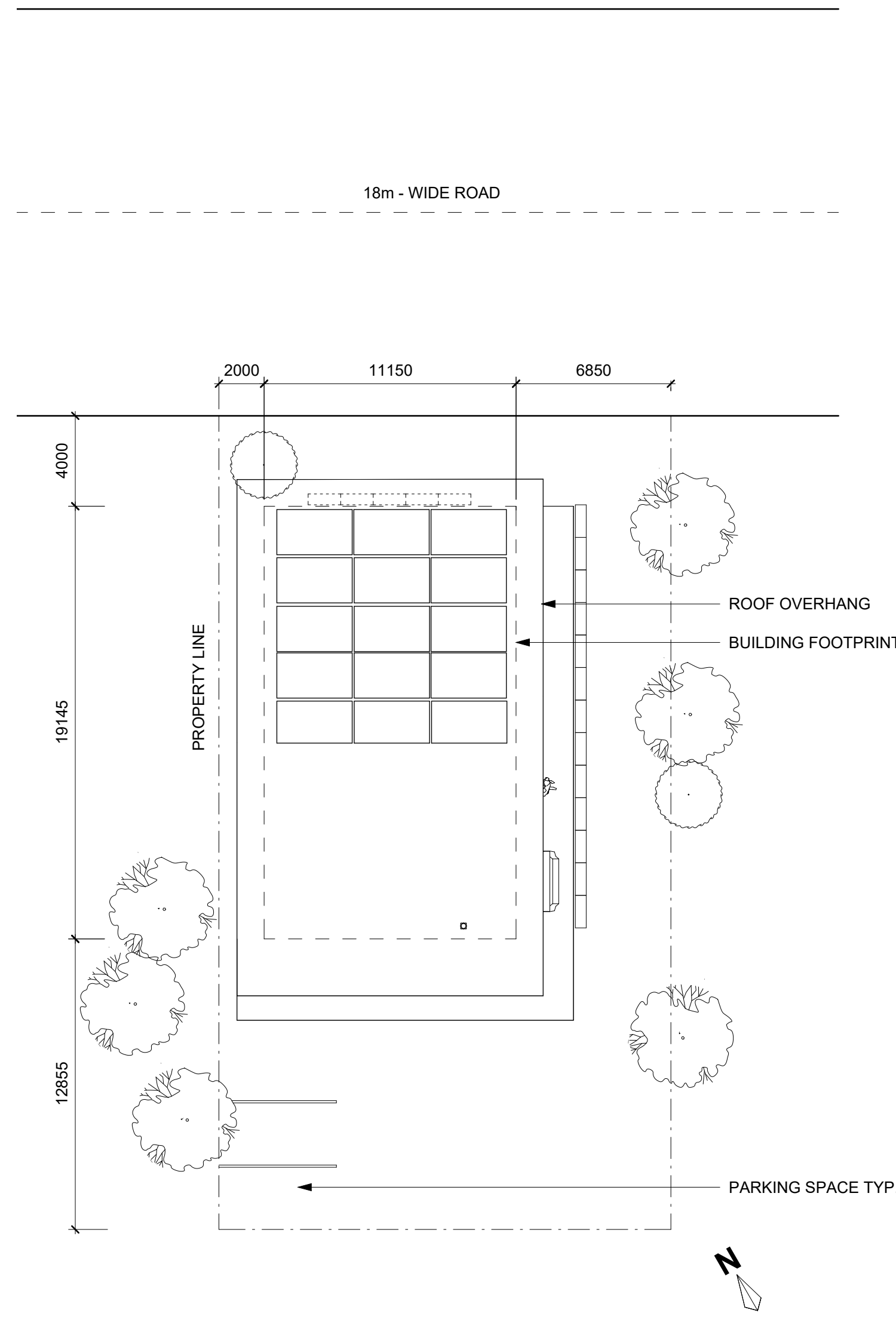


THE HEATWAVE LIBRARY

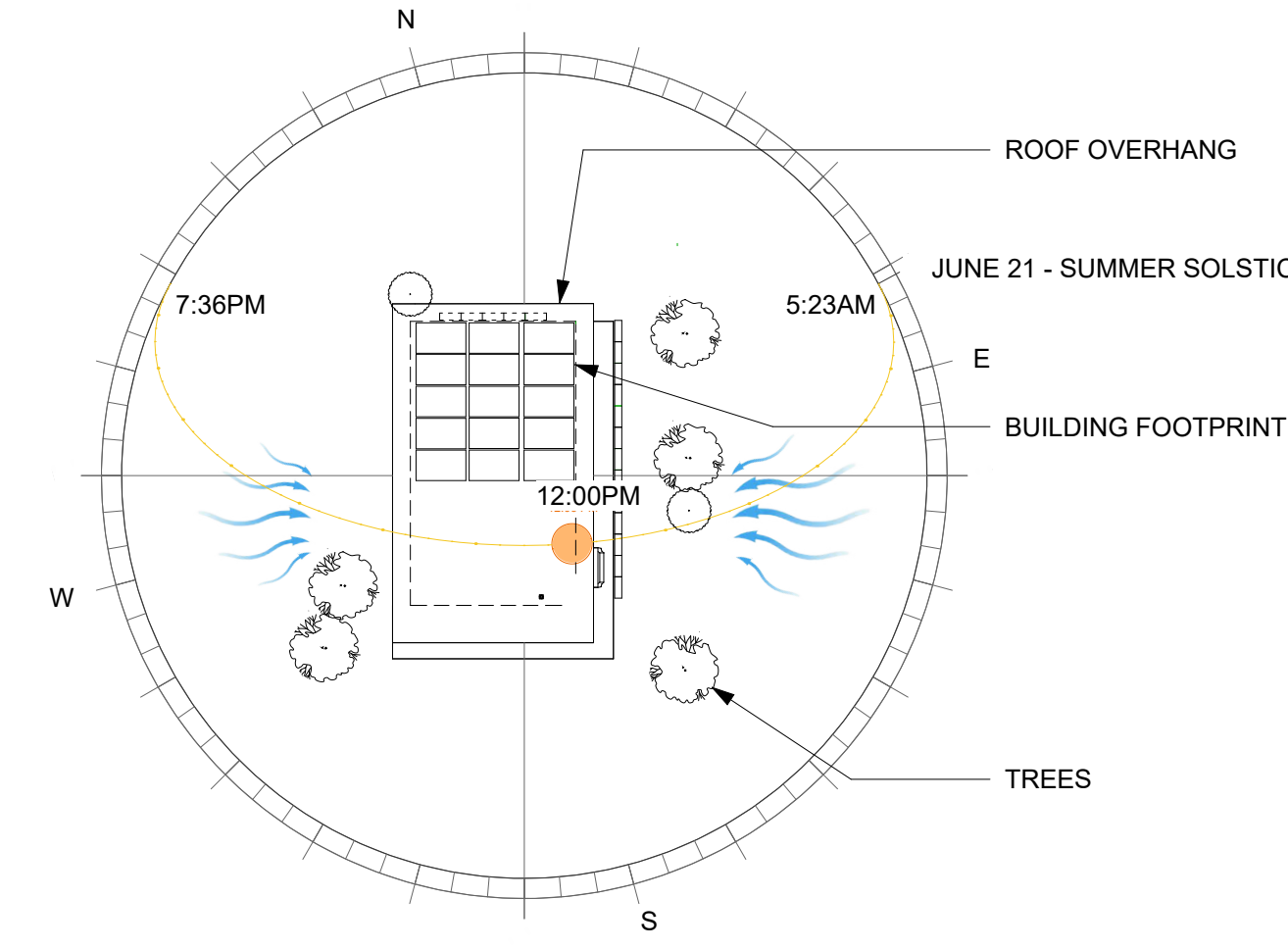
Group 6

The city of Phoenix, Arizona, is developing an innovative library designed to meet the needs of its growing community while addressing the challenges of the hot-dry climate. This state-of-the-art library, created by RAAT Consulting, incorporates sustainable features and cutting-edge design. With its overhangs, vertical fins, and horizontal shading devices, the building minimizes solar heat gain while providing comfortable, shaded spaces for visitors.

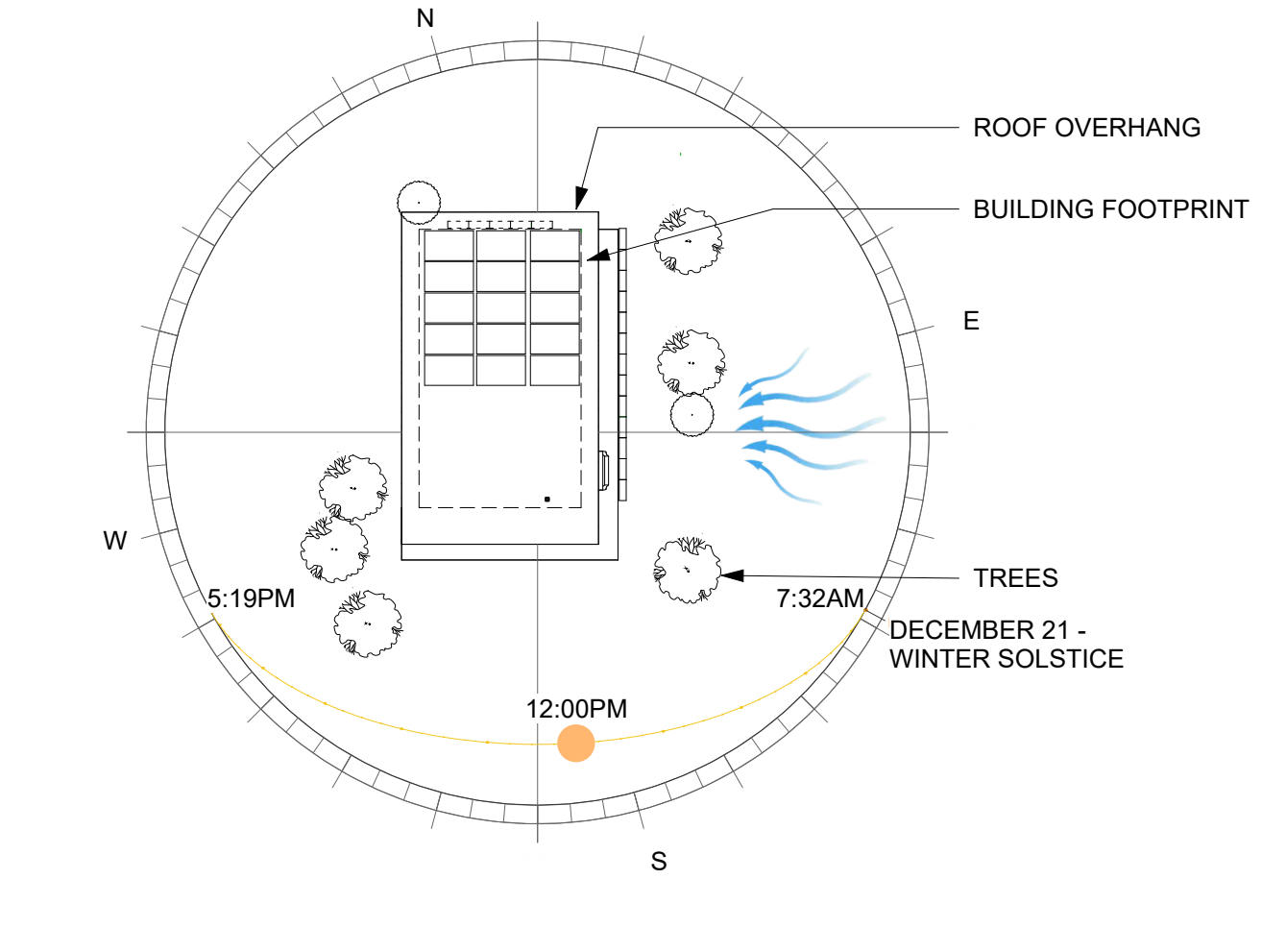
The organically shaped roof integrates seamlessly with the natural landscape, enhancing aesthetic appeal while supporting passive cooling strategies. Designed with adaptability in mind, the library ensures accessibility for individuals of all ages and abilities. By prioritizing energy-efficient systems and climate-responsive strategies, the Phoenix library reflects the city's commitment to environmental stewardship and community well-being.



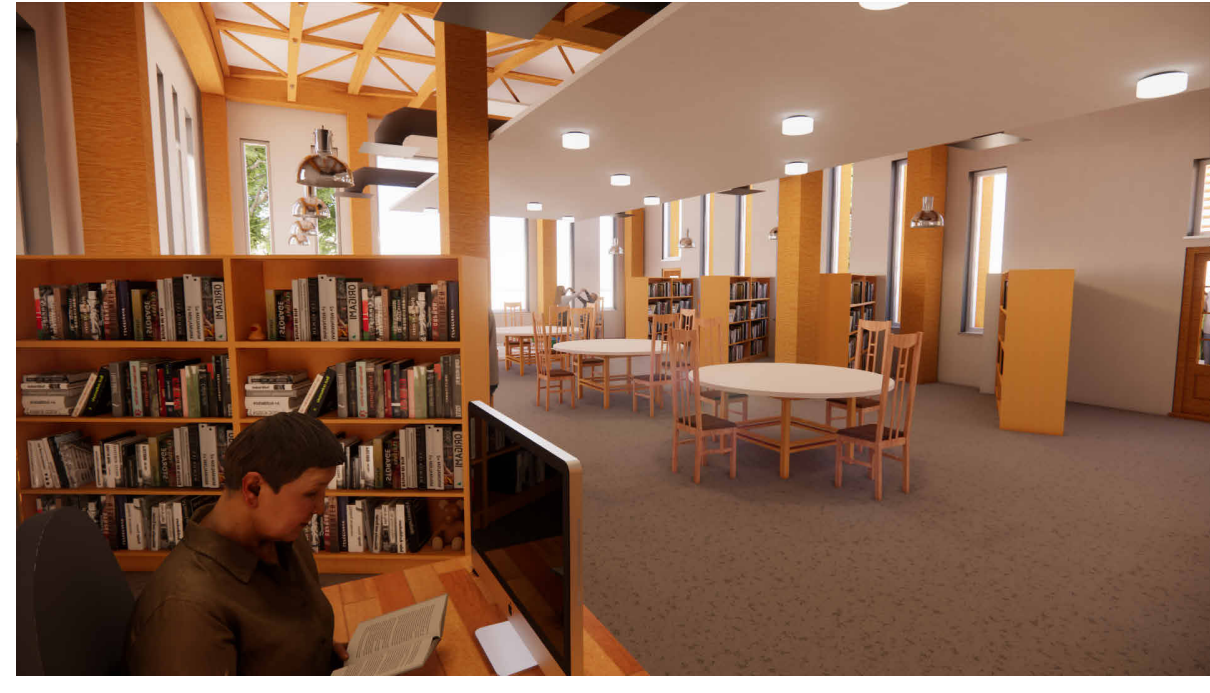
1 SITE PLAN
1 : 200



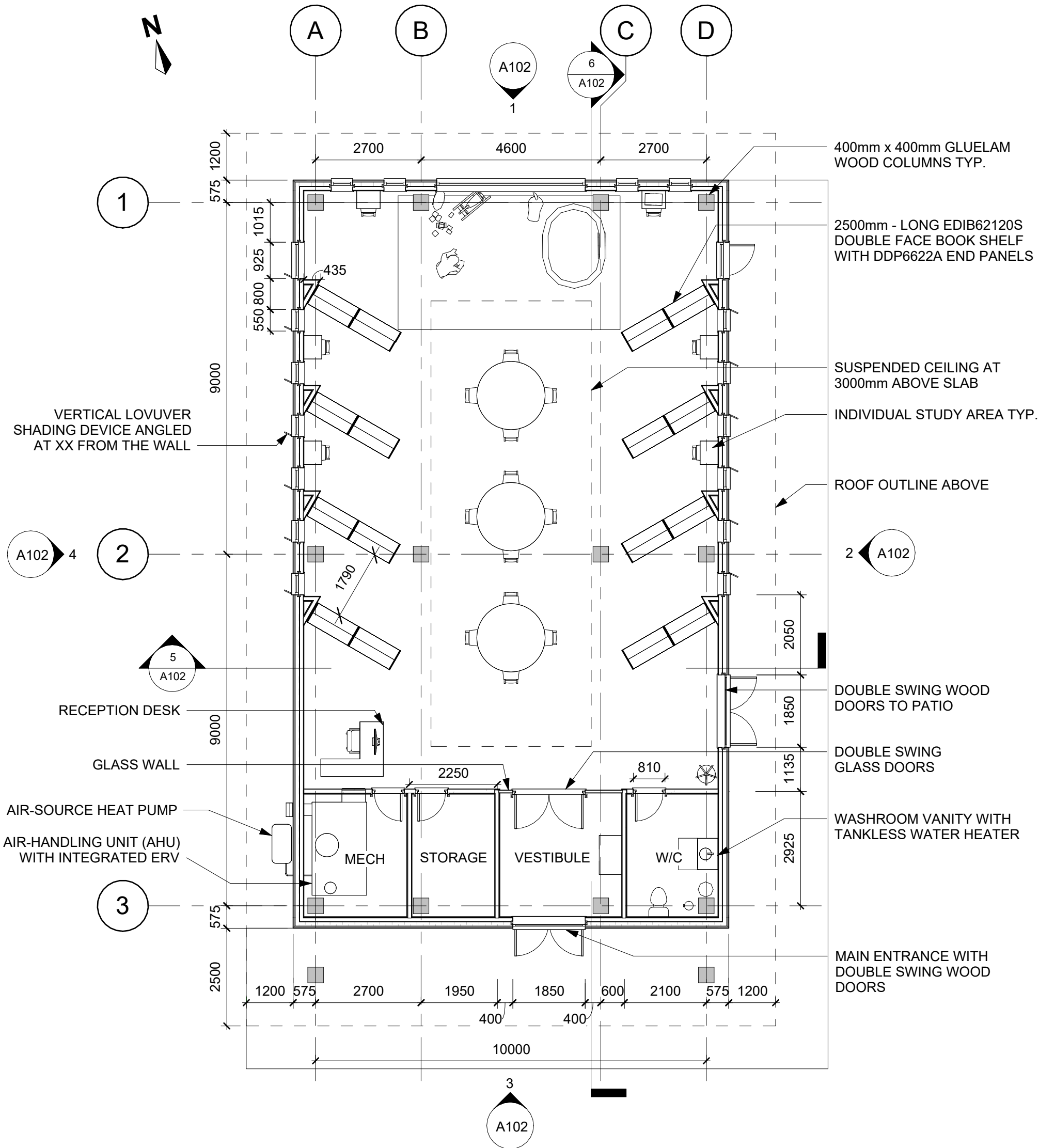
2 SUMMER SUN AND WIND
1 : 500



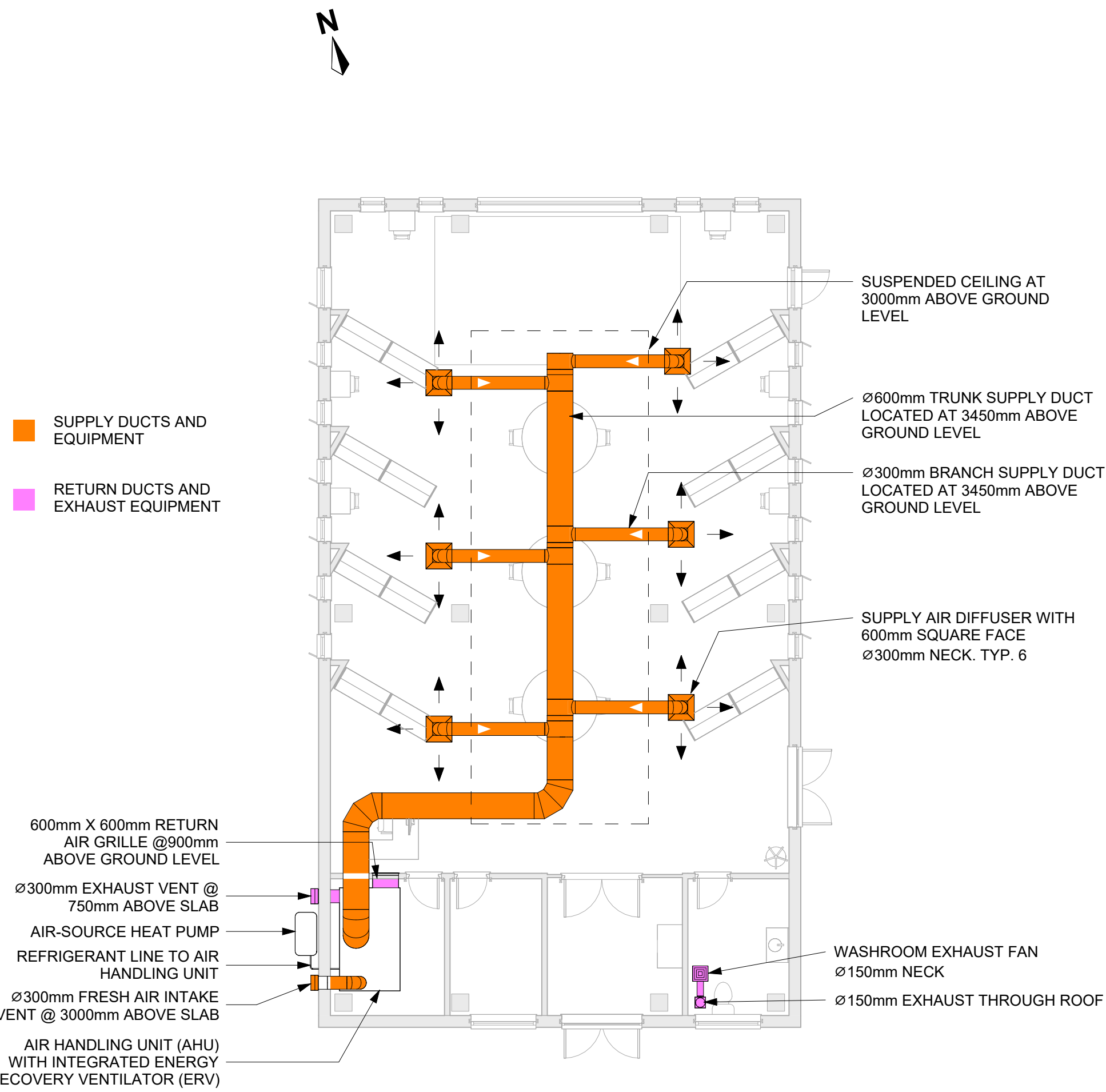
3 WINTER SUN AND WIND
1 : 500



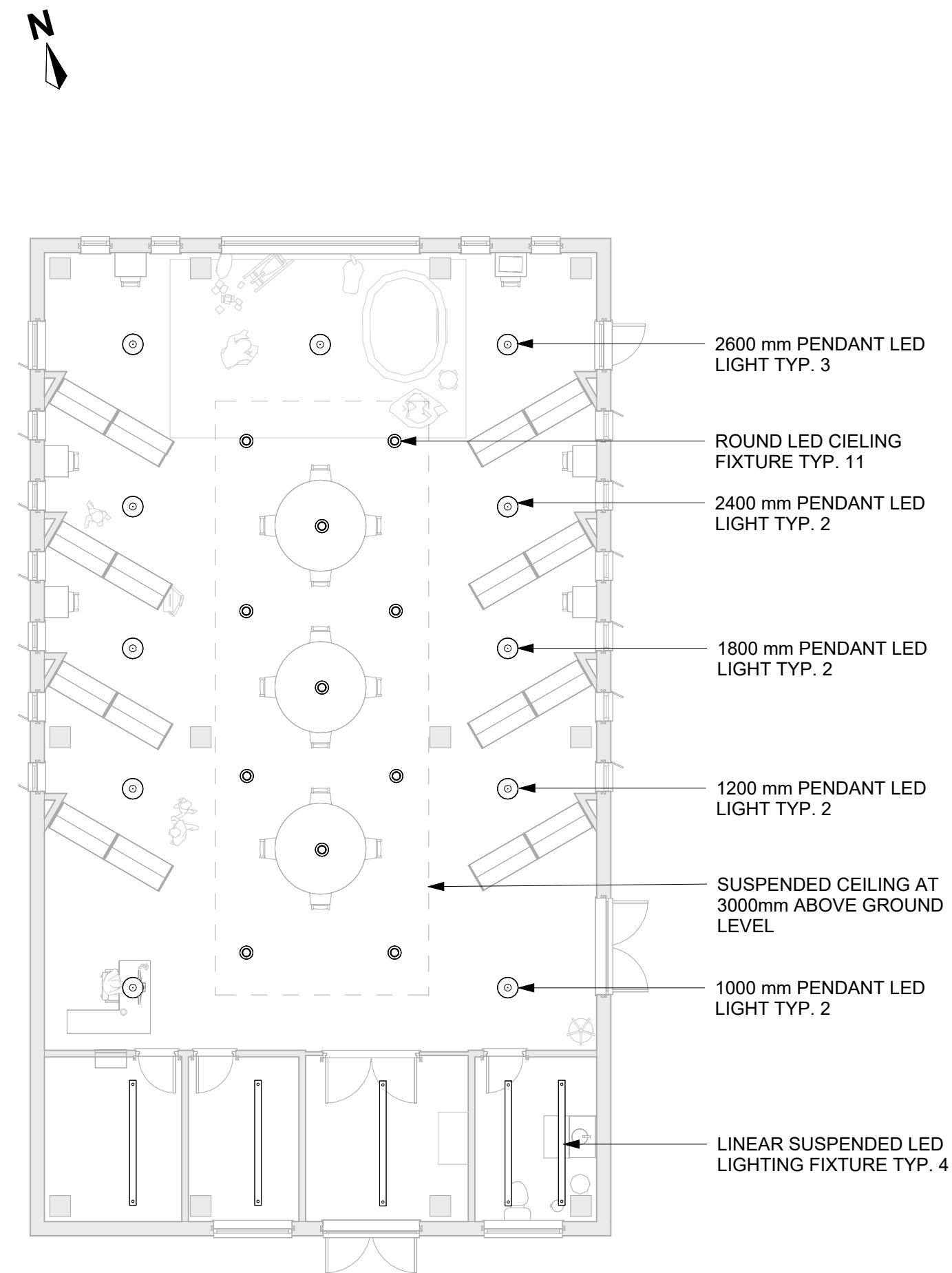
 RAAT CONSULTING	CLIENT CITY OF ARIZONA		DRAWN BY RODAINA ABOELELA TALA HABAYEB ANABELLA KURNIAWAN ALEXANDRIA RICHARDS		PROJECT THE HEATWAVE
	SCALE AS INDICATED	DATE 29/11/24	A100	TITLE RENDERING AND SITE PLAN	



1 FLOOR PLAN
1 : 100



2 MECHANICAL PLAN
1 : 100



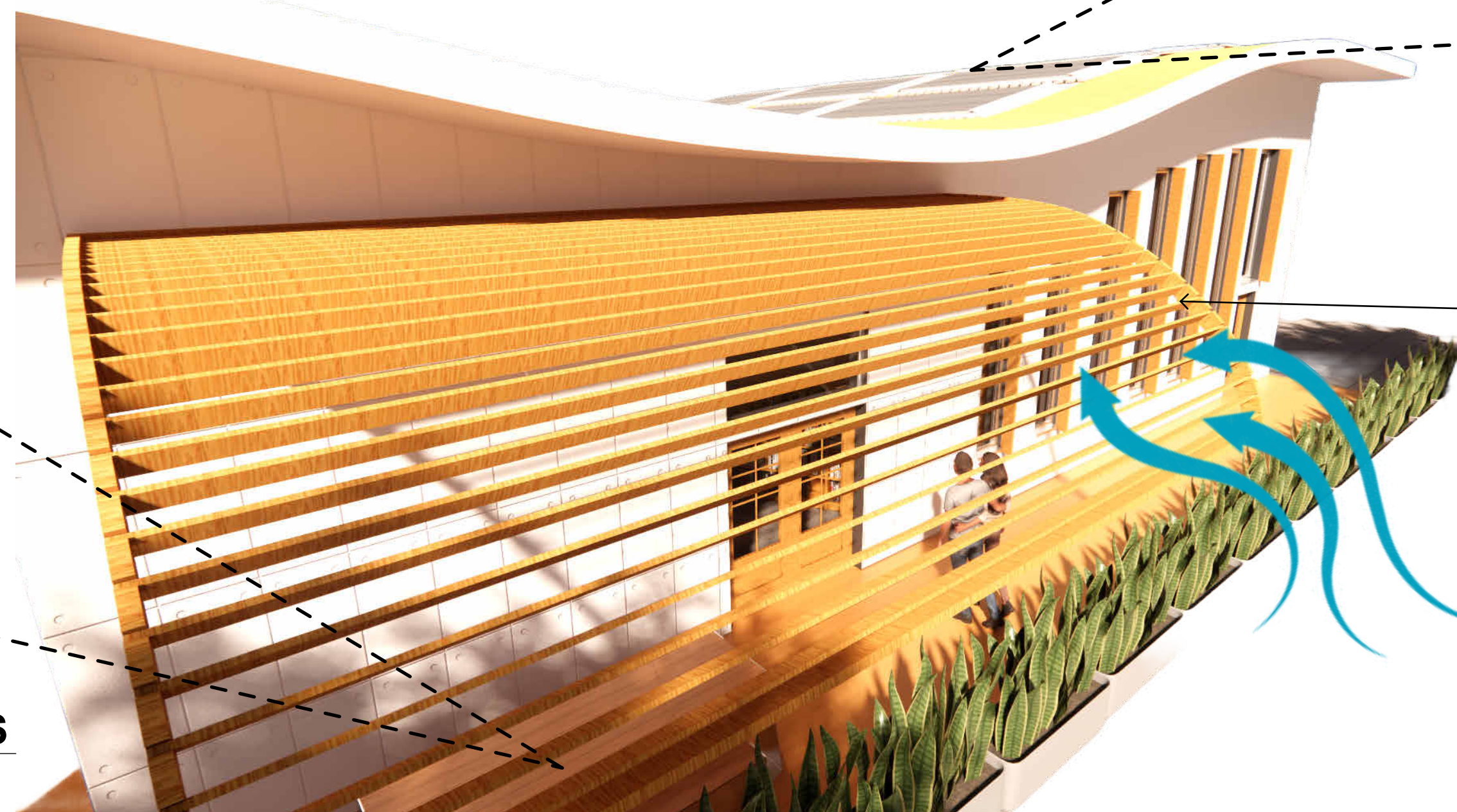
3 LIGHTING PLAN
1 : 100

MIST COOLERS

Evaporative cooling is effective in Phoenix's dry climate, where humidity averages 39%. An outdoor mist system on the patio regulates humidity and cools the area, ideal for spaces with many children. (Author links open overlay panelShivanshu Dixit et al., 2020)



4 ENVIRONMENTAL STRATEGIES



SHADING AND SOLAR HEAT GAIN

The design focuses on reducing solar heat gain and optimizing shading, including the patio, to control interior temperatures during Phoenix's hot summers. This strategy enhances comfort while minimizing energy use in the building.



MONOCRYSTALLINE PANELS

Phoenix's abundant sunlight makes it ideal for solar panels, and the library's roof is designed to house efficient, durable monocrystalline panels, reducing energy use and supporting sustainability.

CITATIONS:

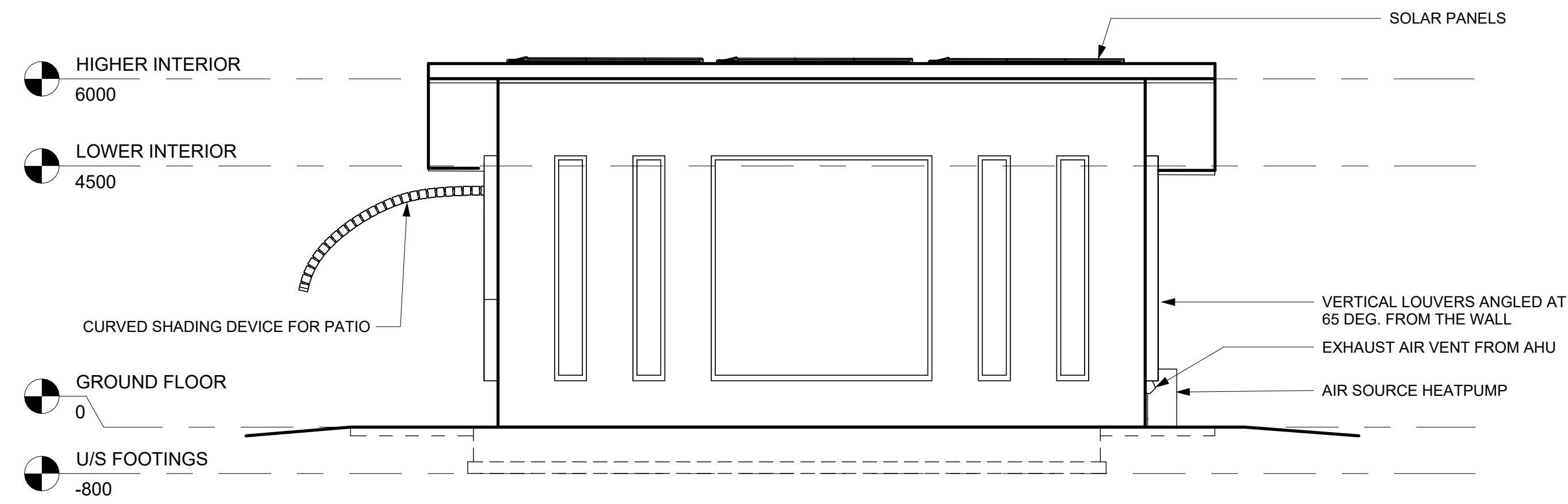
Author links open overlay panelShivanshu Dixit, AbstractThe world is facing energy crisis and critical environmental issues such as the greenhouse effect, Ellabban, O., Tiwari, G. N., Dawn, S., Ma, T., ... Saliba, M. (2020). Solar Technologies and their implementations: A Review. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S2214785320327498>

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CONSULTING

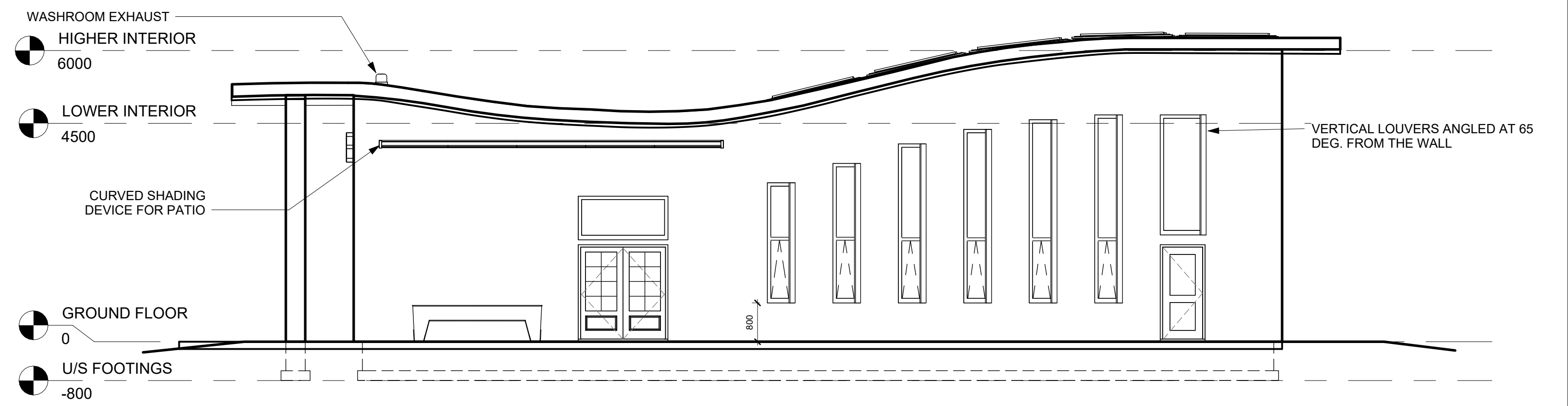
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CITY OF ARIZONA
SCALE AS INDICATED DATE 29/11/24 A101

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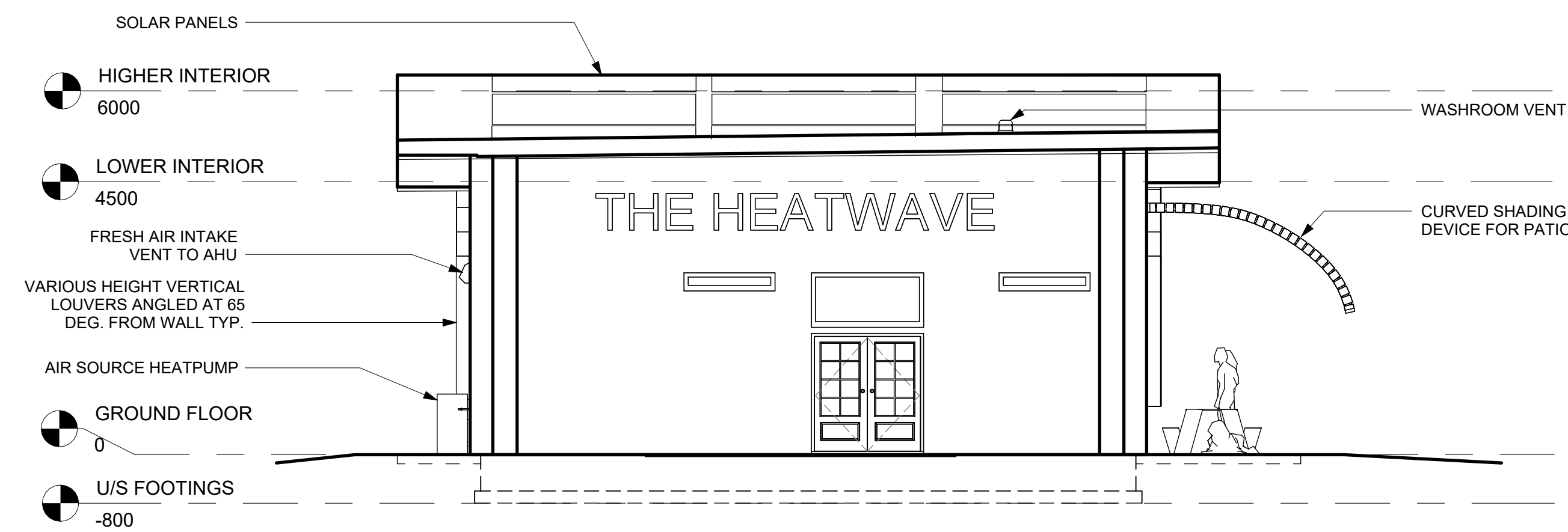
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THE HEATWAVE
TITLE
PLANS AND STRATEGIES



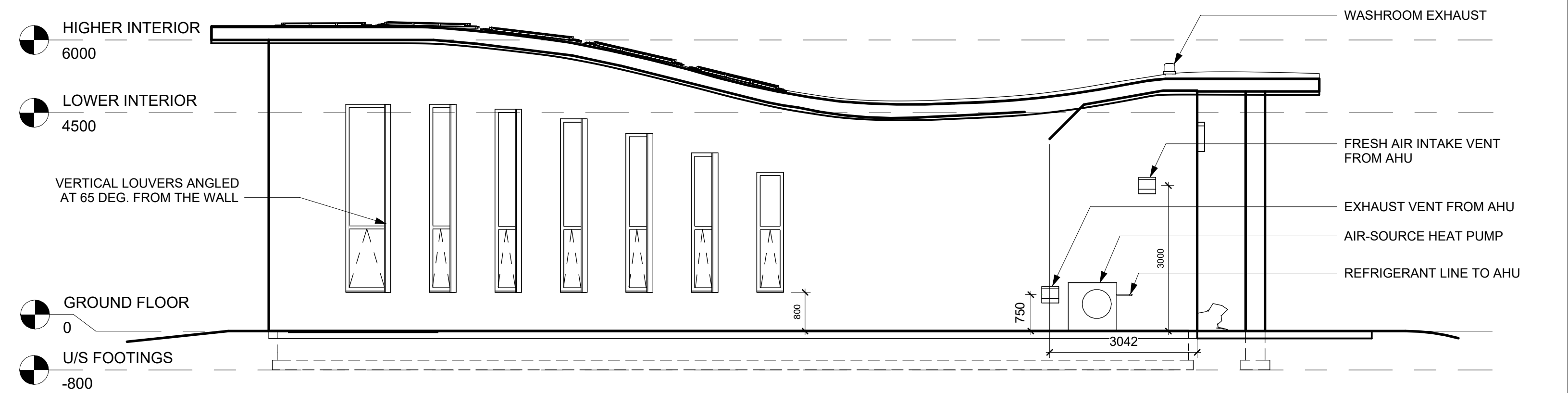
1 NORTH ELEVATION
1 : 75



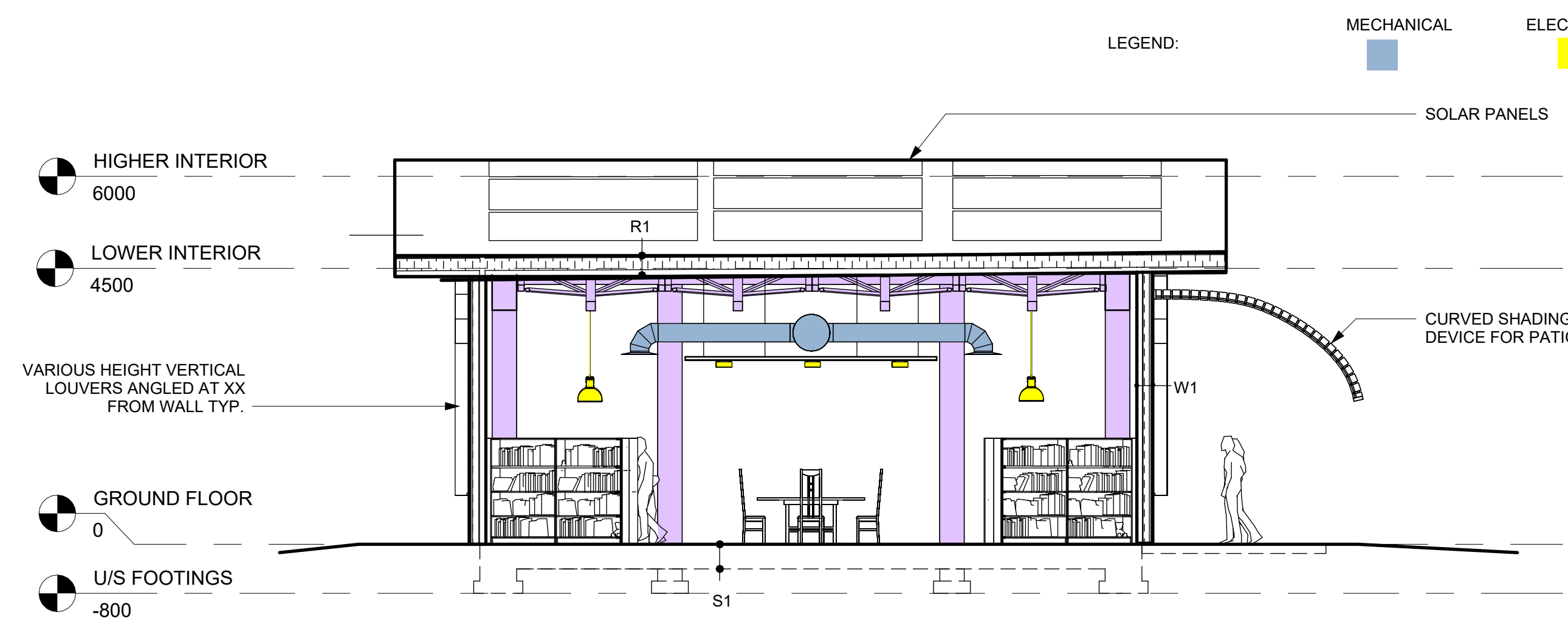
2 EAST ELEVATION
1 : 75



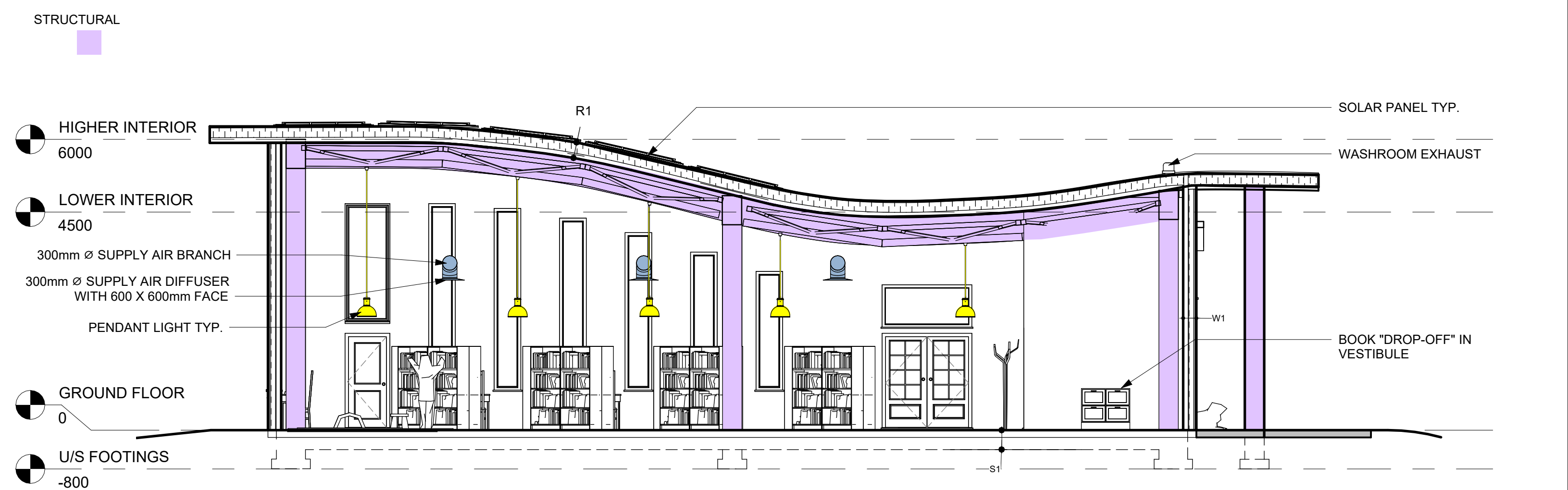
3 SOUTH ELEVATION
1 : 75



4 WEST ELEVATION
1 : 75



5 NORTH - SOUTH SECTION
1 : 75



6 EAST - WEST SECTION
1 : 75

W1
30mm TERRACOTTA TILES
25mm AIR SPACE
2 X 50mm EXTRUDED POLYSTYRENE (XPS) INSULATION
12.7mm PLYWOOD SHEATHING
BLUESKIN SELF ADHERED AIR/WATER/VAPOR BARRIER MEMBRANE
38x90mm WOOD STUD
13mm GYPSUM BOARD WITH LATEX PAINT FINISH

R1
1mm STANDING SEAM METAL PANEL
25mm AIR SPACE
4 X 50mm EXTRUDED POLYSTYRENE (XPS) INSULATION
25mm PLYWOOD SHEATHING
BLUESKIN SELF ADHERED AIR/WATER/VAPOR BARRIER MEMBRANE
38 X 90mm WOOD STUD
13mm GYPSUM BOARD WITH LATEX PAINT FINISH

S1
150mm CONCRETE SLAB
POLYETHYLENE PLASTIC MEMBRANE
2 X 50mm EXTRUDED POLYSTYRENE (XPS) INSULATION
150mm GRAVEL

RAAT
CONSULTING

CLIENT
CITY OF ARIZONA

SCALE AS INDICATED DATE 29/11/24 A102

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ALEXANDRIA RICHARDS

PROJECT
THE HEATWAVE
TITLE
ELEVATIONS AND SECTIONS