Wood

Materiality

Commonly Used:

-Redwood

-Pine

-Douglas Fir

Characteristics

Redwood

-Soft and lightweight
-Decent strength-to-weight ratio
-Naturally decay resistant
-Very little shrinkage or seasonal movement

Pine

-Relatively unaffected by changes in humidity after drying
-Moderate shrinkage with minimal seasonal movement
-Moderate to low decay resistance

Douglas Fir

-Moderately durable in regard to decay
-Susceptible to insect attack

Building System

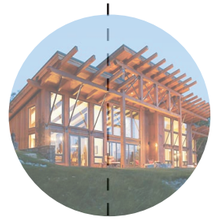
Paneling

Roof Trusses

-Construction lumbers (All)
-Beams (R)
-Posts (R,P)
-Light Frames (P)
-Poles (P)
-Light Frames (P)
-Plywood (P)
-Decking (R)
-Exterior furniture (R)
-Trim (R)
-Paneling (P)
-Interior Decoration
-Exposed Texture

Application

Framing



Decking

Interior

Construct Methods

Light-Frame

Characterized by vertical and horizontal structural elements formed by a system of repretitive wood framing members. Framing is made from standard sizes of 2x and 3x dimension lumber, and vertical supports are more numnerous. In addition to low rise buildings, four-story Type V buildings and five-story Type III builinds are commonly light-frame wood consruction.

Mass Timber

Uses large prefabricated wood members made from cross laminated timber or structural composite lumberfor wall, floor and roof construction. Glued laminated timber can also be used in beam and column applications.

Timber-Frame

Describes the structural configurations of a broad category of systems, including post-frame, post-and-beam, and heavy timber braced frame. It is characterized by the use of members (typically larger than 4 x 6) arranged in two-dimensional frames at a consistent interval throughout a building

Brick

Characteristics

Materiality

Commonly Used:

-Facing

-Loadbearing

-High Compressive Strength

-Fire resistance

- Water absorption rate at 8%, 10 times more durable in resisting salt attack
-Good insulation property

-Exhibits better thermal insulation property than other building materials

-High wear resistance

-High Durability

Application

Building System

Structure

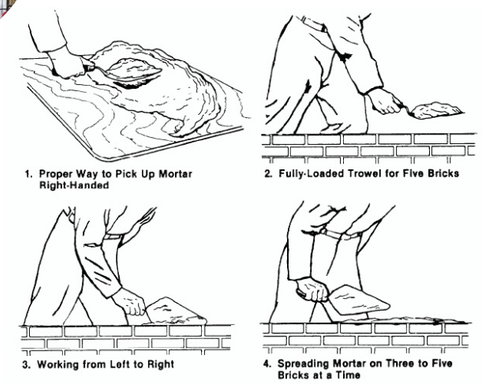
Facade

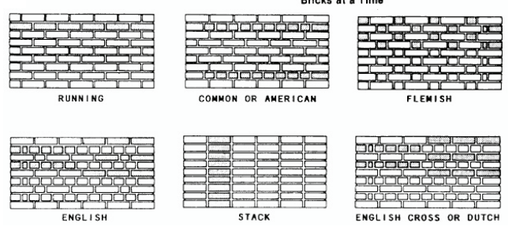
-Structural function
-Decorative
-Combination of both

Bricklaying Methods

Good bricklaying procedure depends on good workmanship and efficiency. Bricks should always be stacked on planks; they should never be piled directly on uneven or soft ground. Brick piles should never be more than 7 feet high.

Bonds
Structural bond refers to how the individual masonry units interlock or tie together into a single structural unit.
-Overlapping
-Embedding metal ties in connecting joints
-Using grout to adhere adjacent wythes of masonry





Construct Methods

Metal

1. *Materiality*

Commonly Used:

-Aluminum

-Iron

Characteristics

Aluminum

-Minimal maintenance

-Highly resistant to corrosion

-High strength-to-weight ratio

-Reflect up to 95% of sunlight

Iron

-Soft

-Ductile

-Magnetic

-Strong - high elasticity and tensile strength

-Malleable - can be heated and reheated and worked into various shapes (wrought iron becomes stronger the more it is worked)

-suitable for members in tension or compression

Application

Facades

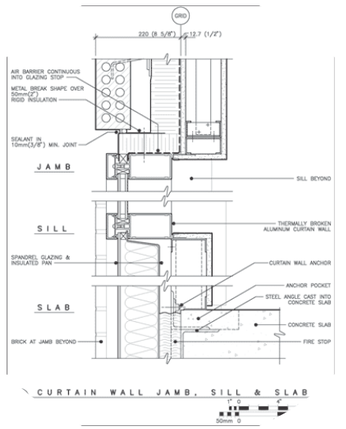
-Curtain walls
-Facades
-Door Frames
-Sliding
-Roofs
-Bracing

Building System

Roof

Railings

Interior



Techniques

Wher the aluminum alloy parts are in contact with, or are fastened to, steel members or other dissimilar materials, the aluminum shall be kept from direct contact with the steel or other dissimilar material by paintng

Preparation for Welding

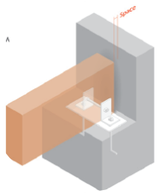
Parts shall be welded with an inert gas shielded arc or resistance welding process. Preheating for welding is permissible, provided the temperature does not exceed 400 degrees F

Construct Methods

For Marine Environment

Timber can be accomodated for the marine environment with: pressure treatment and plastic wrapping finishings.

Due to the porosity of concrete it is important never to permit wood to be in direct contact with concrete.



Screws may be used to connect wood members due to its exposure to moisutre and there decreased tendency to work loose; generally have high wind withdrawal resistance under severe wind events.

Maintenance

Maintaining any exterior surface, whether it is sliding, decking, or even an arbor or playset, is made easier when done with a preventative approach. It is always easier to apply to maintenance coat with a light cleaning or sanding rather than having to bring the finish back down to bare wood and start over.

For gray, weathered wood there there is a chemical called Oxalic Acid.

Packing Methods

Standard Sizes

Size	Nominal	Weight
6 X 18	5.5 X 17.5	23.29
8 X 8	7.5 X 7.5	13.67
8 X 10	7.5 X 9.5	17.32
8 X 12	7.5 X 11.5	20.96
8 X 14	7.5 X 13.5	24.61
8 X 16	7.5 X 15.5	28.26
8 X 18	7.5 X 17.5	31.90
10 X 10	9.5 X 9.5	21.94
10 X 12	9.5 X 11.5	26.55
10 X 14	9.5 X 13.5	31.17
10 X 16	9.5 X 15.5	35.79
10 X 18	9.5 X 17.5	40.41
12 X 12	11.5 X 11.5	32.14
12 X 14	11.5 X 13.5	37.73
12 X 16	11.5 X 15.5	43.33

To Be Aware(Issues)

Initially composites tend to be the most expensive option, however as the years go by you are not spending money on stain or replacement boards. Even though you are gaining lower maintenance you will lose the natural look of real wood.

The UV rays from the sun will cause any wood surface to fade to a silvery gray. The only way to prevent this to apply a strain. Most stains are also sealers.

2. Decay

Moisture
Direct contact with Concrete creates opportunites for the moisture to reap into the wood grain welcoming rot.

Wind Damage
Select building materials that are suitable for the expected wind forces. Remember, a wind-resistant material is only as good as its connection. Always use recommended fasteners and connection methods.

With the harsh salt environment and winds suffered on the cost, constant maintenace is ongoing. Wall cladding is durable and very resistant to harsh weather conditions.

UPVC Cladding benefits from being low maintenace, highly durable and weather resistant while also helps improve insulation.

For Marine Environment

Maintenance

- Determin moisture source before attempting repairs to correct moisture penetrations

-Remove and replace torn, deteriorated or inelastic seal-ants

-Remove ivy and plant growth that contributes to moisture penetration or deterioration of brickwork

-Install a dampproof course if missing or required

--Install remedial anchors and ties

Product Weight & Export Packing Information for Clay Brick Products

Product Type	Size, mm	Weight, kg	PCs / Pallet	Pallet / 20' Container	PCs / 20' Container	Kg / 20' Container
1SF-xx (5 holes)	215 x 100 x 67	2.30	360	24	8,640	19,872
1CB-xx (5 holes)	215 x 100 x 67	2.30	360	24	8,640	19,872
1SB-xx (5 holes)	215 x 100 x 67	2.30	360	24	8,640	19,872
1RF-xx (5 holes)	215 x ~90 x 67	2.0	360	24	8,640	17,280
1SF-xx (solid)	215 x 100 x 67	2.90	360	20	7,200	20,880
1CB-xx (solid)	215 x 100 x 67	2.90	360	20	7,200	20,880
1SB-xx (solid)	215 x 100 x 67	2.90	360	20	7,200	20,880
1RF-xx (solid)	215 x ~90 x 67	2.60	360	20	7,200	18,720
1SB-xx (solid)	215 x ~90 x 67	2.60	360	20	7,200	18,720

Packing Methods

To Be Aware(Issues)

Thermal Mass

Brick buildings will adjust more slowly to exterior conditions.
Thermal mass can be used to reduce and delay the peak temperatures in buildings and reduce the energy required to heat and cool buildings.
To keep the temperature lower in hot weather and reduce cooling loads, thermal mass needs to be positioned vertically or in the ceiling/roof structure. This way the mass is exposed to, and can absorb, the heat in the room keeping the temperature down.

2.

Unfortunate Events

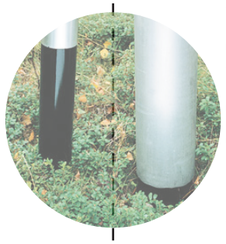
Sub-fluorescence
The failure to properly seal the brickwork created a wall condition that was porous and therefore compromised and exposed to salt crystallization.

Moisture Penetration
Paint and render are both susceptible to damage reoccuring. The only way to stop decay is to deny the moisture the ability of entering the material .

For Marine Environment

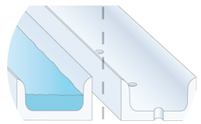
Cathodic protection

Mount an anode of a less noble material in direct metallic contact with the aluminum object to be protected, there also has to be liquid contact between the surface to be protects. zinc or magnesium anodes are ofted used for aluminum.



Pitting

Surface treatment (anodising, painting or other coating methods) counteracts pitting. Cleaning is necessary, rinsing with water is often sufficient. It is important to design profiles so that they dry easily.



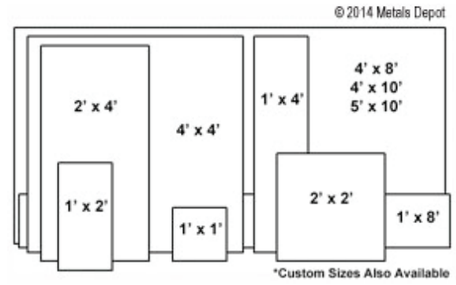
Maintenance

Cleaning procedures for aluminum should be initiated as soon as practical after completion of installation to remove construction soils and accumulated environmental soils and discolorations.

*Aluminum finishes must first be identified to select the appropriate cleaning method.

Packing Methods

Standard Shipping Sizes



To Be Aware(Issues)

Aluminum structures can weigh 35-65 percent less than steel, while providing equicalent strength. However to refine aluminum you need access to huge quantities of electricity, and to shape it, you have to either cast it or extrude it.

Iron is easier to manipulate, and can be created relatively easily and is inexpensive. Only problem is rust. You can control rust by painting, galvanizing, chrome plating or coating the iron.

2. Unfortunate Events

Rust

Salt exposure has caused the deterioration of building materials and has been serving as an unrecognized corrosion threat to architectural metals.

Galvanic Corrosion

Close-up of galvanic corrosion in an aluminum rail post. The rectangular hollow profile was held in place by a carbon steel bolt. The contact surfaces between the steel and the aluminum were often wet.