

Copper in Architecture



Roofing and Flashing Applications

CCBDA



Copper in Architecture

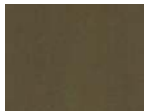


Weathering of Copper

This weathering cycle represents a copper panel at a 45° angle with a southern exposure in a typical northeastern industrial city.



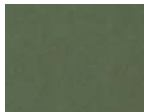
Unexposed



4 Years



4 Months



5 Years



8 Months



7 Years



1 Year



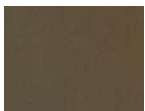
10 Years



2 Years



15 Years



3 Years



25-30 Years

Benefits of Copper in Architecture

Life Cycle Costs

Copper's ease of installation, along with its well-known long life and freedom from maintenance, have made it the material of choice for centuries.

Recyclable, Sustainable

Copper was first used by humans more than 10,000 years ago. It has an infinite recyclable life—nearly all the copper ever mined is still in circulation. Today, some 75%–80% of all copper production comes from recycled copper scrap. For architectural metal, there is no more sustainable resource.

Corrosion Resistant

Copper withstands the hardest conditions, from coastal areas to heavy industrial environments. In fact, weathering helps form the pleasing, blue-green copper sulfate film (patina) that inhibits corrosion.

Strong, Durable, Fire-Resistant

Sheet copper panels will last the life of a building with little or no maintenance, and they are fire-resistant.

Easy to Work and Join

For new or retrofit construction, copper is the easiest metal to install with either manual or power tools. Available in a wide range of gauges, copper is easily cut, formed and joined, mechanically or with solder.

Warm, Beautiful Color

The warmth and beauty of copper's living patina in addition to the variety of available finishes and textures, enhance and complement any design concept and building style.

Copper Architectural Applications

- Roofing
- Edge Strips
- Expansion Joints
- Fascias
- Flashings
- Gravel Stops
- Gutters and Leaders
- Mansards
- Parapets
- Scuppers
- Soffits
- Wall Cladding
- Column Covers

The Copper Development Association Inc. (CDA) and the Canadian Copper and Brass Development Association (CCBDA) are the central, authoritative sources of technical data and information on the selection, fabrication and application of architectural copper, brass and bronze.



CDA and CCBDA staff support architects, engineers, contractors, builders and building owners through:

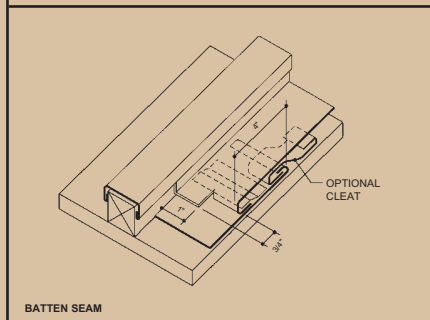
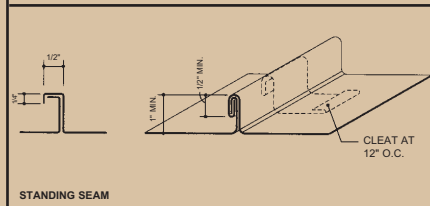
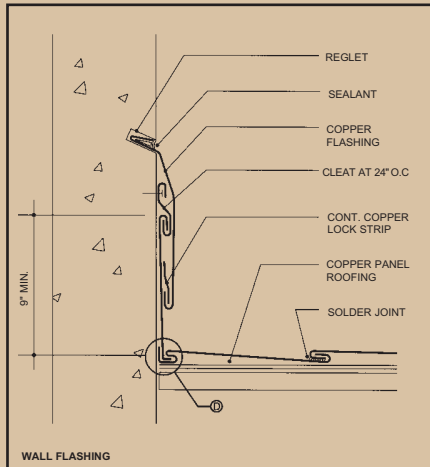
- Direct design training and technical support services
- Publications, videotapes, training programs and seminars
- Material, product and contractor source databases

Front Cover: San Angelo Fine Arts Museum,
San Angelo, Texas. Architect: Hardy Holzman Pfifer.

For information on copper wall cladding applications see Sweet's Catalog No. 07415/COO, or contact the Copper Development Association.

Copper offers character and durability that no other roofing metal can match. Its appearance can complement any style of building. From traditional to modern, warmth and beauty make it a preferred material among architects.

The use of copper is based upon traditional practices proven over many years. There are numerous examples of copper roofs which have been in place one or more centuries. Copper's resistance to the elements ranks among the highest of modern architectural materials.



When properly designed and installed, copper provides an economical, long-term roofing solution. Its low life-cycle costs are attributable to the low maintenance, long life and recyclability of copper. Unlike many other metal roofing materials, copper requires no painting or finishing.

Through its natural weathering process, copper's warm bronze tones can be expected to lead to an elegant green patina finish. There are also a number of methods available to retard or accelerate the weathering process.

The ductility and malleability of copper make it an easy material to form over irregular structures. Domes and other curved roof shapes are readily handled with copper. In recent years, new tools and installation methods have been introduced that aid in the quick, proper and economical installation of copper roofs.



07610/COO
BuyLine 6225

PROJECTS AND ARCHITECTS:
(top to bottom)

- *St. Boniface Church, Mequon, Wisconsin.*
Architect: HGA Associates.
- *Tennis Pavilion,*
University of Denver, Colorado.
Architect: Davis Partnership
- *Pope John Paul II Cultural Center,*
Washington, D.C.
Architect: Leo Daly
- *McEvoy Pavilion, McEvoy Ranch,*
Petaluma, California.
Designer: Babey Moulton Jue & Booth
- *Oneida Nation Ray Elm Children*
& Elders Center, Oneida, New York.
Architect: Douglas J. Cardinal

“Copper is malleable, flexible, strong. Copper systems use self-flashed details that are tried and true. Its weathering aspects makes it very organic...that adds distinction to any building.”
 — James W. Shields, AIA, HGA, Inc.

Most modern construction materials are fairly resistant to moisture penetration. However, many joints between masonry units, panels, or architectural features are not. The effects of natural movement due to settlement, expansion, and contraction tend to compound the problems and may eventually lead to leaks. Flashing is used to prevent moisture from entering at such locations. It is used to divert to the exterior moisture that has already entered various components of a structure.

Moisture that penetrates into a building may cause serious damage to its interior. In freezing temperatures, it can also cause severe damage to the exterior of the building. Cracking, spalling, and disintegration can result. Over a long period of time, moisture can also weaken structural elements.

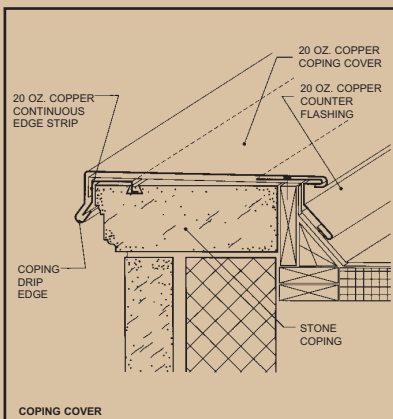
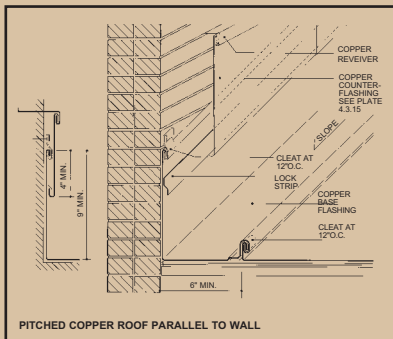
Copper is an excellent material for flashing because of its malleability, strength, and high resistance to the caustic effects of mortars and hostile environments. Flashing, in general, is expensive to replace if it fails. The long life copper flashing offers is a major asset to any building.



PROJECTS AND ARCHITECTS

(top to bottom)

- Action Resource Building, Zoo, Atlanta, Georgia.
Architect: Lord, Aeck Sargent
- Beth Tfiloh Synagogue, Baltimore, Maryland.
Architect: Morris Lapidus
- San Angelo Fine Arts Museum, San Angelo, Texas.
Architect: Hardy Holzman Pfifer.
- Vari Hall, York University, Toronto, Ontario.
Architect: Moriyama & Teshima



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