

Bwh

Hot Desert Climate

Location Examples:

- South Hedland, Australia
 - Doha, Qatar
- Dhahi, United Arab Emirates
- Skeleton Coast, Namibia

study
By Zhuoying Chen

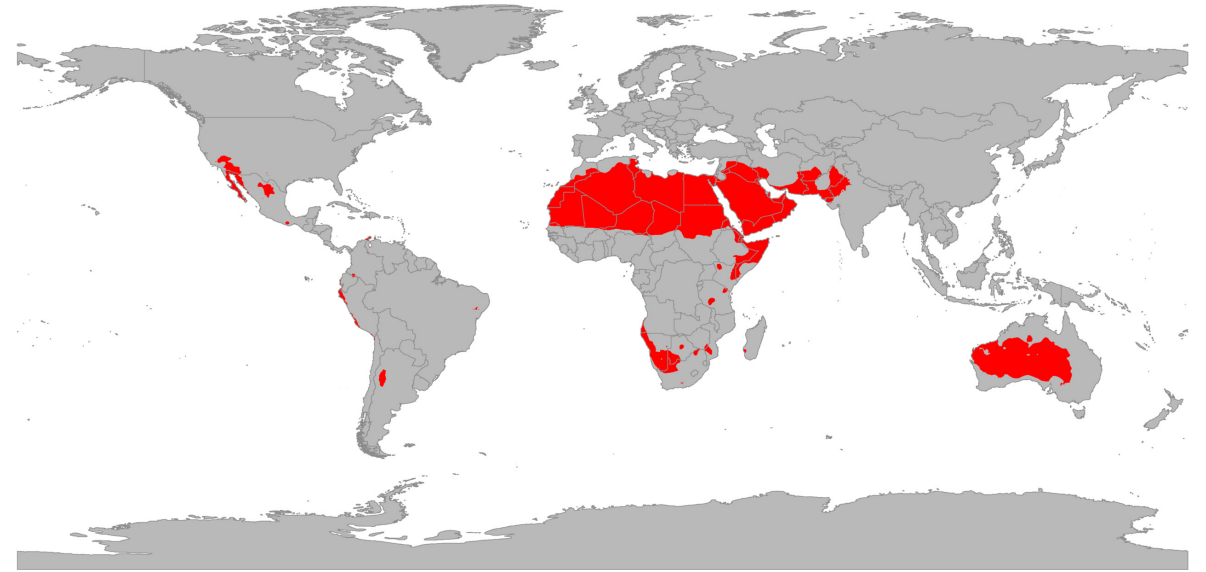
Hot desert climates is a climate in which there is a excess of evaporation over precipitation. stable descending air and high pressure aloft, create hot, arid, conditions with intense sunshine. Hot desert climates are generally hot, sunny and dry year-round.

Hot desert climates are typically found under the subtropical ridge in the lower middle latitudes often between 20 and 33 north and south latitude.

Because most of them are the hottest, the driest and the sunniest places on Earth, some new building materials are applied to tolerant the severe climate. But more are cheap and durable materials like concrete and glass.

Sources:

https://en.wikipedia.org/wiki/Desert_climate



Abu Dhabi Financial Center Car Parks

case study
By Hua Yinghua

Abu Dhabi, United Arab Emirates



Architect: Goettsch Partners, Inc.

Owner: Mubadala Real Estate & Infrastructure

Year of completion: 2011

Climate: Tropical and Subtropical Desert Climate

Material of interest: Glass

Application: facade

Properties of material: The facade of the car parks of the Abu Dhabi Financial Center is composed of 6,000 square meters of AMIRAN® Anti-Reflective Glass, which is a one or both side anti-reflective coated glass for a clear view inside and out both day and night. Its non-sensitive high-tech coating reduces reflections to less than 1% and allows up to 98% of the light to pass through uninhibited.

Sources:

<https://www.us.schott.com/architecture/english/references/financial-car-park-abu-dhabi.html>

Qatar National Library

case study
By Hua Yinghua

Doha, Qatar



Architect: OMA

Owner: N/A

Year of completion: 2017

Climate: Tropical and Subtropical Desert Climate

Material of interest: Corrugated Glass

Application: Facade

Properties of material: Thanks to its geometry, the structural capacity of the new, three-dimensional building component is far greater than that of the flat sheet, rendering structural columns, transoms and mullions unnecessary.

Sources:

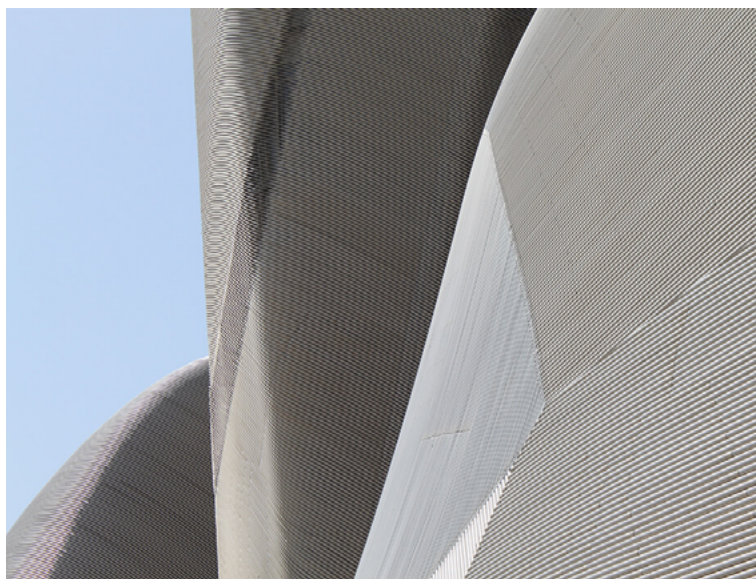
<https://www.detail-online.com/article/corrugated-glass-in-detail-32128/>

<https://www.archdaily.com/892727/qatar-national-library-oma>

King Abdulaziz Centre for World Culture

case study
By Zhuoying Chen

Location: Dhahran, Saudi Arabia



Architect: Snøhetta

Owner: Saudi Aramco

Year of completion: 2017

Climate: Bwh (Tropical and Subtropical Desert Climate)

Material of interest: Stainless steel tubes

Application: Facade

Properties of material:

- easy to bend and form shapes
- adjust temperature, isolate from the heat
- durable
- futuristic, elegant, immaculate uniform

Sources:

<https://www.archdaily.com/898775/king-abdulaziz-center-for-world-culture-snohetta>

<https://seele.com/references/king-abdulaziz-center-for-world-culture/>

Kuwait National Assembly Building

case study
By Larissa Sattler

Location: Kuwait City, Kuwait



Architect: Jorn Utzon

Owner: Kuwait National Government

Year of completion: 1982

Climate: Tropical and Subtropical Desert Climate

Material of interest: Concrete

Application: Exterior and Interior

Properties of material: The concrete was cast in a manner to replicate sails billowing in the wind therefore creating unique rounded and curved forms. Precast forms enabled the building to incorporate both vernacular and new forms together within the same design and consequently creating a juxtaposition between traditional and modern architecture.

Sources:

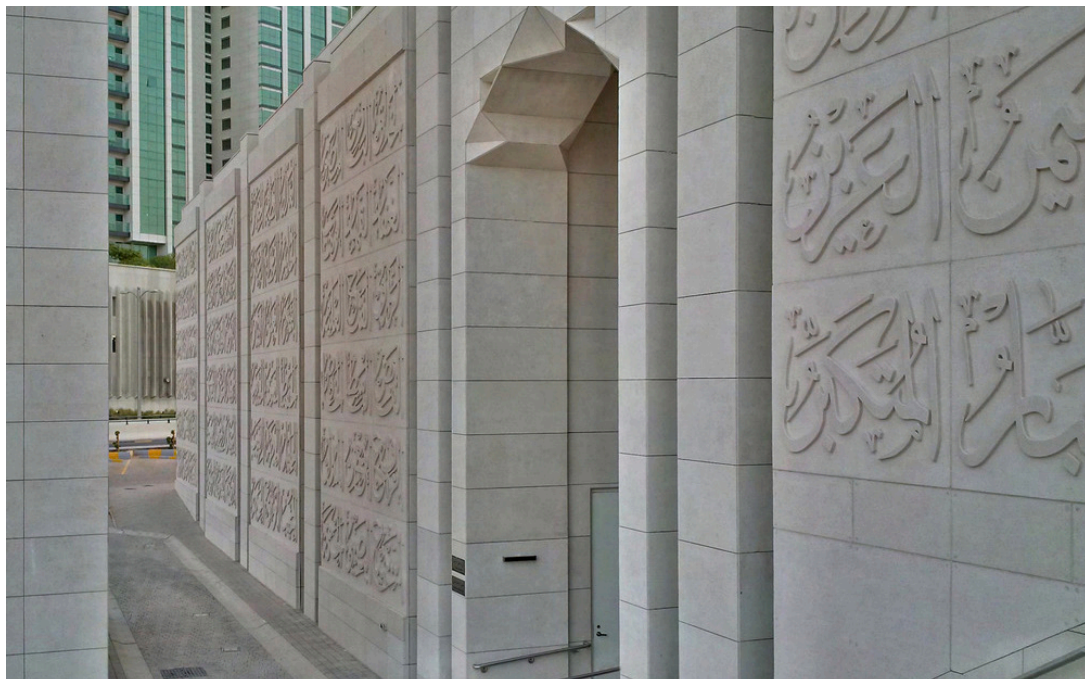
Architect Website: <https://utzon.dk/>

<https://www.archdaily.com/568821/ad-classics-kuwait-national-assembly-building-jorn-utzon>

Al Aziz Mosque

case study
By Shijing Zhu

Location: Abu Dhabi, UAE



Architect: APG Architecture and Planning Group

Owner: N/A

Year of completion: 2015

Climate: Hot desert climate

Material of interest: Translucent Concrete

Application: Exterior

Properties of material: With this new mosque, APG has introduced innovative and new ideas and concepts with the use of light transmitting concrete technology for the construction of unique and distinguished facades. The Al Aziz Mosque project was provided with world-wide unique and impressive Facade elements that were designed, produced and installed by LUCEM Lichtbeton. Each facade element is a massive concrete panel that is absolutely weatherproof and can withstand extreme temperatures usually prevailing in the summer months of the United Arab Emirates. The surface of the facade elements has been treated to ensure resistance of the erosion caused by sandstorms

Sources:

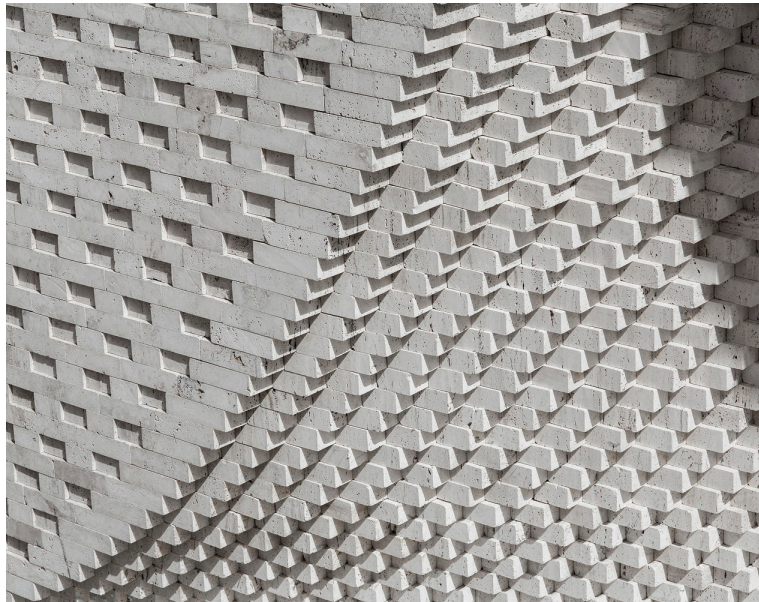
<https://www.archdaily.com/775354/a-translucent-concrete-animates-the-facade-of-this-abu-dhabi-mosque>

<https://www.e-architect.co.uk/abu-dhabi/al-aziz-mosque-in-abu-dhabi>

Mahallat Residential Building No3

case study
By Sarah Fahey

Location: Mahallat, Iran



Architect: CAAT Studio

Owner: Javad Habibi

Year of completion: 2018

Climate: Mediterranean

Material of interest: Travertine Brick

Application: Exterior Facade
An L-shape was cut of each brick to minimize the weight of the stone while maintaining the visual aesthetic of a unique travertine brick facade.

Properties of material: local, strong, stiff

Sources:

https://www.archdaily.com/902080/mahallat-residential-building-no3-caat-studio?ad_medium=gallery

Shipwreck Lodge

case study
By Sarah Fahey

Location: Skeleton Coast National Park, Namibia



Architect: Nina Martiz Architects

Owner: Trip Travel, Journeys Namibia, Natural Selection Safaris

Year of completion: 2018

Climate: Desert

Material of interest: Wood

Application: Exterior & Interior
Pre-manufactured structural panels. Siding installed using timber nails attached to the wood support frames. This is the first time this installation method has been used in this climate and specific conditions. Much of the furniture is built-in and also made of wood.

Properties of material: durable in harsh coastal conditions, soft, light, cheap, medium strength, sustainable - recyclable

Sources:

https://www.architectmagazine.com/project-gallery/shipwreck-lodge_o

<https://www.archdaily.com/901659/shipwreck-lodge-nina-maritz-architects>



Wanangkura Stadium

case study
By Zhuoying Chen

Location: South Hedland, Australia



Architect: ARM Architecture

Owner: Town of port hedland

Year of completion: 2012

Climate: Bwh (Tropical and Subtropical Desert Climate)

Material of interest: Vitreous enamel panel

Application: Facade

Properties of material:

- hard, chemically resistant, durable, scratch resistant
- it has all kinds of colors, and has long-lasting colour fastness
- it is smooth, easy to clean
- fireproof

Sources:

https://www.archdaily.com/346412/wanangkura-stadium-arm-architecture?ad_medium=gallery

D3 Abwab Pavilion

case study
By Tian Lan

Location: Dubai



Architect: Fahed + Architects

Owner: N/A

Year of completion: 2017

Climate: Tropical and Subtropical Desert Climate

Material of interest: Recycled Bedsprings

Application: Structure

Properties of material: The outer skin of the pavilion is a mesh of entwined bedsprings that naturally lends itself to an organic form, floating amongst the surrounding buildings. The mesh created from the different sizes of springs enhances the pavilion, giving it a unique ephemeral quality about the light which speaks of luxury rather than the humble origin of the materials. Due to the natural structure of the springs, it has its own strength whilst dappled light penetrates through and falls onto the exhibit below. The translucent layer of the mesh allows interaction with the exhibit from all angles, uniting art with architecture.

Sources:

<https://www.archdaily.com/884520/the-luxury-pavilion-built-from-recycled-bedsprings>

DSC

Continental Subarctic Climate

Location Examples:

- Anchorage, Alaska, US
- Seneca, Oregon
- Washington Pass, Washington

study
By Zhuoying Chen

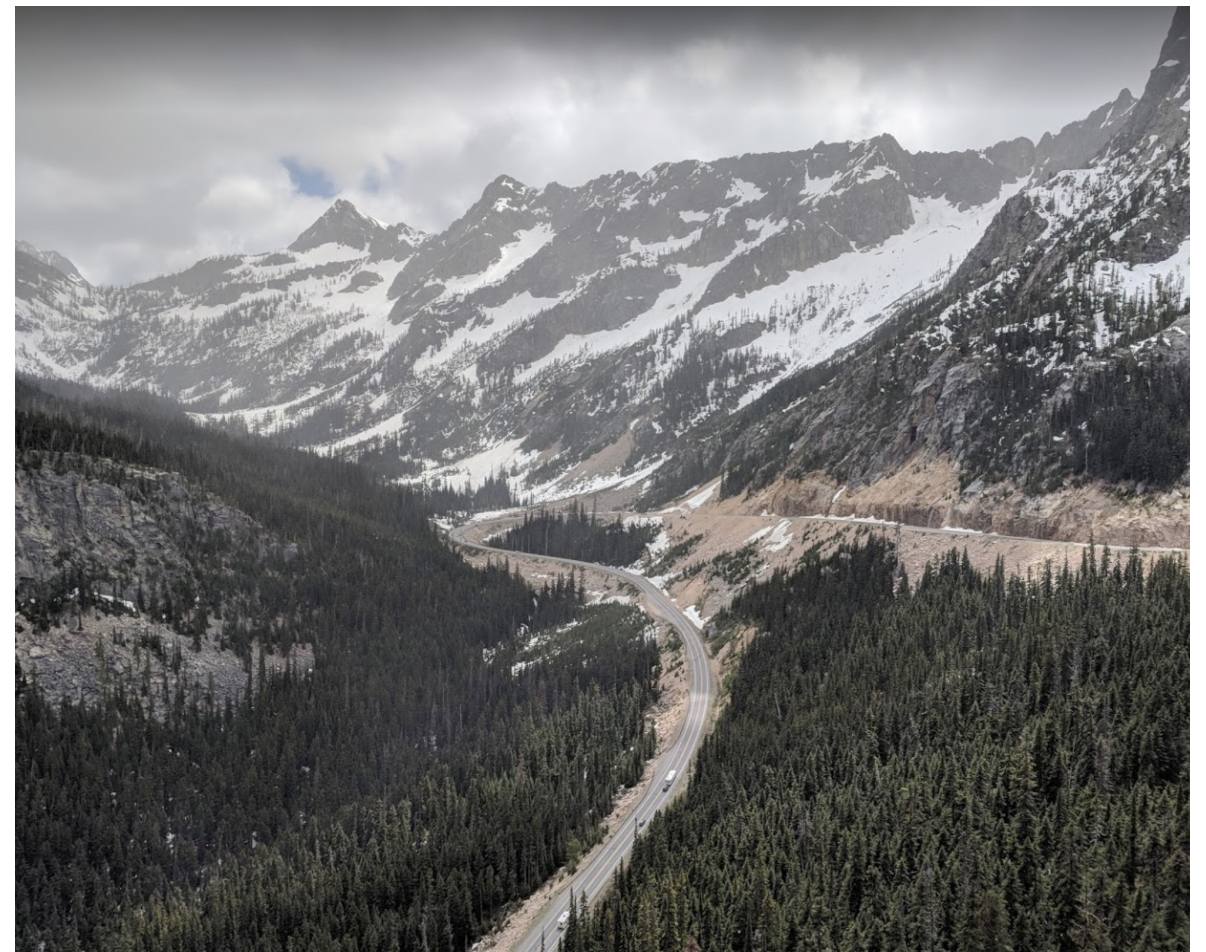
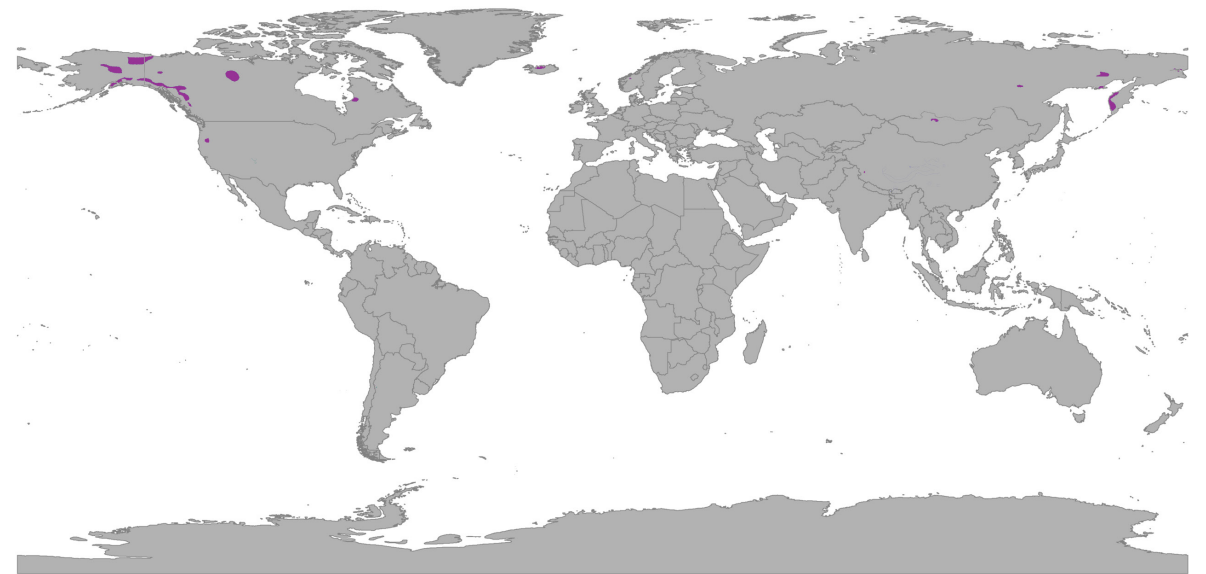
Continental Subarctic Climate zone is dominated by the winter season, relatively little precipitation mostly in the form of snow, and low humidity. At least three times as much precipitation in the wettest month of winter as in the driest month of summer

It is located in very small areas at high altitudes around the Mediterranean Basin, Iran, Kyrgyzstan, Tajikistan, Turkey, Alaska and other parts of the northwestern United States (Eastern Washington, Eastern Oregon and Idaho) and Russian South-Eastern regions.

Because the location is always in mountain area lack of human activity, there are few building cases being recorded. But most materials used are durable metal. Wood is also widely used due to the local resources.

Sources:

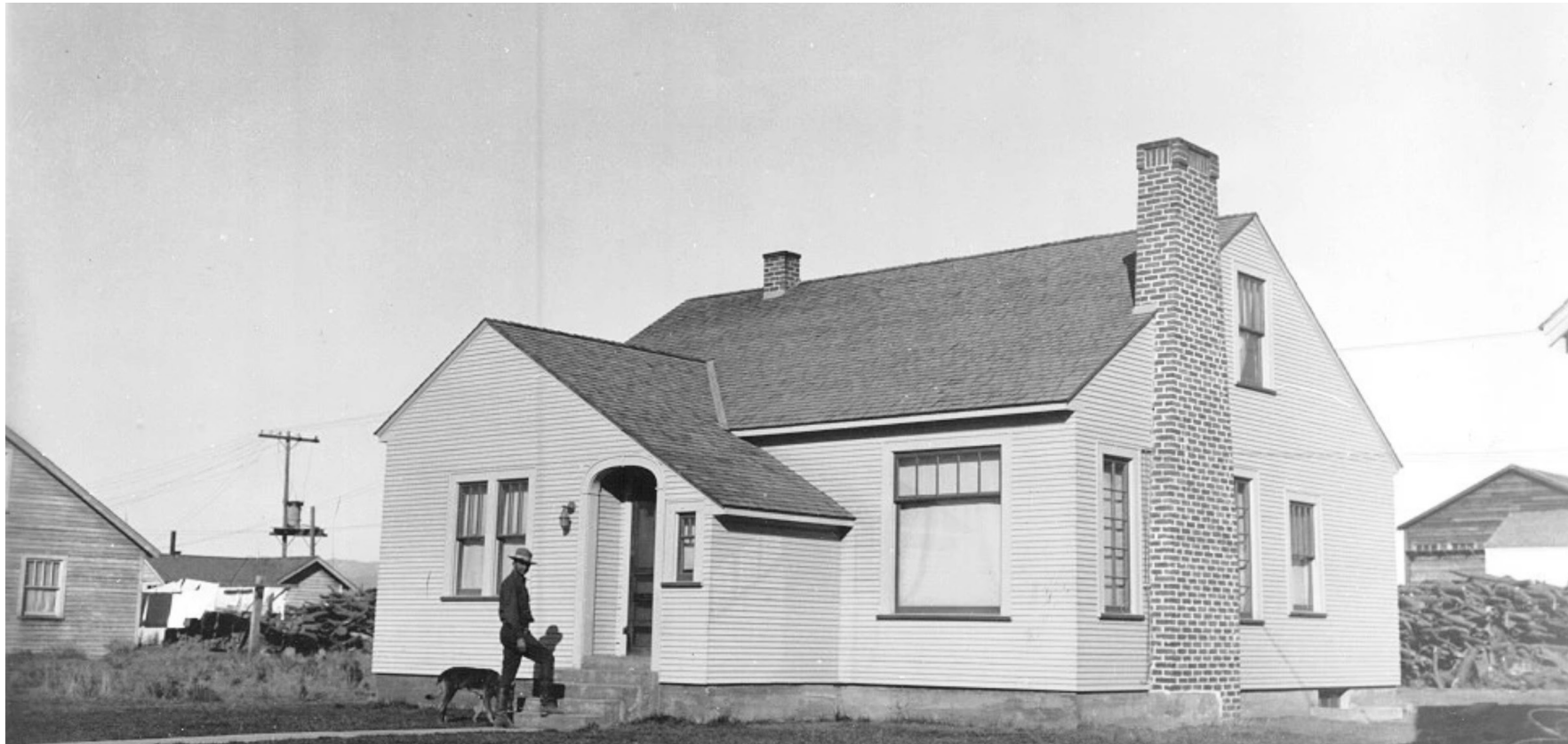
https://en.wikipedia.org/wiki/Subarctic_climate



Seneca House

case study
By Zhuoying Chen

Location: Seneca, Oregon



Architect: N/A

Owner: N/A

Year of completion: N/A

Climate: Dsc (Continental Subarctic Climate)

Material of interest: Wood

Application: Facade

Properties of material:

Seneca began growing in the 1920s as a company town for the Edward Hines Lumber Company, large-scale Ponderosa Pine logs were shipped to the Hines from Seneca and the surrounding National Forest. Wood is readily available and plentiful. Thus, it is a cheap material there.

Sources:

<https://www.senecaoregon.com/>



Nearpoint Residence

case study
By Zhuoying Chen

Location: Anchorage, AK, USA



Architect: Dan Rusler

Owner: N/A

Year of completion: 2009

Climate: Dsc (Continental Subarctic Climate)

Material of interest: Standing-seam metal

Application: Cladding

Properties of material:

- sleek, consistent and modern look
- hard, durable, long lasting and low maintenance
- weather-tight warranties
- fireproof

Sources:

<https://www.archdaily.com/69660/nearpoint-residence-workshop-architecture-design>