

Tishk International University (TIU) Vernacular Architecture

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2025-2026

LECTURE 6: THE VERNACULAR HOUSES IN KURDISTAN - ERBIL



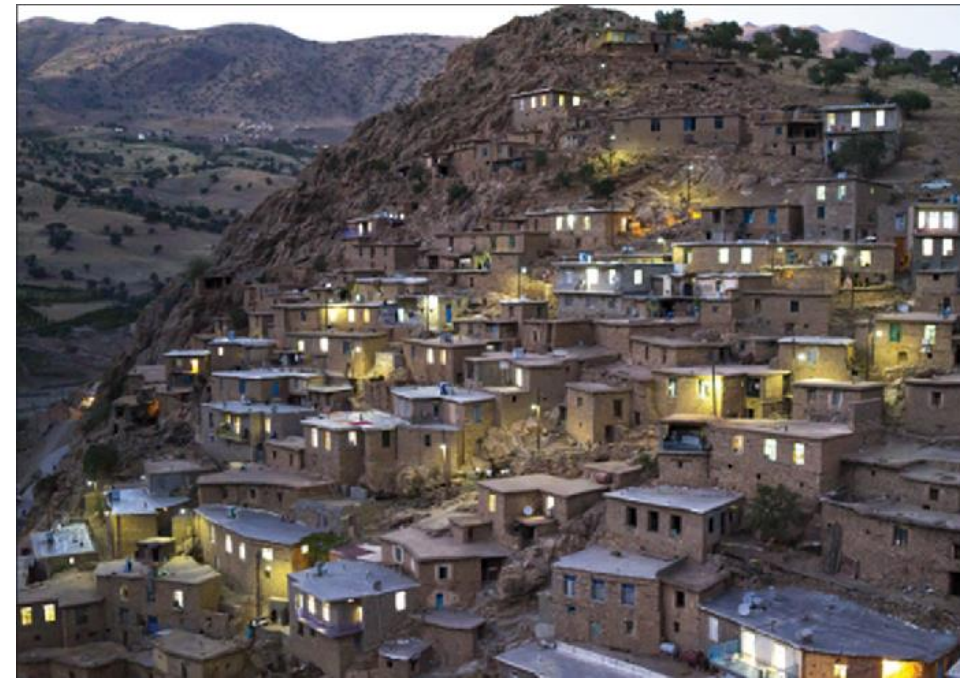
Overview of Kurdish Vernacular Architecture

1. Kurdish Vernacular Architecture in City Centers

- Explore the traditional architectural features common in the urban areas of Erbil City, Sulmanyah , Koya , Kfri nad Karkuk.
- Discuss the influence of historical and cultural contexts on the architecture.

2. Kurdish Vernacular Architecture in Mountainous Areas

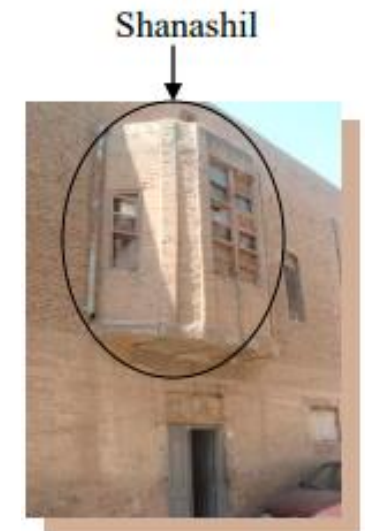
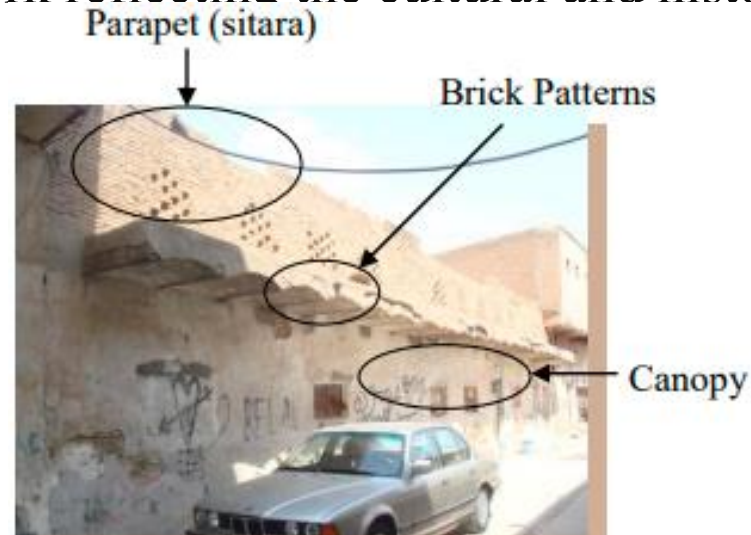
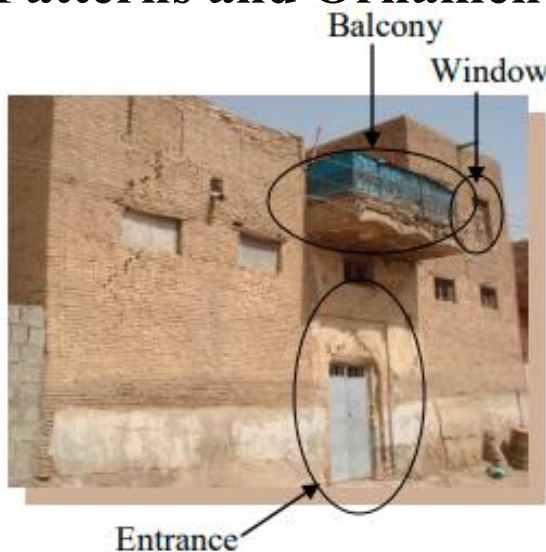
- Highlight the adaptations of vernacular architecture to the mountainous landscapes and climate.
- Examine materials and construction techniques unique to these regions.



VERNACULAR ARCHITECTURE IN ERBIL CITADEL

1. Elements of the Elevations

- **Entrance:** Special treatments and designs characteristic of the citadel's vernacular architecture.
- **Window:** Distinctive styles and functionalities adapted to local conditions **within the citadel.**
- **Shading Parts:**
 - **Canopy (Sweban):** Used to provide shade and enhance aesthetic appeal in the citadel.
 - **Balcony:** Functional and decorative, offering outdoor space and views within the citadel.
 - **Shanashil (Overhang):** Traditional overhangs that provide shade and cooling, typical in the citadel.
 - **Parapet (Stara):** Vernacular term for parapets in the citadel, often decorated with patterns and ornaments.
- **Patterns and Ornaments:** Detailed work reflecting the cultural and historical significance of the citadel.

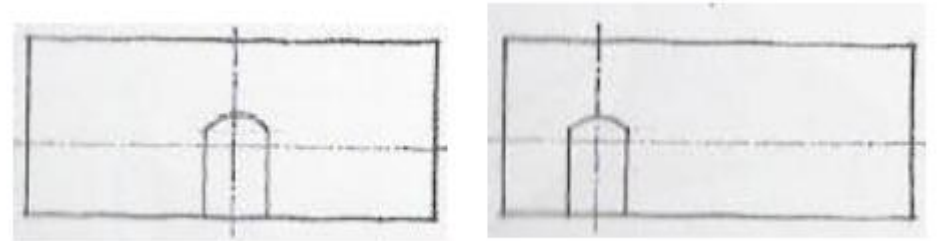


2. Composition of Elements in Erbil Citadel Elevations

Composition of the Elements Regarding the Whole Elevation

A-Centralization:

- **Entrance Placement:** Analyzes how the entrance is positioned within the entire elevation of a building. It can be centered on the front elevation or placed off-center, affecting the symmetry and visual impact of the structure.

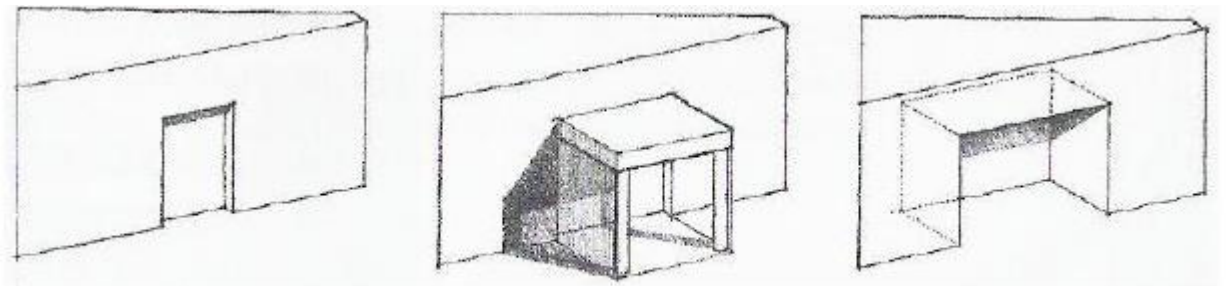


B-Continuity with the Elevation Line in Erbil Citadel

Continuity with the Elevation Line

•Entrance Configurations:

- **Flush Entrance:** Maintains the continuity of the surface, **aligning perfectly with the rest of the elevation.**
- **Projected Entrance:** Creates a transitional space, announces its function from **the approach, and provides overhead shelter.**
- **Recessed Entrance:** Offers shelter and incorporates a portion of exterior space into the building, **adding depth to the elevation.**



Continuity with the elevation line

3.Characteristics of Vernacular Houses in Erbil Citadel

A- Features of Vernacular Houses

•Building Structure:

- Most houses consist of only **two floors**.
- The basement is located **beneath (below)the courtyard** at a depth of **1 to 1.5 meters** and is typically **accessible only from the courtyard**, often featuring **vaulted ceilings**.

•Architectural Elements:

- Buildings are enclosed by **high walls** with **open courtyards**, creating **private** and **secure** outdoor spaces.
- **Windows** are strategically placed in **specific directions** to optimize **light** and **air flow**.



B- Architectural Features and Functions in Erbil Citadel

Architectural and Functional Elements

•Basements (Cellars):

- Used primarily for **cooling purposes**, these underground spaces help **maintain lower temperatures** inside the houses.

•First Floor Layout:

- Comprises a **rectangular yard surrounded by rooms**, which serves as the **central communal area**, linking various parts of the house.

•Second Floor Configuration:

- Contains connected rooms that allow for **enhanced ventilation** and access to other openings **optimizing airflow and light**.

•Shanashil:

- These are primarily designed to **light the houses** while controlling **airflow**, **reducing** the temperature of incoming air, and **providing privacy**.



3.1 Materials of Vernacular Houses in Erbil Citadel

- **Mud and Gypsum:** Predominantly used due to their availability and excellent properties in thermal insulation, helping to maintain cooler interior conditions in hot climates.

3.2 Design of Vernacular House Layouts in Erbil

Zoning and Space Allocation in Vernacular Houses

Public-Private Spaces:

Reception rooms (guest rooms) **serve public** and **semi-private** functions while **maintaining separation** from **family** areas.

Private Spaces:

Family-oriented areas divided into:

Closed Spaces: Fully enclosed rooms.

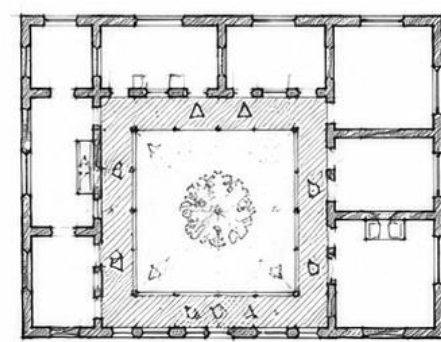
Semi-closed Spaces: Areas such as Dolan and Mejaz.

Open Spaces: Courtyard, Tarma(corridor , Iwan, and Talar.

Private-Private Spaces:

Highly private areas such as **bedrooms**, designed for maximum privacy.

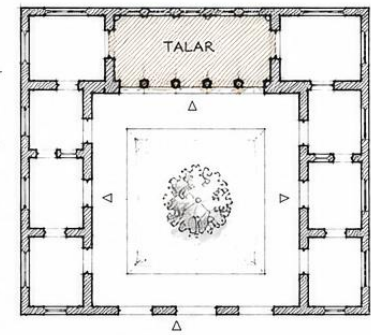
Tarma is a critical transitional element, serving as a colonnaded veranda or gallery that overlooks the central courtyard



▨ TARMA (colonnaded veranda)
▷ view to courtyard

Talar is a semi-open, colonnaded space or "open room" that typically fronts the central courtyard of a traditional house. It serves as a vital transition zone between the enclosed indoor rooms and the outdoor courtyard, playing a key role in both the social and climatic functioning of the home

PLAN (GROUND FLOOR)



▨ TALAR (colonnaded porch)
▷ View to courtyard



3.3 Zoning of Main Spaces and Activities in Traditional Houses of Erbil (1900-1930)

Concept of Zoning Categories of Spaces

- **Closed Spaces:**

- These are fully enclosed areas designated for private or controlled activities, typically including bedrooms and family rooms.

- **Semi-Closed Spaces:**

- Areas that offer a balance between privacy and accessibility, such as verandas or entrance **vestibules (Dolan)**.

- **Open Spaces:**

- Unenclosed or partially enclosed spaces like courtyards, which serve as central hubs for family interaction and various household activities.

- **Transitional Spaces (Circulation Spaces):**

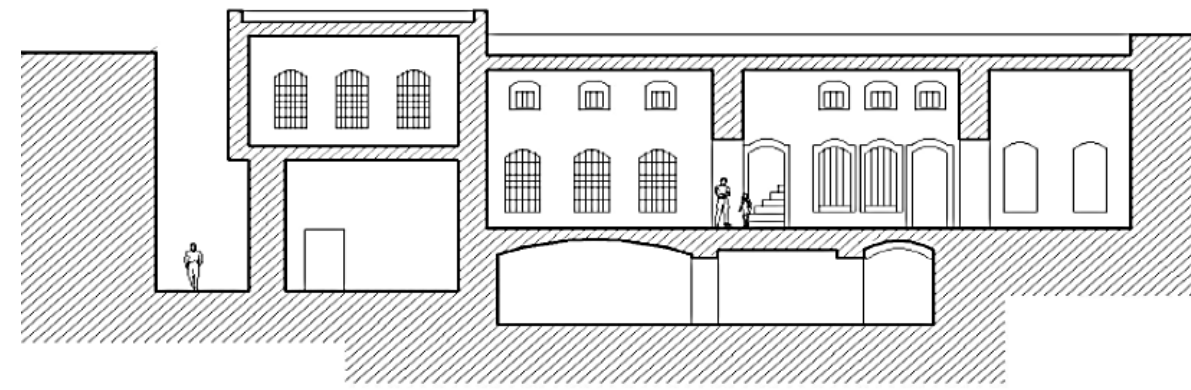
- Spaces that facilitate movement and connectivity between other zones, such as hallways and staircases.

Historical Context

- **Erbil Courtyard Houses (1900-1930):**

- During this period, traditional houses were distinctly organized into these zones to accommodate the social, cultural, and environmental conditions of the time.

3.3.1 Closed Spaces in Traditional Houses of Erbil



Salih Chalabi House

Functional Spaces and Living Areas

Underground (Sirdab & Neem-Sirdab): Basements with thick walls and high ceilings used as cool retreats from extreme summer heat.

Ground Floor Living: Semi-enclosed, rectangular rooms facing the courtyard used for daytime activities.

First Floor Rooms: Private bedrooms for family and guests, positioned to offer quiet and seclusion from the rest of the house.

Design Goal: A strategic layout that prioritizes **thermal comfort** and **privacy** through vertical separation of activities.

SERVICE SPACES IN TRADITIONAL HOUSES OF ERBIL

Service Spaces in Erbil Houses

Kitchens: Strategically located near the main entrance for easy access and efficient household management.

Sanitation: Toilets and bathrooms are positioned near both the entrance and bedrooms for guest and family convenience without disrupting private living areas.

Treasury (Storage): A small ground-floor room used for storing foodstuffs and essential supplies.

Attic (Hawraban): A storage space located above the treasury for seasonal items, often accessed via a ladder.

Why do dwelling designs vary in the Kurdistan region?

- The architectural diversity in the Kurdistan mountainous areas can be attributed to several key factors:
- **Geographic Features:** The landscape significantly influences the structural designs.
- **Cultural Influences:** Local beliefs and cultural practices shape the architectural aesthetics and functionalities.
- **Local Materials:** Availability of building materials dictates construction methods and styles.
- **Climate Adaptation:** Techniques evolve to address the extreme variations in regional climate, ensuring durability and comfort.



Efficiency and Environmental Compatibility in Kurdistan's Vernacular Architecture

1. Addressing Climatic and Topographic Constraints

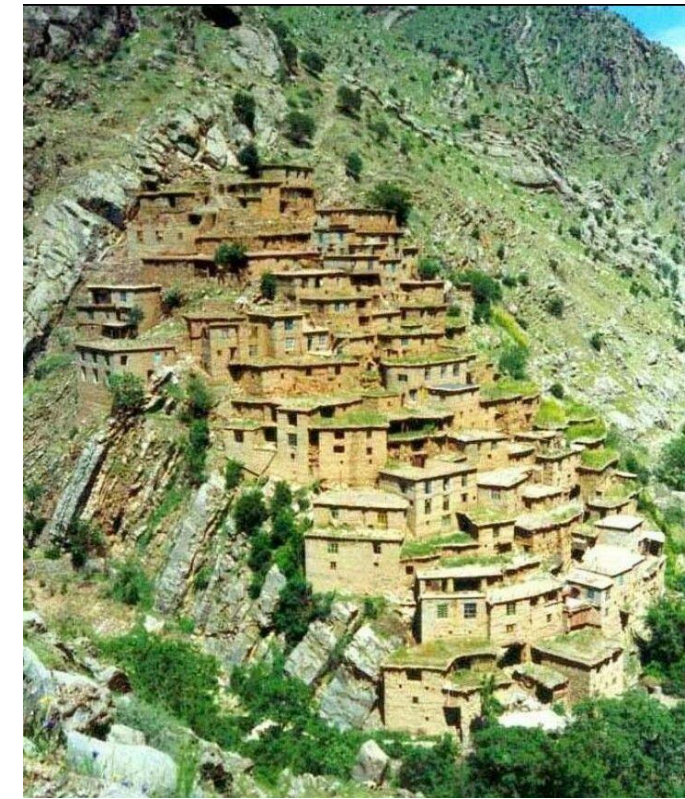
Native communities efficiently overcome severe terrain and weather challenges.

This success reflects a **harmonious adaptation** of social and cultural traditions to the natural environment, driven by shared, collective building skills.

2. Achieving Environmental Compatibility (Arranging)

In mountain villages, environmental harmony is deliberately designed into **settlement patterns, building forms, and strategic topographic locations**.

These architectural choices align with local microclimatic conditions and are optimized through the region's collective ancestral building expertise.



Adaptation of Building Design to Climatic Conditions in Kurdistan

Optimal Design for Usability and Comfort

The architecture in Kurdistan is carefully designed with attention to **building type, shape, orientation, and integration** with the **surrounding nature**. The layout of both **external** and **internal** spaces is developed to **maximize usability and comfort**.



Harmonizing Architecture with Environmental Conditions in Kurdistan

Strategies for Climatic Adaptation

Climatic Adaptation Strategies

- Using local natural materials.
- Designing shaded openings for light and heat control.
- Applying natural cooling and passive solar heating.
- Orienting buildings against cold winds.

Optimal Sun Orientation

- Mountain houses are often built on southern slopes to maximize sunlight, especially in winter mornings. The preferred orientation is south-southwest (SSW). Qabalah orientation degree ?

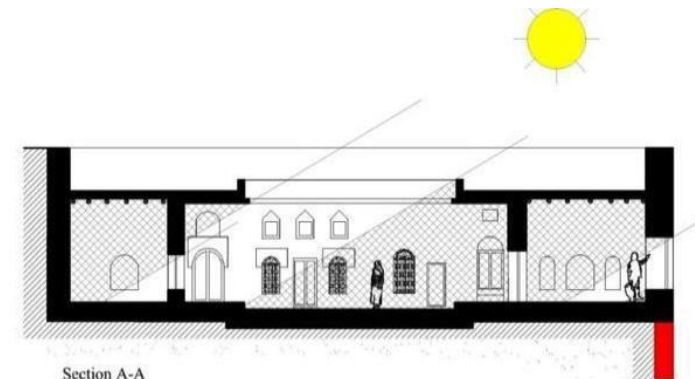
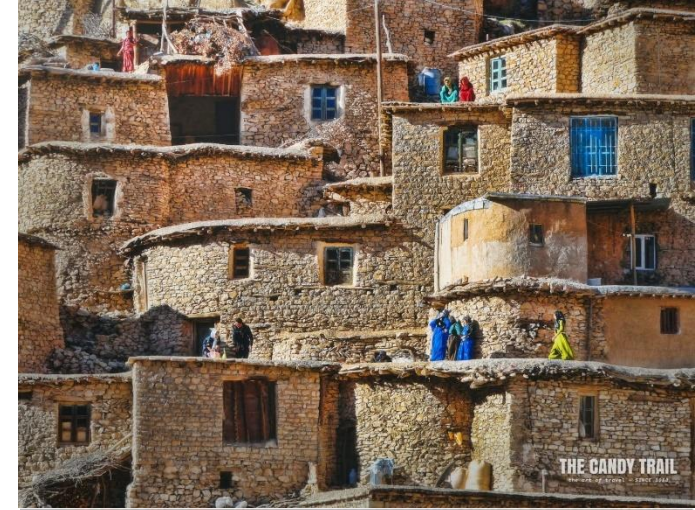


- **Cultural Significance of Flat Rooftops in Kurdish Architecture**

- **Orientation & Purpose:** Flat rooftops are commonly **oriented toward the east** to catch the morning sun. This design maximizes natural lighting and air circulation while providing an open space for daily activities.

- **Social Hubs:** These roofs serve as central **cultural gathering places** where families and neighbors meet and socialize, highlighting a deep connection between climate, architecture, and community.

- **Environmental Adaptation:** Across both flat and mountainous settlements, prioritizing morning sunlight and fresh air reflects a long-developed, **healthy living adaptation** to local environmental conditions.

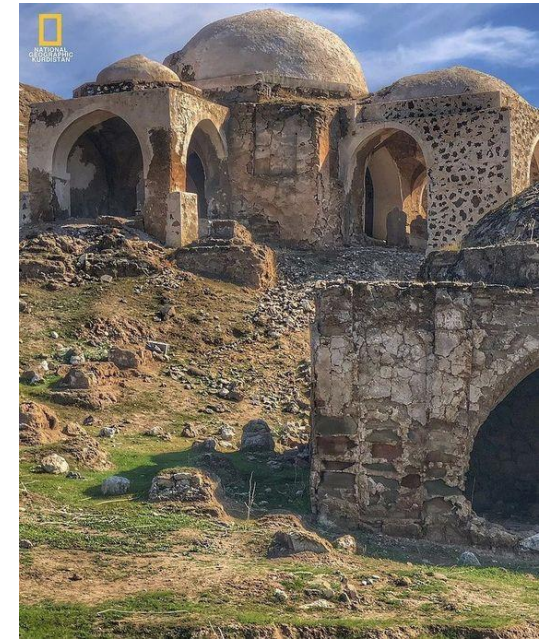
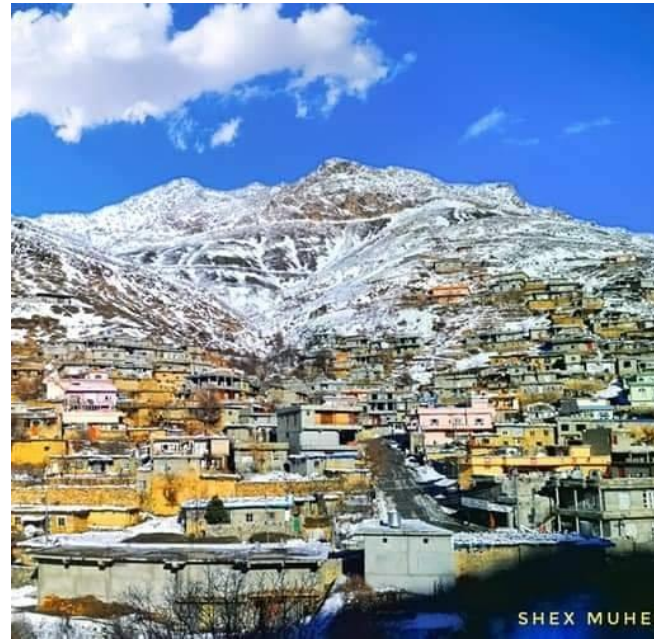


According to the Kurds and their lifestyle, how were their villages built?

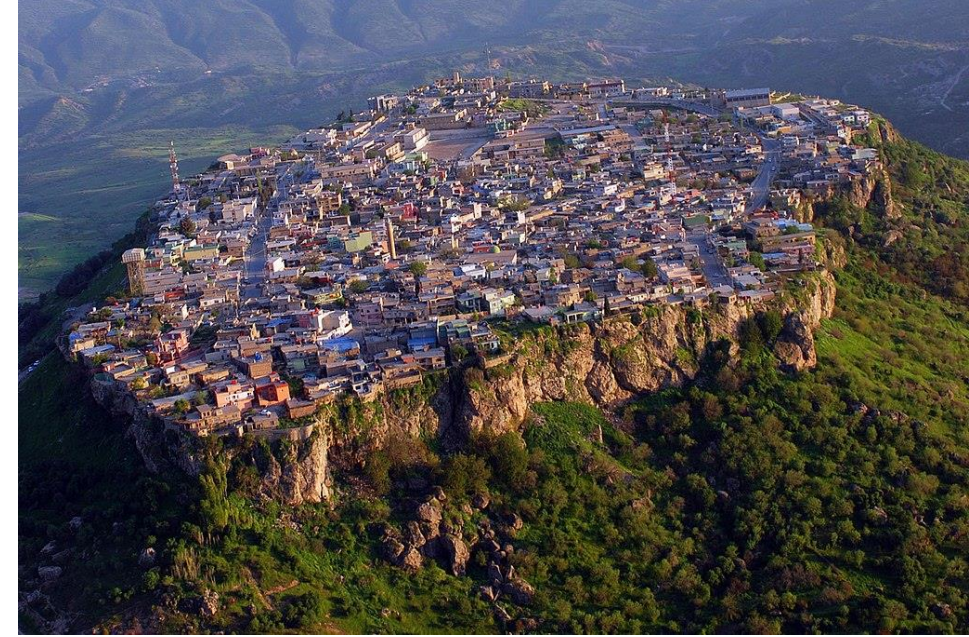
According to the Kurds and their lifestyle and the **characteristic local conditions** which have **ensured their survival**. The villages that were built on **rocky hills** were surrounded by **strong stone walls** and built with the **most substantial materials**.

- Mountain villages such as **Tewéle** and **Bíyare** and hill towns such as **Amidé** and **Rewandiz**, as well as lower plains towns such as **Kifrí** are good examples of such survival communities which are still inhabited.

In Kurdish vernacular architecture, **colors, patterns** and **sunlight** play a **significant role** in the **building design**.



Example of Kurdish vernacular city Amédí



- Amédí, located in the northern part of the Kurdistan region, serves as a prime example of how Kurdish mountainous communities **adapt to their environment**. The city is **strategically** built like a **natural fortress**, utilizing its **geographical** position for **security**. Houses in the area are typically arranged in specific **terraces**, **ensuring interdependency (connection)** among **households**.

- Amédí's design emphasizes **cultural values** with **thick, sturdy(strong) stone walls** for climate **adaptability**. This approach **ensures security, comfort, and a close-knit community, harmonizing with the environment and showcasing adaptability** under challenging conditions.
- The use of local materials **not only ensures availability and sustainability** but also helps the architecture **blend seamlessly with the surrounding environment**.
- **Stone is an easily available material** and offers a **protective environment** for the inhabitants since the region is disposed to **strong winds, rain and heavy snow**.



Example of Kurdish vernacular city Tewéle

Tewéle is another notable example of Kurdish mountainous cities, demonstrating the adaptability of the region's architecture to its unique environmental challenges. The type of dwellings varies widely across Kurdistan, influenced by various factors including the availability of local materials. This diversity is a testament to the evolved building techniques tailored to accommodate extreme regional climate variations.



This lecture focuses on data specifically gathered from Tewéle, which is strategically located at an **altitude of 1450 meters in a narrow valley surrounded by high mountains on three sides**. This unique positioning not only protects the city **from strong winds** but also showcases the city's wise use of its **natural surroundings to enhance living conditions**.

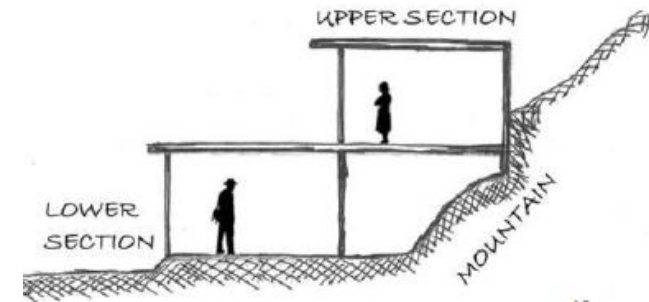
- In Tewéle, buildings are designed to withstand **harsh weather** while **providing comfort**. This is achieved by **carefully considering** all **climatic factors** for **optimal living**.
- Residents typically spend most of their daytime under **the extended roof area outside**, and **sleep on the flat roof** of the lower section at night. During the colder seasons, **warmth is maintained using a single iron chimney**, and additional heat is generated by **livestock kept in the lower sections of the house**. Historically, houses were built with **much lower ceilings**, a traditional method to conserve heat.
- In this city, In the old day's people used to build houses with much **lower ceiling heights** to keep the house **warm in the cold nights** and still using **straw clay plaster** to coat the **inner walls and decorate them with white mud (gillesipí)**.

- In the city of Tewélle, particular attention is given to the design and shape of roofs to adapt to local weather conditions.
- The roofs feature extended structures that provide necessary cover against **sunlight** and **rain**, **enhancing** the functionality of outdoor living areas. **These roofs are supported by joists**, locally known as "**tírek**," which **are spaced every 30 cm**, and reinforced with **beams referred to as "kolleke."** This design **not only protects against the elements** but also adds to **the aesthetic and structural integrity of the buildings.**



- In Tewéle, two-story houses are the **most prevalent architectural form**. Typically, entrances are **located on the ground floor**, which is primarily used for practical purposes **such as housing livestock**, providing **storage spaces**, and in larger homes, accommodating **common living areas like the living room and kitchen**.
- **The living quarters are generally** situated on **the upper floor**, where rooms are distinctly organized into functional areas including the living room, kitchen, and bedrooms. This layout reflects a clear separation of utilitarian and living spaces, catering to both the practical and comfort needs of the inhabitants.

The lower sections of these houses **help insulate the building**, keeping the **upper floors warm in winter**.



In Tewélle, **steep, uphill** alleyways add to **the city's charm**(magic). These alleys lead to houses and are marked by **walls made from irregular, dry stone**, known locally as "**Wushke kellek**." The **artistic stone walls** enhance the **urban landscape's aesthetic value**.

Moreover, the construction of these **stone walls is meticulously**(properly) engineered to **harmonize** with the **surrounding natural environment**. Along the steep alleyways, the walls are designed to be wider at the base, **tapering off as they increase in height**, especially when used as retaining walls. This structural approach not only **ensures stability but also enhances the natural beauty of the area, seamlessly integrating** with the rugged terrain.



All the walls are constructed with **stones and wood** is used in making floors and flat roofs. All observed building types in this town lacked structural frames, **all walls were load bearing walls**. The outer walls are erected with a **thickness of 50 cm** with **rather small window openings to preserve the heat**.

Building Materials in Kurdistan's Mountainous Areas

Climate Adaptation: Vernacular building styles adapt to extreme local temperatures ranging from -10°C to +50°C.

Regional Stone Use: * Rewandiz & Amédí: Built using natural limestone, fieldstone, or fashioned masonry.

Tewéle: Characterized by dolomite rocks suited for rougher terrains.

Traditional Houses: Typically constructed with mudbrick walls and wooden roofs.

Mudbrick Construction: Quadratic, sun-dried mudbricks are common in warmer lowlands. Historically, these bricks have been reinforced with animal hair and hay for millennia to ensure durability.

In Tewéle, high rocky mountains serve **as natural fortresses**. For centuries, houses have been built on these mountains using **local stones and wood**, reflecting a tradition of creating **durable homes from natural resources**.

In Kurdistan, mountain buildings may resemble typical Middle Eastern houses, but a unique feature is the use of **mortar-free stone walls**. Stones are collected and **sorted on-site, resulting in dry, irregular stone walls known locally as Wushke Kellek (drywall)**.

The **freestanding walls** use irregular stones, carefully positioned **without slipping**. They are **reinforced by horizontal planks (Dimek)** or vertical planks (Mirolle), which **distribute loads, withstand earthquakes, and absorb moisture**. These traditional methods, developed **through trial and error, demonstrate** the ingenuity and adaptability of Kurdish architecture to environmental challenges.

