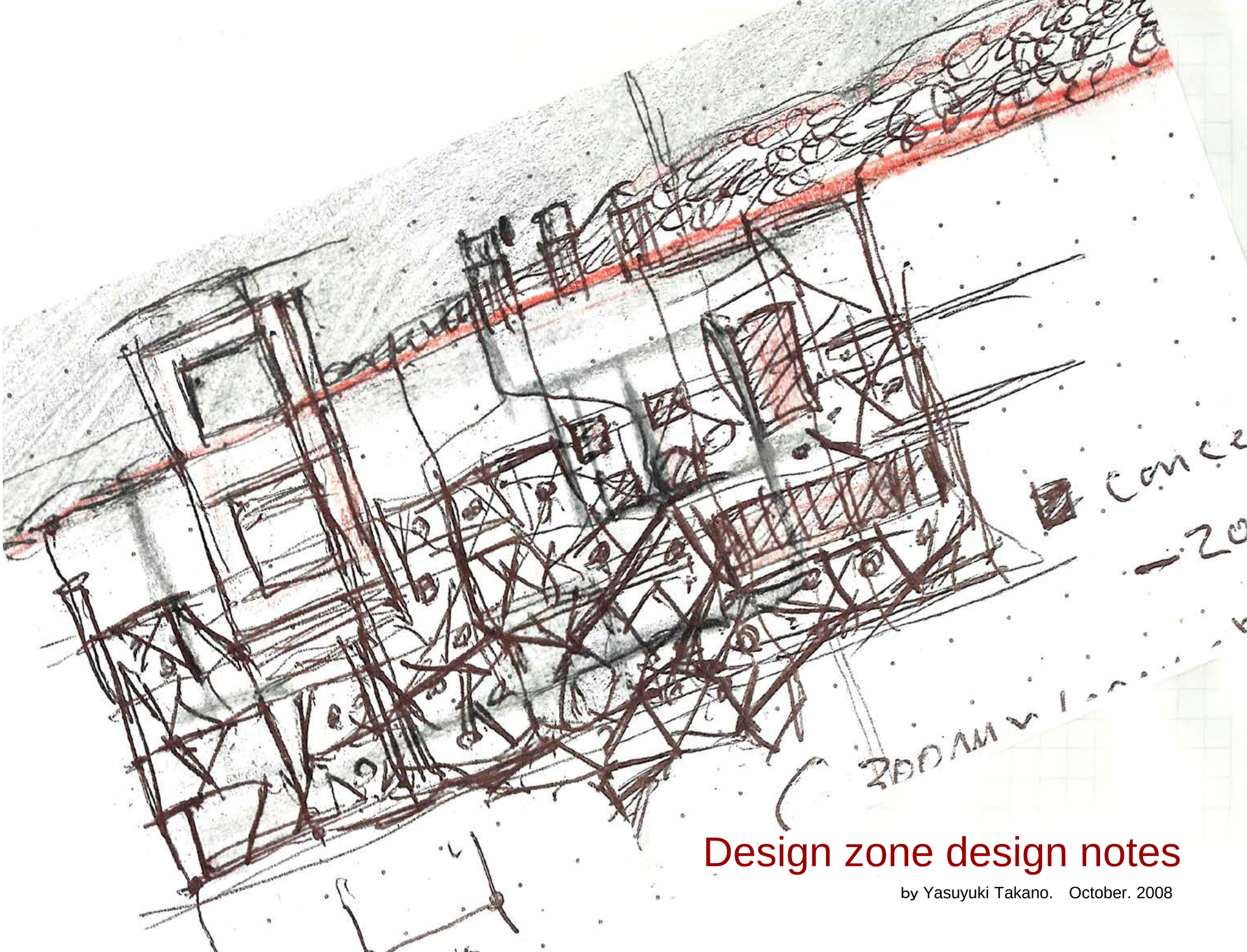


Design zone design notes

by Yasuyuki Takano. October. 2008

INTRODUCTION

Design Report for Qatar Foundation design zone

This report discusses from a design perspective the Qatar Foundation's design zone plan, presenting the language and concepts of environmental and architectural design. The content of the report is based on materials such as *Designing the Design Zone*, which describes the principles of the design zone, and on-site surveys.

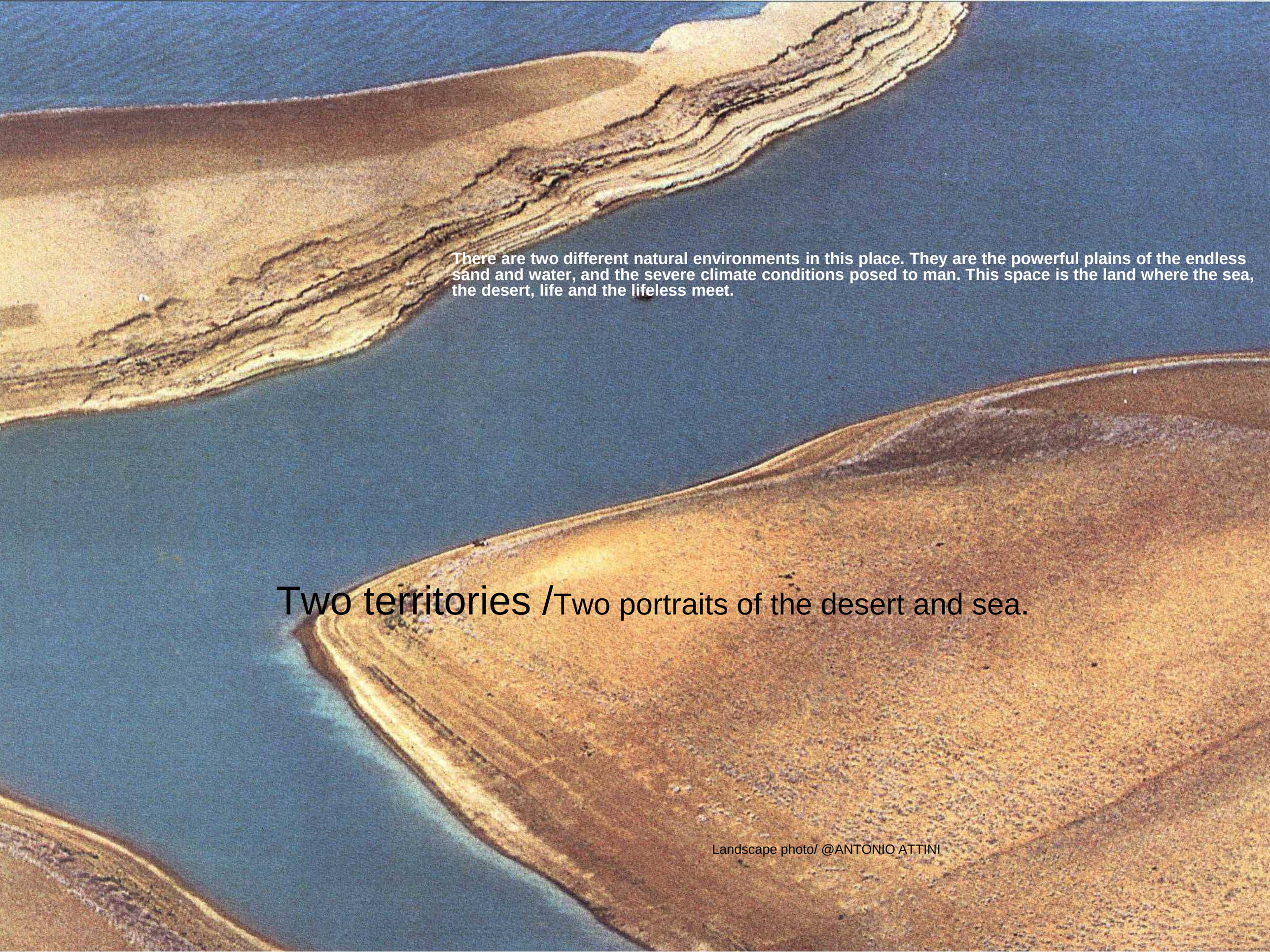
- There are two layers of meaning in the content of the report—the conceptual level, in that the design itself requires scope for modification, and second, the need for freedom from restrictions at the initial planning level. Thus methods that provide a flexible solution to these requirements were explored.

- I did not adopt a systematic approach to the editing of this report. It should be regarded as a collection of short stories. Each short story is a design idiom. Although presented in discrete units of design idioms, the content is interrelated. The idioms contain various contexts such as the climatic and geographical features of the location, description of imagination and ideas, ideas to assist human physical condition and comfort, analysis of traditional methods and systems, orientation toward artistic and aesthetic spaces, and the perspective of resources and natural forces.

- The overall concept and design diagrams express early images. At the same time, with the exception of housing and other private spaces, I have added paradoxical flexibility and potential that allows the space to select the purpose rather than proposing a purpose-limited design.

These design stories are sketches, as it were, in the process of creating a future vision for a design zone with unlimited potential.

Yasuyuki Takano/Takano Design Produce.
October 26, 2008



There are two different natural environments in this place. They are the powerful plains of the endless sand and water, and the severe climate conditions posed to man. This space is the land where the sea, the desert, life and the lifeless meet.

Two territories /Two portraits of the desert and sea.

Landscape photo/ @ANTONIO ATTINI

I sought for the key formation concept of the Design Zone to be the dot (a water spring). I think that the dot is the key for gradually forming an organic form that is of human scale. Therefore, the dot represents water which is the base from which the courtyard houses are built around, paths are formed and trees planted to form the entire environment.

Dot of water

Landscape photo/ @ANTONIO ATTINI

Idea

1. *The power of place: Two Territories*

The State of Qatar is found on a peninsula protruding some 160km in the Persian Gulf from the border with The kingdom of Saudi Arabia. Other than the 70km border with Saudi Arabia, Qatar is surrounded by the sea. The proposed site in Doha and surrounding areas share this geographical feature. There is a compelling power of place where the two planes of sand and sea meet. I found the place to be one where two bare, natural portraits clash—the arid, lifeless dessert and the sea, teeming with life.

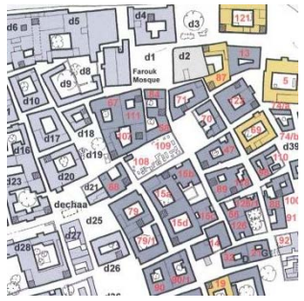
I set the design zone hypothetically in the boundary between these two planes.
In this setting, we tested a method of creating the design zone consisting of two main areas.

I sought to capture the dynamic force arising from the combination of, and differences between the two areas of sand and sea, and sought a dialogue between that and the power of place.

2. *Reconfiguring tradition: The power of the courtyard*

I believe that design should not be cut off from historical, social, and cultural attributes, and that a system of creativity and knowledge with a sense of continuity is important. Aspects of traditional design, such as physical forms born of architectural structure and materials, and the ornamentation and picturesque features produced by spirituality, have their own inevitability and rationale. There are various phenomena included in the category of passing on tradition, including some examples of imitating style that lack inevitability and rationale. However, traditional design is deeply embedded in the collective memory, and thus has the quality of familiar forms, materials, and space.

Here I focused on the courtyard as a key to historical continuity and explored various design programs centered around it. The courtyard is a major feature of Islamic architectural culture and is a concept that informs the whole.



3. *Dot, line, plane: Formation of the Environment*

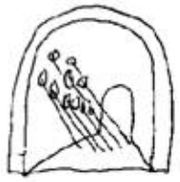
I seek to form the design zone by a method that harmonizes flexibility with specificity.
The three elements of dot, line and plane form the planned 20-hectare area. Points are static starting points for movement and progression; lines represent the flow and extension of the range of movement arising from the starting point and link dots and small areas with each other; planes represent various ranges of activity deriving from dots and lines. In the design zone, water and life are starting points; walkways, directional axes, and corridors are lines/flow; and housing, facility complexes, planted areas, and sea surface are planes.

Dots are the most specific and lines and planes are more flexible.

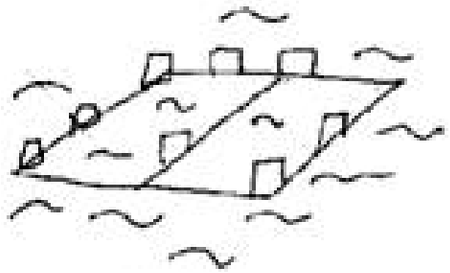
4. *The power of nature—Wind, water, plants*

The power of nature dominates people's living environment. We always hold various concepts of our relationship with nature, such as harmonious coexistence, control, symbiosis, protection, and nurture. My starting point is harvesting water, plants, and wind. It is one of the first forms of environmental control, as well as being a symbiotic form of control with the highest priority. In my design I provide air passages in homes and facilities, and make the flow and music of water and the shade provided by forest and fruit trees a priority. Taking solar power generation into consideration, I aim for sustainability and comfort by reducing energy consumption and seek to create an image of a floating island of greenery.

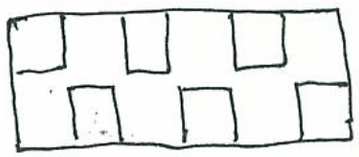
A Map of Idioms



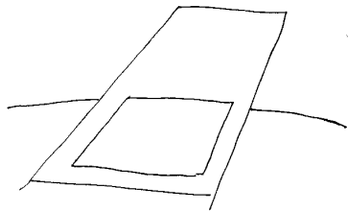
Idiom 12.
A ray of light/
Fantasy corridor



Idiom. 14.
Floating folly/
Dialogue of marine life

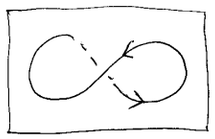


Idiom 07.
The context of repetition/
Courtyard and rooms

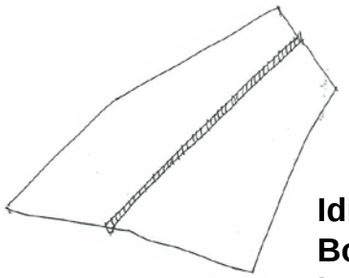


Idiom 08.
Madrasa of sea/
Activity and
meditation

Idiom 17.

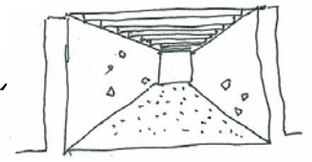


The design program/
progressive form and
present tense

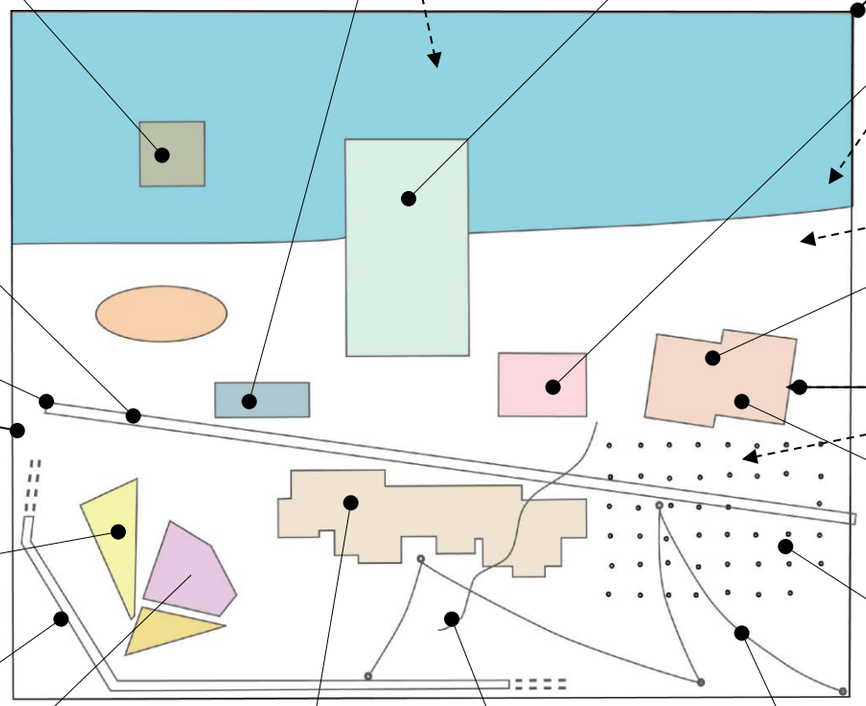


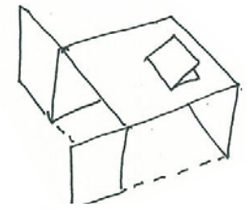
Idiom 03.
Boundary form/
Interface

others



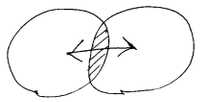
Idiom 09.
Natural materials
and beauty/
The quality of space



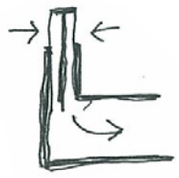


Idiom 13.
Close vs open/
A tool for interiors

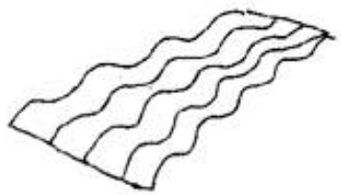
Idiom 01.
Portrait of the
site/desert and sea.



others



Idiom 11.
A knowledge for
daily life/
Windtower

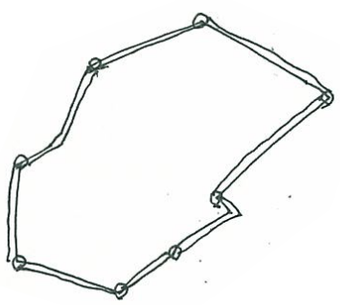


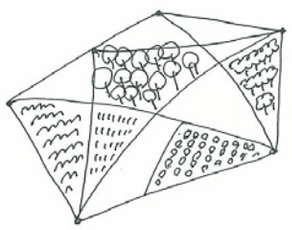
Idiom 15.
Producing energy/
A solar farm

Idiom 05.
Coastal living/
Collaborative design

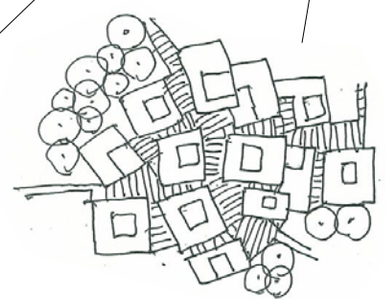
site

Idiom 06.
Corridor of the mind/
Imaginative DNA

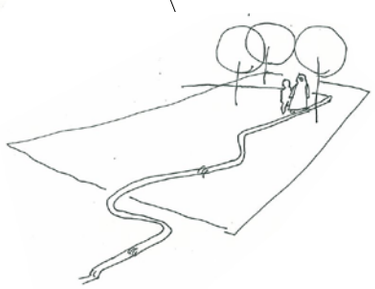




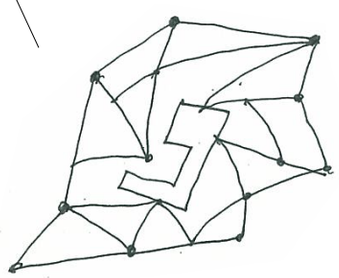
Idiom 10.
Botanical concerto/
Gardening



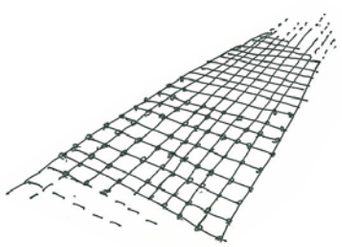
Idiom 04.
Courtyard system/
Residential program



Idiom 16.
An expression of water/
Narrow waterways

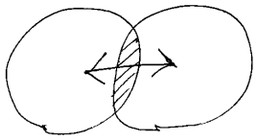


Idiom 11.
The mathematics
of walking/
Reason and psychology/
A soft trail/



Idiom 02.
Power of Points/
Water as a starting point

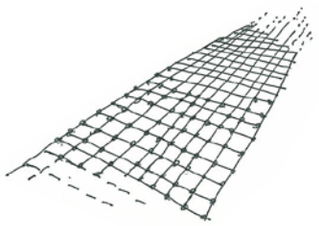
Palette of Idioms-1



Idiom 01 Portrait of the Site/ Desert and Sea.

The design zone is composed of two areas. One area extends toward the desert and the other toward the sea. The design is a collaboration between Qatar's natural environment and landscape.

I take advantage of the character of each area. I planned public functions that maximize sea views, and water and housing with mainly native plantings on the desert side. In the context of a city, the design zone could be expressed as a sea town and a desert town.

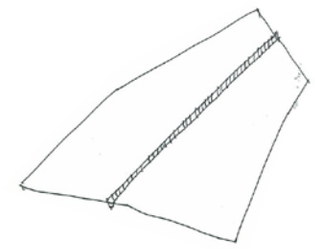


Idiom 02 – Power of points/Water as a starting point

In the beginning, there was water (a spring) in the vast desert. People planted fruit and vegetation, and built homes from natural materials. Life began, a community formed, and many houses were built. Roads were eventually developed, enabling communication with other towns, and markets and public facilities were built.

In the design zone, I place water points as a grid—a program inspired by the courtyard-based structure of traditional Islamic spaces. This principle takes priority in housing areas. It is a method that seeks organic environmental planning full of changes:

•The spacing between points is in block units, with suitable modules.
•Housing is arranged so that the water point is located in the courtyard area. There are few restrictions on the size and directional positioning of houses.
•Facilities must accommodate available infrastructure such as electricity, gas, and sewerage systems.



Idiom 03 – Boundary form/Interface

I devised a corridor structure in an area that forms a boundary between the coastal and desert towns, which separates and merges the two territories.
The corridor communicates an important message about the general flow of people and the quality of the design zone. Features include:

•Moderate bends that are comfortable for walkers
•Function as flow line that traverses the zone
•Sufficient shade to make walking more pleasant in summer
•Appropriate high walls to ensure sufficient ventilation of other facilities
•No longer than 600m in length (maximum walking distance)
•Conversion to modern design while taking advantage of the qualities of traditional design

Idiom 04 – Courtyard system/Residential program

The old towns of traditional Islamic cities are a collection of public buildings and housing centered around courtyards. Local citizens are familiar with these spaces, which are commonly found in many old town neighborhoods of Islamic cities (medina). Here my objective is to form a group of new, courtyard-type housing in a desert town.

The housing is arranged so that modules of water points are located in courtyard areas. Freedom in the shape and layout of courtyards provides a system with potential for variety in exterior wall surfaces and streetscape.
Our plan incorporated:

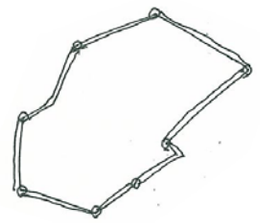
•Housing plans starting from the micro level
•Housing is arranged so that the water point is located in the courtyard area. There are few restrictions on the size and directional positioning of houses.
•Transition from road-focused architecture to one that expands from points to form exterior walls
•The spacing between points can be assumed from the required function
•The style of each residence is unrestricted within certain parameters
•The design of each residence must not violate others' vested interests
•Designers' case study houses will initially be used.
•The overall look will change in terms of houses sharing walls and the distance between each house
•The housing complex can be divided into several blocks.

Idiom 05 – Coastal living/Collaborative design

Houses with sea views enjoy an open outlook, thick walls that separate each plot. Here again I attempted a courtyard-based but international design to provide continuity between exterior and interior. The thick walls function as a skeleton, while the housing layout and interiors function as infill. I envisage scope for collaborative houses created by a joint effort between residents and designers.

Note: The skeleton supports the basic structure of a building; infill is the interior space of the building.

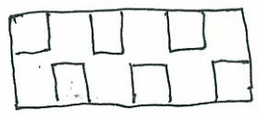
•Movable outdoor partitions that regulate the sea breeze [blowing into the house]
•Scope for "cooperative" houses created as a joint effort by residents and designers
•Thick walls have a ventilation function.
•All houses are single story.
•Steps taken to provide sufficient ventilation
•Main functions: Atelier, living room, dining room, kitchen, bedrooms, utility rooms, storage rooms, garden, outdoor workshop area



Idiom 06 – Corridor of the mind / Imaginative DNA

I designed a long, narrow corridor surrounding the site. It could be longer than the 1km Corridoio Vasariano, Galleria degli Uffizi. This concept has set the corridor at its maximum length, with the intention of indicating the site's boundaries. The design allows for adjustment of corridor length. I played with the idea of a place where we can experience man-made design in a way that transcends the time-space continuum.

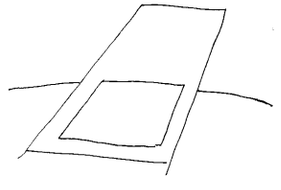
•Flexible and appropriate shape and length
•The space underneath the raised corridors functions as walkways.
•Option of corridors growing with time
•Imaginative powers of the brain and design anthropology
•What have humans made? What will they make tomorrow?
•Rest areas distributed around the zone
•Stairways and elevators for disabled users
•First floor corridor and ground floor corridor
•The artistic presentation of sunlight
•Major artistic, decorative features such as ornamental windows
•Natural ventilation employing traditional methods.



Idiom 07 – The context of repetition/Courtyard and rooms

This is an environment where a program of courtyards and rooms are repeated. Its structure allows for adjustment throughout the year. The buildings can be used for a range of purposes, such as communal housing, commercial/retail facilities, schools, and art studios. There are many historic cities in Japan with similar, numerous courtyards. This context provides various possibilies for the courtyard.

•Continuity and repetition
•Integration of rooms and courtyard
•Can be used for any purpose
•Each space has opening/closing system
•Application of sliding doors
•Limited air-conditioning Ventilation by application of windtowers

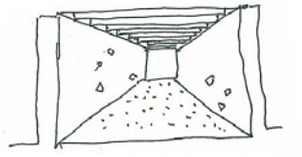


Idiom 08 – Madrasa of the sea/Activity and meditation

This design is a collaboration with the sea. I connected desert and sea, and made a composition of silence and dynamic spaces. The silent space contains a courtyard filled with the sea surface, while the dynamic space provides the environment for creative work. The madrasa of the sea combines a space for silent contemplation and energized productive and communicative space.

•The lure of inspiration
•Madrasa, mosque-like sea corridor
•Headquarters, conference room, library, art studios, research labs, AV room, workshops, storage room, hall, guest rooms, seminar rooms, theater, showroom, café, public bath and mosque

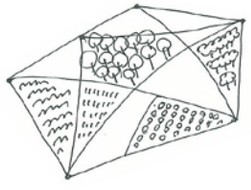
Palette of Idioms-2



Idiom 09 – Natural materials and beauty/The quality of space

There is a quality of profound beauty in buildings made out of natural materials. People are deeply attached to historic buildings. I think this is a precious quality in architecture. Here I explore the image of an appropriately large space where the same quality of beauty resides.

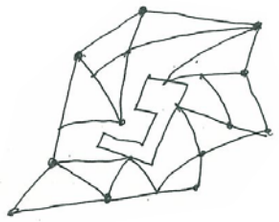
•Walls finished in limestone, mud plaster, and mortar
•Timber structures based on beam systems
•Artisan craftsmanship
•Multipurpose, appropriately large space
•Range of uses, from international exhibitions to parties



Idiom 10 –Botanical concerto/Gardening

There are many species of plants in the Middle East, including Qatar. The distribution of species varies from region to region, but similar plant species grow in coastal areas of the Persian Gulf. The choice of suitable native plants allows us to create the dream of a green kingdom. The freestyle garden is the stage for a varied botanical concerto.

•Use of water points arranged in a grid pattern
•Expansive greenery
•Freestyle garden partitioned by paths and walking trails
•Kitchen garden growing fruit, vegetables, and herbs
•Productive greenery
•Focus plants and their uses

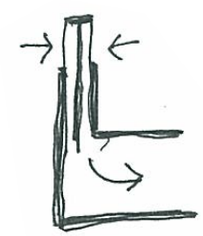


Idiom 11 – The mathematics of walking/Reason and psychology/A soft trail/The shape of process

Human walking distance is influenced by physical conditions and environmental quality. In an environment that people feel comfortable in, they can walk long distances. Whether people perceive a destination to be close or far away varies with the environment. In average environmental conditions, 100–150m would be considered very close.

Here in Qatar, walking distances must be kept short in the summer. At the same time, psychological comfort is essential. I experimented by synthesizing rational straight lines and freestyle curves like a walking trail linking one point with another, and opted for gentle curves.

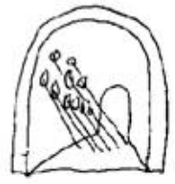
•Gentle guidance
•Rest areas distributed along the route
•Shaded paths
•Paths that run alongside flowing water
•Rational links between facilities used
•Long sunscreens/Arcades as main circulation paths



Idiom 11 – Knowledge for every day living/Windtower

There are ventilation towers called windtowers that form a distinctive townscape. Windtowers ensure a comfortable interior environment by bringing wind flow inside. I studied the way a traditional windtower worked and applied it to my design.

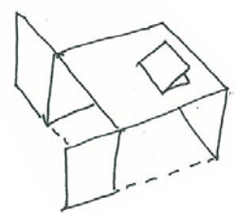
•Tall tower, long ventilating roof, use of walls in ventilation, traditional style in Dubai
•Design changes according to the direction of the wind; Bastakia, a town of windtowers



Idiom 12 – A Ray of light/Fantasy corridor

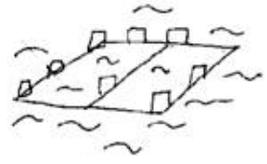
Sunlight can transform a dark interior into an artistic space. In Islamic architecture, ornamental wall openwork provides both ventilation and light. In Qatar, however, the skills have been lost. There is the option of bringing in skilled craftsmen from India and elsewhere. I would like to explore the possibilities of innovation from contemporary design utilizing local material.

•Discovering material best for light. use of material of Areesh house, corridors with ornamental windows, collection of geometric patterns



Idiom 13 – Closed vs open/A tool for interiors

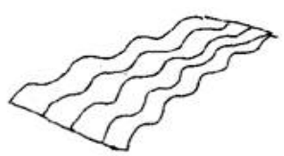
Living environments vary considerably according to the natural environment, systems, and cultures. A typical example is the difference between a house enclosed by walls and one open to the outside world. In Japan, we have *shoji*—sliding doors with paper screens. *Shoji* can be opened to turn two rooms into one, or to remove the boundary between room and garden. They are multifunction, doing things like regulating temperature and air flow, changing the line of vision, and separating room functions. Here I explored systems for opening and closing spaces.



Idiom 14 – Floating folly/Dialogue of marine life

In every garden there is a little house (called a folly in Europe) for healing and recreation. Here, the garden is the sea. The folly is a place of healing for artists, and a world where they can play freely with the inhabitants of the sea. A small marine world that satisfies our curiosity about what it's like under the sea and our desire to see the infinite beauty and form of marine creatures. Nearby there are several residences surrounded by greenery.

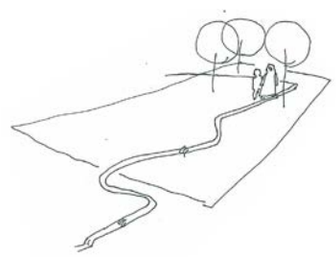
•Guest houses designed by designers
•Residences in the Grove
•A floating hut



Idiom 15 – Producing energy/A solar farm

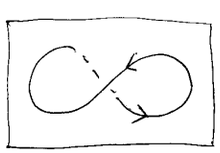
There are limitations to building a comfortable environment using natural forces only. There are various technologies for converting natural sources of energy into power, such as solar, wind, hydroelectric, and geothermal [power generation]. The wide, flat land can be used effectively [for solar power generation] and heat insulation. It can play the role of producing and supplying energy to the design zone.

•A solar farm occupying part of the garden area
•Reduces the [external] supply of electricity to facilities
•Roof surface insulation material



Idiom 1 6– An expression of water/Narrow waterways

A fine cascade of water runs from a slightly elevated point. A small waterfall – a line of water penetrating an area shaded by trees. Water that reflects the greenery – a tranquil plane. Human environments with diverse expressions and the sound of water. Water is a symbolic existence in the desert. Here, the flow of water is nearby. I seeked to explore an environmental design in which water exists modestly, yet is greatly appreciated.



Idiom 17– The design program/Progressive form and the present tense

There are two methods of implementing design and construction. One method is to build them one by one, with the overall image gradually emerging. another is to work toward a predetermined overall design specification. The first method allows us to imagine what the end result would be like, but does not provide a detailed overall blueprint. For the design zone, I explored the possibility of using method one in some areas and method two in others.

Vernacular design and material – 1

Research note

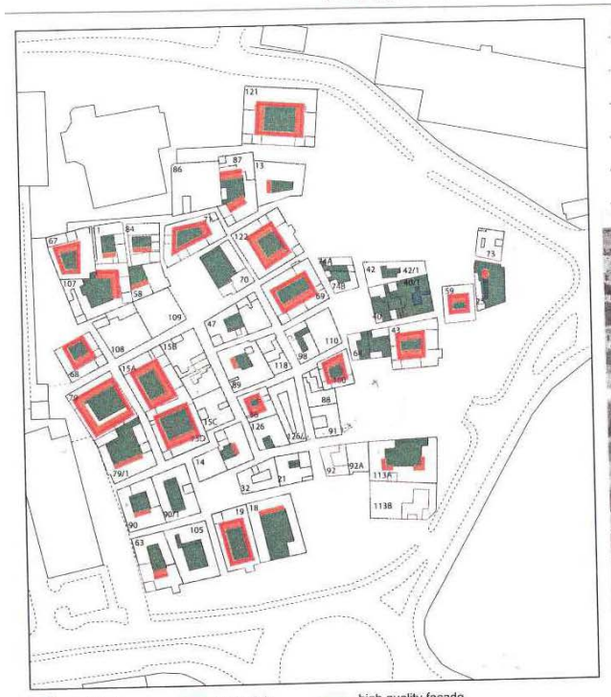
Page:
Date:

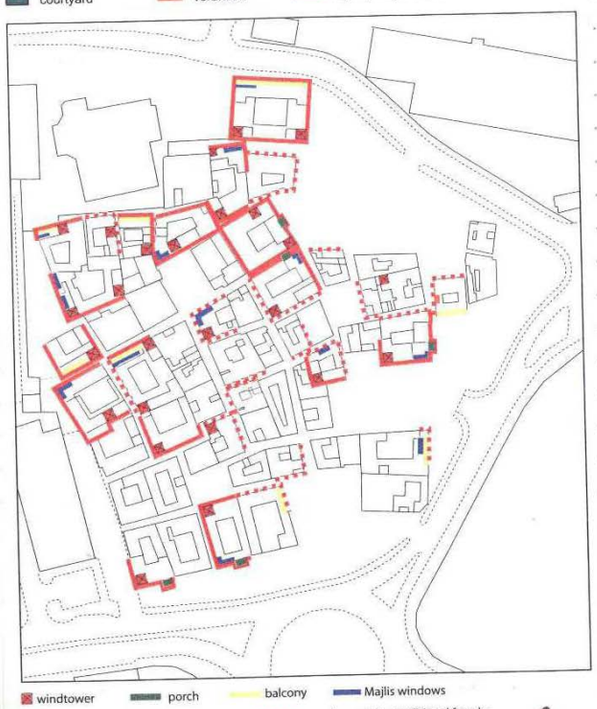
NATIVE DESIGN and Material -1
Vernacular — Housing

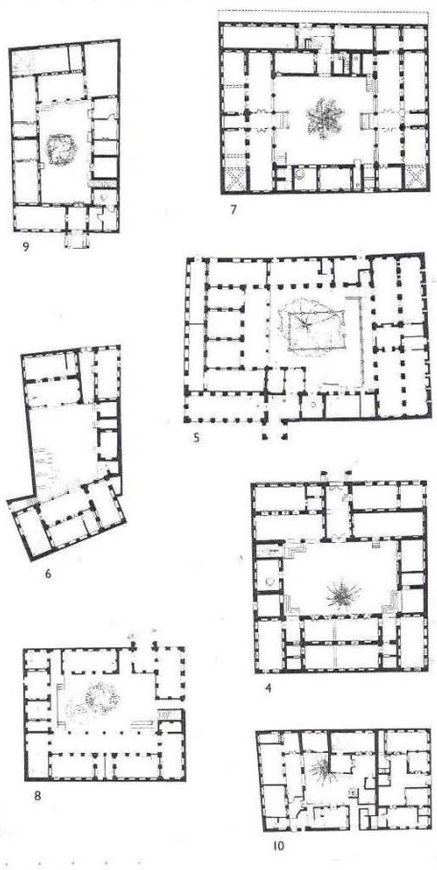
Bastakiya in Dubai.

by narrow street.

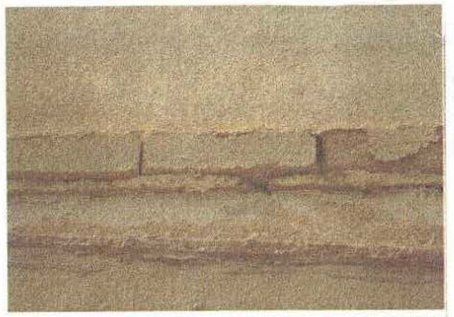
↓1918 courtyard Houses with windowTowers separated

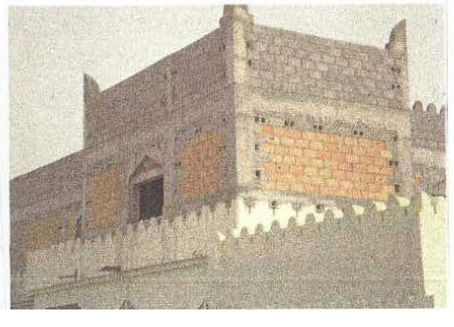






© from "Wind Tower"





● SITE investigation / 10, sep
Native house in AL KHOR/research data

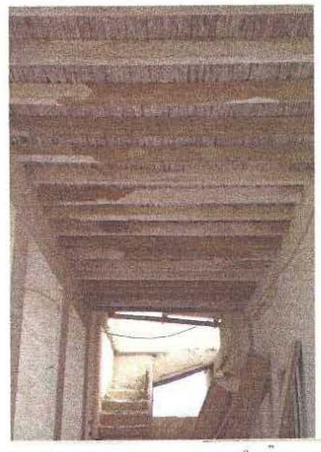
見出された50年程前と思われる古い住宅
コンクリートは使っていない。

本製のガーゴイルとコラルストン壁に土塗り

The native house built by limestone in Al Khor district.
Wooden gargoyle and mud-plastered /gypsum?walls.

ヤシの木→
パームTree
の屋根と
天井を見る

←日干レンガが。



←コーラルストーン
の上に塗られた
こまかい上塗り用
ジプサム
(Gypsum)

新しい住宅の建設
は、コンクリートブロック
にGypsomと
ホワイトセメントで仕上

↑
中庭に面する回廊の
古い型。

Traditional design and material around the plan candidate site. Photo by Takano.

Reference material: Wind tower, by Anne Coles & Peter Jackson. Stacey International, 2007

Page: Date:

Native design & material -3

Learning from native Design

エデュケーションシティ周辺の候補地の表土（砂漠）の写真。
10 sep

The soil in the neighborhood of Education City

現地写真部分から採集した砂石実物。
10, sep

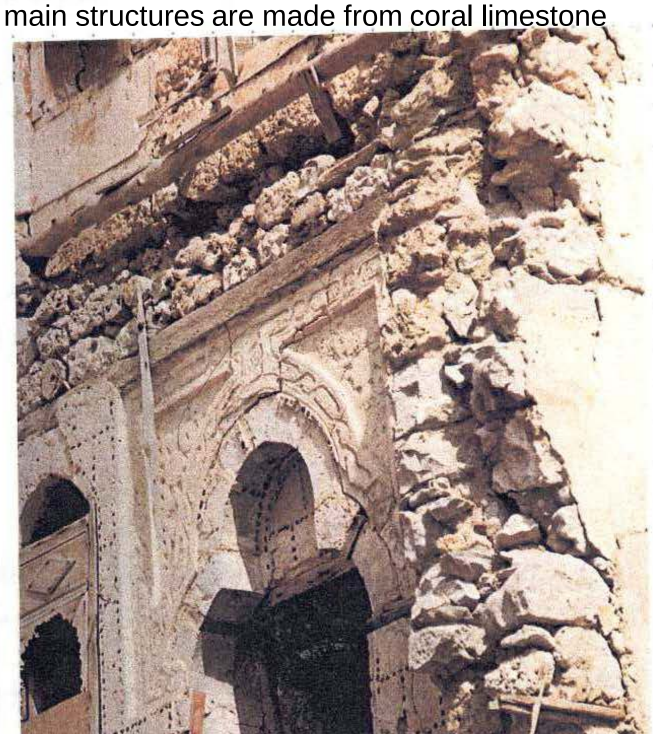
Limestone found in the same location awaiting analysis

Above: Coral building blocks *(left)* are light and easy to shape. When dry coral floats. Shell-stone *(centre and right)* was cheaper and more readily available, and the compacted shells from which it is formed make it significantly more durable.

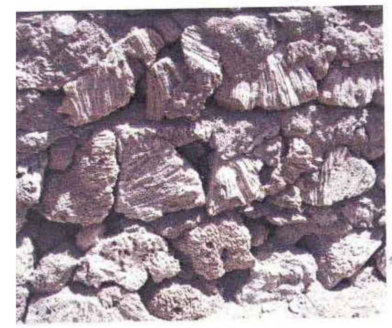
Below left: A traditional hand-press for sand-lime blocks photographed in Ajman in 1972.

↙ 貝から石は耐久性が低い、"jeddah"より出典

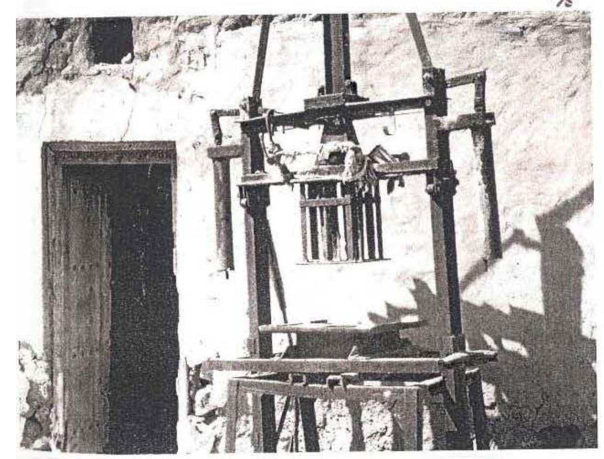
The main structures are made from coral limestone



Stone blocks are laid on top of each other mixed with white cement and washed sand

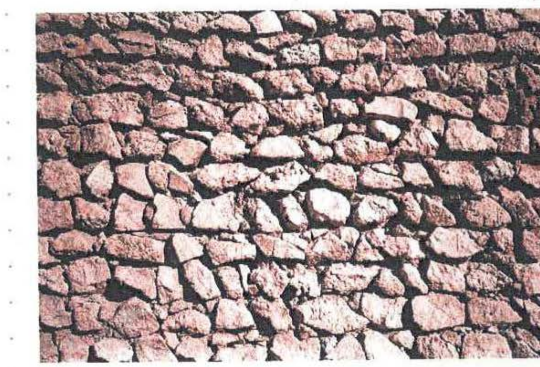


Walls made of limestone cut from hills?

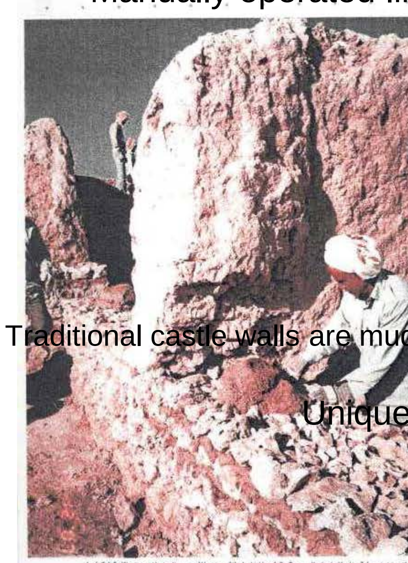


石をくだくための手動式砕石機

Manually operated limestone crusher



↑ Limestone wall which cut from mountain



Traditional castle walls are mud-plastered.

Unique shapes and colors are used after mud-plastering.

ストーンブロックは洗い砂とホワイトセメントでつまれる

伝統的な土塗り壁

改修後はオリジナルな形と色で仕上げている

Provision of library material : Qatar foundation

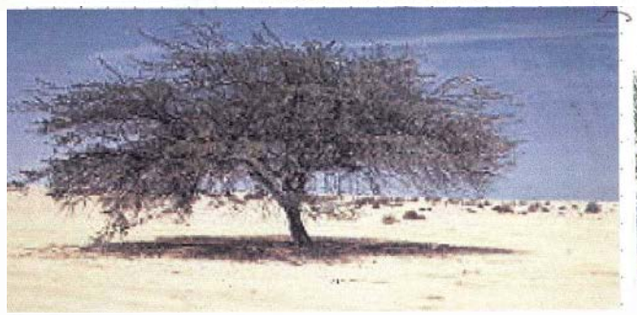
Vernacular design and material - 3

Research note

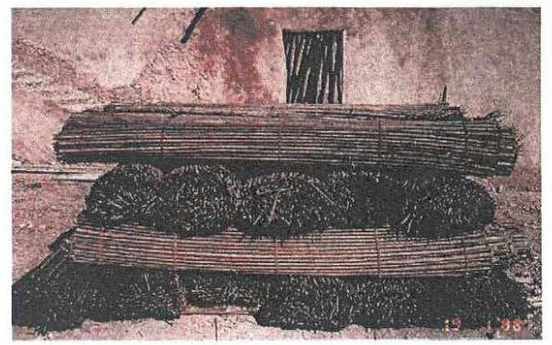
Tree for pool area and patio / chinese Banyan / indian Lausel / Neem Tree

From @gardening in the east middle

Plant memo



Jojube

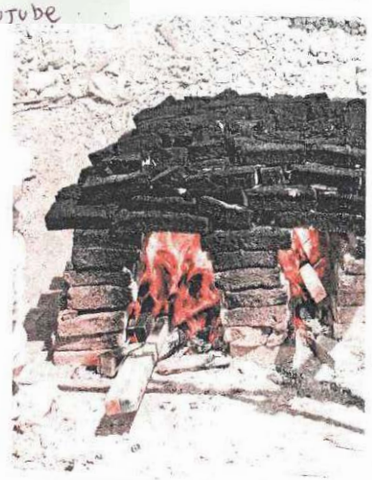


(شكل ١٠٥) جريد النخل المنسوج (دعون)

palm tree

ceiling from Danshl wood

(١) شريف يوسف - تاريخ العمارة العراقية .

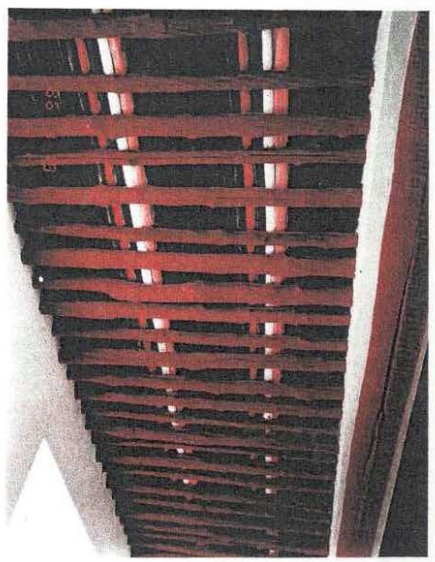


Palm trees are cut and left to dry.

(شكل ١٠٤) جذوع النخيل بعد تقطيعها وتركها لتجف

(شكل ١٠٣) خشب الدنشل الذي يستخدم للتسقيف

(شكل ١٠٦) عيدان القصب المنسوجة (المنغرور)



(شكل ١٠٧) سقف مكون من خشب الدنشل والبامبو الطين

to drying Danshl wood palm tree

Danshl/wood used for roofing

manghror. Woven sugar Cane stem? Nr.

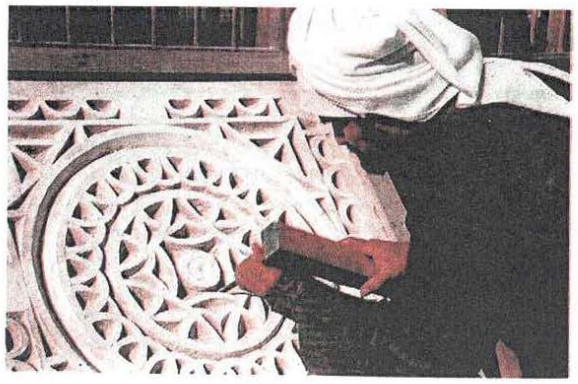
Research note

Page:

Date:

Native design & material -7

craftman draw geometorical drawig on calcurm sulphat)

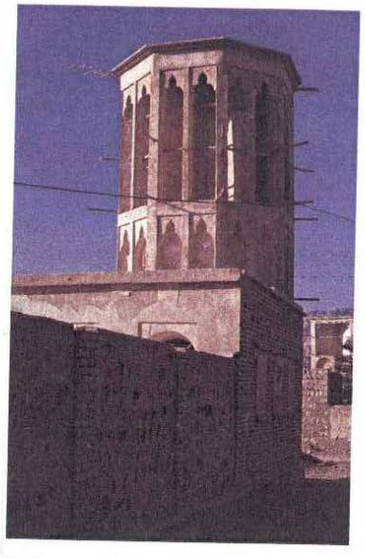


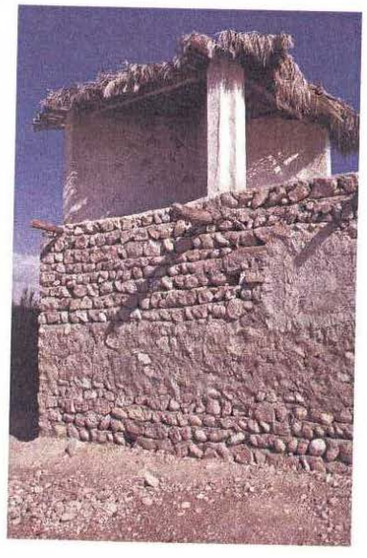
حرفي يقوم بحفر النقوش الهندسية على الجبس

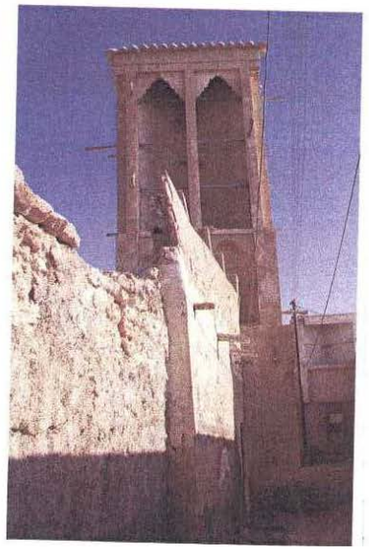
Mangrove poles determined the width of rooms. Typical spans vary between 2.7m to a maximum 3.5m. Woven mats of palm leaves would be laid directly over the *chandals*, or across an open diamond pattern fretwork of stiffening palm stems or bamboo laid across chandals at intervals of about 20-25cm. The bamboo was imported from Basra in Iraq, Kerala in India, or from Iran.

Sawn hardwood provided squared rafters with a ceiling of regular planks above them *(bottom)*. So rigid and regular a material could not be laid over uneven *chandals*. Rooms continued to follow the traditional dimensions established by mangrove *chandals*.

o Wind Tower

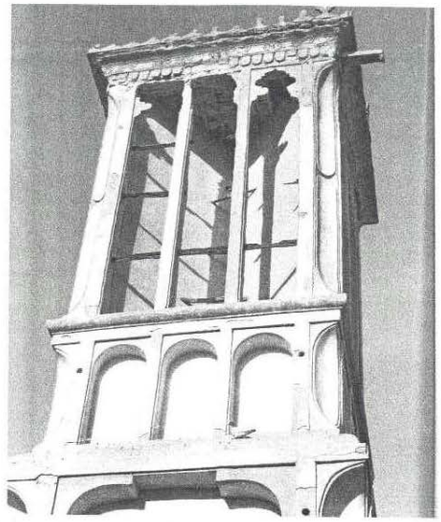


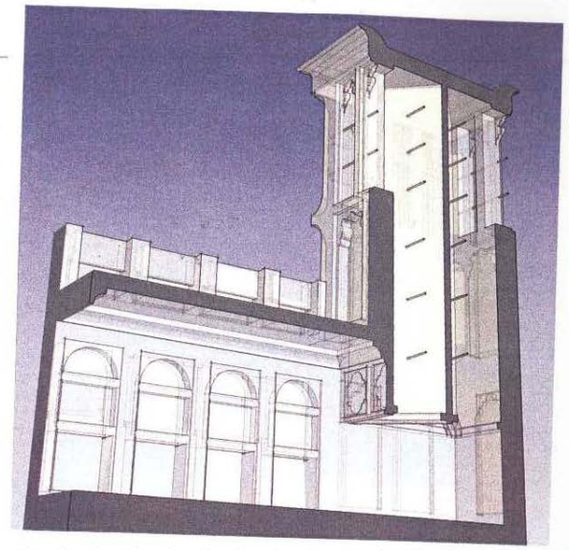


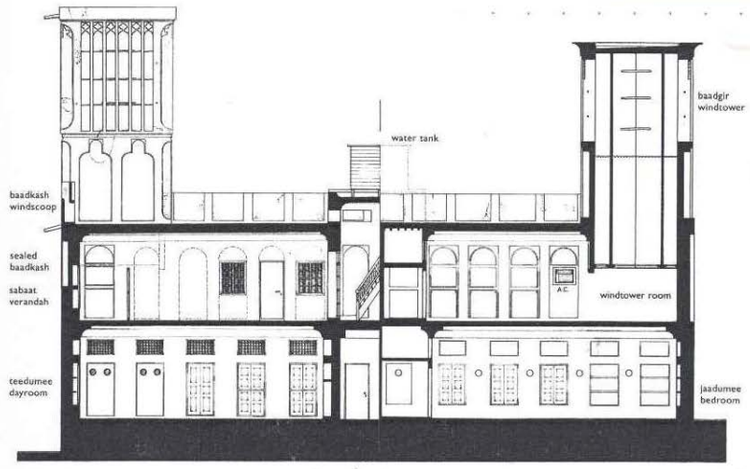


Wind Tower -1

Page:

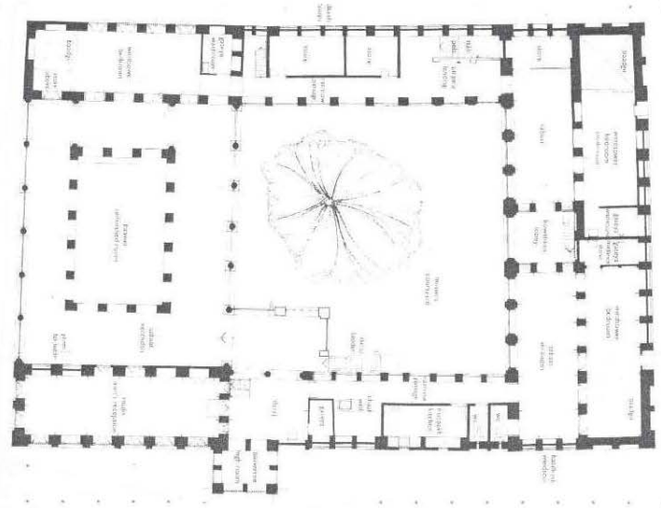






1 0 1 2 3 4 5 6 7m

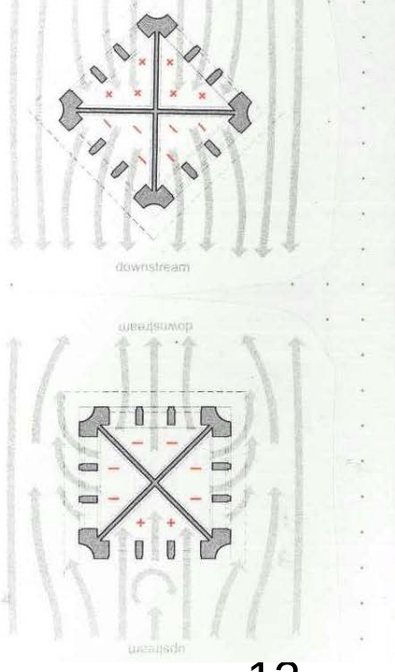
section looking east
del: pj 1975



9m

(DUBAI) Renovation of TRADITIONAL Residence

Wind Towers UP STREAM & downstream

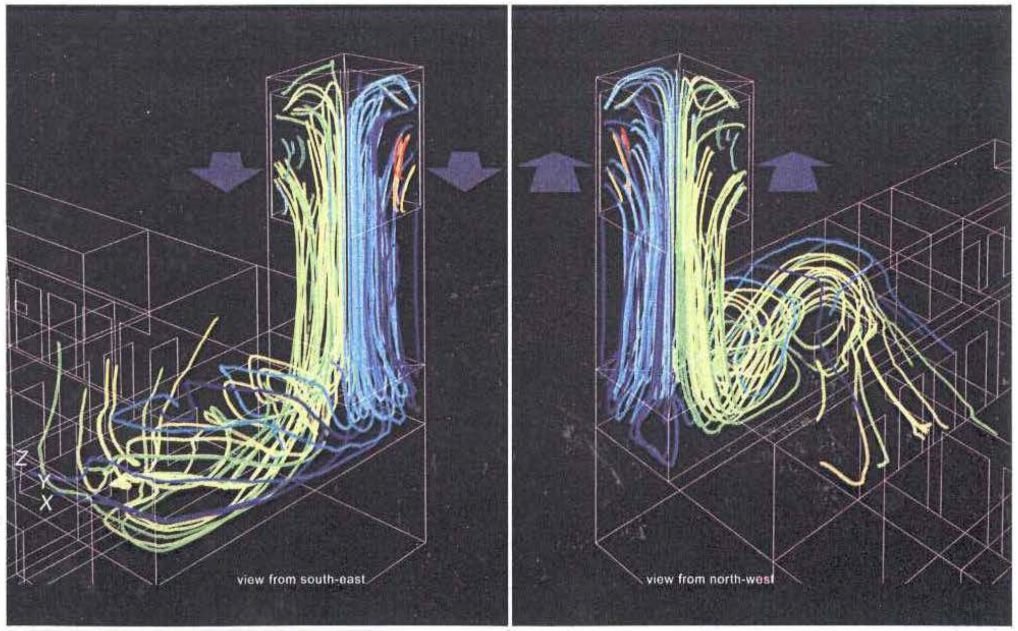


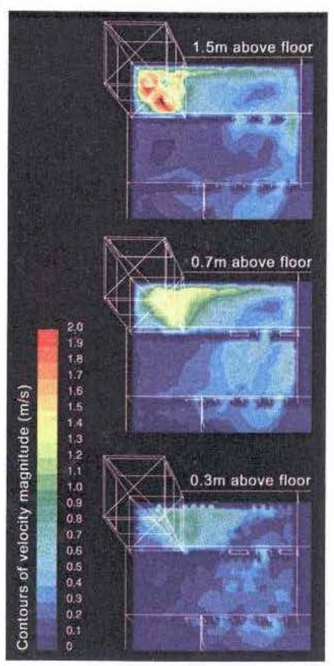
Vernacular design and material - 5

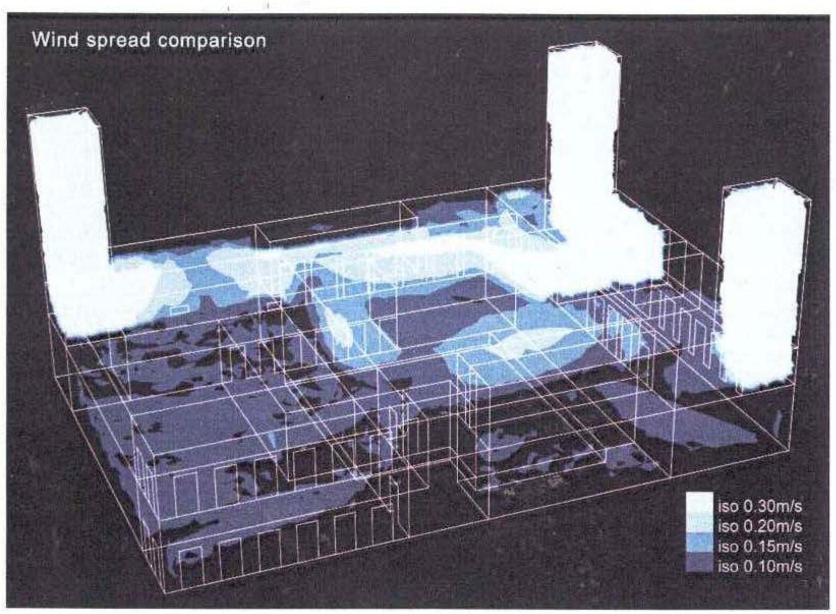
Page: wind Tower -2

Date:

※ reference diagram







↑風のぬける道と室温の関係.

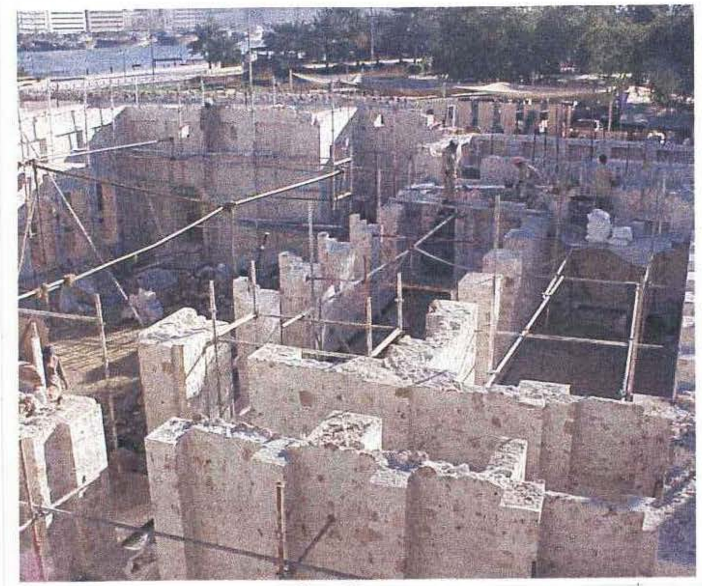
↑床からの高さによって温度差が生じ、また風の流れの速さも高いところは最大 1.7m/sec もある.

credit @ 2007
※ "wind Tower" より出典
anne Coles & Peter Jackson

The greater the height, the faster the wind blows (1.2m/sec difference was found in tests)

Wind tower in Doha

An old stone and white cement mixture is used as concrete in renovations.

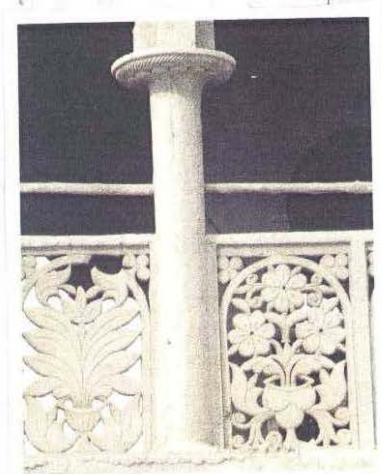


View into the courtyard
Mohammed Noor's house

Renovation of old Traditional ~~house~~ Residence
Restration

伝統的工法と素材による改修工事.

ディテール



Right:
A similar technique was used to lay out the pattern on gypsum screens. The stencil pattern was applied before they were fully set, before being carved away by hand.