Kaibeto Creek Community

design and master plan for a new independent senior living community in Kaibeto on the Navajo Nation

November 2010

Kaibeto Chapter
Foundation for Senior Living
Tuba City Regional Health Care Corporation

THE DRACHMAN INSTITUTE
COLLEGE OF ARCHITECTURE AND LANDSCAPE ARCHITECTURE.
THE UNIVERSITY OF ARIZONA TUCSON, ARIZONA
Kaibeto Creek Community

Credits

The information in this report is intended as guidance for the Kaibeto Chapter, the Foundation for Senior Living, and the Tuba City Regional Health Care Corporation (the partnership constituting “Project Partners”) in informing decisions related to this project. The research, evaluation, and recommendations were achieved to the best knowledge and judgement of the Drachman Institute staff, students, and faculty, and is subject to verification by the Project Partners or other parties prior to implementation of any action.

All photos, renderings, drawings, charts, or other content were taken or generated by Drachman Institute staff unless cited otherwise.

Drachman Institute
R. Brooks Jeffery, Director
Marilyn Robinson, Associate Director
Peter McBride, Architecture Project Manager
with
Chris O’Brien, Undergraduate Architecture Student
Jim Sauer, Undergraduate Architecture Student
Megan Wedel, Undergraduate Architecture Student

Arizona Department of Housing
Karia Lee Basta, Technical Assistance Coordinator

Project Partners
Official Contact Person:
Walter Phelps, Grants Administrator, Tuba City Regional Health Care Corporation

Herman Tso, Project Director, KCC Project, Kaibeto Chapter
Franklin Fowler, President, Kaibeto Land Use Planning Commission
Joseph Engelken, CEO, Tuba City Regional Health Care Corporation
Helena Begay, Director, Kaibeto Senior Center
Tom Chabin, Representative for the Foundation for Senior Living

November 2010

The Drachman Institute is the research-based outreach arm of the College of Architecture and Landscape Architecture (CALA) at The University of Arizona dedicated to environmentally-sensitive and resource-conscious planning and design with a focus on underserved and vulnerable communities. We engage students, staff, faculty, and citizens as an interdisciplinary collaborative striving to make our communities healthier, safer, more equitable, and more beautiful places to live. We embrace a service-learning model of education serving the needs of communities while providing an outreach experience for students as a fundamental educational goal consistent with the mission of CALA and The University of Arizona.
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Kaibeto Creek Community

Project Introduction

Project Summary

Project Timeline
After years of discussion and ideas, the Kaibeto Chapter of the Navajo Nation, the Tuba City Regional Health Care Corporation, and the Foundation for Senior Living (Project Partners) established the Kaibeto Creek Community, LLC in the summer of 2009 as a partnership to engage in the planning and establishment of an independent senior living community. The concept for the community included independent senior residences, a common house, and a health clinic.

In September 2009, the Arizona Department of Housing accepted an application from the Project Partners for a technical assistance grant to work with the Drachman Institute to develop a schematic master plan as well as architectural schematic design for the senior residences. In November 2009, the Drachman Institute developed a Scope of Work which established the design collaboration with the Project Partners on this project.

Based on site constraints, coordination with the Project Partners, and feedback from community members, the Drachman Institute developed a series of alternate site plans that included residences, a community senior center, a health center, on-site staff housing, outdoor ceremonial space, outdoor recreational space, parking, and loading space. Additionally, the Drachman Institute developed alternate architectural designs for the independent senior living residences and community senior center.

The site plans and architectural designs and principles were presented to the Project Partners and other community members through a series of public community meetings and charrettes. These meetings were held at the Kaibeto Chapter House and were typically held in conjunction with Chapter meetings or senior center meetings and activities. Their feedback resulted in a final recommended master site plan and architectural designs for the independent senior living residences and community senior center. The primary focus of the plan was to develop a prototype community that exemplifies the best of sustainability, culture, and community connectivity for the “Elderlies” in the Kaibeto region.

The goal of this project and document, which presents the designs and master plan developed through that process, is to provide the Project Partners and the community with the information, knowledge, and momentum to move this project forward in providing an independent senior living community that provides local seniors a sustainable, healthy, and beautiful place where they can remain with their family and age in the place they call home.
### Project Introduction

#### Project Timeline

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2009</td>
<td>The Project Partners applied with the Arizona Department of Housing (ADOH) for a technical assistance grant.</td>
</tr>
<tr>
<td>September 28, 2009</td>
<td>ADOH accepted the Project Partner's application, which initiated work with the Drachman Institute.</td>
</tr>
<tr>
<td>November 24, 2009</td>
<td>A Scope of Work was developed by the Drachman Institute outlining the project scope and setting a preliminary schedule.</td>
</tr>
<tr>
<td>February 26, 2010</td>
<td>An initial kick-off and planning meeting was held between the Drachman Institute, ADOH, and the Project Partners in Kaibeto, Arizona on the Navajo Nation.</td>
</tr>
<tr>
<td>May 3, 2010</td>
<td>The first community presentation was held at the Kaibeto Chapter House. A public participatory design charrette followed a presentation of the project history, site analysis, case studies, and initial concepts to the Project Partners and community members.</td>
</tr>
<tr>
<td>May 3, 2010</td>
<td>The Project Partners developed and administered a survey to potential residents and other community members during the first community presentation.</td>
</tr>
<tr>
<td>August 4, 2010</td>
<td>The second community presentation was held at the Kaibeto Chapter House. Based on previous feedback, four alternate site plans and four alternate senior residence designs were presented to the Project Partners and community members for review and feedback.</td>
</tr>
<tr>
<td>November 23, 2010</td>
<td>The third (final) community presentation was held at the Kaibeto Chapter House. Based on all feedback, a final master site plan and architectural designs of the senior residences and community senior center were presented to the Project Partners and community members for review and feedback.</td>
</tr>
</tbody>
</table>
Kaibeto Creek Community
Presentation 1

In coordination with the monthly Kaibeto Chapter meeting on May 3, 2010 at the Kaibeto Chapter House, Drachman Institute staff made the first presentation to Chapter leaders, Tuba City Regional Health Care Corporation staff, Foundation for Senior Living representatives, and members of the Kaibeto community.

Information regarding the site selected by the Project Partners, a cultural study and review, examples and case studies of similar projects, and initial design concepts were presented for discussion and review. Following the slide presentation, Drachman Institute staff lead a community participatory design charrette. Participants were divided into three groups, and each table was provided with a laminated site plan, markers, and model pieces representing different programmatic elements (common house, health center, residences, etc.). Each group independently reviewed the design program and developed different ideas as to the layout and flow of the site. Three or four overall concepts were established by the participants. Additionally, the Project Partners administered a survey to help determine the needs and expectations of potential future residents and other community members.

The following pages include the information as presented. Also included are images of the design charrette, including photos of some of the design ideas that were generated through that process.
Kaibeto Chapter
Foundation for Senior Living
Tuba City Regional Health Care Corporation

Kaibeto Creek Senior Living Community

first community presentation & community design charrette
May 3rd, 2010

“The Drachman Institute … is dedicated to environmentally-sensitive and resource-conscious planning and design … engaging students, staff, faculty, and citizens as an interdisciplinary collaborative striving to make our communities healthier, safer, more equitable, and more beautiful places to live.”

- Students, Staff, and Faculty
- Planning
- Landscape Architecture
- Architecture

Project History

- September 2009 – ADOH accepts application for technical assistance from Kaibeto Chapter, TCRHCC, & Foundation for Senior Living.
- November 2009 – Drachman Institute contacted “Project Partners” and developed a Scope of Work.
- December 2009 – Kaibeto Chapter designated 12-acre site for the senior living and health center project.
- February 2010 – Drachman Institute & ADOH staff met with “Project Partners” and members of the Kaibeto community to discuss the project scope and schedule and visit the proposed site.
- May 3, 2010 – Here we are...

Today

- Presentation
  1. Site Analysis
  2. Culture & Community
  3. Case Studies and Examples
  4. Initial Design Concepts

- Community Participation – Design Charrette
  1. Presentation Feedback and Brainstorm Ideas
  2. Design in Groups
  3. Discuss Design Options

Kaibeto
Location

Kaibeto
Site Overview
Kaibeto Creek Community
**Culture**

**Earth & Sky**
Father Sky and Mother Earth
Dwelling between the two

**Concept of Time**
Solar position/movement
- Ceremonies
- Stories
- Planting/harvesting
- Hogan orientation
- Daily renewal – Four Times of Day
Ritual Space - Navajo and Hopi

At the center of the community, we find the heart of the Navajo and Hopi culture. The site is designed to honor the spiritual and cultural heritage of these peoples, reflecting their deep connection to the land and the spiritual elements that guide their way of life. The design seeks to create a place for reflection, connection, and community, allowing for the renewal of cultural identity and the revitalization of traditional practices.

By Richard Begay, Senior Project 2001
Kaibeto Senior Living Community

Project Partners:
- Kaibeto Chapter
- Foundation for Senior Living
- Tuba City Regional Health Care Corporation

Preliminary Design Program:
- 25 independent senior living units (Phase I)
- Living quarters for a manager
- Multi-purpose building/ community room/center
- Future health clinic (approx 4,000 s.f.)
Initial Design Concepts

Concept 'A' - "Solstices"

Concept 'B' - "4 Worlds"

Concept 'C' - "Centered"

"Solstices"

site:
- organized along solar equinoxes and solstices
- linear "4 worlds" progression
- 2 separate entrances/ exits
- pedestrian connection and orientation along axes

homes:
- all individual entrances face east
- hybrid hogan design
- clerestory light

"4 Worlds"

site:
- organized around the traditional Emergence Concept of the "4 worlds"
- 2 connected entrances/ exits with a drop-off zone
- pedestrian connection and orientation along "worlds" journey

homes:
- all individual entrances face east
- hybrid hogan design
- clerestory light

residences: front view

residences: back view

residences
Kaibeto Creek Community

**Initial Design Concepts**

- **Concept 'A'** - “Solstices”
- **Concept 'B'** - “4 Worlds”
- **Concept 'C'** - “Centered”

**Today**

- **Presentation**
  1. Site Analysis
  2. Culture & Community
  3. Case Studies and Examples
  4. Initial Design Concepts

- **Community Participation – Design Charrette**
  1. Presentation Feedback and Brainstorm Ideas
  2. Design in Groups
  3. Discuss Design Options
Images from the Design Charrette.
Kaibeto Creek Community

Presentation 2

In coordination with the Kaibeto Chapter planning meeting on August 4, 2010 at the Kaibeto Chapter House, Drachman Institute staff made a second presentation to Chapter leaders, the Kaibeto Chapter Land Use Planning Committee, Tuba City Regional Health Care Corporation staff, Foundation for Senior Living representatives, and members of the Kaibeto community.

Information regarding the site that was selected by the Project Partners, a cultural study and review, examples and case studies of similar projects, and initial design concepts were briefly reviewed. Results from the survey administered by the Project Partners at the previous presentation and the design charrette results were presented and discussed. Finally, the design program and goals as well as four concepts of the overall site design and of the individual residences were presented for review and feedback. Also, about 25 people completed a brief survey at the conclusion of the presentation regarding their responses to the design concepts presented.

The following pages include the information and design concepts presented.
Project History

• September 2009 – ADOH accepts application for technical assistance from Kaibeto Chapter, TCRHCC, & Foundation for Senior Living.

• November 2009 – Drachman Institute contacted “Project Partners” and developed a Scope of Work.

• December 2009 – Kaibeto Chapter designated 12-acre site for the senior living and health center project.

• February 2010 – Drachman Institute & ADOH staff met with “Project Partners” and members of the Kaibeto community to discuss the project scope and schedule and visit the proposed site.

Project History (continued)

• May 3, 2010 – First community presentation and design charrette.
Culture

Earth & Sky
Father Sky and Mother Earth
Dwelling between the two

Culture

Emergence Concept
Journey through 4 Worlds

First World – Black World
Second World – Blue World
Third World – Yellow World
Fourth World – Glittering World

Culture

Concept of Time
Solar position/movement
• Ceremonies
• Stories
• Planting/harvesting
• hogan orientation
• daily renewal – Four Times of Day
Kaibeto Creek Community
Community Survey Responses [5/3/2010]

Question 1
“"I am a senior and a potential resident at the Kaibeto Creek Senior Living Community."”

Question 2
“What do you anticipate your living situation to be?”

Question 3
“How many bedrooms do you feel you need?”

Question 4
“What source of heat would you prefer in your residence?”

Question 5
“How do you prefer your meals are prepared?”

Question 6
“Do you need assistance with any of the following?”

One or more “Yes” responses for each of the following:
- Transportation
- Cooking
- Grocery Shopping
- Getting Dressed / or Bathing
- Other Personal Assistance
Community Survey Responses [5/3/2010]

Question 7
"There will most likely be a lot of shared outdoor space on the property. Is it important to you that you also have private outdoor space adjacent to or near your home?"

- Private outdoor space is important to me.
- Neutral
- I prefer not to have private outdoor space.

Community Survey Responses [5/3/2010]

Question 8
"Which activities/spaces would you prefer to see available at the new Kaibeto Creek Senior Living Community?"

"Yes" votes for:
- [3] Covered Outdoor Space / Ramada
- [3] "Woodshop"
- [5] Traditional Arts Studio
- [5] Library
- [4] Amphitheater
- [4] Salon / Barber Shop
- [4] Classrooms
- [7] Community Garden
- [7] Indoor Theater / TV Room
- [7] Visitor’s Quarters for Guests
- [6] Exercise Room
- [6] Outdoor Cooking Space
- [5] Ceremonial Space
- [5] Sauna / Hot Tub
- [5] Craft Area

Community Survey Responses [5/3/2010]

Question 8 (continued)
"Which activities/spaces would you prefer to see available at the new Kaibeto Creek Senior Living Community?"

Community Survey Responses [5/3/2010]

Question 9
"What types of community events are important to you?"

Responses:
- "Ceremonial purposes of important values of traditional ways."
- "Traditional class"
- "Rodeo"
- "Community get together"
- "Song & dance"
- "Veterans"
- "Community resource events"

Community Survey Responses [5/3/2010]

Question 10
"What is your preferred method of transportation?"

Community Survey Responses [5/3/2010]

Question 11
"What types of building materials would you prefer homes and other buildings at the Senior Living Community be constructed of?"

- [5] Concrete
- [3] Rock or stone
- [2] Rammed earth
- [2] Concrete block
- [2] Brick
- [2] Metal
- [1] Wood frame; stucco

3 mentions of "Navajo Flexcrete"
2 mentions of "Green Build"
1 mention each for "solar," "wind power," "sand"
No votes for "log or heavy timber" and "wood frame with siding"
Community Survey Responses [5/3/2010]

Additional Responses

Question 12: “What other home design features are important to you?”

“We count the days of the month against the wall of wall to count the days.”

“Traditional”

“Octahogan”

Community Survey Responses [5/3/2010]

Additional Responses

Question 14: “What are some symbols, places, historical figures, or other things that are special to Kaibeto?”

“White Mesa, Mountain (Navajo) and there are stories about these things”

“Mesas, springs, canyon”

“Mesas, springs”

Community Survey Responses [5/3/2010]

Additional Responses

Question 15: “What makes Kaibeto different from the rest of the Navajo nation?”

“Kaibeto is a centrally located chapter, surrounded by 5-6 other chapters.”

“More traditional, friendly”

“Navajo pres., restince (Kelsey Begaye)”

“Close to Lake Powell”

“Very quiet, peaceful place and people get along.”

Community Survey Responses [5/3/2010]

Question 13

“We understand that it is preferred in the Navajo culture that building entrances face east.”

I strongly agree that building entrances should face east.

It doesn't matter to me which direction the building entrances face.

Only traditional Hopi's entrances face east.

“Neutral”

Community Survey Responses [5/3/2010]

Question 16

“What health services would you like to see at the clinic in Kaibeto?”

Medical services: 7

Dental services: 7

Mental health services: 7

“Vison”: 2

Community Survey Responses [5/3/2010]

Question 19

“How important is it for you to have an interpreter when you meet with a health care physician?”

Very important: 5

Not important: 0
Community Survey Responses [5/3/2010]
Additional Responses

Question 18: “Please list at least four types of health related services that are most important to you.”
One or more response each for:

“Diabetes”  “Obesity”  “Health”  “Vision”  “Mental”  “Dental”  “Hospital 24 hr”  “Behavioral health”  “Alcoholism counseling”  “Emergency medical services”

Community Survey Responses [5/3/2010]
Additional Responses

Question 20: “What is most important to you about the development of the Kaibeto Creek Senior Living Community?”

“The elderly need shelter with comfort”
“Staff need to be extra nice to the elderly”
“Very important”
“Close to relatives”
“There are going to be more senior citizens at my age”

Based on that Feedback...

Site Design Concepts

Concept ‘A’ - “Solstices”
Concept ‘B’ - “4 Worlds”
Concept ‘C’ - “Centered”
Concept ‘D’ - “Spine”

Design Goals

• create a comfortable and accessible home for seniors
• create a culturally responsive design that both reflects and respects the traditions and way of life of future residents
• use materials and forms that are environmentally responsive during and after construction
• provide physical and mental health care to the senior community
• provide opportunities for community gathering and socialization within the senior community

Design Principles & Priorities

• " Hogan" style living space
• Easy entrance for residential units and/or common buildings
• Parking adjacent to residential units and/or common buildings
• Drop-off, pick-up, and loading zones
• Response to solar orientation
• Views for each residential unit and/or common buildings
• Cultural response in form and experience
• Health center integrated with senior community
• Pedestrian emphasis and promotion of walkability
• Cost considerations in both residential unit designs and site designs
Concept ‘A’ “Solstices”
- Organized along solar equinoxes and solstices
- Linear “4 worlds” progression
- 2 separate entrances/ exits
- Pedestrian connection and orientation along axis
- 2 drop-off/pick-up loading zones
- Integrated health center design
- Parking near each unit and near common house and health center
- Accessible and encourages walkability

Concept ‘B’ “4 Worlds”
- Organized around the traditional Emergency Concept of the “4 worlds”
- 2 connected entrances/ exits
- Pedestrian connection and orientation along “worlds” journey
- Continuous loop drive around common house with drop-off/ pick-up loading zone at east entrance
- Separate health center design
- Centralized/ consolidated parking

Concept ‘C’ “Centered”
- Organized around a central “hogan” in a radial pattern
- 2 connected entrances/ exits
- Pedestrian connection along cardinal directions leading to central “hogan”
- Continuous loop drive around the perimeter with drop-off/ pick-up loading zone at east entrance
- Separate health center design
- Parking near each unit and near common house and health center
"Spine"

site
• organized along a central "hogan" in a linear pattern
• 2 connected entrances/ exits
• pedestrian connection and circulation along perimeter
• outdoor spaces and open space on east maintain views of White Mesa and sunrise
• separated parking and pedestrian access with service vehicles access to common house
• integrated health center design
• centralized/ consolidated parking

Unit Design Concepts

Concept 1

Concept 2

Concept 3

Concept 4

Unit Design Concept 1

Residential units:
• all individual entrances face east
• hybrid hogan design
• back porch
• 2-bedroom, 1 bedroom, small 1-bedroom
• accessible design
• mainly north & south solar exposure
• suspended fireplace in center of "hogan" living room
• small kitchens, small 1-bedroom has kitchenette unit
Unit Design Concept 2
- Residential units: all individual entrances face east
- Hybrid hogan design
- 2-bedroom; small 1-bedroom
- Accessible design
- Small 1-bedroom has kitchenette unit
- Fireplace in center or corner of "hogan" living room space
- North & south solar exposure with clerestory natural light

Unit Design Concept 3
- Residential units: all individual entrances face east
- Recessed private entrances
- Modern design
- Back porch
- 2-bedroom; 1-bedroom
- Accessible design
- Mainly north & south solar exposure
- No fireplace
- 1-bedroom has kitchenette unit

Unit Design Concept 4
- Residential units: all individual entrances face east
- Hybrid hogan design
- Back porch
- 2-bedroom; 1-bedroom; small 1-bedroom
- Accessible design
- Suspended fireplace in center of "hogan" living room
- Small 1-bedroom has kitchenette unit
Next Steps

- Need feedback for selection of site design to develop
- Need feedback for selection of residential unit design to develop

Design Development:

- Common house design
- Materials
- Residential unit interior space design
In coordination with the Kaibeto Chapter Senior Center annual Thanksgiving event on November 23, 2010 at the Kaibeto Chapter House, Drachman Institute staff made a final presentation to Chapter leaders, Tuba City Regional Health Care Corporation staff, Foundation for Senior Living representatives, and members of the Kaibeto community.

Information regarding the site that was selected by the Project Partners, a cultural study and review, examples and case studies of similar projects, and initial design concepts were briefly reviewed, as were survey results, design charrette results, and the design program and goals. Based on the feedback received by community members at previous presentations, through the surveys, and feedback from the Project Partners throughout the process, Drachman Institute staff presented final schematic designs for the overall site, the senior center and common house, and the individual residential units.

More than 70 people were in attendance. Comments from community members during the presentation indicated their support in moving the project forward.

The following pages include the information and schematic design concepts as presented.
Kaibeto Chapter
Foundation for Senior Living
Tuba City Regional Health Care Corporation

Kaibeto Creek Community
Senior Living Community, Senior Center, & Health Center

final community presentation
November 23rd, 2010

Project History

• September 2009 – ADOH accepts application for technical assistance from Kaibeto Chapter, TCRHCC, & Foundation for Senior Living.

• November 2009 – Drachman Institute contacted “Project Partners” and developed a Scope of Work.

• December 2009 – Kaibeto Chapter designated 12-acre site for the senior living and health center project.

• February 2010 – Drachman Institute & ADOH staff met with “Project Partners” and members of the Kaibeto community to discuss the project scope and schedule and visit the proposed site.

Project History (continued)

• May 3, 2010 – First community presentation and design charrette

• August 4, 2010 – Second community presentation

Site Concepts:
A. “Solstice”  B. “Worlds”  C. “Centered”  D. “Sane”

Today

- Review from last presentation
  1. Site Analysis
  2. Culture & Community
  3. Case Studies and Examples
  4. Initial Design Concepts
  5. Survey Results
  6. Charrette Results
  7. Concept Selection Results

- Presentation
  1. Final Site Plan Design Concept
  2. Final Residential Unit Design Concepts (two)
  3. Final Senior Center/ Common House Design Concept

Kaibeto Location
Culture

Earth & Sky
Father Sky and Mother Earth
Dwelling between the two

Culture

Emergence Concept
Journey through 4 Worlds

First World – Black World
Second World – Blue World
Third World – Yellow World
Fourth World – Glittering World

Culture

Concept of Time
Solar position/movement
• Ceremonies
• Stories
• Planting/harvesting
• hogan orientation
• daily renewal – Four Times of Day

modern structures and planning: "One College"
Kaibeto Creek Community
Community Design Charrette [5/3/2010]
Design Concept, Table 3

Community Survey, May 3, 2010
20 Questions – 8 Survey Participants

Based on that Feedback...

Design Goals
- Create a comfortable and accessible home for seniors
- Create a culturally responsive design that both reflects and respects the traditions and way of life of future residents
- Use materials and forms that are environmentally responsive during and after construction
- Provide physical and mental health care to the senior community
- Provide opportunities for community gathering and socialization within the senior community

Design Principles & Priorities
- "Hogan" style living space
- Base entrance for residential units and/or common buildings
- Parking adjacent to residential units and/or common buildings
- Drop-off, pick-up, and loading zones
- Response to solar orientation
- Views for each residential unit and/or common buildings
- Cultural response in form and experience
- Health center integrated with senior community
- Pedestrian emphasis and promotion of walkability
- Cost considerations in both residential unit designs and site designs
Site Design Concepts (August 4, 2010)

Concept ‘A’ - “Solstices”

Concept ‘B’ - “4 Worlds”

Concept ‘C’ - “Centered”

Concept ‘D’ - “Spine”

Unit Design Concepts (August 4, 2010)

Concept 1

Concept 2

Concept 3

Concept 4

Presentation Two Feedback, August 4, 2010

25 Responses

1. “Please rank the four site plan concepts...”:

<table>
<thead>
<tr>
<th>A “Solstices”</th>
<th>B “4 Worlds”</th>
<th>C “Centered”</th>
<th>D “Spine”</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Presentation Two Feedback, August 4, 2010

25 Responses

1. “Please rank the four residential concepts...”:

<table>
<thead>
<tr>
<th>1 “Angled”</th>
<th>2 “Alternating”</th>
<th>3 “Orthogonal”</th>
<th>4 “Large Hogan”</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>7</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>

Site Features

- Organized around a central “hogan” (service center) in a radial pattern
- Two connected vehicle entrances/ exits
- Pedestrian connection along central directions leading to central “hogan” (service center)
- Continuous loop drive around the perimeter with drop-off/pick-up/ loading zones at each entrance area
- Separate health center
- Parking near worksite and near senior center and health center
- Staff housing on site at north end
- Outdoor amphitheater/ ceremonial space at east end with seating, flag poles, and east-facing stage
- Community garden areas north and south of service center
- 20 residential units: (6) 1 bedroom units & (14) 2 bedroom units

Kaibeto Creek Community
North/South Unit Features
- All units have individual hogan-style front room
- All individual entrances face east
- Covered front entrance
- Accessible design
- Suspended fireplace in center of hogan-style front room (1-bedroom units); corner fireplace in 2-bedroom units
- Full-size kitchen in 2 bedroom units; kitchenette in 1-bedroom units
- North & south solar exposure with or without radial light in each unit
- 2-bedroom, 1-bath, 810 square feet
- 1-bedroom, 1-bath 590 square feet

Duplex Unit Features
- All units have individual hogan-style front room
- All individual entrances face east
- Covered front entrances
- Private back porch area
- Accessible design
- Full-size kitchen
- Suspended fireplace in center of hogan-style front room
- 2-bedroom, 1-bath, 810 square feet
Kaibeto Creek Community

Final Design

The following pages outline the final schematic design that was developed based on feedback throughout this process. Included are design concepts for the overall site, individual residential units, and the senior center and common house. In addition to plans, elevations, and perspective images, a brief summary of possible building materials is also included.
**Final Design**

**Site Plan**

**Site Features:**
- Organized around a central “hogan” (senior center) in a radial pattern
- Two connected vehicle entrances/ exits
- Pedestrian connection along cardinal directions leading to central “hogan” (senior center)
- Continuous loop drive around the perimeter with drop-off/ pick-up/ loading zones at east entrance area
- Separate health center
- Parking near each unit and near senior center and health center
- Staff housing on site at north end
- Outdoor amphitheater/ ceremonial space at east end with seating, flag poles, and east-facing stage
- Community garden areas north and south of senior center
- 26 residential units: (6) 1-bedroom units & (20) 2-bedroom units
Final Design

Residences

North/South Unit Features:
- All units have individual hogan-style front room
- All individual entrances face east
- Covered front entrances
- Accessible design
- Suspended fireplace in center of hogan-style front room (1-bedroom units); corner fireplace in 2-bedroom units
- Full-size kitchen in 2-bedroom units; kitchenette in 1-bedroom units
- North & south solar exposure with clerestory natural light in each unit
- 2-bedroom, 1-bath: 830 square feet; 1-bedroom, 1-bath: 590 square feet
Kaibeto Creek Community

2-bedroom unit  |  1-bedroom unit

plans

0'  4'  8'  16'

Kaibeto Creek Community
Final Design

Residences

Duplex Unit Features:
- All units have individual hogan-style front room
- All individual entrances face east
- Covered front entrances
- Private back porch area
- Accessible design
- Full-size kitchen
- Suspended fireplace in center of hogan-style front room
- 2-bedroom, 1-bath: 840 square feet
Final Design

Senior Center/ Common House

Features:
- Reception area: includes reception workspace, seating, tables, etc.
- Director’s office: includes workstation/ desk and table with seating for private meetings with clients, etc.
- Staff offices: includes workstation/ desk for three staff and a lockable storage room
- Art studio and gallery: includes workspace/ table and chairs, cabinets/ shelving for storage, display space, and a gift shop
- “Hogan” lounge: includes ‘hearth’ or fireplace, chairs, couches, etc.
- Patio: includes space and furniture for outdoor eating and lounging
- Dining/ multi-purpose room: includes space for classes, games, dancing, dining, and other events; includes storage rooms
- Kitchen: includes commercial cooking equipment, refrigerator and freezer, pantry/ food storage, and meal preparation space/ tables
- Chapel: multi-denominational worship or contemplation space
- Media room: includes TV, computers, couches, and library
- Exercise room: includes spa, sauna, and exercise equipment
- Restrooms: includes restroom facilities plus showers and changing areas
- Laundry: includes laundry equipment for all residents, sink, and counter/table for folding
Kaibeto Creek Community
**Final Design**

**Possible Building Materials**

**Fly-ash Concrete**

“Fly ash is a fine, glass-like powder recovered from gases created by coal-fired electric power generation. U.S. power plants produce millions of tons of fly ash annually, which is usually dumped in landfills. Fly ash is an inexpensive replacement for portland cement used in concrete, while it actually improves strength, segregation, and ease of pumping of the concrete. Fly ash is also used as an ingredient in brick, block, paving, and structural fills.”


One local example of the use of this material in building construction is **Navajo FlexCrete Building Systems**, who produces blocks made from fly ash concrete. They are a subsidiary of the Navajo Housing Authority. For examples of the use of this product and for more information see their website: http://www.navajoflexcrete.biz.

**Wood & Steel**

Wood, or timber, is a traditional building material found throughout Navajo architecture. It creates a warm and traditional feel on the interior, and, if treated or protected properly, emphasizes the place and culture when used as an exterior feature or material.

Most structural steel manufactured today contains more than 80% recycled content. Along with its durability, this emphasizes steel’s role as a sustainable building material. Additionally, when allowed to rust, or sealed in its rusted state, the steel adds to the natural and earthen aesthetic and blends with the colors of the land.
Rammed Earth

“Rammed earth is a structural wall system built of natural mineral soils compacted in thin layers within sturdy formwork. The strength and durability of the wall results from the densification of a clay, sand, and gravel matrix. The mass of the wall provides superior thermal and acoustic properties.

To build a rammed earth wall, moist soil is compacted layer at a time inside of a strong mold or form. The forms can be removed immediately and the fresh wall is capable of supporting loads. It continues to cure and gain strength slowly over time.

Although rammed earth can serve as simply a resource-conserving thermal flywheel, in other applications it is celebrated as functional art.”

Rammed earth technology has been used throughout traditional Navajo architecture. The use of this material in a modern application both celebrates the past and emphasizes the durability of culture moving forward.