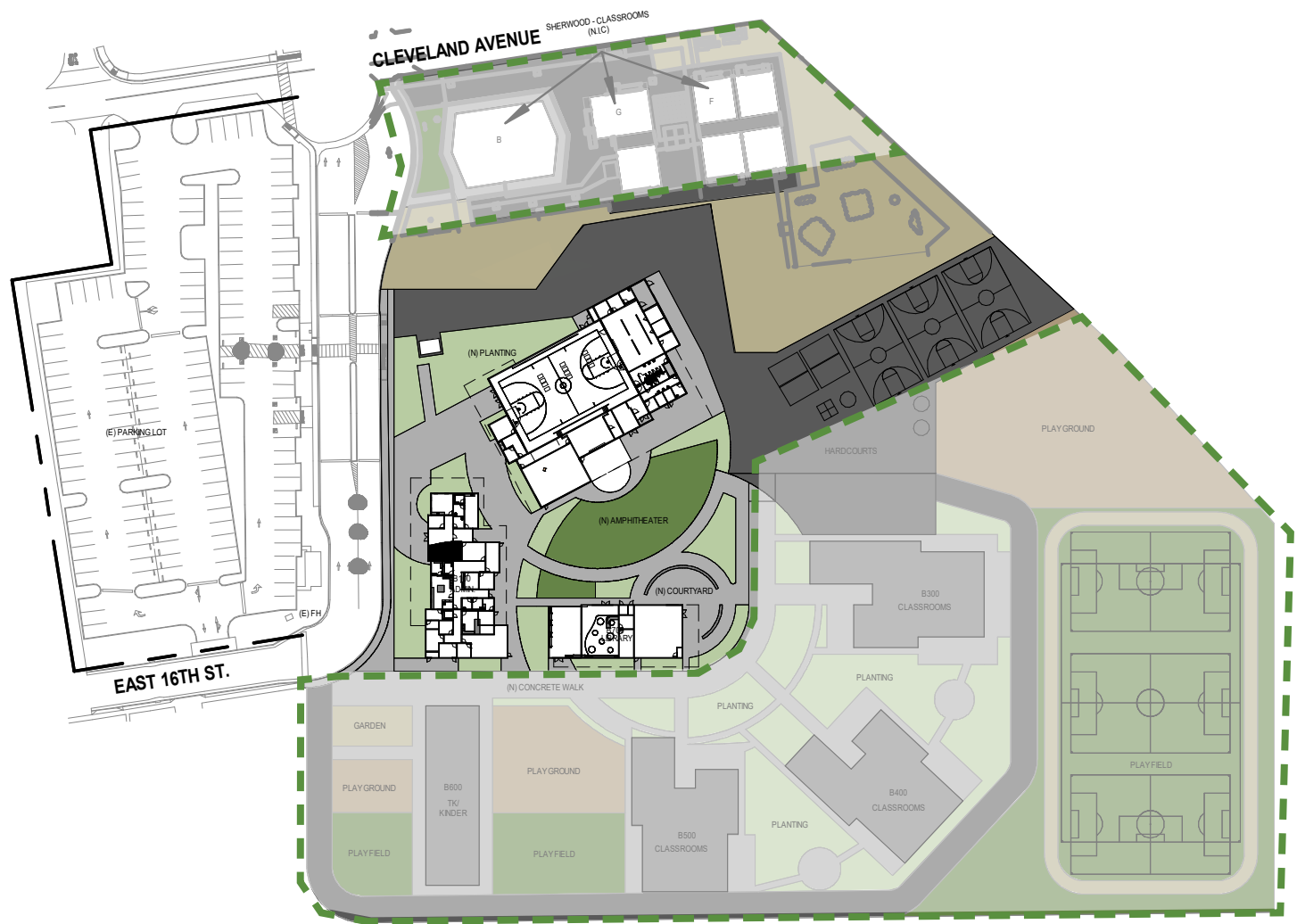
Phasing Sequence



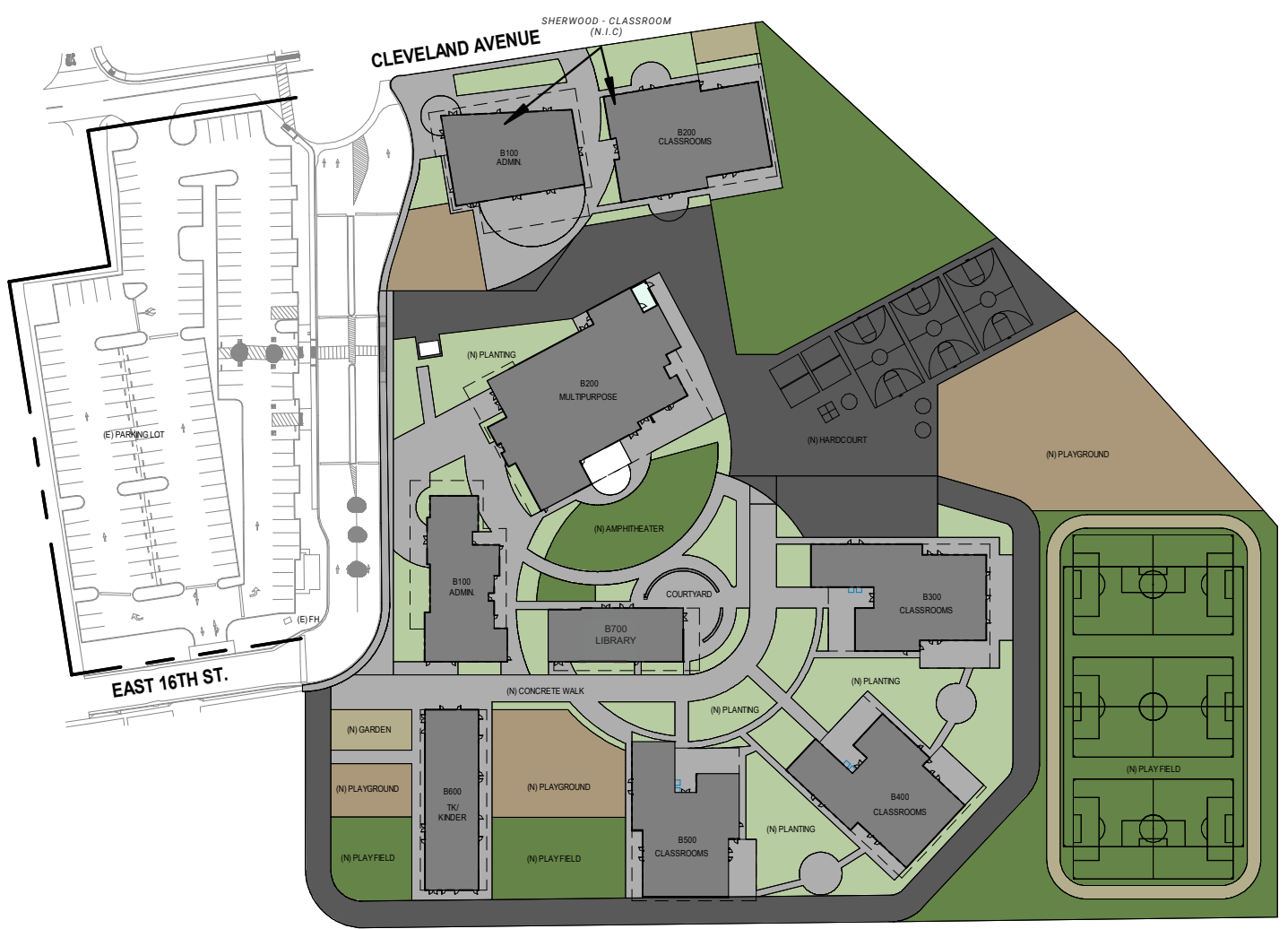
CHAPMAN ELEMENTARY SCHOOL
EXISTING SITE PLAN



CHAPMAN ELEMENTARY SCHOOL
SITE PLAN = PHASE 1 (NEW CONSTRUCTION)
BUILDING 300, 400, 500, 600



CHAPMAN ELEMENTARY SCHOOL
SITE PLAN = PHASE 2 (DEMO & NEW CONSTRUCTION)
ADMINISTRATION BUILDING, LIBRARY, AND MPR



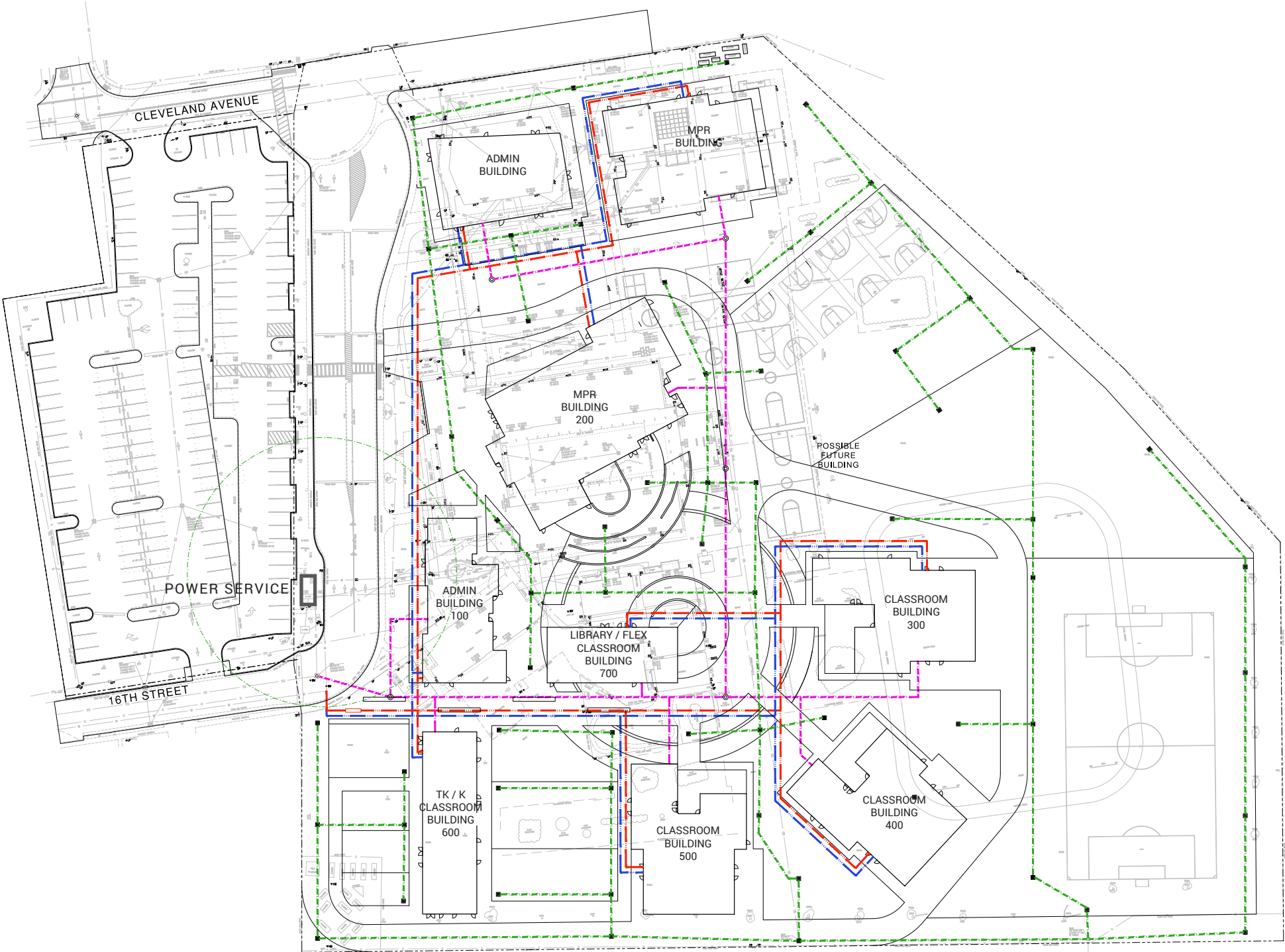
CHAPMAN ELEMENTARY SCHOOL
SITE PLAN = PHASE 1 & 2 (COMPLETE)





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Civil Proposed Utility Plan



LEGEND	
	PROPOSED STORM DRAIN PIPE
	PROPOSED STORM DRAIN CATCH BASIN
	PROPOSED SANITARY SEWER PIPE
	PROPOSED SANITARY SEWER MANHOLE
	PROPOSED DOMESTIC WATER LINE
	PROPOSED FIRE SUPPRESSION LINE

NOTES

PROPOSED FIRE HYDRANTS AND PIPING ARE NOT SHOWN ON THESE PLANS.

FIRE HYDRANTS MAY BE REQUIRED AROUND THE SITE AND SHALL BE APPROVED BY THE FIRE MARSHAL.

ALL PROPOSED SEWER, STORM DRAIN, DOMESTIC WATER AND FIRE SUPPRESSION ARE CONCEPTUAL ONLY.

POINT OF CONNECTION TO PROPOSED BUILDINGS ARE UNKNOWN AND ONLY CONCEPTUALLY SHOWN.

SCALE 1" = 50'

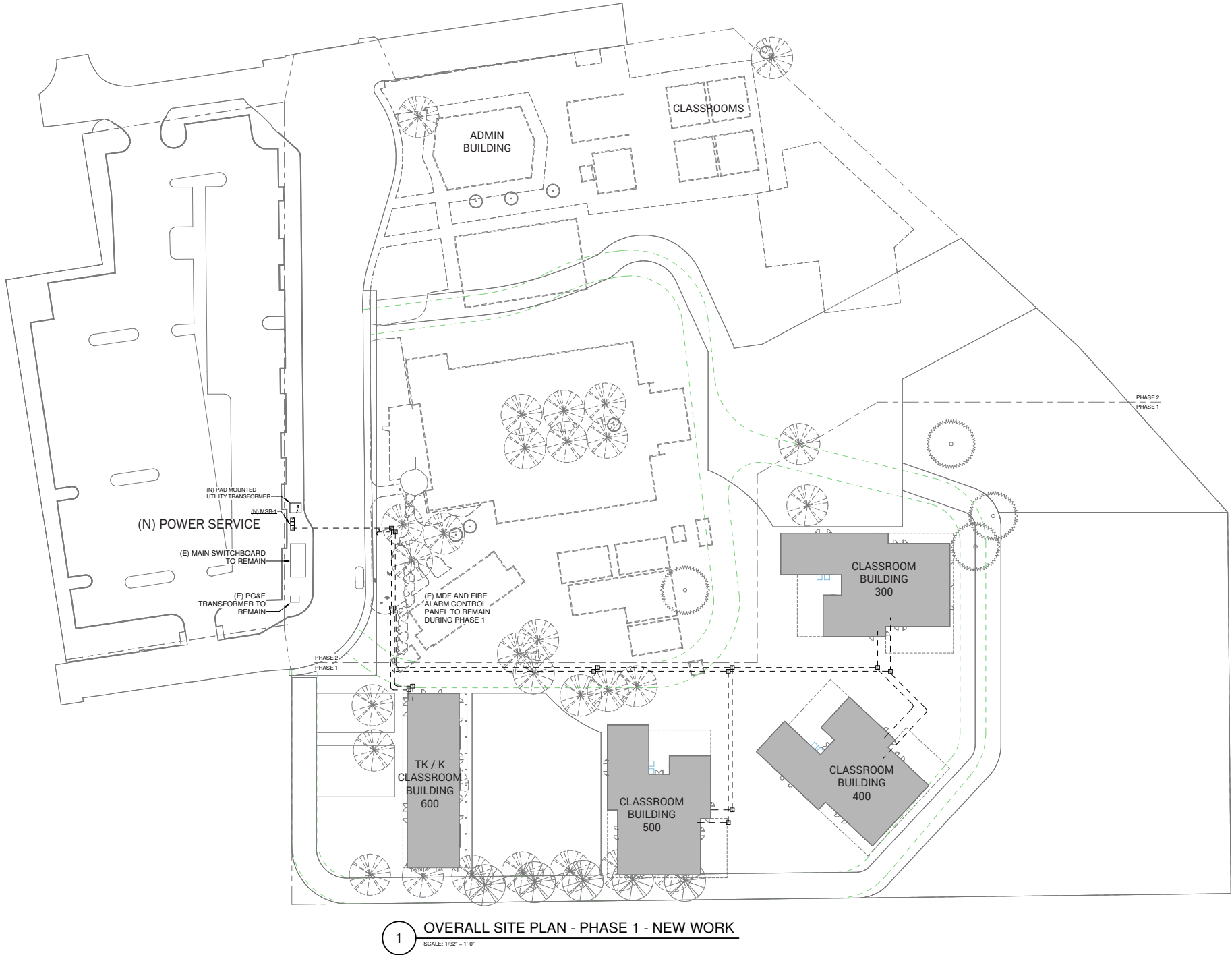
VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING
IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY

SCHEMATIC DESIGN
PROGRESS DRAWINGS

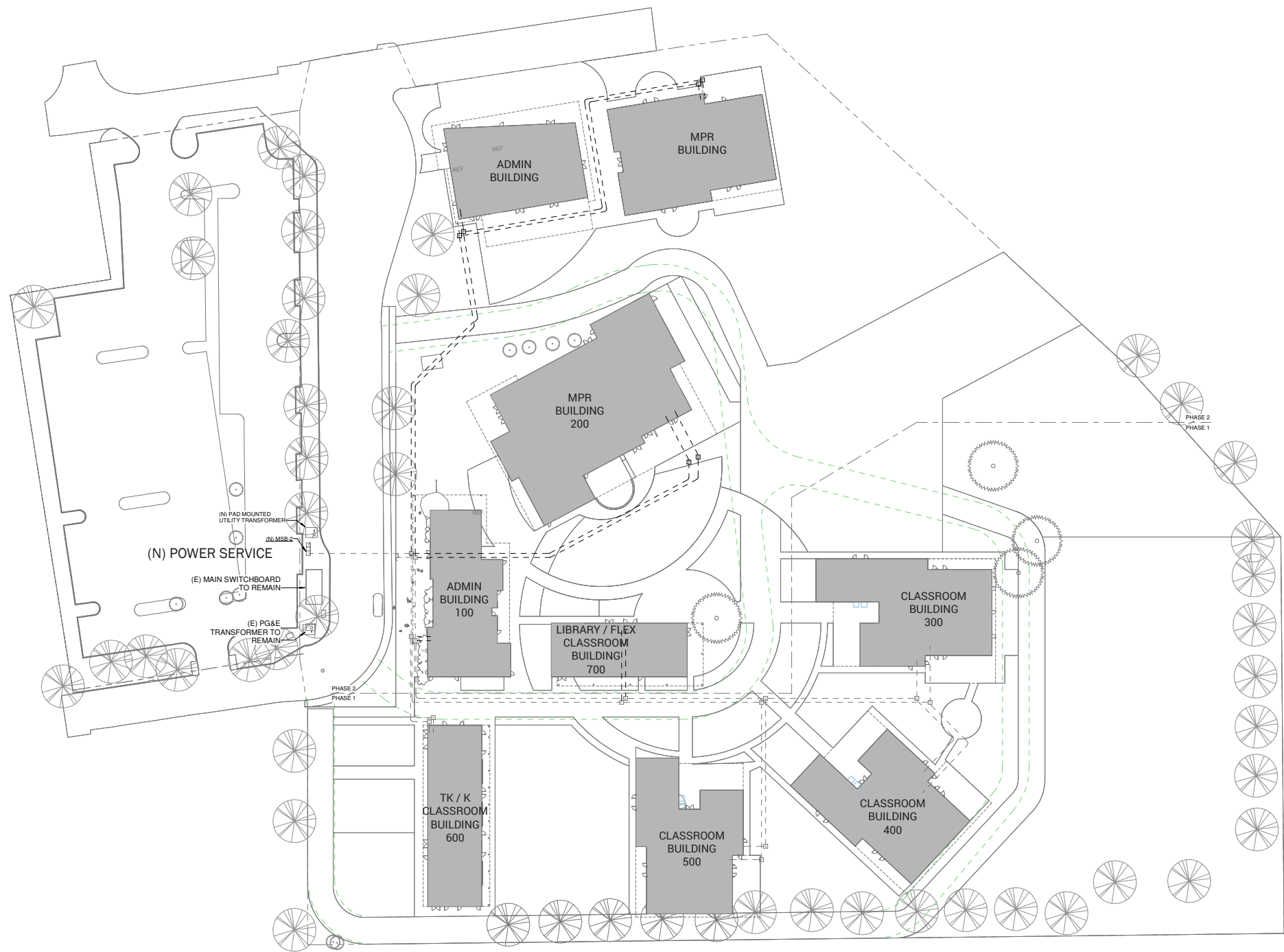
NOTE: THESE DRAWING ARE FOR COORDINATION
PURPOSES WITH THE DESIGN TEAM AND ARE
NOT INTENDED FOR BIDDING OR CONSTRUCTION
PURPOSES.



Electrical Phase 1

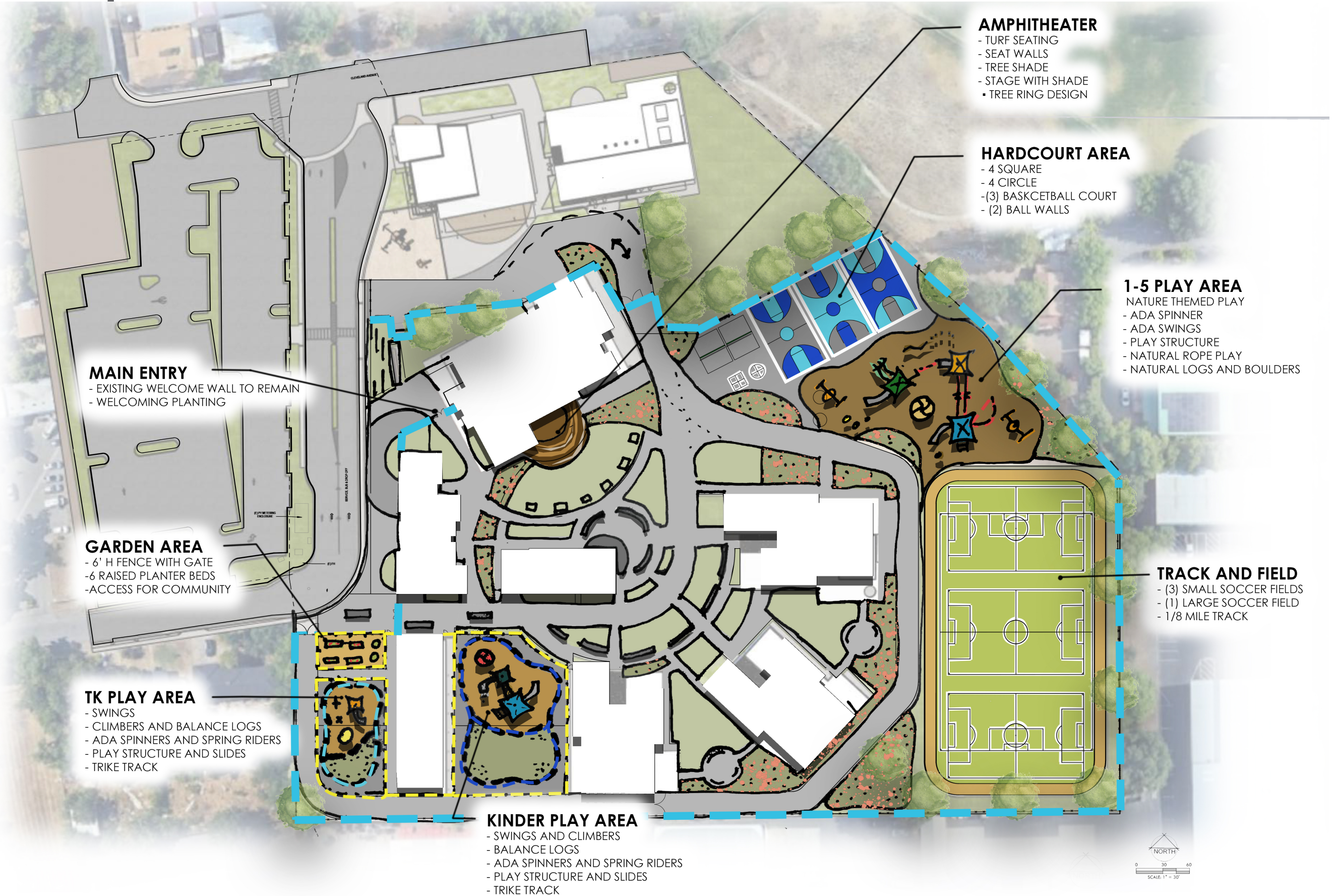


Electrical Phase 2



1 OVERALL SITE PLAN - PHASE 2 NEW WORK
SCALE: 1/32" = 1'-0"

Landscape



Preliminary Play - Playground



INSPIRATION THEME: NATURE



PLAY STRUCTURE



INTERACTIVE PANEL



THEMED ELEMENTS



ONGRADE SLIDE/PIP MOUNDS



NATURAL ROPE & ROCK CLIMBING



ADA T/TK PLAYHOUSE



PENDULUM ROPE SWING



CLIMBING



ADA SPINNER



ADA SWING



WOOD CLIMBING



THEMED PLAY STEPPERS



THEMED PLAY STEPPERS



04

BUILDING DESIGN & PLANNING



Guiding Principles for Design



Maintain Chapman School's Identity and Character



Embrace the Existing Neighborhood Context, Fortify from Adjacent Park and Business Areas



Inclusive Outdoor Learning Environments



Create Fun, Flexible and Collaborative Learning Environments



Provide Safe Campus Access and Inviting Landscape



Modern Flexible Workspace and Easily Accessible Support Spaces

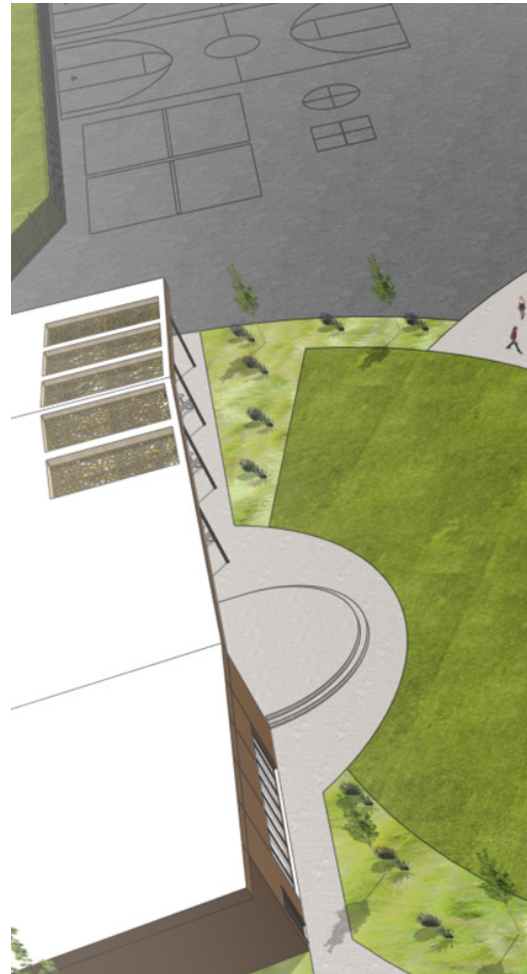
<p>BLUE Secure Calm Reduce stress School color</p>	
<p>WARM WHITE Neutral, Base color Purity Cleanliness Security</p>	
<p>GOLD/ ORANGE / RUST ORANGE Symbolizes optimism Warmth Passion Excitement Energy</p>	
<p>EARTH TONE BROWN Comfort Welcoming Warmth</p>	
<p>OLIVE GREEN Symbolizes growth Harmony Reduce stress</p>	



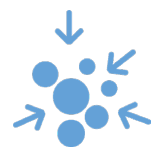
“GENERATION. GATHER. GROW”

The design draws inspiration from the rings of a tree, a symbol of time, legacy, and generational growth. These natural forms inform the layout and flow of the space, reinforcing the values of **generation**, **gather**, and **grow**. Like a family tree, the architecture honors the past while creating room for future **growth**. The overall layout encourages **connection**, **collaboration**, and community.

The color palette is rooted in nature. Warm tones of warm white, gold, rust, orange, and brown reflect the layers of a tree trunk, evoking stability, wisdom, and **tradition**. Accents of green bring a sense of life, **renewal**, and possibility—encouraging learning, creativity, and **growth**. Blues celebrate the school color, embracing tradition and security. Together, these elements create an environment that feels grounded, welcoming, and forward-thinking.



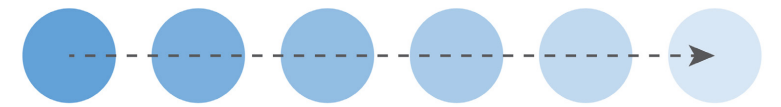
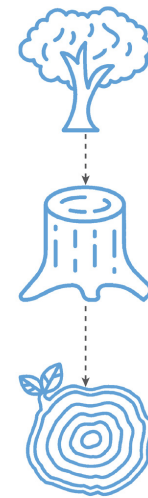
Generations



Gather



Grow



Library

Flex
Classrooms

Amphitheater

Classroom
Pods

Admin

MPR

01

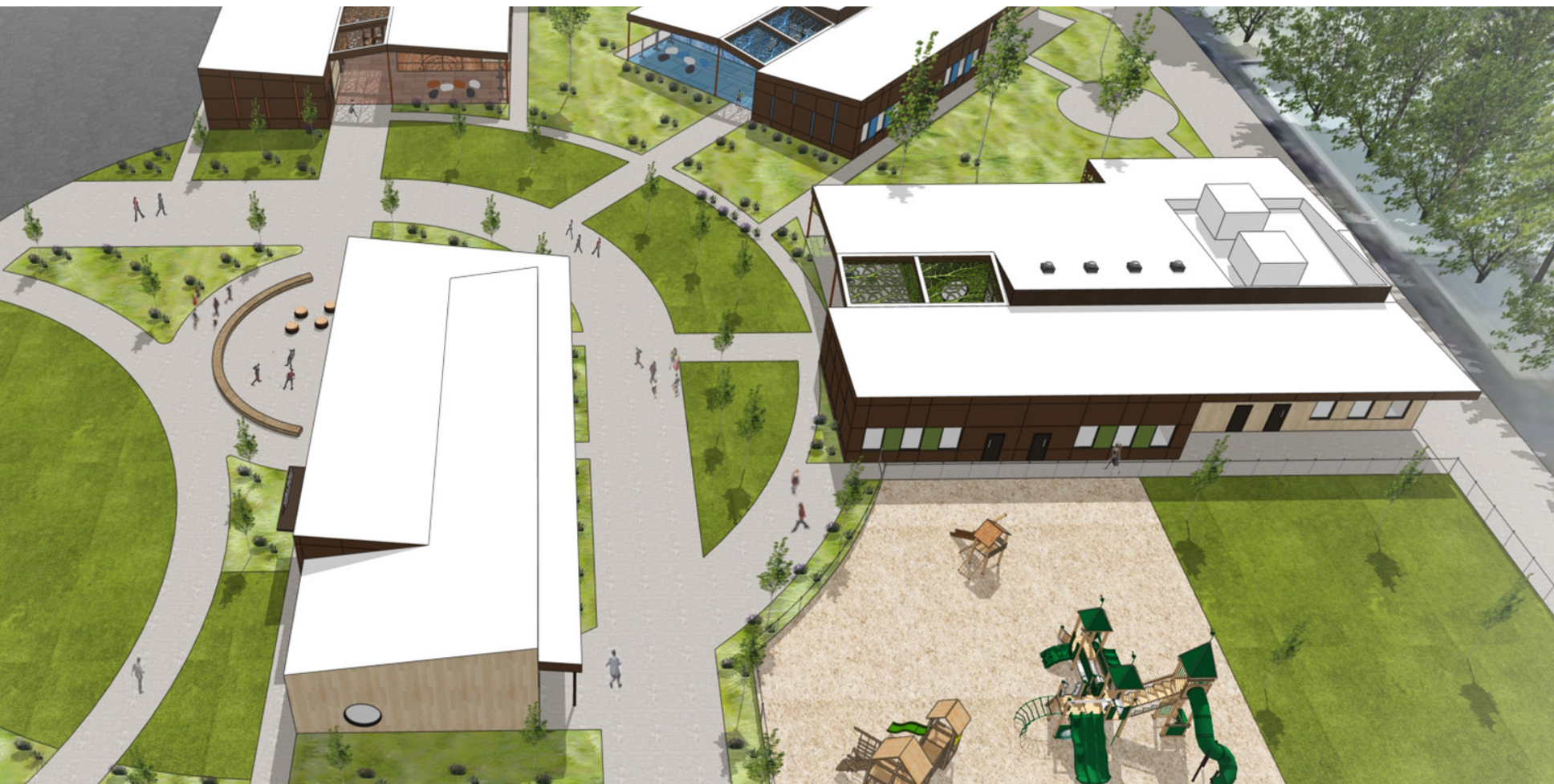
Identify Community Values

02

Determine and Abstract Site
Motif based on Values

03

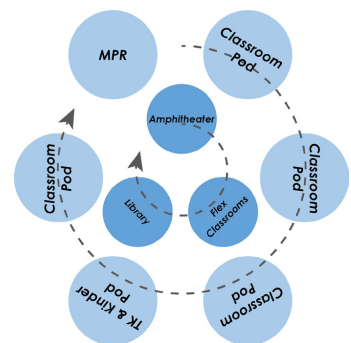
Modularize Program Blocks



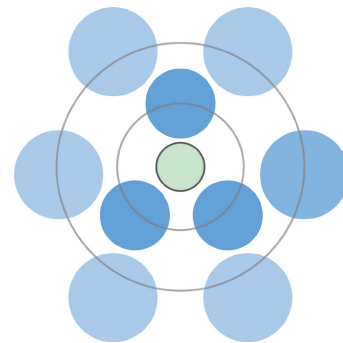
Massing & Outdoor Spaces

The massing and site design for the new Chapman Elementary School is shaped by the guiding principles of maintaining the school's identity, embracing its neighborhood context, and creating inclusive outdoor learning environments.

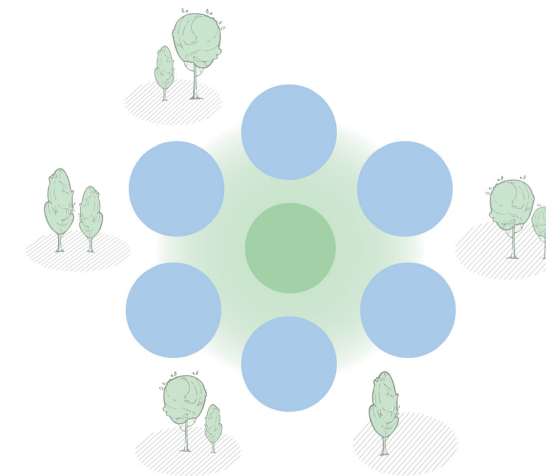
The design concept—"Generations, Gather, Grow"—inspires a concentric site layout that radiates from shared central gathering spaces, symbolizing growth, collaboration, and community connection. A series of pod-style classroom buildings are organized around these central courtyards, forming layers of outdoor learning zones that encourage interaction both within and across grade levels. Each building is shaped with intentional recesses and covered porches that blur the boundary between indoor and outdoor environments, providing shaded, flexible spaces for teaching, play, and reflection. Circulation paths naturally converge toward these shared nodes, promoting collaboration and exploration while reinforcing safe campus access and strong visual connections throughout the site. Together, the site layout, building massing, and landscape design embody a modern, flexible learning environment rooted in Chapman's enduring character and sense of place.



04 Align Program Blocks to Reflect Abstracted Values



05 Incorporate Central Gathering and Site Connectivity

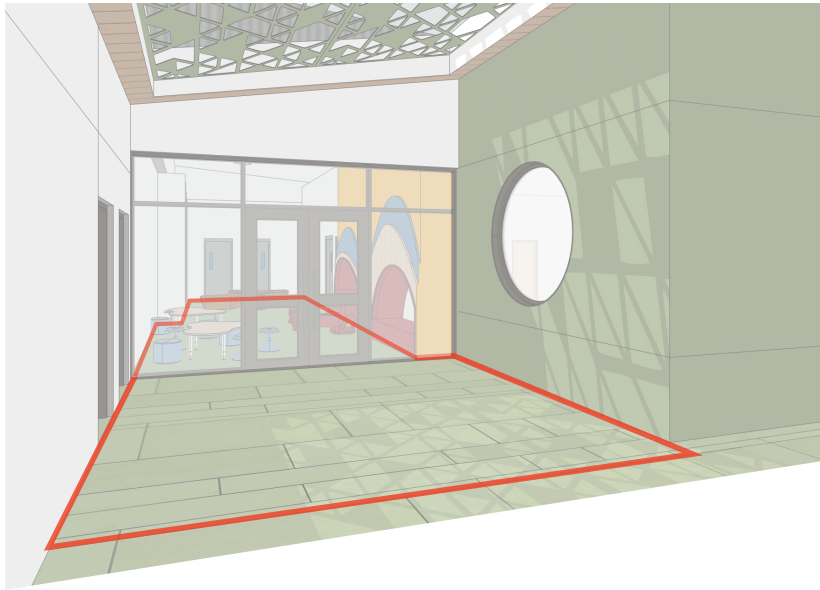
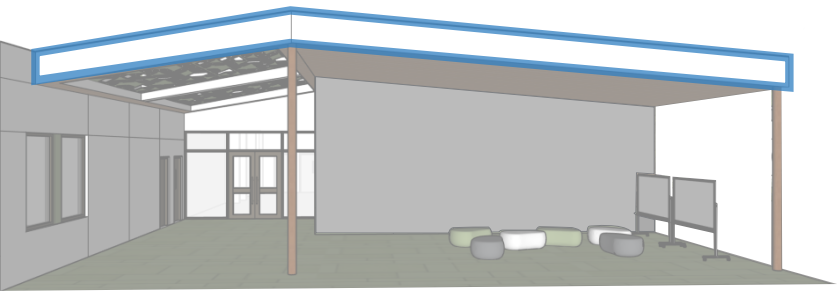


06 Integrate Landscaping and Wayfinding



Agrarian Forms for Child-Friendly Learning

This classroom building draws inspiration from the agrarian forms of Chico’s rural landscape to create a learning environment that feels both familiar and appropriately scaled for elementary students. Simple gabled volumes echo barn structures, offering a sense of shelter and clarity that young learners intuitively understand.

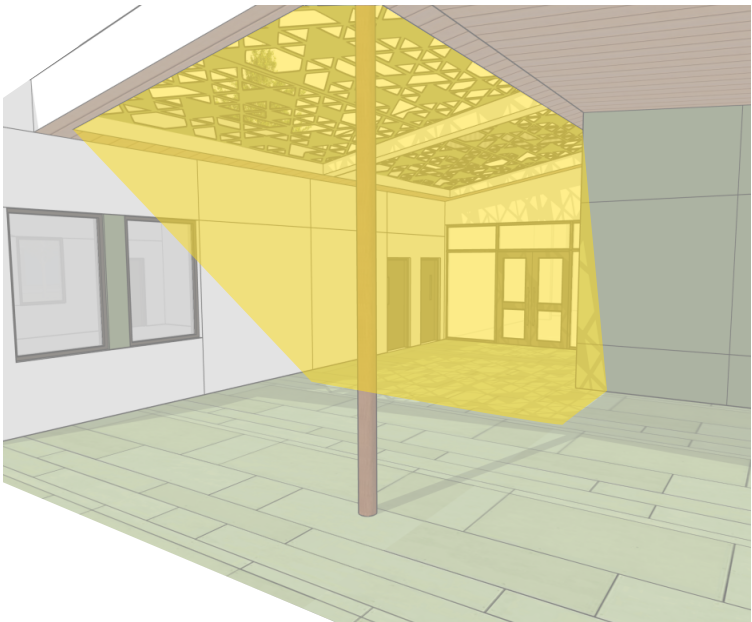


Child-Friendly Massing and Indoor-Outdoor Learning

The building’s massing is intentionally broken down to child-friendly proportions, promoting comfort and reducing the institutional feel. Outdoor learning zones and shaded breezeways respond to Chico’s Mediterranean climate, encouraging movement, fresh air, and flexibility in teaching. The indoor-outdoor relationship fosters collaborative learning environments, unifying classroom spaces and cultivating a stronger sense of community.

Nature-Inspired Materials and Light-Filled Entry

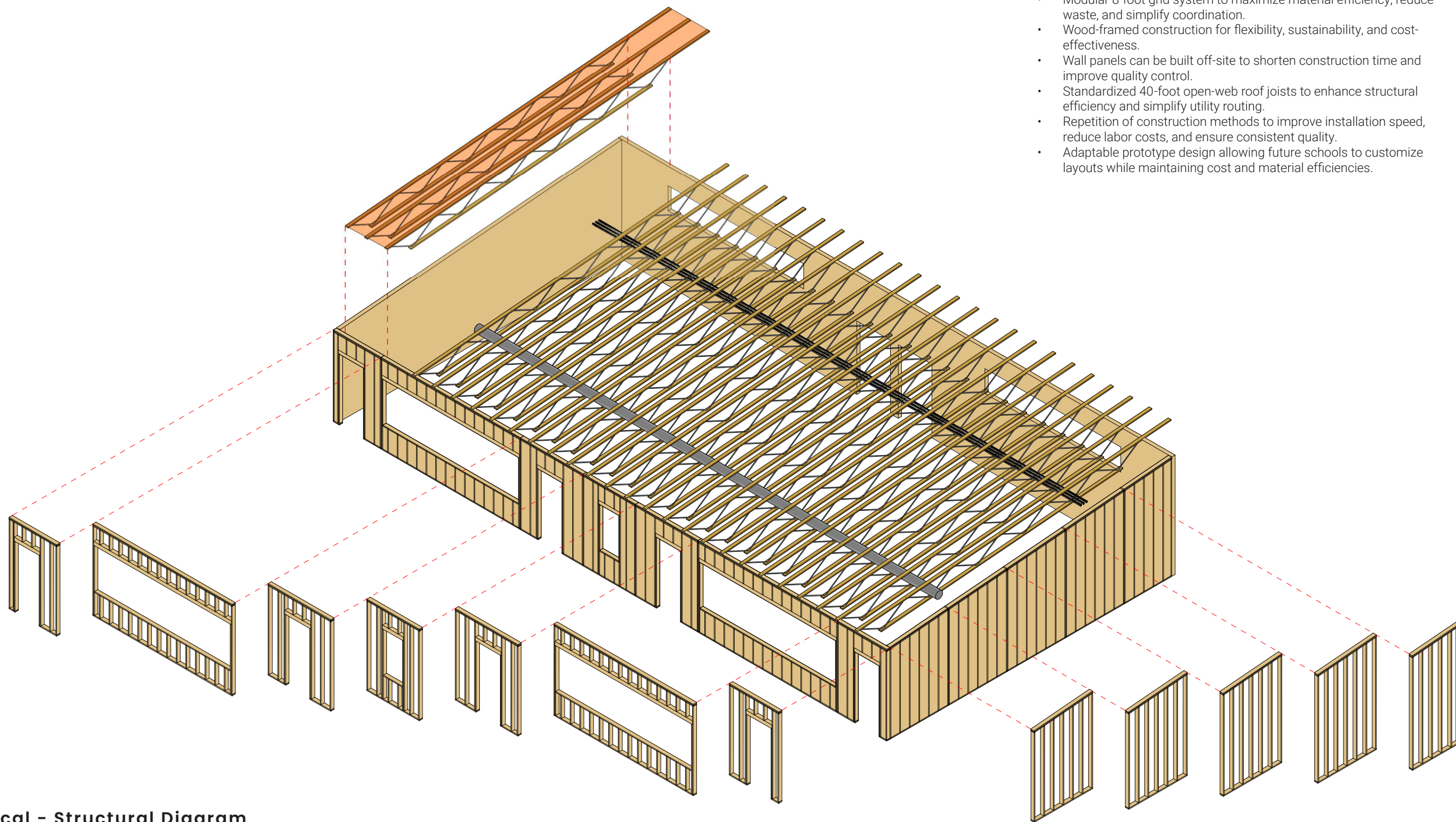
A perforated canopy above the entry filters light like a tree canopy, reinforcing the connection to nature and the outdoors. Natural materials play a central role — warm wood siding wraps the classroom volumes, contrasting with earth-toned cladding on circulation areas. Accent colors drawn from Chico’s environment, along with educational murals, add visual interest and connect students to nature and place.





Key features to this method include:

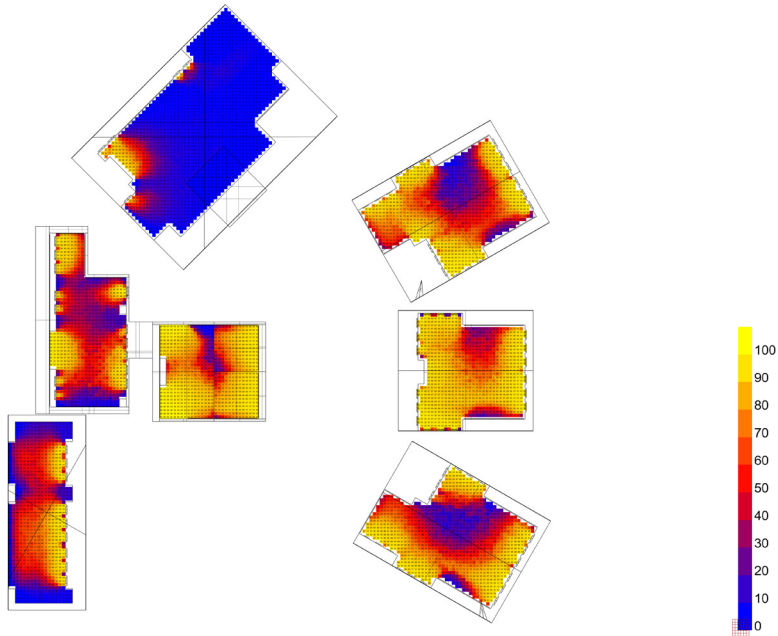
- Modular 8-foot grid system to maximize material efficiency, reduce waste, and simplify coordination.
- Wood-framed construction for flexibility, sustainability, and cost-effectiveness.
- Wall panels can be built off-site to shorten construction time and improve quality control.
- Standardized 40-foot open-web roof joists to enhance structural efficiency and simplify utility routing.
- Repetition of construction methods to improve installation speed, reduce labor costs, and ensure consistent quality.
- Adaptable prototype design allowing future schools to customize layouts while maintaining cost and material efficiencies.



Prototypical – Structural Diagram

The prototype design method for the new elementary school promotes efficiency, adaptability, and consistency across projects. Using standardized components and modular construction principles, it streamlines both design and construction to achieve a high-quality, value-driven product.

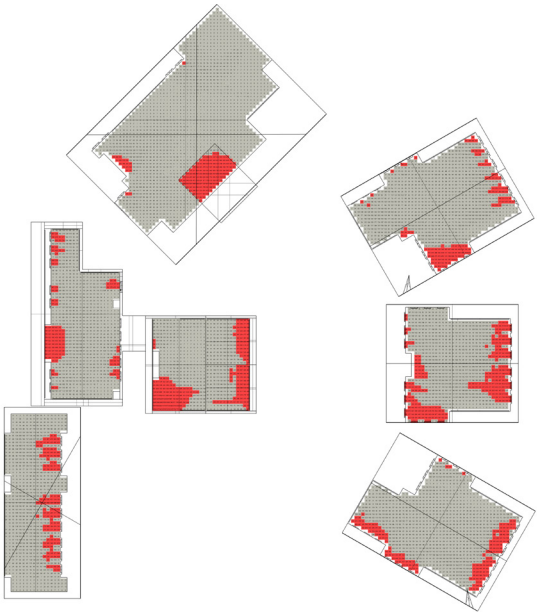
Climate Analysis



DAYLIGHT DISTRIBUTION

This plot represents how daylight distributes across the space.

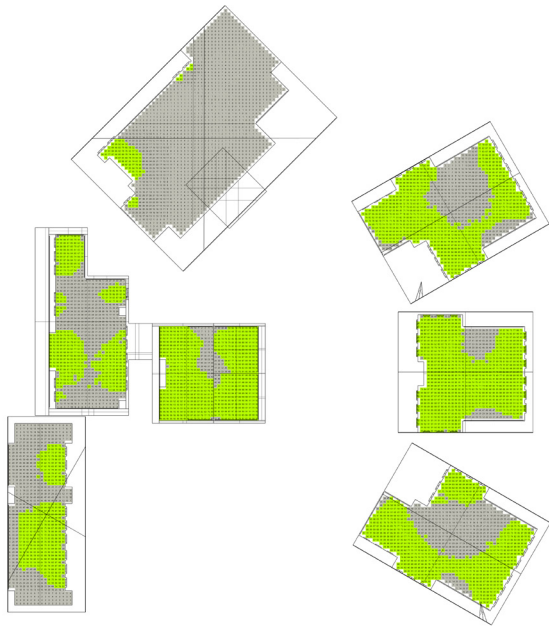
Yellow & Red represent adequate amount of daylight.
Blue indicates non-daylit areas.



POTENTIAL FOR GLARE

ASE is the percentage of the analysis area that exceeds a direct sunlight illuminance level of 1000 lux more than 250 hours per year, with operable blinds left open;

grey coloring indicates low glare risk
red indicates high glare risk
ASE = 5.6%

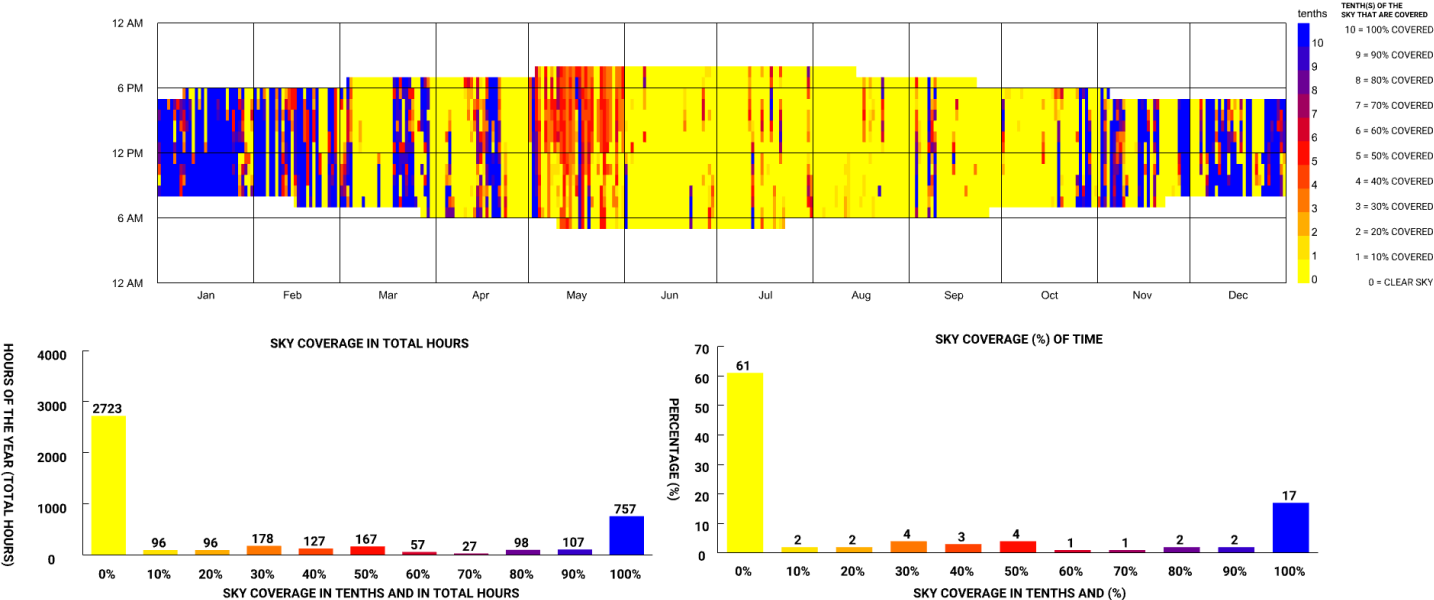


DAYLIGHT SUFFICIENCY

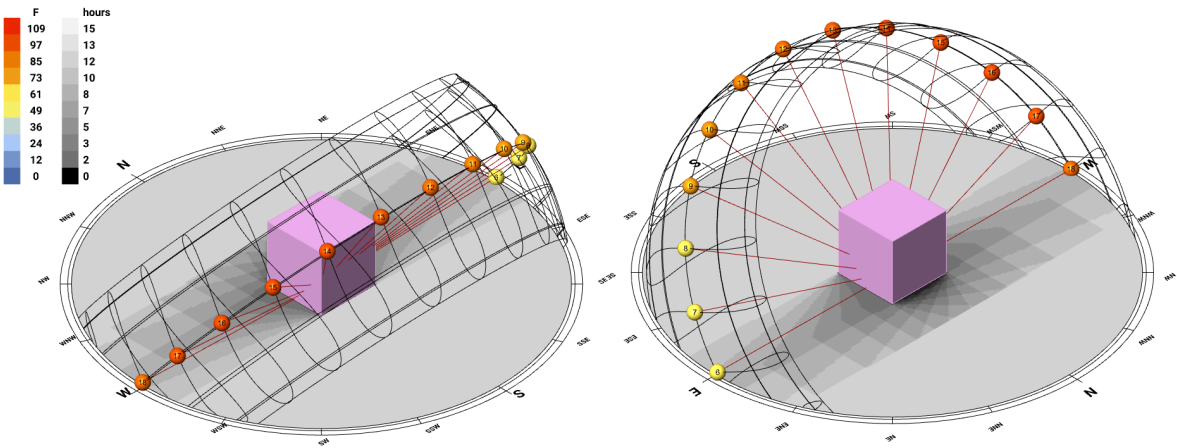
Spatial DA is the percentage of floor area that provides the minimum illuminance (in lux) required for each space function for a given percentage of the analysis period (50%);

GREEN indicates daylit areas according to sDA definition.
GRAY indicates non-daylit areas according to sDA definition
sDA = 17.6%

TOTAL CLOUD COVER - DAYLIGHT HOURS

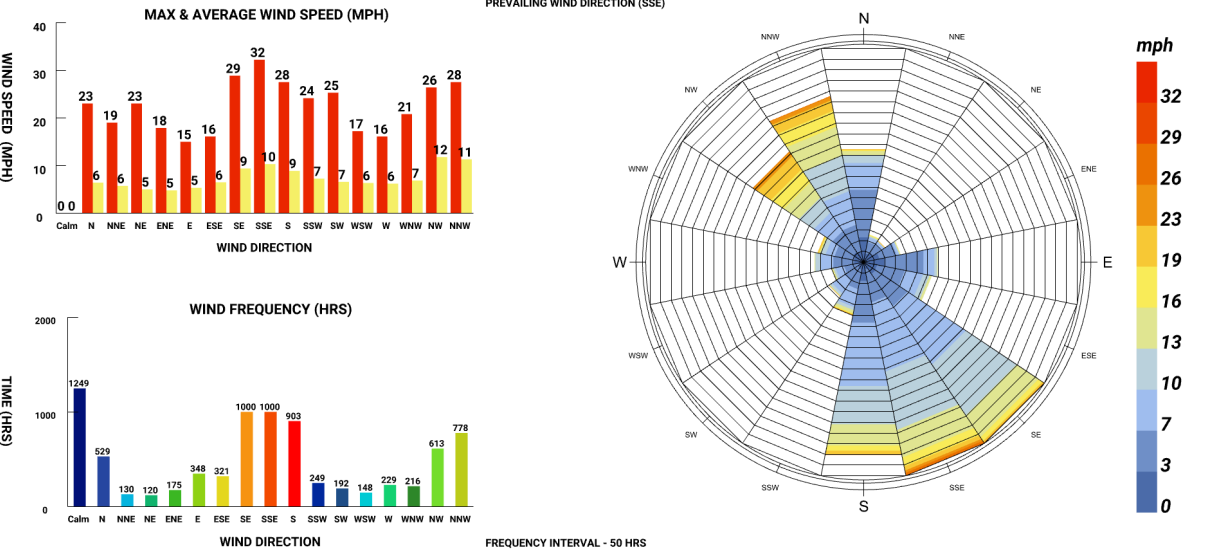


SUN PATH EQUINOX - 3D VIEW



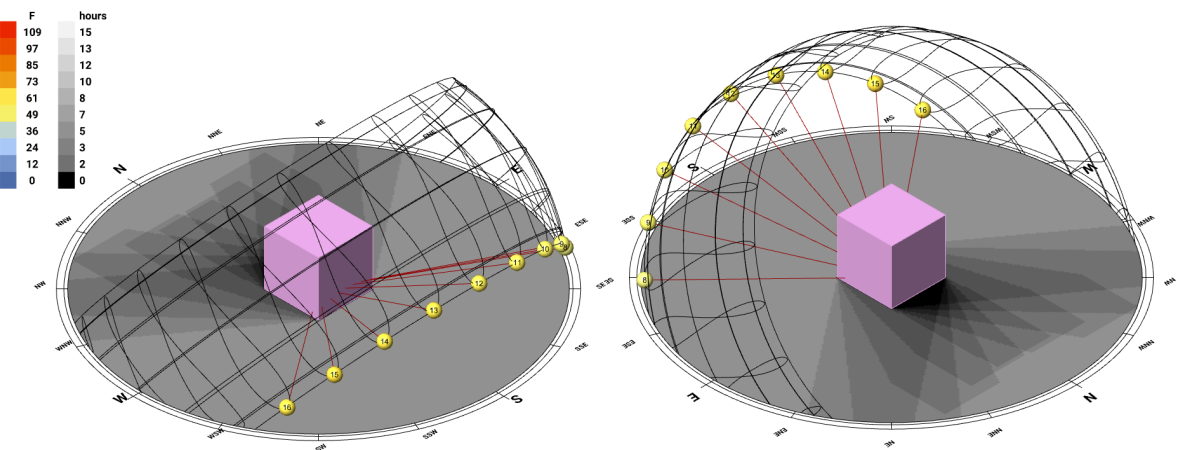
DLR Group
high performance design

ANNUAL WIND ROSE



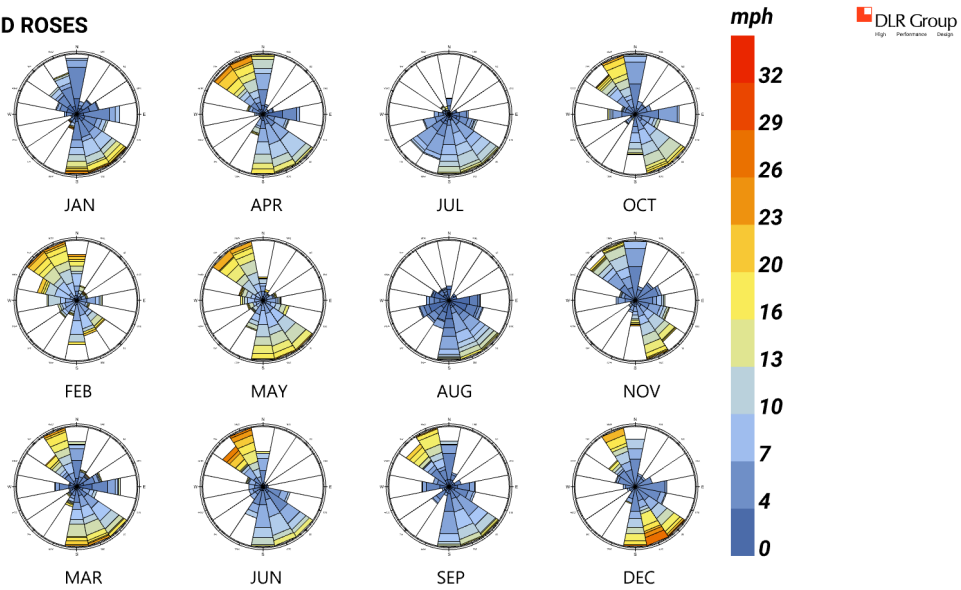
DLR Group
high performance design

SUN PATH WINTER SOLSTICE - 3D VIEW



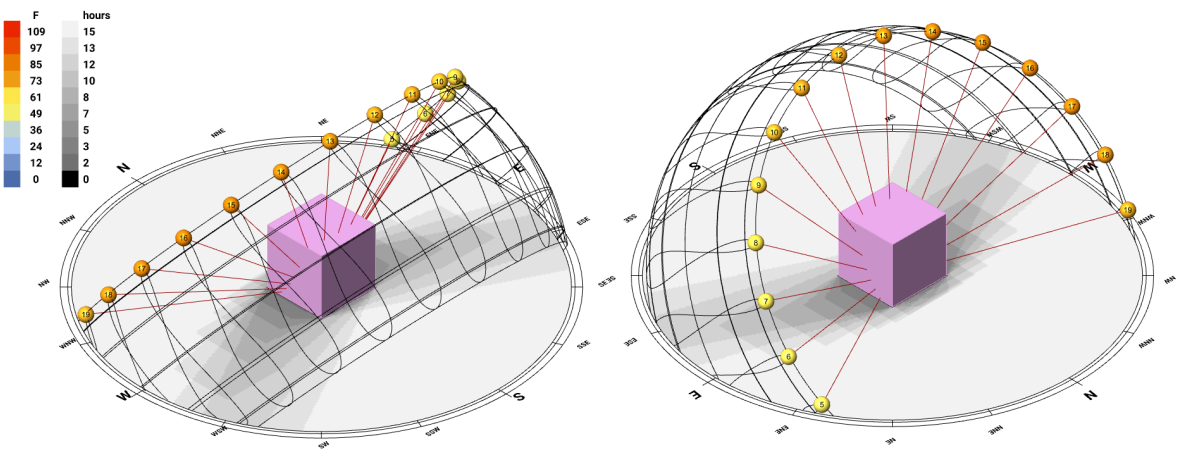
DLR Group
high performance design

MONTHLY GRID OF WIND ROSES



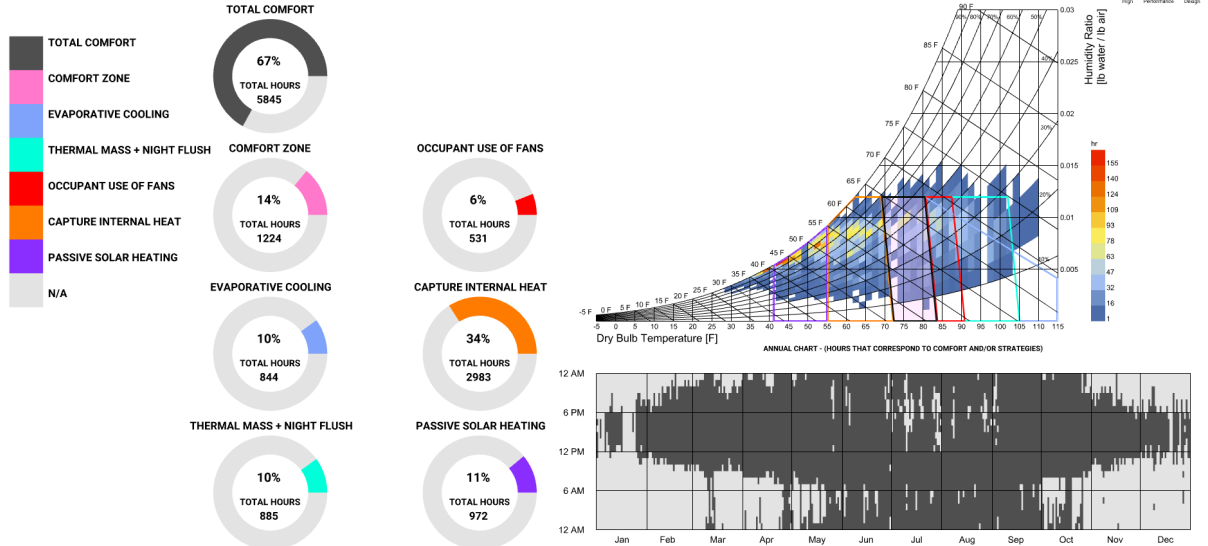
DLR Group
high performance design

SUN PATH SUMMER SOLSTICE - 3D VIEW



DLR Group
high performance design

PSYCHROMETRIC CHART - ALL STRATEGIES



DLR Group
high performance design



The campus design incorporates a variety of outdoor learning environments that extend education beyond the classroom and encourage flexible, student-centered engagement. A centrally placed amphitheater, integrated with the rear of the MPR, creates an indoor-outdoor connection to the stage platform—supporting both formal presentations and informal group learning. The expansive lunch canopy adjoining the MPR serves as an all-weather gathering hub for dining, collaboration, and play, while smaller outdoor nodes provide more intimate spaces for reflection and interaction. Collectively, these elements form a cohesive network of open-air settings that inspire exploration, strengthen community, and nurture a daily sense of belonging.



Secured Main Entry

Amphitheater/Stage

Shaded Seating

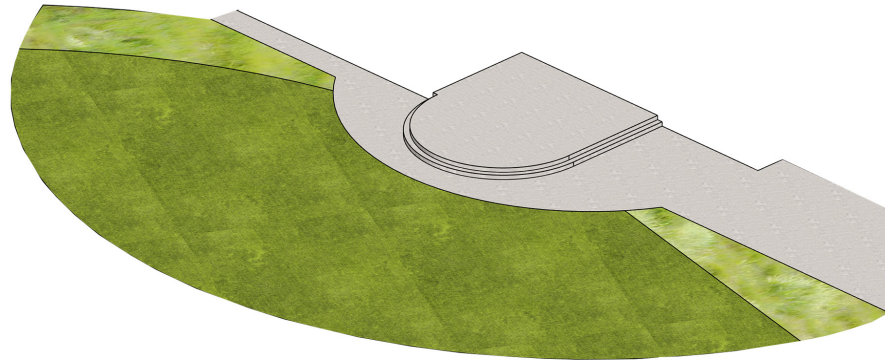


Each classroom cluster is intentionally designed to extend learning directly into the outdoors. Adjacent patios, shaded porches, and landscaped courtyards provide seamless transitions between indoor instruction and hands-on exploration. These outdoor extensions function as flexible learning environments—accommodating small group discussions, science experiments, art activities, or quiet reflection. Natural materials, planting zones, and seating elements are integrated to create comfortable, engaging spaces that invite curiosity and collaboration. By blurring the boundary between classroom and landscape, the design encourages teachers and students to embrace the environment as an active part of the educational experience.



Outdoor Space Modalities

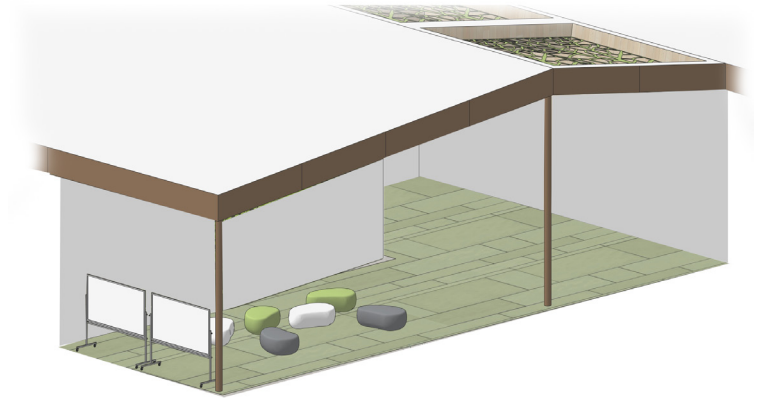
The campus design incorporates a variety of outdoor learning environments that extend education beyond the classroom and encourage flexible, student-centered engagement. A centrally placed amphitheater, integrated with the rear of the MPR, creates an indoor-outdoor connection to the stage platform—supporting both formal presentations and informal group learning. The expansive lunch canopy adjoining the MPR serves as an all-weather gathering hub for dining, collaboration, and play, while smaller outdoor nodes provide more intimate spaces for reflection and interaction. Collectively, these elements form a cohesive network of open-air settings that inspire exploration, strengthen community, and nurture a daily sense of belonging.



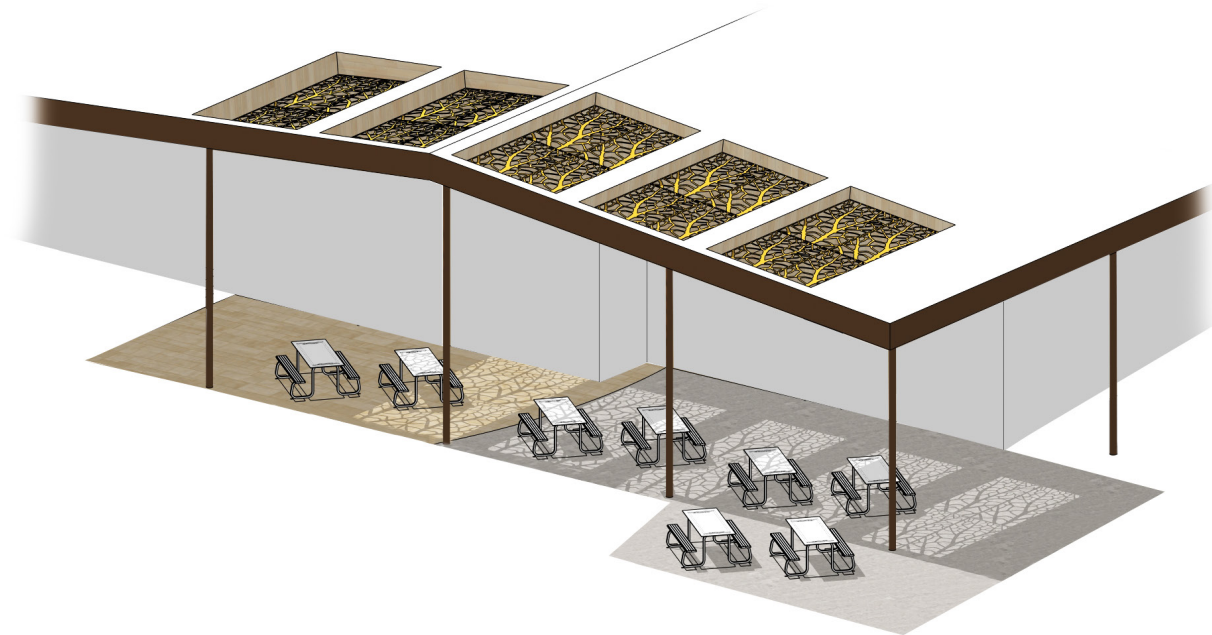
1 Amphitheater



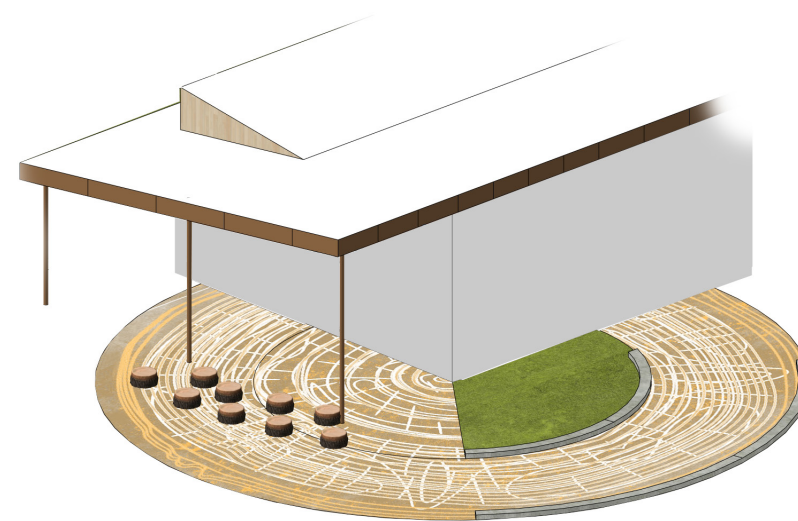
2 Classroom Outdoor Learning (side)



3 Classroom Outdoor Learning



4 Lunch Canopy



5 Flex Outdoor Learning



6 Outdoor Seating





Aerial of ES Campus 01

Birds-eye view from the South corner of the elementary campus, overlooking administration building and quad.



Aerial of ES Campus 02

Birds-eye view from the North corner of the elementary campus, overlooking classroom building to the TK-Kindergarten.



Aerial of ES Campus 03

Perspective from the north corner of the ES central quad, looking towards the TK-Kindergarten play structures.



Aerial of ES Campus 04

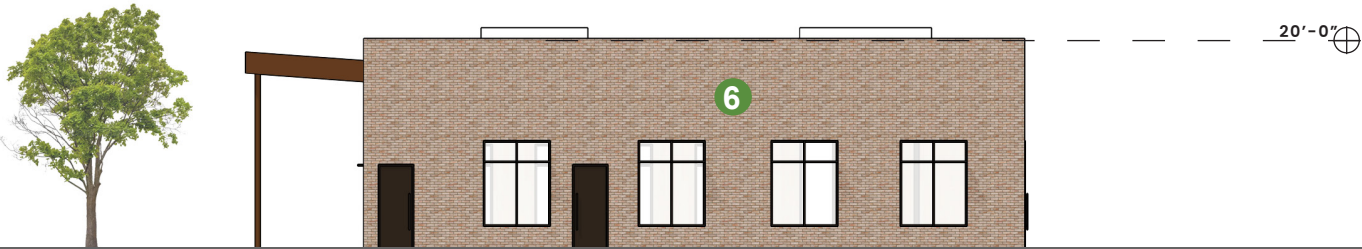
Birds-eye view from the South corner of the elementary campus, overlooking the classroom buildings.



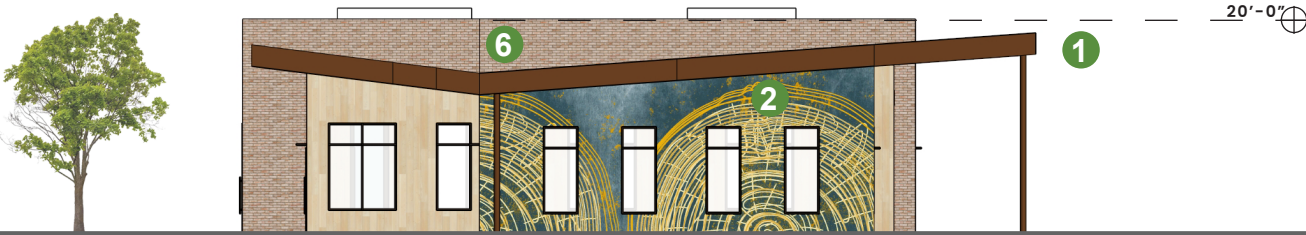
Floor Plan - Building 100 - Administration



Elevations - Building 100 - Administration

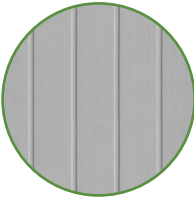


West Elevation

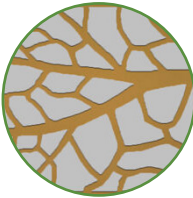


East Elevation

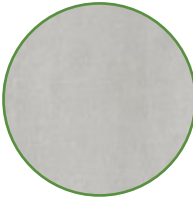
1 Metal Panel Fascia



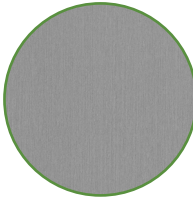
2 Laser Cut Metal Panel



3 Painted Stucco with Concealed Reveals



4 Aluminum Store Front System



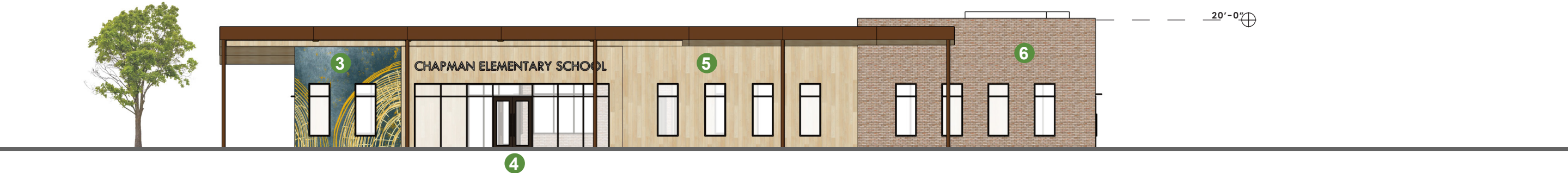
5 Wood Look Fiber Cement



6 Thin Brick Veneer



Elevations - Building 100 - Administration

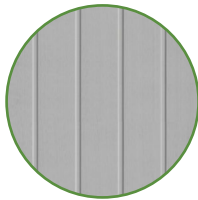


South Elevation

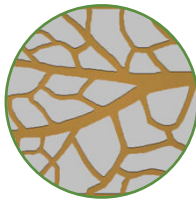


North Elevation

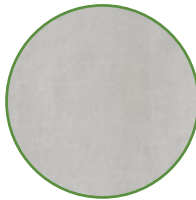
1 Metal Panel Fascia



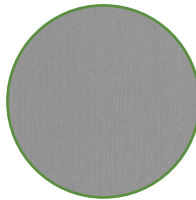
2 Laser Cut Metal Panel



3 Painted Stucco with Concealed Reveals



4 Aluminum Store Front System

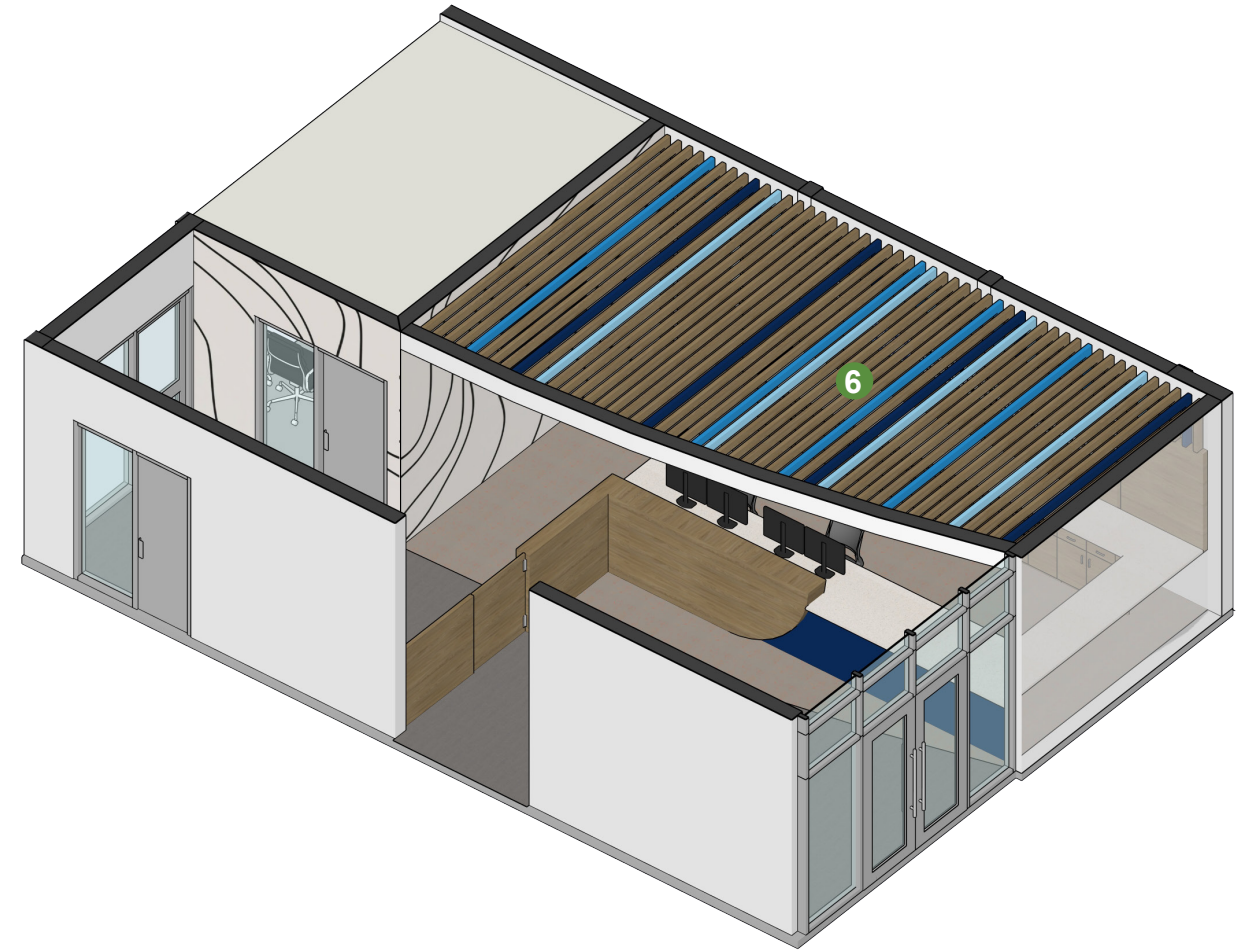
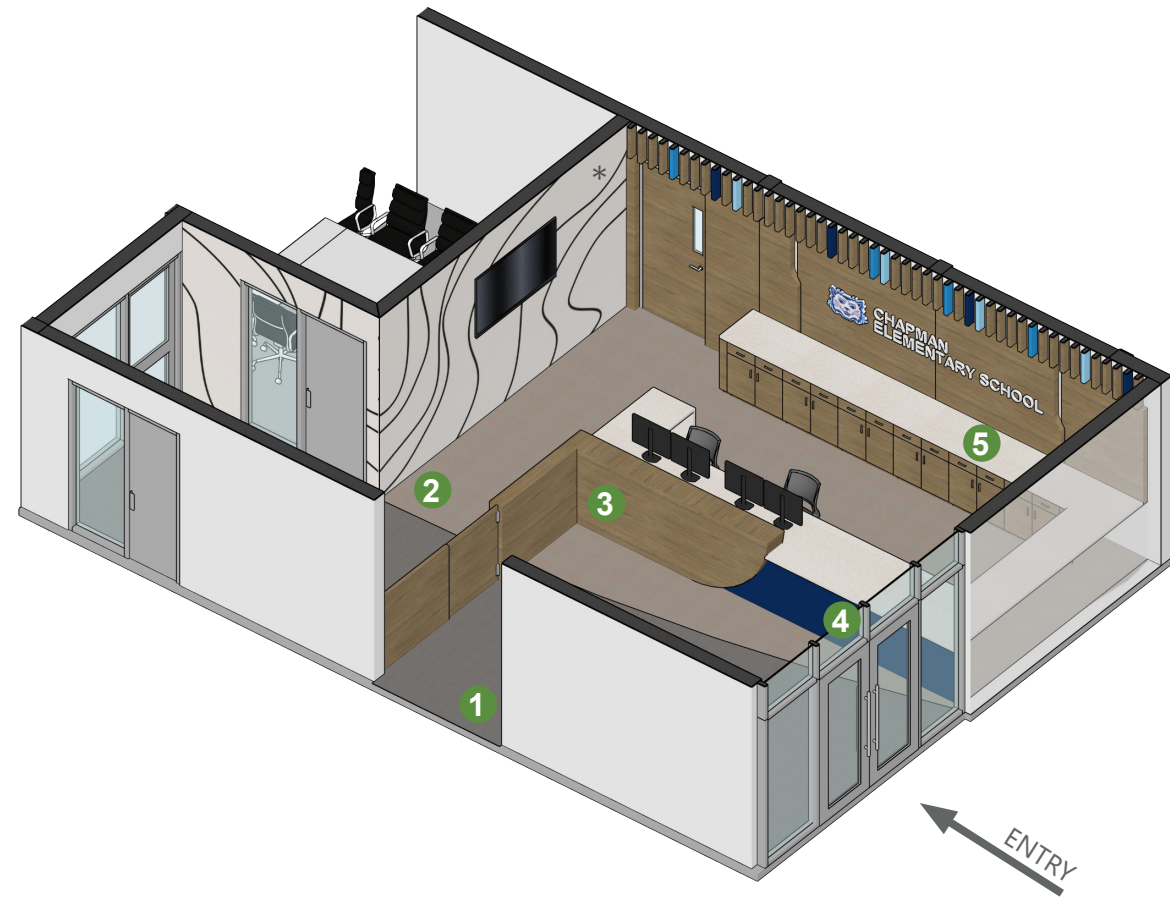


5 Wood Look Fiber Cement

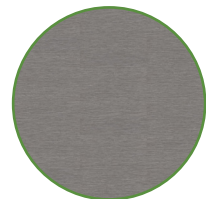


6 Thin Brick Veneer

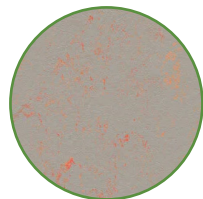




1 Luxury Vinyl Tile



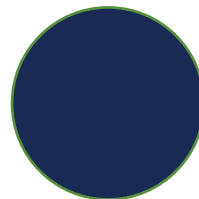
2 Resilient Flooring



3 High Pressure Laminate



4 Colored Laminate



5 Solid Surface



6 Wood-Like + Color Ceiling Baffles



Administration Reception Desk Axon + Materials

* School Brand Graphic Location

The administration reception creates a secure environment, while allowing a warm welcome to those who enter. Branding moments pair with the conceptual elements of the space to emphasize wayfinding and school culture.



Reception Desk Interiors

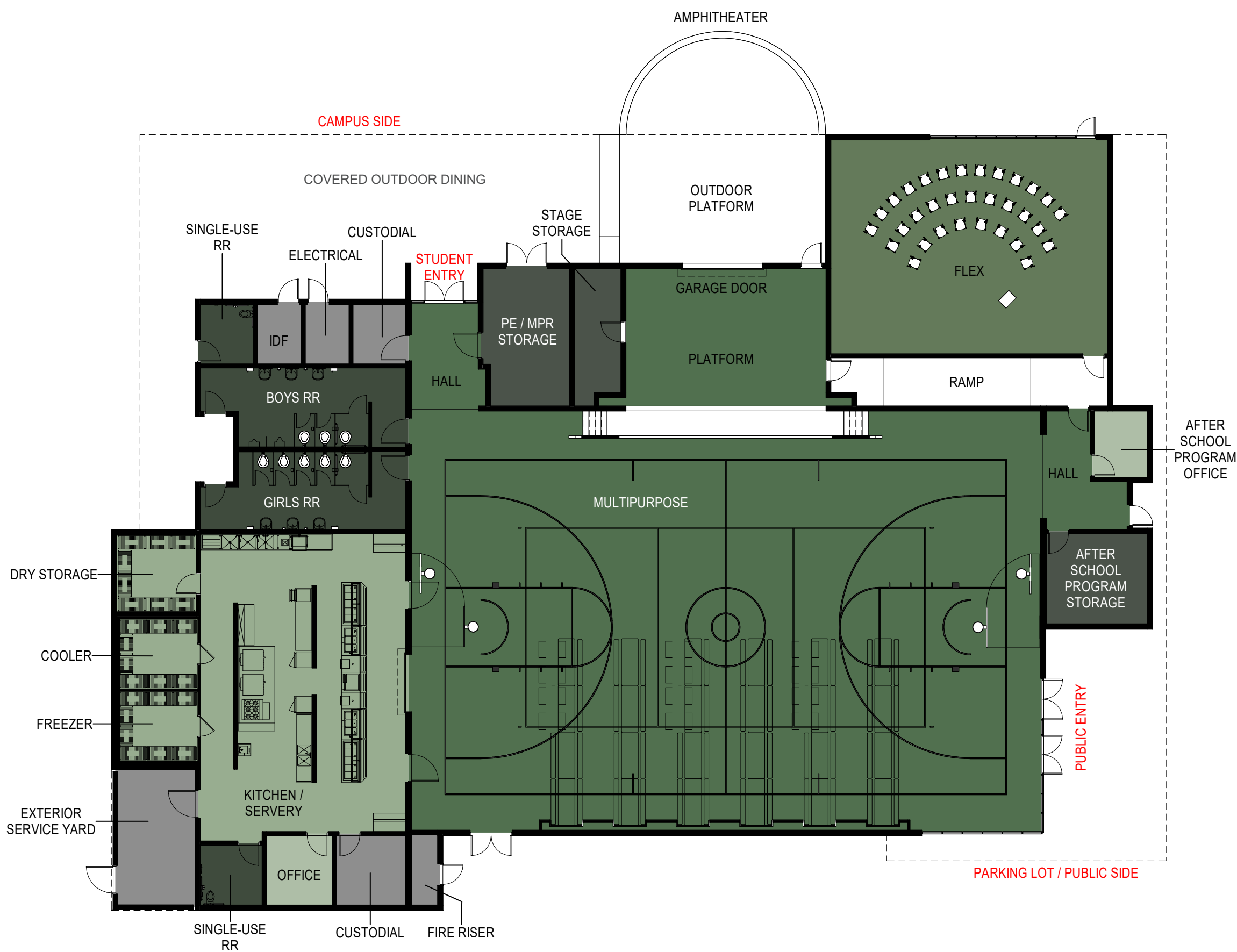
* School Brand Graphic Location

The reception desk uses counter heights to create security for the space, having lowered portions for interactions with kids. The graphic branding wall with the monitor is the first element people see as they walk in the door. Acoustical baffles mitigate noise from the space and create wayfinding for new arrivals.

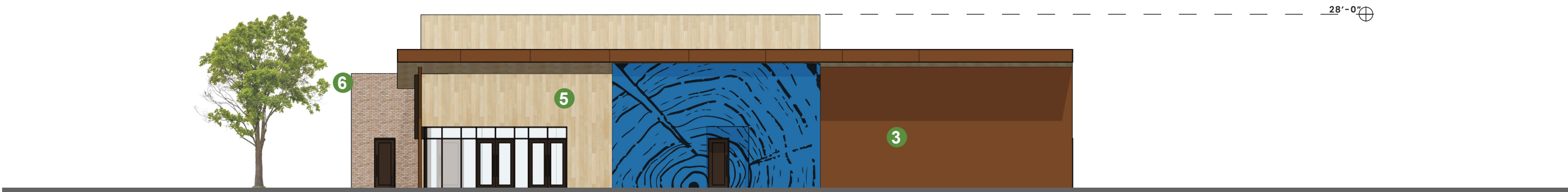


Floor Plan - Building 200 - Multipurpose

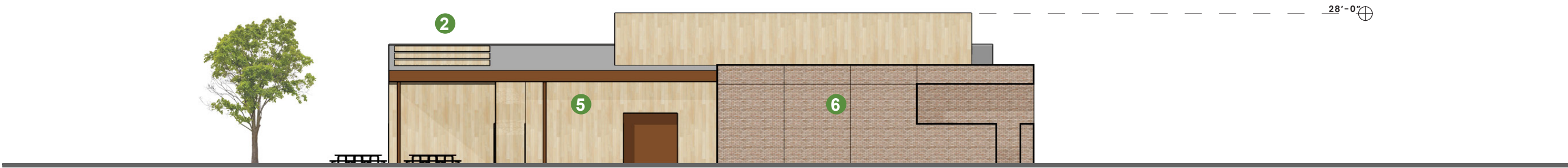
- Circulation/Breakout
- Office
- Staff Support
- Conference
- Classrooms
- Multi-Use Area
- Restrooms
- Storage
- Utilities



Elevations - Building 200 - Multipurpose

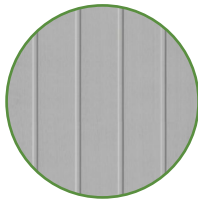


West Elevation

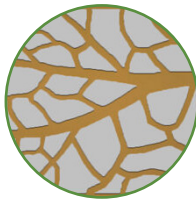


East Elevation

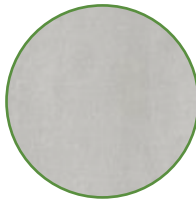
1 Metal Panel Fascia



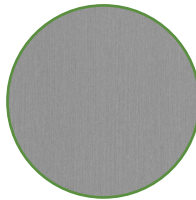
2 Laser Cut Metal Panel



3 Painted Stucco with Concealed Reveals



4 Aluminum Store Front System



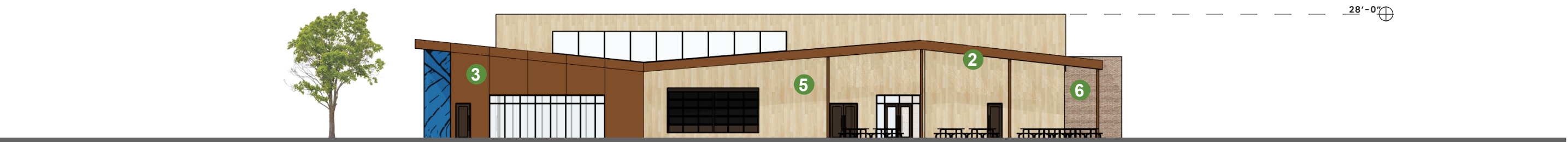
5 Wood Look Fiber Cement



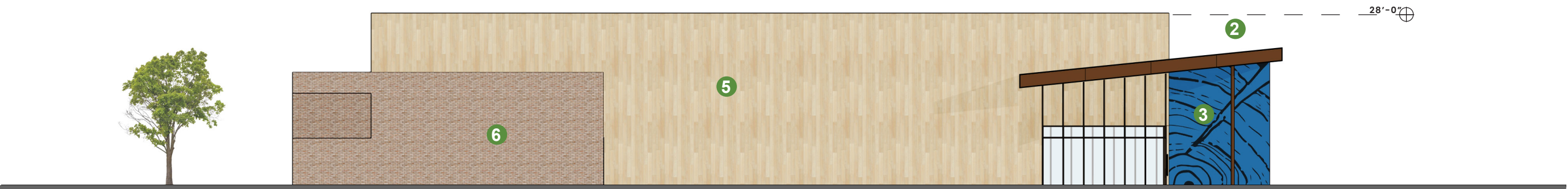
6 Thin Brick Veneer



Elevations - Building 200 - Multipurpose



South Elevation



North Elevation

- 1

Metal Panel Fascia
- 2

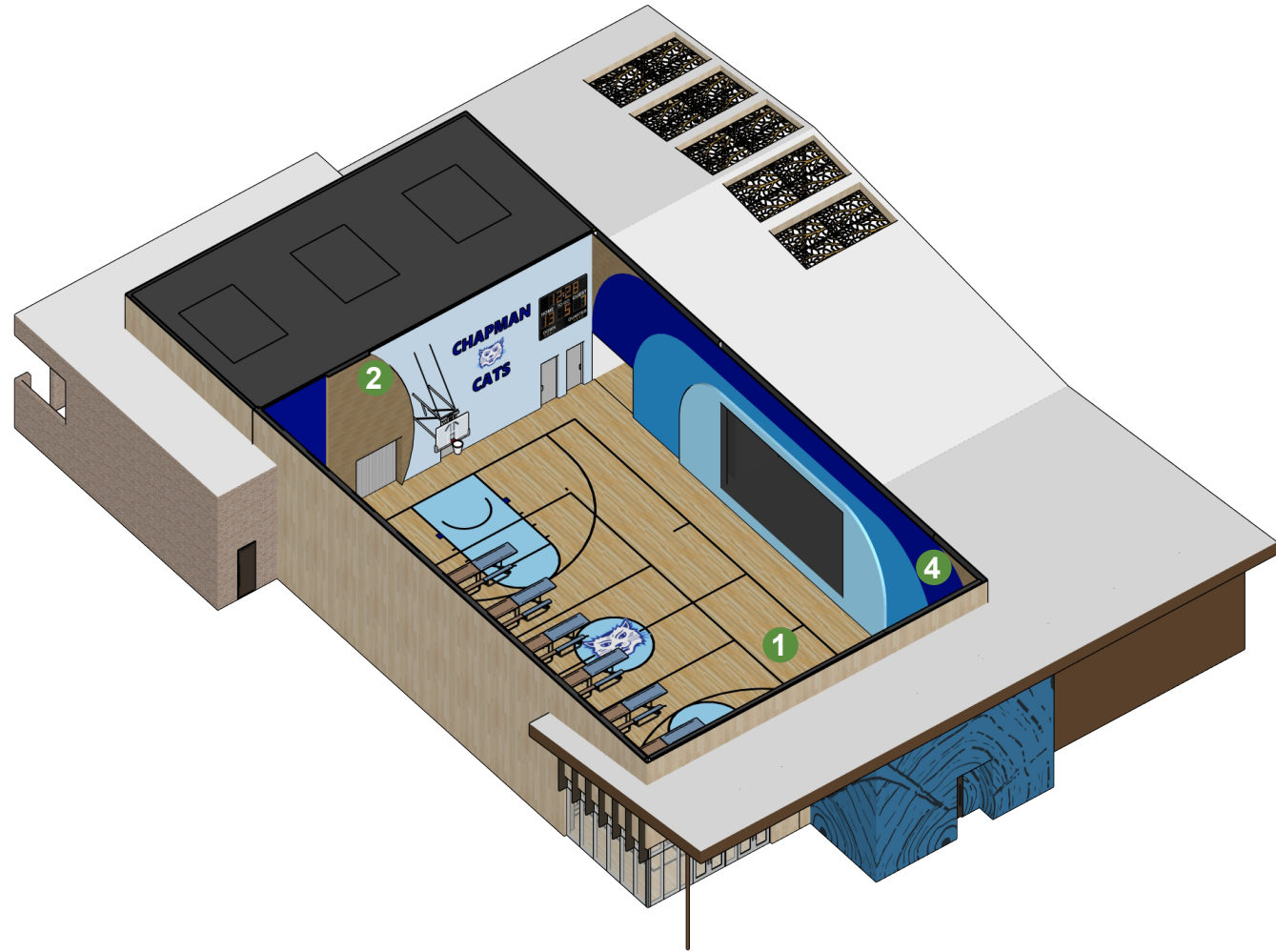
Laser Cut Metal Panel
- 3

Painted Stucco with Concealed Reveals
- 4

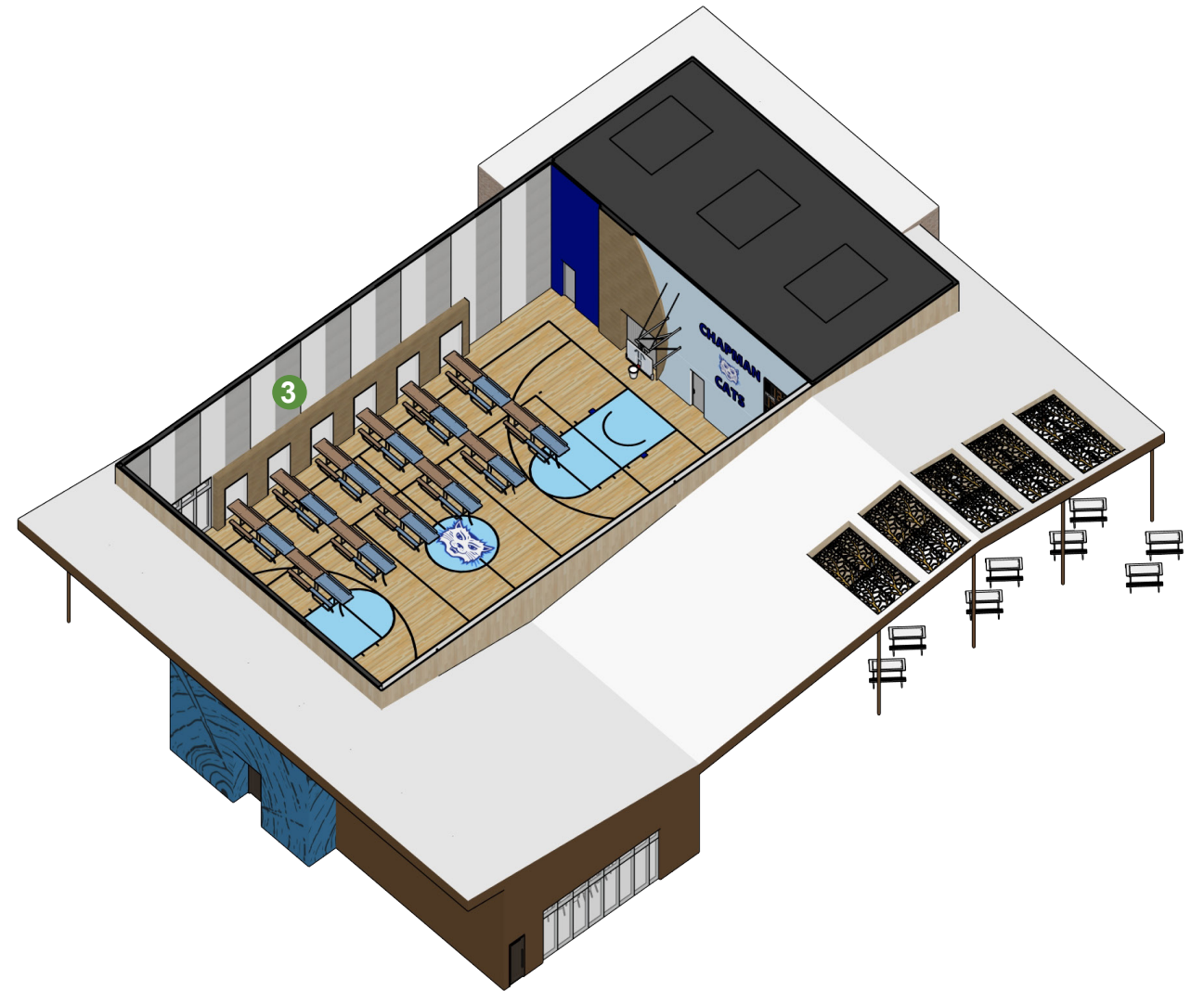
Aluminum Store Front System
- 5

Wood Look Fiber Cement
- 6

Thin Brick Veneer



STAGE VIEW



KITCHEN VIEW

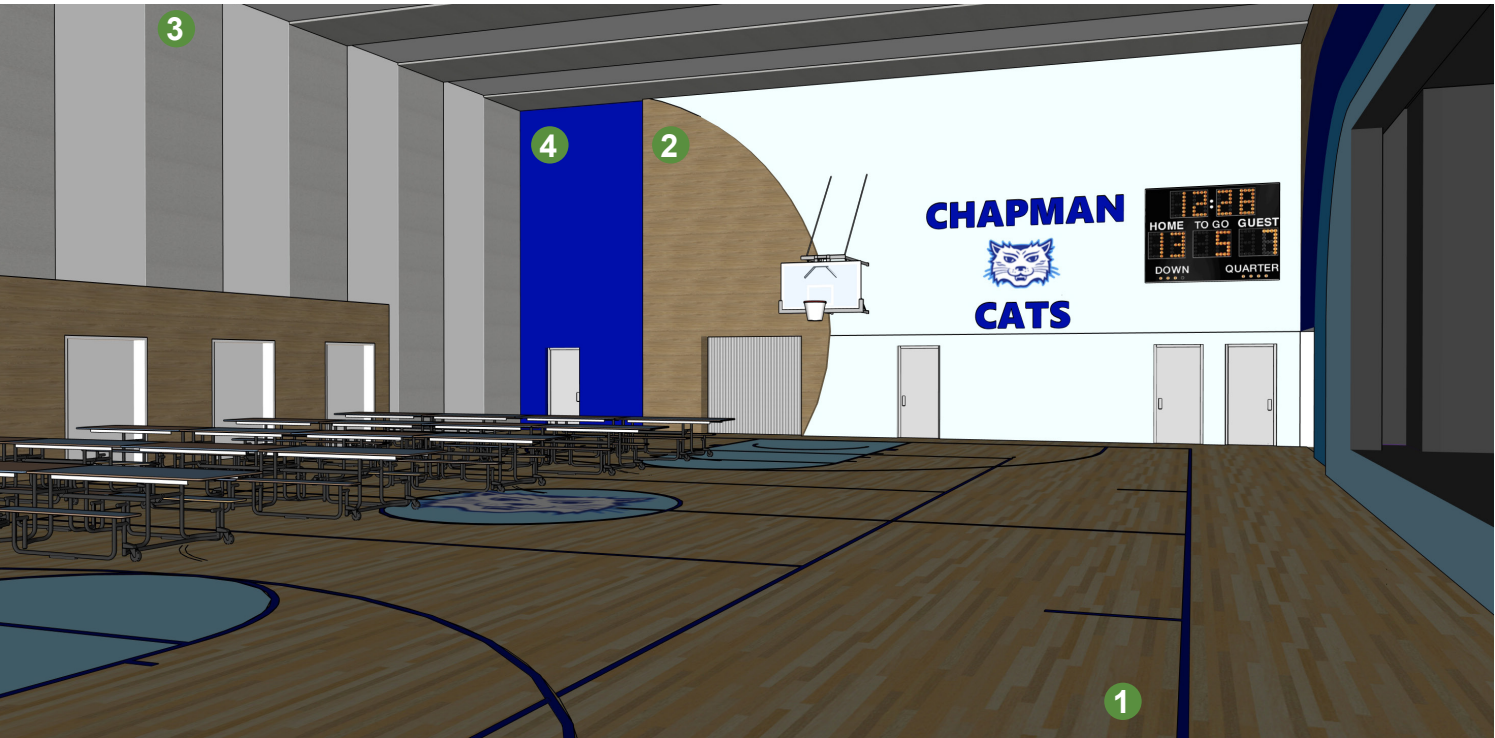
- 1 Sports Flooring
 - 2 High Pressure Laminate
 - 3 Acoustic Panels
 - 4 Paint (4 Colors)
- 

Multipurpose Room Axon + Material Selection

The MPR space contains a stage, kitchen, and a basketball court. This multi-functional space utilizes branding and conceptual elements to feature these programs. This space is for the entire community, so school branding plays a key role throughout the space to emphasize the community and school itself.



STAGE VIEW



KITCHEN VIEW

Multipurpose Room Interiors

Color is used to draw emphasis to both the stage and kitchen. The tables are stored along the wall in alcoves, making the space flexible when it needs to convert for other activities. Acoustical panels dampen noise within the space.



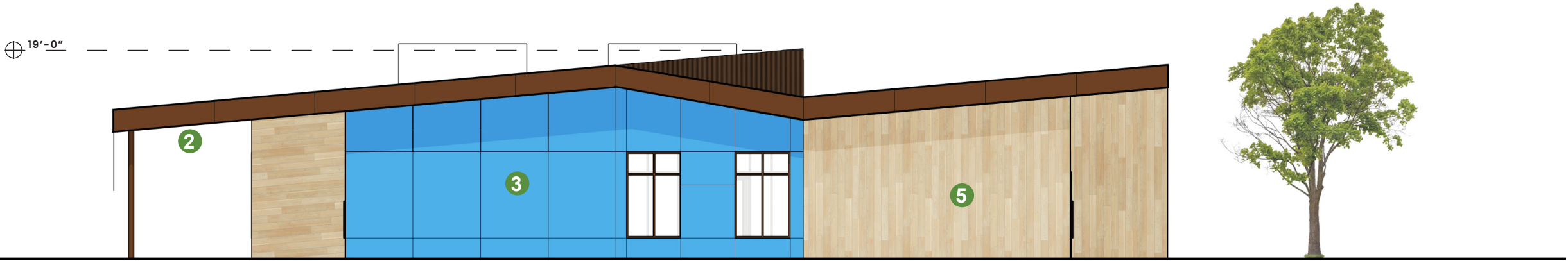
Floor Plan - Building 300 & 700 - Classroom



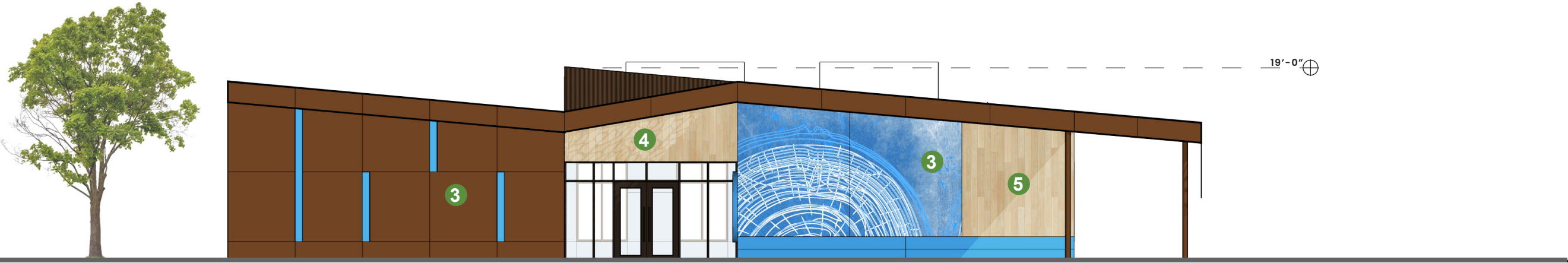


Floor Plan - Building 400, 500, & 600 - Classroom



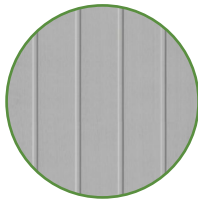


West Elevation

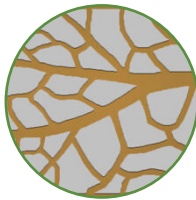


East Elevation

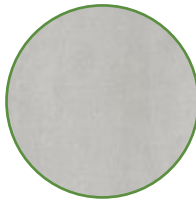
1 Metal Panel Fascia



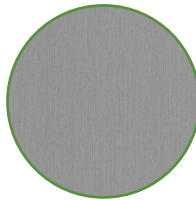
2 Laser Cut Metal Panel



3 Painted Stucco with Concealed Reveals



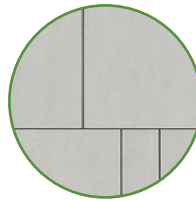
4 Aluminum Store Front System

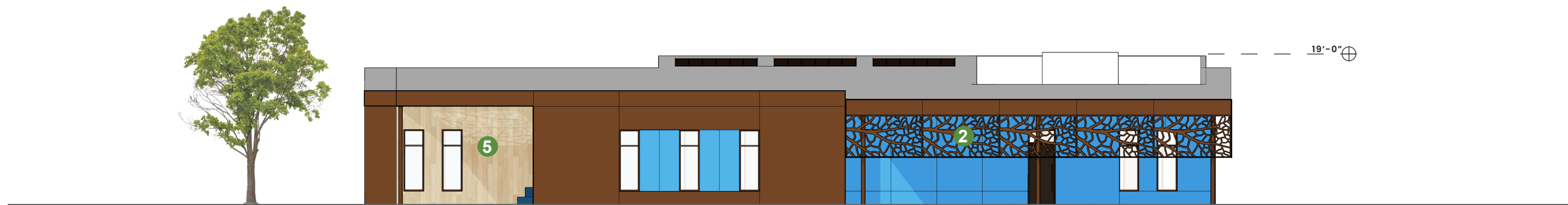


5 Wood Look Fiber Cement



6 Fiber Cement Panels with Concealed Reveals



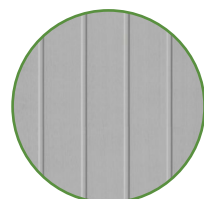


North Elevation

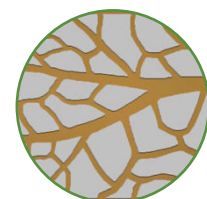


South Elevation

1 Metal Panel Fascia



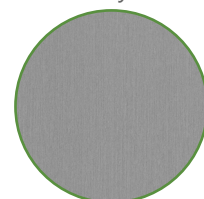
2 Laser Cut Metal Panel



3 Painted Stucco with Concealed Reveals



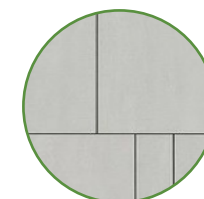
4 Aluminum Store Front System



5 Wood Look Fiber Cement



6 Fiber Cement Panels with Concealed Reveals



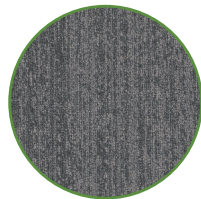


SPED Classroom - Teaching Wall

The SPED classroom create a functional and comfortable space for student and teachers. The teaching wall includes a monitor and sliding makerboards that hide open storage behind them. Markboards cover the walls to allow for flexibility of the teaching space.



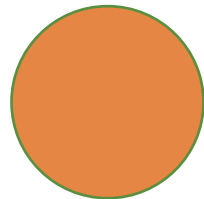
1 Carpet



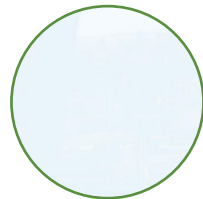
2 High Pressure Laminate



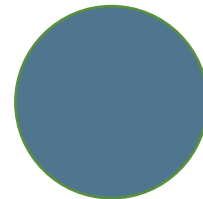
3 Colored Laminate
(3 Colors)



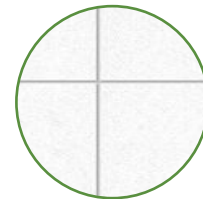
4 Markerboard



5 Paint



6 Acoustic Ceiling Tiles

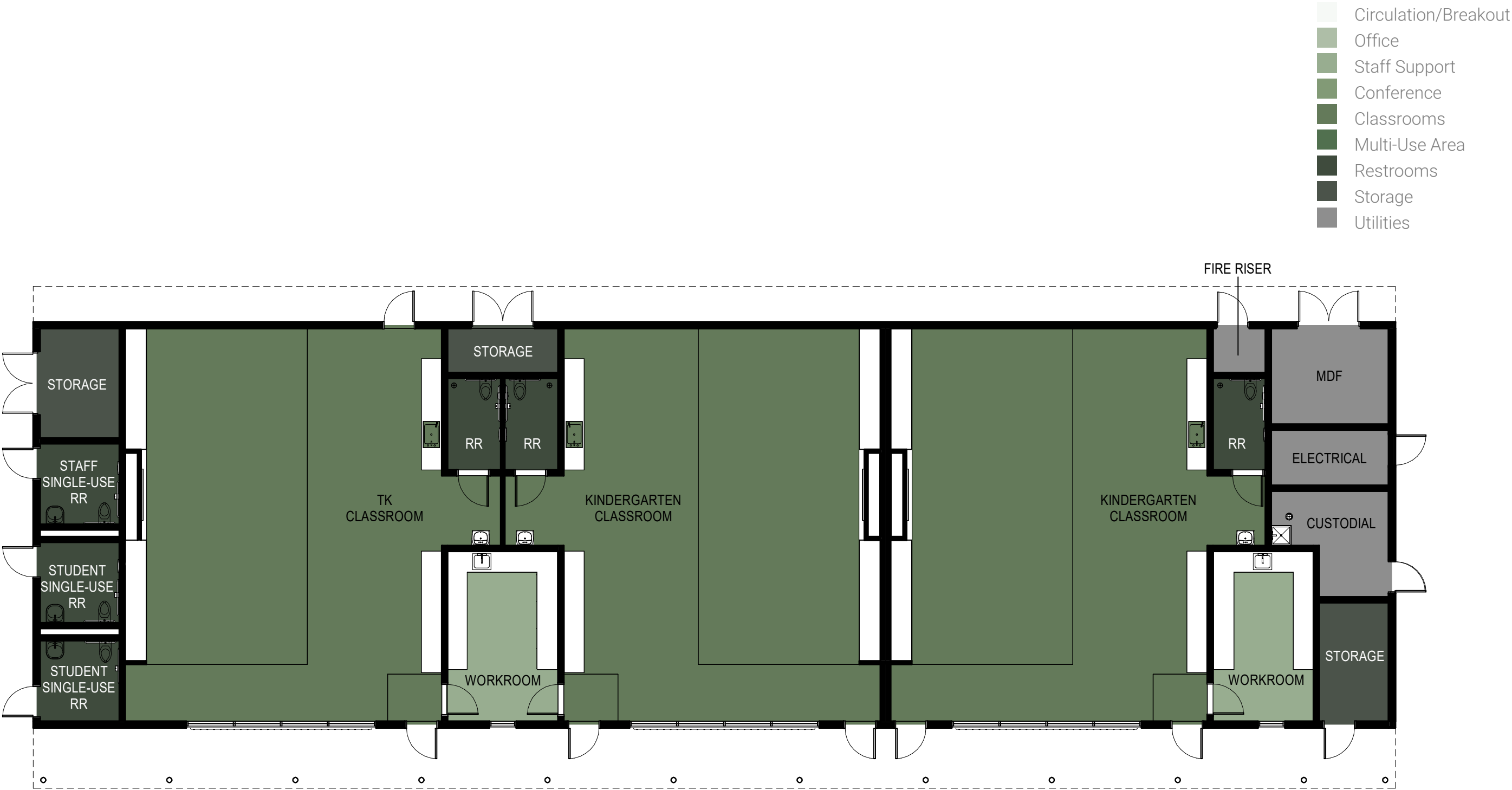


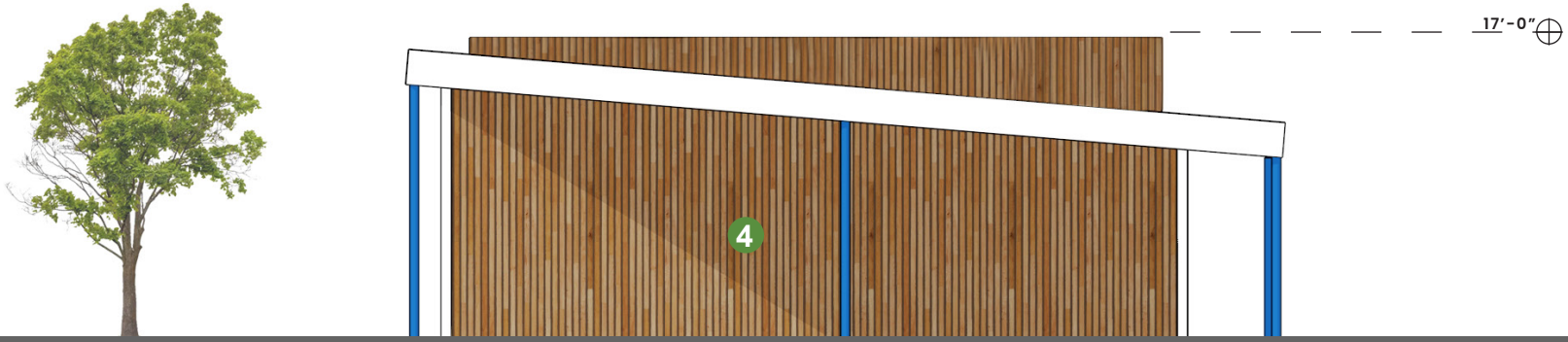
SPED Classroom - Nooks

A sink is located next to the entry for students to use as they walk in. Built-in nooks allow for students to have a sensory space within the classroom, providing students within a space for quiet individual learning and to collect themselves

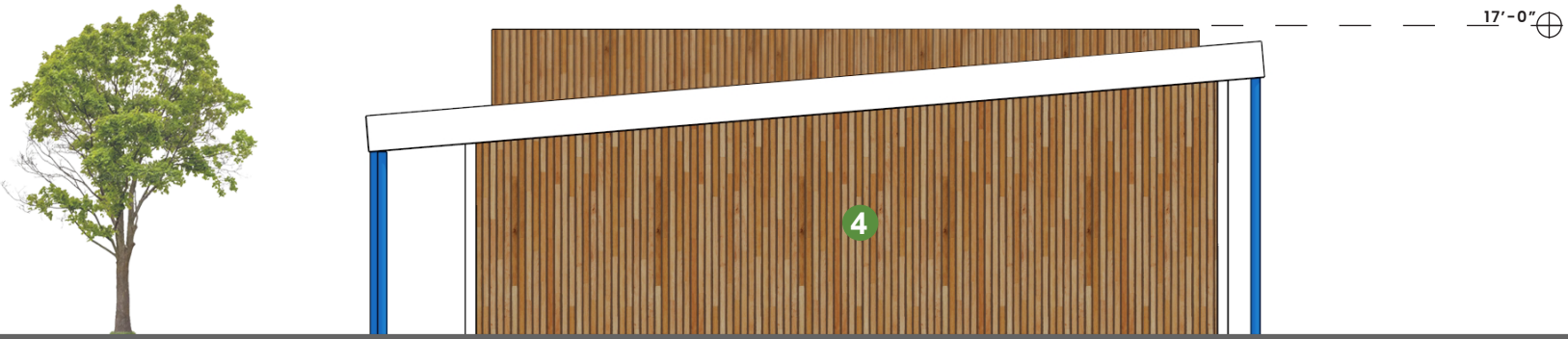


Floor Plan - Building 800 - Kindergarten



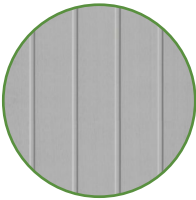


West Elevation



East Elevation

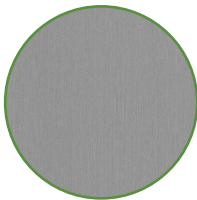
1 Metal Panel Fascia



2 Painted Stucco with Concealed Reveals



3 Aluminum Store Front System

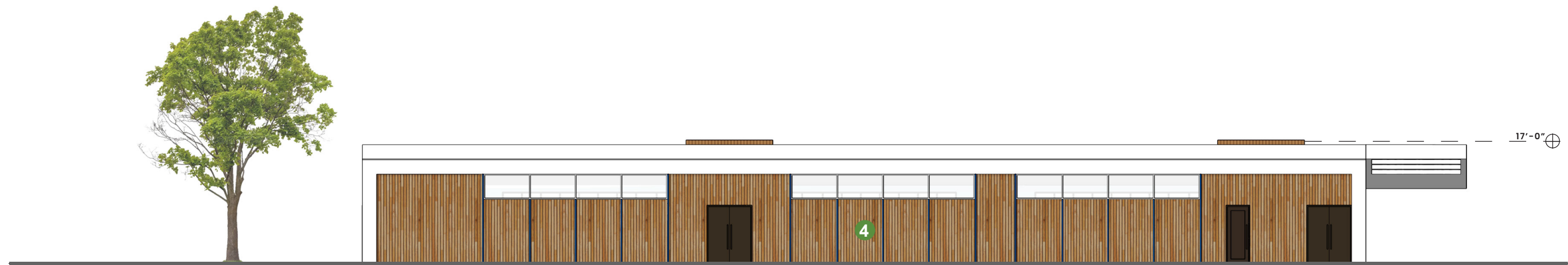


4 Wood Look Fiber Cement



5 Thin Brick Veneer



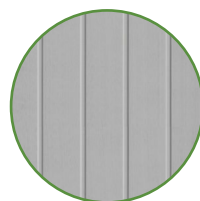


North Elevation



South Elevation

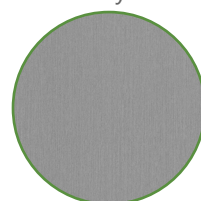
1 Metal Panel Fascia



2 Painted Stucco with Concealed Reveals



3 Aluminum Store Front System



4 Wood Look Fiber Cement



5 Thin Brick Veneer



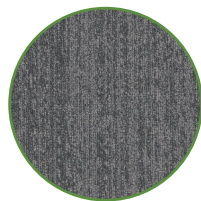


Typical Classroom

The typical classroom creates a functional and comfortable space for students and teachers. The teaching wall includes a monitor and sliding markerboards that hide open storage behind them. Acoustical panels cover the walls, dampening noise and giving teachers tackable panels around the whole space. A sink and backpack hooks are located next to the entry for students to use as they walk in.



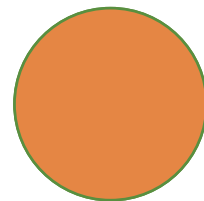
1 Carpet



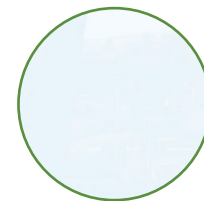
2 High Pressure Laminate



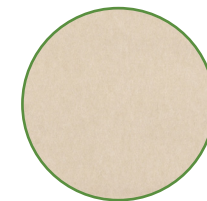
3 Colored Laminate
(3 Colors)



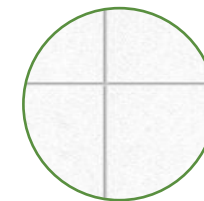
4 Markerboard



5 Acoustic Panel



6 Acoustic Ceiling Tiles



Typical Classroom - Materials

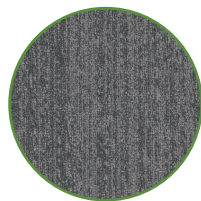


TK / K Classroom - Teaching Wall

The TK/Kindergarten classroom creates a functional and comfortable space for students and teachers. The teaching wall includes a monitor and sliding markerboards that hide open storage behind them. Storage under the monitor is lowered to allow interaction with the screen. Acoustical panels cover the walls, dampening noise and giving teachers tackable panels around the whole space.



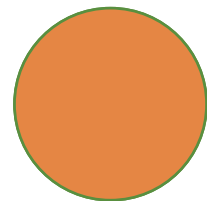
1 Carpet



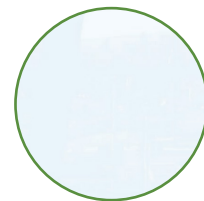
2 High Pressure Laminate



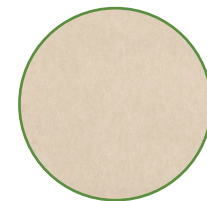
3 Colored Laminate
(3 Colors)



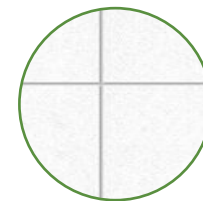
4 Markerboard



5 Acoustic Panel



6 Acoustic Ceiling Tiles

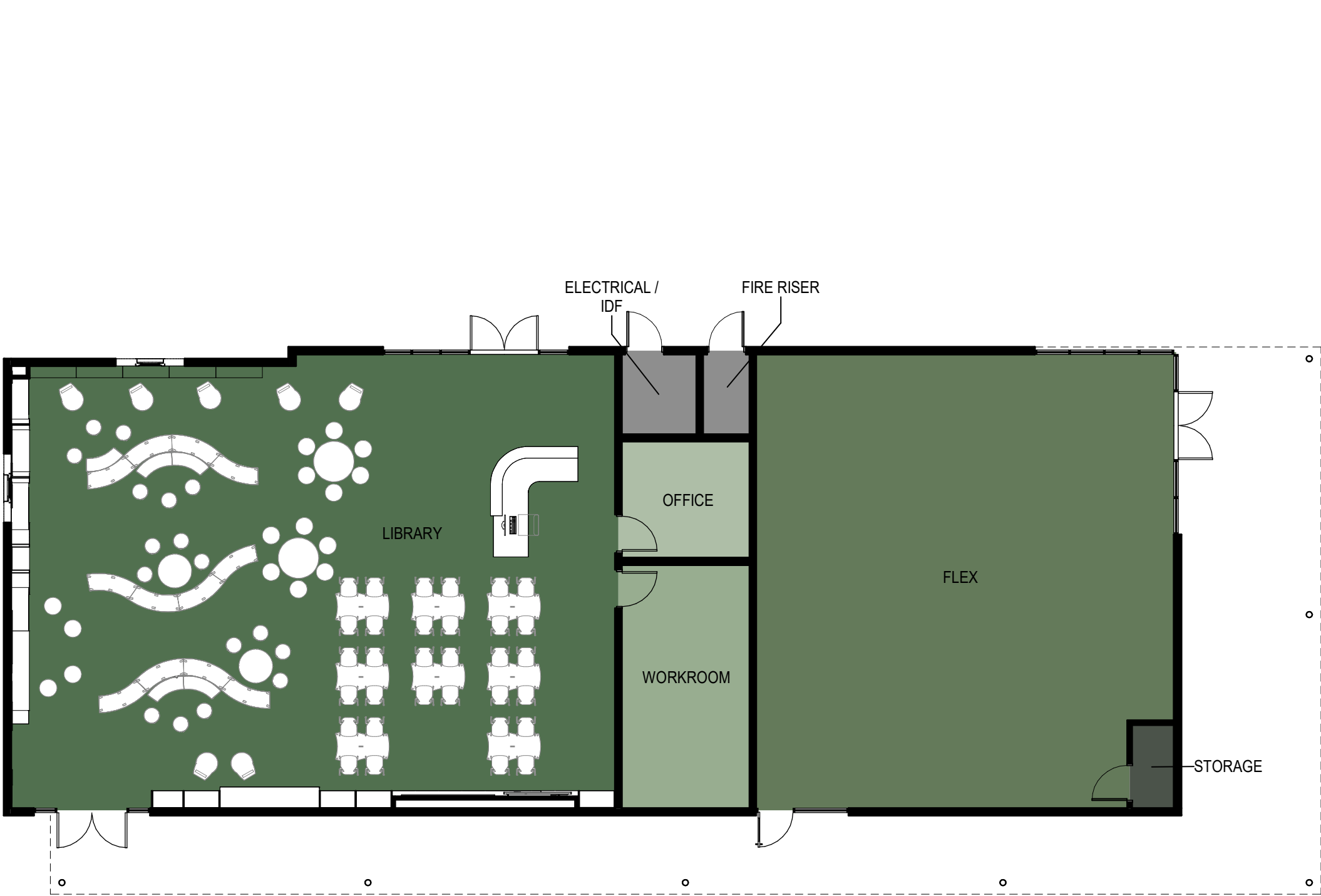


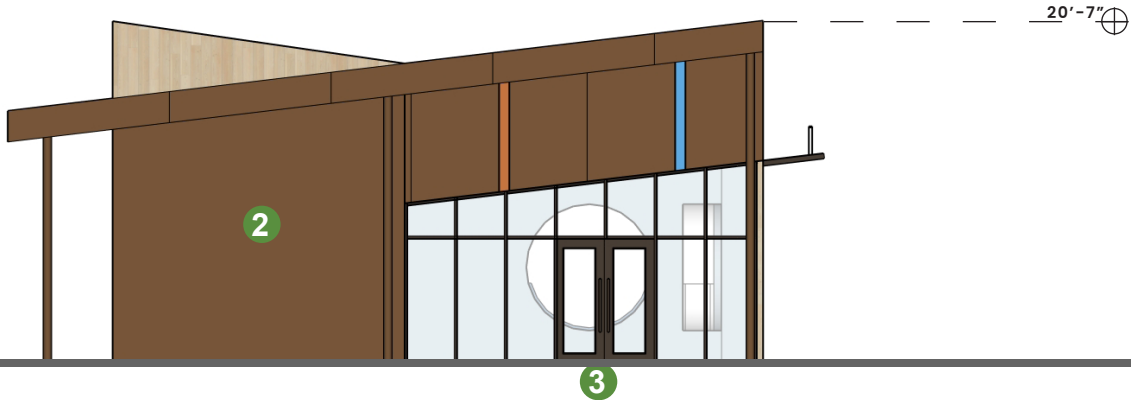
TK / K Classroom - Back Wall

A sink and cubbies are located next to the entry for students to use as they walk in.

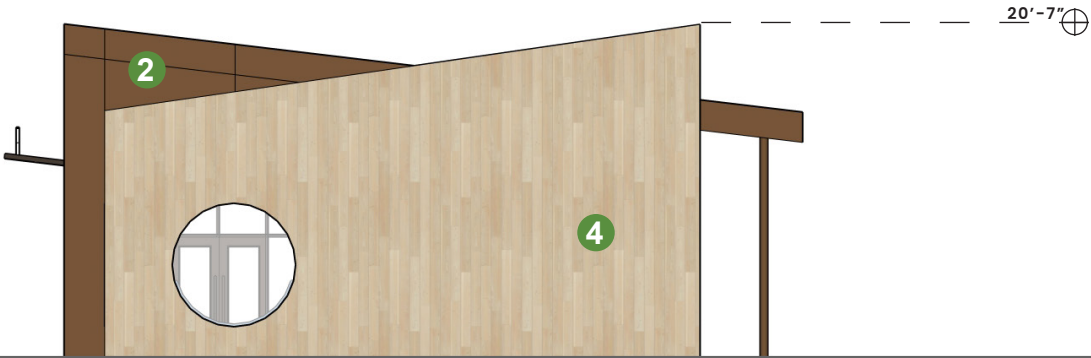


Floor Plan - Building 1000 - Library



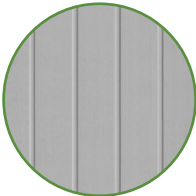


West Elevation

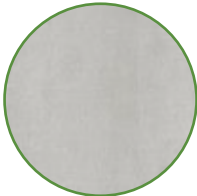


East Elevation

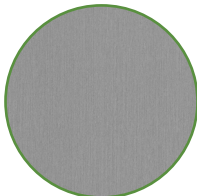
1 Metal Panel Fascia



2 Painted Stucco with Concealed Reveals



3 Aluminum Store Front System



4 Wood Look Fiber Cement



5 Thin Brick Veneer



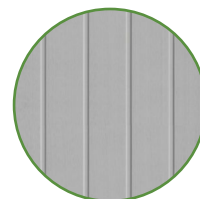


North Elevation

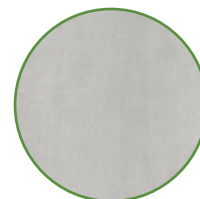


South Elevation

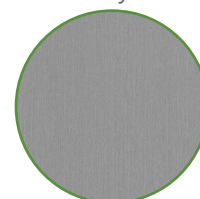
1 Metal Panel Fascia



2 Painted Stucco with Concealed Reveals



3 Aluminum Store Front System

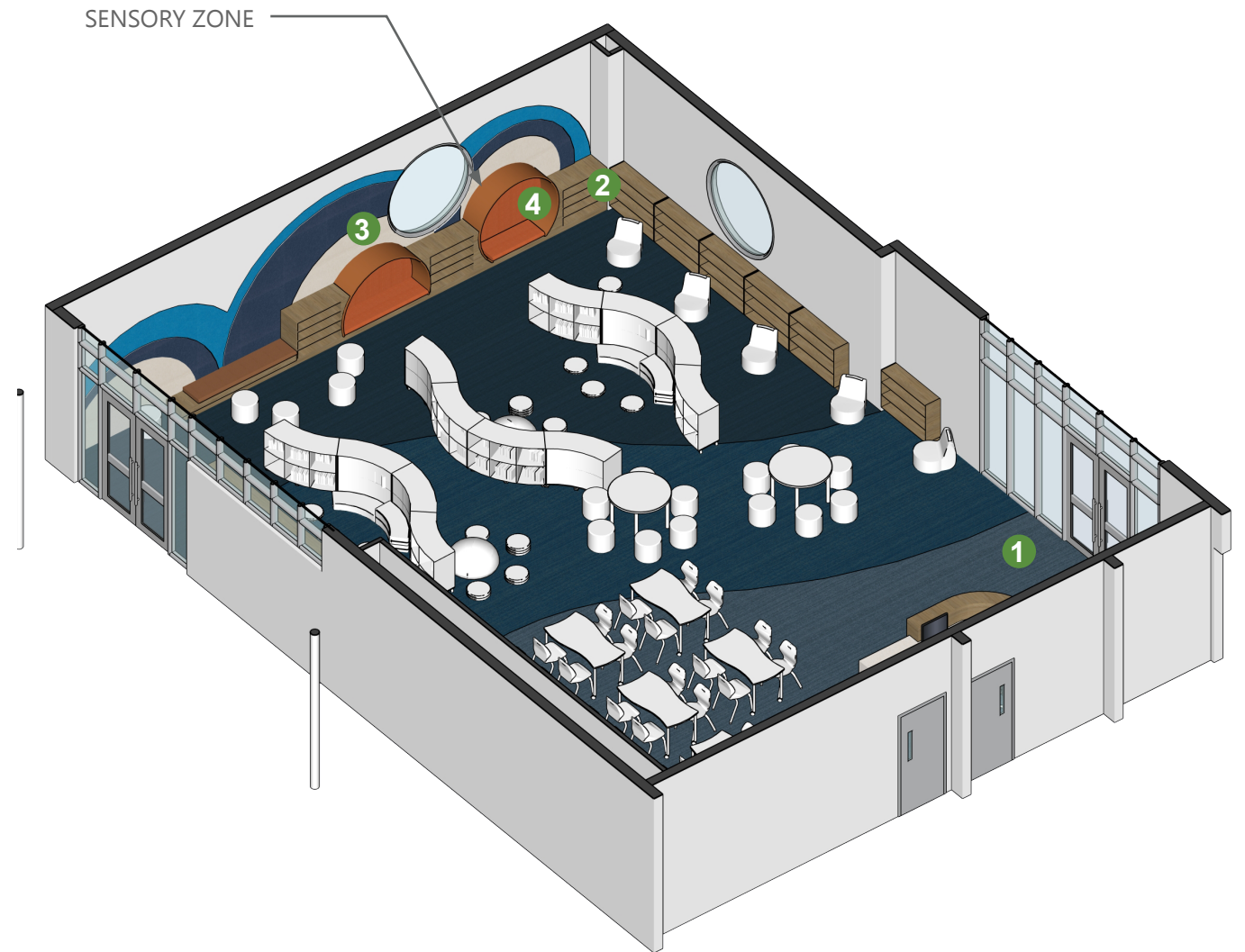
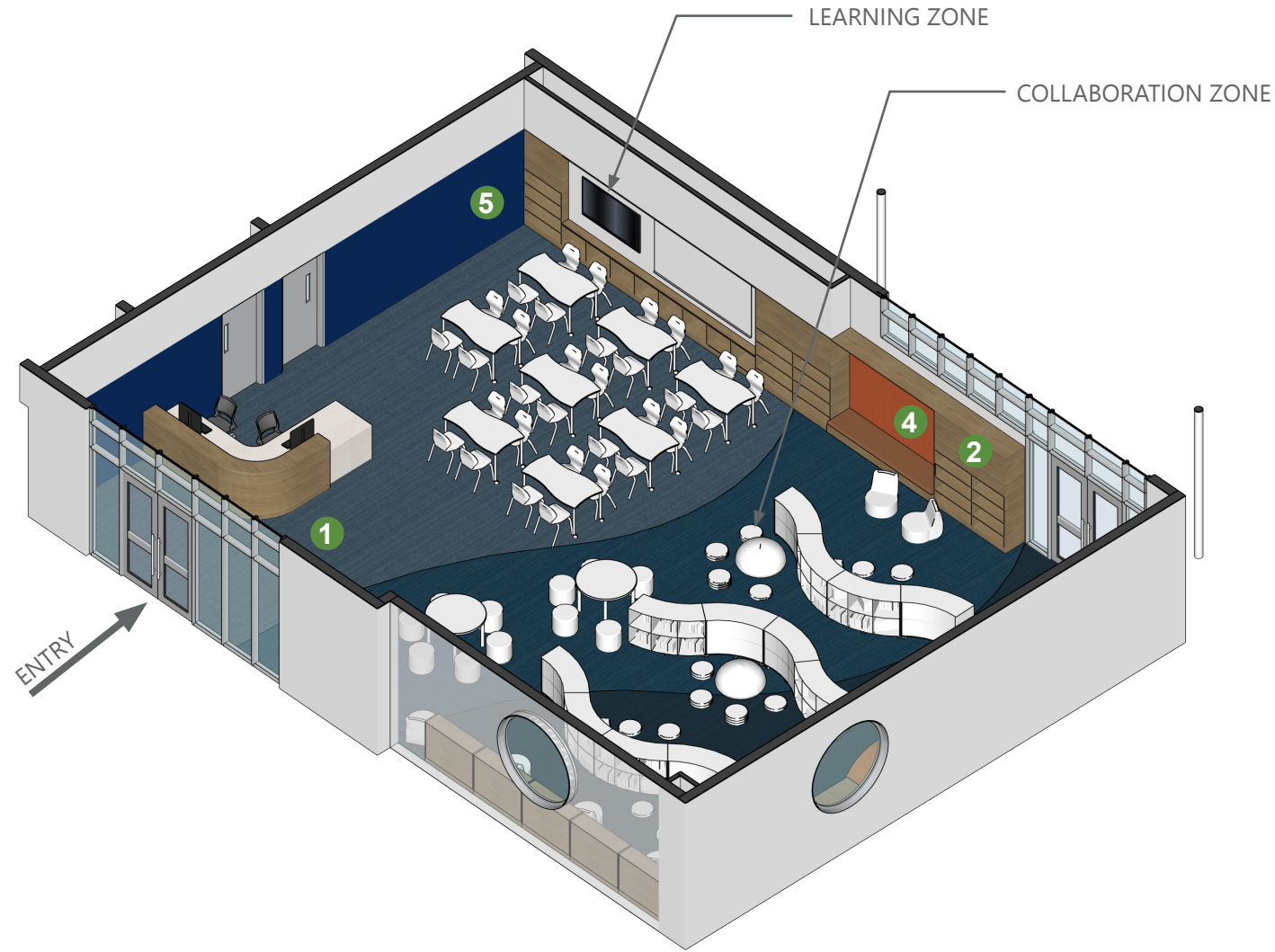


4 Wood Look Fiber Cement

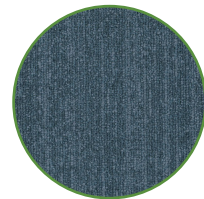


5 Thin Brick Veneer





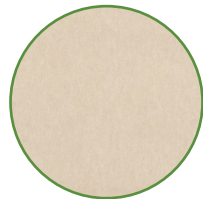
1 Carpet
(3 Colors)



2 High Pressure Laminate



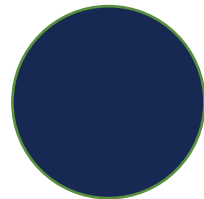
3 Acoustic Panel
(3 Colors)



4 Niche Upholstery



5 Paint

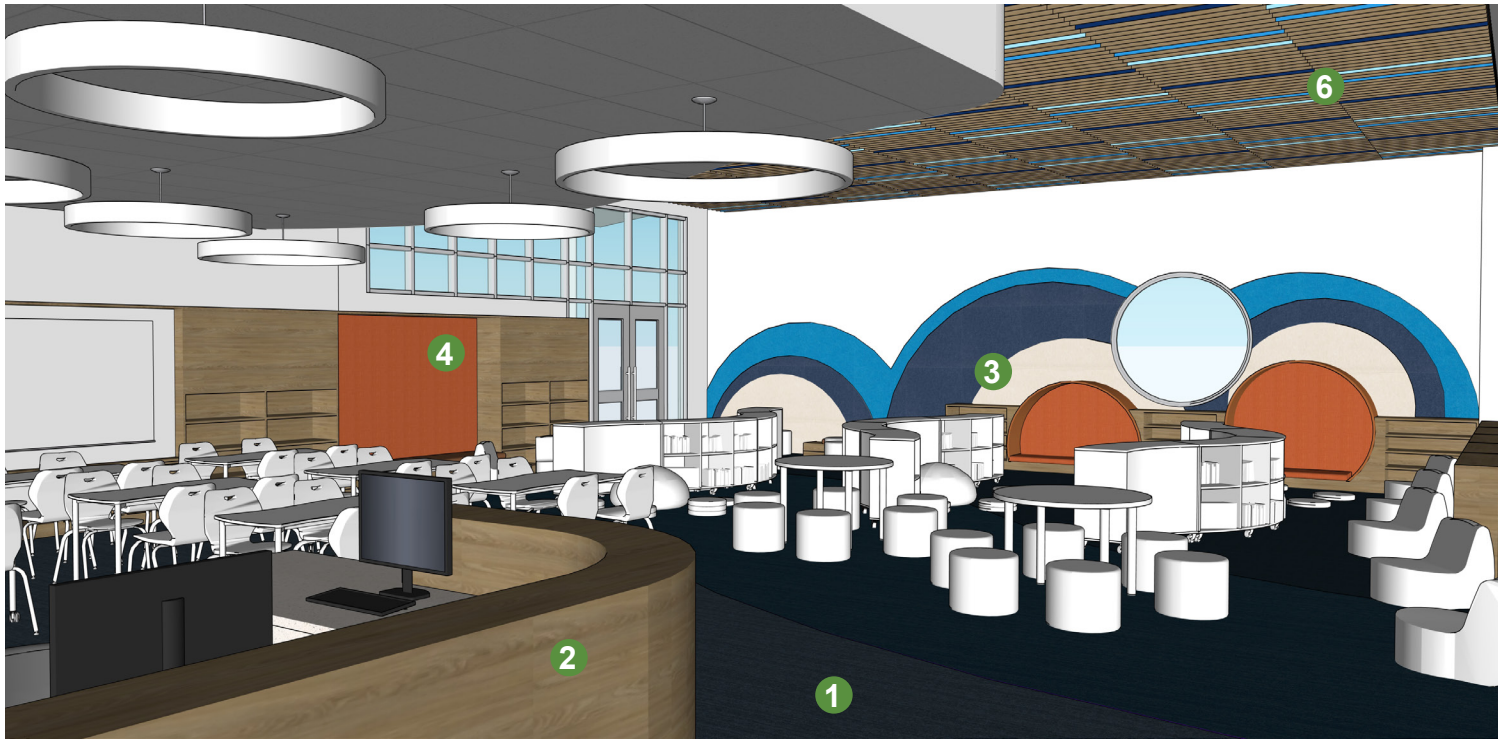


6 Ceiling Baffles



Library Axon + Material Board

The library is separated into three distinct zones to allow for students to select how they want to learn. The Learning zone includes a teaching wall, with a markerboard and monitor, and enough student desks to allow for a class to occur in the space. The Huddle/Collaboration zone utilizes flexible furniture to allow for small groups to form. The Sensory zone towards the back of the space creates a quiet area for more focused, individual learning. Built-in nooks provide students with a quiet space where they can individually learn.



ENTRY / SENSORY WALL VIEW



TEACHING WALL VIEW

Library Interior

Flexible furniture is utilized throughout the whole space to engage students in how they learn best. Acoustical panels, baffles, and carpeting contribute to the acoustics of the space. The large windows bring in lots of natural light, encouraging students to extend learning beyond the classroom.



05

APPENDIX & CONSULTANT NARRATIVES



Civil Narrative

Site Water Findings

Water for the site is provided by California Water Service Company (Cal Water). Cal Water has a 6” diameter main in 16th Street in the southwesterly portion of the school site. They also have a 6” diameter main that terminates in the northwest portion of the site at the intersection of Cleveland Avenue and 16th Street.

A Cal Water fire hydrant is located on the westerly side of 16th Street in the southwesterly portion of the site. Another Cal Water hydrant is located on the south side of Cleveland Avenue near the intersection of 16th Street.

Information for existing onsite water infrastructure is incomplete, but it appears that water enters the site in the southwesterly portion of the school and is routed to buildings. A large backflow assembly is located in the southwesterly portion of the site that is likely for fire suppression.

Site Water Recommendations

Based on the District’s Master Plan, the onsite water system has met its useful life and should be replaced. The water for the site should be upgraded to provide separate services for domestic, irrigation and fire suppression. All of the services should have backflow assemblies. Domestic and irrigation water should be separately metered. The records that we have do not provide the size of the existing water services to the site. Cal Water should be contacted to determine the existing sizes. It could then be determined if the existing services are undersized and need to be replaced. A flow test should be requested from Cal Water to determine the available water pressure and flow for the site.

Site Sanitary Sewer Findings

Sanitary sewer at the site utilizes a gravity piping system that flows to a City of Chico sewer main piping system within 16th Street in the southwesterly portion of the site. According to records the sewer from the school crosses the street and turns southerly, without a structure, prior to connecting into an existing City manhole. The existing sewer pipe serving the site is a 6” diameter at the manhole. The sewer pipe invert is about 5.2 feet below the manhole lid.

The existing onsite sewer system is gravity flow and is routed through the school to the buildings. The sewer does serve the existing Sherwood Montessori building in the northwest portion of the site.

Based on our review of the proposed project, we believe the site can continue to be served with a gravity sewer system. In order to continue using the existing point of connection at the City manhole, the new onsite sewer system layout will need to be thoughtful to minimize pipe lengths and keep the pipe slopes at a minimum to allow the use of a gravity system. If the gravity system proves to be a challenge during the project design, the City does have another sewer manhole at the intersection of Cleveland Avenue and Guill Street with a 6” diameter pipe that is deeper and could provide another option to serve the site with gravity sewer. If this point of connection is used, a City of Chico sewer main extension would be required along Cleveland Avenue to provide sewer to the site.

Site Sanitary Sewer Recommendations

Based on the District’s Master Plan, the onsite sanitary system has met its useful life and should be replaced. Sewer from the site should connect to the City’s existing manhole located in the southwesterly portion of the site in East 16th Street. A potential deeper point of connection to the City’s system is located on the intersection of Cleveland Avenue and Guill Street.

Site Storm Drain Findings

Existing onsite storm drainage consists of a system on catch basins and relatively small diameter pipes. Much of the existing drainage piping was observed to be filled with debris at the catch basins. District records show the storm drainage exits the site via a pipe system across the south boundary and is piped through two private parcels before connecting to a City of Chico drop inlet along the north side of East 20th Street. The existence of this system should be verified. Another option as a point of connection is the City storm drain system located in East 16th Street. This would require installing storm drain infrastructure within the city right-of-way.

Site Storm Drain Recommendations

Based on the District’s Master Plan, all onsite storm drain infrastructure has met its useful life and should be replaced. The existing outfall shown on the District records should be investigated for its existence. If during the project design if this system is found to be hydraulically sufficient, this system could continue to be utilized. As an alternative, the new site could be routed to the City storm drain system within East 16th Street. Our conceptual calculations determined the site could be served with a gravity system. Larger oversized pipes may be needed to allow reduced slopes and allow the storm drain pipes to be deep enough to serve the entire site.

Percolation tests should be performed for use with the drainage design. Portion of the site will need to be infiltrated or treated to meet local requirements.

Landscape Narrative

Nestled within 9.77 acres of thoughtfully designed space, the site design for Chapman ES is not just about a school, but a living curriculum—a place where the wisdom of nature is woven into every structure and pathway. The design draws its inspiration from the elegant geometry of the tree-ring, a symbol of growth, history, and interconnectedness. This motif guides the entire site layout, creating a cohesive, nurturing, and visually stunning campus.

The landscape architecture compliments the natural color palette on the buildings with earth toned theming that guide students through the site, ground their focus, and spark creativity.

The Heartwood Core: The Library and Central Hub

The journey begins at the very “Heartwood”—the central library. This building is the nucleus of the entire campus, serving as a beacon of knowledge from which all learning radiates.

Like growth rings spiraling outward, the primary walkways and sightlines emanate from this core, drawing students toward their distinct academic homes.

The Welcoming Gateway and Administrative Boughs

Students and visitors are greeted at a unified, welcoming entry point situated between the Administration Building and the Multipurpose Room. Both structures feature grand, sheltering overhangs—architectural “boughs”—that offer shade and hospitality. These overhangs are accented with a decorative perforation pattern, filtering sunlight onto the plaza below and mimicking the dappled light of a forest canopy.

Adjacent to the Multipurpose Room, a tiered outdoor amphitheater is seamlessly integrated, creating a versatile space for assemblies, performances, and community gatherings under the open sky.

Crucially, the school’s history is honored and preserved: the beloved existing student mosaic wall is retained and celebrated, acting as a tangible connection to the school’s past and a testament to enduring school pride.

A Palette of the Forest

The entire campus breathes with a natural green, brown, and orange color palette, reflecting the rich tones of a thriving forest. Natural wood tones and textures are used extensively for siding, screens, and trellises, creating warmth and an immediate connection to the natural world. Building facades and interior spaces are further enhanced by vibrant, nature-themed murals that tell stories of local ecology and botanical beauty.

The Three Academic Groves

The three main classroom buildings form distinct “groves” branching off the central library, each adopting a unique nature theme for identity and focused learning:

1. The Canopy Building (Upper Grades): Focuses on the sky, birds, and weather, with soaring ceilings and light-filled learning spaces.
2. The Understory Building (Middle Grades): Explores ferns, fungi, and the layered life. Just below the canopy, featuring intimate, sheltered gathering spaces.
3. The Root System Building (Lower Grades): Concentrates on soil, insects, and groundwater, with direct access to the earth and sensory learning areas.

Each of these three buildings includes multiple dedicated outdoor learning spaces—shaded patios, sheltered decks, or small courtyards—that allow classes to seamlessly transition their lessons from inside the classroom to the open air.

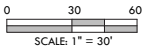
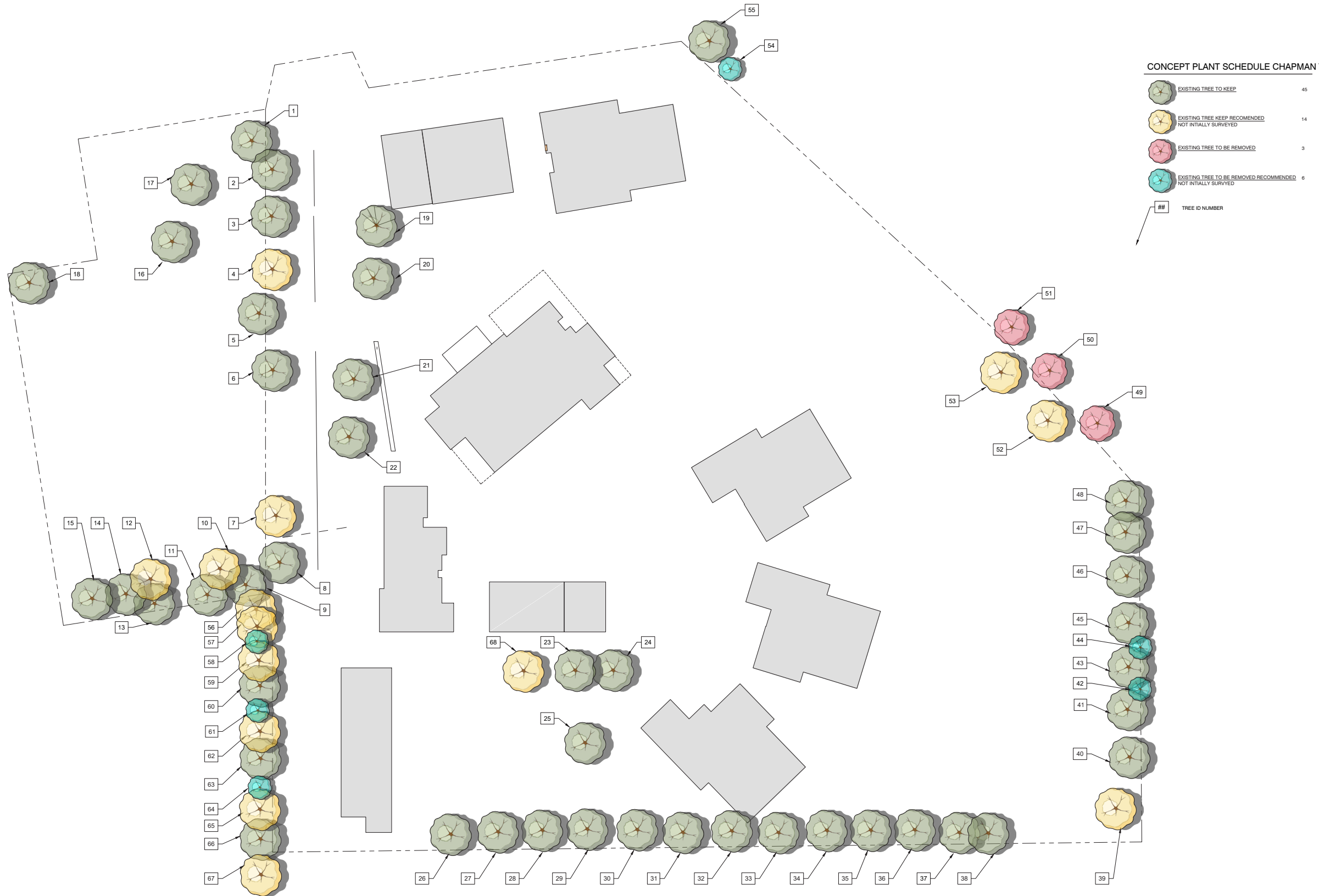
Ground-Level Discovery and Play

The site is a playground for all ages and interests:

- T/TK/Kindergarten Nest: The youngest learners have their dedicated space in the T/TK building, featuring two distinct, secure play areas and seating spaces for both Transitional Kindergarten and Kindergarten, ensuring age-appropriate exploration and separate play experiences.
- The Forest Floor Playground (Grades 1-5): A vast, large hardtop area is transformed into an imaginative landscape. It is filled with tons of nature-themed play elements—log scrambles, carved animal structures, and topographical features—all protected by billowing, colorful fabric shade canopies and grounded with a safe pour-in-place surfacing.
- Active Recreation: Traditional play is not forgotten, with dedicated courts for basketball, wall ball, and 4-square.
- The Great Meadow: A large, multi-use turf field provides an expansive area for team sports and free play. Surrounding this field, sculpted turf mounding creates organic, informal seating areas, perfect for spectators, outdoor reading, or class gathering.
- The Student Garden: A small, accessible garden area is provided for students to cultivate, learn about food systems, and connect directly with the soil—a hands-on laboratory for science and stewardship.

Chapman Elementary is an intentional landscape design to foster curious, responsible, and engaged learners. It is a place where every element—from the wood grain to the geometry of the pathways—reinforces the fundamental lesson of growth, connection, and the enduring beauty of the natural world.





Chapman Elementary Tree Survey
Date Staked: 2025-08-18



Plant #	Species	D.B.H. (in)	Comments Concerning Condition	Health Rating	Recommendations
1	Chinese Pistache (<i>Pistachia chinensis</i>)	8		Healthy	KEEP
2	Chinese Pistache (<i>Pistachia chinensis</i>)	12		Healthy	KEEP
3	Chinese Pistache (<i>Pistachia chinensis</i>)	12		Healthy	KEEP
4	Chinese Pistache (<i>Pistachia chinensis</i>)	12		Healthy	KEEP
5	Chinese Pistache (<i>Pistachia chinensis</i>)	12		Healthy	KEEP
6	Chinese Pistache (<i>Pistachia chinensis</i>)	12		Healthy	KEEP
7	Crepe Myrtle (<i>Lagerstroemia</i>)	6	Multi-Trunk	Healthy	KEEP
8	Chinese Pistache (<i>Pistachia chinensis</i>)	12		Healthy	KEEP
9	Dogwood (<i>Cornus</i>)	8		Healthy	KEEP
10	Maple (<i>Acer</i>)	12	Need to prune	Healthy	KEEP
11	Crepe Myrtle (<i>Lagerstroemia</i>)	6	Multi-Trunk	Healthy	KEEP
12	Crepe Myrtle (<i>Lagerstroemia</i>)	6	Multi-Trunk	Healthy	KEEP

Chapman Elementary Tree Survey
Date Staked: 2025-08-18

29	Chinese Hackberry (<i>Celtis sinensis</i>)	12		Healthy	KEEP
30	Japanese Zelkova (<i>Zelkova Serrata</i>)	24		Healthy	KEEP
31	Chinese Hackberry (<i>Celtis sinensis</i>)	12		Healthy	KEEP
32	Chinese Hackberry (<i>Celtis sinensis</i>)	12		Healthy	KEEP
33	Japanese Zelkova (<i>Zelkova Serrata</i>)	24		Healthy	KEEP
34	Deodar Cedar (<i>Cedrus deodara</i>)	30		Healthy	KEEP
35	Japanese Zelkova (<i>Zelkova Serrata</i>)	30		Healthy	KEEP
36	Chinese Hackberry (<i>Celtis sinensis</i>)	18		Healthy	KEEP
37	Chinese Hackberry (<i>Celtis sinensis</i>)	12		Healthy	KEEP
38	Japanese Zelkova (<i>Zelkova Serrata</i>)	30		Healthy	KEEP
	Chinese Hackberry (<i>Celtis sinensis</i>)			Healthy	REMOVE
	Chinese Hackberry (<i>Celtis sinensis</i>)		Need to prune	Healthy	REMOVE
39	Maple (<i>Acer</i>)	4	New tree	Healthy	KEEP
40	Chinese Hackberry (<i>Celtis sinensis</i>)	18		Healthy	KEEP
41	Chinese Hackberry (<i>Celtis sinensis</i>)	18	Multi-Trunk	Healthy	KEEP
42	Interior Live Oak (<i>Quercus wislizeni</i>)	10	Growing through fenceline	Semi-healthy	REMOVE

Chapman Elementary Tree Survey
Date Staked: 2025-08-18

Plant #	Species	D.B.H. (in)	Comments Concerning Condition	Health Rating	Recommendations
13	Maple (<i>Acer</i>)	12		Healthy	KEEP
14	Crepe Myrtle (<i>Lagerstroemia</i>)	6		Healthy	KEEP
15	Interior Live Oak (<i>Quercus wislizeni</i>)	24		Healthy	KEEP
16	Valley Oak (<i>Quercus lobata</i>)	18		Healthy	KEEP
17	Chinese Pistache (<i>Pistachia chinensis</i>)	8		Healthy	KEEP
18	Walnut (<i>Juglans</i>)	24	Multi-Trunk	Healthy	KEEP
19	Chinese Hackberry (<i>Celtis sinensis</i>)	18		Healthy	KEEP
20	Chinese Hackberry (<i>Celtis sinensis</i>)	12		Healthy	KEEP
21	Chinese Hackberry (<i>Celtis sinensis</i>)	18		Healthy	KEEP
22	Chinese Hackberry (<i>Celtis sinensis</i>)	18		Healthy	KEEP
23	Chinese Hackberry (<i>Celtis sinensis</i>)	12		Healthy	KEEP
24	Chinese Hackberry (<i>Celtis sinensis</i>)	12		Healthy	KEEP
25	Maple (<i>Acer</i>)	36		Healthy	KEEP
26	Chinese Hackberry (<i>Celtis sinensis</i>)	12		Healthy	KEEP
27	Japanese Zelkova (<i>Zelkova Serrata</i>)	24		Healthy	KEEP
28	Chinese Hackberry (<i>Celtis sinensis</i>)	12	Need to prune	Healthy	KEEP

Chapman Elementary Tree Survey
Date Staked: 2025-08-18

43	Chinese Hackberry (<i>Celtis sinensis</i>)	12		Healthy	KEEP
44	Mulberry (<i>Morus rubra</i>)	24	Multi-Trunk	Unhealthy	REMOVE
45	Chinese Hackberry (<i>Celtis sinensis</i>)	10		Healthy	KEEP
46	Chinese Hackberry (<i>Celtis sinensis</i>)	10		Healthy	KEEP
47	Chinese Hackberry (<i>Celtis sinensis</i>)	12		Healthy	KEEP
48	Deodar Cedar (<i>Cedrus deodara</i>)	24		Healthy	KEEP
49	Tree of Heaven	N/A	Growing through fenceline	Semi-healthy	REMOVE
50	Tree of Heaven	N/A	Growing through fenceline	Semi-healthy	REMOVE
51	Tree of Heaven	N/A	Growing through fenceline	Semi-healthy	REMOVE
52	Unknown (Unknown)	2	New trees	Healthy	KEEP
53	Unknown (Unknown)	2	New trees	Healthy	KEEP
54	Unknown (Unknown)	N/A	Growing through fenceline	Unhealthy	REMOVE
55	Coast Live Oak (<i>Quercus agrifolia</i>)	24	Need to prune, behind property fenceline	Healthy	REMOVE
56	Chinese Pistache (<i>Pistachia chinensis</i>)	10	Behind property fenceline	Healthy	KEEP
57	Mulberry (<i>Morus rubra</i>)	N/A	Behind property fenceline	Healthy	KEEP
58	Chinese Pistache (<i>Pistachia chinensis</i>)	N/A	Behind property fenceline	Unhealthy	REMOVE

Chapman Elementary Tree Survey
Date Staked: 2025-08-18

59	Mulberry (<i>Morus rubra</i>)	N/A	Behind property fenceline		KEEP
60	Valley Oak (<i>Quercus lobata</i>)	N/A	Behind property fenceline		KEEP
61	Black Walnut (<i>Juglans nigra</i>)	N/A	Behind property fenceline	Unhealthy	REMOVE
62	Black Walnut (<i>Juglans nigra</i>)	N/A	Behind property fenceline		KEEP
63	Valley Oak (<i>Quercus lobata</i>)	N/A	Behind property fenceline		KEEP
64	Black Walnut (<i>Juglans nigra</i>)	N/A	Wasps (Behind property fenceline)	Unhealthy	REMOVE
65	Privet (<i>Ligustrum lucidum</i>)	N/A	Behind property fenceline		KEEP
66	Black Walnut (<i>Juglans nigra</i>)	N/A	Need to prune (Behind property fenceline)		KEEP
67	Black Walnut (<i>Juglans nigra</i>)	N/A	Behind property fenceline		KEEP
68	Chinese Hackberry (<i>Celtis sinensis</i>)	12			KEEP





TREE 1



TREE 2



TREE 3



TREE 4



TREE 5



TREE 6



TREE 7



TREE 9





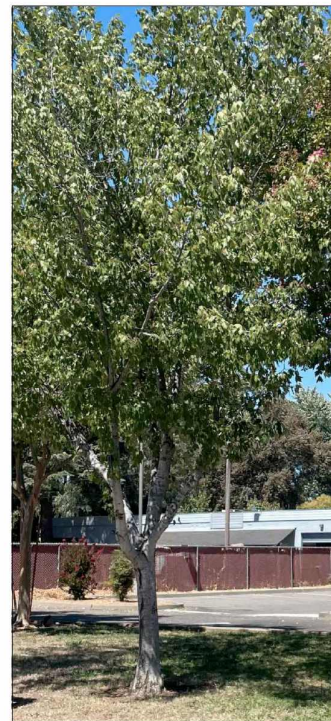
TREE 10



TREE 11



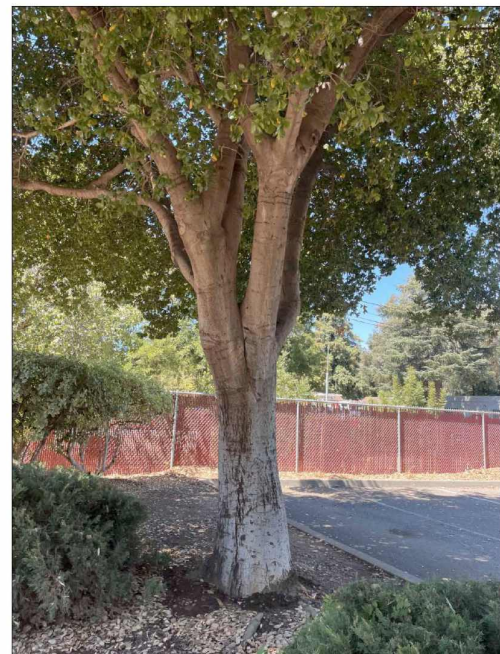
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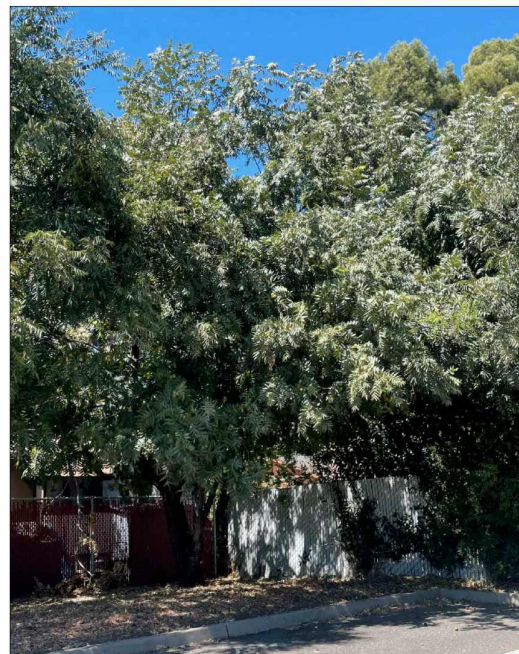
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TREE 14



TREE 15



TREE 18



TREE 19



TREE 20



TREE 21



TREE 22



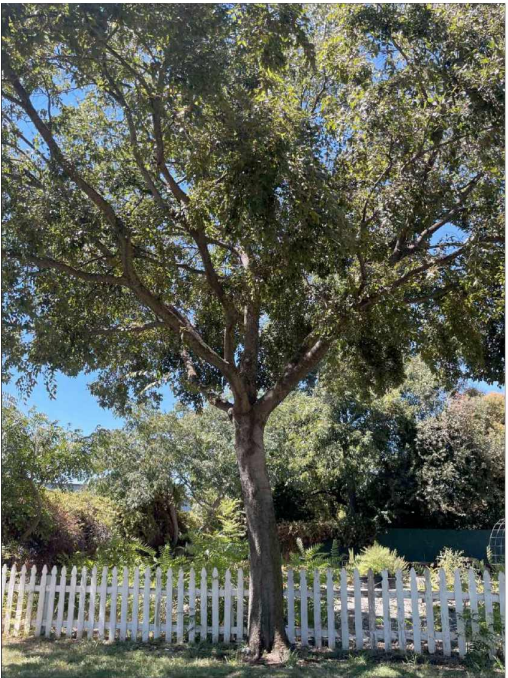
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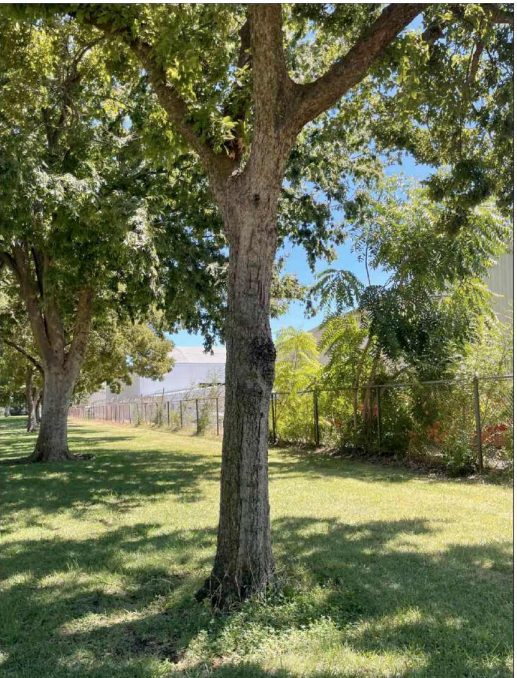
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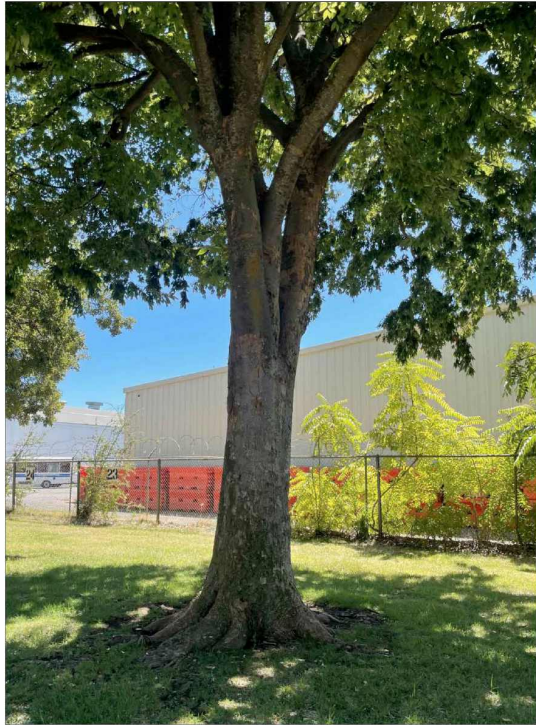


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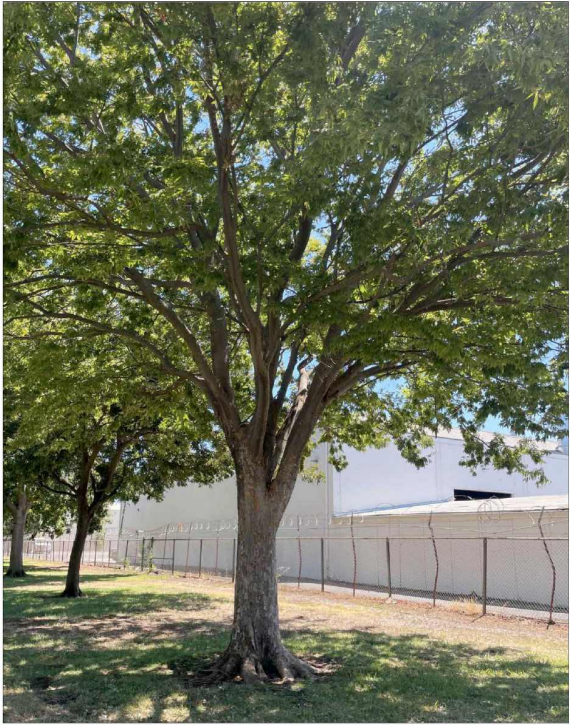




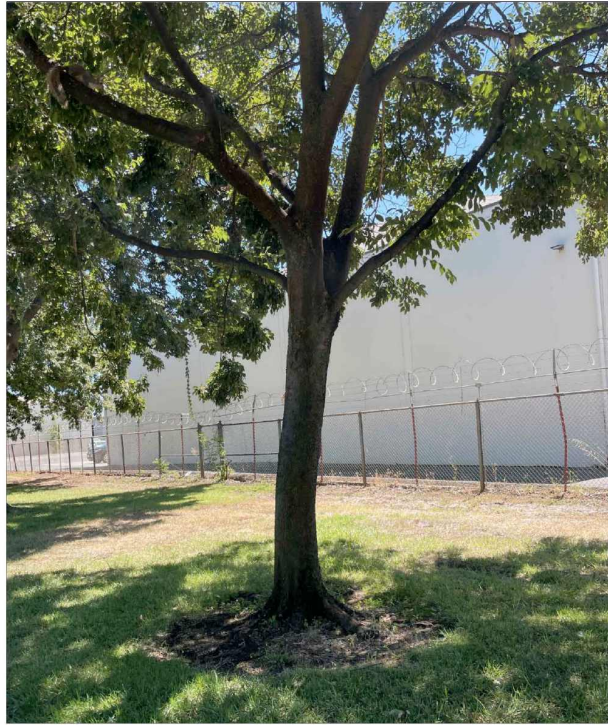
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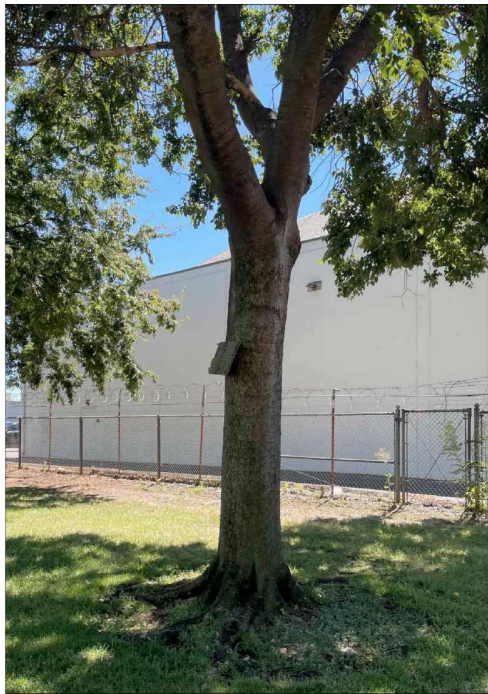
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TREE 30



TREE 31



TREE 32



TREE 33



TREE 34



TREE 35

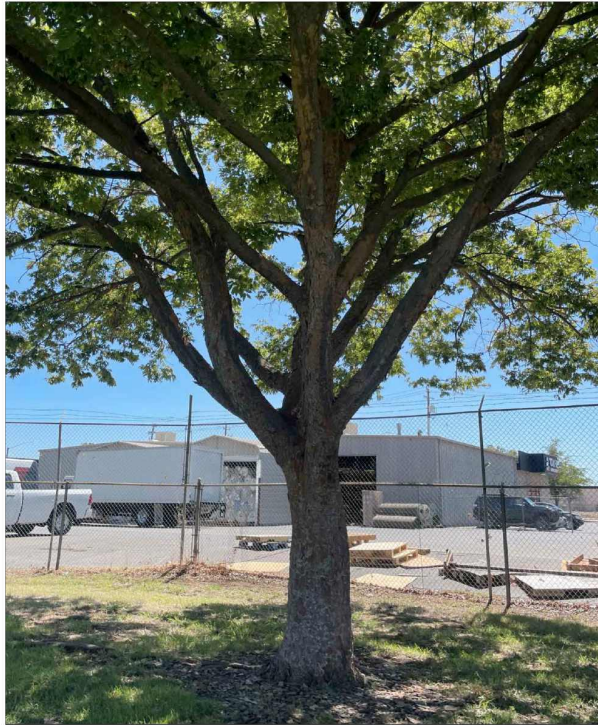




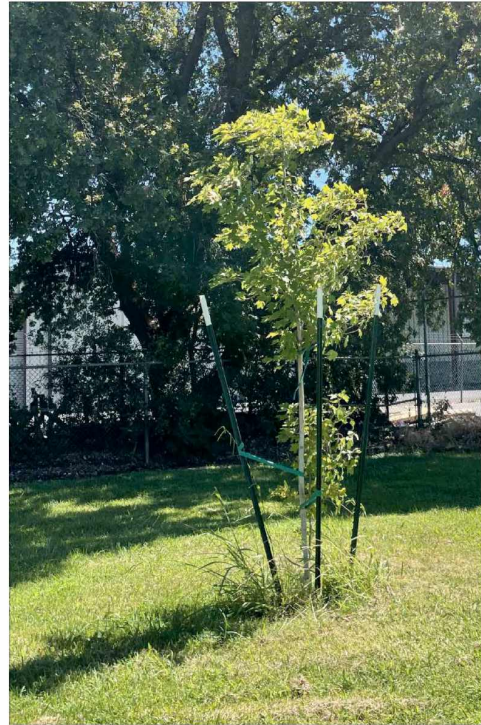
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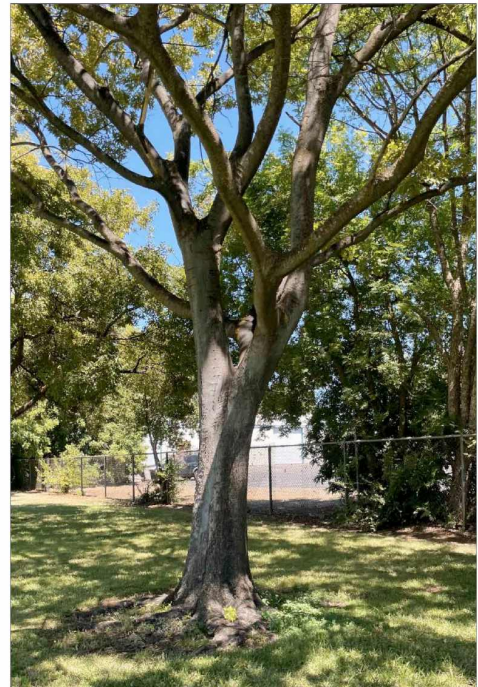
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TREE 38



TREE 39



TREE 40



TREE 41



TREE 42



TREE 43



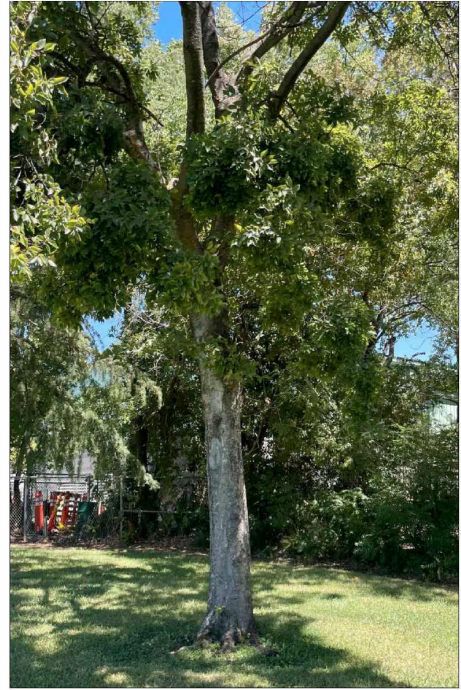
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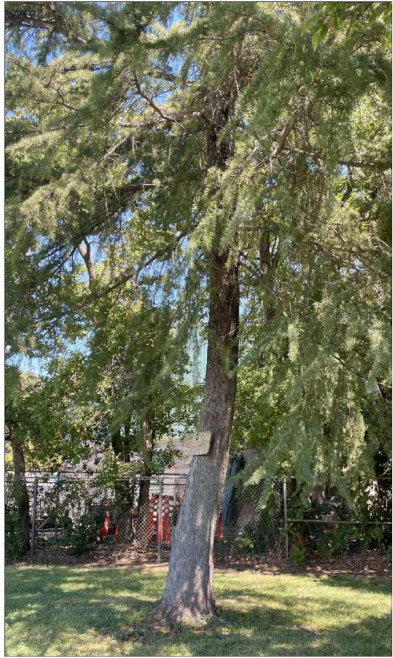
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TREE 46



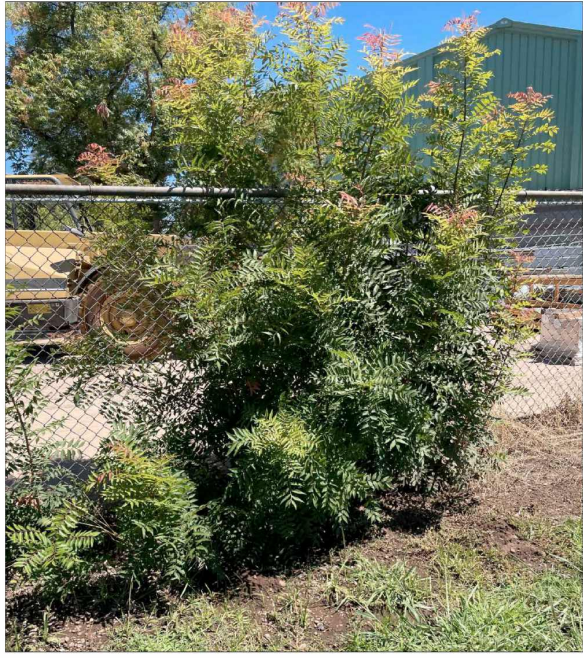
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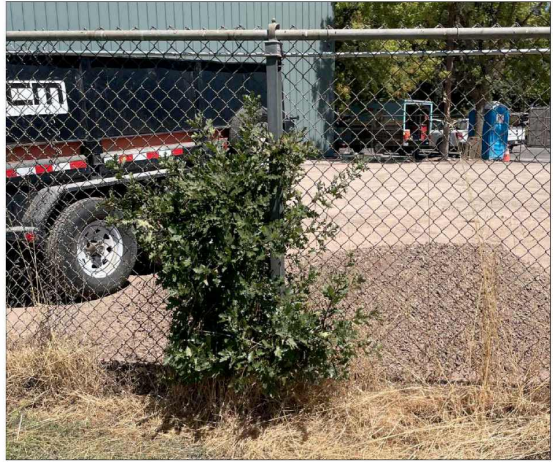
TREE 48



TREE 49



TREE 50



TREE 51





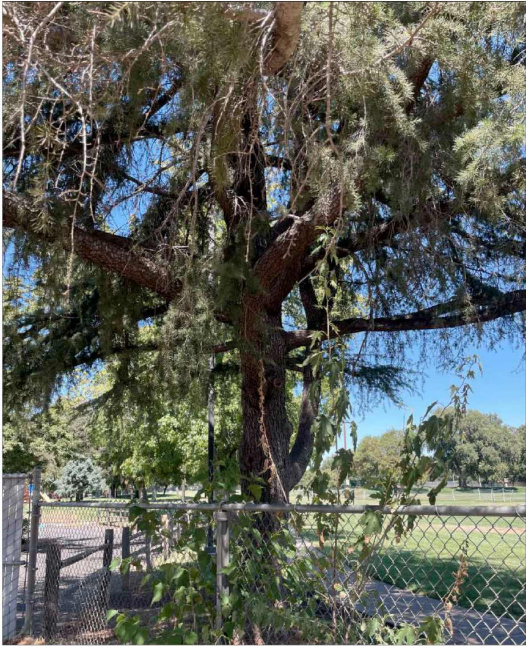
TREE 52



TREE 53



TREE 54



TREE 55



TREES 56-67



TREE 68

Structural Narrative

Gravity System

The buildings are to be constructed of mostly wood materials including solid sawn and engineered lumber. One potential option for the roof framing system is open web trusses (OWT) produced by Redbuilt. Open web trusses are a cost-effective framing system capable of long, uninterrupted spans. The voids between truss web members provide flexibility for routing of mechanical, plumbing, and electrical distribution systems throughout the building.

The walls are to be wood-framed light construction with an assortment of 2x6 and 2x8 walls where required. The building posts are to be solid sawn timber and PSL elements as needed to support the heavy beam element loads. Steel columns will be specified only where structurally necessary to support large beam loads or cantilevered overhang elements.

The foundations are to consist of conventional shallow foundations made up of normal-weight concrete. Pad footings are to be located at the bearing points for highly loaded columns. The floors are to be a slab-on-grade system.

Lateral System

The main lateral force resisting system of all buildings will consist of plywood attached to wood roof elements to form roof diaphragms and plywood attached to wood studs to form shear walls. Anchorage to the foundations is expected to be cast-in-place anchors with holdowns elements as needed.

Modular Construction

Each building will be designed to facilitate off-site construction of both wall and roof panels. The floor plans will be laid out to fit an 8'-0" panel module which saves material by minimizing plywood cuts. Prefabricated panels can then be transported to the construction site and assembled like a kit of parts.

By intentionally designing with prefabrication in mind, the team can help set up the construction of the project for success regardless of the contractor that is selected. Even if off-site prefabrication is not pursued, the buildings are laid in an efficient manner which will ultimately help the construction schedule and overall construction budget.





Mechanical Narrative

General Description

The intent of this document is to respond to the Owner’s Project Requirements (OPR), establish design concepts and team expectations, and clarify design intent for the proposed Mechanical, Plumbing and Fire Protection systems serving buildings to be newly constructed.

Definitions

A. Demand Control Ventilation: This is solely an energy conservation measure. A California Energy Code compliant carbon dioxide (CO2) sensor will be installed, which will:

- 1. Reduce the amount of outside air delivered to the space when measured CO2 ppm level in the room is below the setpoint.
- 2. The sequence of operation shall be as follows:
 - a. EMS unitary controller will be connected to a wall mounted CO2 sensor to monitor zone CO2 concentration during occupied hours and manual override(after hours) operation.
 - b. When zone CO2 level is below 800 ppm, outside air damper shall be set to “Lower Min.” or “DCV” position (0.15 cfm/sqft), as scheduled in the equipment schedule on the drawings. When zone CO2 level exceeds 800 ppm, outside air damper shall be set to “Upper Min.” position (mechanical ventilation cfm required per CEC 120.1(c)3. and CEC Table 120.1-A), as scheduled in the equipment schedule on the drawings. Outside air damper shall remain at “Upper Min.” position until CO2 level has dropped below 700 ppm, and will then return to “Lower Min.” or “DCV” position (0.15 cfm/sqft).

B. Occupancy Sensor Ventilation Control: This is solely an energy conservation measure. A California Energy Code compliant occupancy sensor will be installed, which will:

- 1. Relax (set-up or set-back) the space temperature setpoint after the space has been vacant for more than 5 minutes (adjustable).
- 2. Cycle off the HVAC system completely during vacancy when the relaxed space temperature setpoint is satisfied.
- 3. The sequence of operation shall be as follows:
 - a. When the zone has been scheduled for occupancy for at least one hour and the occupancy sensor has confirmed that zone has been vacant for 5 minutes (adjustable), the zone shall be placed into Occupied-Standby Mode.
 - b. During Occupied-Standby Mode, EMS shall set-up/set-back the cooling and heating room temperature setpoints by 2 degF (adjustable).
 - c. If set-up/set-back room temperature setpoint is satisfied, the EMS system shall completely turn off the HVAC system. The HVAC system shall cycle on as needed to maintain set-up/set-back room temperature setpoint during Occupied-Standby Mode.
 - d. Upon detection of occupancy, Occupied-Standby Mode shall be cleared.

Applicable Codes and Standards

A. California Building Codes, 2025 Edition:

- 1. California Building Code (CBC).
- 2. California Existing Building Code.
- 3. California Historical Building Code.
- 4. California Fire Code (CFC).
- 5. California Green Building Standards Code (CalGreen).
- 6. California Energy Code (CEC).
- 7. California Mechanical Code (CMC).
- 8. California Plumbing Code (CPC).

B. National Fire Protection Association Codes and Standards, dates of publication as referenced by the 2025 CBC:

- 1. NFPA 13, Installation of Sprinkler Systems.

Calgreen Measures

The following CalGreen requirements will be incorporated into the design of mechanical systems for the Project:

- A. Division 5.1 – Planning and Design – Mandatory Measures:
 - 1. 5.106.8 Light Pollution Reduction: New outdoor lighting systems shall be designed and installed to comply with the requirements of 5.106.8 therein.
- B. Division 5.2 -- Energy Efficiency – Mandatory Measures:
 - 1. 5.201.1 Energy Efficiency: Building shall meet or exceed the requirements of the California Building Energy Efficiency Standards.
- C. Division 5.3 – Water Efficiency and Conservation – Mandatory Measures:
 - 1. 5.303.3 Plumbing fixtures will meet the minimum flow rates as mandated therein.
 - 2. 5.303.6 Standards for Plumbing Fixtures and Fittings: Plumbing fixtures will be installed in accordance with the California Plumbing Code, and will meet the applicable standards referenced in Table 1701.1 of the California Plumbing Code and in Chapter 6 of the California Green Building Standards Code.
- D. Section 5.504 Pollutant Control – Mandatory Measures:
 - 1. 5.504.1 Temporary Ventilation: The permanent HVAC system will only be used during construction if necessary to condition the building or areas of addition or alteration within the required temperature range for material and equipment installation. If the HVAC system is used during construction, MERV 8 return air filters will be installed, and the filters will be replaced immediately prior to occupancy, or conclusion of construction if building is occupied.
 - 2. 5.504.3 Covering of Duct Openings and Protection of Mechanical Equipment During Construction: At the time of rough installation and during storage on the construction site until final startup of the heating, cooling, and ventilating equipment, all duct and other related air distribution component openings will be covered with approved materials.
 - 3. 5.504.5.3 Filters: MERV 13 air filters will be installed prior to occupancy. Recommendations for maintenance with filters of the same value will be included in the O & M manual.
 - a. 5.504.5.3.1 Labeling: Specified filters will be clearly labeled by the manufacturer indicating the MERV rating.



- E. Section 5.506 Indoor Air Quality – Mandatory Measures:
- 1. 5.506.1 The minimum requirements of the 2025 CEC Section 120.1 (Requirements for Ventilation), or the applicable local code, whichever is more stringent, and Division 1, Chapter 4 of CCR, Title 8 will be met.
 - 2. 5.506.2 Carbon Dioxide (CO2) Monitoring: For buildings or additions equipped with demand control ventilation, CO2 sensors and ventilation controls shall be specified and installed in accordance with the requirements of the California Energy Code, Section 120.1(c)(4).
 - 3. 5.506.3 Carbon Dioxide (CO2) Monitoring in Classrooms: Each public K-12 school classroom, as listed in Table 120.1-A of the California Energy Code, shall be equipped with a carbon dioxide monitor or sensor that meets the requirements of 5.506.3.

- F. Section 5.508 Outdoor Air Quality – Mandatory Measures:
- 1. Ozone Depletion and Greenhouse Gas Reductions: Installations of HVAC, Refrigeration, and Fire Suppression equipment will comply with Sections 5.508.1.1 and 5.508.1.2:
 - a. 5.508.1.1 No equipment containing Cloroflourocarons (CFCs) will be used for this Project.
 - b. 5.508.1.2 No equipment containing Halons will be used for this Project.

Heating, Ventilating and Air Conditioning (HVAC)

HVAC Design Criteria:

- A. HVAC Load Calculation Software and Methodology:
- 1. Software: Energy Pro 9.
 - 2. Methodology:
 - a. Cooling: CLTD/CLF/SCL.
 - b. Heating: UATD.
- B. Outdoor Temperatures:
- 1. Summer Dry Bulb Temperature: 105 Deg. F. (ASHRAE 0.1%)
 - 2. Summer Wet Bulb Temperature: 72 Deg. F. (ASHRAE 0.1%)
 - 3. Winter Dry Bulb Temperature: 22 Deg. F. (Median of Extremes)
 - a. Based on “Climatic Data for Region X (Arizona, California, Hawaii, Nevada), ASHRAE, Fifth Edition – May 1982”, for Chico, CA.
 - b. 0.1% annual basis estimates there will be 9 hours per year that exceed the listed summer ambient temperatures.
 - c. Median of Extremes is the median of the annual low winter ambient temperatures.

C. Indoor Temperatures:

Room Type	Summer/Winter Design Temps (Deg. F.)
Open Office	74/70
Private Office	74/70
Corridor/Storage/Support	76/68
Conference	74/70
IDF/MDF	80/65
Classroom/Library	74/70
Multi-Purpose/Gym	76/68
Kitchen	76/70
Restroom	76/68

D. Humidification:

Room Type	Relative Humidity Range
All Rooms	20% thru 60%

E. Interior Loads:

1. Equipment and Lights:

Room Type	Equip. Watts/Sqft	Lights Watts/Sqft
Open Office	1.5	0.60
Private Office	1.5	0.65
Corridor/Storage/Support	0	0.40
Conference	1.0	0.75
IDF/MDF	15.0	0.40
Classroom/Library	1.0	0.60
Multi-Purpose/Gym	1.0	0.75
Kitchen	Based on proposed kitchen equipment, using heat gains from ASHRAE Fundamentals, Chapter 18	0.95
Restroom	0	0.65

2. Ventilation:

Room Type	Min. Outside Air (cfm/sqft)	Min. Exhaust Air (cfm/sqft)
Open Office	0.15	N/A
Private Office	0.15	N/A
Corridor/Storage/Support	0.15	N/A
Conference	0.50	N/A
IDF/MDF	0	N/A
Classroom/Library	0.38	N/A
Multi-Purpose/Gym	0.50	N/A
Kitchen	0.15	0.70
Restroom	0.15	70cfm per flushing fixture

3. People:

Room Type	Sqft/Person	Sensible Heat Gain/Person (BTU/Hour)	Latent Heat Gain/Person (BTU/Hour)
Open Office	100	250	200
Private Office	100	250	200
Corridor/Storage/Support	100	250	250
Conference	15	245	155
IDF/MDF	0	0	0
Classroom/Library	32	245	155
Multi-Purpose/Gym	7	245	155
Kitchen	200	275	475
Restroom	100	250	250

F. Noise Criteria:

Room Type	NC Range
Open Office	35-40
Private Office	30-35
Corridor/Storage/Support	35-40
Conference	25-30
IDF/MDF	40-45
Classroom/Library	30-35
Multi-Purpose/Gym	40-45
Kitchen	40-45
Restroom	40-45

HVAC SYSTEM:

A. Discussion:

The HVAC systems for the new campus will be all electric. There will be no fossil fuel burned on this campus for space heating. The HVAC systems will incorporate equipment with heat pump technology for all space heating applications. The HVAC System shall be comprised of rooftop packaged heat pump units, mini-split system air conditioning & heat pump units, and VRF heat recovery (capable of simultaneous heating and cooling operation) split system units. All rooftop packaged heat pump units and unitary split system heat pump units shall have full economizer (free cooling) functionality. Provide packaged units with powered exhaust modules to facilitate 100%space relief. All HVAC systems will utilize traditional overhead mixing air delivery method.

Proposed HVAC system consists of the following subsystems and components:

- A. Heating and Cooling Packaged Units:
- 1. Roof mounted packaged heat pump units with:
 - a. Dx compressor and cooling coil with R-454B refrigerant, hinged access panels, louvered condenser coil guards, phase monitor/ protection, and thru-the-bottom wiring connection kit.
 - 1) For units 6 nominal tons and larger, unit shall include factory installed variable speed supply fan motor, and multiple stage compressor, to facilitate single zone VAV operation per 2025 CEC requirements.





- b. Fully modulating power exhaust economizer with exhaust fan VFD, controlled to maintain space pressure of 0.01" – 0.03" positive during all modes of operation, via differential pressure transducer.
- c. Factory installed electric resistance auxiliary strip heater, sized for minimum supply air discharge temperature of 90 degF during heating mode, and sized for minimum supply air discharge temperature of 70 degF during defrost mode (approx. 15 degF delta T). Unit shall be wired from factory for single point power connection.
- d. Vibration isolation roof curb, with minimum 2" deflection springs. Refer to acoustical design criteria narrative for additional requirements.\
- e. For dx packaged heat pump units serving as make-up air units for kitchen hood exhaust, control make-up air unit for neutral discharge air temperature setpoint. Include necessary internal components to facilitate 100% OSA operation. Interlock make-up air unit to run when kitchen hood exhaust fan is turned on.
- f. Comply with ASHRAE 15 for refrigerant concentration limits, typ.
- g. Unit Controls: Electro-mechanical controls interface, for control by EMS system.
 - 1) CO2 Demand Control Ventilation Control will be utilized in the following spaces:
 - a) Classrooms/Library, Multi-Purpose/Gym, Platform.
 - 2) Occupancy Sensor Ventilation Control will be utilized in the following spaces:
 - a) Multi-Purpose/Gym.
 - 3) Sequences of Operation shall be included on the permit Drawings.
- h. Energy Efficiency:
 - 1) 5 tons and smaller (high efficiency model):
 - a) Cooling: 16.0 SEER2, minimum.
 - b) Heating: 6.7 HSPF2, minimum.
 - 2) 6 thru 10 tons (high efficiency model):
 - a) Cooling: 16.8 IEER, minimum.
 - b) Heating: 3.5 COP, minimum.
 - 3) 12.5 tons and larger (high efficiency model):
 - a) Cooling: 14.9 IEER, minimum.
 - b) Heating: 3.4 COP, minimum.
- i. Serves: Classrooms/Library, Multi-Purpose/Gym, Platform, Kitchen.

B. Heating and Cooling Split System Units:

- 1. Mini-Split Air Conditioner (Cooling Only) & Heat Pump (Heating & Cooling) Units:
 - a. Split system air conditioning unit with R-454B refrigerant. Condensing units will be located on roof. The following indoor terminal equipment/mounting styles will be utilized, as appropriate for spaces served:
 - 1) Wall-mounted.
 - 2) Ceiling-recessed, four-way blow.
 - b. Comply with ASHRAE 15 for refrigerant concentration limits, typ.
 - c. Unit Controls: System controlled via factory wall mounted hard wired programmable thermostat. Space temperature shall be monitored by EMS via remote room temp sensor.
 - d. Serves: IDF/MDF Rooms, After School Program Rooms.

- 2. Variable Refrigerant Flow Split System Heat Pump Units (Heat Recovery Type):
 - a. Variable refrigerant flow split system heat pumps with R-454B or R-32 refrigerant, and 2-pipe or 3-pipe distribution system. Condensing units will be located on roof. The following indoor terminal equipment mounting styles will be utilized, as appropriate for spaces served:
 - 1) Ceiling-recessed, one-way blow.
 - 2) Ceiling-recessed, four-way blow.
 - 3) Horizontal ducted, concealed above ceiling.
 - b. Refrigerant Control Unit for heat recovery (simultaneous heating & cooling) operation installed in accessible and serviceable location, either on the roof in pre-fab'd enclosure, or inside the building concealed above finished ceiling.
 - c. Ventilation air will be provided by a rooftop packaged heat pump dedicated outside air system (DOAS) unit.
 - d. Comply with ASHRAE 15 for refrigerant concentration limits, typ.
 - e. Unit Controls: Manufacturer's control panel and room sensors, and interface to DDC system.
 - f. Serves: Administration Area.

C. Heating-Only Equipment:

- 1. Electric unit heaters.
 - a. Mounting: Wall mounted.
 - b. Controls: Programmable thermostat.
 - c. Serves: Fire Riser Rooms.

D. Exhaust, Relief, and Ventilation:

- 1. Centrifugal roof ventilators:
 - a. Building exhaust applications.
 - b. Fan controlled by speed controller on factory EC motor.
 - c. Serves: Janitor Closets, Restrooms.
- 2. Centrifugal roof ventilators – Kitchen Hood:
 - a. Kitchen hood exhaust applications.
 - b. Upblast air discharge.
 - c. Hinged, extended roof curb.
 - d. Grease collection tray.
 - e. Serves: Type I Kitchen Hood.
- 3. Ceiling mounted ventilators:
 - a. Building exhaust applications.
 - b. Fan controlled by factory accessory solid state speed controller.
 - c. Serves: Janitor Closets, Restrooms.
- 4. In-line centrifugal fans:
 - a. Building exhaust applications.
 - b. Fan controlled by factory accessory solid state speed controller.
 - c. Serves: Janitor Closets, Restrooms.

- E. Air Distribution System:
1. G90 galvanized steel ductwork.
 2. Install 1” thick internal duct liner on all supply air and return air ductwork for a minimum of the first 10 feet of duct length from the connected hvac unit, typical. First inlet or outlet connection shall be at least 10 feet from the connected hvac unit, typical.
 3. Grease exhaust ductwork shall be fully welded 16 gauge minimum black steel where concealed, and fully welded 18 gauge minimum Type 304 stainless steel where exposed. Provide and install Firemaster Fastwrap XL, or equal, field applied grease duct enclosure on entire length of grease ductwork.
 - a. At Contractor’s option, 18 gauge minimum Type 304 stainless steel may be used where concealed.
 4. Supply, return and exhaust ductwork shall be sized for maximum friction loss of 0.08”/100 feet of duct for ductwork carrying up to 4,000 cfm, and shall be sized for maximum air velocity of 1200 fpm for ductwork carrying more than 4,000 fpm.
 5. Barometric relief ductwork and associated exterior wall louvers or gravity hoods shall be sized for a maximum air velocity of 400 fpm, typical.
 6. Flexible ductwork will be used to connect metal ductwork to single outlets and inlets in accessible ceiling areas, maximum 5 feet in length.
 7. Provide 1” thick internally lined plenum can at each lay-in ceiling supply diffuser and return grille, with round collar on one side of plenum can for connection to flex duct.
 8. Manual air dampers at each terminal branch to single air outlets and inlets, and where otherwise required for balancing.
 9. Typical inlet and outlet types utilized will be:
 - a. Supply air:
 - 1) Square and rectangular modular-core air diffusers with removable, configurable modules.
 - 2) Square and rectangular ceiling and sidewall diffusers with adjustable blades.
 - b. Return and exhaust air:
 - 1) Eggcrate style inlets.
 - 2) Square and rectangular ceiling and sidewall grilles with adjustable blades.

- F. Controls:
1. New manufacturer’s proprietary language-based direct digital control automatic temperature control system will be provided by the following pre-selected manufacturer:
 - a. FIN.

Plumbing

Plumbing System:

- A. Discussion:
1. The plumbing systems for the new campus will be all electric. There will be no fossil fuel burned on this campus for domestic water heating. The plumbing systems will incorporate equipment with electric resistance or heat pump technology for all domestic water heating applications. The plumbing systems for the new campus will be comprised of both storage tank and instantaneous (tankless) electric domestic water heaters. A concrete grease interceptor will be provided for the kitchen’s grease waste system, installed outside the building in a location accessible by pump truck.

Proposed plumbing system consists of the following subsystems and components:

- A. Domestic Water System:
1. Building Domestic Water Distribution Systems:
 - a. Piping inside building to five feet from building:
 - 1) Copper Type L with brazed fittings.
 2. Domestic Hot Water Generation:
 - a. Electric storage tank type water heaters.
 - 1) Controls: DDC Time-of-Day control.
 - b. Electric Instantaneous point-of-use (tankless) type water heaters.
- B. Sanitary Sewer System:
1. Building Sewer, Drain, Waste, and Vent System:
 - a. Sewer, drain, waste and vent piping materials inside building to 5 feet from building:
 - 1) Cast iron soil pipe and fittings (no hub) for drain, waste and vent systems.
 - 2) Polypropylene piping for grease waste and grease vent systems (at Kitchen).
- C. Storm Drainage System:
1. Building Roof Drainage System:
 - a. Combination roof drain and overflow units.
 - b. Roof drainage piping materials:
 - 1) Cast iron soil pipe and fittings.
 - c. Storm drainage system specialties include:
 - 1) Downspout nozzles for overflow termination.

Fire Protection

Proposed Fire Protection system consists of the following subsystems and components:

- D. Building Fire Protection System:
1. An automatic wet-pipe fire sprinkler system will be provided, with a riser located in a dedicated riser room in each building. All riser rooms will have an exterior door.
 2. An electrically operated alarm bell will be located on an exterior wall, just outside each building’s riser room door.
 3. The automatic wet-pipe fire sprinkler system will be monitored by the campus fire alarm system.
 4. Fire protection piping materials inside building:
 - a. Schedule 40 black steel piping for sizes up to 2”, schedule 10 black steel piping for sizes 2-1/2” and larger.
 5. Building fire riser connection to site fire water service piping below grade will use a one-piece stainless steel elbow fitting (Ames IBR, or equal).

END OF BASIS OF DESIGN





Electrical Narrative

POWER DISTRIBUTION

BUILDING SERVICES AND POWER DISTRIBUTION:

EXISTING CONDITIONS:

The campus is served by an 1600A, 120/208V Cutler-Hammer Main Switchboard, roughly 30 years old, and in serviceable condition. The gear is located in a fenced enclosure in the parking lot area, on the west side of 16th Street, across from the main campus. There is no scope in the parking lot, so the existing electrical service is not in conflict with new construction. However, the electrical service is not sufficient to support the new, all-electric campus.

NEW WORK:

A new PG&E transformer and Main Switchboard will be located adjacent to the existing service. Per preliminary load calculations, the campus will require a 1600A, 277/480V switchboard to support the new campus. Existing PV equipment will remain as installed, however a solution will be required to accommodate the change in voltage from 120/208V to 277/480V.

PHASED WORK:

The existing electrical service should remain as connected during the first phase of construction so that portions of the existing campus remain energized.

PHOTOVOLTAIC SYSTEM:

The existing 119.6kW PV system consists of 522 PV modules mounted on 4 separate shade structure, and is located central to the campus between the fields on the west and the main campus on the east. The location of these structures are in conflict with new construction, so the system will need to be relocated, refer to “phased work” above.

Per Section 140.10 of the 2022 Building Energy Efficiency Standards, photovoltaics and battery storage systems are prescriptive requirements for new construction. The existing system is sufficient to meet the requirement for PV, per DSA PR 23.04 (Alternate Means for PV Panel Requirements). To avoid the cost of a Battery Energy Storage System, we anticipate utilizing trade-offs from other high-efficiency systems within the energy model to justify omitting the BESS requirement.

ELECTRIC VEHICLE CHARGING SYSTEM:

The existing parking facility is not in scope, and new parking area is not being added. However, the July 1, 2024 supplement to the 2022 CalGreen suggests that EV charging may be required, based on the number of existing parking spaces, “when the scope of work includes an increase in power supply to an electric panel serving light fixtures illuminating the parking area”. We recommend requesting clarification from DSA in the pre-application meeting.

2022 California Energy Code (Title 24) PV and BESS Requirements Non Residential - Section 140 (Prescriptive Requirements)	
BUILDING TYPE	School
PROJECT ZIP CODE	95928
CLIMATE ZONE	11
CLIMATE ZONE GROUP	2, 4, 6-14
CONDITIONED FLOOR AREA (CFA,sq ft)	44,800
BESS ROUND TRIP EFFICIENCY (FACTOR D)	80%
SARA (sq ft)	44,800
FACTOR A	1.63
FACTOR B	1.87
FACTOR C	0.46
kWpvdc required	73
kWhbatt required	152.7
kWbatt required	33.6

Alternate Means of Compliance for PV Requirements				
Total Existing Campus PV System Capacity (kWdc)	Equivalent Calculated Total Existing Campus Photovoltaic Size (kWdc)	Excess Campus Power	New Building Required PV Size (kWdc)	Final Surplus Campus Power (kWdc)
106.20	73.02	33.19	12.2	20.99
1. Existing campus PV system is fully funtional and is operating as originally designed. 2. Existing campus PV system was installed in 2011.				

EMERGENCY POWER:

The campus will not be provided with emergency power. Emergency lighting will be accomplished with the use of battery packs in light fixtures and mini-inverters.



LIGHTING AND LIGHTING CONTROLS

APPLICABLE CODES AND STANDARDS

- California Title 24, Part 6 (2022 Building Energy Efficiency Standards)
- Illuminating Engineering Society (IES) Lighting Handbook
- ASHRAE 90.1-2019 (as referenced by Title 24 where applicable)
- California Green Building Standards Code (CALGreen)
- ANSI/IES RP-3-20: Recommended Practice for Lighting in Educational Facilities

LUMINAIRES:

The lighting design for the new campus is developed in accordance with the 2022 California Building Energy Efficiency Standards (Title 24, Part 6) and the Illuminating Engineering Society (IES) recommendations. The lighting system aims to provide energy efficiency, visual comfort, and flexibility to support various educational and administrative functions. Luminaire characteristics will meet the following minimum requirements:

- Correlated Color Temperature (CCT): 3500K interior, 3000K exterior
- Minimum Color Rendering Index (CRI): 80 interior, 70 exterior
- Lumen Maintenance L70: Min. 50,000 hours
- Minimum Luminaire Efficacy: 50 lm/W, or per current DLC by fixture type, whichever is higher.
- Measured Flicker: 10% or less across the entire dimming range.
- Minimum Warranty: 5-year, full replacement
- UL Listed
- Design Lights Consortium (DLC) compliant
- RoHS compliant
- LED Lighting Facts Labeled
- California Energy Commission 2022 Appliance Efficiency Regulations “Title 20”

Light fixtures will be selected based on architectural aesthetic, performance and efficacy, ease of maintenance, durability, visual comfort/glare control, and budget. A “low ambient” design strategy will be employed to encourage the use of low wattage task lights at the work surface. The following is a summary of the lighting goals for this project:

PRELIMINARY LOAD CALCULATIONS:

PROJECT:	Chapman Elementary School					Voltage	480
LOCATION:	Chico, CA						
Area	Square Footage	Lighting (w/sf)	Receptacles (w/sf)	Mechanical (w/sf)	Total (kW)	Total (A)	
Bldg 100	5,293	0.8	3.0	12.0	83	100	
Bldg 700	3,740	0.6	1.9	12.0	54	65	
Bldg 600	5,055	0.6	1.9	12.0	73	88	
Bldg 300	6,546	0.6	1.9	12.0	95	114	
Bldg 400	6,546	0.6	1.9	12.0	95	114	
Bldg 500	6,546	0.6	1.9	12.0	95	114	
Bldg 200	12,403	0.8	3.0	25.0	357	430	
EV Charging					TBD		
25% spare/future					213	256	
TOTAL	46,130				853	1,026	
				Proposed Service Size		1600A	

Space Type	IES Recommended Light Level (fc)	LPD (W/ft^2) per Title 24	Recommended Fixture Types
Private Office	30-50 fc	0.65	LED recessed troffers
Reception Area	30-50 fc	0.75	LED decorative pendants, recessed LED downlights
Break Room	20-30 fc	0.55	LED recessed troffers, surface-mounted fixtures
Conference Rooms	30-50 fc	0.85	LED linear pendants, recessed troffers, wall sconces
Library	30-50 fc (reading), 20-30 fc (stacks)	0.8	LED recessed linear, pendant-mounted fixtures
Cafeteria	30-50 fc	0.75	LED linear pendants, surface-mounted LED fixtures
All-Electric Kitchen	50-70 fc	1.1	LED high-bay fixtures, vapor-tight LED fixtures
Classroom	30-50 fc	0.65	Linear suspended direct/indirect LED
Gymnasium	50-70 fc (playing area)	0.9	LED high-bay fixtures, indirect lighting
Gym Lobby	20-30 fc	0.7	LED recessed downlights, linear fixtures
Locker Rooms	20-30 fc	0.6	LED vapor-tight fixtures, recessed LED troffers
Multi-User Restrooms	10-30 fc	0.5	LED recessed downlights, wall sconces
Exterior Walkways	1-5 fc	0.1	LED bollards, pole-mounted LED fixtures
Parking Lots	0.5-1 fc	0.06	LED pole-mounted area lights



LIGHTING CONTROLS:

While the district prefers stand-alone controls to be used where-ever possible, it is anticipated that a networked lighting control system will be required to meet the requirements of the California Building Energy Efficiency Standards. Stand-alone controls will be provided in storage rooms, custodial spaces, restrooms, and other spaces where allowed by the Standards. Specific design features of the new networked lighting control system shall include:

- Exterior lighting control will be time based (on/off) to meet T24 requirements, with motion control at parking lot pole lights.
- Interior lighting control will be via a networked, distributed dimming system. All interior spaces will include occupancy sensors, and all daylit zones will be continuously dimmed by photosensors.
- Classrooms/Labs will include multi-scene dimming controls, with at least two ‘scenes’ (Lecture, AV Mode). Classroom occupancy sensors may also control HVAC in the space where required by the standards.
- The lighting control systems shall feature a GUI (Graphic User Interface) and shall be Auto Demand Response Capable (2-way communication).
- Where required by the California Building California Building Energy Efficiency Standards, Section 130.5(d), in offices, conference rooms, copy and break rooms, and reception lobbies, the lighting control system will also control 120V receptacles.
- Approved lighting control Manufacturers for lighting control systems include Acuity “nLight”, Wattstopper “DLM”. Special consideration will be given to use of wireless lighting controls, with fixture integrated sensors, which offers initial cost savings and easier maintenance and troubleshooting. Wireless lighting control components that require batteries are not acceptable.



TELECOMMUNICATIONS

UTILITY SERVICE:

We anticipate that Telecommunications and Cable TV utility service will originate from 16th Street; new utilities may need to cross the public roadway. New pullboxes will be set for these utilities at the street and extend 2-4”C for telecommunications and 1-2”C for Cable TV (if necessary) to the campus Entrance Facility, which will be located in the campus MDF.

SITE DISTRIBUTION:

Provide conduit infrastructure, a duct bank consisting of 4-2”C from the campus MDF Room to the IDF room at every building on campus. Two of these conduits shall be used for distribution of fiber in innerduct or Maxcell type sleeve; the remaining conduits for other low voltage systems. The site conduit infrastructure shall be designed to match the overall project phasing and include telecommunication vaults at strategic locations to best facilitate the overall build-out of the site distribution infrastructure. Telecommunication and electrical conduit duct banks should share trenches if properly separated according to BICSI and NEC standards.

TELECOMMUNICATIONS ROOMS:

ENTRANCE FACILITY (EF):

- The Entrance Facility is the location where outside communications services enter the building and are transitioned Chico USD owned cabling infrastructure.
- The EF shall be in the MDF room to maximize program space put have dedicated space for the telecommunications / Cable TV utility company equipment.
- Provide a 4’w section of wall with plywood backboard dedicated to the utility MPOE.
- Provide a dedicated 120V circuit and double-duplex receptacles at the MPOE.

MDF ROOM (EQUIPMENT ROOM):

- Provide 4’w x 8’h x 3/4” fire treated plywood backboard on all walls.
- Minimum ceiling height is 8’ with 10’ preferred.
- The floor, walls, and ceiling should be sealed to reduce dust. Finishes should be light in color to enhance room lighting. Floors should have anti-static properties.
- Lighting should be powered by separate circuits than the communications equipment and provide brightness not less than 500 lx (50 foot-candles) as measured 3 ft. above the finished floor.
- Entrance door should be lockable, not less than 36’ wide and should be without a doorsill. For the MDF, the ideal door solution is double doors with a removable center-post.
- Racks should all be standard 19” 2-post, black aluminum P/N: R2P with high capacity Panduit PatchRunner 2 Vertical Cable Management System vertical managers on both sides.
- PatchRunner 2 Vertical Cable Management System high-capacity vertical managers should be sized to be no more than 35% upon installation according to manufacturer’s calculations (fill charts).
- Racks should have interbay routing paths available at the top, middle and bottom of 19” racks to provide a shortest path between any two points when TR racks are ganged together.
- Provide cable runway around perimeter of the room, and above the racks.
- The MDF/Equipment Room should be powered by separate circuits terminated in its own electrical panel.
- Fire alarm control panel, security alarm panel, and other head end equipment may be located in the MDF/ TR spaces.

TELECOMMUNICATION ROOMS (TR):

- Provide 4’w x 8’h x 3/4” fire treated plywood backboard on all walls.
- Entrance door should be lockable, not less than 36’ wide and should be without a doorsill.
- Racks should all be standard 19” 2-post, black aluminum P/N: R2P with high capacity Panduit PatchRunner 2 Vertical Cable Management System vertical managers on both sides.
- PatchRunner 2 Vertical Cable Management System high-capacity vertical managers should be sized to be no more than 35% upon installation according to manufacturer’s calculations (fill charts).
- Racks should have interbay routing paths available at the top, middle and bottom of 19” racks to provide a shortest path between any two points when TR racks are ganged together.
- Provide cable runway around perimeter of the room, and above the racks.
- Provide (1) N5-20R receptacle and (1) L5-30R receptacle on dedicated circuits at the cable runway behind each rack. Provide rack mounted UPS at each rack.
- Fire alarm control panel, security alarm panel, and other head end equipment may be located in the IDF rooms.

BACKBONE CABLING:

Chico USD has standardized on General Cable brand plenum rated indoor/outdoor, tight-buffered, armored cable. All fiber connections between buildings should be made using General Cable singlemode, plenum rated, indoor/outdoor tight-buffered cable with corrugated armor jacket, 12-strand unless otherwise noted.

Backbone fiber terminations should be done with ILSINTESCH “Splice On” fiber connectors. 50 micron OM4 factory pre-polished connectors should be used to terminate multimode and ILSINTECH “Splice On” fiber connectors OS2 for singlemode backbone terminations.

HORIZONTAL CABLING:

Horizontal cabling provides connectivity between the user workstation space and the MDF/TR. The project shall use General Cable GenSPEED 10 UTP Gen 4 Category 6A Cable, with blue jacket, riser or plenum rated as determined by the application. UTP Category 6A jack modules shall be blue Panduit Mini-Com TX6A 10GIG. Typical outlet types are as follows:

- Workstation outlets: 2-Cat 6A each
- Wireless access points: 2-Cat 6A each
- Classroom flat panel display: 2-Cat 6A each
- Wall phone (1 per classroom): 1-Cat6A
- Clock/speaker (1 per classroom): 1-Cat 6A
- Security cameras: 1-Cat 6A each

Typical space layouts as follows:

- Classroom: (1) instructor workstation outlet adjacent to teaching wall, (1) outlet at flat panel display, (1) WAP outlet centered in room, (1) clock/speaker.
- Private Office: (1) workstation outlet for smaller offices, (2) workstation outlets if over 150 s.f.
- Multi-Purpose Room: (1) workstation outlet each wall (4 total), up to (4) WAP outlets at ceiling, (2) clock/speaker with wire guard.
- Library: (1) workstation outlets each wall (4 total), (2) WAP outlets at ceiling, (1) clock/speaker.

SCHOOL COMMUNICATION SYSTEM:

The campus will include a new IP-based School Communication System, the basis of design shall be the Valcom IP6000 platform to provide efficient communication, emergency notifications, and synchronized time-keeping across all buildings. The system's head-end equipment, centrally located in the Main Distribution Frame (MDF), includes the VE6023 Telephone Paging Server and VE8090R SIP Intercom Controller. These rack-mounted units provide seamless integration with the campus's existing VoIP phone system, enabling live and automated messaging, intercom functionality, and emergency notifications across all buildings. The MDF serves as the hub, connecting to the VoIP infrastructure via SIP trunks, ensuring priority overrides and urgent calls are efficiently managed from administrative offices or security stations. The primary head-end equipment for the Valcom IP6000 system will be housed in the Main Distribution Frame (MDF). This will include the Valcom VIP-802A IP Gateways, VIP-821 Enhanced Network Trunk Interfaces, and VIP-172L IP Paging Horns for external coverage. The system will interface directly with the campus VoIP phone system, allowing administrative and emergency communications to be managed through a unified platform. A dedicated network switch, separate from the primary data network, will be implemented to ensure priority handling of voice and paging traffic. Inter-Building Connectivity: Fiber optic backbone cabling will be used to interconnect buildings to the MDF/Equipment Room, ensuring low-latency communication and high bandwidth for IP paging and message distribution.

Intra-Building Infrastructure: Each building will be equipped with Category 6E/6A structured cabling to support PoE-powered Valcom IP speakers, call stations, and digital message boards.

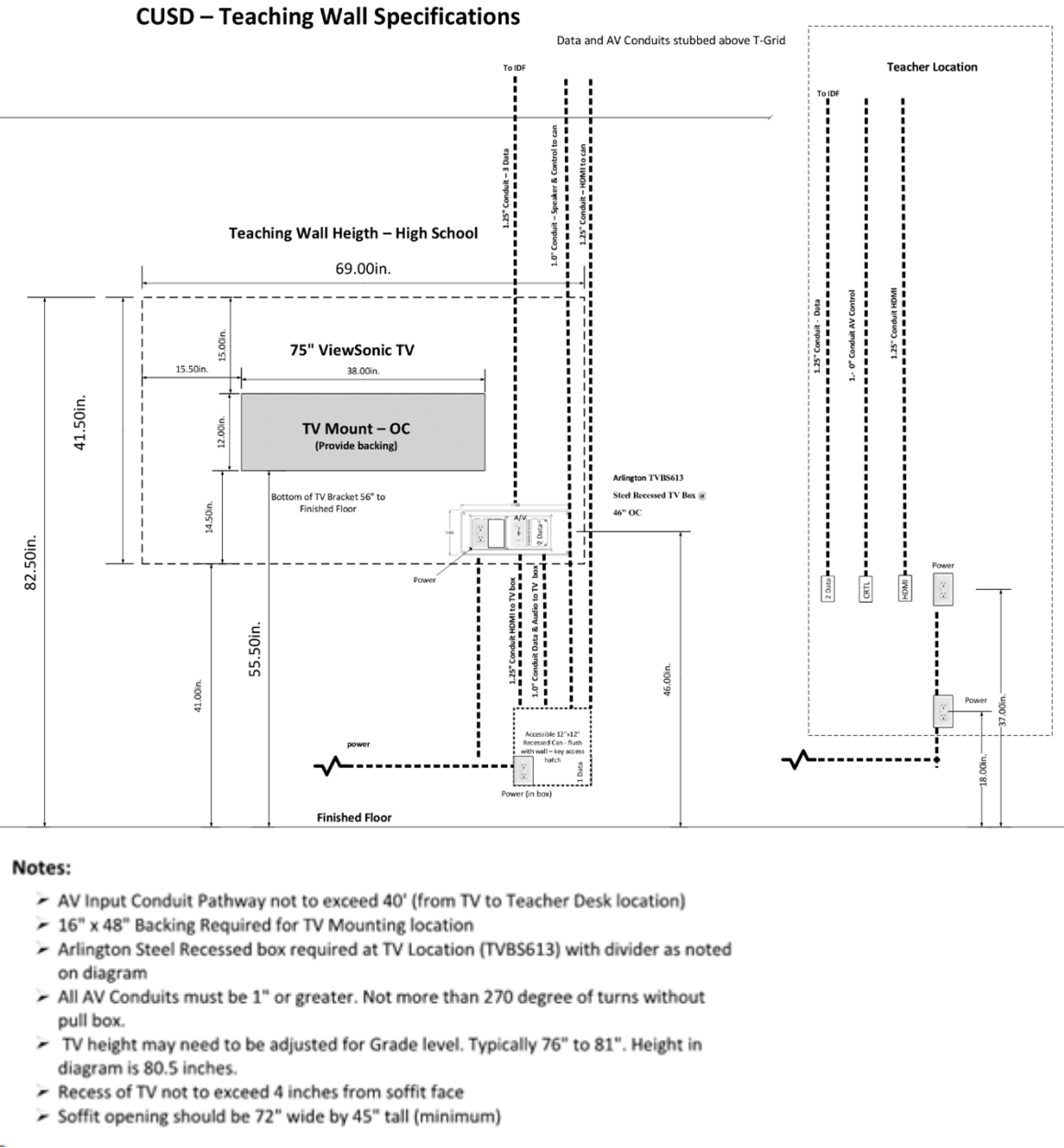
- Classroom combination clock/speaker: VE4031A-A with flush backbox.
- Interior wall mount speaker: VE4028 with VB-R12 flush backbox
- Interior ceiling mount speaker: VE4020, with flush backbox
- Exterior wall mount speaker: Speaker: VE4080AL, with V-9805 flush backbox.

Redundancy: Battery-backed PoE switches in key locations will ensure continued operation during power outages.

AUDIOVISUAL:

Classroom AV:

Classroom AV system scope will consist of infrastructure (conduit, boxes, cabling) to be installed per district standards, with Extron AV components, flat panel display, speakers, etc. to be owner furnished, contractor installed. Refer to the attached "Teaching Wall Elevation" for rough-in requirements for the new interactive flat panel displays.



Multipurpose Room AV:

The multi-purpose AV systems shall consist of amplified speakers, with a ceiling mounted projector (Epson PRO L1505UH) installed at the back of the stage behind a motorized projection screen for rear projection. Source equipment, amplifiers, etc. will be installed in a wall mounted rack at the stage, or in a secure room.

ELECTRONIC SAFETY & SECURITY

FIRE ALARM:

Fire Alarm Control Panel (FACP): A new Silent Knight 6820EVS will serve as the central processing unit for the fire alarm system, providing intelligent monitoring, control, and communication across all connected devices. The panel will be installed in the building’s MDF Room, with remote annunciator & voice evacuation microphone (LOC) installed at the administration building lobby for quick access and monitoring.

System Components:

- Initiating Devices:
 - Intelligent smoke detectors
 - Heat detectors
 - Attic Heat detectors
 - Manual pull stations
 - Duct detectors in HVAC systems greater than 2000 CFM
 - Waterflow and tamper switches for sprinkler monitoring
- Notification Appliances:
 - Ceiling-mounted and wall-mounted speaker strobes/strobes in classrooms, corridors, gymnasium, cafeteria, and assembly areas as required by code.
 - Voice evacuation speakers in large gathering spaces
 - LED annunciator panels at designated locations for visual indication.
- Auxiliary Functions:
 - Fire alarm interfaces with the building’s HVAC system for smoke control and automatic shutdown.
 - Magnetic door holders for corridor separation, releasing upon alarm activation
 - Remote monitoring capability with central station connection.

Wiring and Network Infrastructure:

- The fire alarm system will utilize an addressable loop configuration to minimize wiring and improve troubleshooting.
- Dedicated power circuits and backup battery systems will ensure continuous operation during power failures.
- Networked fiber-optic or copper connections will be used for inter-building communication between multiple structures within the campus.

INTRUSION ALARM:

The district does not currently use intrusion alarm on K-8 campuses. Infrastructure for future intrusion alarm components (such as door alarm contacts) will be considered.

ACCESS CONTROL:

Chico Unified School District utilizes a POE card reader system, consisting of a door mounted POE card reader, and alarm contact, electrified lock, and request to exit device integrated with the POE lockset. 1-CAT6A cable is to be installed at the accessible ceiling space at each access controlled door to tie the POE lockset into the campus system.

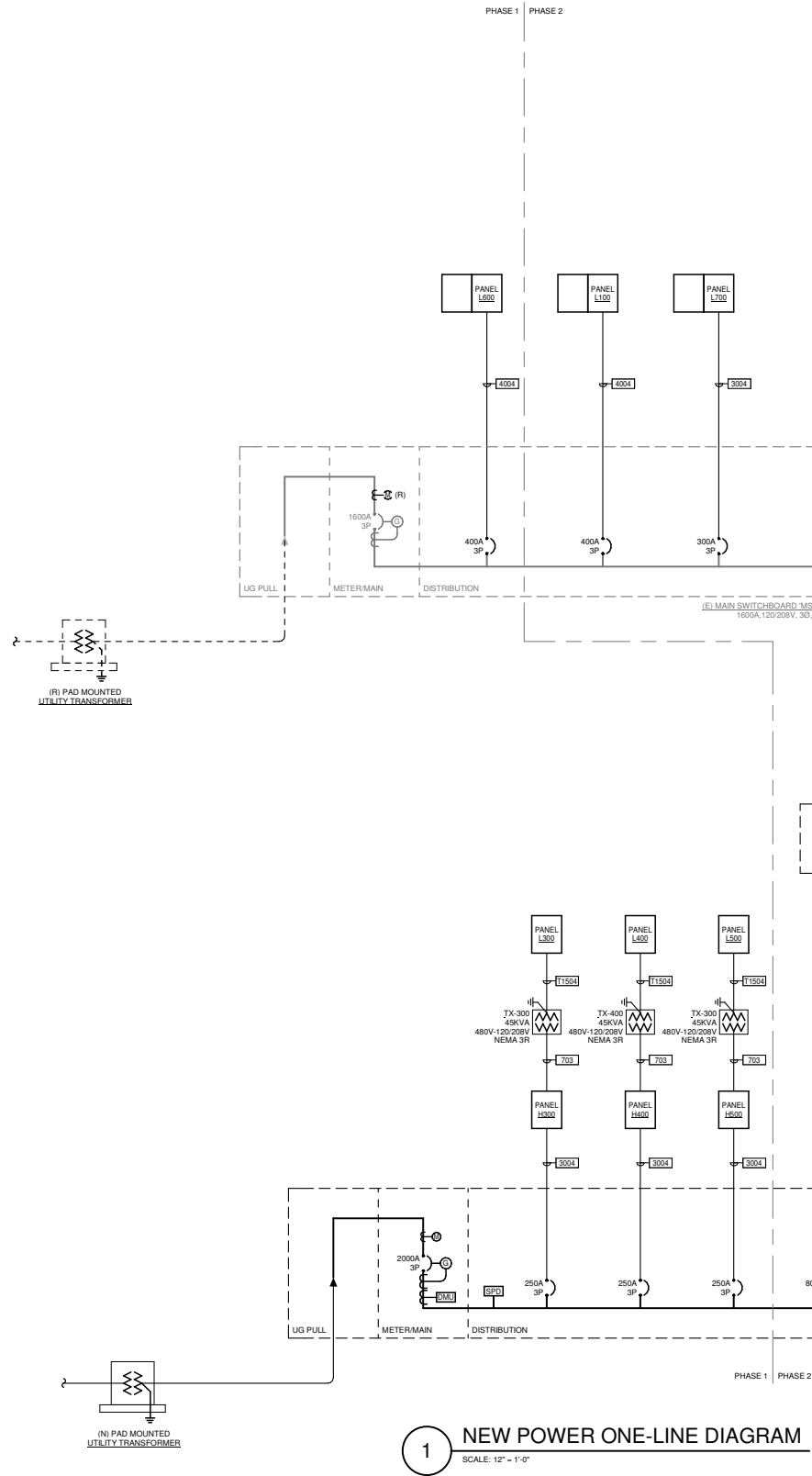
At double doors, or where automatic ADA door opener is installed, a central ‘mercury’ panel (EPI502) with power supply will be installed, with door contacts, request to exit devices, electric locks, and separate door or pedestal mounted card readers.

An emergency lockdown station will be installed at the administration building reception desk, which will provide manual means to initiate a campuswide lockdown, changing the school’s security mode, notifying security personnel and locking electrified doors controlled by an automatic schedule.

VIDEO SURVEILLANCE:

IP cameras will be installed at the exterior of buildings, typically at all four corners of each building and the main entrance. Scope of work for each camera includes two data drops installed in a single box above the accessible ceiling space, with a 1’ conduit sleeve to a flush box at the exterior camera location. Cameras are owner furnished, owner installed.





FEEDER SCHEDULE

FEEDER SCHEDULE GENERAL NOTES

1. COPPER FEEDER SIZES SHOWN IN THIS SCHEDULE ARE BASED ON CONDUCTORS WITH THHN/THWN-2 INSULATION IN EMT CONDUIT.

2. ALUMINUM FEEDER SIZES SHOWN IN THIS SCHEDULE ARE BASED ON CONDUCTORS WITH XHHW-2 INSULATION IN EMT CONDUIT.

3. FEEDER SIZES SHOWN IN THIS SCHEDULE ARE BASED ON AN AMBIENT TEMPERATURE OF 30 DEGREES C (86 DEGREES F).

4. FEEDERS CONSISTING OF MULTIPLE SETS OF CONDUCTORS AND CONDUITS ARE TO BE PROVIDED WITH THE INDICATED SIZE GROUND CONDUCTOR IN EACH CONDUIT.

5. PER CEC ARTICLE 110.14, ALL FEEDERS SIZED AT #2 AWG OR LESS ARE CALCULATED PER 60 DEGREE TABLE. FEEDERS GREATER THAN #2 AWG ARE RATED 75 DEGREE. 90 DEGREE COLUMN IS USED WHEN APPLYING DERATING FACTORS.

FEEDER SCHEDULE REMARKS

A. OVERSIZED 150% NEUTRAL, SUITABLE FOR SERVICE FROM K-13 RATED TRANSFORMERS.

B. FEEDER APPROVED FOR USE WITH SEPARATELY DERIVED SYSTEM; GROUNDING AS REQUIRED BY CEC ARTICLES 240 AND 250.

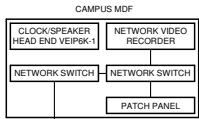
C. FEEDER GROUND AND BONDING JUMPER SHALL HAVE AN AREA NOT LESS THAN 12.5% OF THE AREA OF THE LARGEST PHASE CONDUCTOR.

D. INCREASE CONDUIT TO THE NEXT LARGER TRADE SIZE WHEN USING SCHEDULE 40 OR 80 PVC CONDUIT.

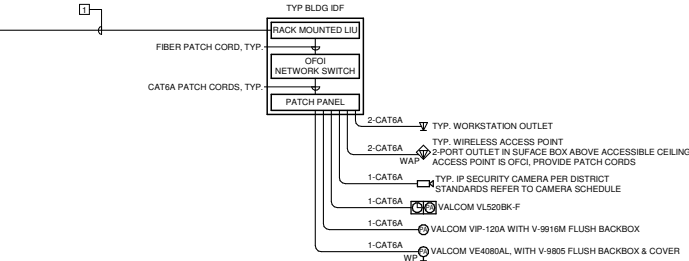
E. PER CEC SECTION 240.4(B), FOR OVERCURRENT DEVICES RATED 800A OR LESS, THE NEXT HIGHER STANDARD OVERCURRENT DEVICE RATING (ABOVE THE AMPACITY OF THE CONDUCTORS) CAN BE USED. RULE CAN NOT BE APPLIED IF 100% RATED BREAKERS ARE USED.

F. PER CEC 240.21(C), THE PROVISIONS OF 240.4(B) SHALL NOT BE PERMITTED FOR TRANSFORMER SECONDARY CONDUCTORS.

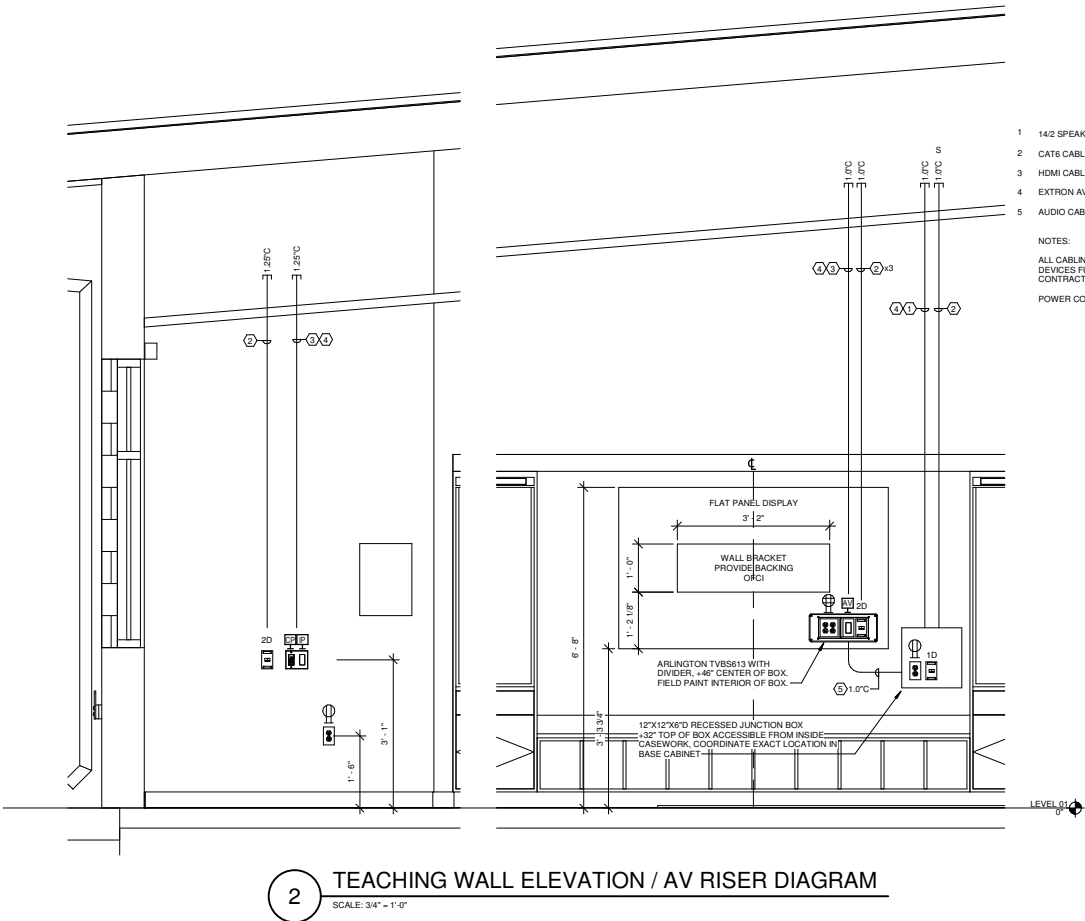
FEEDER TAG	FEEDER DESCRIPTION	CONDUIT	FEEDER CONDUCTORS		SEPARATELY DERIVED SYSTEM		REMARKS
			PHASE/NEUTRAL	GROUND	GROUNDING ELECTRODE	SYSTEM BONDING JUMPER	
700	70 AMP, 3 WIRE	1-1.00"	3 #4 CU	1 #6 CU	-	-	
1004	95 AMP, 4 WIRE	1-1.50"	4 #2 CU	1 #6 CU	-	-	D.E.
1253	130 AMP, 3 WIRE	1-1.25"	3 #1 CU	1 #6 CU	-	-	
1504	150 AMP, 4 WIRE	1-2.00"	4 #1/0 CU	1 #6 CU	-	-	
T1504	150 AMP, 4 WIRE	1-2.00"	4 #1/0 CU	1 #6 CU	#6 CU IN 0.75" C.	#6 CU	B.F.
1753	175 AMP, 3 WIRE	1-1.50"	3 #2/0 CU	1 #6 CU	-	-	
2004	200 AMP, 4 WIRE	1-2.00"	4 #3/0 CU	1 #6 CU	-	-	
T2504	255 AMP, 4 WIRE	1-2.50"	4 #250 KCMIL CU	1 #2 CU	#2 CU IN 0.75" C.	#2 CU	B.F.
3004	310 AMP, 4 WIRE	1-3.00"	4 #350 KCMIL CU	1 #4 CU	-	-	
4004	380 AMP, 4 WIRE	1-3.00"	4 #500 KCMIL CU	1 #2 CU	-	-	D.E.
T4004	400 AMP, 4 WIRE	2-2.00"	2 SETS OF 4 #3/0 CU	1 #1/0 CUSET	#1/0 CU IN 0.75" C.	#1/0 CU	B.F.
8004	760 AMP, 4 WIRE	2-3.00"	2 SETS OF 4 #500 KCMIL CU	1 #1/0 CUSET	-	-	D



NUMBERED SHEET NOTES	
1	12-STRAND SINGLE-MODE / 13-STRAND MULTI-MODE, GENERAL CABLE OSS, PLENUM RATED, INDOOR/OUTDOOR TIGHT-BUFFERED CABLE WITH CORRUGATED ARMOR JACKET.



1 CAMPUS TELECOMMUNICATIONS RISER DIAGRAM
SCALE: 1/2" = 1'-0"



2 TEACHING WALL ELEVATION / AV RISER DIAGRAM
SCALE: 3/4" = 1'-0"



Acoustics Narrative

Acoustic design criteria for reverberation time (t60), background noise from HVAC systems (NC and dBA) and sound isolation (STC) for occupied spaces in the project are provided in table 1. The criteria are based on industry best practices and align with LEED v4.1 For schools and ASHRAE handbook, HVAC applications, chapter 49 (“noise and vibration control”). The project is not pursuing LEED certification.

Table 1: Acoustic Design Criteria: Reverberation Time (T60), Background Noise (NC), Interior Sound Isolation (STC)

	Reverberation Time	Background Noise	Sound Isolation
Room	T60(s)	NC	STC (Partitions without doors)
Classroom	0.6	35	45
Breakout	1.0	35	45
Admin Office, Conference, Wellness	0.6	40	40
Library	1.0	35	45
Multipurpose	1.0 – 1.5	35	50
Flex Classroom	1.0	35	45
Restroom	-	-	53

ROOM ACOUSTICS GUIDELINES

Acoustically absorptive materials are incorporated on the ceilings of all occupied spaces to limit noise buildup and reverberation. Additional acoustic absorption may be needed based on Reverberation Time criteria in Table 1. Locations of acoustic treatment are coordinated with Architecture and Interiors.

SOUND ISOLATION GUIDELINES

Doors located in walls with acoustic performance requirements of STC 35 and above incorporate standard solid cores and full perimeter compression sound seals. Acoustically rated (STC) door assemblies are currently not anticipated.

All walls in occupied spaces extend and seal to the bottom of the structure above.

Sound isolation and vibration isolation for mechanical equipment located above regularly occupied spaces is incorporated to mitigate airborne and structure-borne noise.

Where possible, ductwork will not penetrate demising partitions. Outlets and other recessed equipment will not be placed back-to-back in a single stud bay. Back box putty pads will be required to reduce sound transmission.

BUILDING SYSTEM NOISE & VIBRATION CONTROL

Mechanical noise will be analyzed and noise control recommendations provided (e.g. duct silencers) to meet interior noise design criteria in Table 1, and local noise regulations at the property line.

Where possible, ducts, registers and grilles shall be sized to limit maximum air velocities as indicated in Tables 2 and 3 below, to ensure that regenerated noise due to air movement does not cause the design noise criteria to be exceeded. All ductwork serving acoustically sensitive areas is internally lined with 1” thick acoustical lining.

Table 2 – Maximum Airflow Velocities per ASHRAE Chapter 47, Table 8

Duct Location	Design NC/RC	Maximum Airflow Velocity, fpm	
		Rectangular Duct	Circular Duct
In shaft or above drywall ceiling	45	3500	5000
	40	3000	4250
	35	2500	3500
	30	2100	3000
	25	1700	2500
	20	1500	2250
Above suspended acoustic ceiling (ACT)	45	2500	4500
	40	2150	3750
	35	1750	3000
	30	1450	2500
	25	1200	2000
	20	1000	1750
Duct located within occupied space	45	2000	3900
	40	1750	3250
	35	1450	2600
	30	1200	2150
	25	950	1700
	20	750	1500

- Notes:**
1. Table 8 provides velocities for Design NC/RC of 45, 35 & 25. NC/RC 40, 30 & 20 are extrapolated.
 2. Branch ducts should have airflow velocities of about 80% of values listed.
 3. Velocities in final runs to outlets should be 50% of value or less.
 4. Elbows and other fittings can increase airflow noise substantially, depending on type. Thus, duct airflow velocities should be reduced accordingly.

Table 3: Maximum Recommended Air Velocities at Neck of Supply Diffusers or Return Registers per ASHRAE Chapter 47, Table 9

Type of Opening	Design NC/RC	"Free" Opening Airflow Velocity, fpm
Supply air outlet	45	625
	40	560
	35	500
	30	425
	25	350
	20	300
Return air opening	45	750
	40	675
	35	600
	30	500
	25	425
	20	375

If volume control boxes or fan coil units are incorporated, they should be located remote of acoustically sensitive occupied spaces where possible.,

Grilles, registers, and diffusers are to be selected with a manufacturer’s NC rating 5 to 10 NC points below the noise criteria for the space being served. Where possible connections to diffusers should utilize lined flex duct to reduce airflow-generated noise.

As far as is practical. HVAC systems serving acoustically sensitive occupied areas should be “self-balancing”. Balancing dampers will not be located immediately upstream of diffusers. A minimum 5 feet of acoustical flexible duct or internally lined sheet metal duct between the damper and the connection to the diffuser is recommended. Dampers shall not be incorporated into grilles, and diffuser blades will not be used for balancing the air system.

- Vibration isolation measures are incorporated per ASHRAE for mechanical equipment and associated piping near acoustically sensitive areas to control the transfer of vibration into the building, which can lead to structure-borne noise:
- External vibration isolation shall be incorporated for MEP units.
 - Flexible ductwork connections to air handling equipment
 - Suspended, rooftop piping and pipe risers resiliently isolated from the building structure.
 - Flexible pipe connectors incorporated for HVAC piping connected to vibration-isolated equipment, and where piping and ductwork exit mechanical rooms.
 - Heat exchangers and expansion tanks vibration isolated per ASHRAE standards.

Electrical systems contain various components that create noise. Unlike noise from the HVAC system, which is typically broadband in nature, electrical components tend to generate highly tonal noise. Such noise can be annoying or distracting even at moderate levels. As such, noise and vibration control measures are to be incorporated into the design of the electrical system. These will include the use of vibration isolators for transformers and flexible conduit connections.



BOLD Bridging Organization, Learning and Design Student Engagement Opportunities

Real World Learning with DLR Group

Objectives:

- Engage students in a project based learning exercise exploring and reflecting on learning spaces through a creative, hands-on project.
- Students first discuss their observations and preferences, then focus on the design and function of different spaces within the school.
- Students produce visual or written representations of their ideal school spaces, along with completed reflection worksheets.
- These outputs will be collected, documented, and shared with the design team to help incorporate student perspectives into planning decisions.



Summary Master Plan Construction Budget

Chapman Elementary School

New Construction
(Buildings & Sitework) 2023 Master Plan Budget: \$52,080,000

Schematic Design Cost Estimate

Provided by MTI

Schematic Design Cost Plan							October 6, 2025
Chapman Elementary School Chico Unified School District Chico, California							MTI Job No. 25-1094
Overall Project Cost Summary	Current Construction \$	Escalation \$	Total Construction \$	\$/SF	Contingency (10%)	Soft Costs (15%)	Total Project \$
New Construction							
Administration Building	5,335,854	569,158	5,905,012	795.13	590,501	974,327	7,469,840
Multipurpose Building	11,208,227	1,195,544	12,403,771	820.25	1,240,377	2,046,622	15,690,771
Pod A - 5 Classrooms	6,001,150	640,123	6,641,272	684.31	664,127	1,095,810	8,401,209
Pod B - 5 Classrooms	10,058,460	1,072,902	11,131,362	671.13	1,113,136	1,836,675	14,081,173
Pod F - 3 TK/Kinder Classrooms	4,166,493	444,426	4,610,919	730.50	461,092	760,802	5,832,813
Flex-Library Building	3,171,643	338,309	3,509,952	743.08	350,995	579,142	4,440,089
Subtotal - New Construction	39,941,827	4,260,462	44,202,289	864.63	4,420,229	7,293,378	55,915,895
Sitework	13,770,285	1,468,830	15,239,115	35.81	1,523,912	2,514,454	19,277,481
Total	53,712,112	5,729,292	59,441,404	992.76	5,944,140	9,807,832	75,193,376



MARCENE TAYLOR INC.



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