

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



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OUR PRESENTERS



Sanjay Kadu
AIA, NCARB

Chief Design Officer + Principal

27+ years' experience specializing in K-12 design, focused on creating schools that reflect community identity



Kristin Ianus
AIA, NCARB, LEED AP

Design Manger + Senior Architect

15+ years' experience specializing in innovative, sustainable, and engaging modern learning environments



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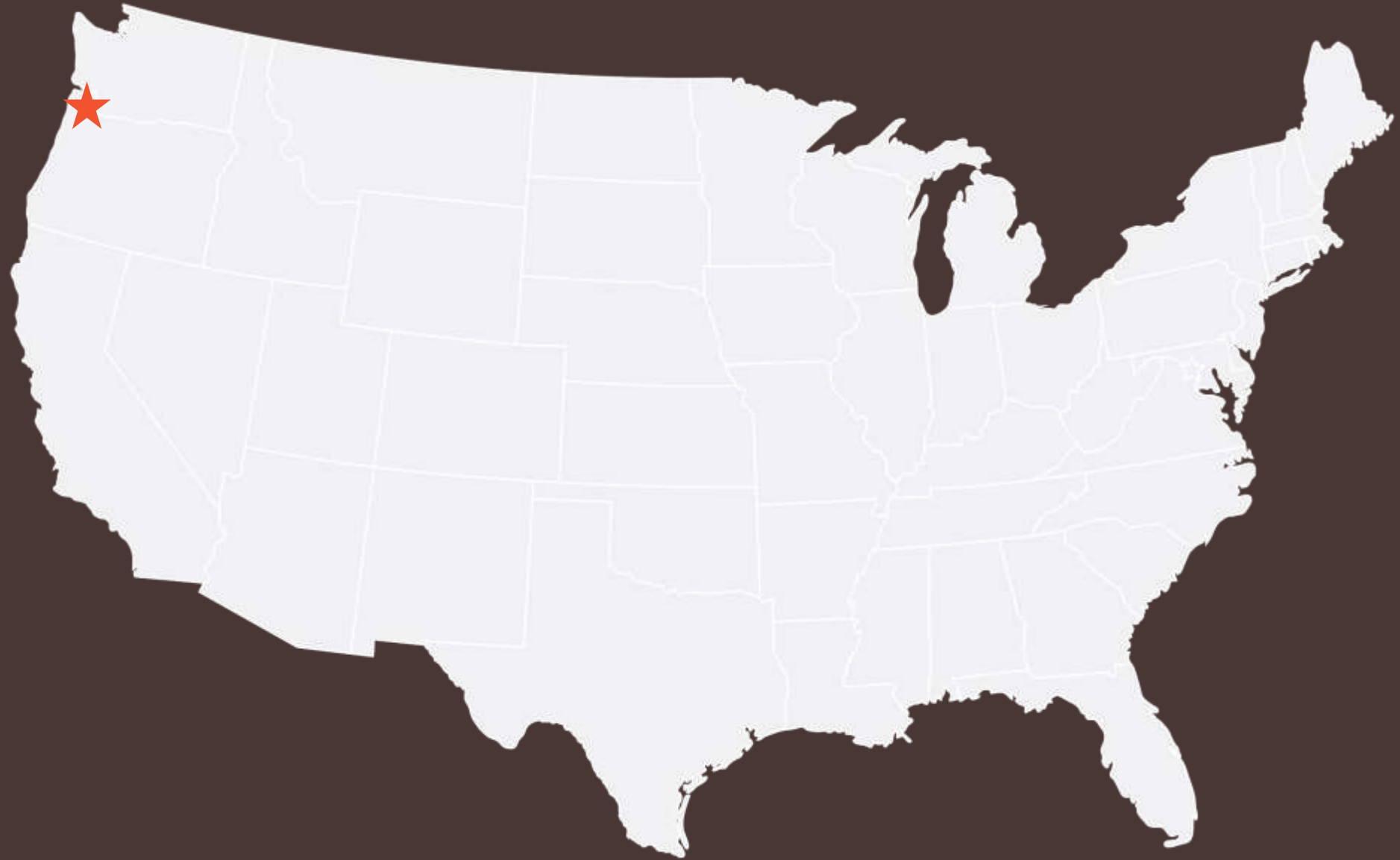
● LEARNING OBJECTIVES

- 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





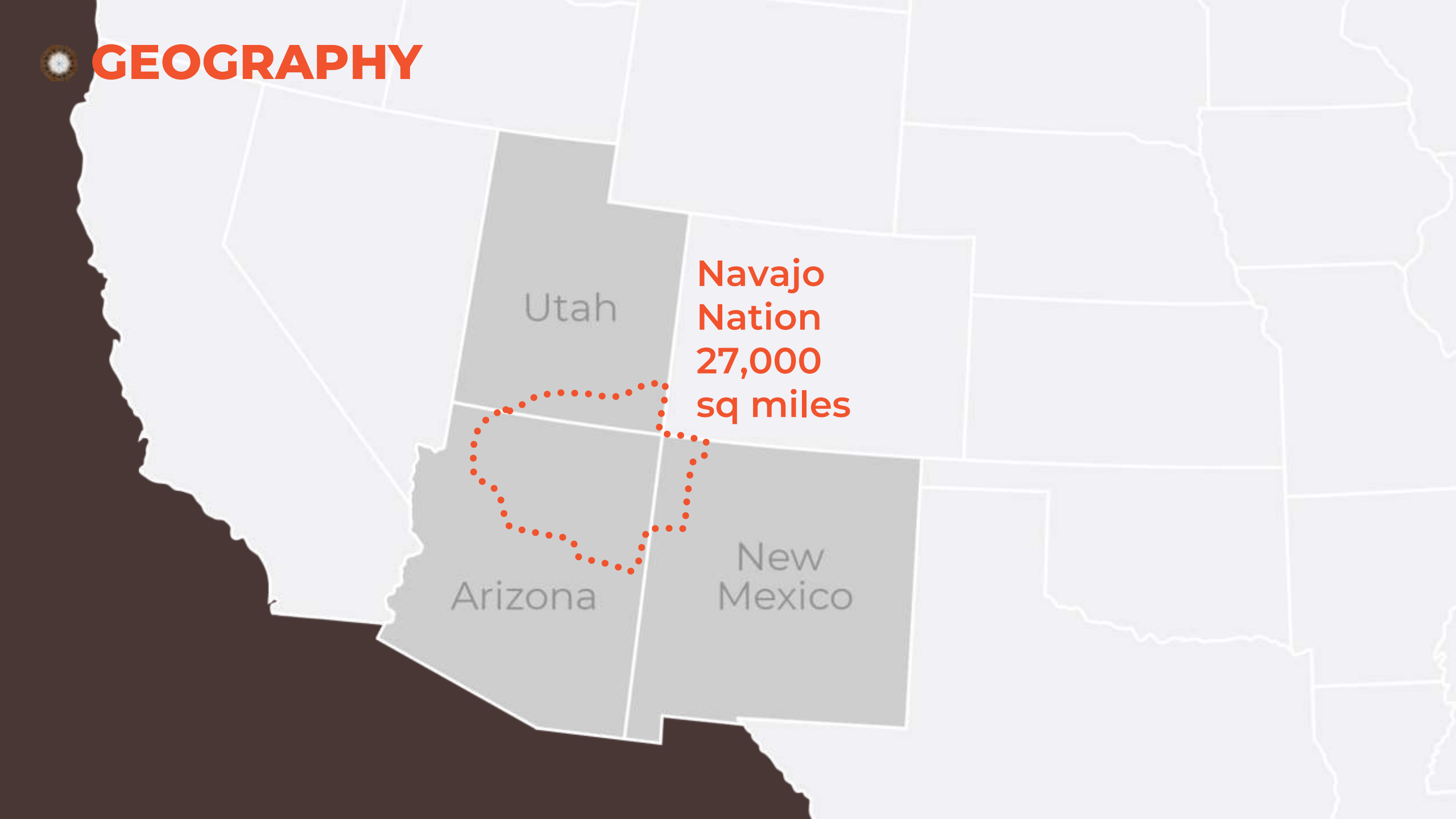
GEOGRAPHY

Utah

**Navajo
Nation
27,000
sq miles**

Arizona

New
Mexico





GEOGRAPHY

Utah



Tuba City, AZ



Kayenta, AZ



Chinle, AZ



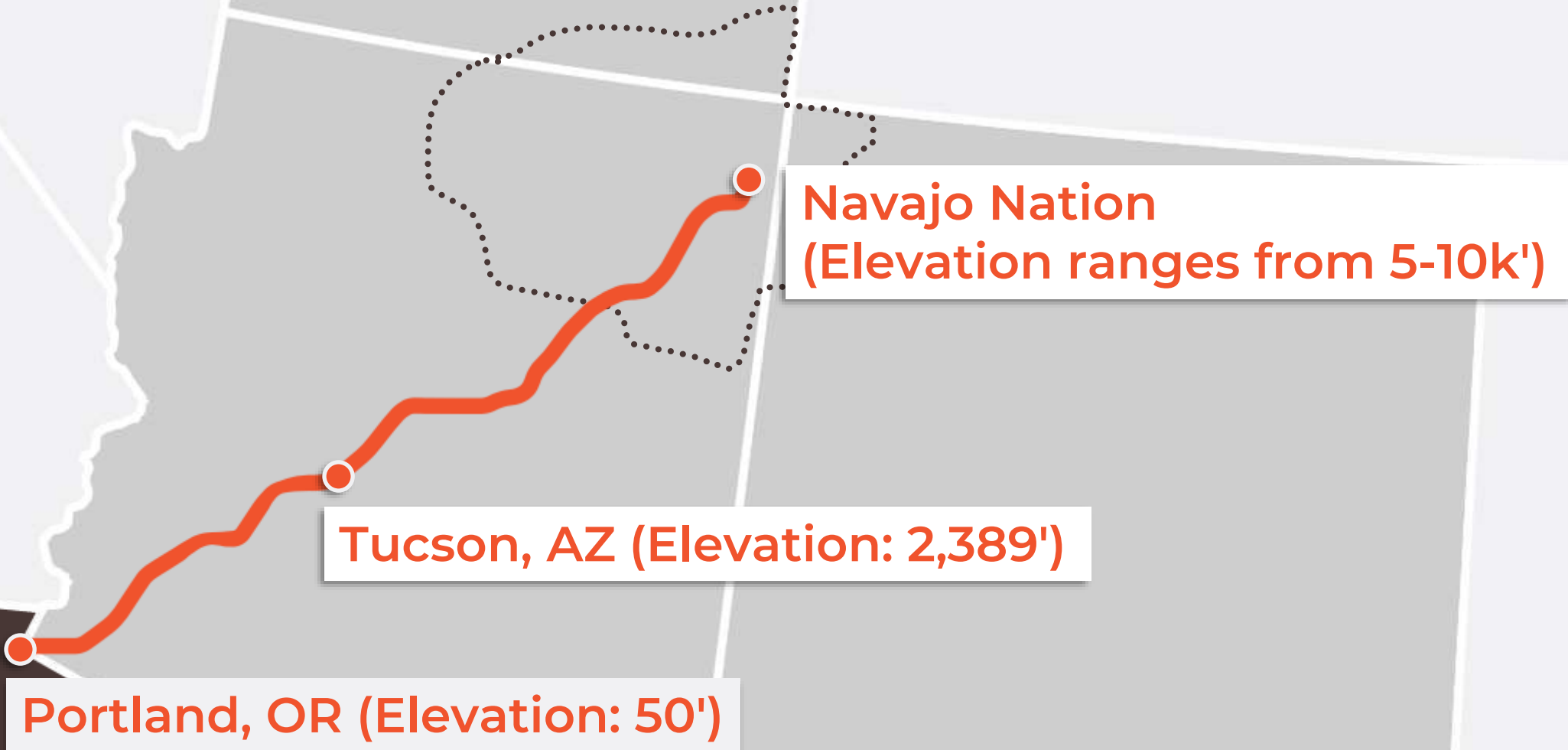
Window Rock, AZ



Shiprock, NM



TOPOGRAPHY



Portland, OR (Elevation: 50')

Tucson, AZ (Elevation: 2,389')

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

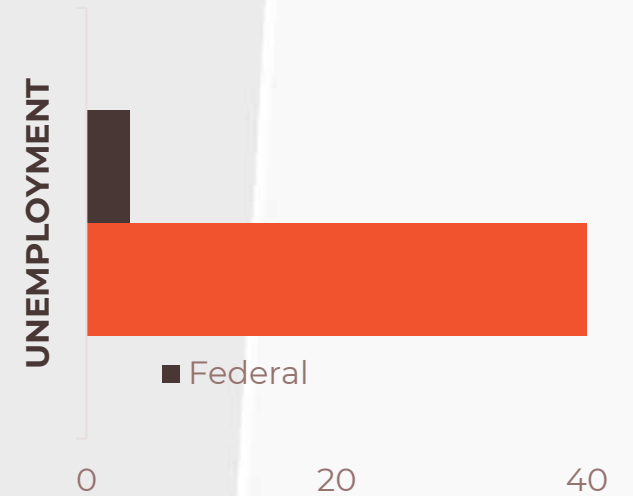
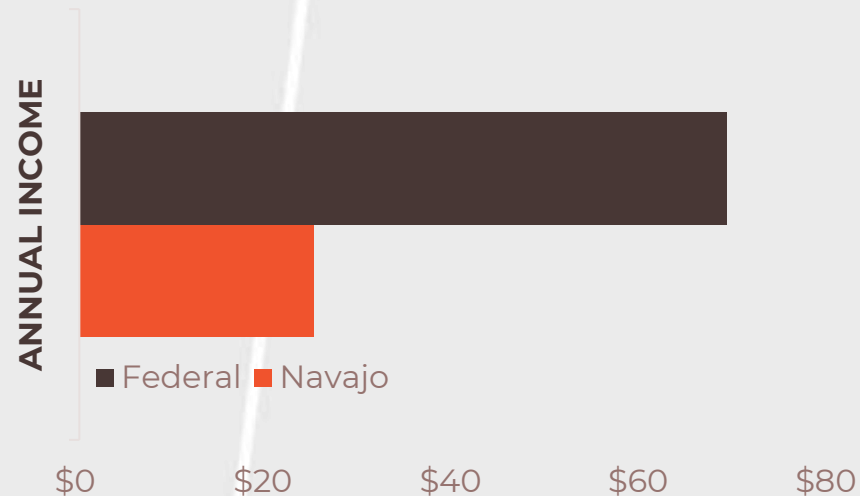
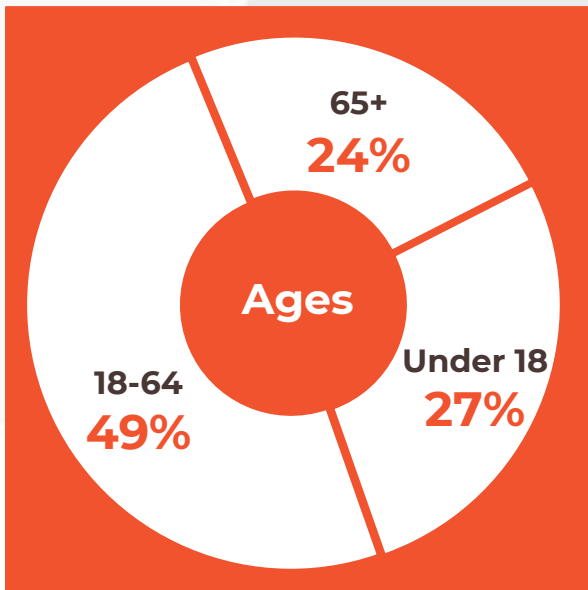
DEMOGRAPHICS

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

Boarding schools, shaped by policies impacted Native communities, offering lessons we continue to address today



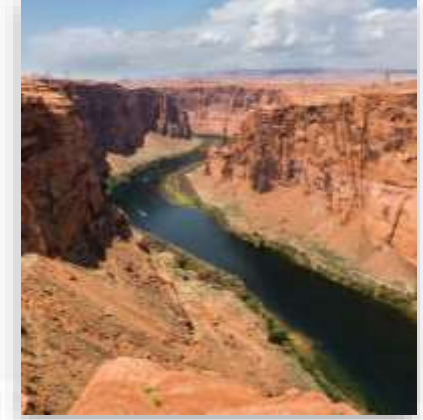
Mid-20th Century

More Navajo children attend public schools, which were often under-resourced. Dine' College became the 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:

Lukachukai
Community School

The background of the slide is a photograph of a wooden ceiling. The ceiling is composed of dark brown wood panels with a vertical grain. A prominent feature is a large, octagonal skylight in the center-right. The skylight has a white frame and a complex geometric grid pattern of thin metal bars. The grid consists of a central point with lines radiating outwards to the corners and midpoints of the octagon's sides, creating a series of triangles and squares. The octagon is surrounded by a decorative border of lighter-colored wood blocks, some of which are darkened at the corners.

CHALLENGES:

1. Understanding the local culture
2. Blending culture with modern educational design
3. Construction challenges
4. Incentivizing teaching in remote rural areas

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/No	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
Space Description:	For square footages, see space templates													
1. Grades 2 & 3 classroom														
2. Storage area														
Acoustical Conditions														
Speech privacy		No												
Special acoustical treatment needed		No												
Musical performance(singing)/chewing expected		No												
Electrical/Lighting														
Power outlet minimum number		Yes in #1												
Lighting requirements:														
• Automatic lighting controls		Yes in #1												
• Dimmable lighting		Yes in #1												
• Multi-level switched		Yes in #1												
Other electrical/lighting equipment or requirements:														
Fixed Furnishings/Equipment														
Whiteboard (8'-0")			Qty	2										
Tackboard (4'-0")			Qty	1										
Overhead projection screen			Qty	1										
TV with wall mounting bracket or TV cabinet			Qty	1										
Casework:														
• 1' deep shelf/wheel books		Yes												
• Plastic laminate base cabinets		Yes												
• Plastic laminate countertops		Yes												
• Plastic laminate upper cabinets		Yes												
• Tall wardrobe cabinet		Yes												
• Locks		Yes												
• 16" deep adjustable shelving		Yes												
Other furniture/shelving/equipment or requirements:														
• Soap dispenser		Yes												
• Paper towel dispenser		Yes												
Interior Finishes														
Walls:														
• CMU - painted														
• CMU - ground face, integral color														
• Standard gypsum board - painted or vinyl covered														
• Other														
Floors:														
• Resilient rubber														
• Other														
Ceilings:														
• Minimum ceiling height			8'0"	8'0"										
• Exposed to structure - painted														
• Lay-in acoustical														
• Other														
Windows:														
• Windows/daylight into space required			Yes											
• Operable window required			Yes											
Doors:														
• Wood			Yes	Yes										
• With glazed tiles			Yes											
• Other			Yes											

Communications/IT Requirements

Communication outlet (4-port) - switcher 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) Not covered

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: Yes in #1

Safety/Security

Nonmaster locks

Intrusion alarm system

Access control

Other safety/security equipment or requirements:

Plumbing

Domestic water:

• Hot Yes in #1

• Cold Yes in #1

Sinks: specialty type: SS large, deep, single Yes in #1

Other plumbing equipment or requirements:

Daily Occupancy Use

5.5 hrs. (7:30 a.m. - 5:00 p.m.)

Five days a week Yes

After-hours use No

Environmental Conditions

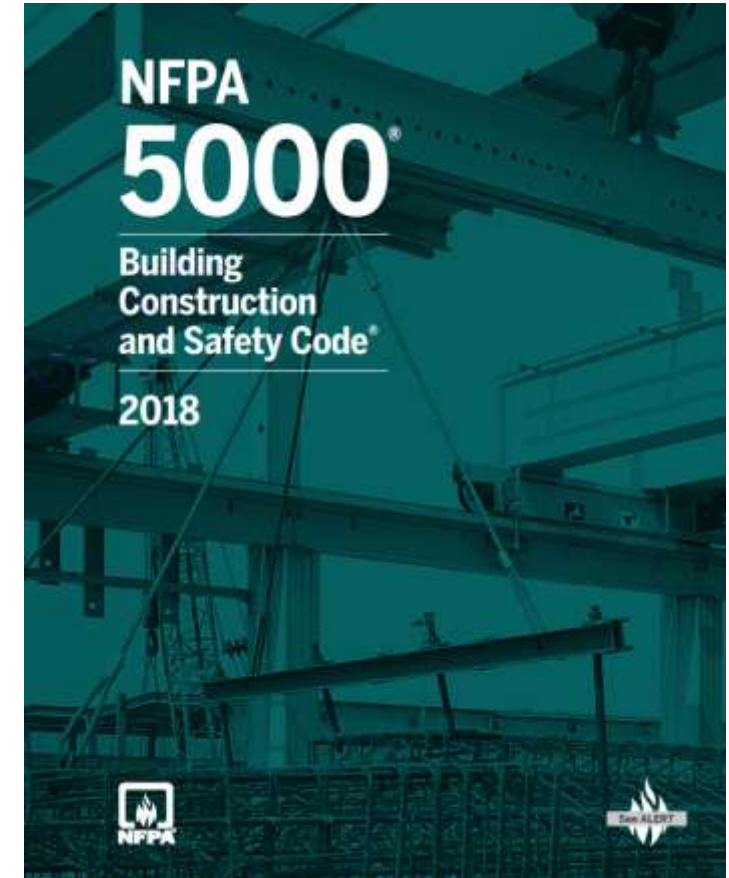
Air pressure (balanced is assumed):

• Negative Yes in #2

Other HVAC equipment or requirements:

BIA School Facilities Space Templates
March 30, 2007

A2020-3





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 FCL + 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 selections, 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 on line 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, including proposed strategies for compliance with LEED requirements and ways to achieve certification goals.	X			
4	Incorporate all approval comments from the BIA review of the 90% 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 summary.	X			
2	Integrate the approved site development and data into working drawings.	X			
3	Provide location and vicinity maps.	X			Site DPA general plans.
4	Develop detail sheets with proper references.	X			This will be provided in the plans as part of the separate submittal packages.
5	Complete general layout of all items of new work using offset dimensions from existing structures, or use coordinates for locating new work.	X			The Contractor is to complete 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 soil bore 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 the contractor.

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 (PEMB) Cover Index Life Safety	GI (Dorm & Housing) Cover Index Life Safety Civil (Dorm & Housing) Site Demolition as Required Adjacent Building Utilities (Carried from Site Utilities) Civil (Site) Site Paving Plan Site utility location install Site Demolition	GI Cover Index Civil Adjacent Site Demolition (if any) Final Grading & Drainage HCP (tie to grids, footings, driveways, etc.) Adjacent Building Utilities (Carried from Site Utilities) for rough-in Site Paving Plan	GI Cover Index Life Safety Civil Site Demolition as required Adjacent Building Utilities (Carried from Site Utilities) Final entire site paving plan & roads HCP for roads and final site paving
Grading & Drainage Grading for Roads & Right of Way - final road paving to be completed in final package Horizontal Control Plan (full site development)	Architectural Site (Dorm & Housing) Adjacent Site Plans Enlarged Architectural Site Components	Architectural Site Adjacent Site plans and details as required to locate the pad	Architectural Site Site plans Final site signage installation and details for overall site

UNIQUE DESIGN CHALLENGES

 **1** Understanding the local culture

 **2** Blending culture with modern educational design

 **3** Construction challenges

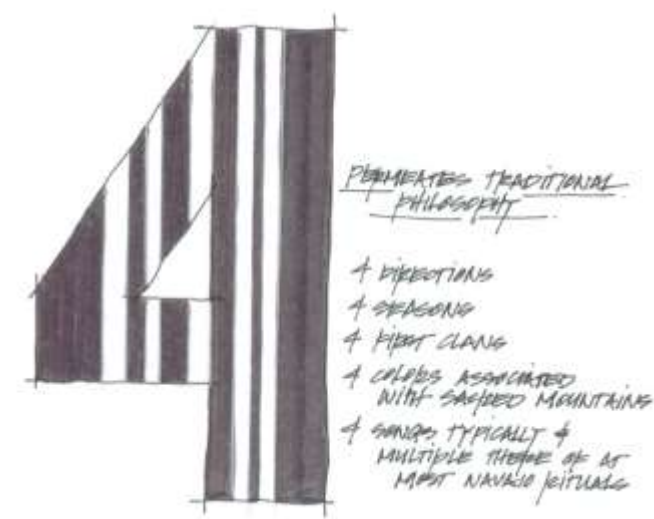
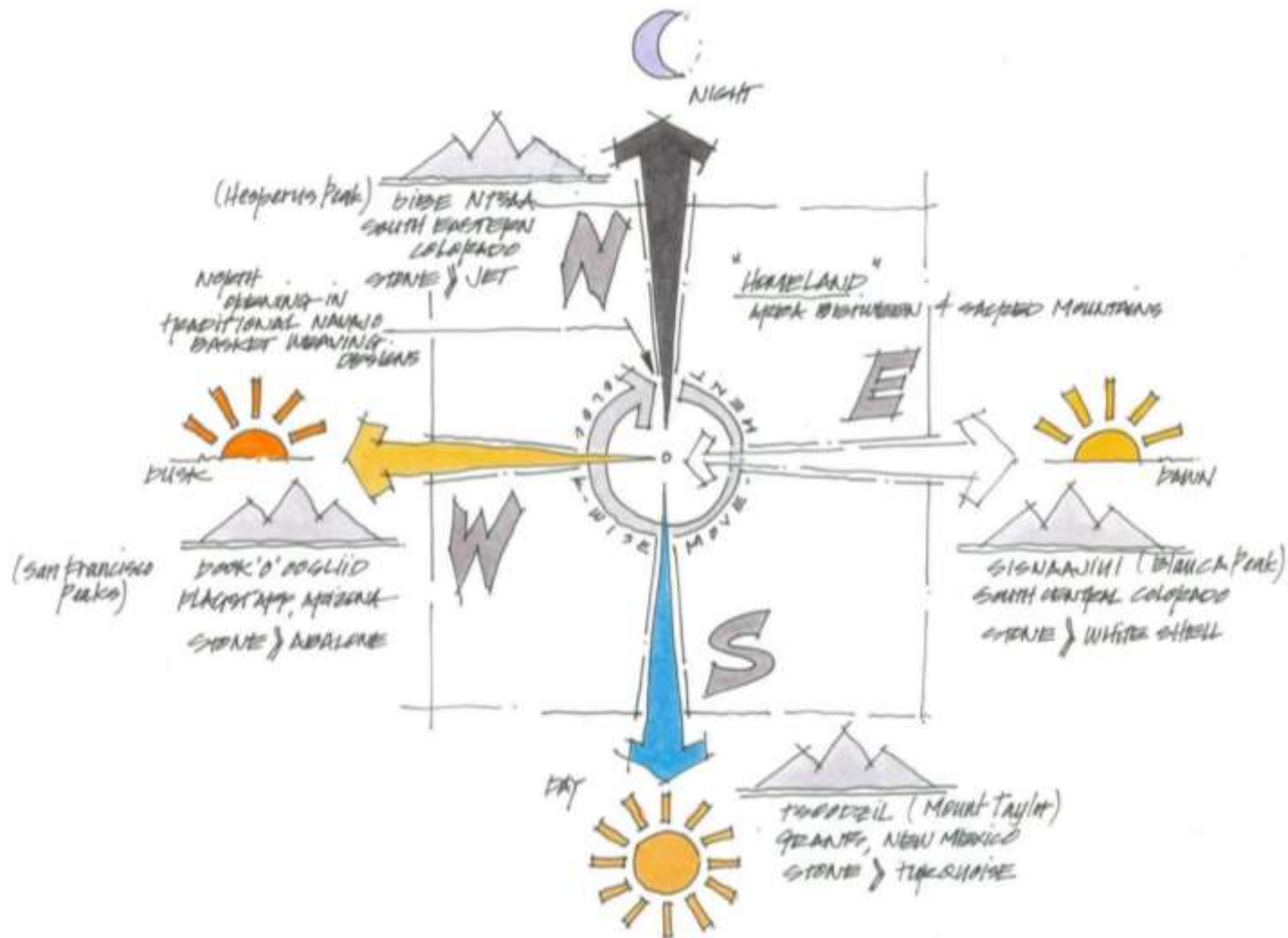
 **4** Incentivizing teaching in remote rural areas



1

Understanding the local culture

Traditional philosophy inspires design choices

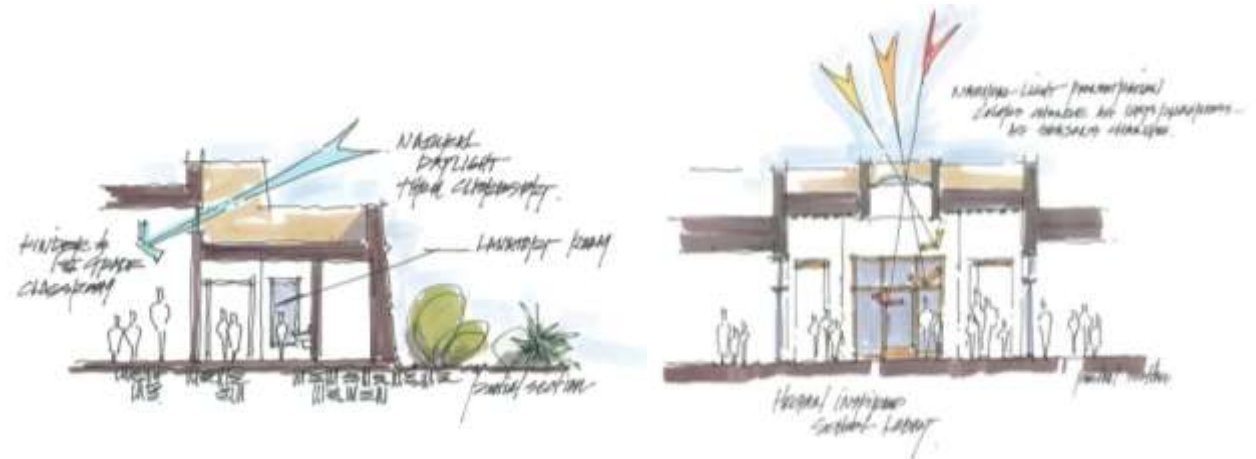




1

Understanding the local culture

Appropriate orientation for solar exposure and axial alignment

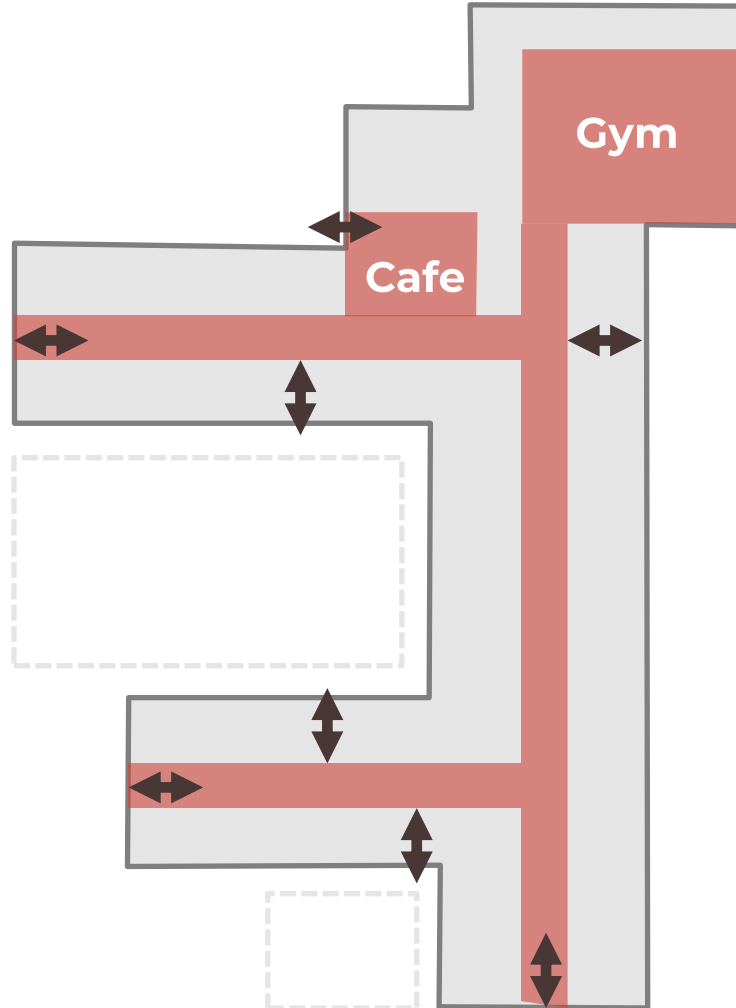




1

Understanding the local culture

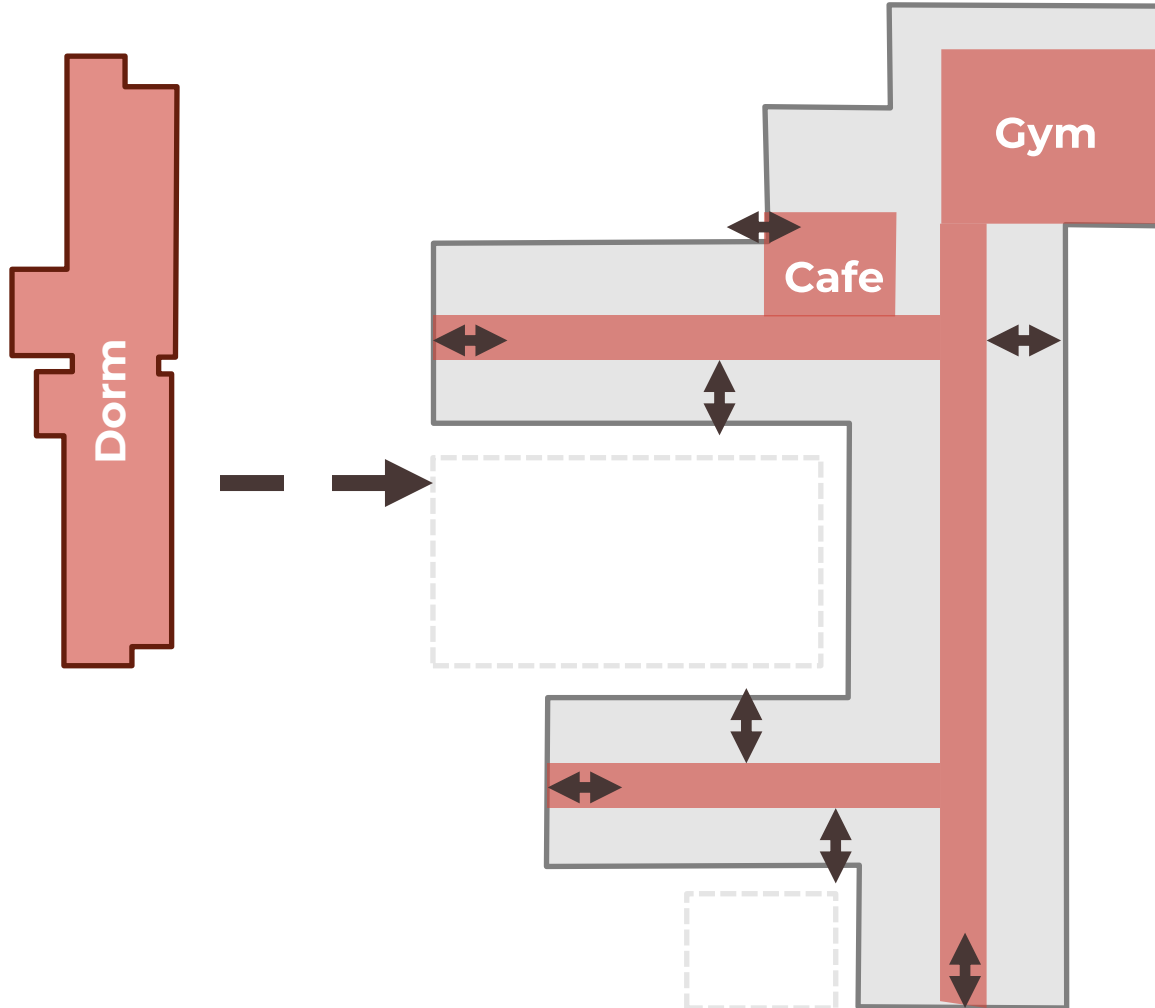
Circulation and separation of wings





1

Understanding the local culture



Close connection between the dorm and the school





1

Understanding the local culture

Hogan as an architectural feature





1

Understanding the local culture

Welcoming entry

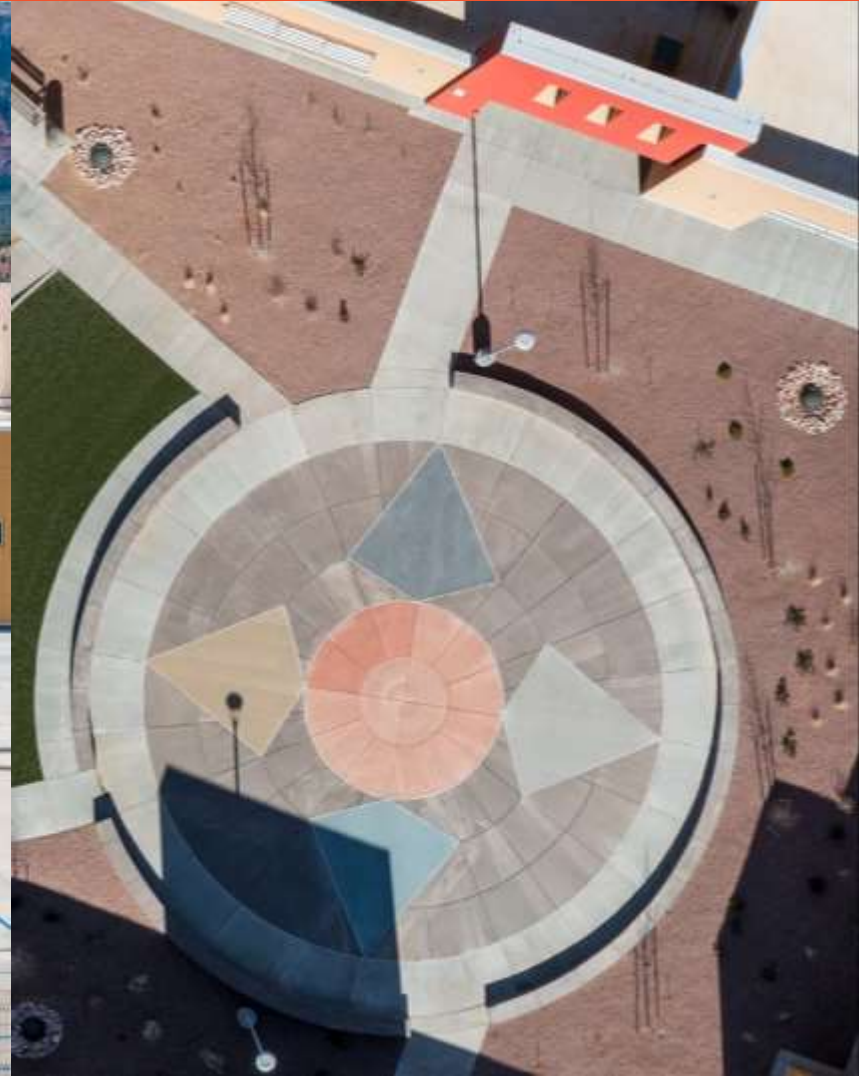




1

Understanding the local culture

Outdoor play and learning





1

Understanding the local culture

Nature inspired the interiors concept





1

Understanding the local culture

Relatable colors and graphics





1

Understanding the local culture

Cultural consultant





1

Understanding the local culture

Geometry of hogans
and peaks inspires interior spaces





1

Understanding local culture

Exterior materials
inspired by the surroundings





1

Understanding the local culture

Safe, relatable spaces as an extension of home





1

Understanding the local culture

Central community-use spaces serve residents

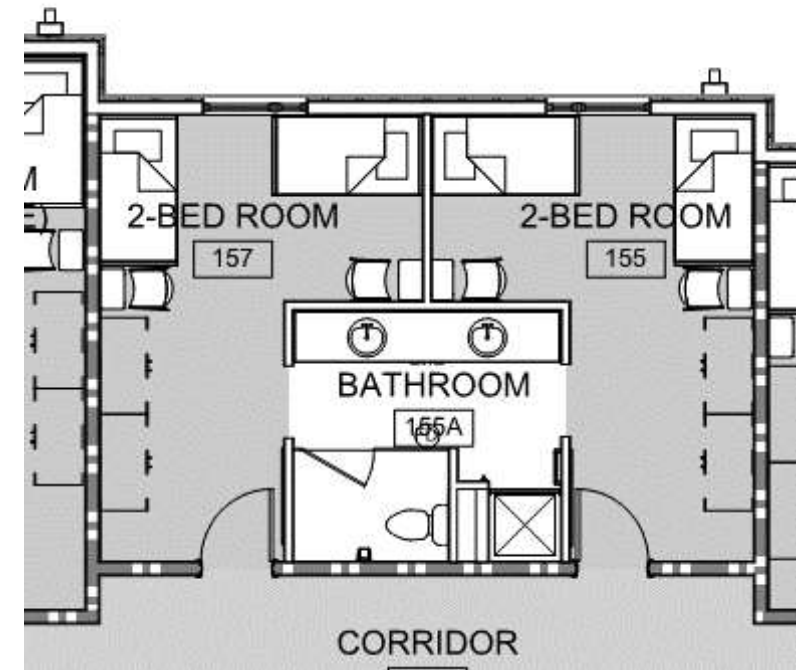




1

Understanding the local culture

Balancing privacy and supervision




Ms. Carmen Jodie School Principal



UNIQUE DESIGN CHALLENGES

 1 Understanding the local culture

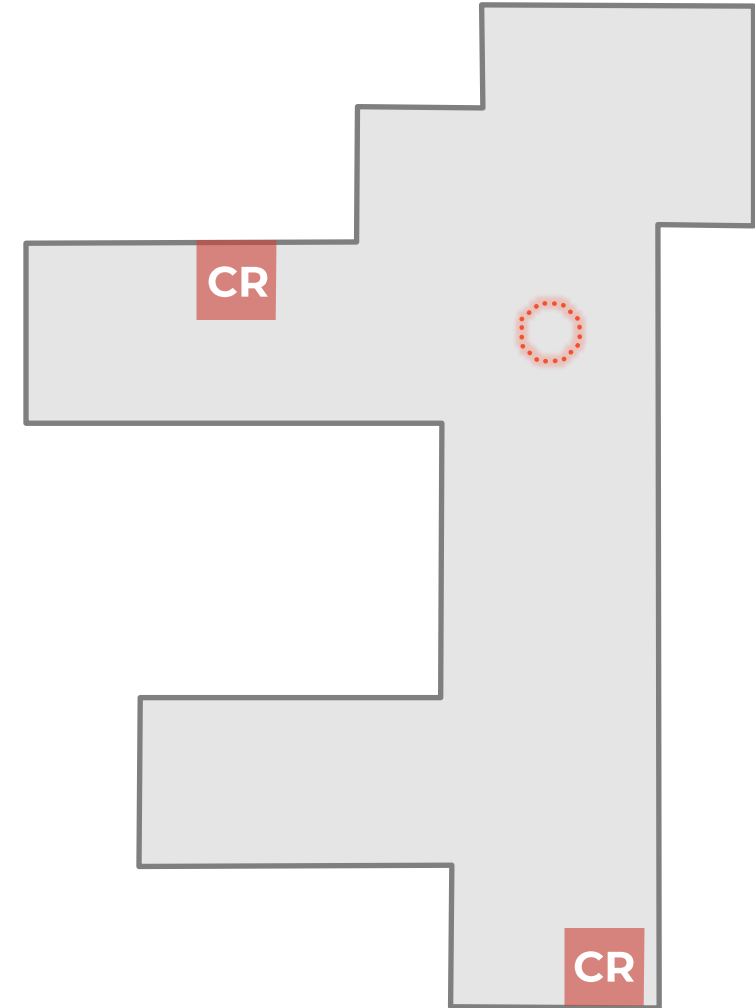
 2 **Blending culture with modern educational design**

 3 Construction challenges

 4 Incentivizing teaching in remote rural areas

2 Blending culture with modern educational design

Approaches to culturally distinct classrooms



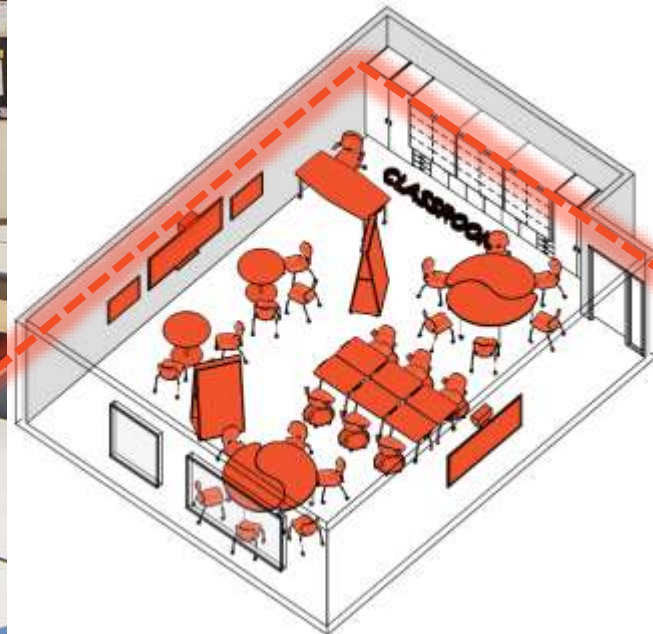
2 Blending culture with modern educational design

Teaching traditional subjects in collaborative environments



2 Blending culture with modern educational design

Teaching wall supports flexible seating configurations



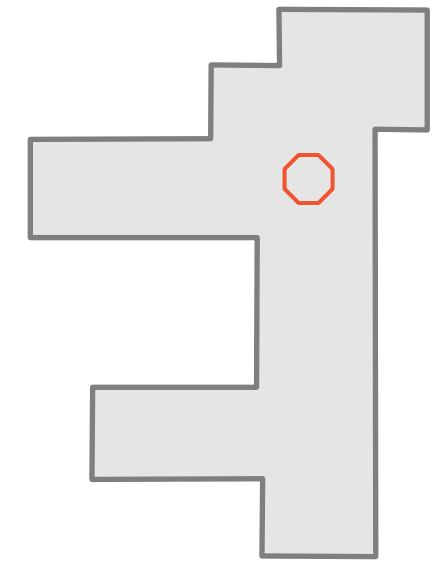
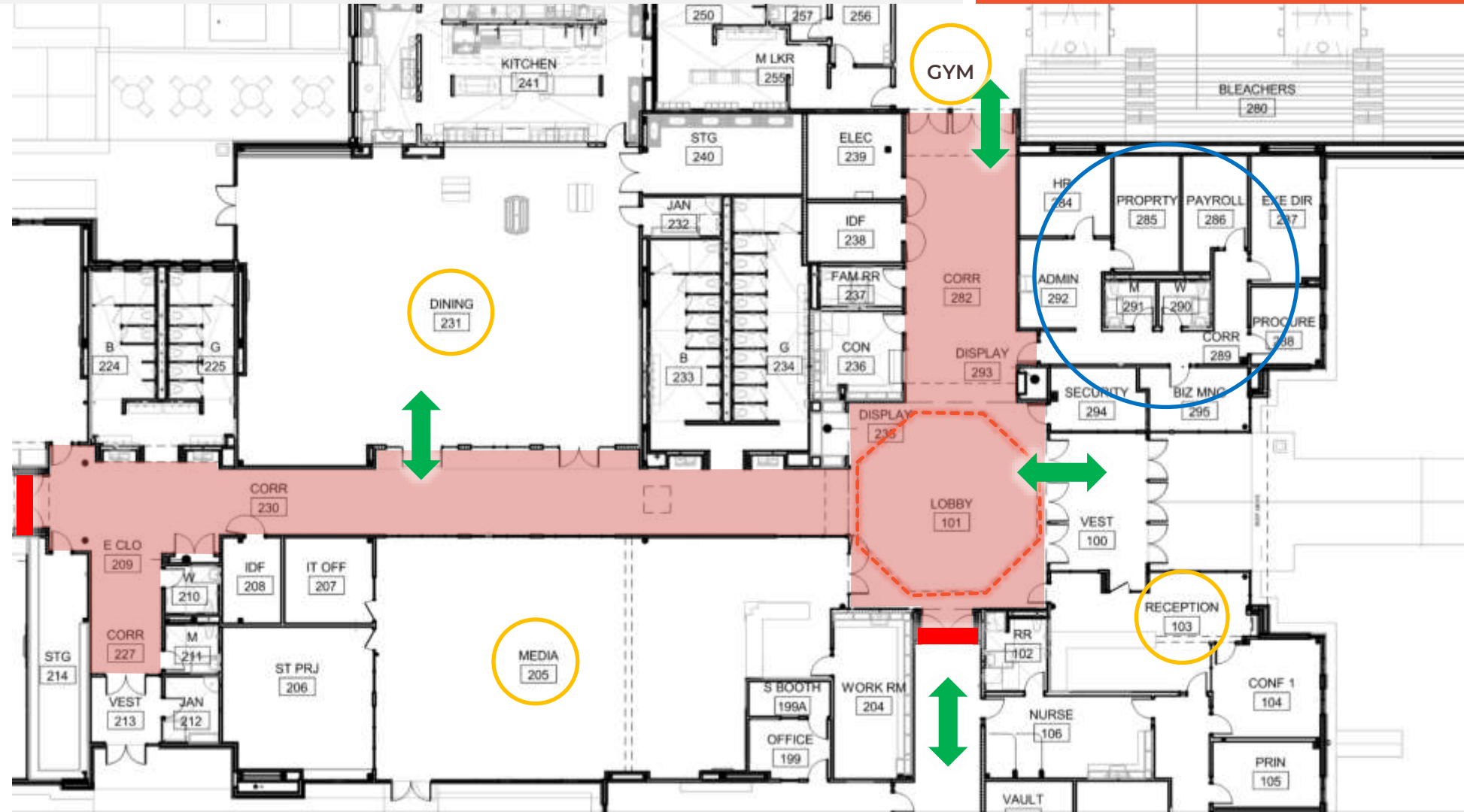
2 Blending culture with modern educational design


Interactive classrooms
with a view



2 Blending culture with modern educational design

Community hub



 **2** Blending culture with modern educational design

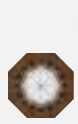
Gymnasium



2 Blending culture with modern educational design

Cafeteria





2

Blending culture with modern educational design

Media center



2 Blending culture with modern educational design

Campus planning



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

56'-5"

IDF
208

IT OFF
207

13'-7"

ST PRJ
206

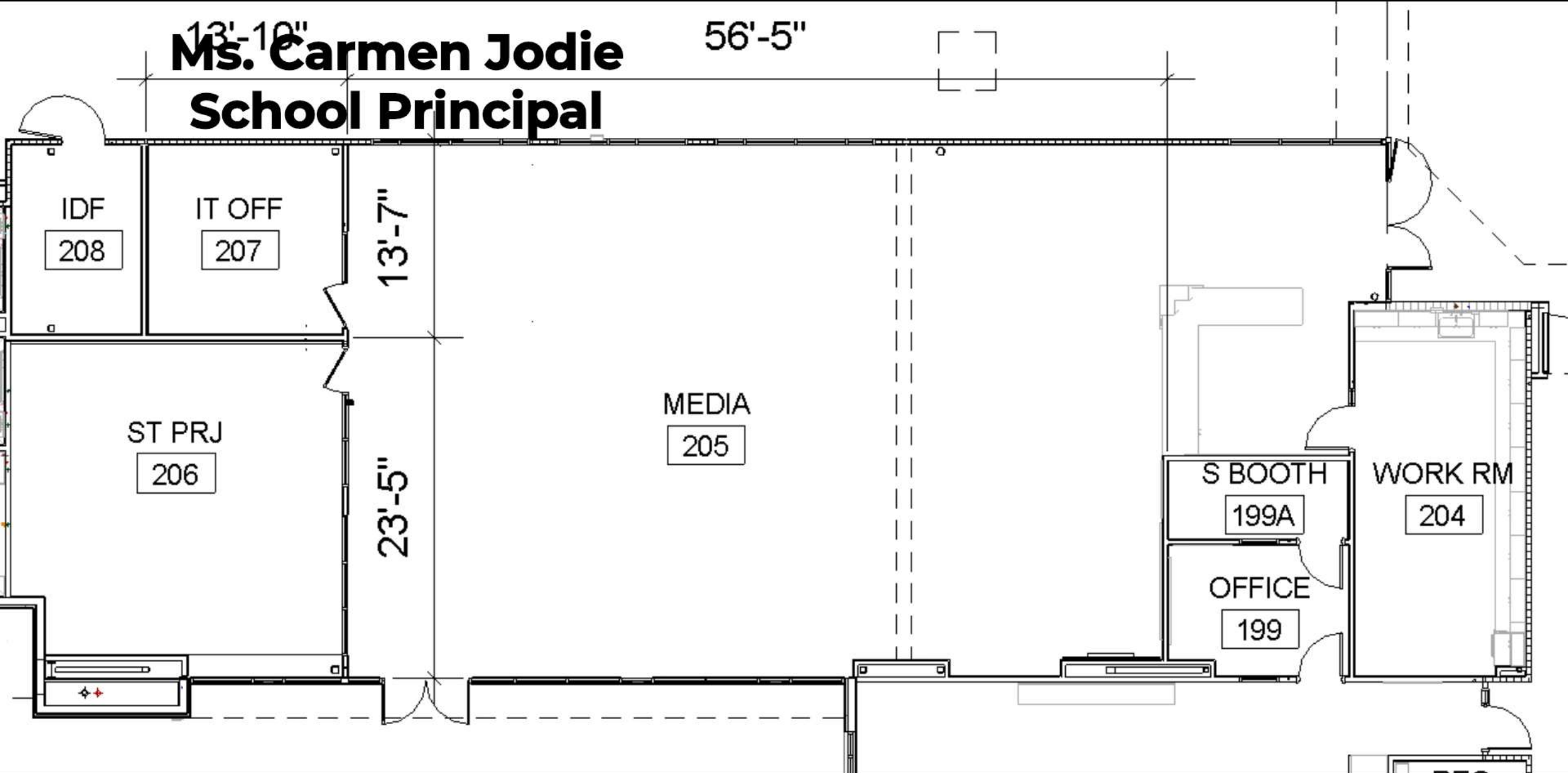
23'-5"

MEDIA
205

S BOOTH
199A

OFFICE
199

WORK RM
204



UNIQUE DESIGN CHALLENGES

1 Understanding the local culture

2 Blending culture with modern educational design

3 **Construction challenges**

4 Incentivizing teaching in remote rural areas

3 Construction challenges

Early utilities assessment is crucial



3 Construction challenges

Utility extension with a vision for Lukachukai



3 Construction challenges

Sewage lagoon



3 Construction challenges

Construction challenges



82.5 miles
2 hrs

Farmington, NM

Lukachukai, AZ

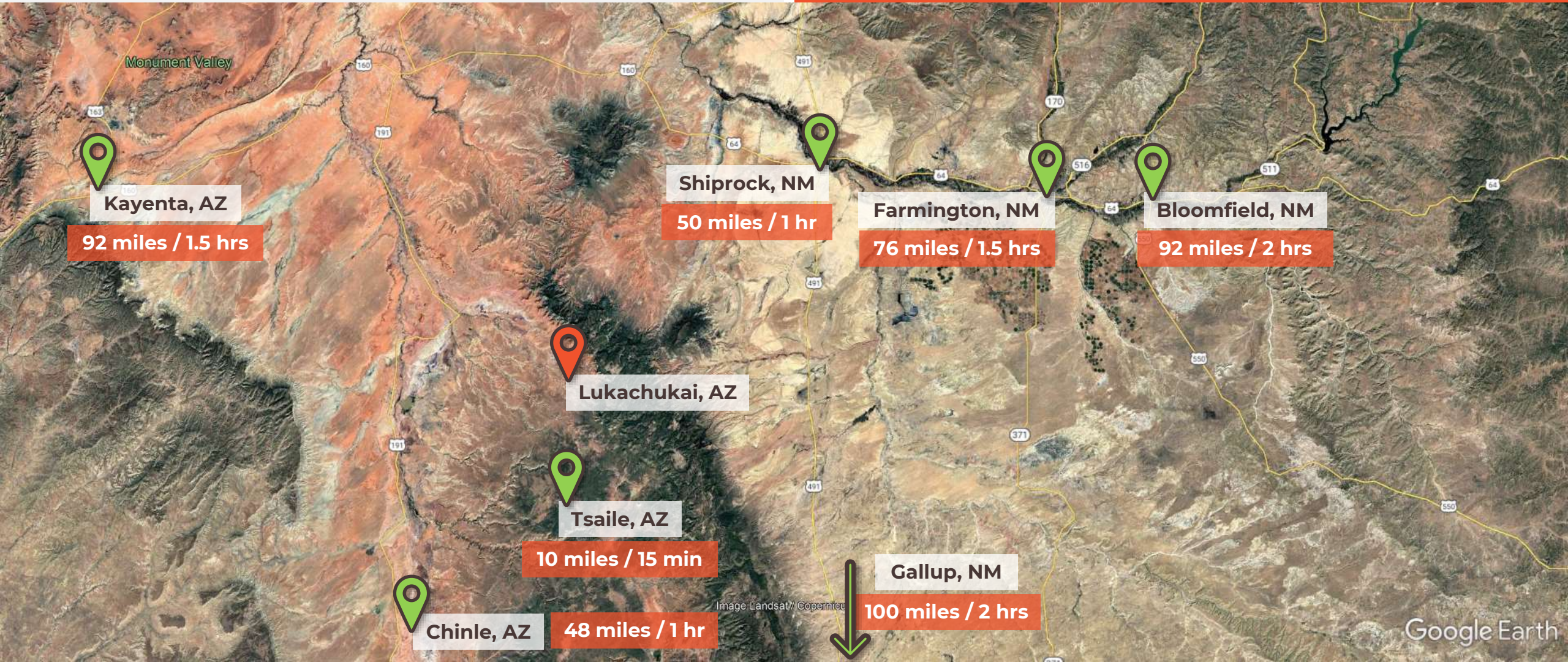
3 Construction challenges

On-site concrete batch plant



3 Construction challenges

Housing labor and alternative schedule



3 Construction challenges

Managing lead times



3 Construction challenges

Community involvement




Video courtesy of NEZFCI, general contractor to the project



UNIQUE DESIGN CHALLENGES

 1 Understanding the local culture

 2 Blending culture with modern educational design

 3 Construction challenges

 4 Incentivizing teaching in remote rural areas

4

Incentivizing teaching in remote rural areas

Old teacher housing





4

Incentivizing teaching in remote rural areas

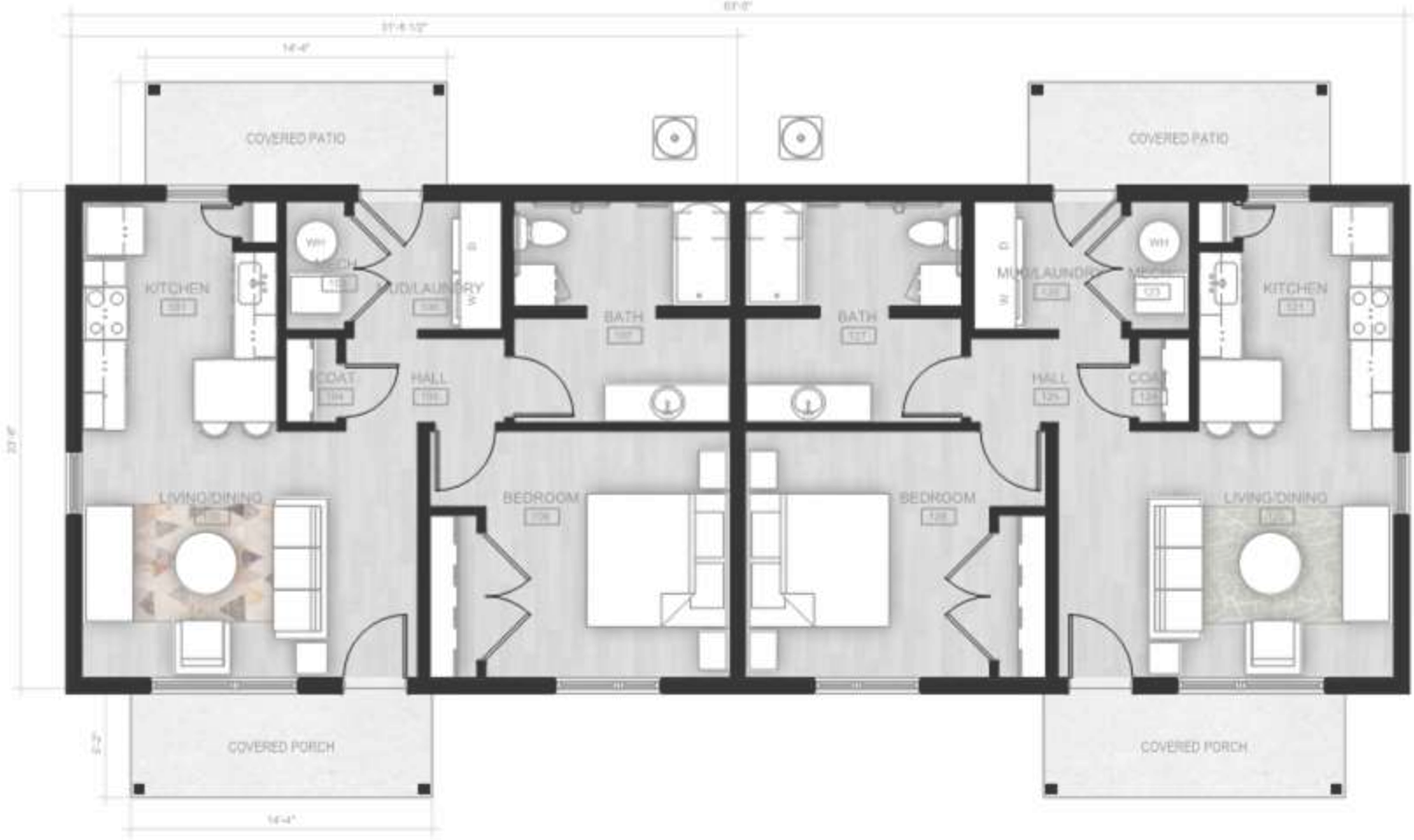
Community focused new housing



4

Incentivizing teaching in remote rural areas

1 Bedroom / 765sf

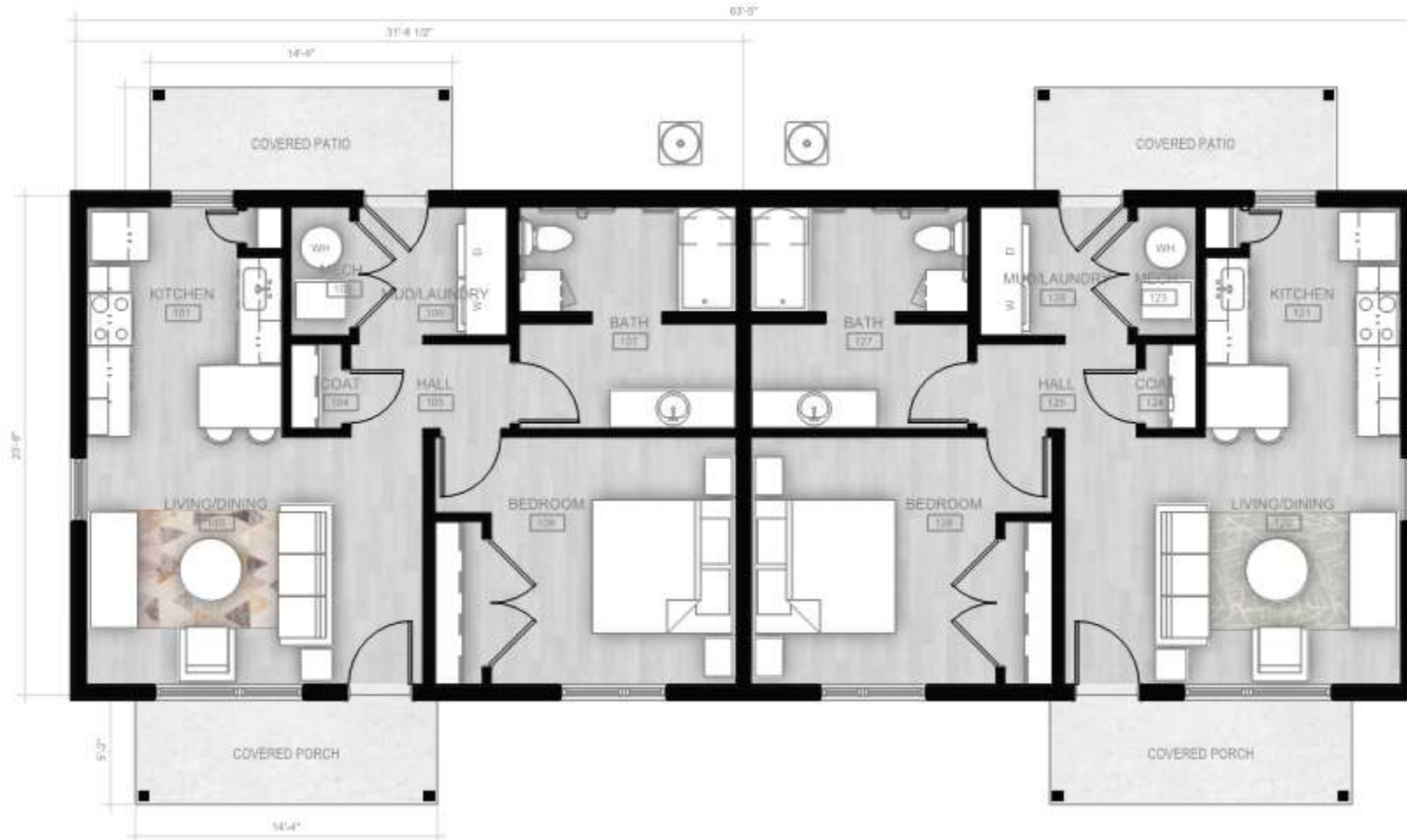




4

Incentivizing teaching in remote rural areas

2 Bedrooms / 1,200sf





4

Incentivizing teaching in remote rural areas

3 Bedrooms / 1,450sf





4

Incentivizing teaching in remote rural areas

Provide comfortable interiors



Ms. Carmen Jodie School Principal



In conclusion





Remote
Community Schools

The background of the slide is a photograph of a wooden ceiling. The ceiling is composed of dark brown wood panels with a vertical grain. A prominent feature is a large, octagonal skylight in the center-right. The skylight has a white frame and a complex geometric grid pattern of metal or glass panes. The grid consists of a central point with lines radiating outwards to the corners and midpoints of the octagon, creating a star-like or web-like structure. The overall lighting is warm and natural, suggesting an indoor space with a high ceiling.

CHALLENGES:

1. Understanding the local culture
2. Blending culture with modern educational design
3. Construction challenges
4. Incentivizing teaching in remote rural areas

The image shows a wooden ceiling with a central octagonal skylight. The skylight has a white frame and a grid of metal bars forming a complex geometric pattern. The ceiling is made of dark wood with lighter wood accents forming a star-like pattern around the skylight.

OPPORTUNITIES:

1. Celebrate the local culture
2. Integrate culture with modern educational design
3. Construction achievements
4. Housing options for teachers in remote rural areas

**Ms. Carmen Jodie
School Principal**





Thank you !

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

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kristini@dekkerdesign.org