Table of Contents

Raw Architectural Metals 4
   Red Metals
   Aluminum
   Stainless Steel
   Cold Rolled Steel
   Hot Rolled Steel

Dipped Metals 10
   Galvanization
   A40 Galvannealed

Other Finishes 12
   Stainless Steel Mill
   Pre-painted
   Pre-patina
   Antique Finish
Metal is a classic architectural material.
Strong.
Durable.
Versatile.
Unique.

However, **which metal is right for your project?** Which metal will have the greatest visual impact, last the longest, or best enhance the other aspects of your design?

Here’s a quick reference guide to help you choose. Though you’ll want to do more research or talk to your manufacturer before committing - some metals have unexpected characteristics that can affect your overall design.

While Dahlstrom cannot patina or age metals in-house, we can easily form every material listed in this guide. Contact us to learn more about forming a metal of your choice.
Raw Architectural Metals
Red Metals

Red metals’ unique trait: patina. Depending on the age and chemical reaction of the patina, red metals will eventually be covered or patterned with a number of colors including green, yellow, and red.

Copper – C110

- High ductility
- Strong thermal conductivity
- Most widely used in conductors and heat exchangers
- Also used decoratively for trim, roofs, handles, other accessories
- Highly corrosion resistant - can last hundreds of years
- Easy to form

“Various estimates put the lifespan of a copper roof at more than 100 years, while asphalt shingles - the most commonly used roofing material in America - are said to last 15-30 years, on average. This makes copper one of the most cost-effective roofing materials on the market.

The reason for copper’s longevity is the natural patina it develops with age that serves as a protective shell when the metal is exposed to the elements.” - Copper Development Association
Red Metals

Brass – C260

- Versatile material - everything from bullet casings to door trim
- Warm yellow color
- High strength
- Good for forming
- Incredibly corrosion resistant

Bronze – C220

- Rich, darker tone
- Highly corrosion resistant
- Good for forming
- Commonly used for hinges, doorknobs, and other trim

https://www.avso.org/interior-design-ideas/the-use-of-bronze-in-the-interior
https://www.dezeen.com/tag/brass/
Aluminum creates its own protective layer as it oxidizes, making it a practical choice for exterior use. It’s lightweight, and can be perfect for small trim or large accents.

5052-H32
- Bright, clear, smooth surface finish
- Great corrosion resistance
- Moderate strength
- Easy to form

3003-H14
- Great for forming
- Partially annealed - shiny
- Strong, but not as strong as 5052-H32
- Popular for trim, cabinets, architectural use

Related: Best Metals for Exterior Applications
Chromium gives stainless steel its distinct appearance; a higher chromium content means a more reflective surface. Shiny, industrial, contemporary aesthetic - neutral silver sheen complements many different designs. It can also be obtained in several brushed finishes.

Stainless steel has a long life expectancy and is easy to maintain. Among decorative metals, it's one of the most affordable to produce and fabricate.

### 304
- Most readily available stainless steel
- Commonly used in exterior architectural accents
- Highly durable
- Most cost-effective choice

### 430
- Most commonly used for interior architectural applications

### 316
- For hardcore corrosive environments - “marine grade”

Related: [Is Steel a Sustainable Material?](www.dahlstromrollform.com)
Hot Rolled Steel

Black and Dry or Pickled and Oiled (not a sandwich!)

- Rough finish - initially scaly, can be removed with blasting or grinding if desired
- Can be used raw and will develop an oxidized (rusty) look. Will need coating with paint, clear, or other protective layer if oxidation is not desired
- Distorts slightly during cooling process - looser tolerances advised
- Tends to be cheaper than cold rolled steel

Cold Rolled Steel

- Smooth finish
- Higher carbon content than hot rolled steel
- Tighter tolerance control
- Can be used raw and will develop an oxidized (rusty) look. Will need coating with paint, clear, or other protective layer if oxidation is not desired
Dipped Metals

Types of Galvanization

- Hot-dip galvanization (longest lasting, thickest layer of zinc)
- Galvannealed (medium zinc coating with 10% iron)
- Electro-zinc plating (shortest lasting, thinnest layer of zinc)
- Zinc-based paint

Raw Dipped

- Raw galvanized or galvannealed metals have their own beauty
- Spangle patterns form on the surface of the metal - size and shape can be controlled
- Coatings provide additional durability
- Finishings add shine, reflectivity, or texture

Spangle (Pattern)

- Aesthetically pleasing spangle patterns cannot be produced on reactive steels
- Size and appearance depends on alloying elements in the hot dip bath, time in the bath, and cooling time
- Rougher base steels tend to produce smaller spangle patterns
Galvanized Steel

Galvanized steels have a natural bright etc.

The numbers listed below are industry specs that refer to the thickness of the zinc layer on a galvanized product. A higher number means a thicker zinc layer, and a thicker zinc layer means it takes more time to corrode the base metal.

Your spec choice will be determined by the desired level of corrosion resistance.

Architecture commonly uses:

- G30
- G60
- G90

A40 Galvannealed

(Our Web Store mouldings are made almost entirely from this material!)

Galvannealed metals undergo an additional heat treating process after galvanization. A galvanized coating is almost entirely zinc, while a galvannealed coating may be only 90% zinc, 10% iron.

Galvannealed metals are easier to coat (paint, powder, or other) than galvanized metals.

- Great for painting
- Not easily scratched
- Corrosion resistance similar to galvanized steels
- A40 preferred due to its forming friendliness
- Uniform matte finish, unlike stainless’ shiny surface
Other Finishes
Polished/Brushed Stainless

Stainless finishes are specified using the numbers 1 - 8. The following are the most common for architectural purposes.

2B
- Smooth, reflective
- Light rolling with highly polished rolls
- Most widely used surface finish
- Mill finish

#3
- Short, coarse uniform polishing lines
- Moderately reflective
- Simulates appearance of mechanical abrasion

#4
- Short, parallel lines
- Polish #3 finish with finer abrasives
- Industrial grade finish
- Maintains well in high-traffic applications
- Duller than 2B finish

BA
- Bright annealed
- Produced by heat treating
- Can be buffed to be highly reflective
- Most commonly specified for aesthetic purposes, or where mirror-like reflectivity is required
Pre-Painted*

- Most steels and aluminum can be ordered pre-painted
- Depending on intended shape to be formed or final purpose, protective coating film is applied to prevent marking of surface prior to final use

Pre-Patina*

- Red metals can be ordered pre-oxidized to achieve an aged look

Antique or Aged*

- Metals can be chemically aged and “worn” by hand or machine

*These options are currently only available for new designs that involve custom tooling.
If you have any other questions about architectural metals, feel free to contact us at DahlstromRollForm.com.

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See a metal you like in this guide? Request a sample to see it in person: