

More Than a School: A Shared Vision for a Rural Community

A4LE 2024
LearningSCAPES

Sanjay Kadu, AIA and **Kristin Ianus**, AIA, LEED AP

October 18, 2024



More Than a School: A Shared Vision for a Rural Community

A4LE 2024
LearningSCAPES

Sanjay Kadu, AIA and Kristin Janus, AIA, LEED AP

October 18, 2024





OUR PRESENTERS



Sanjay Kadu
AIA, NCARB

Chief Design Officer + Principal

25+ years design experience

Focus on K-12 design process



Kristin Ianus
AIA, NCARB, LEED AP

Design Manger + Senior Architect

15 years design experience

**Focus on designing modern
teaching and learning spaces**



AIA / CES

- A4LE is a Registered Provider with **The American Institute of Architects Continuing Education System (AIA/ CES)**. Credit(s) earned on completion of this course will be reported to **AIA/CES** for AIA members.
- The programs presented at this conference are registered with **AIA/CES** for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.
- Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.
- **1 LU/HSW** course credit for attendance.

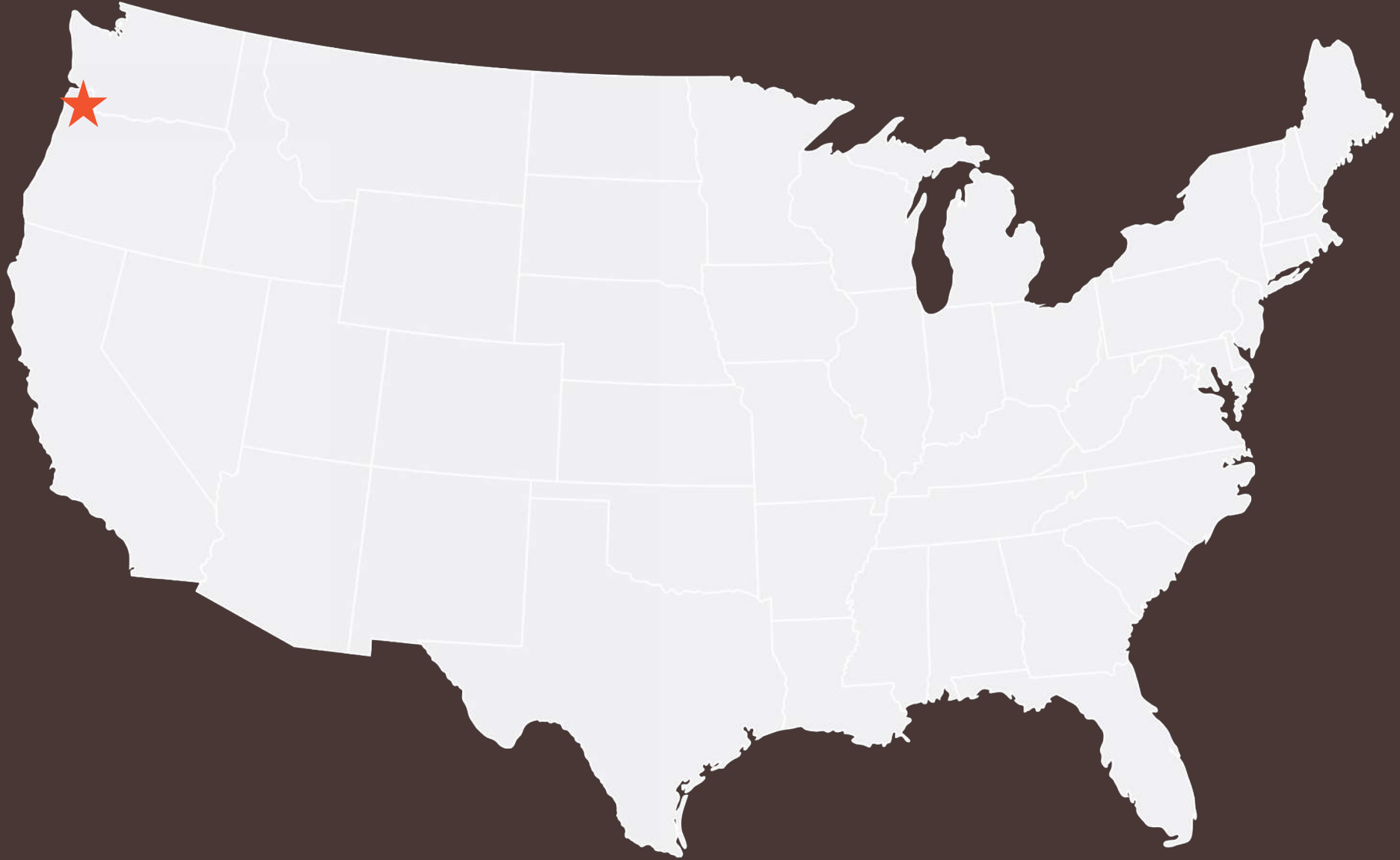
LEARNING OBJECTIVES

- Participants **learn design strategies** to create relatable spaces which are an extension of home.
- Participants will **understand the unique constructability challenges** of rural locations.
- Participants will **learn how providing housing options** can improve access to education in rural communities, specifically in Navajo Nation.
- Participants will learn how to **maximize the impact** of a rural school on a community.





GEOGRAPHY





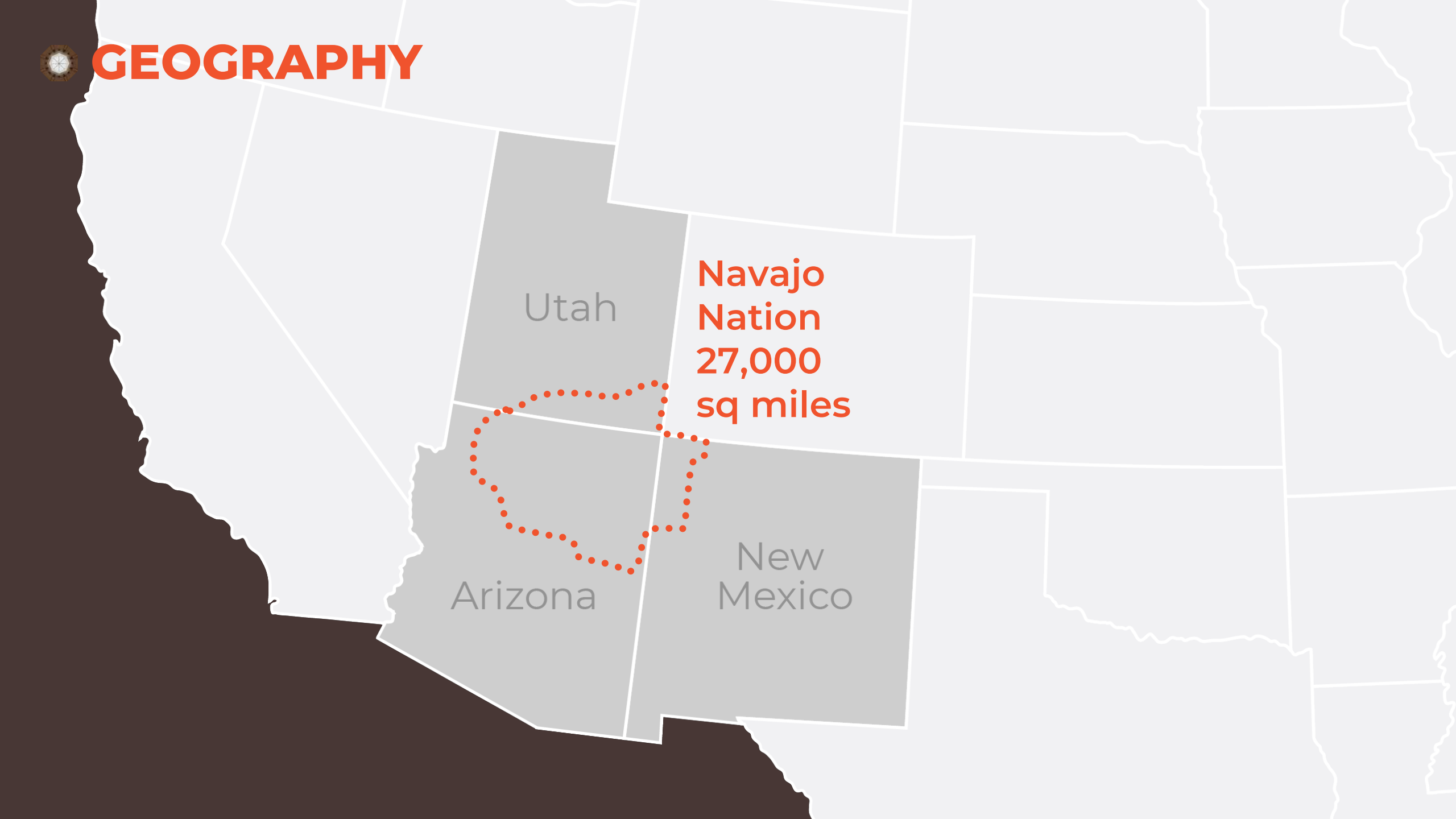
GEOGRAPHY

Utah

**Navajo
Nation
27,000
sq miles**

Arizona

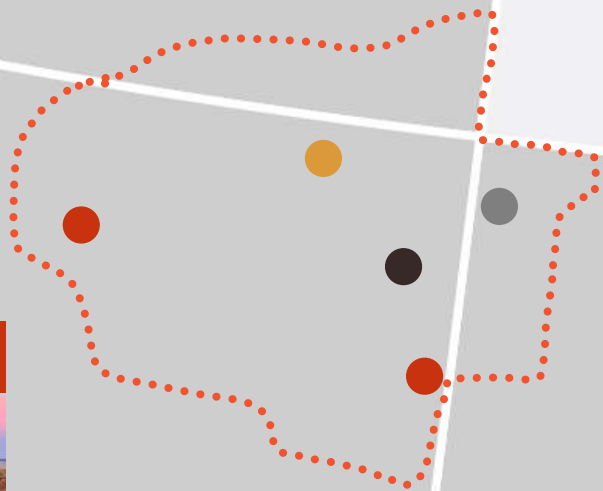
New
Mexico



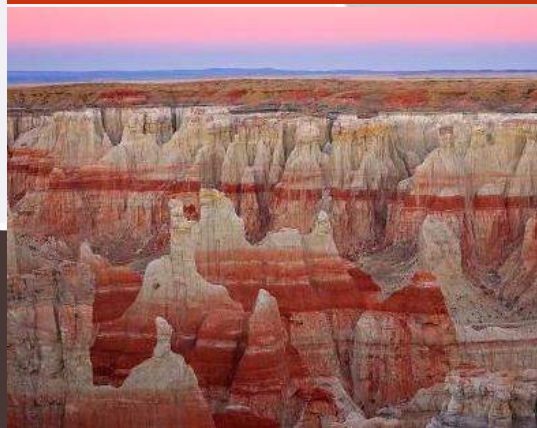


GEOGRAPHY

Utah



Tuba City, AZ



Kayenta, AZ



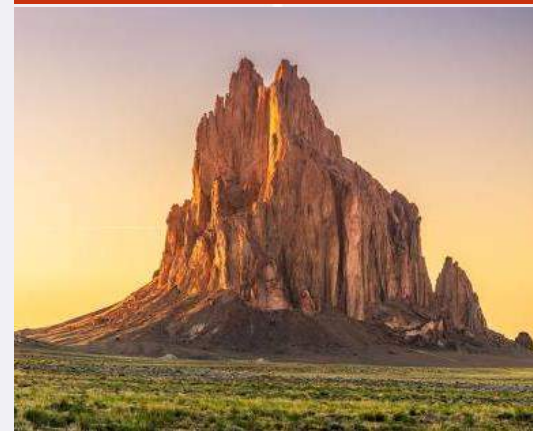
Chinle, AZ



Window Rock, AZ

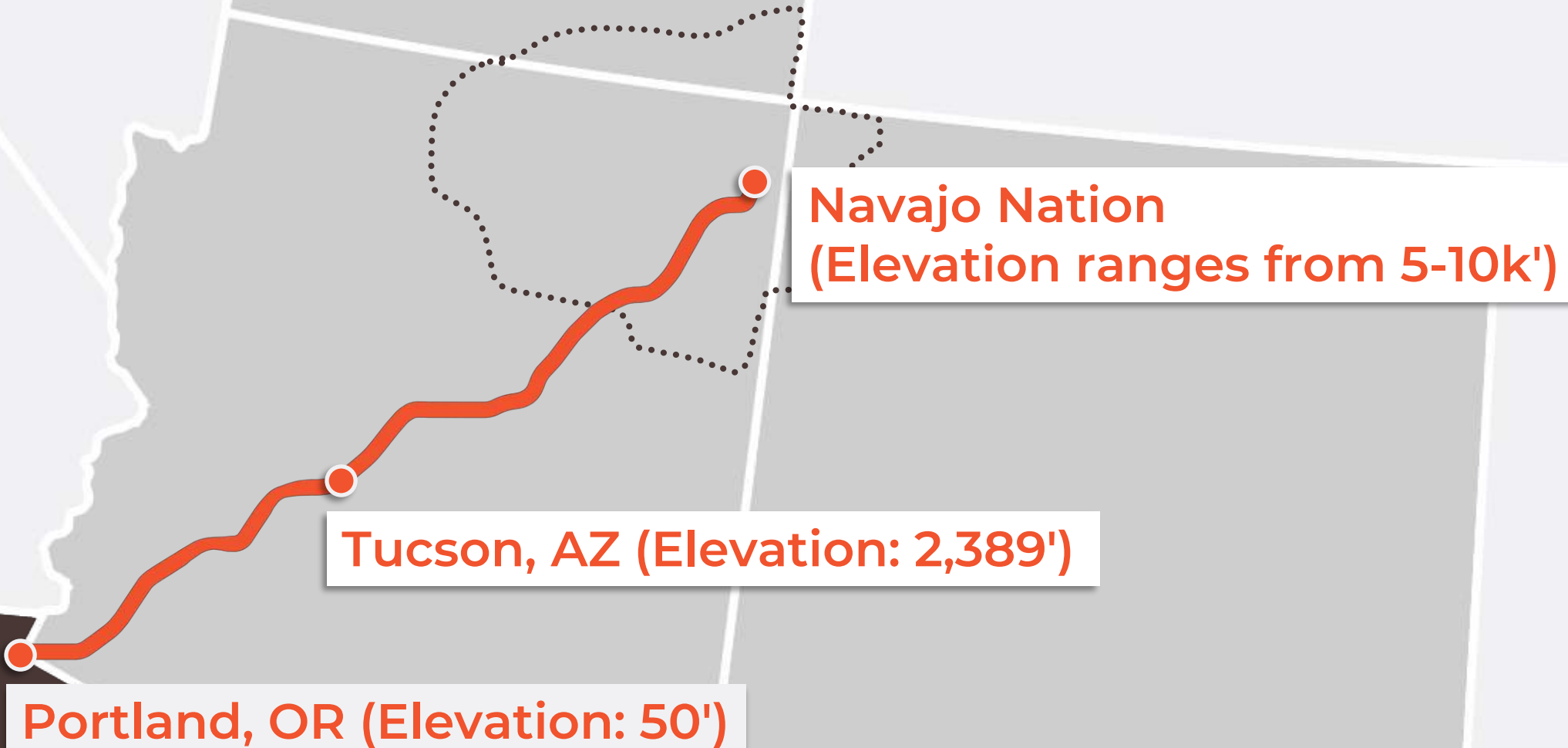


Shiprock, NM





TOPOGRAPHY



Portland, OR (Elevation: 50')

Tucson, AZ (Elevation: 2,389')

Navajo Nation
(Elevation ranges from 5-10k')

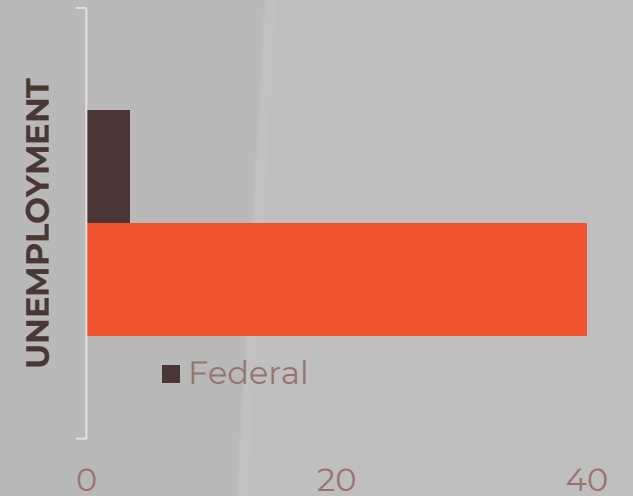
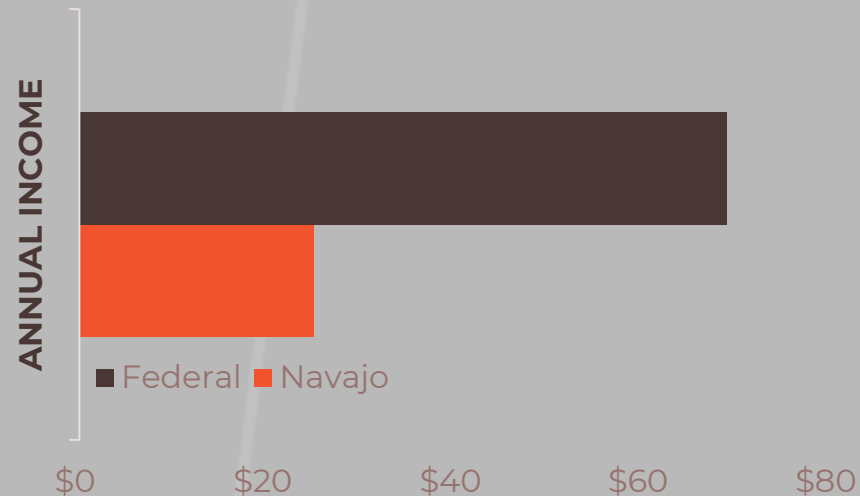
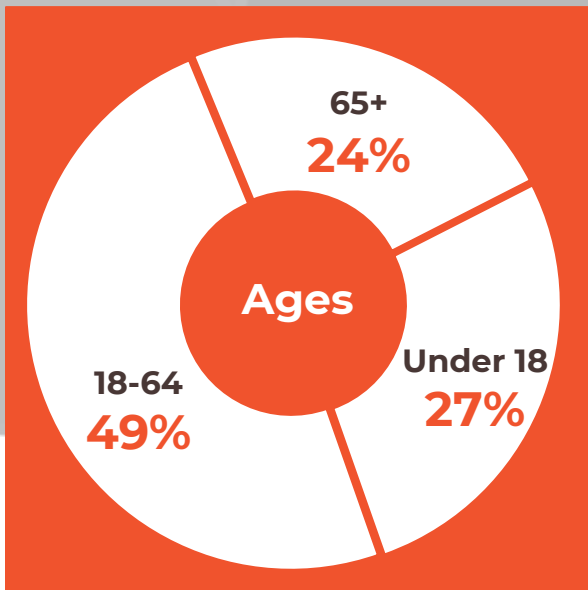
DEMOGRAPHICS

173,000 residents live within the Navajo Nation

75% of Navajos live on the reservation

Navajo (Diné Bizaad) is widely spoken, with over 120,000 speakers. English is also commonly used, particularly in education and governance.

Approximately 42% of residents live below the federal poverty line.





CULTURAL CONTEXT



Navajo
Nation





HISTORICAL CONTEXT



Pre-Contact and Early Education

Education was informal and community-based. Focused on practical skills, cultural traditions, and oral storytelling.



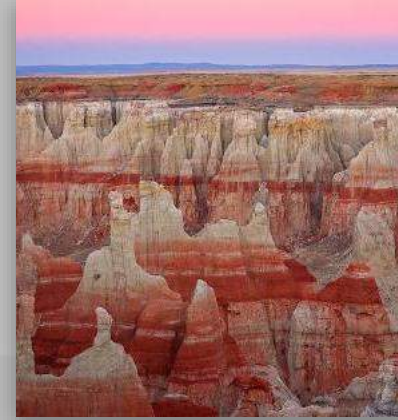
19th and Early 20th Century

Federal policies aimed at assimilating Native Americans led to boarding schools. Cultural loss and trauma.



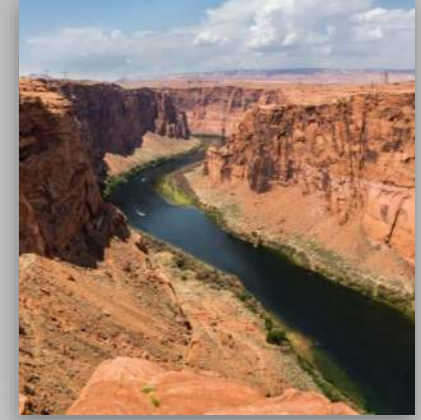
Mid-20th Century

More Navajo children attend public school. Often under-resourced and insensitive. Dine College—first tribally controlled college.



Late 20th and Early 21st Century

Indian Self-Determination and Education Assistance Act of 1975. Navajo Nation DODE oversees culturally relevant curricula.



Today

Bilingual and bicultural programs. Parents and community leaders involved in education planning and decision making.



CASE STUDY:

**Design
Solutions
at Lukachukai
Community School**

The background of the slide is a photograph of a wooden ceiling. The ceiling is made of dark brown wood with a prominent grain. A central feature is a large octagonal skylight. The skylight has a white frame and a complex geometric grid pattern of metal or glass panes. The octagon is surrounded by a decorative border of dark wood with black accents at the corners. The overall aesthetic is traditional and architectural.

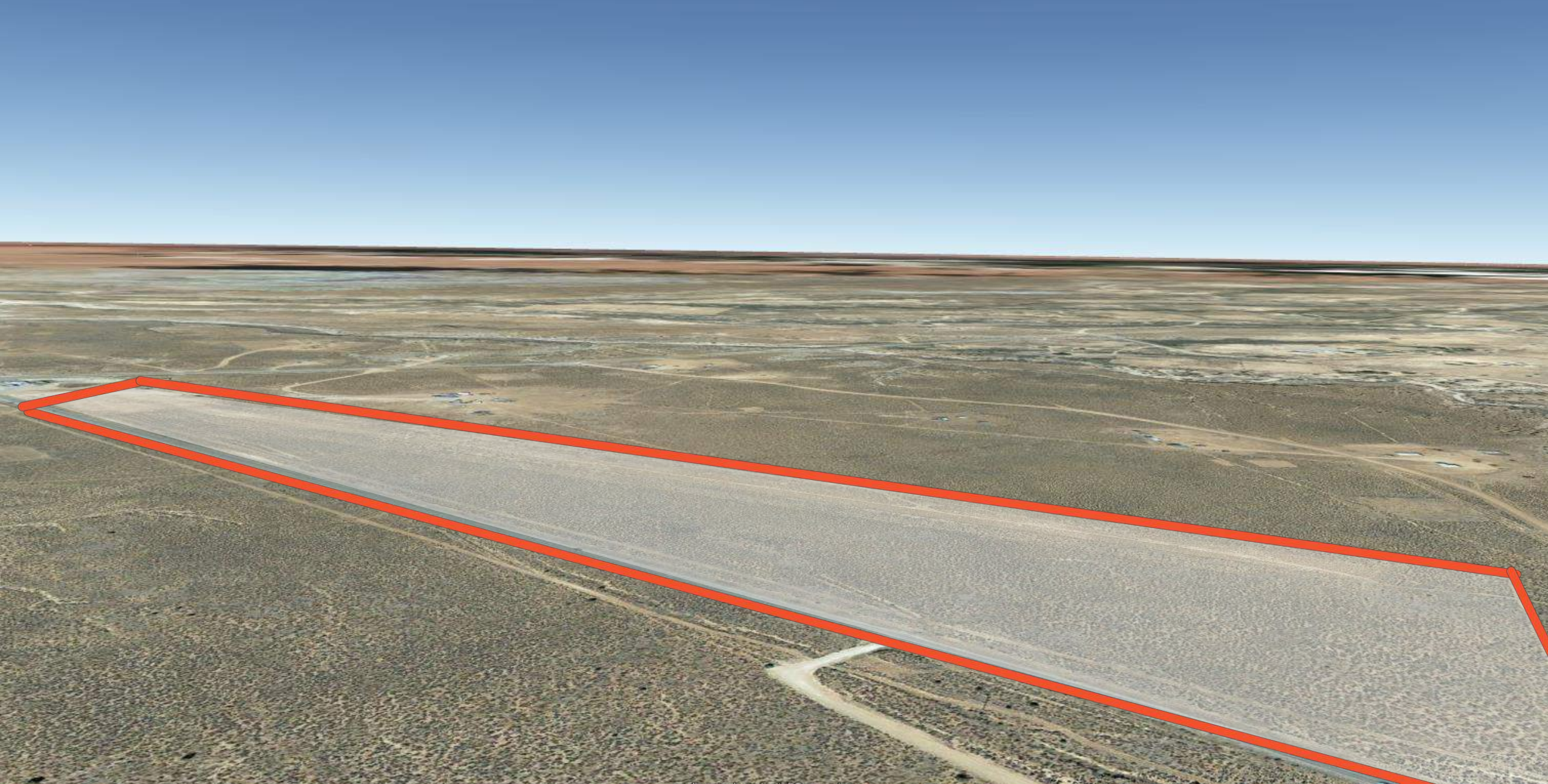
CHALLENGES:

- Understanding local culture
- Harmonizing culture and modern education design
- Getting it built
- Incentivizing teaching in very rural locations

12/2020



PROJECT OVERVIEW





PROJECT OVERVIEW

- 9.5 Month Design Schedule
- Commenced March 2020
- Project Cost \$79.9M

K-8 School
84,151sf

Teacherages
29 Units

Dorm
13,880sf

Fire Station
/ Bus Bay
3,913sf





PROJECT OVERVIEW

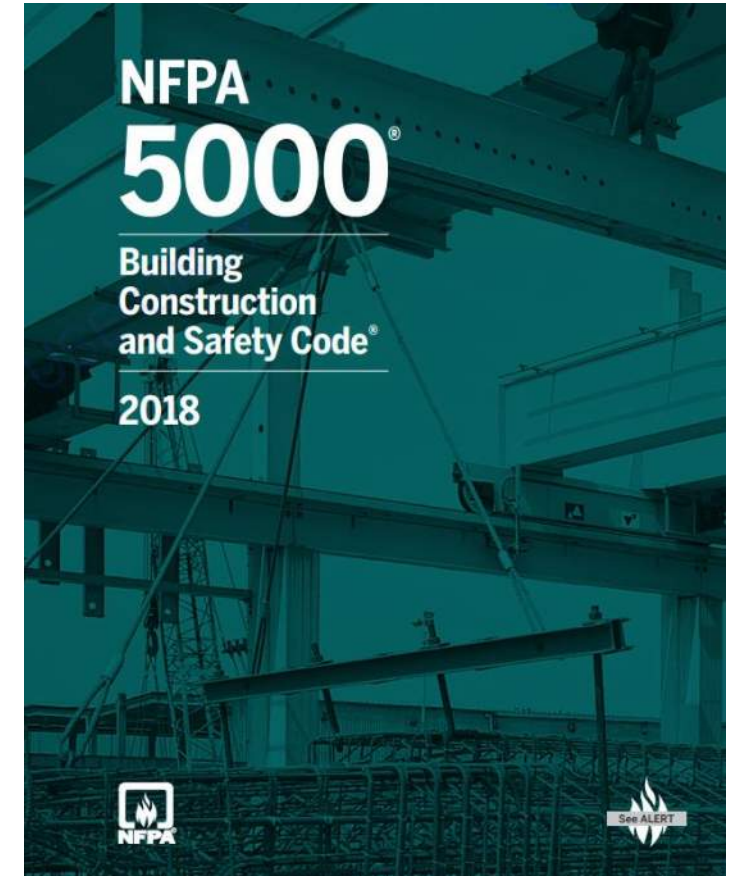
Designing with BIA Guidelines

A2020

Chapter A2: Interdisciplinary Standard Classrooms **ISC-3 Grades 2 & 3 General Classroom Space Criteria**

BIA School Facilities	Grades 2 & 3 Classroom	"Yes" and "No" apply to all spaces # refers to Space Description designation ✓ indicates approved feature, system, or material	Fixed Furnishings/Equipment	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
Space Description	For square footages, see space template		Whiteboard (8'-0")	Qty	2										
1. Grades 2 & 3 classroom			Tackboard (4'-0")	Qty	2										
2. Storage area			Overhead projection screen	Qty	1										
			TV with wall mounting bracket or TV cabinet	Qty	1										
			Acoustical Conditions												
			Speech privacy		No										
			Special acoustical treatment needed		No										
			Musical performance/singing/cheering expected		No										
			Electrical/Lighting												
			Power outlet minimum number		Yes in #1										
			Lighting requirements:												
			• Automatic lighting controls		Yes in #1										
			• Direct/indirect lighting		Yes in #1										
			• Multi-level switched		Yes in #1										
			Other electrical/lighting equipment or requirements:												
			•												
			Communications/IT Requirements												
			Communication outlet (4-port) - teacher		Yes in #1										
			Communication outlet (1-port per computer station)		Yes in #1										
			CATV outlet (coax + Cat 6)		Yes in #1										
			Sound reinforcement outlet		Yes in #1										
			Wireless access point outlet (2-port)		Req. coverage										
			Mobile projection cart outlet		Yes in #1										
			Outlet (1-port) for future interactive whiteboard		Yes in #1										
			Speaker - ceiling mounted		Yes in #1										
			Clock		Yes in #1										
			Other communications/IT equipment or requirements:												
			•												
			Safety/Security												
			Nonmaster locks												
			Intrusion alarm system												
			Access control												
			Other safety/security equipment or requirements:												
			•												
			Interior Finishes												
			Walls:												
			• CMU - painted		✓	✓									
			• CMU - ground face, integral color		✓	✓									
			• Standard gypsum board - painted or vinyl covered		✓	✓									
			• Other												
			Base:												
			• Resilient rubber		✓	✓									
			• Other												
			Floors:												
			• Carpet		✓	✓									
			• VCT		✓	✓									
			• Sheet vinyl		✓	✓									
			• Other												
			Ceilings:												
			• Minimum ceiling height		9'0"	9'0"									
			• Exposed to structure - painted		✓	✓									
			• Lay-in acoustical		✓	✓									
			• Other												
			Windows:												
			• Windows/daylight into space required		Yes	Yes									
			• Operable window required		Yes	Yes									
			Doors:												
			• Wood		Yes	Yes									
			• With glazed lites		Yes	Yes									
			• Other												

BIA School Facilities Space Templates **A2020-3**
March 30, 2007





PROJECT OVERVIEW

Designing with BIA Guidelines

- 13 Submittals At Various Stages to BIA
- 4 Separate Construction Packages Issued


Lukachukai Community Lukachukai Community School Design Build - Nez FCI + Dekker/Perich/Sabatini Consultant Submittal Requirements BIA School Facilities Design Handbook- March 30, 2007					
2010.4. 70% Submittal Requirements - Preliminary Construction Documents					1-Aug-19
4.1. General. In the 70 percent preliminary construction documents phase, the Designer of Record refines the approved design development information to establish the requirements for the construction of the work. The 70 percent construction documents will include near-complete drawings and specifications to establish in detail the quality levels and construction of building materials, components, and systems. The content of the 70 percent construction documents package shall include, but not be limited to:					
General					
Item No.	Submittal Requirement	Yes	No	N/A	Notes
1	Update the previous schedule for milestones, submittals, contracting, and construction.	X			
2	Develop probable costs based upon the preliminary construction documents information. Cost estimates are to be presented by division and section according to CSI MasterFormat. In the event the estimated project cost exceeds the established budget, the Designer of Record shall make recommendations necessary to bring the project within budget and notify the Contracting Officer, in writing, before proceeding.	X			
3	Coordinate LEED documentation for 70% preliminary construction documents, indicating proposed strategies for compliance with LEED requirements and ways to achieve certification goals.	X			
4	Incorporate all approved comments from the BIA review of the 40% design development submittal.			X	There were no BIA comments on the previous submittal.
Civil					
Item No.	Submittal Requirement	Yes	No	N/A	Notes
1	Include preliminary construction document level completion of all previous 40% submittal requirements with the exception of an updated design narrative.	X			
2	Integrate the approved site development and data into working drawings.	X			
3	Provide location and vicinity maps.	X			See DPS general sheets.
4	Develop detail sheets with proper references.			X	This will be provided in the future as part of the separate submittal packages.
5	Complete geometric layout of all items of new work using offset dimensions from existing structures, or use coordinates for locating new work.			X	The geometric layout is complete, however the horizontal control will be completed in future as part of the separate submittal packages.
6	Develop new site grading, street plan, and profile with proper drainage, and include information of specific items of work, soil boring locations, and designations, coordinated with test hole locations and logs.	X			
7	Complete the legend using all items and symbols shown on the plan, maintaining consistency between drawings.	X			
8	Indicate limits of construction disturbance, and provide narrative delineating areas to be restored.	X			
9	Provide an erosion control plan, including control objectives comparing post- and pre-development conditions.			X	This will be provided by NEZ/FCI.

Home Economics Storage			200	1	200		200	1	200	200	1	200
Practical and fine arts	25	50	1,250	1	1,250	25	1,250	1	1,250	1,250	1	1,250
Practical and Fine Arts Storage			120	1	120		120	1	120	120	1	120
Vocational Education	16	120	1,920	1	1,920	16	1,920	1	1,920	960	1	960
Vocational Education Mt Storage			600	1	600		800	1	800	800	1	800
Tool and Project Storage			200	1	200							
Music							1000	1	1,000	1000	1	1,000
Music Storage			0		0		120	1	120	120	1	120
Total Dedicated Classrooms					8,826				9,946			8,986
SPECIAL PROGRAMS CLASSROOMS												
Family and Child Education (FACE)	0	0	0	0	0	0	0	0	0			
Accounted for in Interdisciplinary												
Therapy Classroom	12		880	1	880	12	880	1	880	880	1	880
Therapy Unisex Restroom			100	1	100		100	1	100	100	1	100
Kitchenette- Incl. in CR sf			80				80	1	80			
Therapy Storage Room										120	1	120
Therapy Conference Room										150	1	150
Resource Classroom K-5			960	1	960		2880	1	2,880	1457	1	1,457
Resource Classroom 6-8			960	1	960		1920	1	1,920	1500	1	1,500
Office/Testing Room			200	1	200		200	1	200	200	1	200
Gifted and Talented			960	1	960		960	1	960	960	1	960
Total Special Programs Classrooms					4,060				7,020			5,367
ADMINISTRATION												
Principal Office			150	1	150		150	1	150	150	1	150
Assistant Principals Office			150	1	150		150	1	150	150	1	150
Other Offices			240	1	240		120	2	240	120	2	240
Counseling			150	1	150		150	1	150	200	1	200
Reception/Secretary			300	1	300		300	1	300	300	1	300

Lukachukai Community Schools Construction Package Schedule & Drawings Index Outline	Draft 7/26/2021	Draft 7/26/2021
Package 1: 99% Site Submittal 99% PEMB June 15 2020 (2 Separate Packages)	Package 2: 99 % Dorm & Housing July 17, 2020 (2 Separate Packages)	Package 3: School Structural Foundation Package July 27. 2020 (1 Package)
Package 4: 99% Final School/Shell Package September 15, 2019 (1 Package) (All Site details should be submitted by addenda to Package 1 Site Work)		
GI (Site) Cover Index	GI (Dorm & Housing) Cover Index Life Safety	GI Cover Index
GI (PEMB) Cover Index Life Safety	Civil (Dorm & Housing) Site Demolition as Required Adjacent Building Utilities (Carried from Site Utilities)	Civil Adjacent Site Demolition (if any) Final Grading & Drainage HCP (tie to grids, footings, driveways, etc.)
Civil (Site) Site utility location install	Site Paving Plan	Adjacent Building Utilities (Carried from Site Utilities) for rough-in Site Paving Plan
Site Demolition	Horizontal Control Plan (tie to grids, footings, driveways, etc.)	HCP for roads and final site paving
Grading & Drainage Grading for Roads & Right of Way - final road paving to be completed in final package	Architectural Site (Dorm & Housing) Adjacent Site Plans	Architectural Site Adjacent Site plans and details as required to locate the pad
Horizontal Control Plan (full site development)	Enlarged Architectural Site Components	Final site signage installation and details for overall site

UNIQUE DESIGN CHALLENGES

 **1** Understanding local culture

 **2** Harmonizing culture and modern education design

 **3** Getting it built

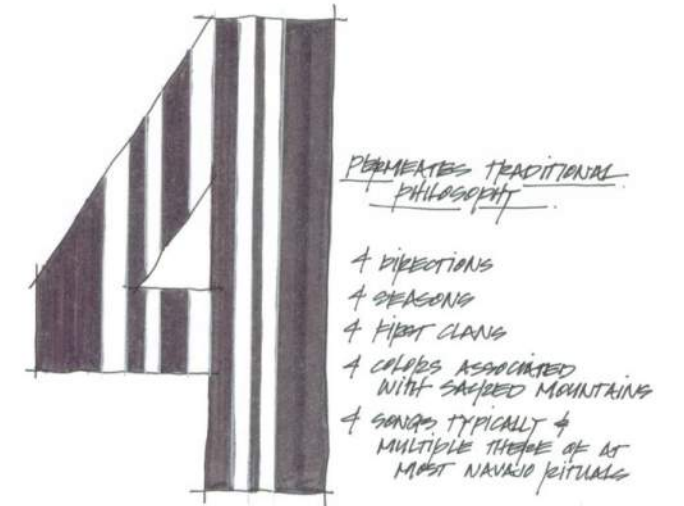
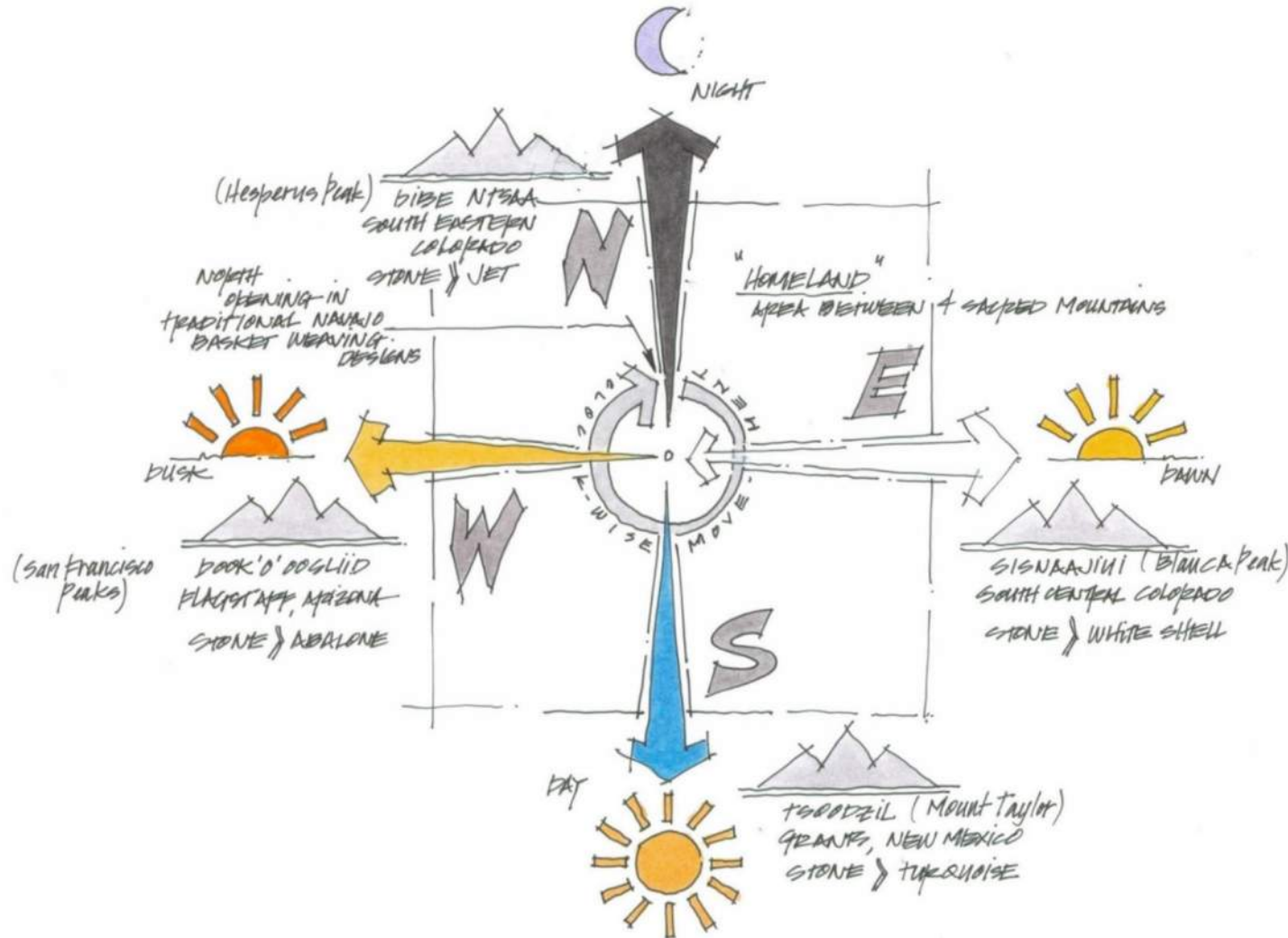
 **4** Incentivizing teaching in a very rural location



1

Understanding local culture

Traditional philosophy
inspires design choices

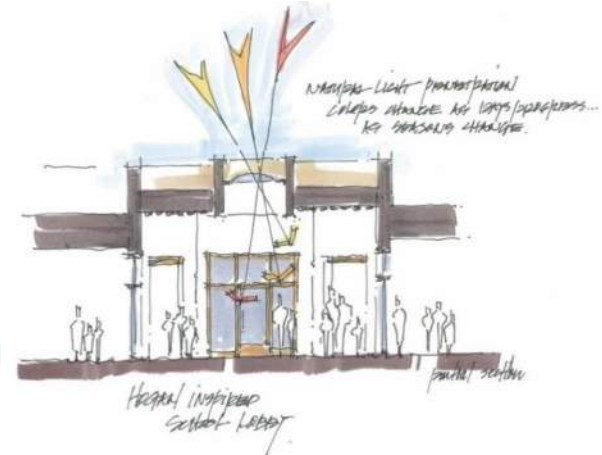




1

Understanding local culture

Appropriate orientation for solar exposure and axial alignment

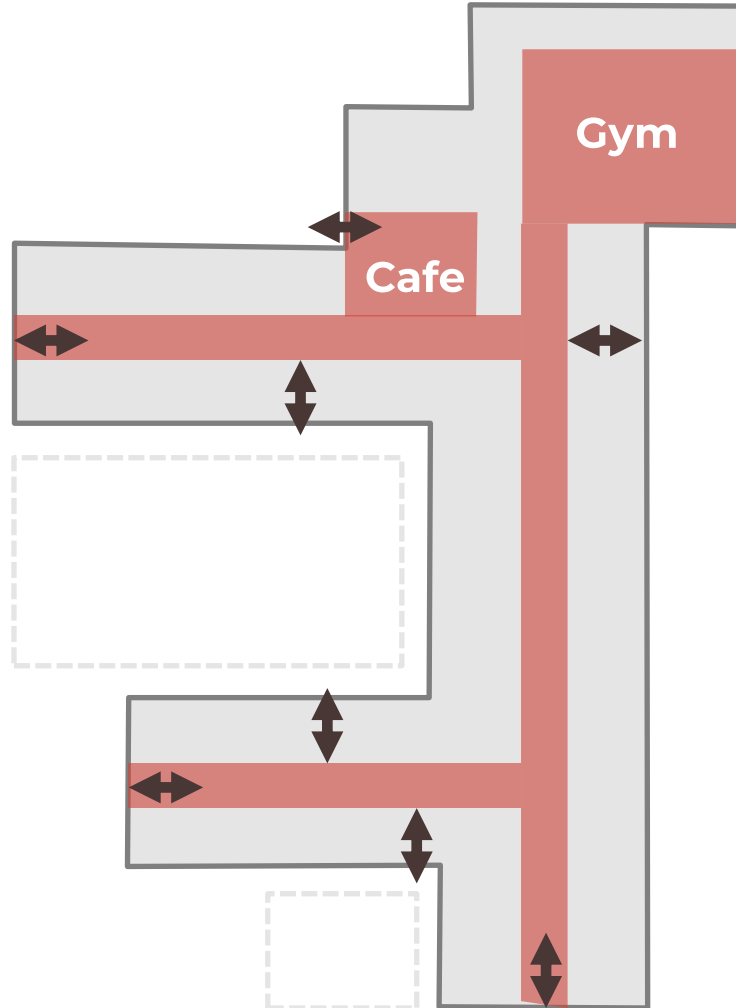




1

Understanding local culture

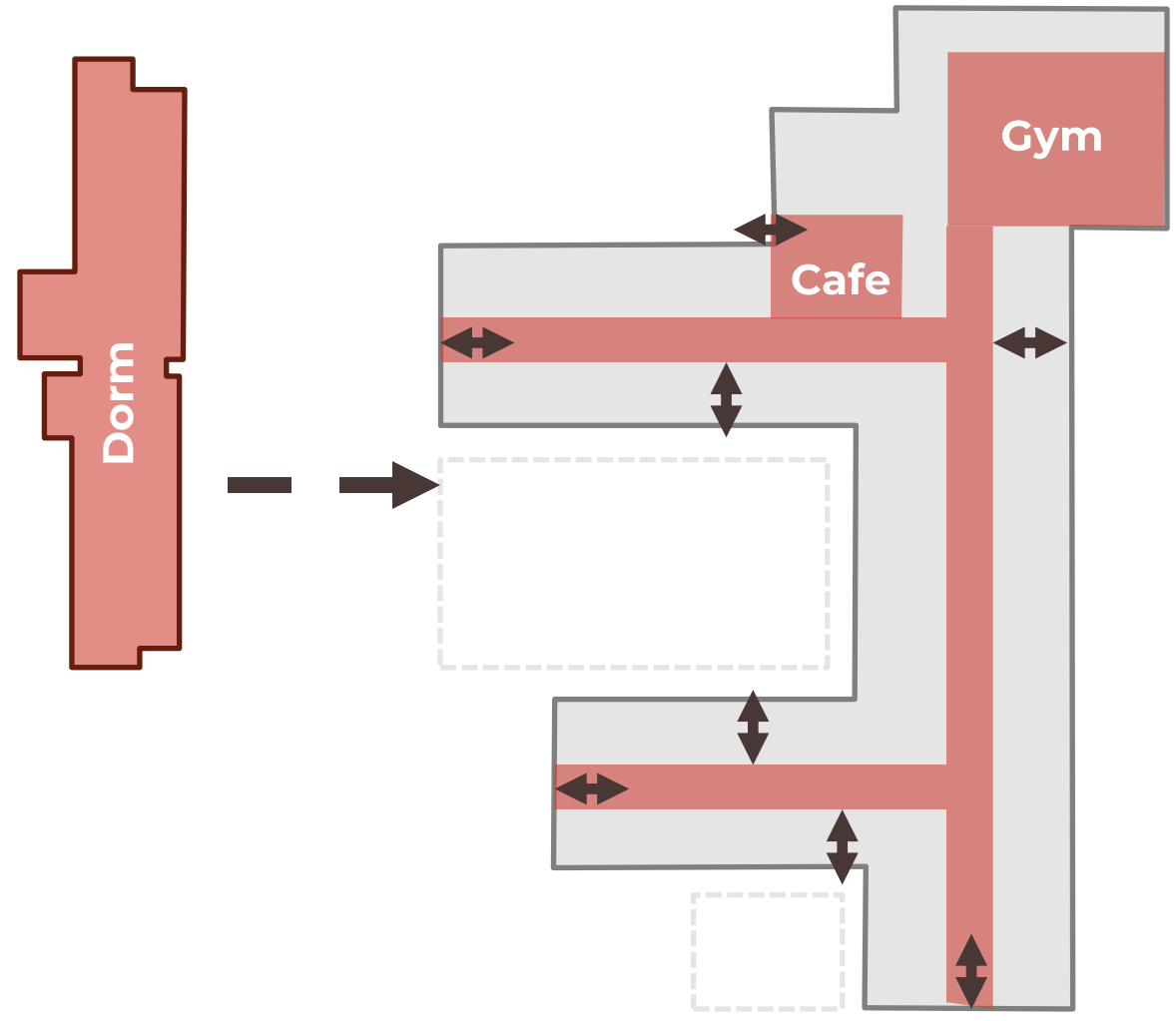
Direct circulation
and separation of wings





1

Understanding local culture



Close connection between dorm and school





1

Understanding local culture

Welcoming entry
that is cultural home





1

Understanding local culture

Hogan is an outstanding architectural feature

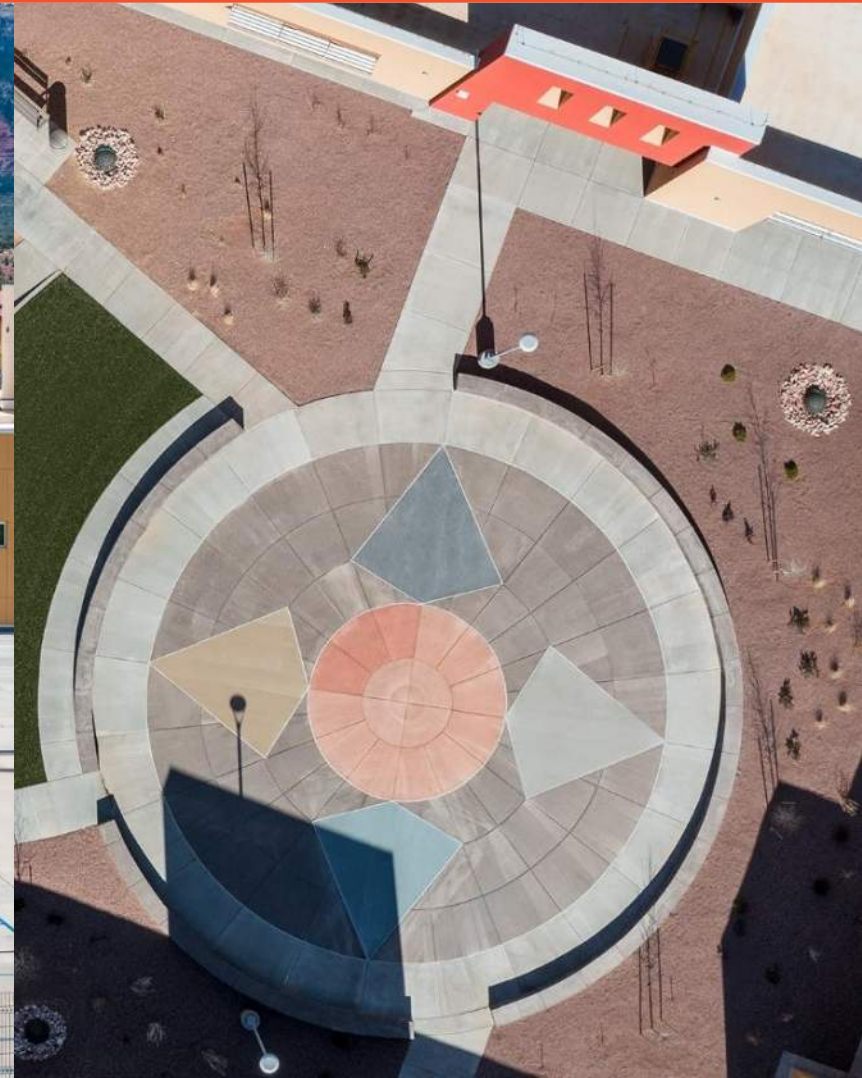




1

Understanding local culture

Protected multipurpose space





1

Understanding local culture

Nature inspires the color palette



1

Understanding local culture

Relatable colors and graphics





1

Understanding local culture

Cultural consultant



EXIT





1

Understanding local culture

Geometry of hogans and peaks inspire interiors





1

Understanding local culture

Exterior materials
inspired by place

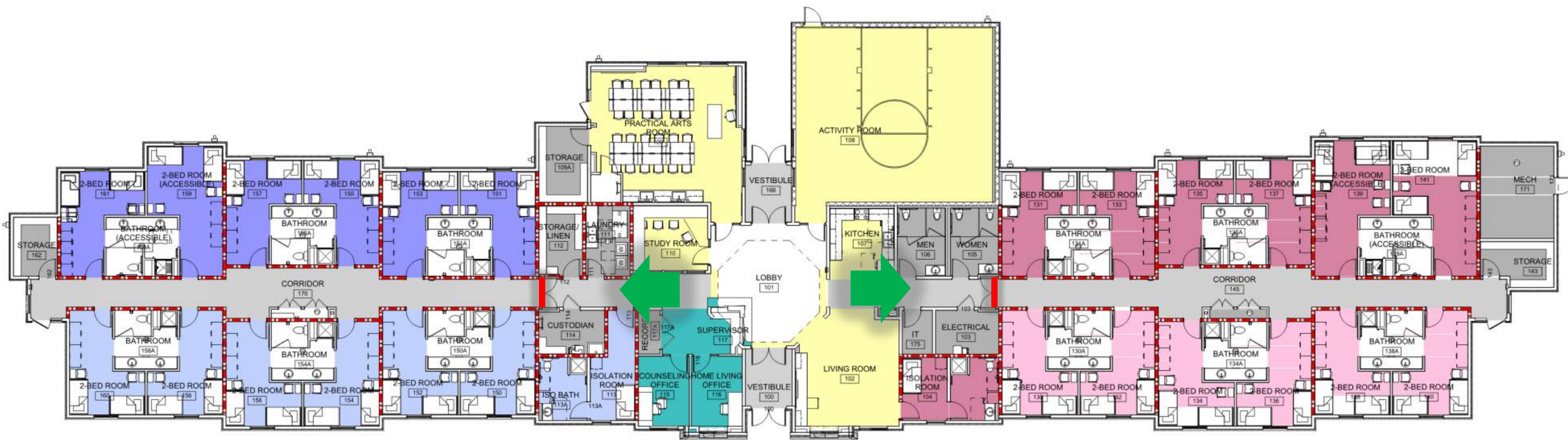




1

Understanding local culture

Safe and relatable spaces that are an extension of home





1

Understanding local culture

Central community-use spaces serve residents

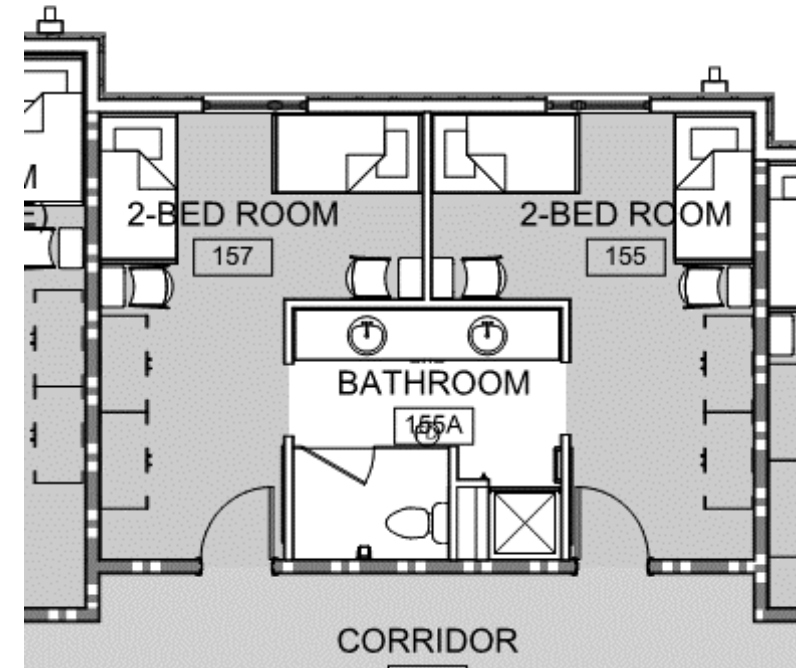




1

Understanding local culture

Balance individual privacy and supervision



Ms. Carmen Jodie School Principal



UNIQUE DESIGN CHALLENGES

1

Understanding local culture



2

Harmonizing place and modern education design

3

Getting it built

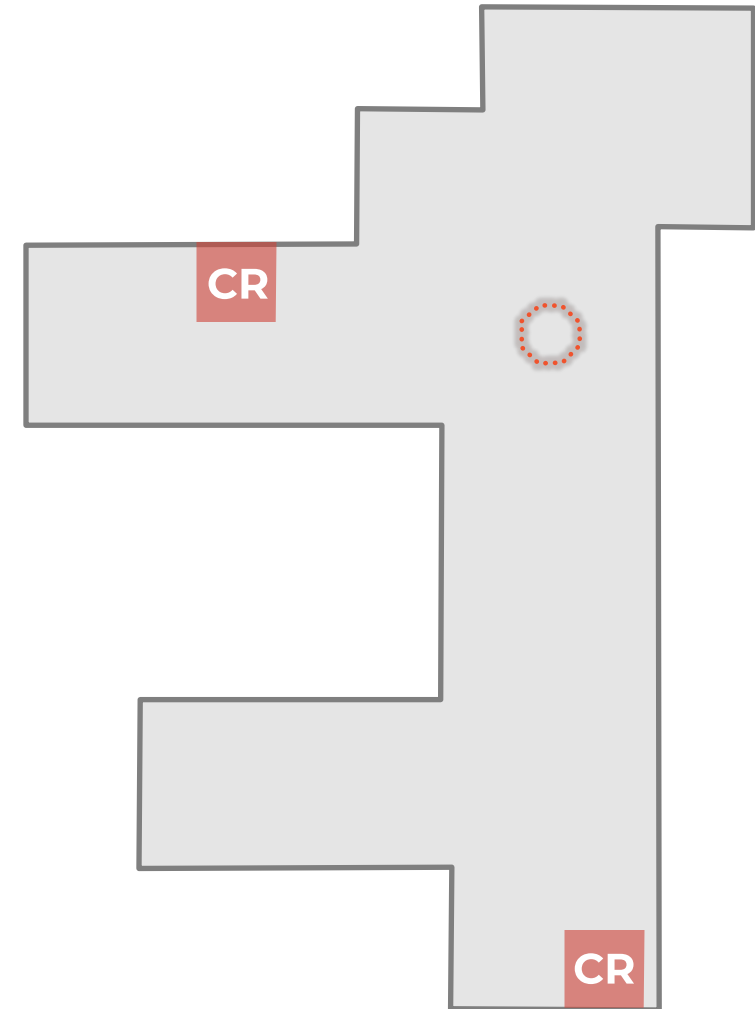
4

Incentivizing teaching in a very rural location



Harmonizing culture and modern education design

Different approaches to cultural classrooms





Harmonizing culture and modern education design

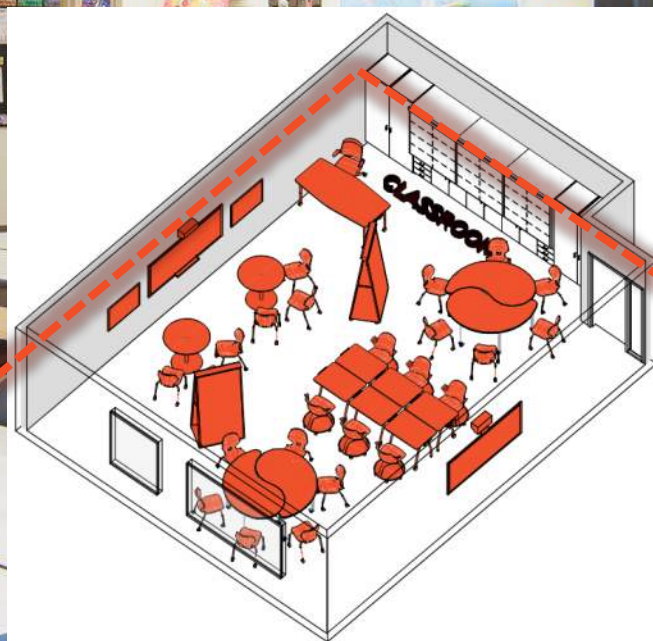
Teaching traditional subjects in collaborative environments





Harmonizing culture and modern education design

Teaching wall for flexible seating configurations





Harmonizing culture and modern education design

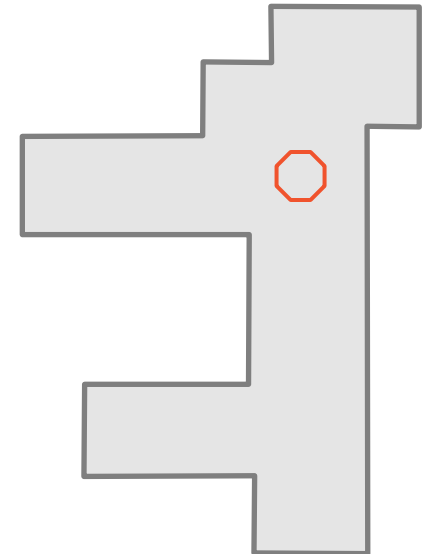
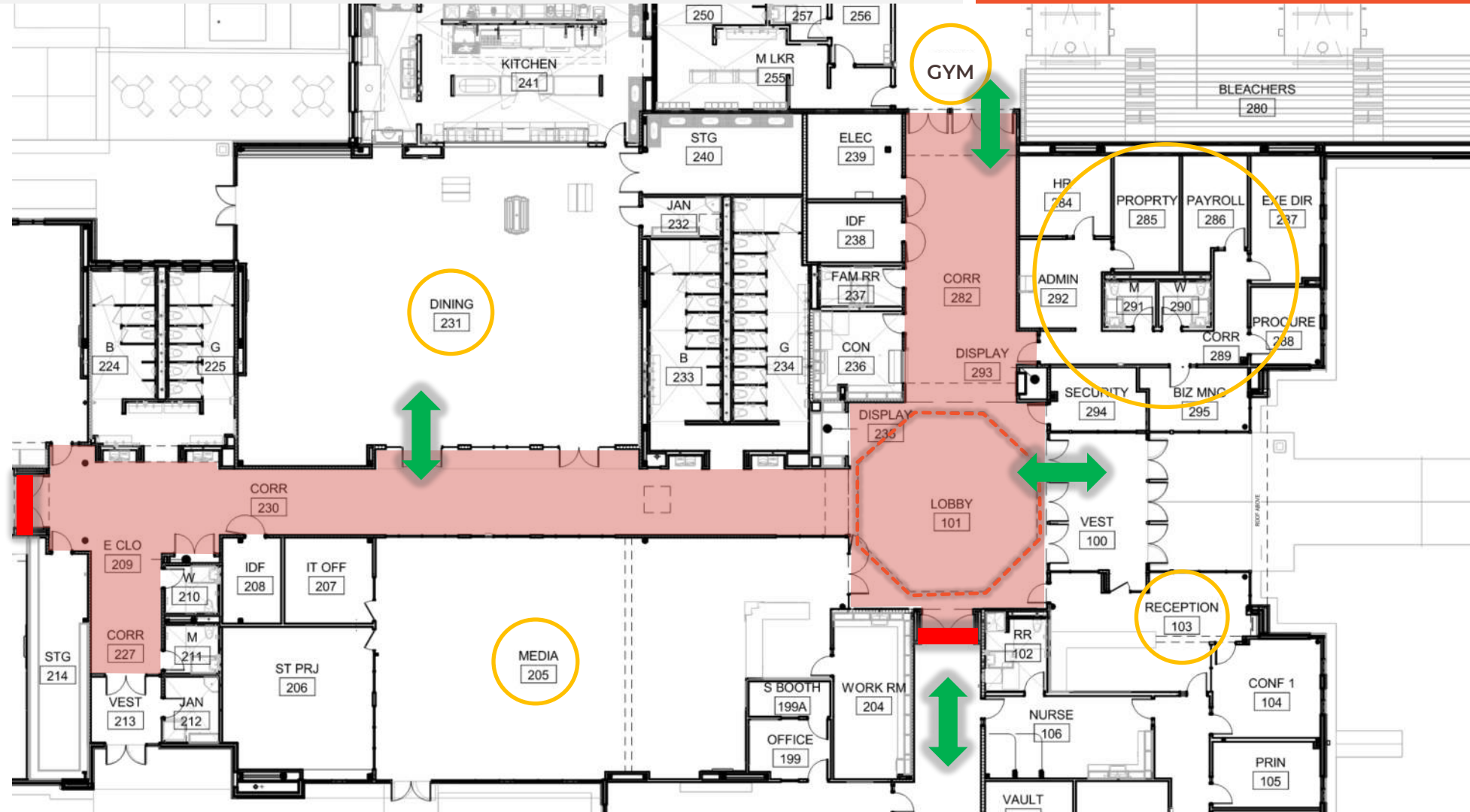
Interactive classrooms
with a view





Harmonizing culture and modern education design

Slowly opening up to the community post Covid

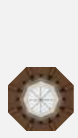




Harmonizing culture and modern education design

Slowly opening to wider community post Covid





1

Understanding local culture

Dining room facilitates healthy community





Harmonizing culture and modern education design

Flexible seating and project space with community access





Harmonizing culture and modern education design

Design on-site emergency services and safe access



13'-10"
**Ms. Carmen Jodie
School Principal**

56'-5"

IDF
208

IT OFF
207

13'-7"

ST PRJ
206

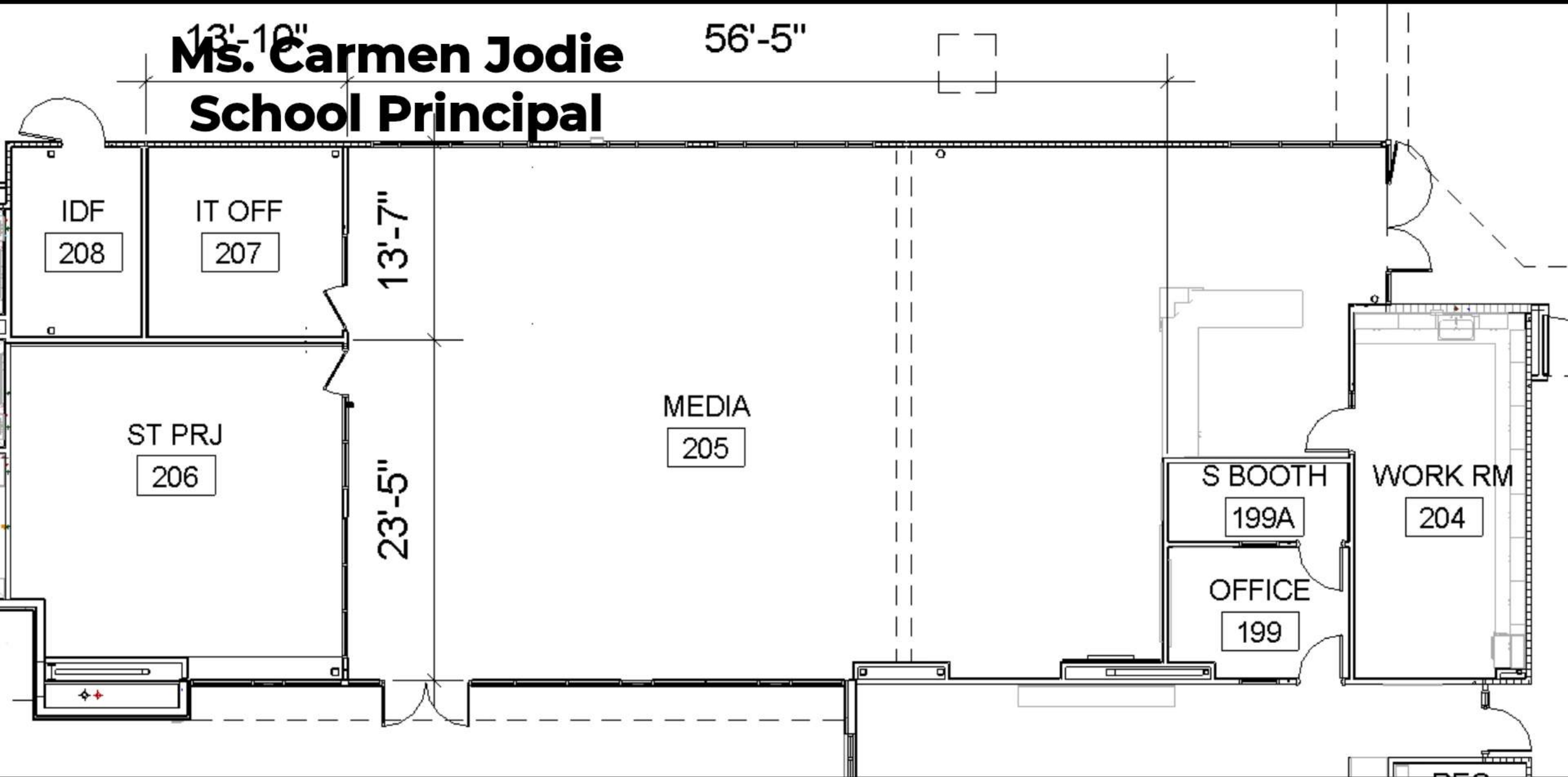
23'-5"

MEDIA
205

S BOOTH
199A

OFFICE
199

WORK RM
204



UNIQUE DESIGN CHALLENGES

1

Understanding local culture

2

Harmonizing culture and modern education design

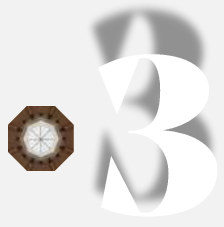


3

Getting it built

4

Incentivizing teaching in a very rural location



Getting it built

Plan for water access early



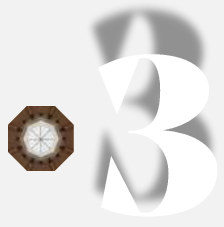
Lukachukai

10 miles
15 min

Tsaile

Google Earth

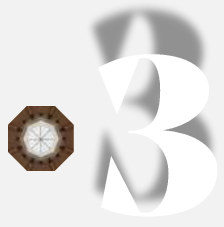
3 mi



Getting it built

Partnering makes the most of resources

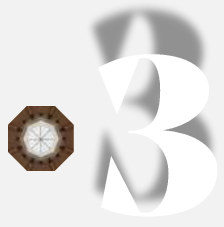




Getting it built

**Constructing a
sewage lagoon**





Getting it built

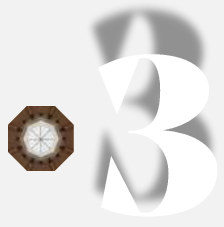
Utilize a mobile
concrete batch plant



82.5 miles
1 hr 41 min

Farmington, NM

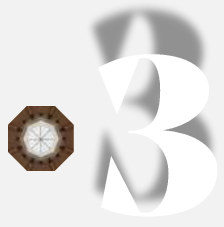
Lukachukai, AZ



Getting it built

Utilize a mobile
concrete batch plant





Getting it built

Housing labor,
alternative schedule,
and managing lead times



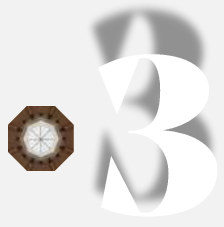
Kayenta, AZ
92 miles / 1.5 hrs



Farmington, NM
100 miles / 2 hrs

Chinle, AZ 48 miles / 1 hr

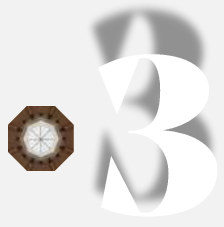
100 miles / 2 hrs



Getting it built

Managing lead times





Getting it built

Community involvement



Video courtesy of NEZFCI, general contractor to the project



UNIQUE DESIGN CHALLENGES

1

Understanding local culture

2

Harmonizing culture and modern education design

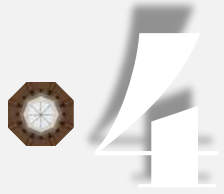
3

Getting it built



4

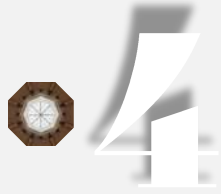
Incentivizing teaching in a very rural location



Incentivizing teaching in a very rural location

Previous teacher housing

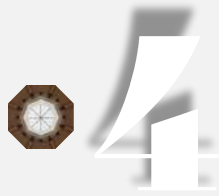




Incentivizing teaching in a very rural location

Design teacher housing on campus

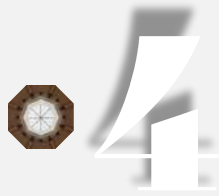




Incentivizing teaching in a very rural location

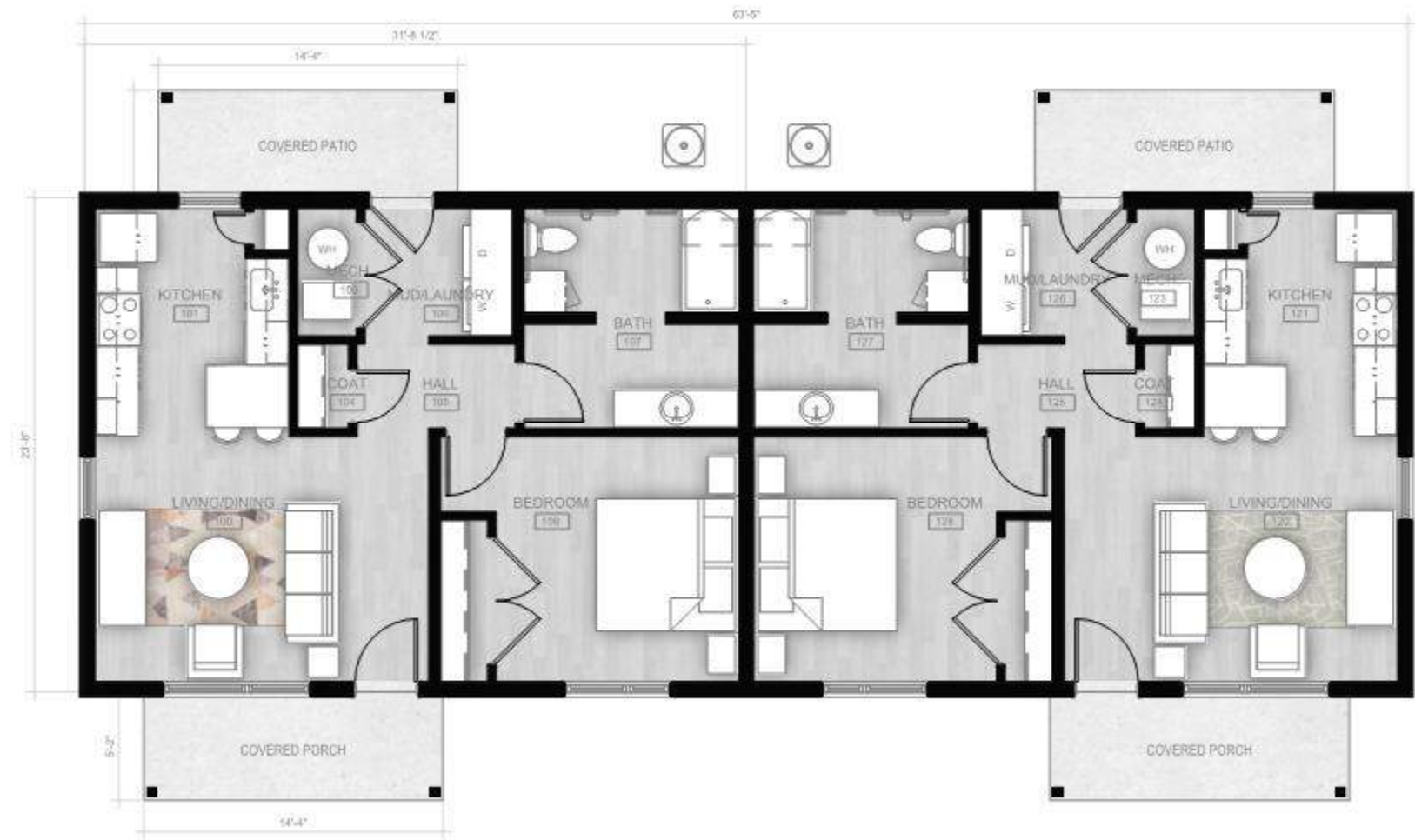
1 Bedroom / 765sf

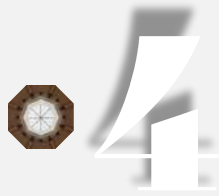




Incentivizing teaching in a very rural location

2 Bedrooms / 1,200sf

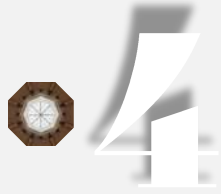




Incentivizing teaching in a very rural location

3 Bedrooms / 1,450sf





Incentivizing teaching in a very rural location

Provide comfortable interiors



Ms. Carmen Jodie School Principal



In conclusion



**Design
strategies
enhance lives**

More text can go here to explain, maybe a sentence or two not too much to read.

**Rural
can mean
workable**

More text can go here to explain, maybe a sentence or two not too much to read.

**School
as
home**

More text can go here to explain, maybe a sentence or two not too much to read.

**Fourth
bullet goes
here**

More text can go here to explain, maybe a sentence or two not too much to read.



**Ms. Carmen Jodie
School Principal**



Thank you !

**Questions? Comments? Ideas?
Please reach out!**

sanjayk@dekkerdesign.org

kristini@dekkerdesign.org

