

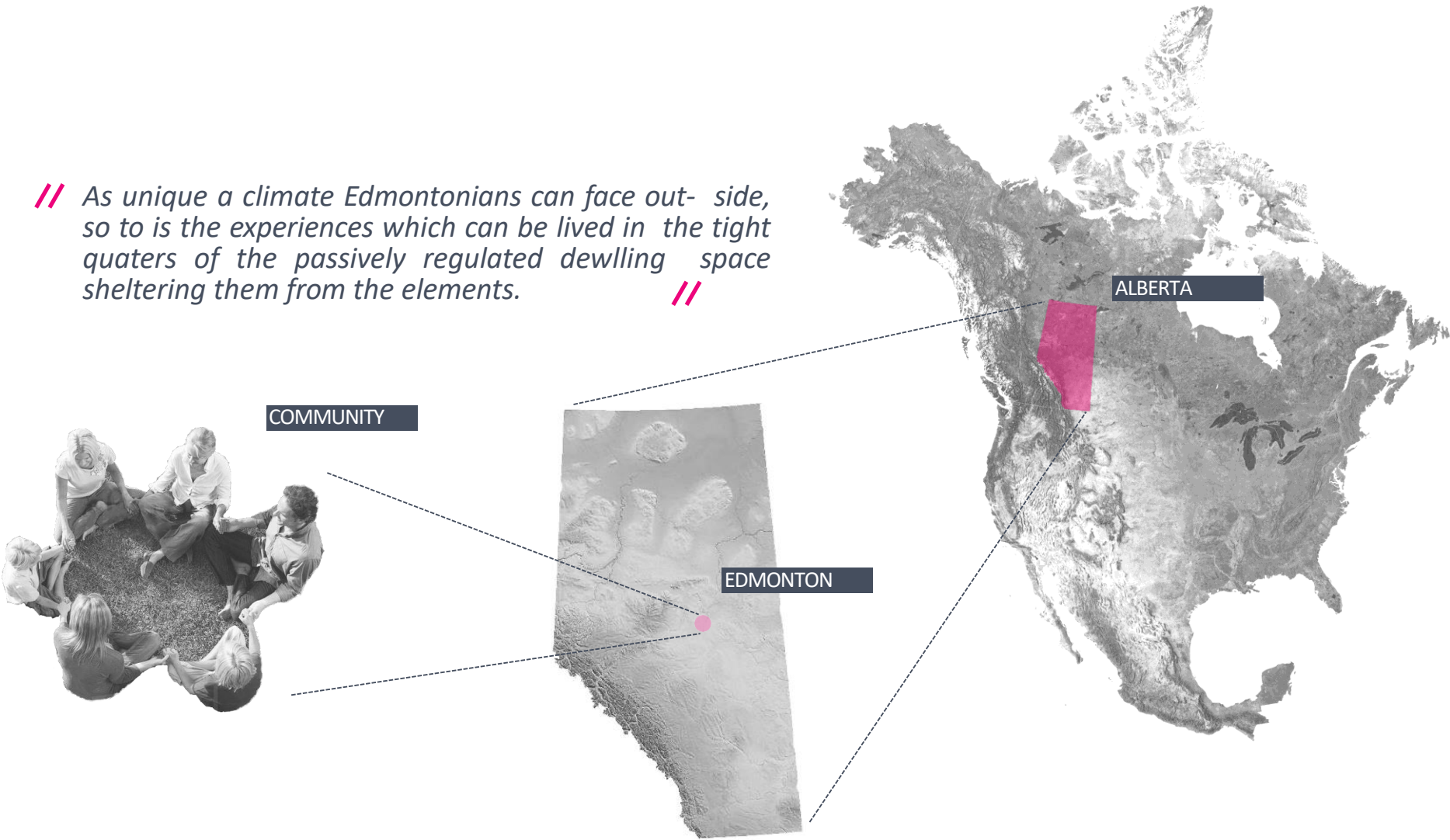


THE CLIMATE THAT BRINGS US TOGETHER

*An Analytical Narrative of Edmonton,
Alberta*

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Max Dalrymple

// As unique a climate Edmontonians can face outside,
so too is the experiences which can be lived in the tight
quarters of the passively regulated dwelling space
sheltering them from the elements. //



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1 INSIGHTS

COLD

-14.8°C

AVERAGE LOW DURING COLDEST MONTH

Strategies

Thick Insulation • High Thermal Mass • Triple Glazed Windows

WINDY

4.07m/s

AVERAGE WIND SPEEDS DURING WINDY MONTHS

Strategies

Buffer Zones • Wind Barriers

RAINY

34.7cm

ANNUAL PRECIPITATION

Strategies

Sloped Roof • Covered Patios

CLOUDY

60%

AVERAGE CLOUD COVERAGE

Strategies

Large Windows • Sky Lights

2 SUMMER NIGHTS UNDER THE VERANDA

CONNECTING WITH THE ELEMENTS

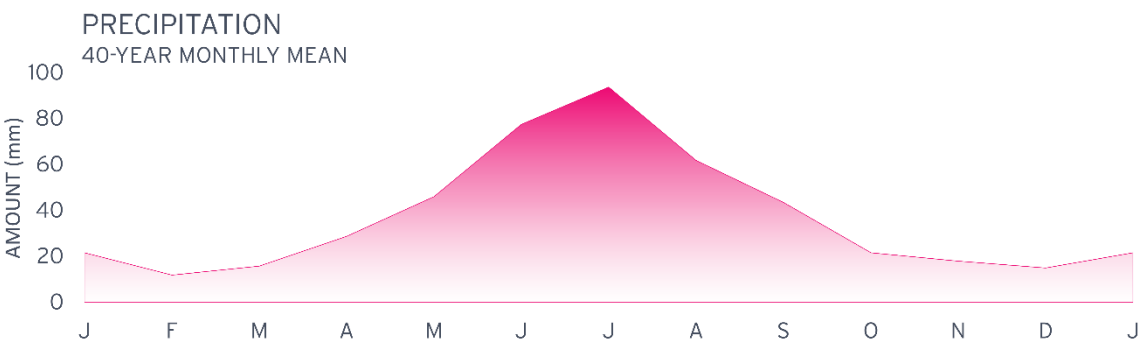
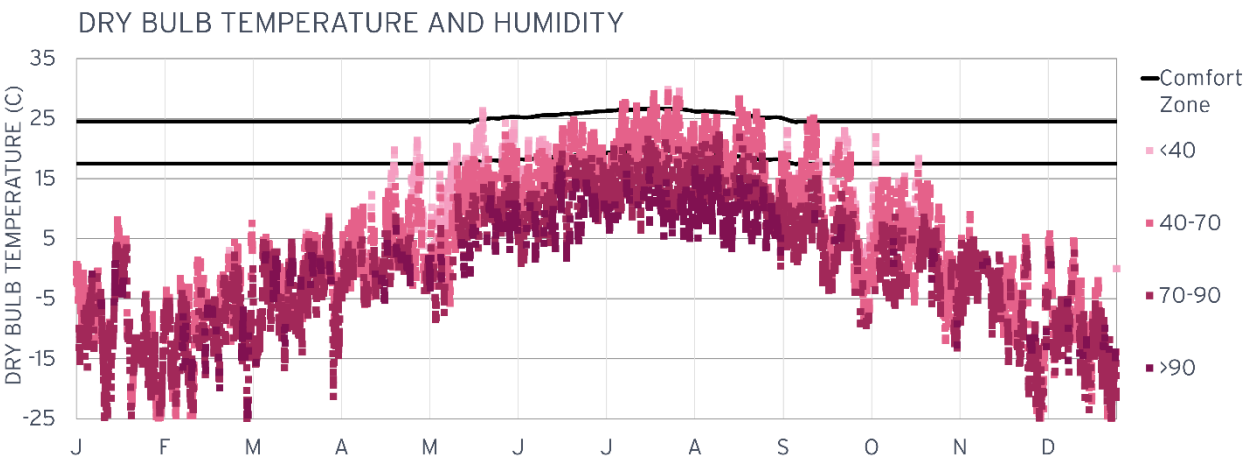
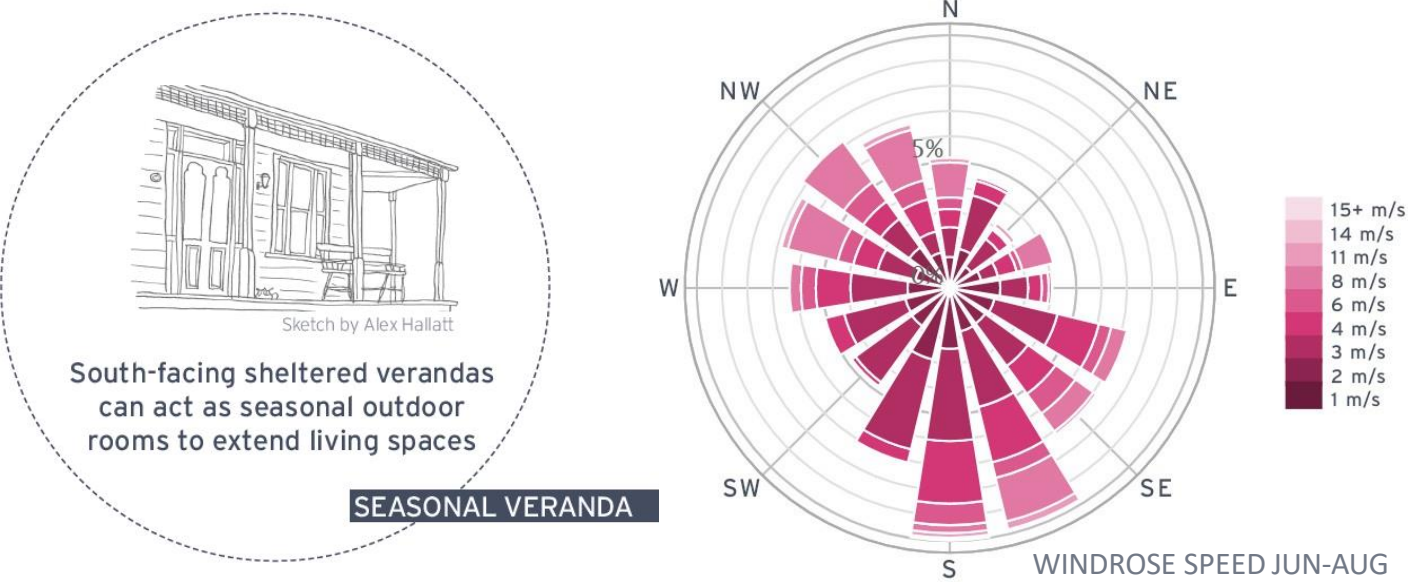
Answers: Q1, Q10, Q11

- Seasonal Sheltered Intermediate Spaces Required
 - Comfortable temperature (15°C - 25°C) from May to September.
 - Humidity remains in 40% - 90% during summer.
 - Extreme cold during winter.

COOL SUMMER BREEZE

Answers: Q3, Q5

- Passive Cooling Strategy
 - Strong breeze coming from the south
 - Place seasonal outdoor space on the south orientation

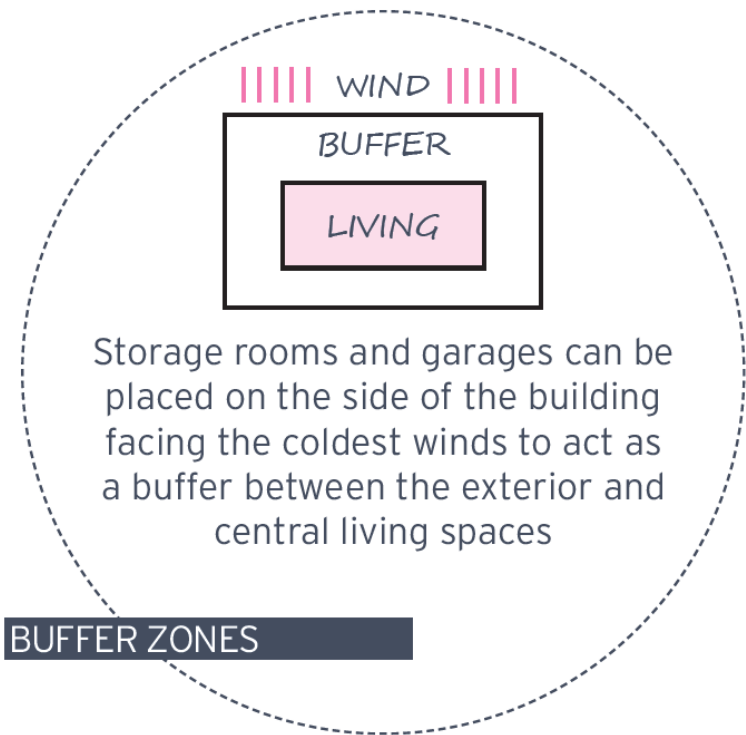


3 COZY WINTERS AROUND THE FIRE

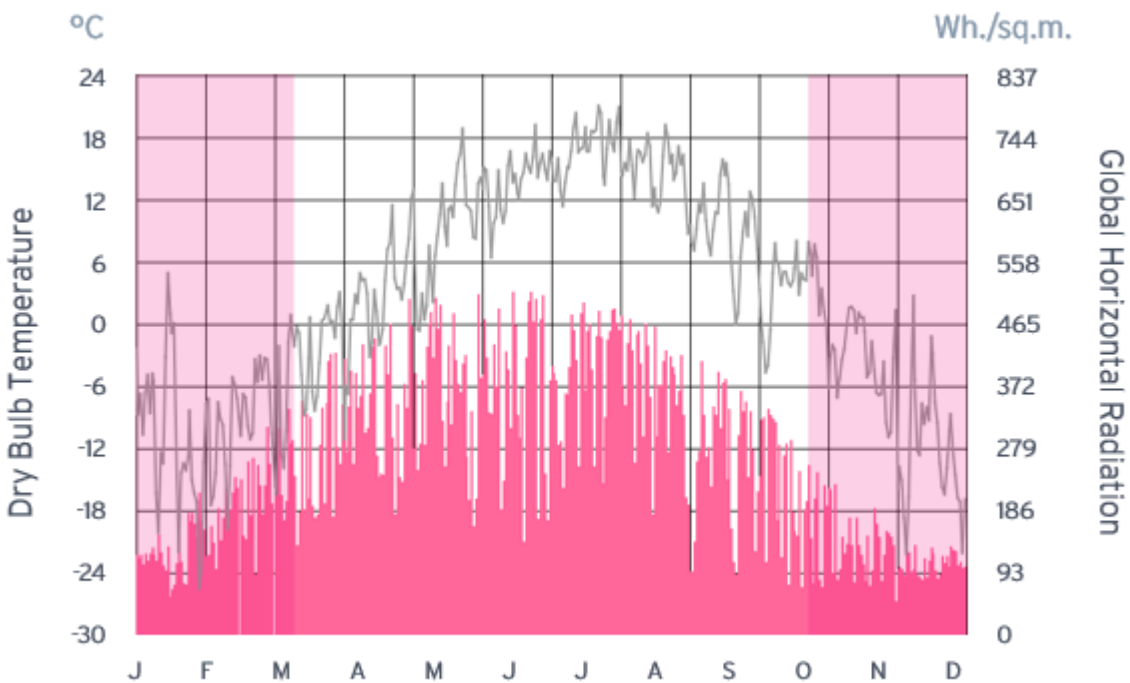
KEEPING EACH OTHER WARM

Answers: Q2, Q6

- **Insufficient Solar Energy During Winter**
- **Passive Heating Strategies**
 - Internal heat from the occupants, appliances and light
 - High thermal mass required
 - Buffer zone between the exterior and often-used living spaces



RADIATION AVAILABILITY DURING WINTER



CLOUD COVERAGE



- Most prevailing winds from south and north direction
- Wind barrier installed in wall assemblies
- Dense vegetation planted in front of the south wall facade

5 SAVORING THE VIEWS

INVITING IN THE SUN AT CERTAIN ANGLES

Answers: Q4, Q6, Q7

- **Demands for Sun Shading**

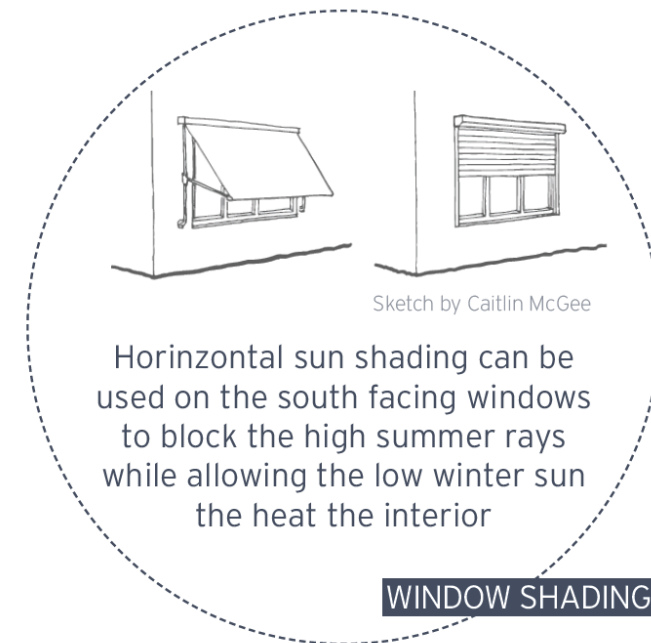
- Sun shading is essential when outdoor temperatures exceed 27°C
- Sun shading equipment will be required during the months of Jun, July and August, from 10AM to 6PM.
- South facing windows should be equipped with horizontal louvers
- West windows should be equipped with vertical louvers

LARGE PANORAMIC WINDOWS

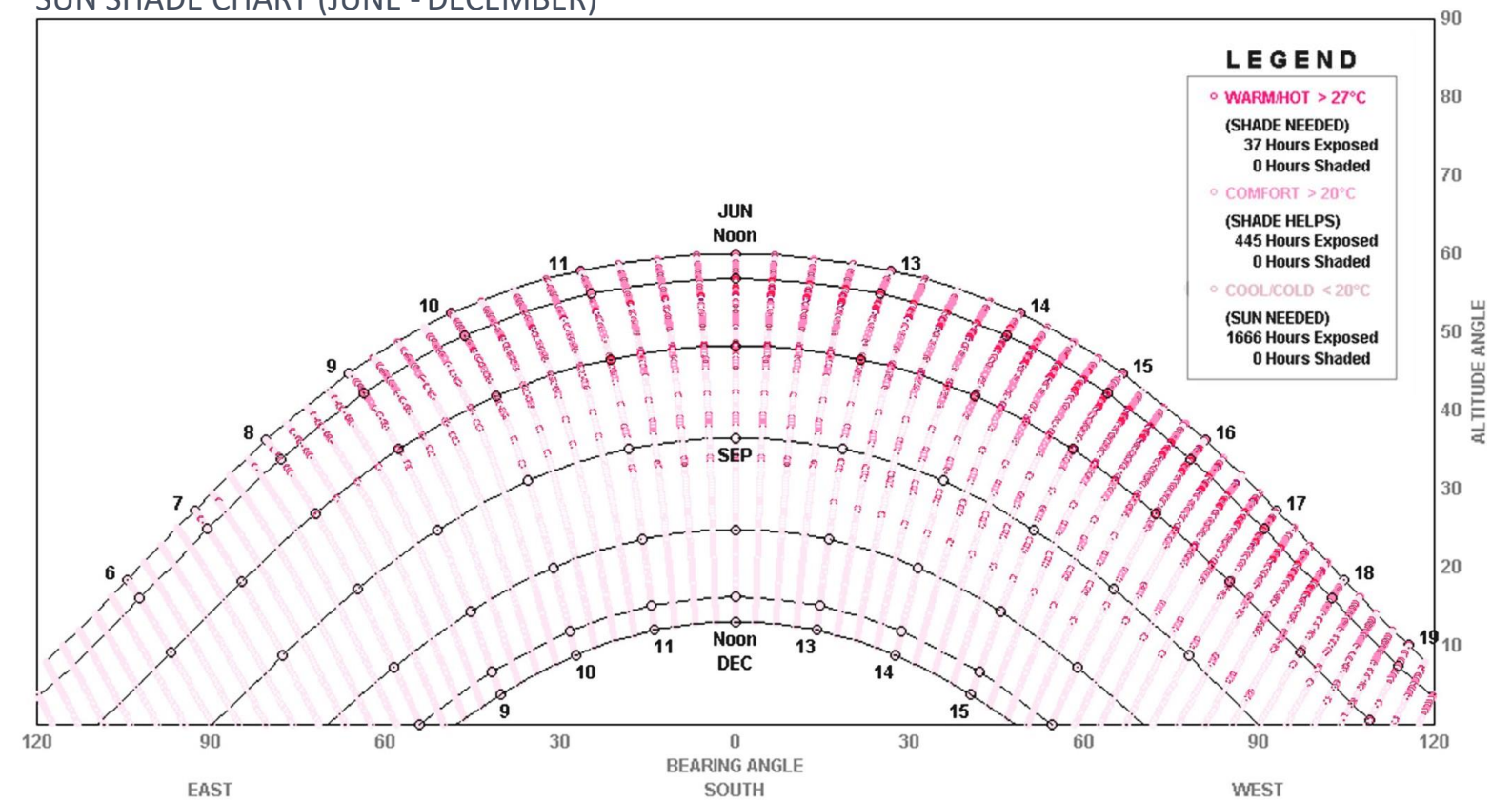
Answers: Q7

- **Large, South-facing Windows and Skylights are Allowed**

- Maximize the passive solar gain during daytime
- Low risk of over-heating due to the overcast skies and low temperature.



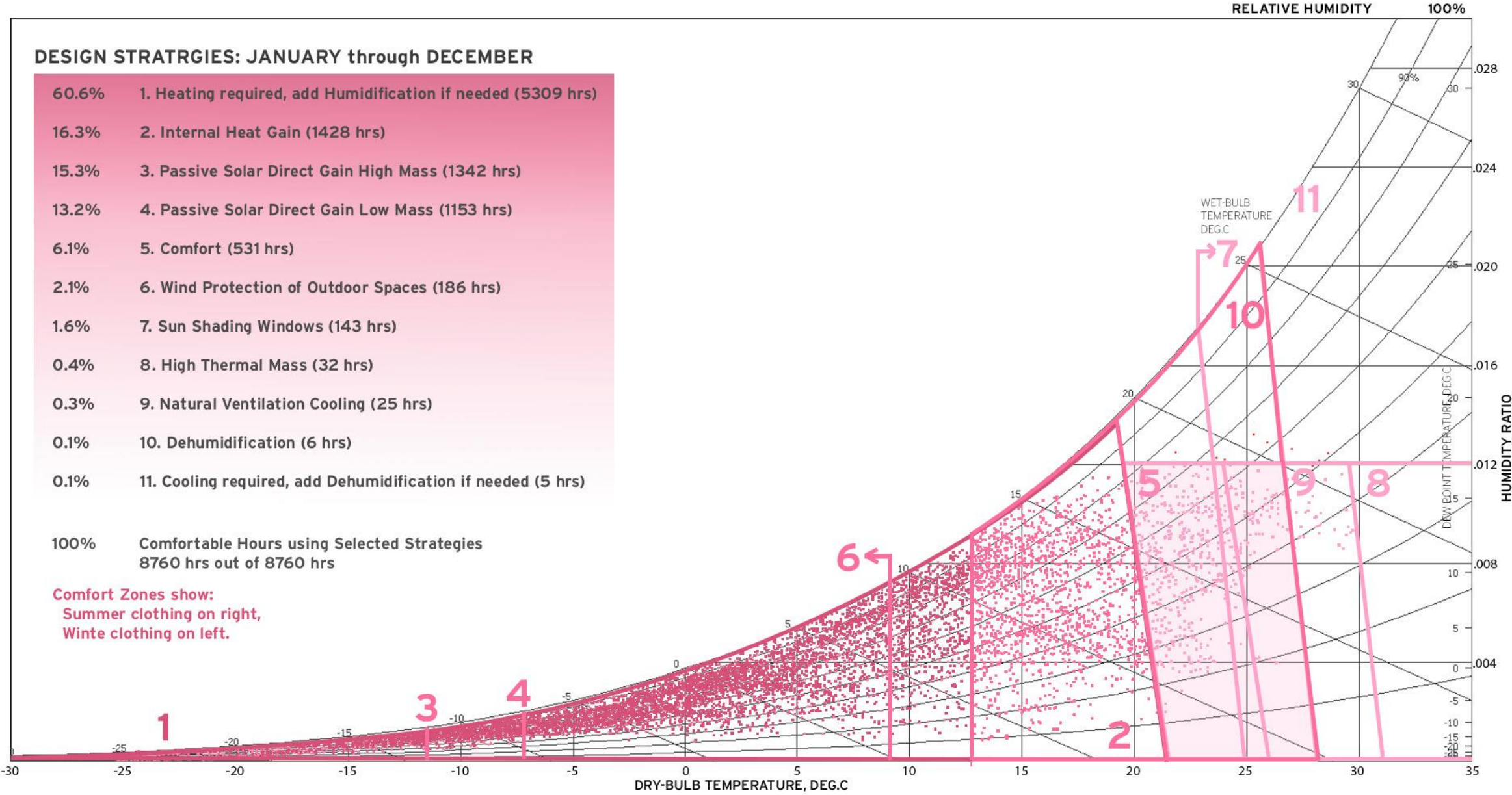
SUN SHADE CHART (JUNE - DECEMBER)



6 BRINGING IT TOGETHER

CHALLENGES AND OPPORTUNITIES

- Challenges
 - Monthly average temperature below the comfort zone
 - Maintaining a comfortable indoor temperature during winter
 - Energy Efficiency



PSYCHROMETRIC CHART AND DESIGN STRATEGIES

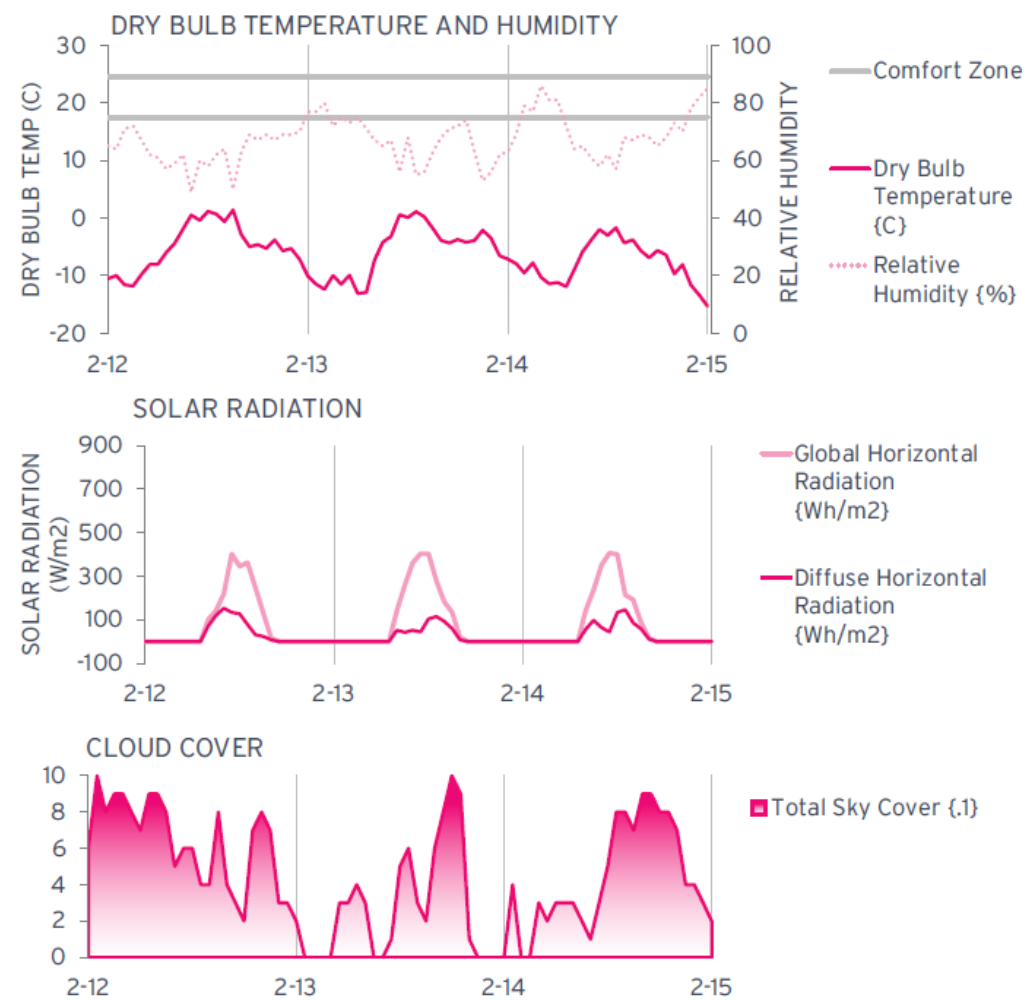
6 BRINGING IT TOGETHER

CHALLENGES AND OPPORTUNITIES

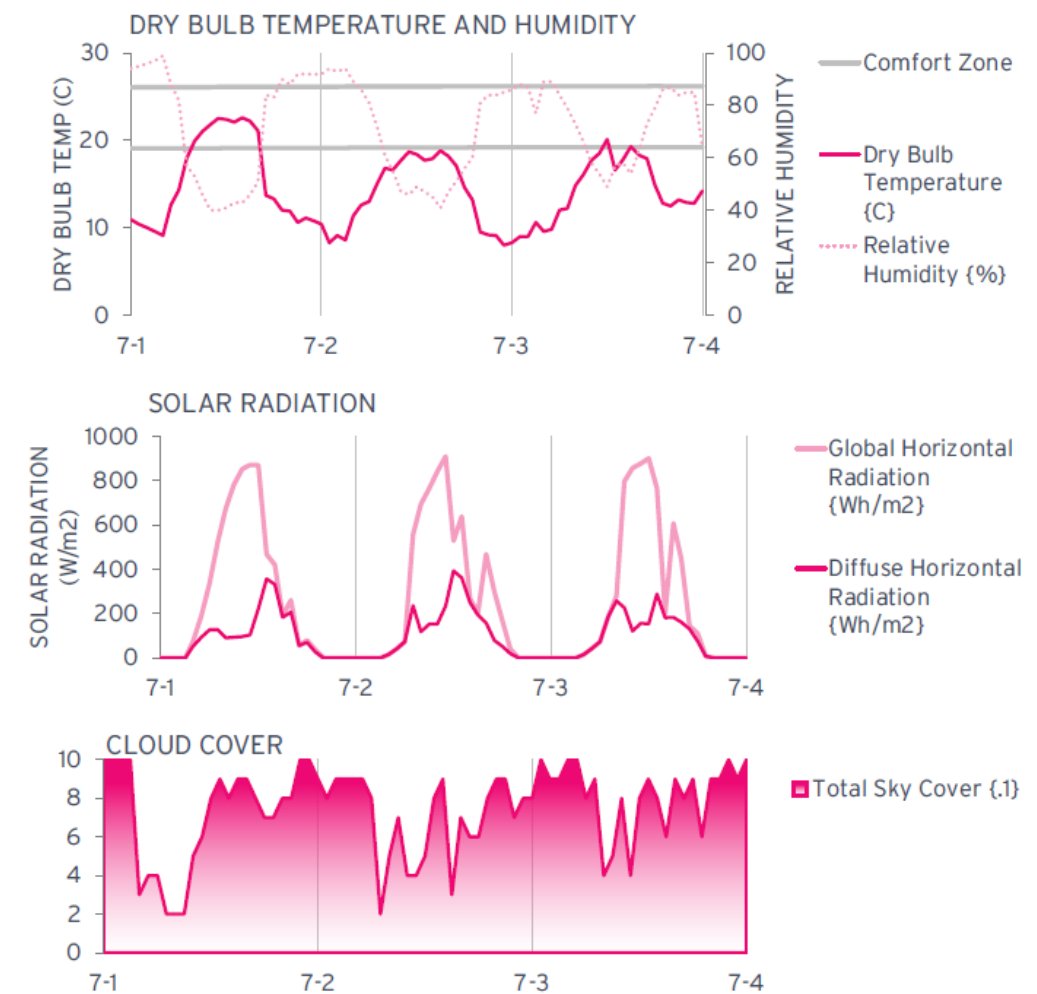
- **Opportunities**

- Multiple interactive living areas create strong sense of community
- Large windows and skylights are allowed
- Enjoy the cool summer breeze

TYPICAL COLD WEATHER



TYPICAL HOT WEATHER





THANKS FOR WATCHING!

