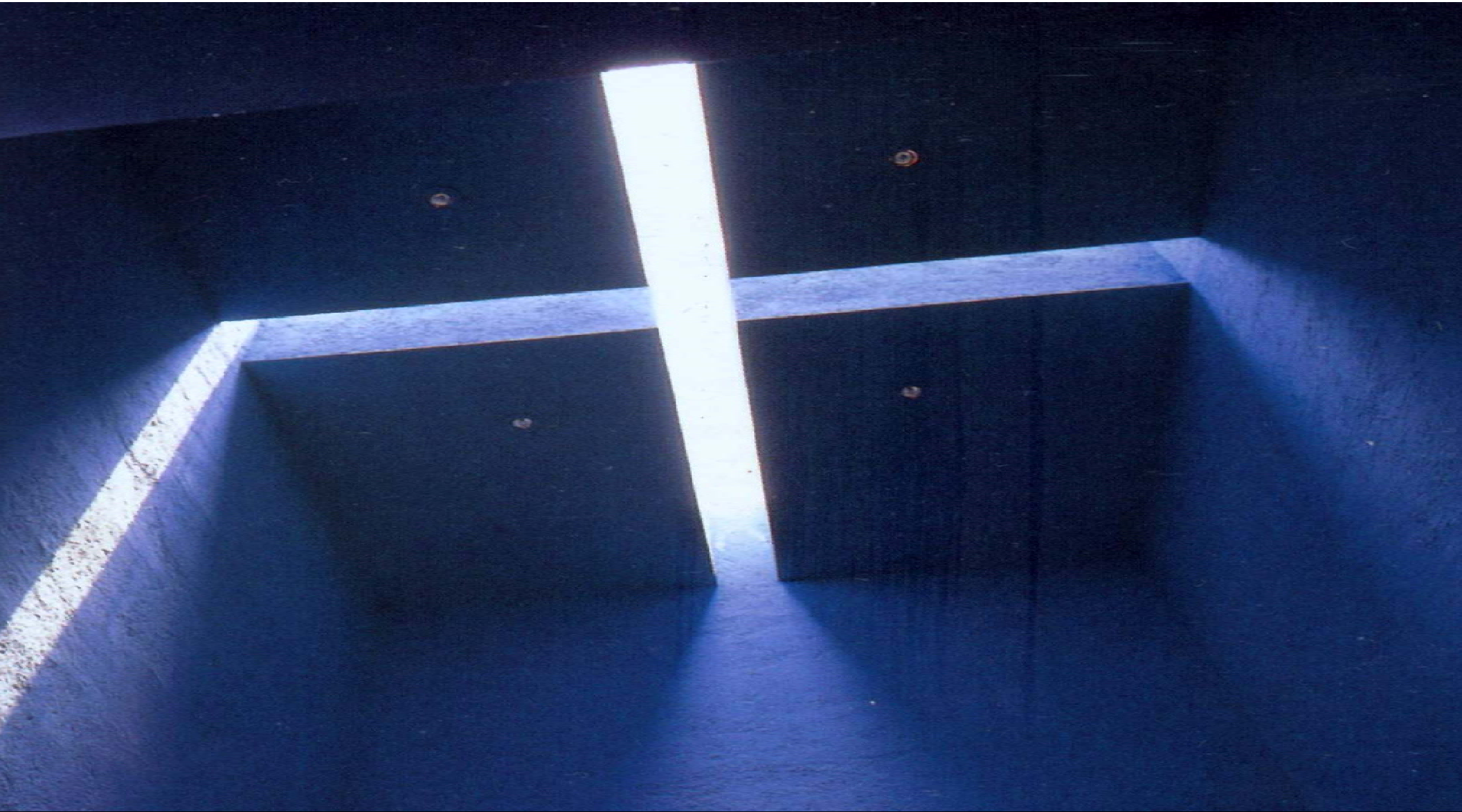


GREEN BUILDING, A PRACTITIONER'S VIEW POINT



Ar. Siddhartha Wig
THE ELEMENTS *building with nature*

RESIDENCE IN SECTOR 21, PANCHKULA
(completed in 2000)
AREA – 2000 sft



A small urban residence where a combination of passive thermal control techniques have been tried .

Key features:

1. Solar chimney
2. Insulation on west wall
3. Sun shades to allow ingress of winter sun and shut down summer sun.

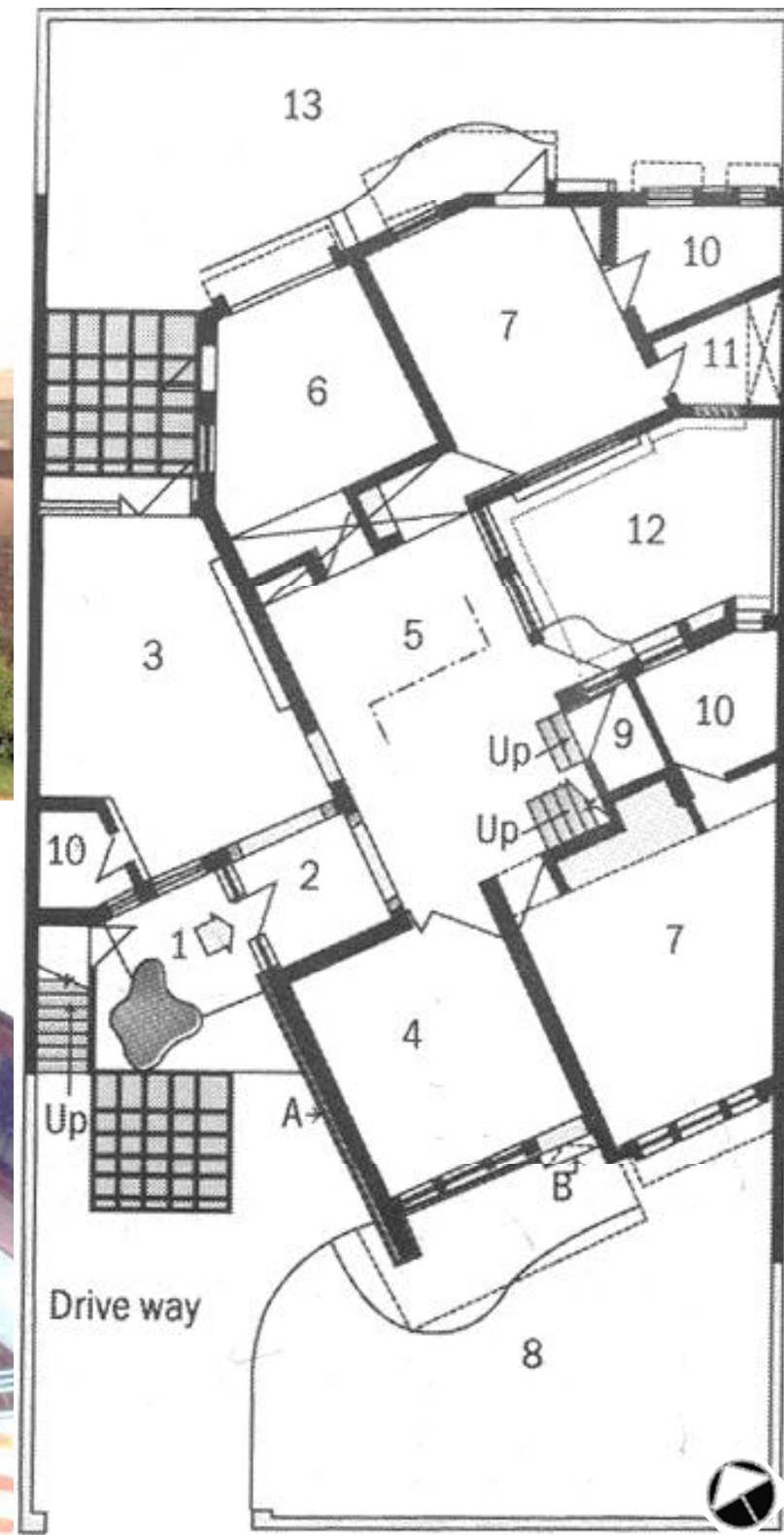
The building is oriented due South with cavity wall on West side.



Picture of west elevation

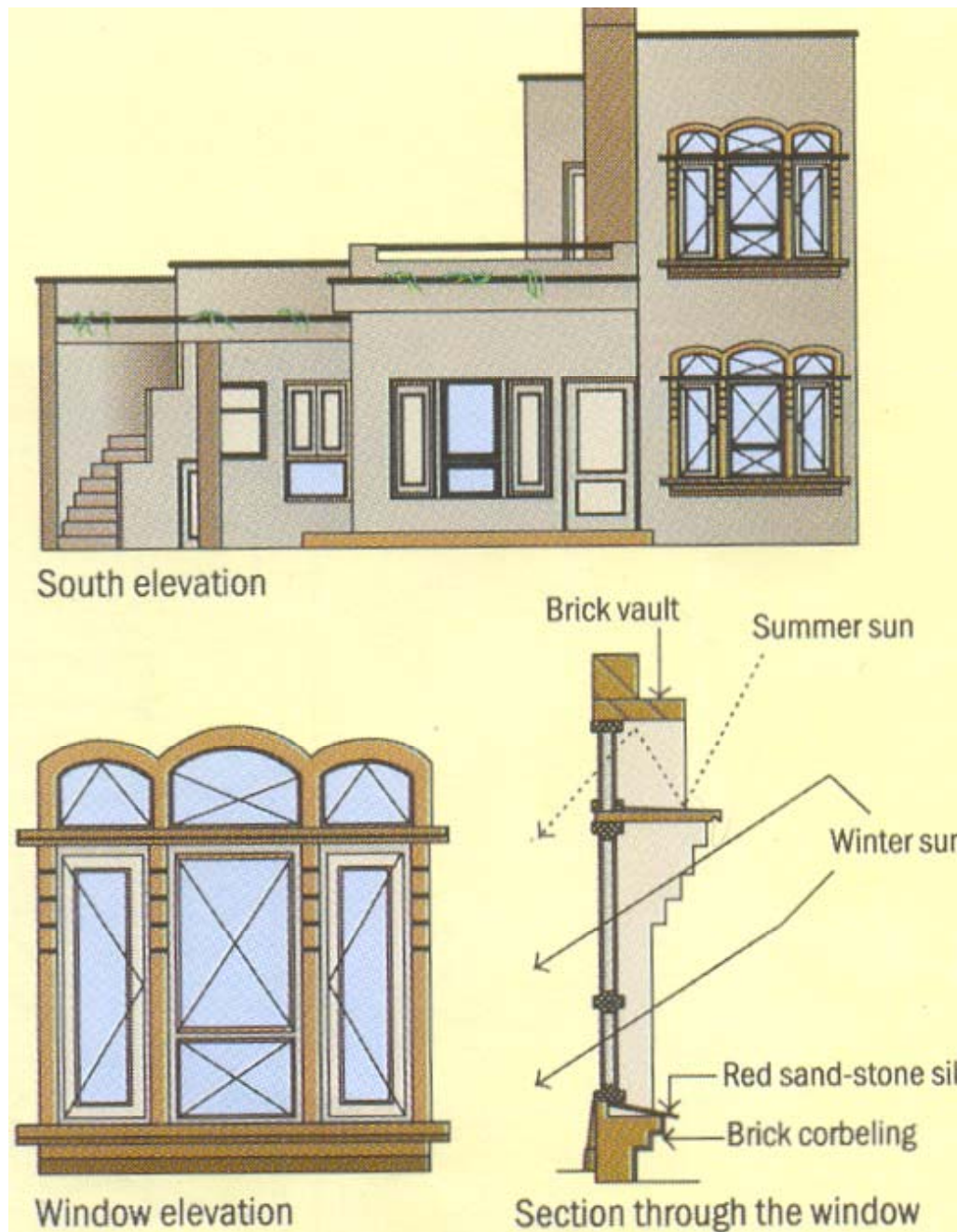
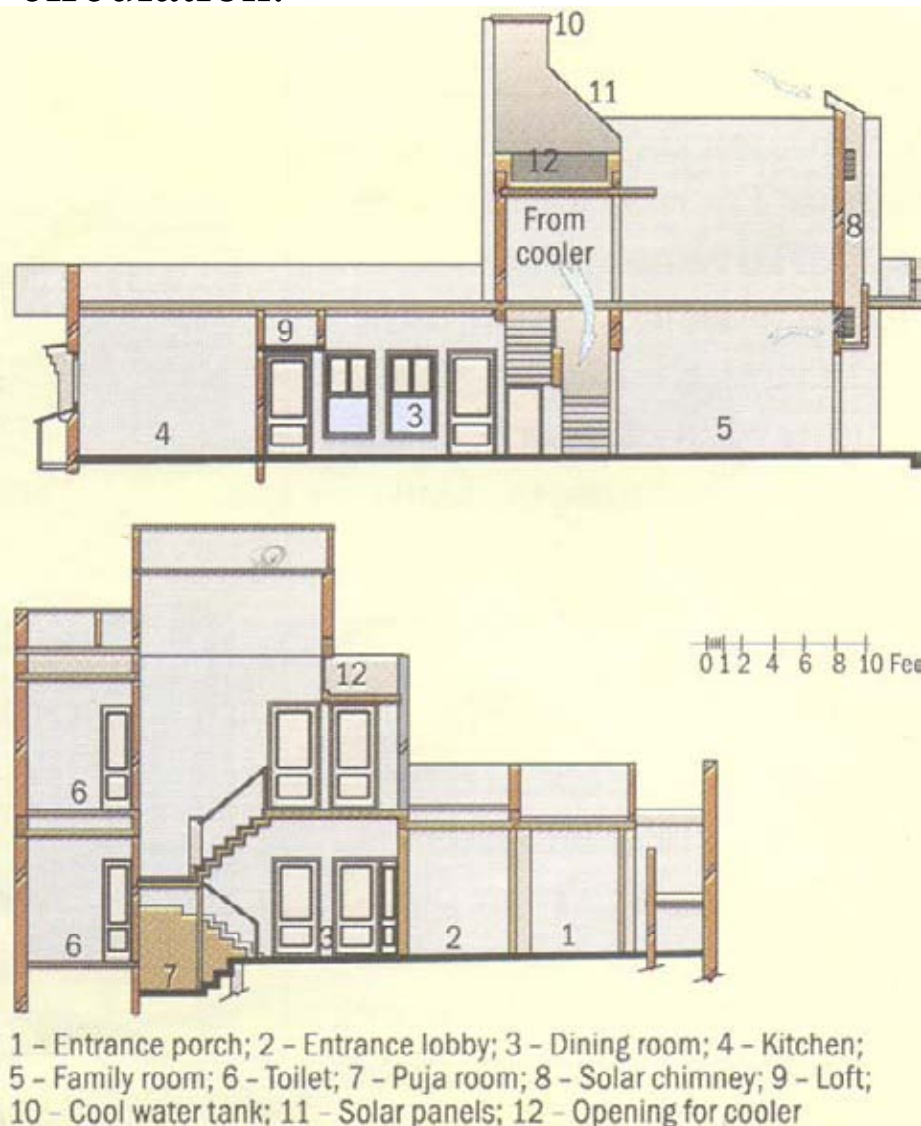


Central courtyard



Light shelves and white ceilings in the rooms allow for enough day lighting in the rooms.

Solar chimneys designed on the south face of the building, augment the air circulation.





OFFICE BUILDING FOR HAREDA , Panchkula

*A GRIHA 5-star rated government
building*

12-06-2013

Site Area: 3900 m²

Built up Area: 5,111 m²

Air-conditioned Area: 1208 m²

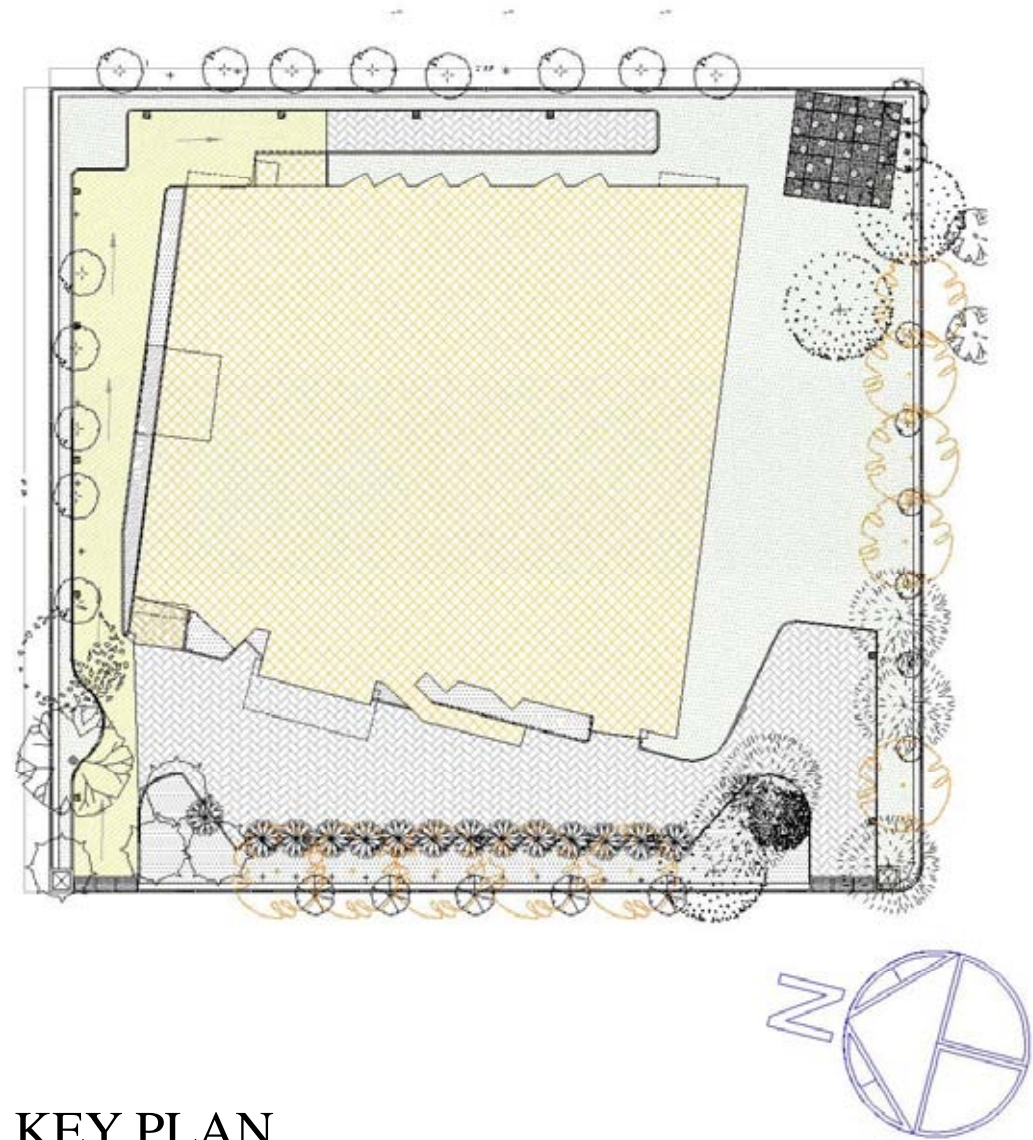
Non Air- conditioned Area: 3903 m²

EPI: 15 KWh/ m²/year

Renewable Energy: Rated capacity of solar PV installed on site is 42.5 KW



SOUTH FACADE



KEY PLAN



PLAN OF DESIGN

COMMERCIAL COMPLEX SECTOR 17

SITE BOUNDARY

213'-3"

186'-10"

ENTRY

ACCESS ROAD TO THE SITE

EXIT

SERVICE ROAD

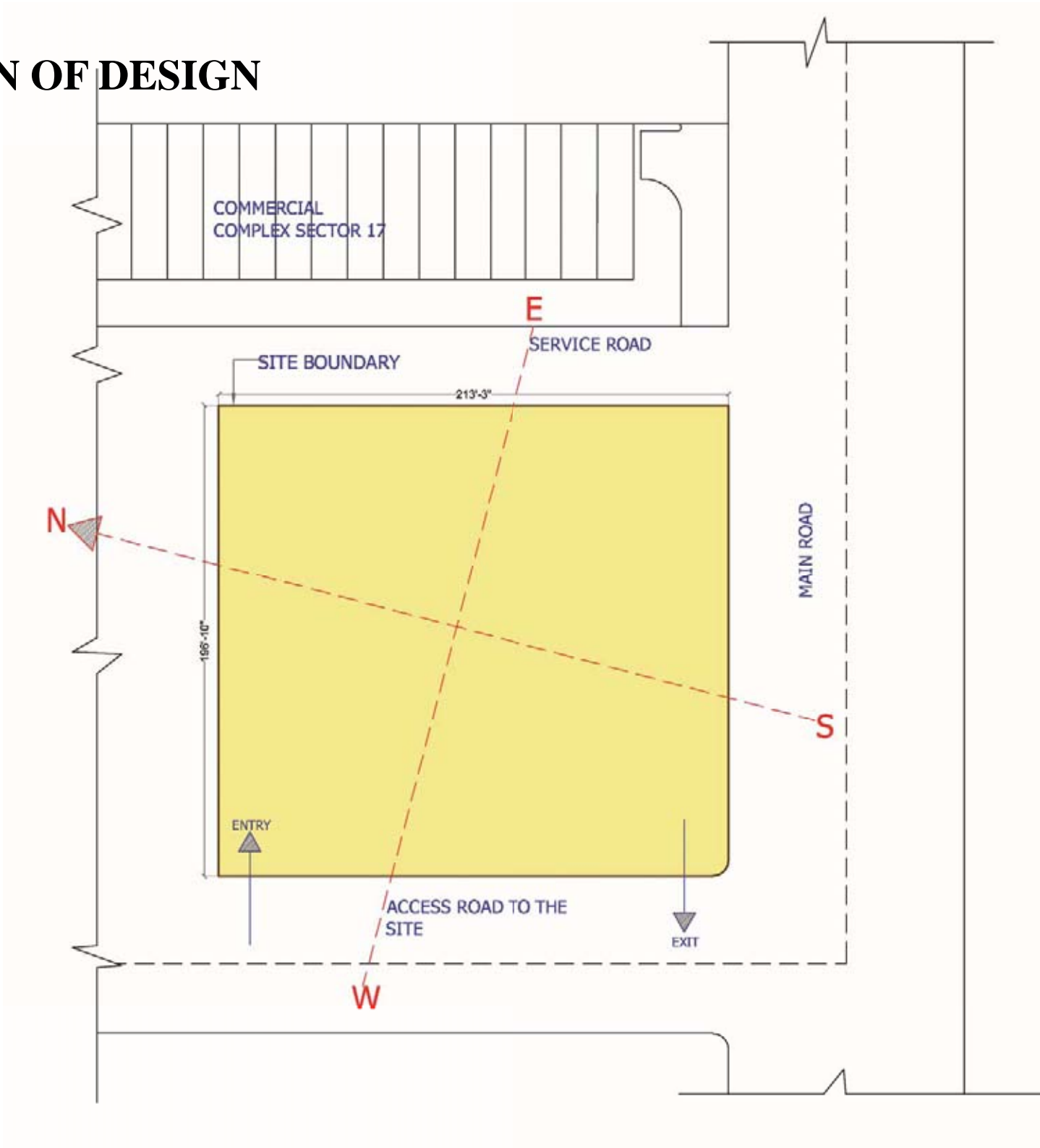
MAIN ROAD

N

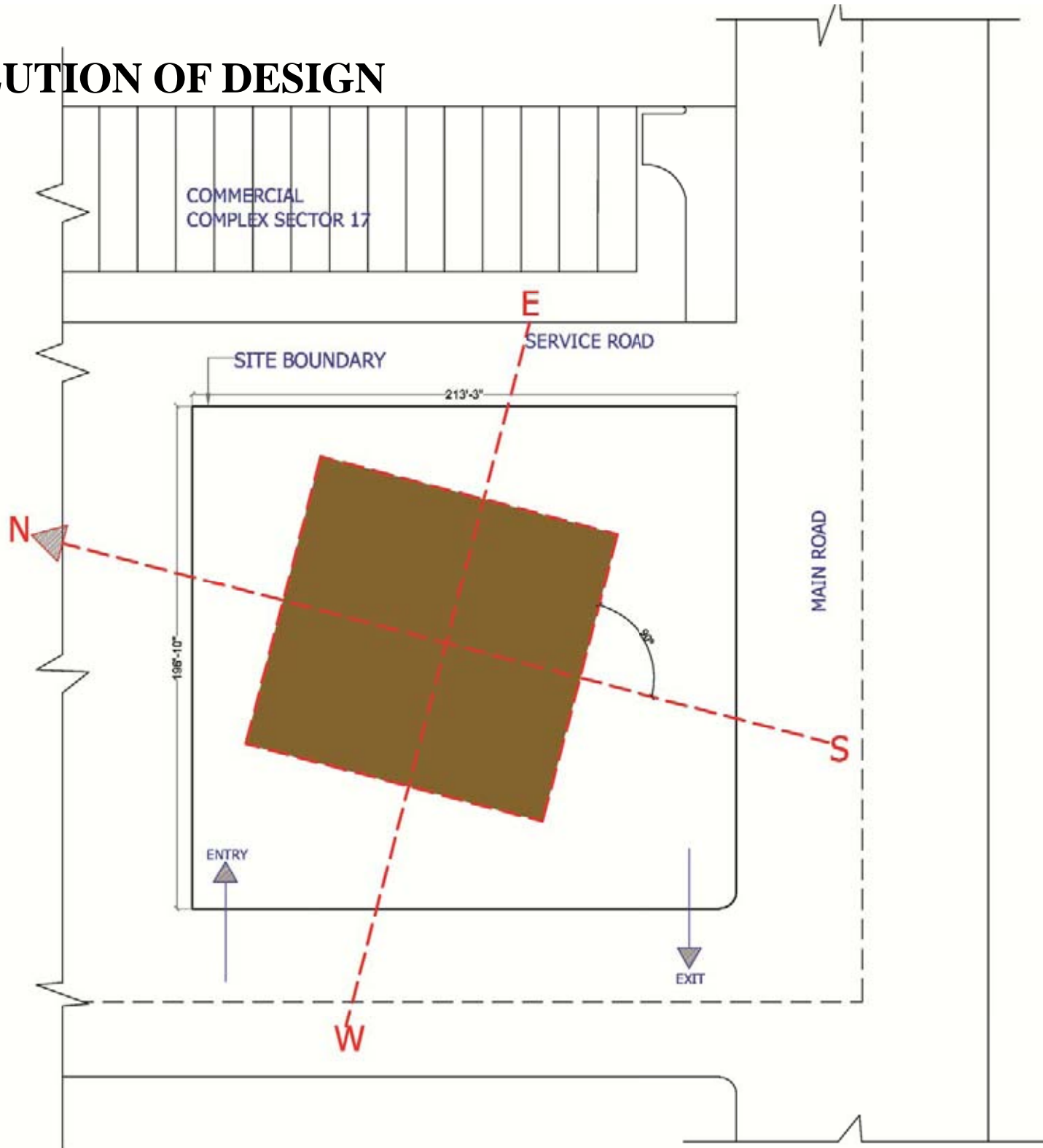
E

S

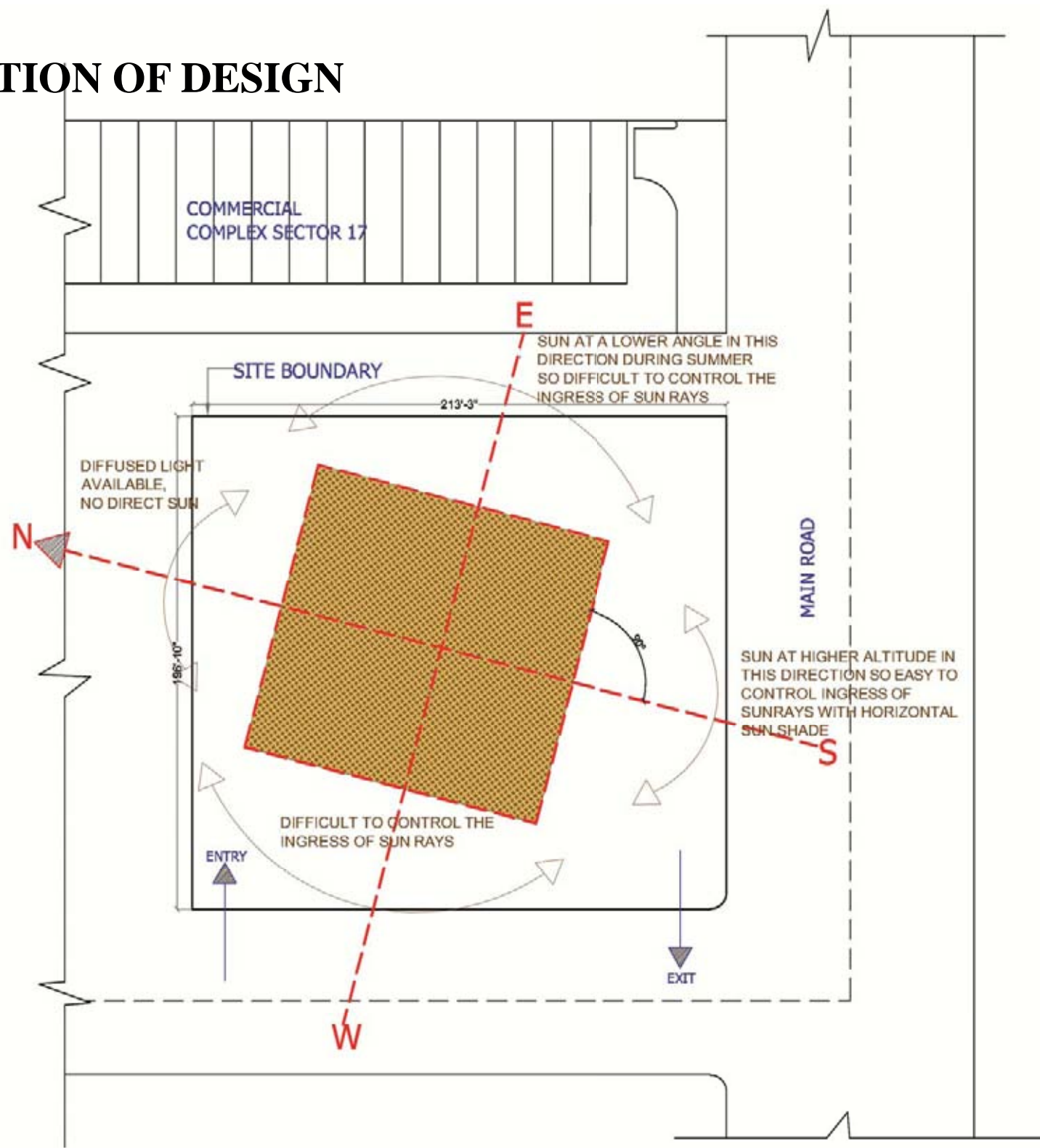
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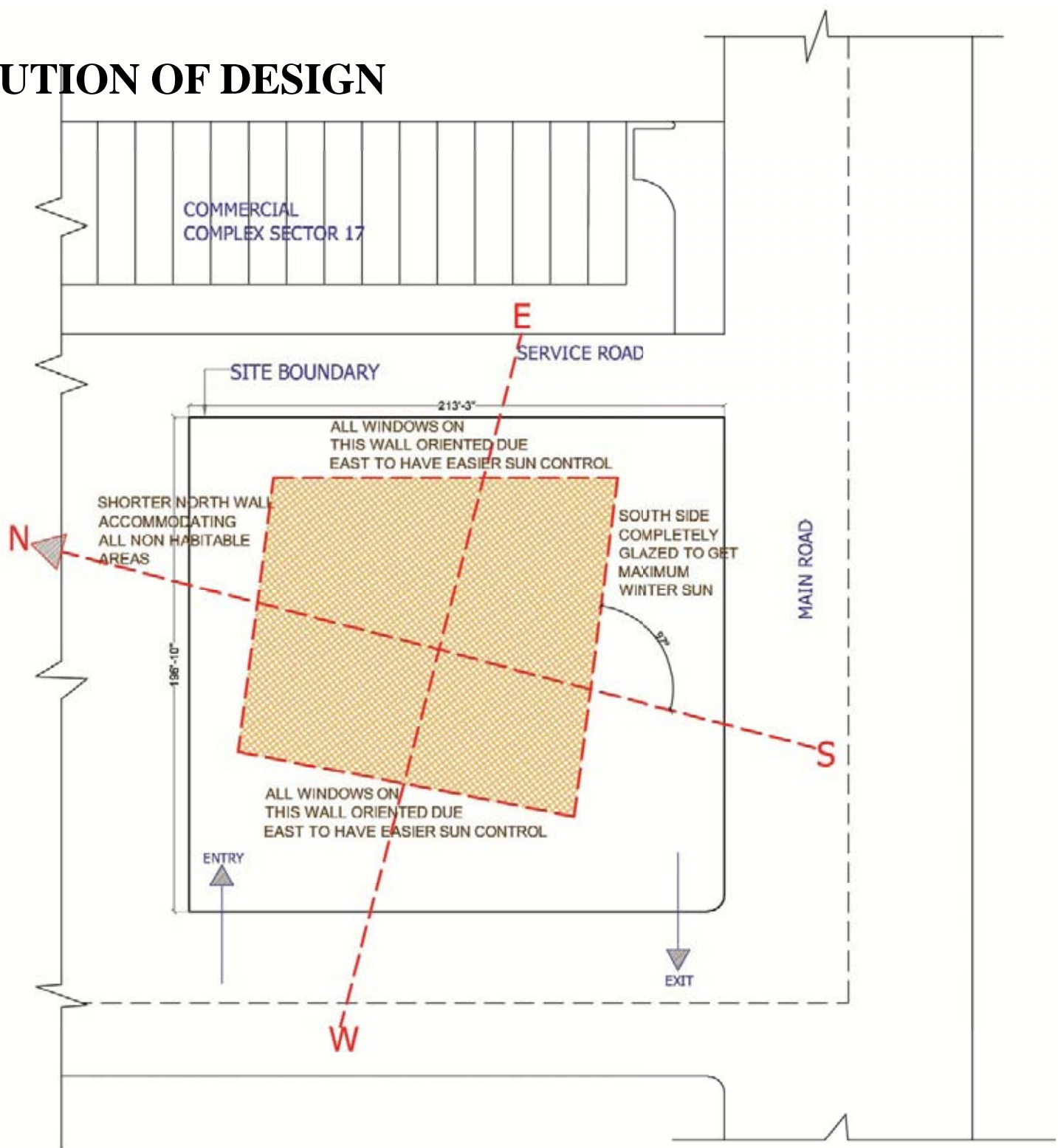
EVOLUTION OF DESIGN



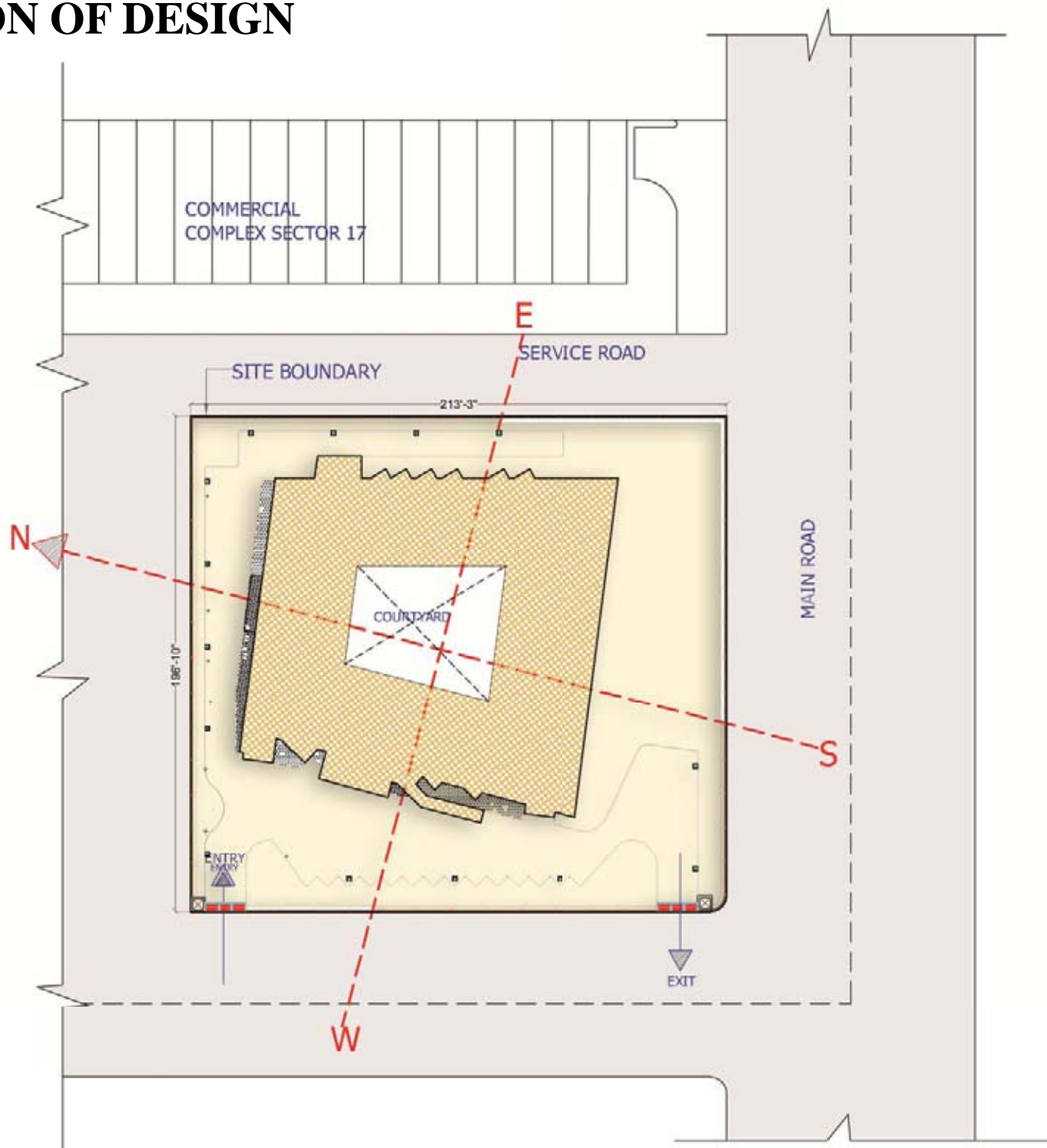
EVOLUTION OF DESIGN



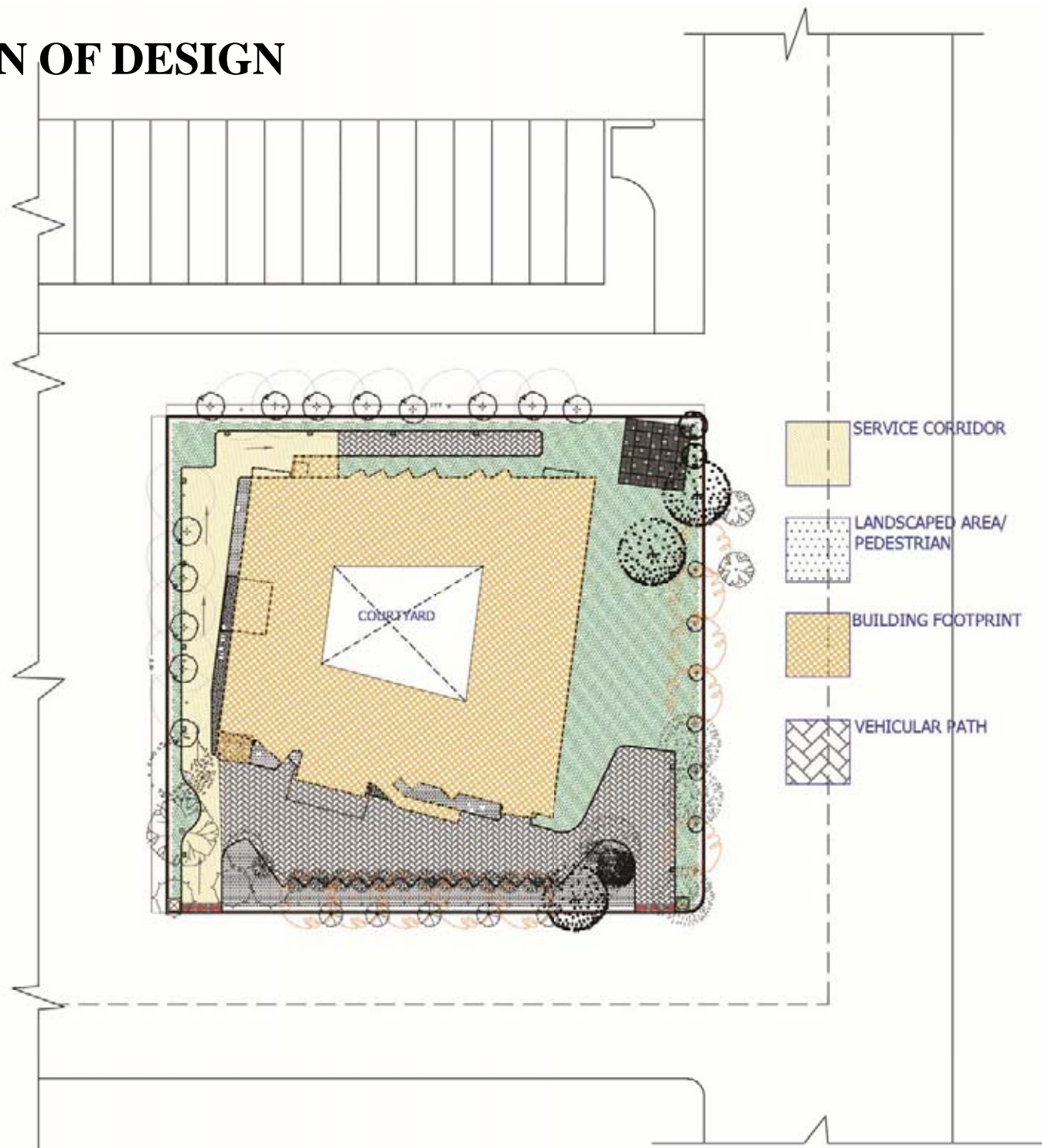
EVOLUTION OF DESIGN



EVOLUTION OF DESIGN



EVOLUTION OF DESIGN



CLIMATIC ANALYSIS

				18		24				
	9	10	11	12	13	14	15	16	17	18
jan	11.4	13.3	15.5	17.6	19.2	20.2	20.6	20.2	19.3	17.9
feb	13.2	15.3	17.7	19.9	21.6	22.7	23.1	22.7	21.7	20.2
mar	17.7	19.9	22.4	24.7	26.5	27.7	28.1	27.7	26.6	25.0
apr	22.8	25.1	27.7	30.2	32.0	33.2	33.7	33.2	32.2	30.5
may	28.1	30.4	32.9	35.3	37.1	38.3	38.7	38.3	37.2	35.6
jun	29.5	31.4	33.4	35.4	36.9	37.8	38.2	37.8	37.0	35.6
jul	27.9	29.2	30.6	32.0	33.0	33.6	33.9	33.6	33.1	32.1
aug	27.0	28.3	29.7	31.1	32.1	32.7	33.0	32.7	32.2	31.2
sep	25.4	27.1	29.0	30.7	32.1	33.0	33.3	33.0	32.2	31.0
oct	21.3	23.6	26.3	28.7	30.6	31.8	32.3	31.8	30.8	29.0
nov	16.2	18.6	21.4	24.0	26.0	27.3	27.8	27.3	26.2	24.4
dec	12.0	14.2	16.7	19.0	20.8	22.0	22.4	22.0	20.9	19.3

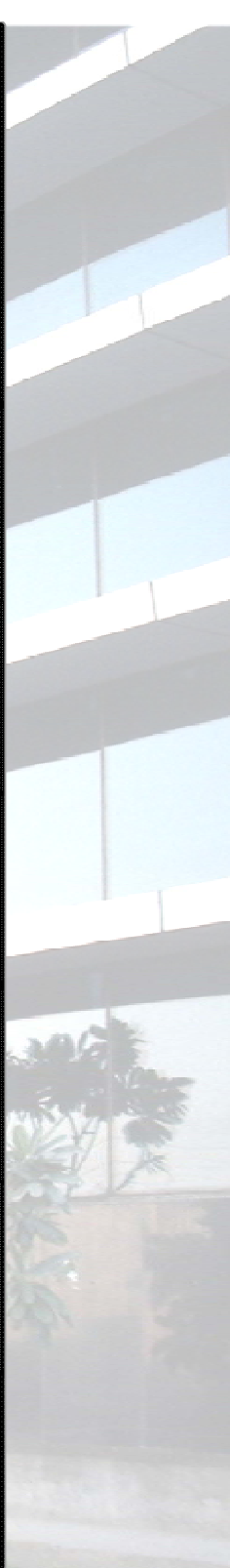
OVERALL DESIGN STRATEGY

The habitable spaces (excluding courtyard, lobby, corridor, toilets etc.) are about 4200 sqm.

Of these, 1200 sqm are deemed apex at 25 ± 1 °C (apex offices and conference room) to be always air conditioned.

700 sqm are deemed controlled at 25 ± 3 °C (other offices, training room etc.) to be cooled in summer

2300 sqm are passive 25 ± 5 °C (workshops, exhibition etc.) to be cooled in summer and ventilated in monsoon.



SALIENT FEATURES –

Sustainable Site Planning:



NORTH SIDE ELEVATION

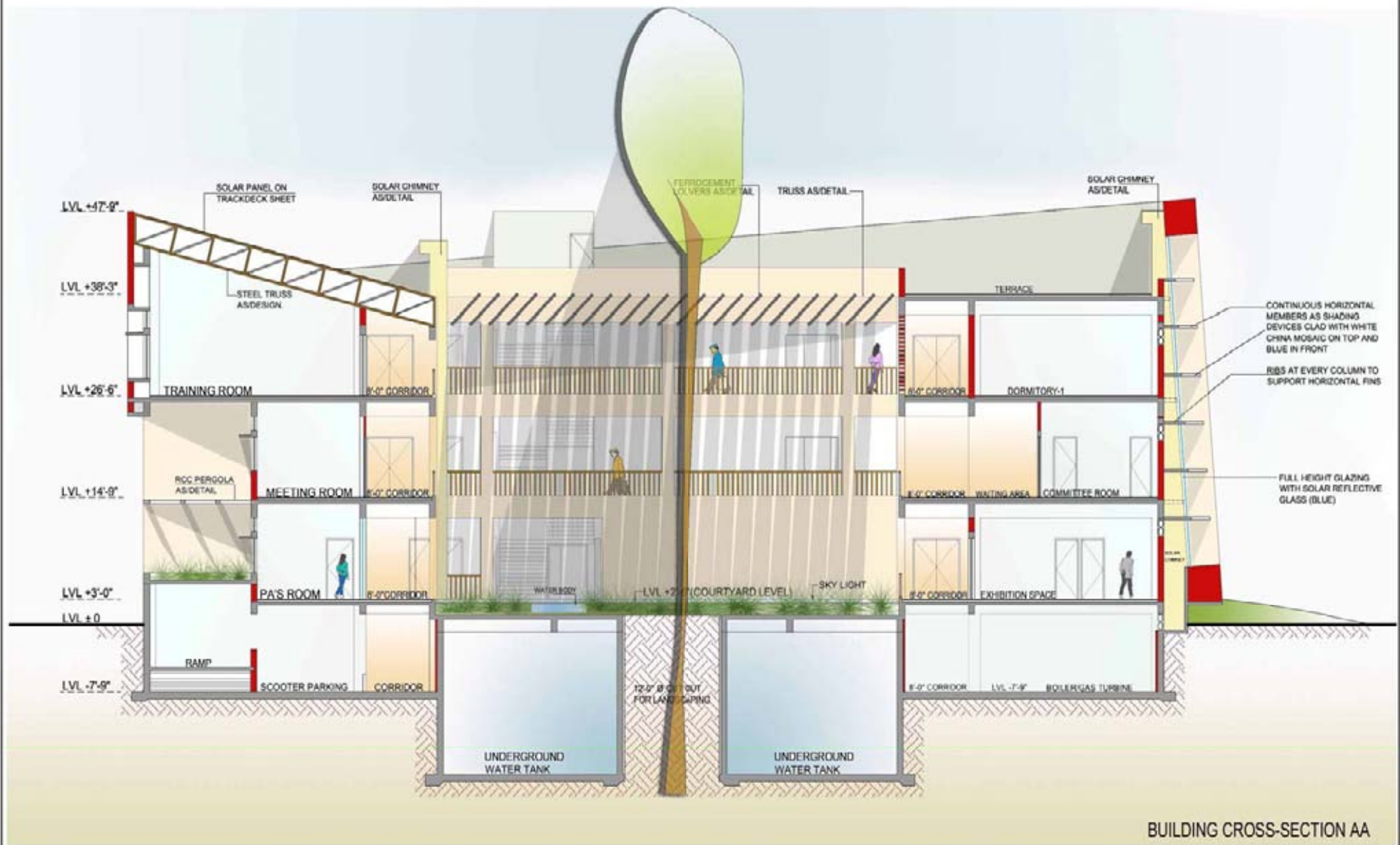


WEST SIDE ELEVATION



12-06-2013

SOUTH SIDE ELEVATION



Revisions	Date	By	Time



Notes:
 1. All dimensions to be read and not scaled.
 2. Any discrepancy to be brought to the notice of the architect before commencing work on the site.
 3. The drawings, specifications and documents as instrument of service are the intellectual property of THE ELEMENTS.

Project: **HAREDA OFFICE AT PANCHIKULA**
 Drawn By: DEEPTI
 Scale: 3/8"=1'-0"
 Project No: 284
 Sheet No: **SECTION AA**

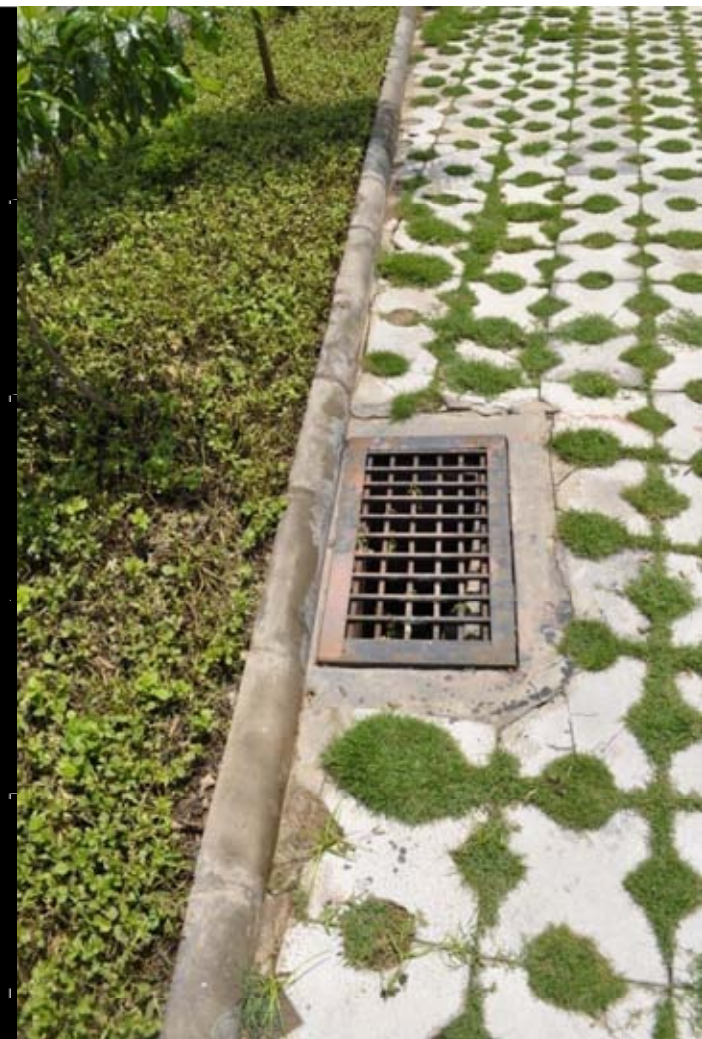
Client: DEEPTI
 Date: 29/04/2024
 Client No: 284
 Client Name: SIDDHARTHA

Architect: **THE ELEMENTS**
building with nature
 s.c.f.58, first floor, sector-6, panichkula
 phone/fax: 2580094
 e-mail: uigmann@rediffmail.com

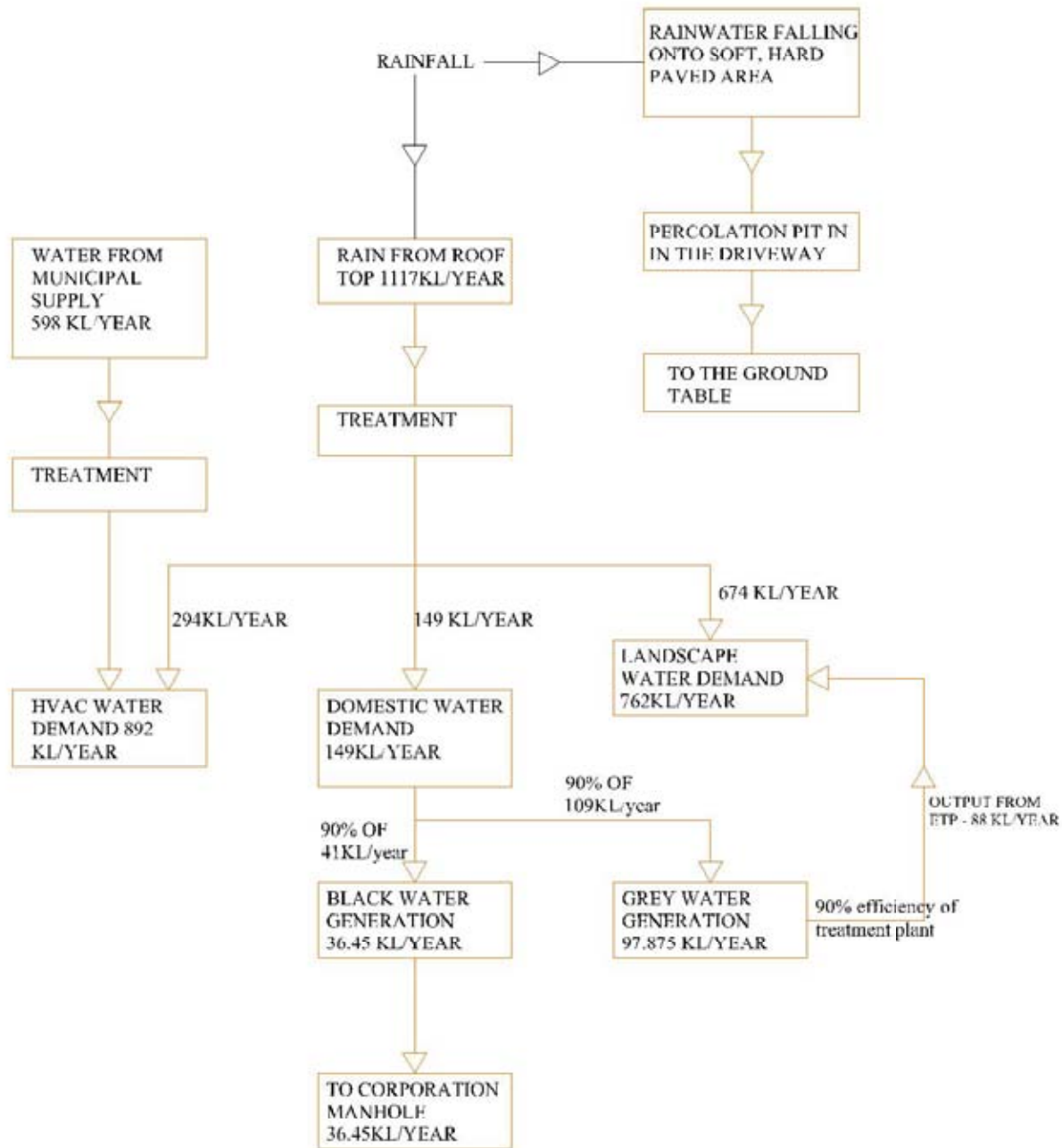
SALIENT FEATURES –

Reducing water consumption:

1. Annual reduction in water consumption by 70% by using efficient fixtures.
2. 6.25 lac Litres rain water storage tank has been designed in the basement to collect water from the roof and courtyard. Percolation pits designed along the driveway to collect rain water from the driveway, the overflow of which has been directed to the municipal sewer.
3. Rain water collected is treated and used for drinking purpose, HVAC plant and horticulture.
4. ETP plant installed to treat grey water collected from kitchen and toilet, the treated water is reused for horticulture. Soil waste is directed towards municipal sewer line.



WATER FLOW DIAGRAM



SALIENT FEATURES –

Reducing energy consumption
while maintaining occupant comfort:
For achieving thermal comfort:

1. The south face has solar chimneys to aid ventilation in some of the non a/c spaces.
2. Misting done in the courtyard to cool the ambient air which is sucked into the building through solar chimneys. The achieved internal air Relative Humidity range from 60% - 75 % .



SALIENT FEATURES –

Reducing energy consumption
while maintaining occupant comfort:
For achieving thermal comfort:

3. Use of THERMATEK roofing tiles
for increase in re-radiation back to the
sky ,which reduces the heat ingress from
the roof .

4. Cavity walls with XPS foam
insulation constructed in east and west
facade of the building.



SALIENT FEATURES –

Renewable energy technologies installed on site:

1. 42.5 KW SPV plant (with 5 kw B.I.P.V installed above the courtyard) has been installed.

2. Solar water heater for capacity of 600litres installed for cooking and bathing purpose.



SALIENT FEATURES –

Site landscaping:

1. The south area at site has a wide spread landscaped area.
2. The selection of vegetation and integration with the native landscape
3. Use of landscape elements as buffer zones – Evergreen high foliage trees (delonix regia) planted in the berm along the main road to reduce noise pollution.





Grass pavers used as driveway floor



Social Initiative by HAREDA-

Solar Van parked on the southern set back of the building for public awareness



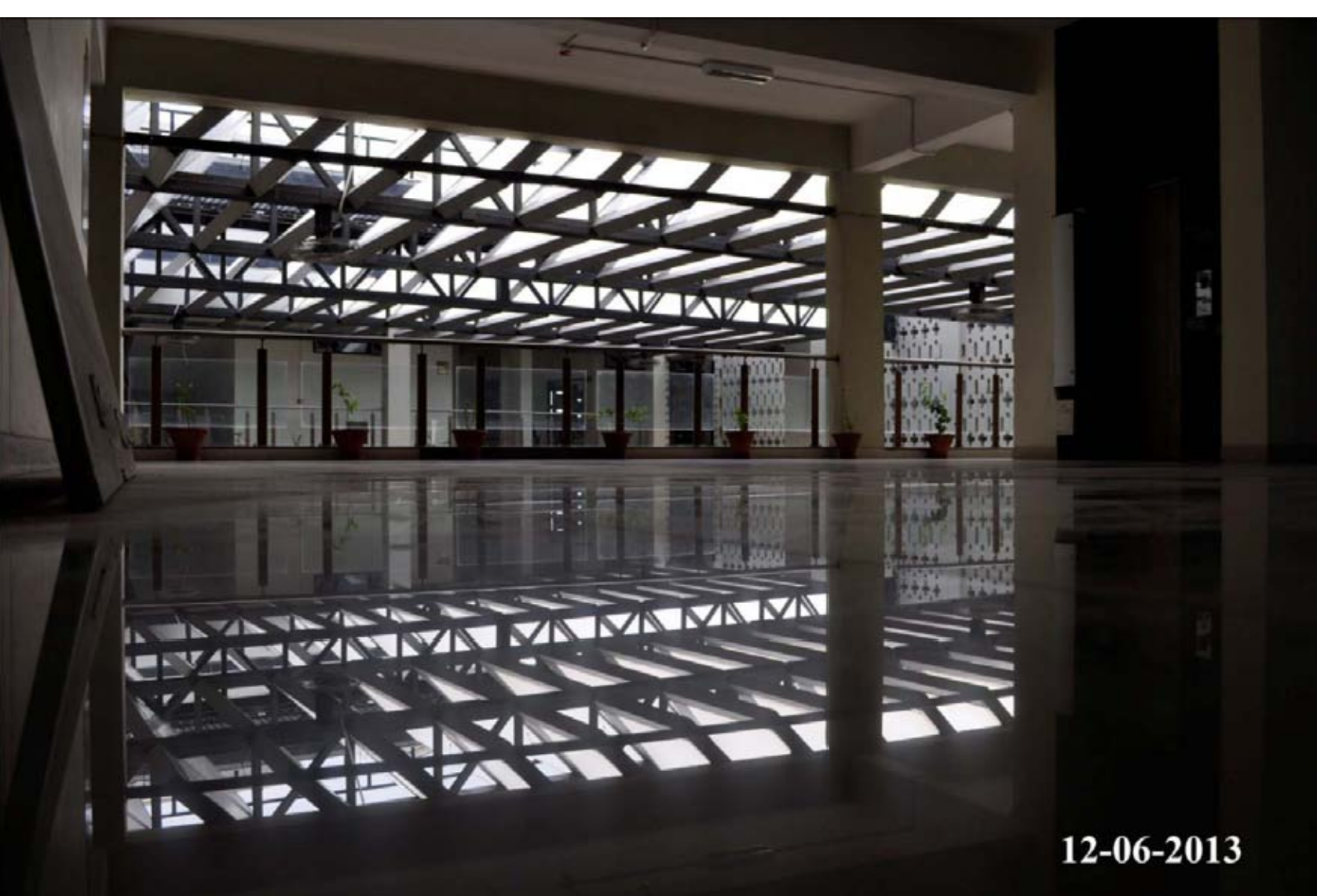
12-06-2013

View of the louvers, B.I.P.V above the central courtyard from the first floor



Segregation of waste generated on site





12-06-2013

The Team

Sanjay Prakash & Associates, for Energy efficiency, Sustainability & Structural Design

McD Built Environment Research Laboratory Pvt Ltd, Bengaluru for MEP, HVAC and Simulation

Haryana Police Housing Corporation, Panchkula for Project Management Consultancy