

PASSIVE ENERGY AND BUILDING INTEGRATED ENERGY

WINDOWS/WALLS/FLOORS MADE TO COLLECT/
STORE/DISTRIBUTE SOLAR ENERGY IN THE FORM OF
HEAT (WINTER) AND REJECT HEAT (SUMMER)

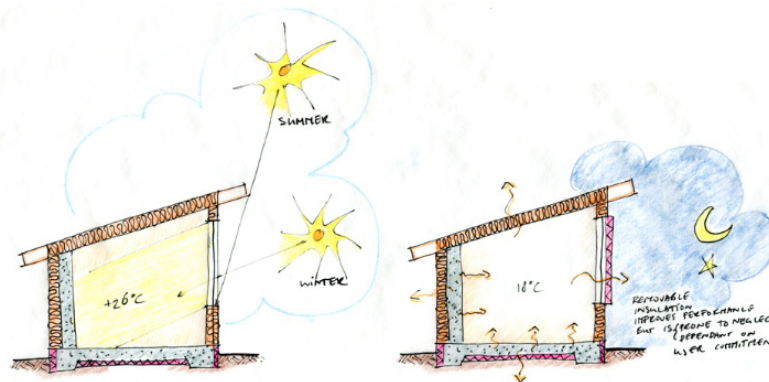
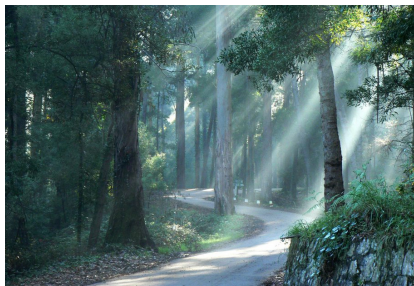
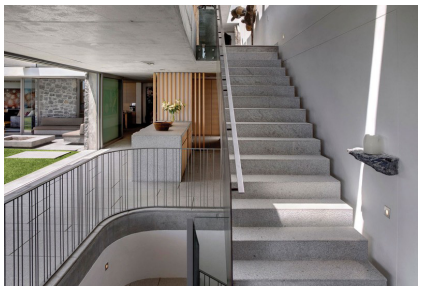
HARNESSES NATURAL
ENERGY

DOESN'T INVOLVE USE
OF MECHANICAL AND
ELECTRICAL DEVICES

REQUIRES LITTLE ENERGY
AND LOW MAINTENANCE

INTRODUCTION TO SOLAR
DESIGN

MAKES THE MOST OF
THE LOCAL CLIMATE-
MOVEMENT OF NATURAL
ENERGY

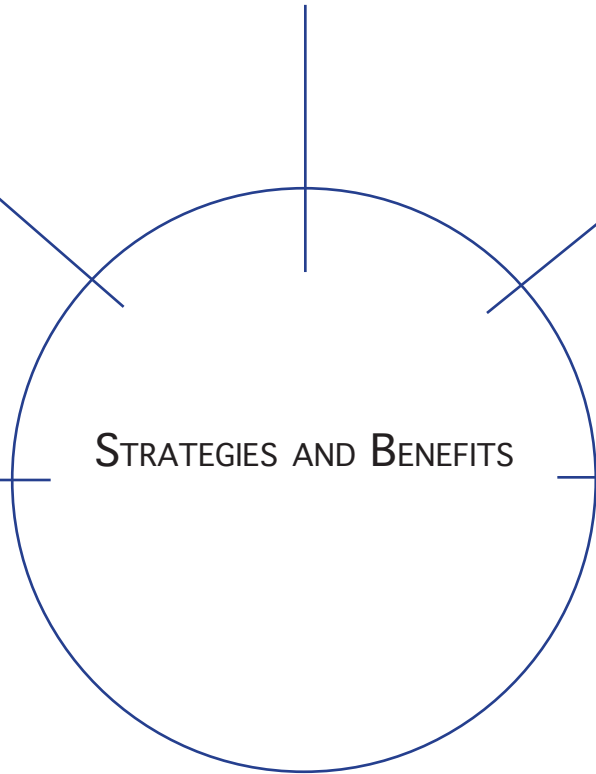


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MOVEMENT OF NATURAL ENERGY ALLOWS STRUCTURE TO SELF-REGULATE ITS LIVING CONDITIONS TO CREATE AN IDEAL ENVIRONMENT

SPECIFIC MATERIALS + OPENINGS AROUND THE STRUCTURE ENHANCE ITS EFFECT

CUTS ENERGY USES BY ABOUT 23%

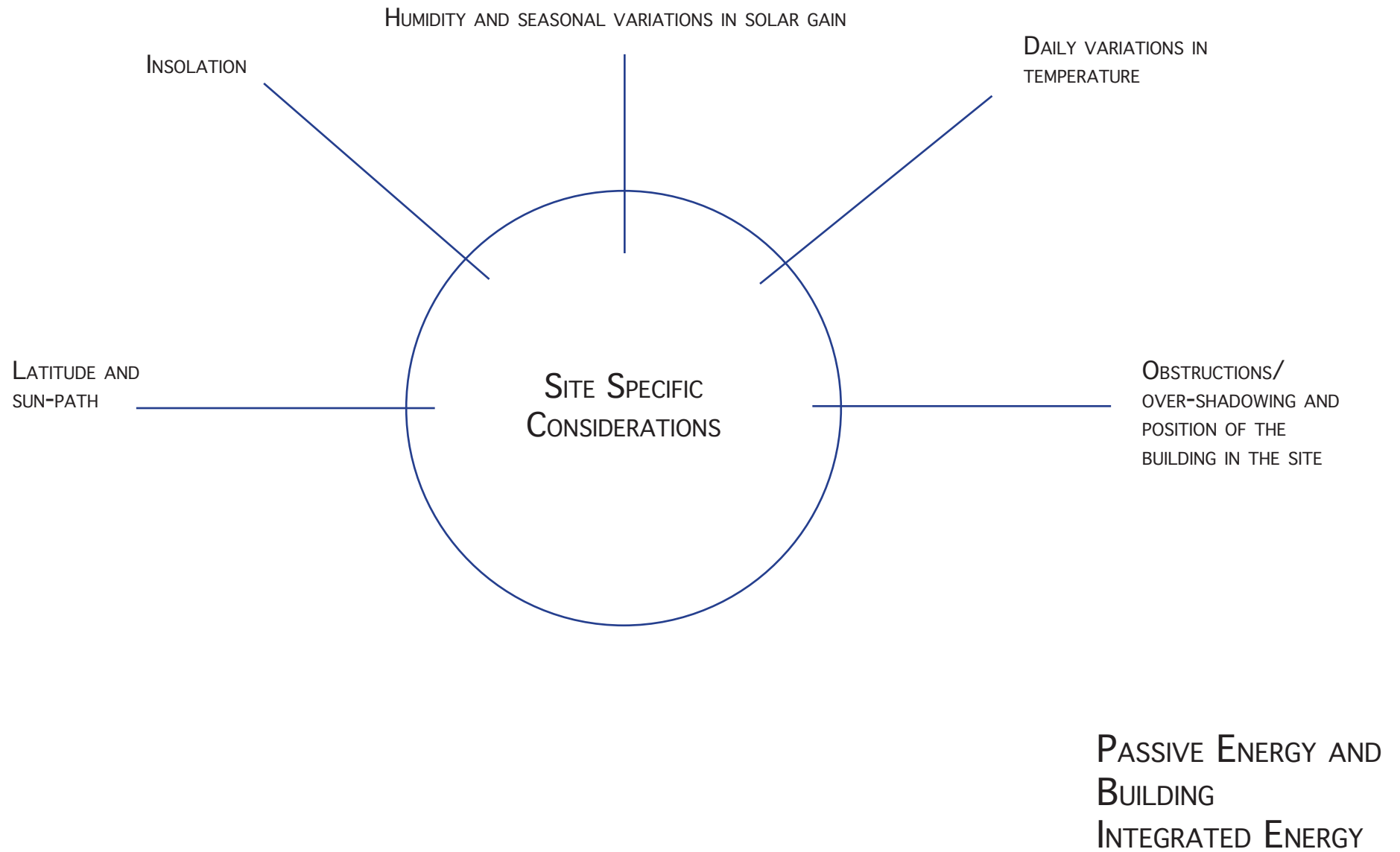


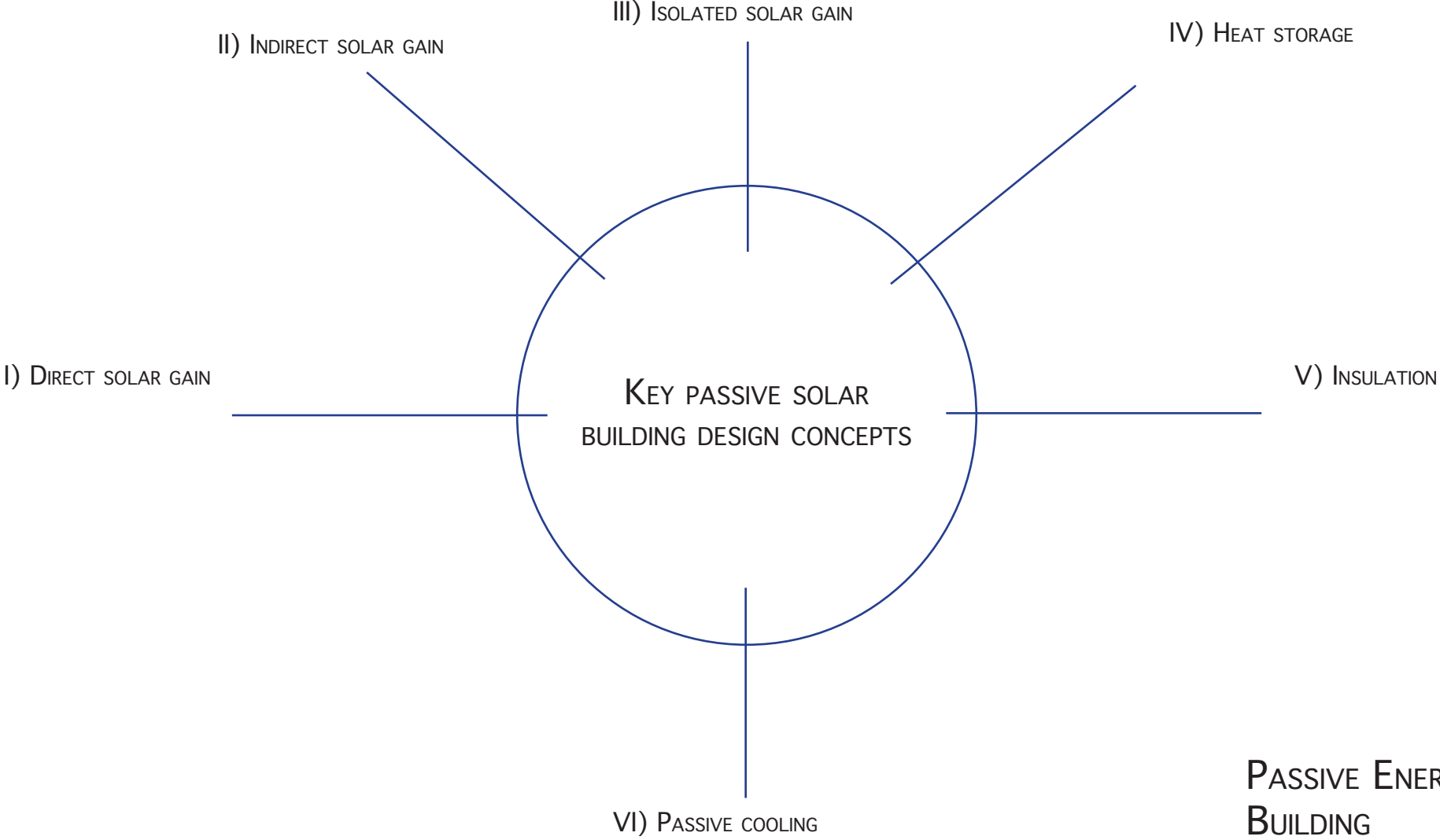
STRATEGIES AND BENEFITS

FOUND IN DIFFERENT FORMS AND TECHNOLOGIES

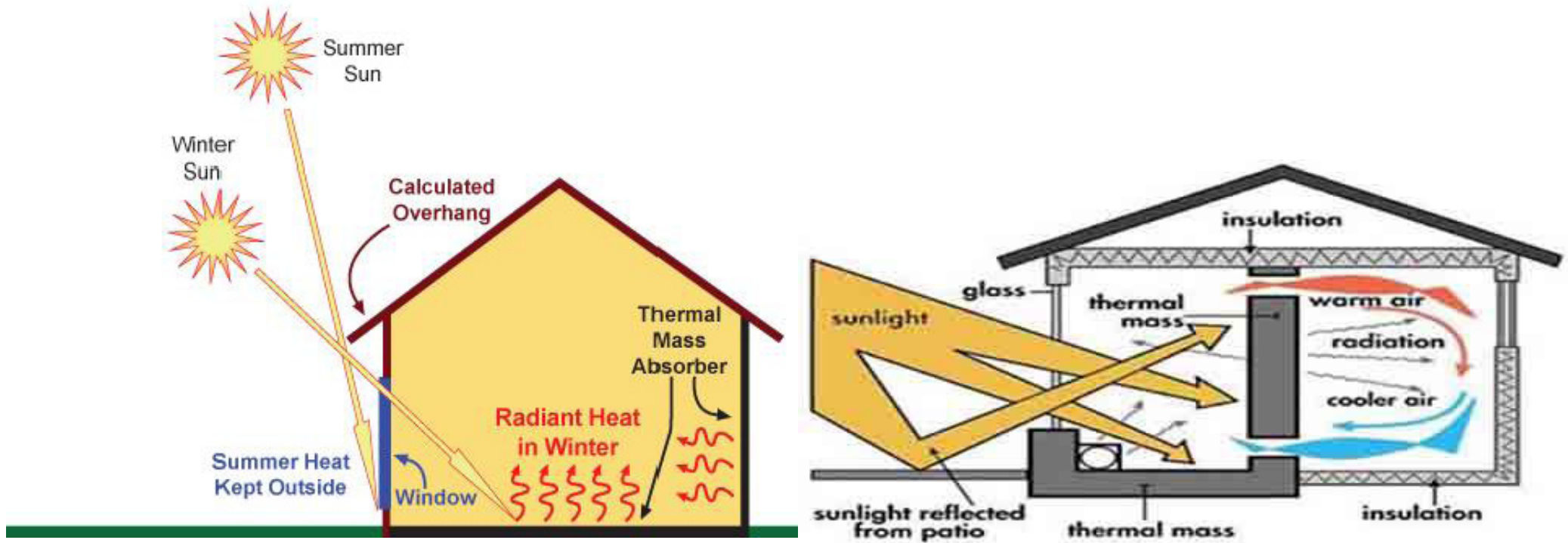
WARMS AND COOLS EFFICIENTLY- NO DRASTIC CHANGE IN TEMPERATURE

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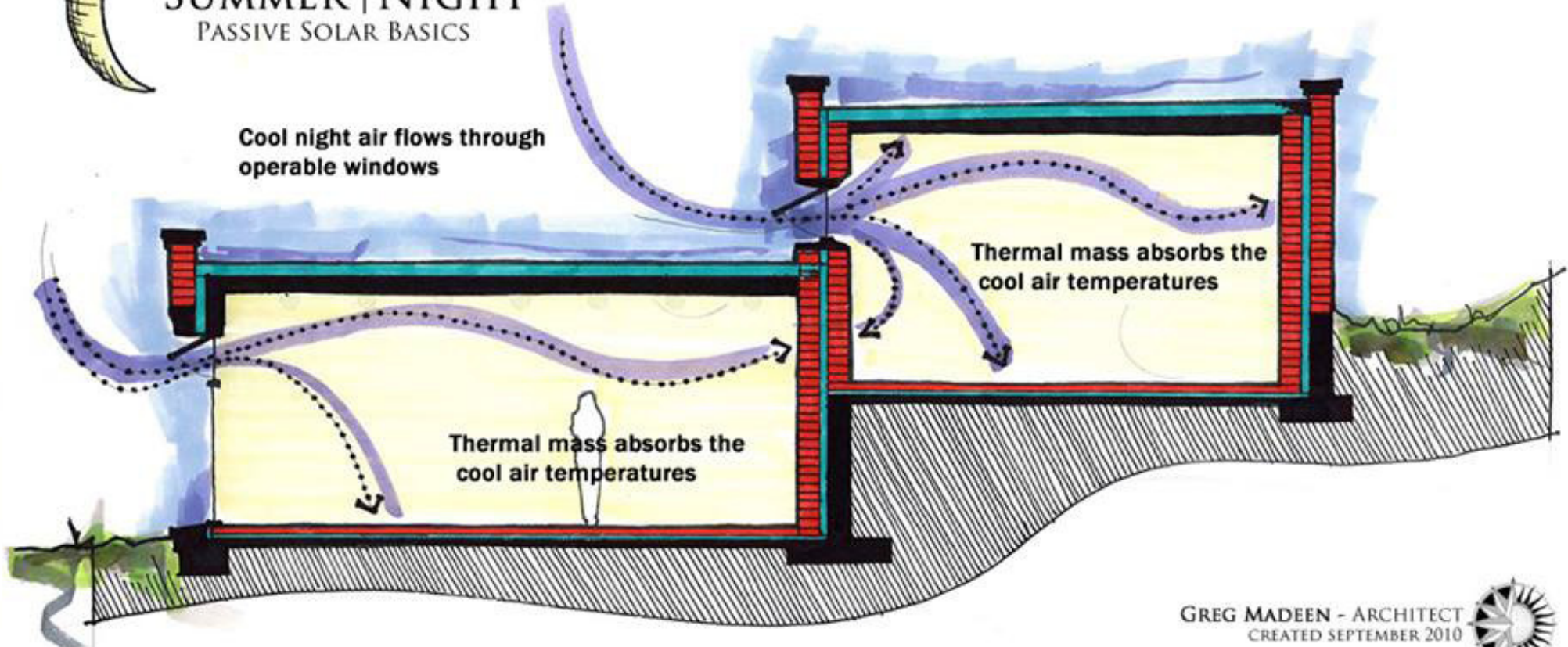
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- PASSIVE SOLAR DESIGN



SUMMER | NIGHT

PASSIVE SOLAR BASICS

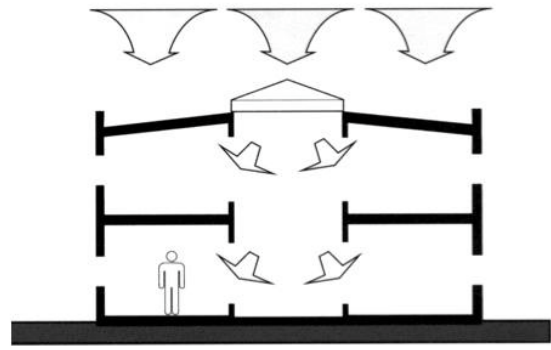
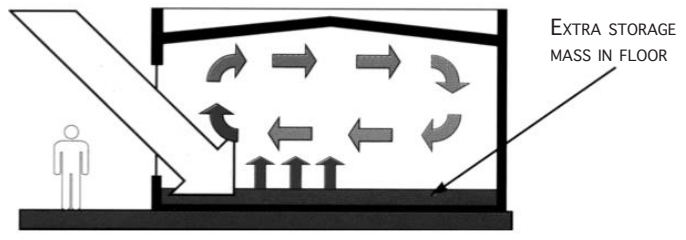
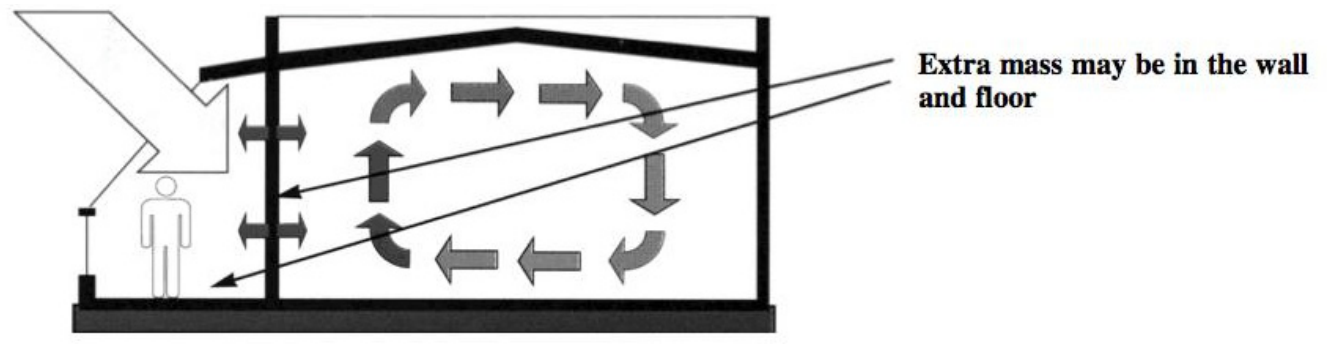
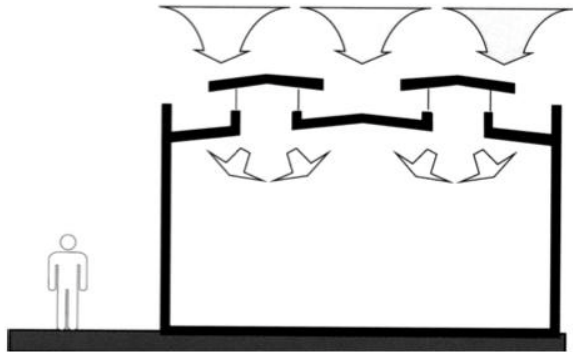
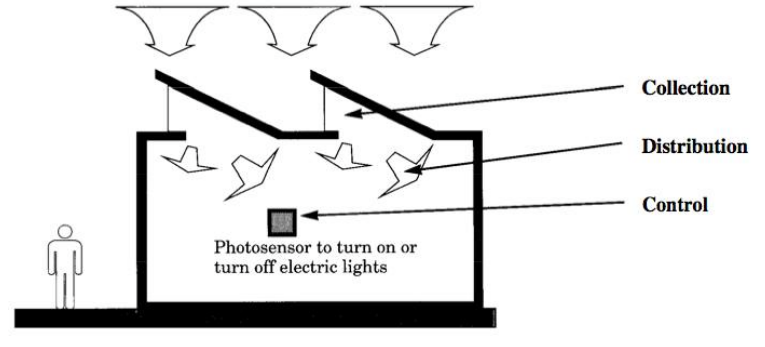
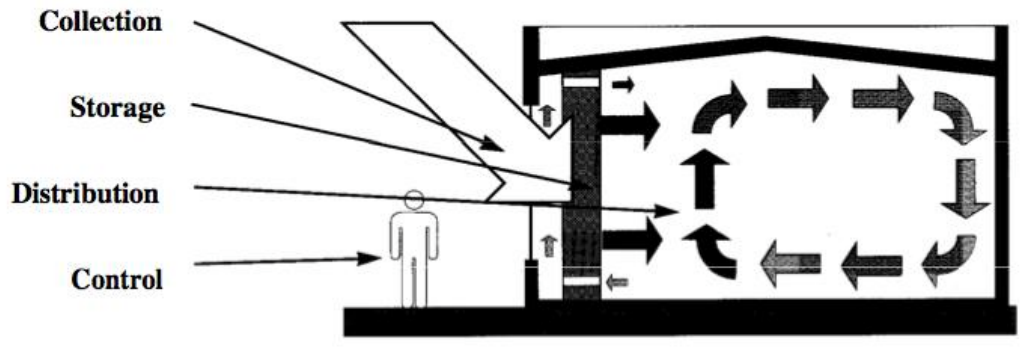
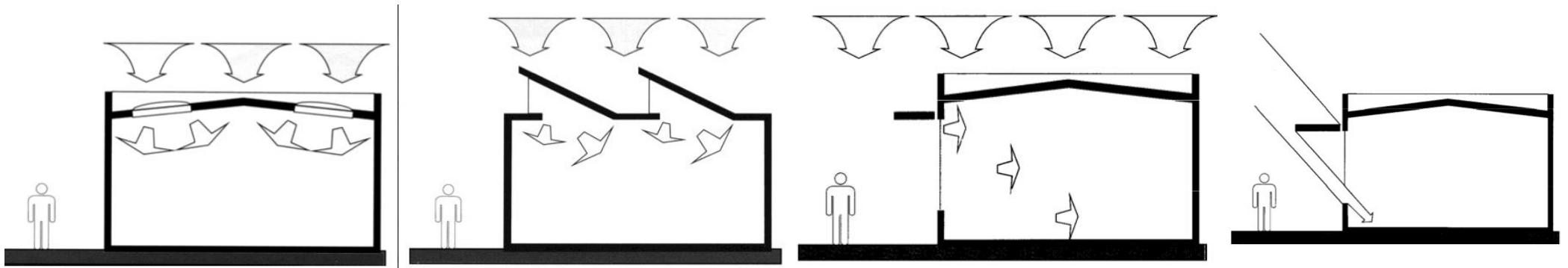


GREG MADEEN - ARCHITECT
CREATED SEPTEMBER 2010



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- BASIC PROCESS



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- HEAT CIRCULATION

	Commercial Status			Implementation Issues		
	TECHNOLOGY	SUPPLIERS	COST	FINANCING	ACCEPTANCE	REGULATORY
Operable Windows	Green	Green	Green	Green	Green	Green
Thermal Mass	Green	Green	Green	Green	Green	Green
Passive Solar Design	Green	Yellow	Yellow	Green	Green	Green
Wing Walls	Yellow	Black	Red	Yellow	Yellow	Green
Thermal Chimney	Red	Black	Red	Yellow	Yellow	Green

- Satisfactory
- Satisfactory in most conditions
- Satisfactory in Limited Conditions
- Unsatisfactory or Difficult

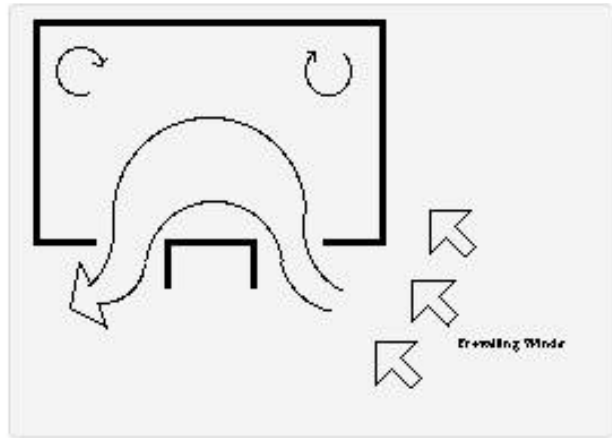
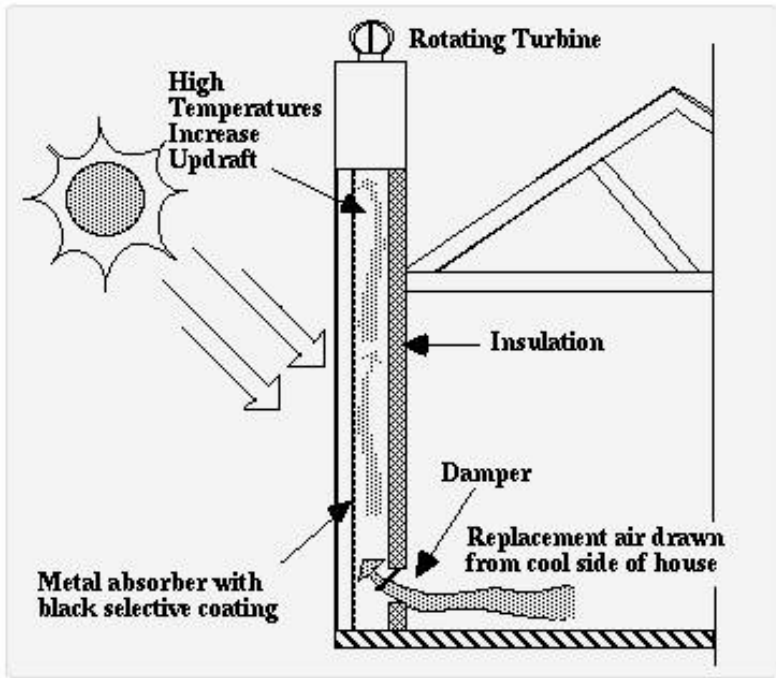
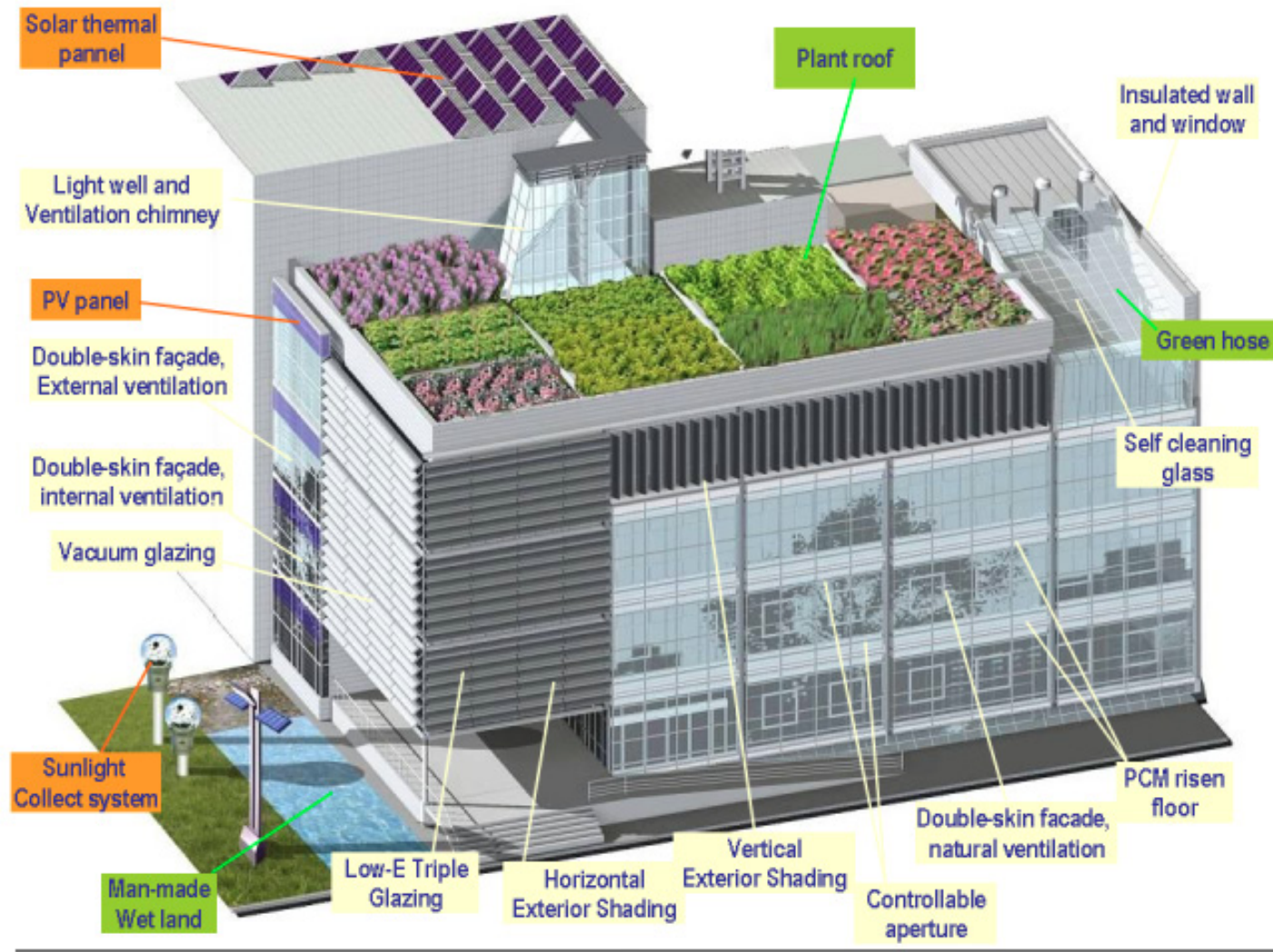


Figure 4
Top View of Wing Walls Airflow Pattern

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Acknowledgement: Architecture Power Saving Research Center of Tsinghua University

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- CHINA CASE STUDY