

House Orientation & Natural Cooling Planning Guide

A Step-by-Step Workbook for Designing Homes That Stay Comfortable Naturally



Resource Type: Planning Guide + Workbook
Climate-Responsive Home Design Series

How to Use This Guide

This workbook accompanies the ARCNET article “House Orientation for Natural Cooling.” Work through each section in order, from site assessment to final planning, to apply climate-responsive orientation principles to your own home, whether you are planning a new build or a renovation. Print this guide or fill it in digitally, and keep it on hand through your design process.

Section 1: House Orientation Assessment Checklist

Work through this checklist before making any layout or window decisions.

- ☐ Identified site's true north
- ☐ Recorded seasonal sun path (summer/winter)
- ☐ Recorded prevailing wind direction (by season)
- ☐ Noted neighboring structures and their shading/wind impact
- ☐ Noted mature trees or landscape features affecting airflow
- ☐ Identified local climate zone classification
- ☐ Reviewed local building codes for orientation-related requirements

Section 2: Site Analysis Worksheet

Record your site's key solar and wind characteristics below.

Site Factor	Observation	Notes
True North Direction		
Summer Sun Angle		
Winter Sun Angle		
Prevailing Wind (Summer)		
Prevailing Wind (Winter)		
Nearby Obstructions		

Section 3: Sun Path Observation Guide

Over one week, record the sun's position at 9am, 12pm, and 3pm.

Day	9am Position	12pm Position	3pm Position
Mon			
Tue			
Wed			
Thu			
Fri			

Section 4: Prevailing Wind Mapping Template

Draw a simple site plan and mark wind direction arrows for morning, afternoon, and evening across two seasons.

Section 5: Room Orientation Planning Worksheet

Room	Primary Use Time	Recommended Facing	Shading Needed?
Living Room			
Kitchen			
Bedrooms			
Home Office			
Outdoor Living			

Section 6: Window Placement Planner

- ☐ Cross-ventilation pairs identified for each room
- ☐ High/low window pairing considered for stack ventilation
- ☐ West-facing glazing minimized or shaded
- ☐ Window sizes matched to orientation exposure

Notes:

Section 7: Passive Cooling Design Checklist

- ☐ Roof overhangs sized for seasonal sun angles
- ☐ Reflective or light-colored roofing considered
- ☐ Courtyard or internal cooling zone planned (if applicable)
- ☐ Landscape shading strategy in place
- ☐ Thermal mass materials considered where appropriate

Section 8: Climate Zone Design Recommendations

Reference the row that matches your site's climate zone, and use the notes column to record how it applies to your project.

Climate Zone	Orientation Priority	Your Notes
Tropical	Maximize cross ventilation; minimize solar gain year-round	
Hot-Arid	Heavy shading; thermal mass; compact courtyards	
Temperate	Balance summer shading with winter solar access	
Cold	Maximize daytime solar gain; block cold winds	
Coastal	Orient to sea breeze; manage glare and salt exposure	
Mountain	Map terrain-driven winds; plan for rapid swings	

Section 9: Renovation Improvement Planner

List existing orientation-related issues in your home and possible fixes.

Existing Issue	Possible Fix	Priority

Section 10: Home Energy Efficiency Evaluation Sheet

Score each factor from 1 (poor) to 5 (excellent) based on your current or planned design.

Factor	Score (1–5)	Notes
Orientation Alignment		
Shading Coverage		
Ventilation Effectiveness		
Glazing Performance		
Landscape Support		

Total Score: _____ / 25