



Name _____

<p>Cold Climate Region</p> <p><i>Includes areas with extremely long and cold winters and limited hours of sunlight in winter</i></p> <p><i>Alaska, North Dakota, Minnesota, Wisconsin, Maine,</i></p>		
<i>Climate Inventory</i>	<i>Analysis & Design Considerations</i>	
<ul style="list-style-type: none"> • Extreme winter cold • Deep snow • Strong winds • High wind-chill factor • Deep frost • Scrub forest cover • Short hours of sunlight on winter days • Long & severe winters • Ground remains frozen for extended periods • Alternating freeze and thaw • Rapid spring melt 	<ul style="list-style-type: none"> • Orientation to sun and maximize solar radiation • Plan for extensive plowing and storage of snow until spring • Align traffic-ways for crosswinds & build long-linear building clusters with the short side facing the wind • Reduce floor area to minimize excavation and exterior surface area • Build clusters of community facilities and dwellings and add protected skyways to connect buildings • Avoid low ground and flood planes • <i>Preserve vegetation & ground covers which act as natural wind screens.</i> 	<ul style="list-style-type: none"> • Create enclosed sun courts and maximize daylight orientation with windows away from strong winds • Group entries, and use raised and covered walks and platforms • Use Post & Beam & platform construction to avoid extensive excavation and foundations • Massive low-profile, well-insulated structures, with limited glass areas, maximum sun exposure, minimum wind exposure & protected entries • Steep roof pitch to protect from snow loads & deep overhangs and exaggerated storm drainage gradients to facilitate rapid runoff



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Temperate Climate Region		
<i>Variables temperatures, from warm to hot in the summer, cold in the winter and moderate in the spring and fall</i>		
<i>Washington State, Oregon, Iowa, Ohio, Pennsylvania, New York</i>		
<i>Climate Inventory</i>	<i>Analysis & Design Considerations</i>	
<ul style="list-style-type: none"> Four distinct seasons with variable temperatures ranging from hot in the summer to cold in the winter and moderate in spring & fall Changing wind directions and velocities with violent storms Alternating periods of drought with light to heavy rains and flooding Soils are generally well drained and fertile but are susceptible to erosion due to freeze-thaw cycle Abundance of prime regional forests and agricultural lands Water catchment and storage is not a prime consideration 	<ul style="list-style-type: none"> Design spaces for winter, spring, summer, and fall activities Design in response to prevailing wind and breeze patterns, align streets and open spaces to block cold winter winds and capture summer breezes Construction to withstand the worst of the storms and provision for all-weather durability and maintenance Community plan should integrate with natural surroundings and utilize recreation values of site Design streets to protect utility lines to withstand extreme conditions 	<ul style="list-style-type: none"> Minimize need for cooling, heating and ventilation by orienting building to minimize summer heat gain, maximize summer breezes and protect from winter winds. Design to protect from shrinkage, swelling, condensation, freezing, and snow loading Design structures to withstand severe conditions Floor plans can spread out and make use of excavation, basement and foundation construction Buildings do not need to be clustered for protection from weather conditions



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Hot-Arid Climate Region		
<i>Categorized by consistently high temperatures and low humidity</i>		
<i>Arizona, New Mexico, Nevada, Death Valley, Southern California</i>		
<i>Climate Inventory</i>	<i>Analysis & Design Considerations</i>	
<ul style="list-style-type: none"> Extreme heat in the day alternating with extreme cold at night Expanses are vast Sunlight and glare are penetrating Drying winds are prevalent and raise devastating dust storms Annual rainfall is minimal and water supply is extremely limited Sudden and forceful spring rains Prone to flash floods Vegetation is sparse Limited agricultural productivity requires irrigation and the importation of food and other goods 	<ul style="list-style-type: none"> <i>Lack of water is a major concern. Provide catchment of spring rainfall from roofs, courts and paved areas.</i> <i>Minimize irrigation needs by compact planning & ranch style patterns</i> <i>Orient to respond to the position of the sun throughout the day</i> <i>Protect all natural growth</i> <i>Avoid flood prone areas</i> <i>Recycle wastewater</i> <i>Protect against dust and wind</i> <i>Move group activities indoors and provide protection from the sun using shaded paths and coverings</i> 	<ul style="list-style-type: none"> <i>Thick walls, high ceilings, wide overhangs, with limited windows, light colored exterior materials and cool compact dim interior spaces</i> <i>Utilize passive solar design and mass storage to store warmth of the day for night heating and cool of the night for daytime cooling</i> <i>Insulate to protect from heat loss & gain, make use of radiant heat and seal against dust and wind</i> <i>Insulate against cold nights</i> <i>Low ranch type spreads with rooms grouped around planted irrigated courts and patios to take advantage of cooling effect of evaporation and increase humidity</i>



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Hot-Humid Climate Region		
<i>Categorized by consistently high temperatures and high humidity</i>		
<i>Florida, Georgia, Mississippi, Alabama, South Carolina</i>		
<i>Inventory</i>	<i>Analysis & Design Considerations</i>	
<ul style="list-style-type: none"> • Temperatures high and relatively constant with high humidity • The sun’s heat is debilitating • Often daily Torrential & Sudden Rain • Storm winds of typhoon and hurricane force • Breeze almost constant in the daylight hours • Vegetative covers from sparse to luxuriant and sometimes jungle-like • Sky glare and sea glare can be distressing • Climatic conditions breed insects • Fungi are a persistent problem 	<ul style="list-style-type: none"> • Elevation of use areas and walkways by deck and platform construction to open to breeze and reduce insects • Use of stone, concrete, metals and treated wood in contact with ground • Spacing of habitation in a dispersed manner to channel favorable breezes • Settlements located on protective land masses, above level of storm-driven tides • Heat-of-day gathering places should be roofed or shaded • Reduce or eliminate glare through orientation or well placed plantings • <i>Provide open, well-ventilated storage and use fungus resistant materials</i> 	<ul style="list-style-type: none"> • <i>Cool by all feasible means; open building plans, high ceilings, broad overhangs, louvered openings, and natural ventilation</i> • <i>Use of colonnade, arcade, pavilion, covered walkways and breezeways. Orientation of entrance and windows away from storm track</i> • <i>Elevate structures above the ground, facing into the breeze, and insect-proof critical areas</i> • <i>Orient windows and entry away from storm track and construct wind-resistant structures</i> • <i>Utilization, indoors and out, of indigenous plant materials for the cooling effect of their foliage</i>