

ORNAMENTAL WORK

SECTION
700

Section 700 Selection and Specification Checklist

Because most architecture, specification, and design firms have electronic master specifications in place, the AWI and AWMAC offer this quick checklist. A review of these items may help the design and specification team issue a complete and accurate contract document and avoid missing things vital to the successful completion of the project. The checklists are not considered a part of the Quality Standards for the purposes of compliance.

Part 1. GENERAL

1.1. REFERENCES

- A. AWI/AWMAC Quality Standards Illustrated (QSI), current edition

1.2. SUBMITTALS

A. Shop drawings:

- Submit two copies; one of which will be returned with reviewed notations prior to commencement of work under this section.
- Indicate plans and elevations, materials, surface grain directions, profiles, assembly methods, joint details, fastening methods, accessories, hardware, compliance with specified fire-retardant treatments, preservative treatments, and schedule of finishes.

B. Finish samples:

- When appropriate, submit one or more samples of veneer-on-substrate, 200 x 250 mm [8 x 10"] illustrating expected range of component finish color and/or grain.
- When appropriate, submit one or more samples of solid lumber, 300 square centimeters [50 square inches] illustrating expected range of component finish color and/or grain.
- The sample shall bear identification of the project, architect or designer, general contractor, woodwork manufacturer, items to which the finish applies and the system utilized to attain the finish.

1.3. QUALITY ASSURANCE

- A. Perform work in accordance with [Premium] [Custom] [Economy] Grade quality

- B. Work in this section shall comply with the specified Grade(s) of Work and Section (s) of the current edition of the AWI/AWMAC Quality Standards Illustrated.

1.4. QUALIFICATIONS

- A. Contractors and their personnel engaged in the work shall be able to demonstrate successful experience with work of comparable extent, complexity and quality to that shown and specified.

- B. Manufacturers who are members in good standing of the Architectural Woodwork Institute (AWI) or the Architectural Woodwork Manufacturers Association of Canada (AWMAC) and are familiar with this Standard.

1.5. DELIVERY, STORAGE AND HANDLING

- A. Protect work from moisture damage according to QSI, Section 1700, Installation.

Part 2. PRODUCTS

2.1. MANUFACTURERS

- A. Manufacturers who are members in good standing of the Architectural Woodwork Institute (AWI) or the Architectural Woodwork Manufacturers Association of Canada (AWMAC) and are familiar with this Standard.

2.2. LUMBER

- A. Softwood Lumber: If a particular species is desired, specify here.

- For exposed surfaces:
- For semi-exposed surfaces:
- For concealed surfaces:

- B. Hardwood Lumber: If a particular species is desired, specify here.

- For exposed surfaces:
- For semi-exposed surfaces:
- For concealed surfaces:

2.3. PANEL PRODUCTS

- A. Softwood plywood: Not usually used for in fine architectural woodwork, but specify here if part of the design aesthetic.
- For exposed surfaces:
 - For semi-exposed surfaces:
 - For concealed surfaces:
- B. Hardwood plywood: Made with medium density particleboard or fiberboard (MDF) core for interior use or moisture-resistant core stock for exterior use; specify face veneer species here.
- For exposed surfaces:
 - For semi-exposed surfaces:
 - For concealed surfaces:
- C. High-pressure decorative laminate (HPDL), specify by brand name and design name/part number.
- For exposed surfaces:
 - For semi-exposed surfaces:
- D. Core material for veneered or laminated components, if other than QSI standards:
- For exposed surfaces:
 - For semi-exposed surfaces:
- E. Solid surface materials, Thermoplastic sheets, Acrylic or methacrylate sheets, Solid phenolic core, or any other special panel product, specify by brand name and design name/product number.

2.4. WOOD TREATMENT

- A. List the specific local requirement for fire retardant treatment, if any.
- B. List the specific chemical and process for preservative treatment, if any.

2.5. GLAZING, HARDWARE, AND ACCESSORIES

- A. If glass is to be supplied by woodworker, the materials and requirements should be listed here.
- Wood stops shall conform to the QSI for the Grade of Work specified.
 - Finish coats on glazed exterior work, if any, shall be allowed to flow on to the glass.
- B. Fasteners: Size and type to suit application. Weather resistant if exterior. The QSI does not set standards for fasteners.
- C. Hardware, if not specified by brand name and part number, shall be mill option to meet QSI minimums.

2.6. FABRICATION

- A. Fabricate to [Premium] [Custom] [Economy] Quality Standards.
- B. Shop prepare and identify components of assemblies for matching during site assembly.
- C. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.
- D. Select a joinery technique, or leave it up to the manufacturer to choose from QSI compliant methods.

2.7. FINISHING MATERIALS AND APPEARANCE

- A. List the name of the finish system (topcoats) to be used from Section 1500
- B. List the sheen desired: [Flat] [Satin] [Semi-gloss] [Gloss].
- D. List the special or extra steps and/or products to be used, such as bleach, distressing, filler, glaze, shading, stain, toner or washcoats.

2.8. FINISHING REQUIREMENTS

- A. Sand work smooth and set exposed nails [and screws].
 - For opaque finishes, apply wood filler in exposed nail [and screw] indentations and sand smooth.
 - For transparent finishes, use wax or burn-in filler which blends with surrounding color and sheen, often after stain and before final top coat.
- B. When combining wood and laminates or other specialty products, careful consideration must be given to finishing specifications. Responsibility for finish wood parts should be clarified by the design professional here.
- C. Finish work in the factory in accordance with Section 1500.
- D. [Prime paint] [Seal] surfaces in contact with cementitious materials.

Part 3. EXECUTION

3.1. EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are in place and ready to receive this work.

3.2. INSTALLATION

- A. Install work in accordance with [Premium] [Custom] [Economy] Grade, Section 1700, QSI.
- B. Set and secure materials and components in place, plumb and level.

3.3. ADJUSTING

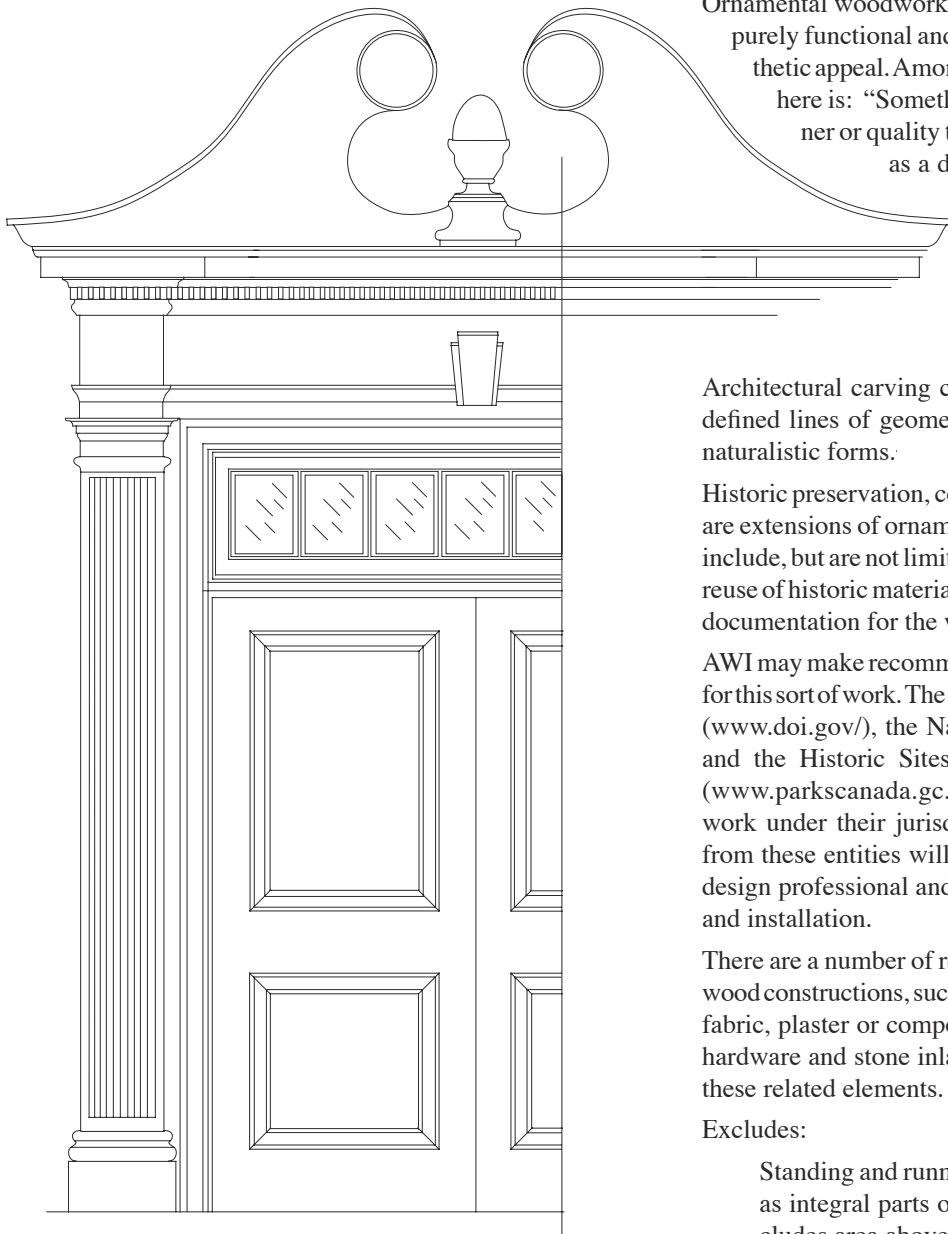
- A. Adjust work under provisions of Section [] of the contract documents.
- B. Adjust moving or operating parts to function smoothly and correctly.

3.4. CLEANING

- A. Clean work under provisions of Section [] of the contract documents.

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700



Ornamental woodwork can be considered any addition to the purely functional and may partly rely on context for its aesthetic appeal. Among various definitions, the one pertinent here is: “Something that lends grace or beauty; a manner or quality that adorns”. Ornamentation is defined as a decorative device or embellishment. A good example is the moulding which can have functional uses such as covering joints, or with a profile, can be a design element. The profile can be further embellished or enriched by decorative carving.

Architectural carving combines the flat surfaces and clearly defined lines of geometry with the interpretive modeling of naturalistic forms.

Historic preservation, conservation and restoration disciplines are extensions of ornamental woodwork. Aspects of this work include, but are not limited to, stripping, repair, reconstruction, reuse of historic material, addition of new material, and special documentation for the work.

AWI may make recommendations but does not write standards for this sort of work. The United States Department of the Interior (www.doi.gov/), the National Park Service (www.nps.gov/), and the Historic Sites and Monuments Board of Canada (www.parkscanada.gc.ca/), publish documents related to work under their jurisdiction. The most recent publications from these entities will provide valuable information for the design professional and the woodwork fabrication, finishing, and installation.

There are a number of related arts which are incorporated into wood constructions, such as stained glass, ceramic tiles, mosaic, fabric, plaster or composition ornament, faux finishes, metal hardware and stone inlays. AWI does not write standards for these related elements.

Excludes:

Standing and running trim except as incorporated as integral parts of elements described in the Includes area above.

Unless required by the details and/or woodwork specifications, the woodworker shall not...

- provide or prepare for any electrical, telephone, mechanical, or plumbing equipment;
- install woodwork or furnish common blocking, furring or hanging devices for the support or attachment of the woodwork;
- supply exposed materials other than wood or plastic laminate;
- factory finish; or
- supply “stock” or specialty products. If they are to be supplied, they must be specified by a brand name or manufacturer.

700



General Criteria

700-G-1

Scope

Includes:

Ornamental woodwork makes use of moulded, shaped, and carved elements to create a decorative appearance. Examples include, but are not limited to, door and window surrounds, mantelpieces, ornamental grilles, cupolas, corbels, balusters, stair and newel posts and columns and capitals, etc.

These are made up of the individual elements of mouldings, pediments, finials, keystones, pilasters, rosettes, and many others particular to a period or style.

700-G-2**Specification Requirements****GRADE MUST BE SPECIFIED**

The Standards provide for three Grades: Premium, Custom, and Economy.

Premium Grade

The Grade specified when the highest degree of control over the quality of workmanship, materials, installation and execution of the design intent is required. Usually reserved for special projects, or feature areas within a project. All Historic work will, by default, be of Premium Grade.

Custom Grade

The Grade specified for most conventional architectural woodwork. This Grade provides a well-defined degree of control over the quality of workmanship, materials and installation of a project. The vast majority of all work produced is Custom Grade.

Economy Grade

The Grade that defines the minimum expectation of quality, workmanship, materials, and installation within the scope of the Standards.

Prevailing Grade

When the Quality Standards are referenced as a part of the contract documents and no grade is specified, Custom Grade standards will prevail, with the exception of historic work which shall always be of Premium Grade.

700-G-3**Smoothness of Flat and Moulded Surfaces**

Planers and Moulders:

The smoothness of surfaces which have been machine planed or moulded is determined by the closeness of the knife cuts. The closer the cuts to each other (i.e., the more knife cuts per inch [KCPI]) the closer the ridges, and therefore the smoother the resulting appearance.

Sanding and Abrasives:

Surfaces can be further smoothed by sanding. Sandpapers come in grits from coarse to fine and are assigned ascending grit numbers. The coarser the grit, the faster the stock removal. The surface will show the striations caused by the grit. Sanding with finer grit papers will produce smoother surfaces.

700-G-4**Installation Recommendation
(when specified)**

While this section does not cover field installation of woodwork, the methods and skill involved in the installation of woodwork in large measure determines the final appearance of the project. The design, detailing, and fabrication should be directed toward achieving installation with a minimum of exposed face fastening. The use of interlocking wood cleats or metal hanging clips combined with accurate furring and shimming will accomplish this. Such hanging of woodwork has the additional advantage of permitting movement that results from humidity changes or building movement. Depending upon local practice, in many areas woodworkers will perform the wall preparation and installation of the woodwork.

700-G-5**Finishing Recommendation
(when specified)**

While this section does not cover finishing be aware that site conditions for finishing are rarely conducive to good results. Poor lighting, dust-laden air, and techniques available are limiting factors. Depending upon local practice, in many areas woodworkers will factory finish, yielding better results than can be achieved from field finishing.

700-G-6**Flitch Selection**

NOTE: The Architect must specify the wood veneer species, cut, matching between leaves, matching on a panel face and matching between faces. Veneer samples can often be supplied by the woodwork manufacturer if requested. For a more detailed review of flitch selection, see Section 500A-G-5 in this Standard.

700-G-7**Fire-Retardant Solid Lumber**

See Section 100 of this Standard for information on fire retardant lumber.

Finishing of Fire-Retardant-Treated Lumber: Fire retardant treatments may affect the finishes intended to be used on the wood, particularly if transparent finishes are planned. The compatibility of any finishes should be tested before they are applied.

Built-up Construction to Improve Fire Rating: In lieu of solid lumber, it is often advisable, where a fire rating is required, to build up members by using treated cores (Fire rated particleboard or medium density fiberboard) clad with untreated veneers not thicker than $\frac{1}{28}$ ". Some existing building codes, except where locally amended, provide that facing materials $\frac{1}{28}$ " or thinner finished dimension are not considered in determining the flame spread rating of the woodwork.

700-G-8

Sources for wood ornamentation

There are two possible sources for wood ornamentation: machine-produced elements and the custom carver.

A. The mass-produced product is often limited in available species, sizes and design, which is often a hodge-podge of historic styles. Often the detail lacks clarity because of the tooling, sanding or finish. However, the product is relatively inexpensive, consistent in appearance and appropriate for many applications.

B. On the other hand, there are a number of reasons to contact a custom carver.

1. When the pieces required are impractical or impossible to shape on conventional shop machinery. Examples are tapering profiles as in keystones, acute (interior) corners such as in Gothic tracery and compound curves as in stair handrails.
2. When small quantities are specified which are impractical or too expensive to fabricate by computerized methods.
3. When there is a need to replicate missing (hand carved) elements for restoration or renovation.
4. When elements of specified dimensions are required and unavailable otherwise.
5. When a particular wood species is required.
6. When customized logos or lettering is desired.
7. When patterns are required for casting in another material such as plaster, metal, or glass.
8. When uniqueness is valued by the customer.

Hand tooled and carved work has a special appearance. It has a depth and clarity or crispness which machine tooling often can not achieve. Because it is done by a skilled artisan there will be slight irregularities, but this is deemed desirable as it lends character and credence to the work. Whether the surface is sanded smooth or the texture of tool marks is left, is one of the points of discussion between the millwork company and carver.

700-G-9

Working with the Artisan

The custom carver usually works by him or her self in a studio situation, but this does not necessarily indicate limitations either in quality, production time or fabrication capability. Work is done on a commission basis, so it is common to expect reasonable lead times.

A. What the woodcarver will need to know (from millwork specifier or customer:)

1. Type of element – moulding, capital, bracket, etc.
2. Sizes- drawings showing elevations and sections are absolutely necessary for accurate cost estimates, whether provided by the millwork company or drawn by the carver. Often the carver will redraw computer-generated designs or ones not full sized.
3. Species of wood and who will supply the “blanks”. Finishes (paint grade, gilding, faux finish) should also be discussed.
4. Context and/or installed location should be made clear in order to understand lighting and the degree of detail necessary.
5. Intended schedule or completion date.
6. Budget if available as the carver can propose subtle changes in order to oblige a tight budget.

The millwork company should make reasonable efforts to provide as much information as possible as to design, and material. If providing blanks, effort should be made to fabricate them as accurately as possible. Material should be straight grained and contain a minimum of glue lines and therefore, grain directional changes. Consultation concerning what should be provided (sizes, species, special fabrication such as turning) with the carver is essential.

B. What to expect from the carver

1. The carver provides skill and knowledge through experience. The cost is in labor not material. Carving is a unique product which adds immeasurably to the character and attraction of the overall project.
2. The carving should closely resemble what is represented in drawings and verbal descriptions.
3. The product should be cleanly carved without distracting irregularities and chips or fuzz in the recesses. The agreed upon surface treatment: sanded, tool textured, primed or gilded, etc. should be consistent throughout.
4. Work should be done in a timely manner as agreed upon.

Quality in artistic handwork is often a subjective matter, but proper communication and agreement among parties should reduce variance of interpretation.

700-G-10**Architectural Ornamentation**

Discussing ornamental style is a difficult endeavor because it is historically complex and subject to interpretation. North America is made up of ethnic groups from around the world and each has brought its own cultural history to the mix. The notes here do not intend to exclude any style of ornamentation, but concentrate on the predominant influence of Western Art and Architecture. Risking over simplification, style tends to vacillate over time between two extremes — formal, restrained classicism and emotional and vivacious Romanticism.

Much of Western Architecture derives from the art and architecture of ancient Greece and Rome. Classicism is based on symmetry and proportion providing mathematical relationships among all elements of the building. One characteristic is the use of columns for support, though engaged columns and pilasters were used, sometimes in conjunction with arches. The *orders* of architecture, have been codified and reinterpreted ever since Vitruvius wrote a treatise on architecture in 30 BCE. In reality there was wide variation and great adaptability over a thousand years of evolution in many disparate geographical areas. The Parthenon in Athens, the Maison Carée in Nîmes, France, or the Pantheon in Rome are familiar examples. In succeeding revivals an abundance of government, and academic building reflect these archetypes — the United States capital building, many state and county courthouses, and Jefferson's University of Virginia.

Romanticism, on the other hand is subjective, derived from the randomness of nature, *spiritual*, and introduces asymmetry, exuberance, and complex lines. Many designs are eclectic, fantastic and mix a number of exotic motifs. Though there are many of the same mathematical concerns in Romanesque and Gothic buildings as there are in Classical buildings, the ornamentation conveys a different feeling. The achievement of Gothic architecture was the introduction of the pointed arch which solved some structural limitations of Romanesque vaulting. While classicism appears to be simple in concept, romanticism seems to relish complexity. A Gothic cathedral when viewed from any angle except frontally does not seem to have much order, with flying buttresses and pinnacles and windows complicating one's perception of the form of the building.

Reacting to Gothic embellishments, Renaissance architects rediscovered classicism, but in time the classical tenets were corrupted (Mannerism) and the Baroque, which emphasized undulating surfaces, complicated interior spaces and dramatic decoration, permeated Europe. As a reaction to the flamboyance of the Baroque, interest in Classicism reemerged in the 18th Century. But in this era the rococo style and the "Chinese" style, (Chinoiserie), especially in furniture, were also in vogue. The 19th Century saw continued classicism, but also an eclectic mix of revivals — Romanesque, Gothic and Eastern styles.

700-G-11**Classical Orders**

The *orders* of architecture refer to the configurations and relationship of parts of Greek and Roman buildings. (See illustrations on following pages.) Over the centuries the relationship of parts of the classical building have been systematized, but one should keep in mind that Greek and Roman architecture had many variations and evolved through time. Generally, the orders refer to the proportions of the building; some being squarish or heavy while others are taller and therefore lighter. The trabeated or post and lintel system of building consists of columns and a superstructure supporting the roof. This entablature is made up of the architrave, the frieze and the cornice. The architrave is the beam, which spans from column to column. The frieze is derived from the band covering the joist ends, while the cornice creates the eaves. The columns have base mouldings (except the Doric order) a shaft, plain or fluted, and a capital, which supports the architrave. Because the capitals are very different in appearance for each order it is an easy way to distinguish among them. Because the roof line ran the length of the building the triangular area above the entablature is called the pediment.

There are three Greek orders and two Roman ones.

The Doric column has no base but rests directly on the stylobate or *floor*, of the building, is fluted and has a simple turned bowl-like capital. The bulging shape is the echinus. The frieze of the Doric is divided into triglyphs and metopes; the latter often decorated with sculptural figures (as on the Parthenon). This order appears sturdy and well planted, having a horizontal appearance.

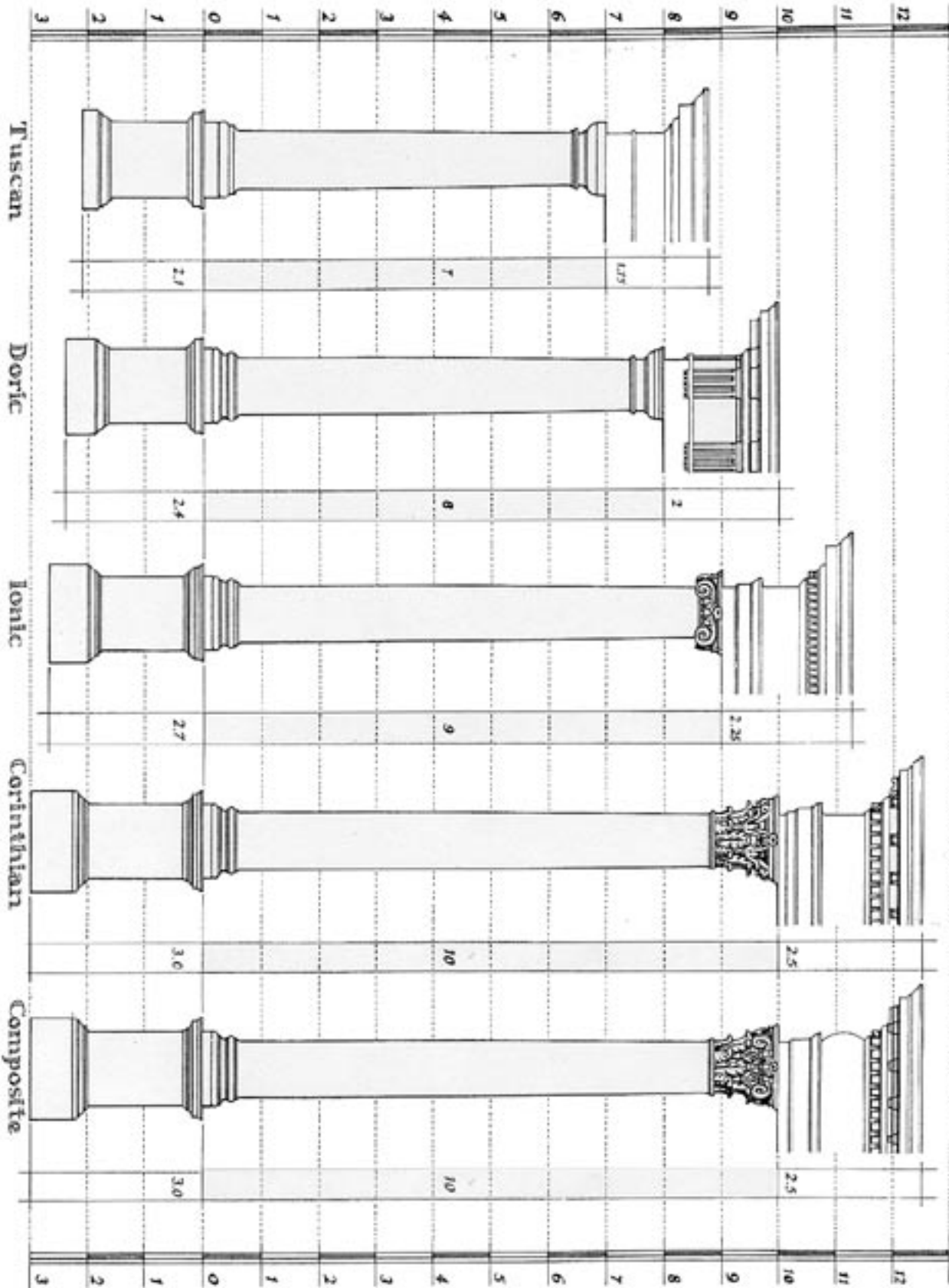
The Ionic order has a column which has several rounds of base mouldings, usually consisting of two tori or half-round mouldings, divided by a scotia or concave recess, a shaft which is fluted and a capital with distinctive scrolls or volutes. The frieze is relatively plain, or contains sculptural figures in an uninterrupted procession. Above the frieze is the characteristic dentil moulding.

The Corinthian order proportionally is similar to the Ionic though some examples have very slender proportions. The column is similar, but the capital has acanthus leaves and volutes spring like sprouts from the foliage. The entablature is similar to the Ionic, but the use of modillions or brackets in the eaves (separating rosettes in the soffit) set this order apart.

The Roman orders are the Tuscan and the Composite.

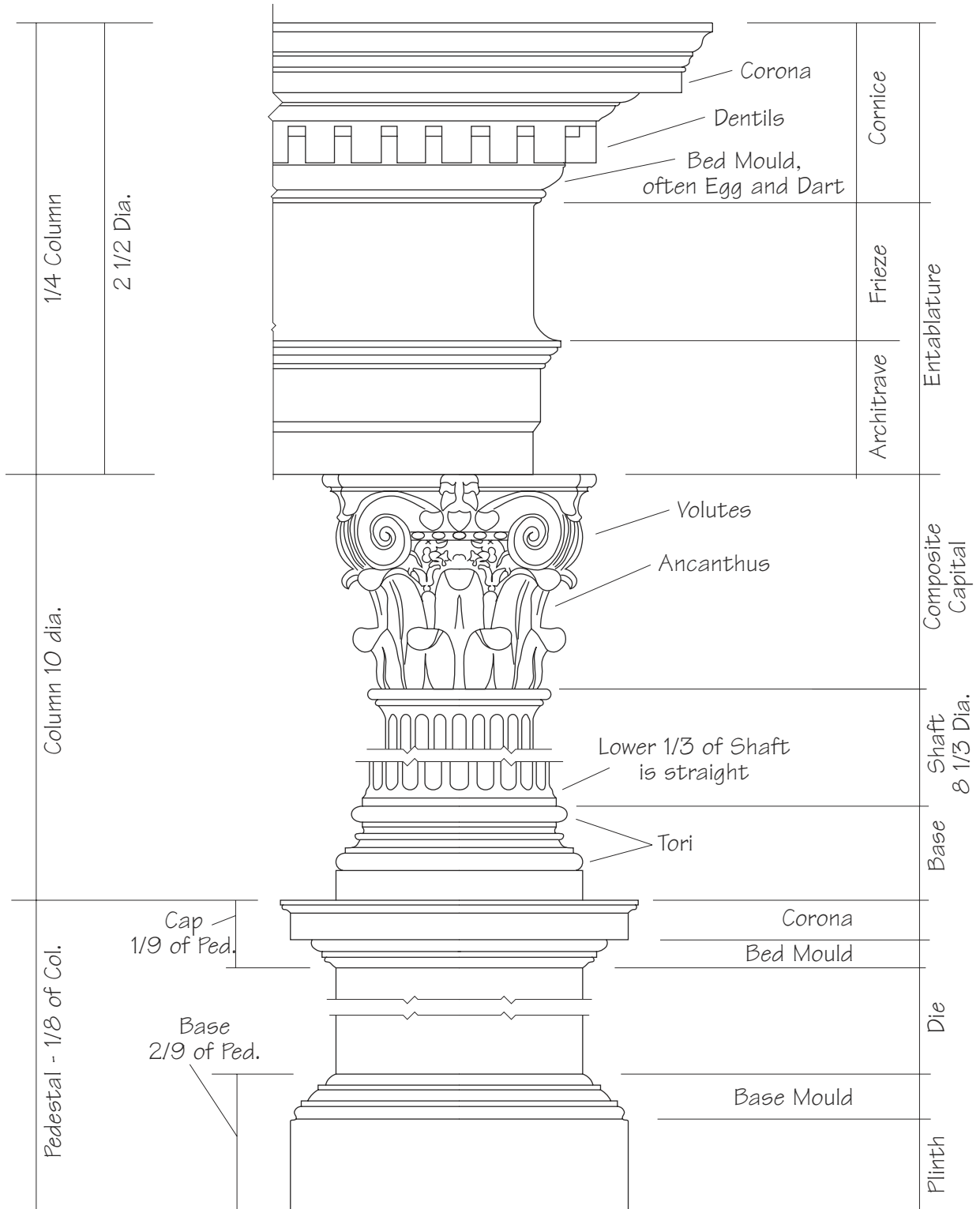
The first is derived from native antecedents and is a relatively plain style with unfluted column, simply echinus capital and entablature like the Ionic without the dentil course.

The Composite has a capital, which is an amalgamation of the Ionic volutes, and the Corinthian acanthus leaves. The entablature is similar to the Corinthian. The Romans introduced several building innovations, but the use of the arch (the arcuated system) and, therefore, vaults and domes changed architecture immeasurably.



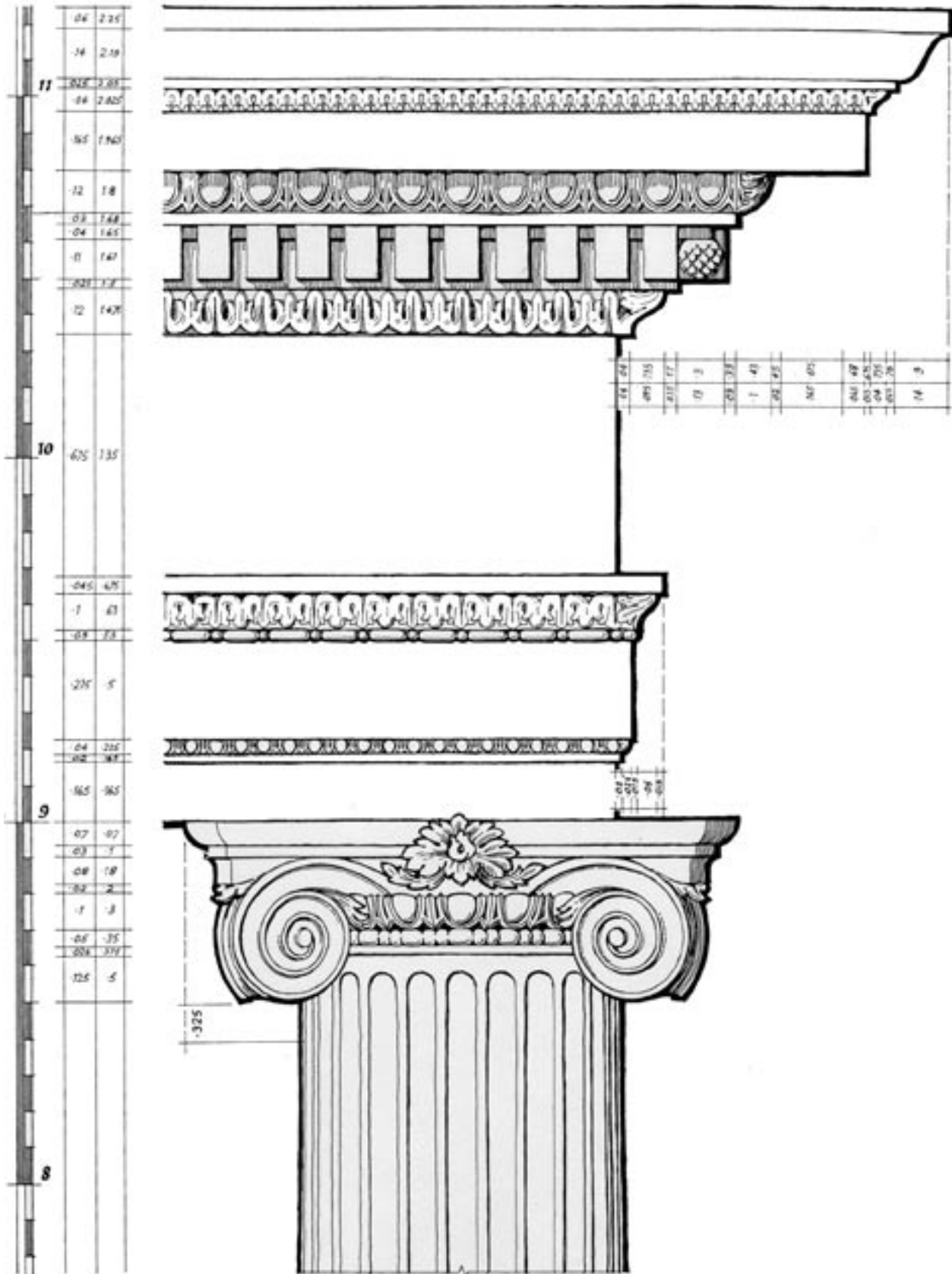
The Five Orders - Fig. 700-1 Chitham, Robert. The Classical Orders of Architecture, used with permission

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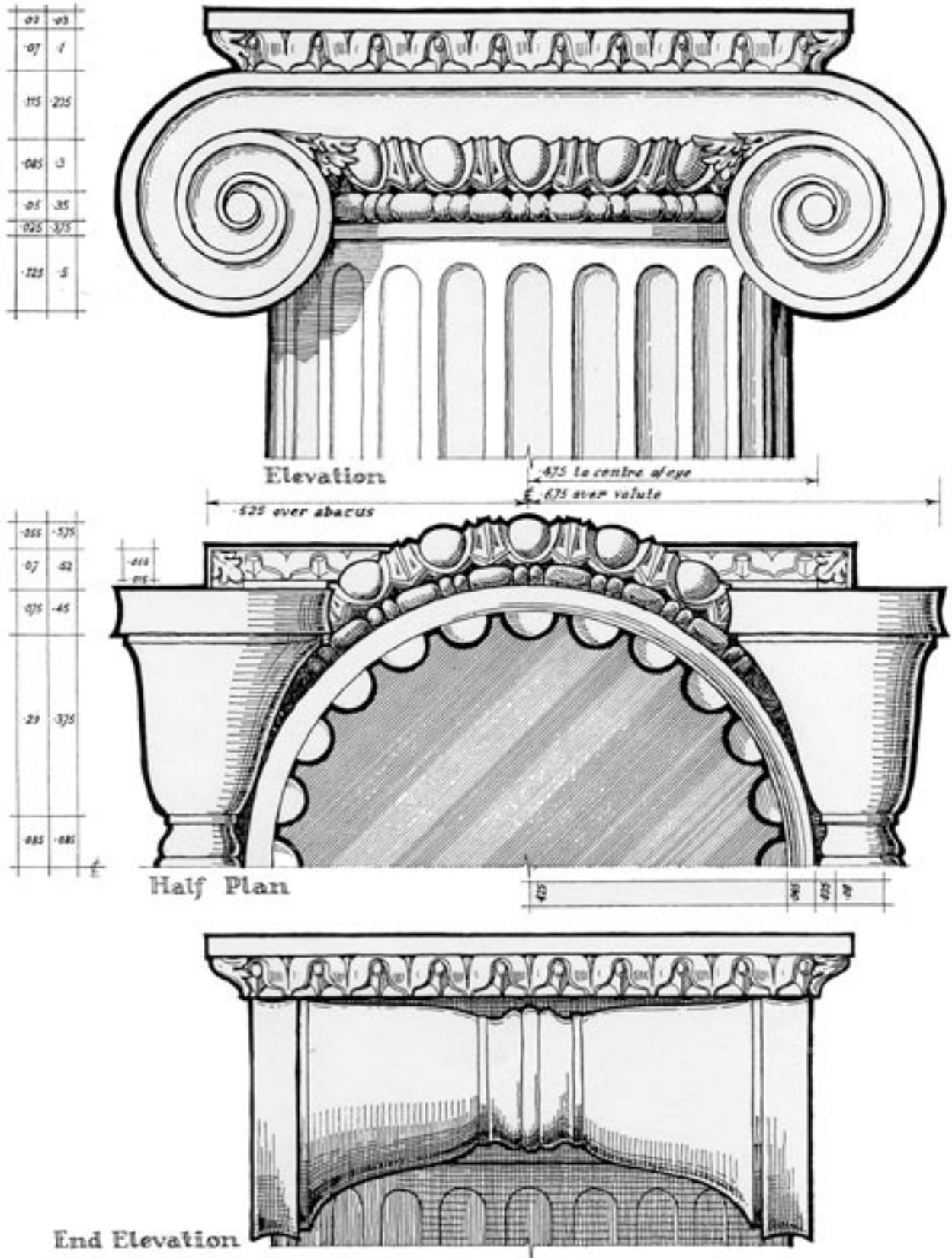
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Fig. 700-2 – The columns of the classical orders of Greek and Roman architecture are often adapted for modern construction. These orders are Tuscan, Doric, Ionic, Corinthian, and Composite. The Composite figure (above) names the basic features of a classical order and gives some of the proportions of the column in relation to the shaft diameter as a basic unit of measurement. Pilasters are rectangular in plan, without taper from top to bottom. If used structurally they are usually referred to as piers, but are treated architecturally as columns. The typical pilaster extends a third or less of its width from the wall surface behind it.



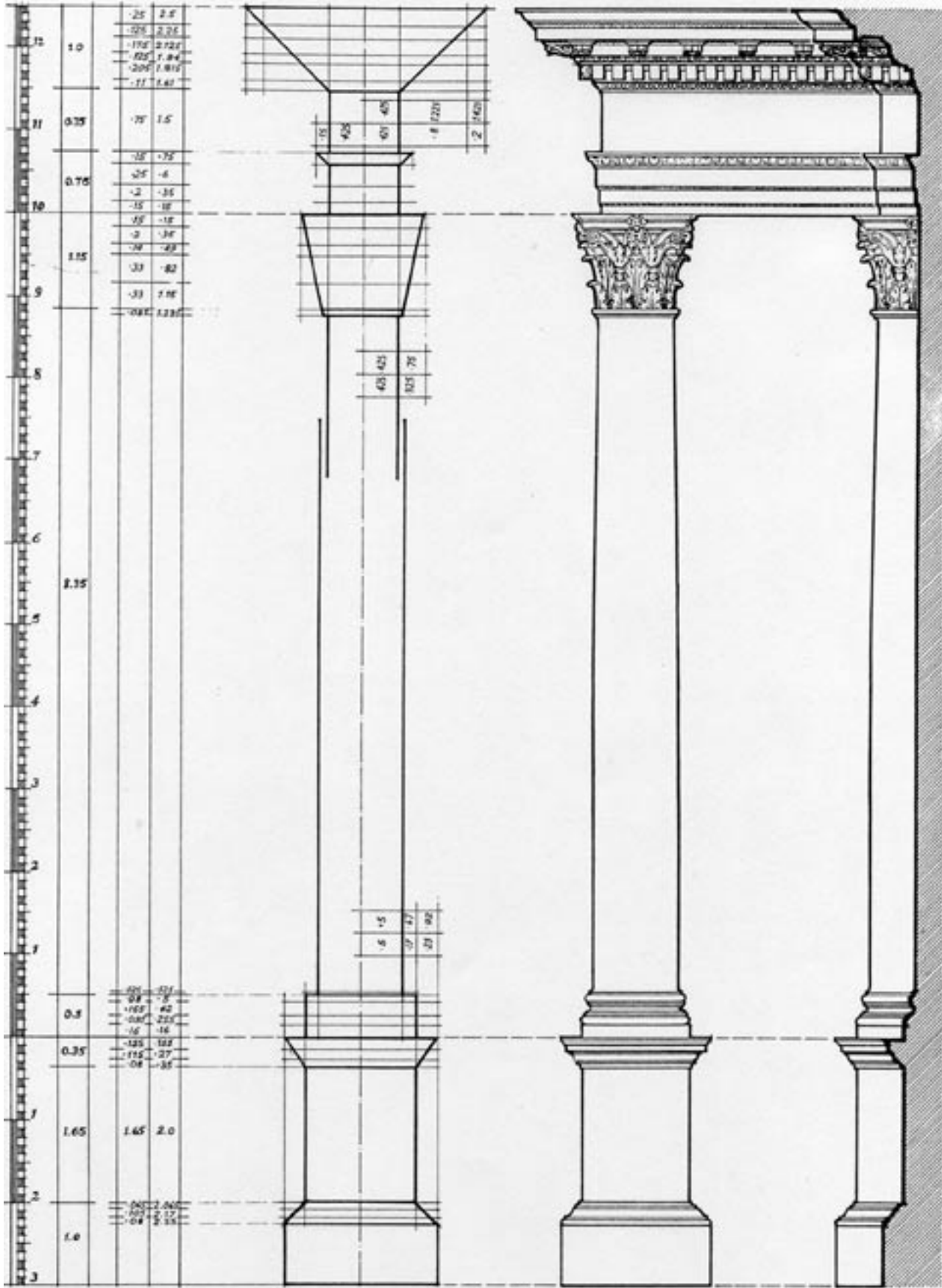
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Ionic Capital and Entablature - Fig. 700-03 Chitham, Robert. *The Classical Orders of Architecture*, used with permission

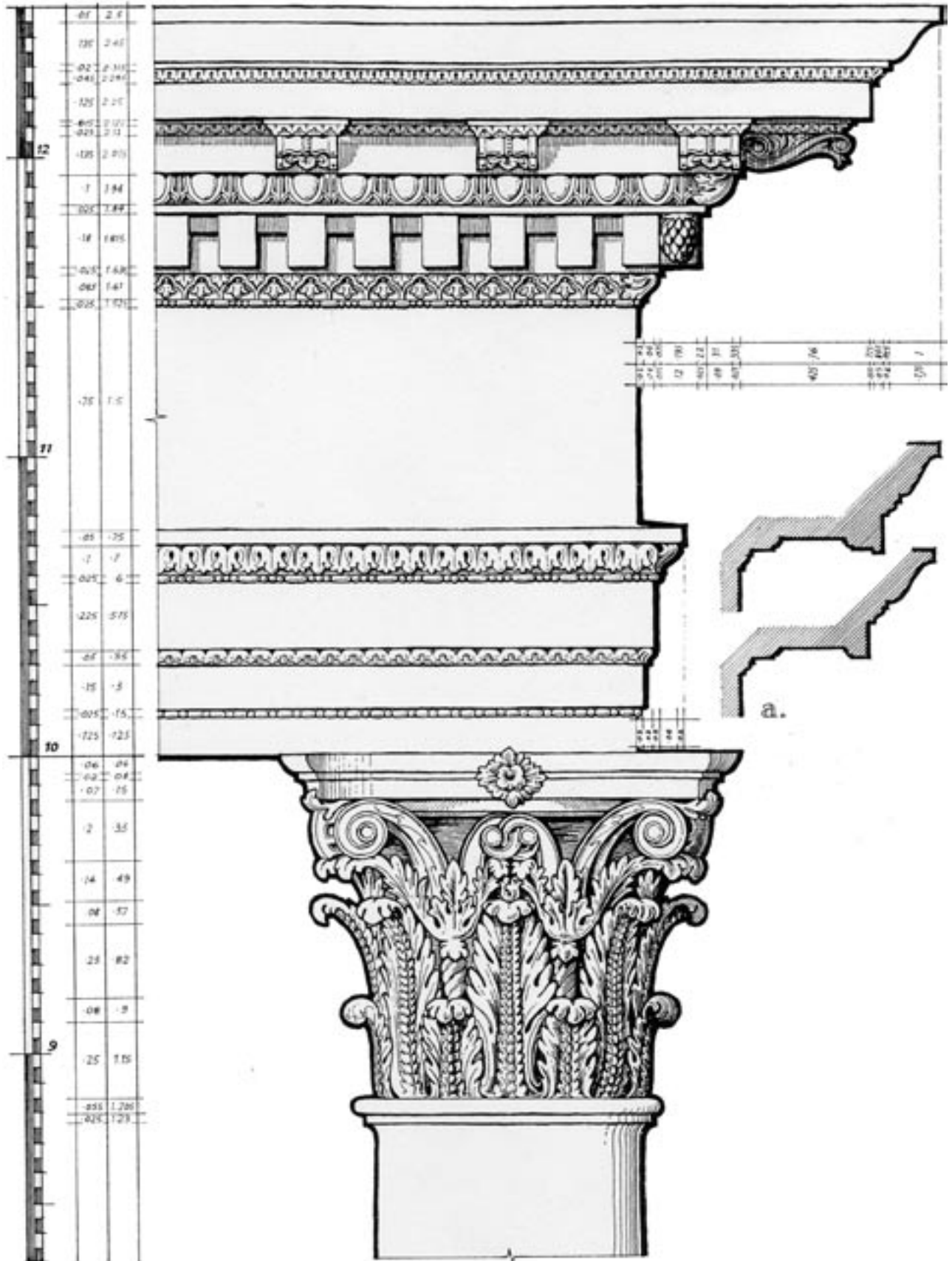


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Ionic Capital detail - Fig. 700-04 Chitham, Robert. The Classical Orders of Architecture, used with permission

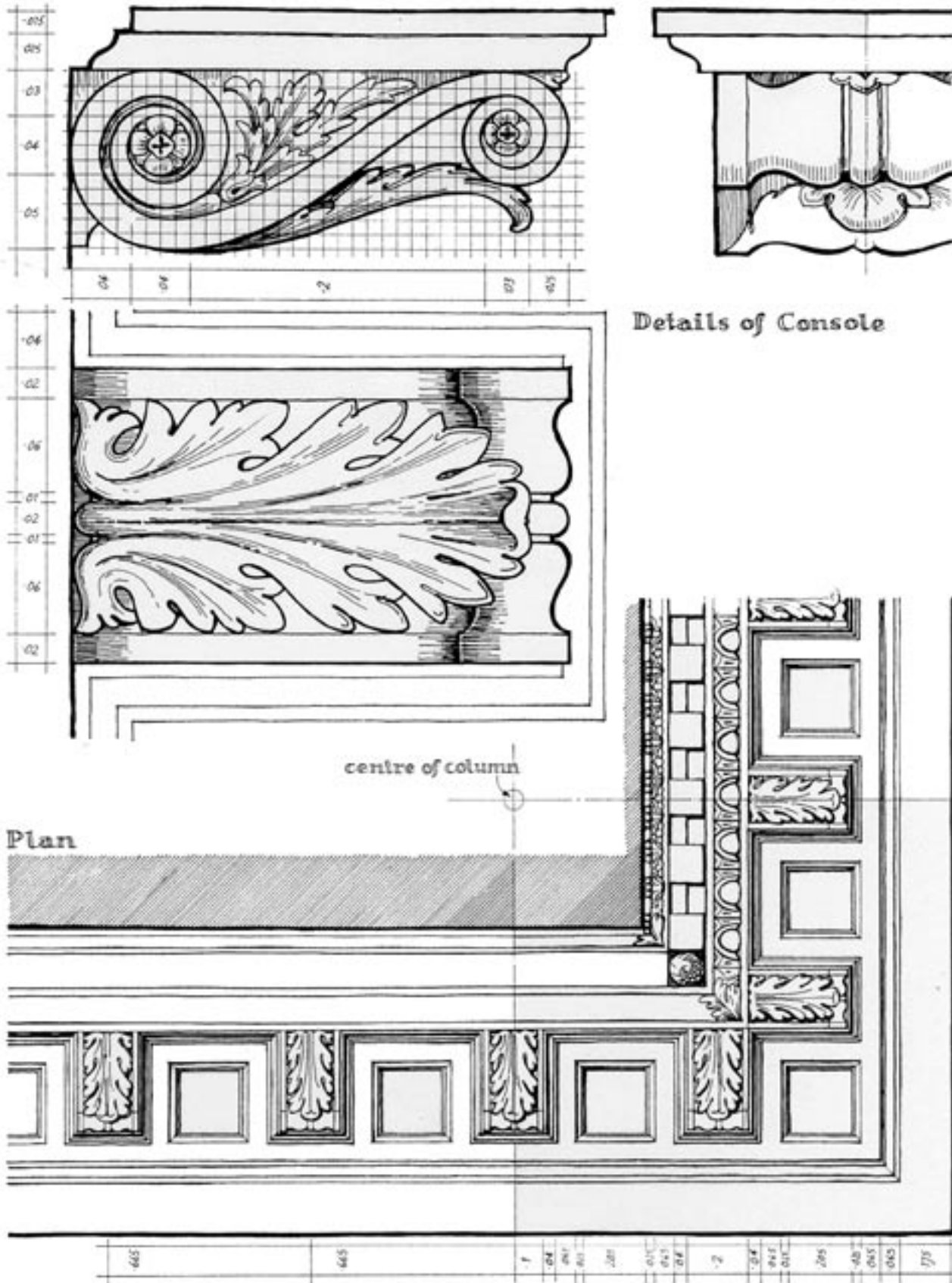


Corinthian Order proportions - Fig. 700-05 Chitham, Robert. *The Classical Orders of Architecture*, used with permission



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Corinthian Capital detail - Fig. 700-06 Chitham, Robert. *The Classical Orders of Architecture*, used with permission



Details of Console

Plan

centre of column

Corinthian Entablature detail - Fig. 700-07 Chitham, Robert. *The Classical Orders of Architecture*, used with permission

700-G-12

Terminology of Ornamentation

A rudimentary explanation of some carving terms will assist the millwork specifier in communicating with the custom carver.

There are four methods of depicting a design in wood.

- - *Incised*: Incised designs are simply made by shallow grooves in the surface of the material.
- - *Relief*: Most architectural carving is carved in relief. The degree to which the design is *lifted*, off the surface is described as *low*, or *high*, relief.
- - *Pierced*: Some voids in the design are literally cut through the material and are termed pierced carvings.
- - *Sculpture*: Carving in-the-round or sculptural works are also incorporated into architectural surroundings.

Mouldings have multiple uses but one important one is to visually set apart various elements. For instance, they are transitions between the parts of the *entablature*. They accentuate the trim (*architrave*) around doors and windows, and around an arch (*archivolt*). The various terms depend primarily on the profiles, but there are a few terms which indicate use, location or size.

The curving profiles are often separated or off set by a relatively small flat called a *fillet*.

The small half round is an *astragal*, often decorated with *beads* or *bead and billet*. A larger half round, usually associated with the base of a column or base of a structure is called a *torus* (plural *tori*) moulding, sometimes decorated with *ribbon-bundled bay laurel*, oak leaves, or reeds.

The *ovolo* is a quarter ellipse (Greek) or quarter round (Roman) profile, most often carved with *egg and dart* design, but many other possibilities make it a very popular moulding.

The *cyma recta* is a double-curved moulding with the concave curve on the outside of the moulding, pointing toward the viewer as if *reaching*, outward. The *cyma reversa* is the opposite, the convexity nearer the viewer and seems to support or bolster the element to which it is attached. Both profiles are often carved with foliage, generically termed *acanthus leaf*. Both of these profiles as well as the ovolo often have the curved portion separated from the fillet by deep valleys or *quirks*.

Medieval mouldings were often made of a number of closely placed profiles, often with deep hollows and repeated rounds.

Romanesque architecture continued many of the same principles of classical architecture, though much of the decoration; such

as column capitals became more idiosyncratic and depicted the profusion of natural foliage. The innovation of the pointed arch (loosely called the Gothic arch), ubiquitous in Gothic architecture, allowed buildings to soar to great heights and to redistribute weight. This allowed larger windows and the lacy stone work termed *tracery*. The designs of this tracery are geometrically derived from, for the most part, overlapping and intersecting circles. The circular voids are called *foils* and the pointed intersections *cusps*; thus a three lobbed design is a trefoil, while one of four is a quatrefoil, one of five is a cinquefoil. Tracery was found incorporated into the woodwork of choir stalls, paneling and memorial structures.

Much decoration was derived from nature in depictions of vines and animals. Of course, religious figures and symbols were also a primary motif. Foliage climbing the edges of pinnacles and spires consists of the leaves, called *croquets*, and the terminating leaves, a *finial* or (especially on pew ends) *poppyhead*. Mouldings were made of multiple profiles and combined with running vines and crestings, or stylized leaves. Square flowers and ballflowers were often spaced along mouldings. At intersections of the ribbed vaults were *bosses*, which depict foliage (like a *rosette*), figures, or heraldic devises. A selected partially illustrated glossary related to ornament and architecture follows.

700-G-13

Ornamental Woodwork Glossary

abacus

The uppermost member of the **capital** of a **column**; often a plain square slab, but sometimes moulded or carved. The plate or bearing surface at the top of a column upon which the **architrave** rests.

acanthus

An indigenous plant of the Mediterranean area depicted on the **Corinthian capital** and used as a decorative motif on many objects throughout history. Today nearly a generic term for any multi-leafleted foliage.

arch

A curved construction which spans an opening; usually consists of wedge-shaped blocks called **voussoirs** and a keystone, or a curved or pointed structural member which is supported at the sides or ends (often contrasted to **trabeated** construction of post and lintel).

architrave

1. In the classical **orders**, the lowest members of the **entablature**; the beam that spans from column to column, resting directly on their **capitals**. 2. The ornamental mouldings around the faces of the jambs and lintel of a doorway or other opening.

archivolt

The face moulding of an arch (the **architrave** of an **arch**).

astragal

1. a **bead**, usually half-round, with a **fillet** on one or both sides. It may be plain, but the term is more correctly used to describe the classical moulding decorated with a string of beads or bead-and-reel shapes. A small moulding of half round section, often carved with beads; often referred to as a **bead** by furniture-makers.

bead

1. A bead moulding. 2. A narrow wood strip, moulded on one edge, against which a door or window sash closes; a stop bead. 3. A pearl-shaped carved decoration on mouldings or other ornaments, usually in a series, or in conjunction with other shapes; a beading.

bead-and-reel

A semiround convex moulding carved with a pattern of disks alternating with round or elongated beads.



bolelection moulding

A moulding which covers the joint between panel and stile and projects above the surface of stile; a moulding applied to a flat ground.

boss

1. A projecting, usually richly carved ornament, decorative rosette, portrait, heraldic devise or similar motif, placed at the intersection of ribs, groins, beams, etc., or at the termination of a moulding. 2. In masonry, a roughly shaped stone set to project for caving in place.

bracket

A general term for an element projecting from a wall or other surface to support another element such as a beam or **cornice**.

capital

The topmost member, usually decorated, of a **column** or **pilaster**, etc., it provides a larger bearing surface for the **architrave**; different in appearance according to the order* of the building.

cavetto

A cove; a moulding profile whose arc is a segment of a circle, (unlike **scotia** whose profile has two centers).

cinquefoil

A five-lobed pattern divided by **cusps**; in Gothic **tracery** a geometric design with five round open areas ().

column

1. In structures, a relatively long, slender structural compression member such as a post, pillar, or strut; usually vertical, supporting a load which acts in (or near) the direction of its longitudinal axis. 2. In classical architecture, a cylindrical support of the **entablature**, consisting of a base (except Greek Doric), shaft, and capital.

Composite order

One of the five classical orders. A Roman order of classical architecture which has proportions close to the **Corinthian** order, but the capital is a combination of the **Ionic** and the Corinthian capitals. The entablature is also similar or identical with the Corinthian entablature.

console

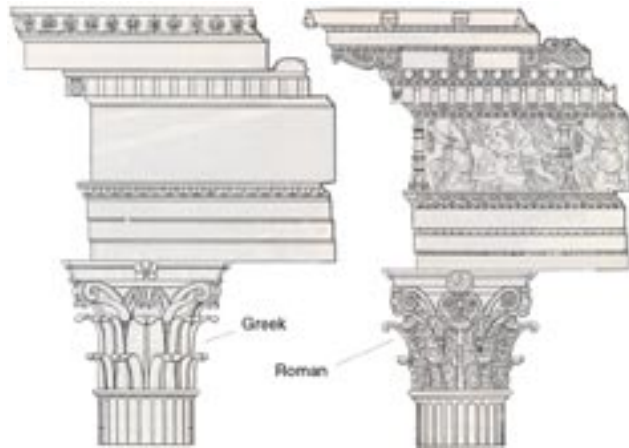
A scrolled bracket used to support an architectural element such as a **cornice**, **entablature** over a door, mantel shelf or in furniture, a table top.

corbel

A projection from a wall which supports a beam, **arch** or vault ribbing.

Corinthian order

One of the Greek orders characterized by slender proportions; the column shaft is fluted, with a **capital** depicting **acanthus** leaves and scrolled *sprouts* (caulicoli) and with an **entablature** with **dentil** course and **modillions** under the soffit. Roman adaptations often highly decorated.



cornice

1. Any moulded projection which crowns or finishes the parts to which it is affixed. 2. The third or uppermost division of an **entablature**, resting on the **frieze** consisting of **corona** and **cymatium**. 3. An ornamental moulding, usually of wood or plaster, running round the walls of a room just below the ceiling; a crown moulding; the moulding forming the top member of a door or a window frame.

corona

The overhanging vertical member of a **cornice**.

crockets

Regularly spaced leaves projecting along the gable of a Gothic arch, spire, or pinnacle. Sometimes as terminations of the interior **cusps** of an arch or **trefoil**, **quatrefoil**, etc.

cusps

In Gothic **tracery**, the intersection or termination of arcs which define foliations or spaces.

cyma recta

A moulding with an S curve section; orientation is with concave curve foremost toward viewer. Example is **cymatium** of **cornice**; opposite of cyma reversa.

cyma reversa

A moulding with a S curve section; orientation is with convex curve foremost toward viewer. Example is panel (**bolection**) moulding.

cymatium

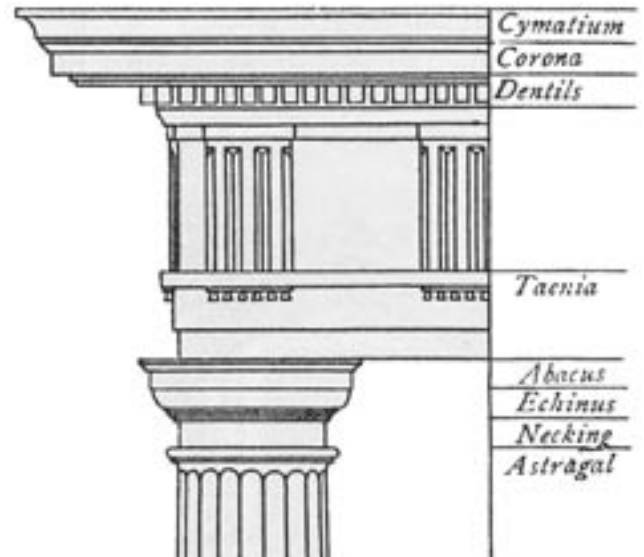
The top moulding of the cornice; usually a cym profile, but can be an ovolo or (rarely) a cavetto.

dentil

One of a band or small, square, tooth-like blocks forming part of the characteristic ornamentation of the Ionic, Corinthian, and Composite orders.

Doric order

One of the Greek orders; the sturdiest order with stout proportions; the **column** has no base, is fluted and has a relatively simple flaring **capital**; the **frieze** of the **entablature** is divided into **triglyphs** and **metopes**. Example is the Parthenon.



echinus

The bulging or flaring of a **capital**; of elliptical section as in the **Doric** order, often an **ovolo** moulding.

egg and dart

The egg-shaped ornament alternating with a dart-like ornament, used to enrich **ovolo** and other mouldings.



entablature

In classical architecture, the elaborated beam member carried by the **columns**, horizontally divided into **architrave** (below), **frieze**, and **cornice** (above).

entasis

The intentional slight convex curving of the vertical profile of a tapered column used to overcome the optical illusion of concavity that characterized straight-sided columns.

fillet

A moulding consisting of a narrow flat band, often square in section; the term is loosely applied to almost any rectangular moulding used to visually separate moulding profiles.

finial

An ornament which terminates the point of a spire, pinnacle, etc., often turned or carved (downward pointing decorations are called *drops*).

foil

In **tracery**, any of several lobes, circular or nearly so, tangent to the inner side of a larger arc, as of an **arch**, and meeting each other in points, called **cusps**, projecting inward from the arch, or circle. Five foils make a **cinquefoil**.

frieze

1. The middle horizontal member of a classical **entablature**, above the **architrave** and below the **cornice**. 2. A similar decorative band near the top of an interior wall below the **cornice**. 3. Any broad horizontal band near the top of the wall or element (such as a mantelpiece).

fret

An essentially two-dimensional geometric design consisting of shallow bands; example is Greek key.

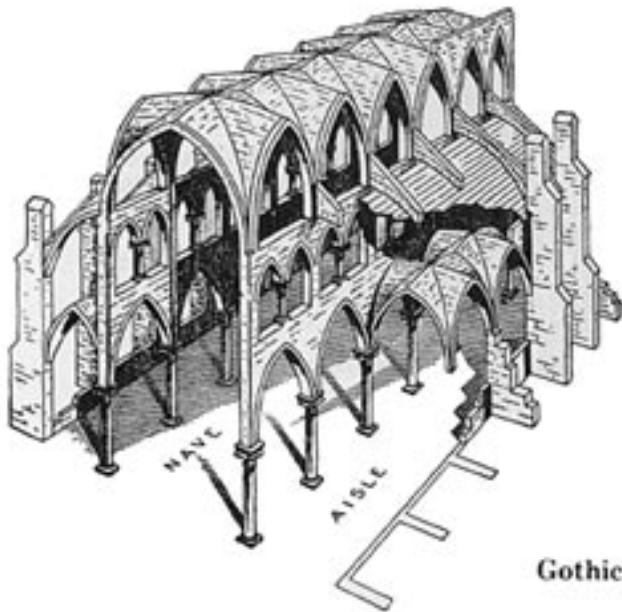
gadroon

Elongated bulbous shapes in series, as on decorative urns and turnings; a moulding of repeated tear-drop shaped elements, often on a thumbnail profile.

700

Gothic arch

A loose term denoting a pointed arch consisting of two (or more centers) as opposed to Roman or Romanesque arch which is semicircular.



groin

The ridge, edge, or curved line formed by the intersection of the surfaces of two intersecting **vaults**.

guillouche

Shallow design of overlapping circles, sometimes in-filled with **rosettes**.

Ionic order

The classical order originated by the Ionian Greeks, characterized by its **capital** with large **volute**s, a fasciated **entablature**, continuous **frieze**, usually **dentils** in the **cornice**, and by its elegant detailing.



metopes

The panel between the **triglyphs** in the **Doric frieze**, often carved.

modillions

A horizontal bracket or console, usually in the form of a scroll with acanthus, supporting the **corona** under a **cornice**.

mutule

A sloping flat block on the soffit of the **Doric cornice**

order

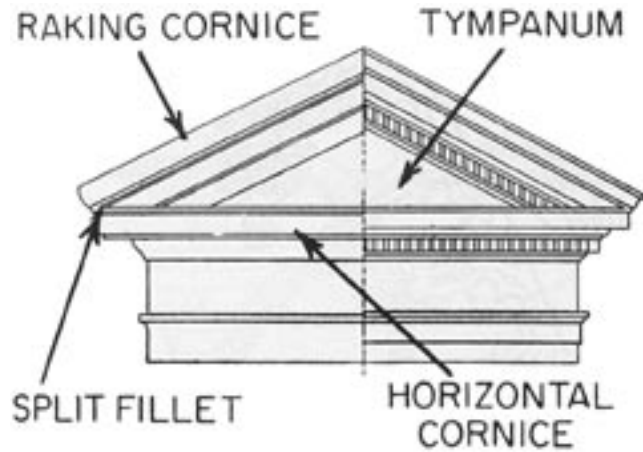
1. An arrangement of **columns** with an **entablature**. 2. In classical architecture, a particular style of **column** with its **entablature**, having standardized details. The Greek orders were the **Doric**, **Ionic**, an **Corinthian**; the Romans added the **Tuscan** and **Composite** orders.

ovolo

A convex moulding, less than a semicircle in profile; usually a quarter of a circle or approximately a quarter-ellipse in profile, often decorated with egg and dart design.

pediment

1. In classical architecture, the triangular gable end of the roof above the horizontal cornice, often filled with sculpture.
2. In later work, a surface used ornamentally over doors or windows; usually triangular but may be curved.



pilaster

1. An engaged pier or pillar, often with capital and base.

poppyhead

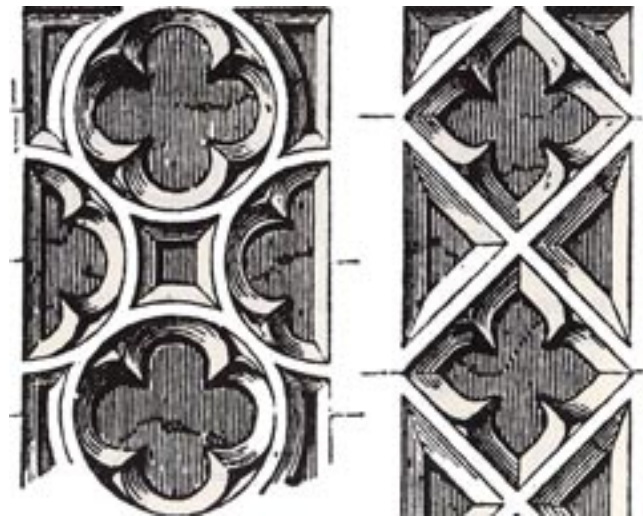
A carved foliage ornament generally used for the finials of pew ends and similar pieces of church furniture.

plinth

1. A square or rectangular base for column, pilaster, or door framing.
2. A solid monumental base, often ornamented with mouldings, etc.

quatrefoil

A four-lobed pattern divided by **cusps**.

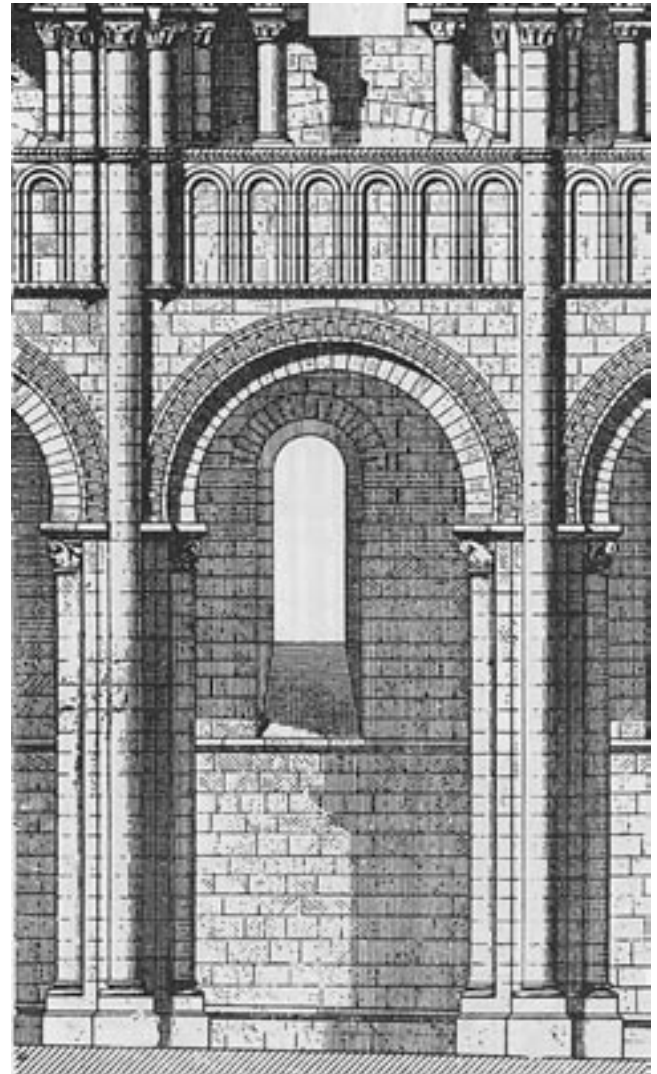


quirk

An indentation separating one element from another, as between mouldings; a valley between fillet and profile of a moulding; between abacus and echinus of **Doric** capital.

Romanesque

The style emerging in Western Europe in the early 11th century, characterized by massive articulated wall structures, round arches, and powerful vaults, and lasting until the advent of Gothic architecture in the middle of the 12th century, (illustration follows).



700

rosette

1. A round pattern with a carved or painted conventionalized floral and/or foliage design where petals/leaves radiate from center.
2. A circular or oval decorative wood plaque used in joinery, such as one applied to a wall to receive the end of a stair rail.

scotia

A deep concave moulding defined by two varying arcs, especially one at the base of a **column** in Classical architecture.

shaft

The portion of a **column** or **pilaster** between the **base** and the **capital**.

soffit

The exposed under surface of any overhead component of a building, such as an **arch**, balcony, beam, **cornice**, lintel, etc.

stylobate

The *floor* of classical temple; top step of crepidoma.

torus, tori

A bold projecting moulding, convex in shape, generally forming the lowest member of a base over the **plinth**.

trabeated

1. Descriptive of construction using beams or lintels, following the principle of post and lintel construction, as distinguished from construction using arches and vaults. 2. Furnished with an **entablature**.

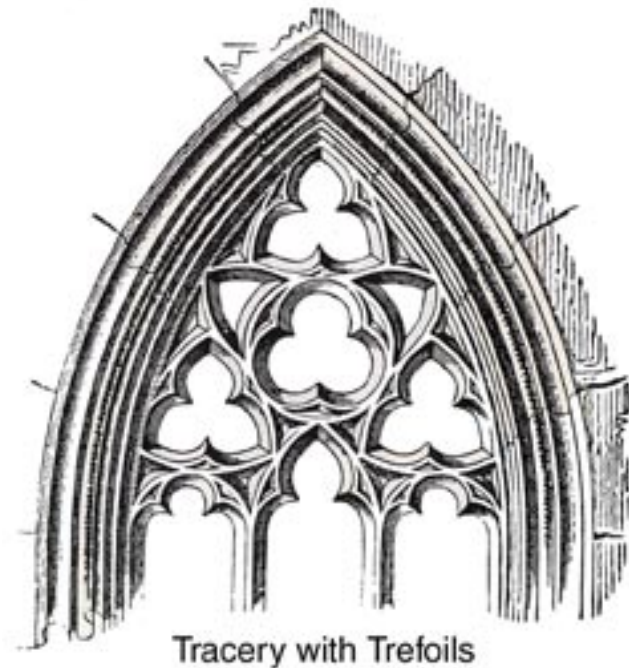
tracery

The pierced designs of window mullions in the Medieval period consisting of geometrically derived curving shapes; the same designs on furniture panels, walls and the decorative arts.

trefoil

A three-lobed pattern divided by **cusps**.

700

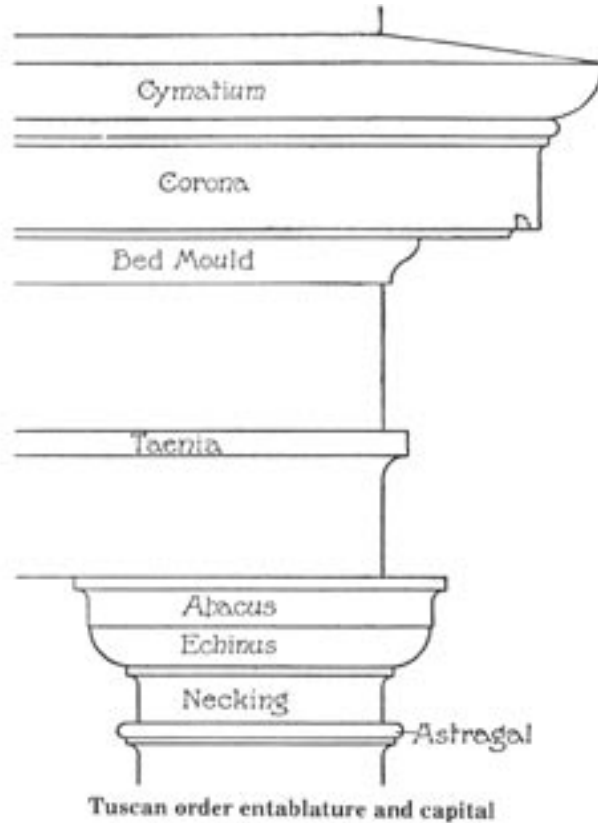


triglyph

The characteristic ornament of the **Doric frieze**, consisting of slightly raised blocks of three vertical bands separated by V-shaped grooves. The triglyphs alternate with plain or sculptured panels called **metopes**.

Tuscan order

A simplified version of the Roman **Doric** order, having a plain **frieze** and no **mutules** in the **cornice**.



volutes

1. A spiral scroll, as on **Ionic**, **Corinthian**, or **Composite capitals**, etc. 2. A stair crotch having an easement with a spiral section of stair rail.

vousoir

A wedge-shaped masonry unit in an arch or vault whose converging sides are cut as radii of one of the centers of the arch or vault.

700-G-14**Resources and References****A. Museums with period rooms**

There are many historic houses around the country which are open to the public. Eighteenth Century homes such as Gunston Hall in VA, and Drayton Hall, near Charleston, SC, along the Eastern Seaboard and Neoclassical houses as one moves West. There are museums with *period* rooms as well. The Metropolitan Museum in New York, the Philadelphia Museum of Art, Colonial Williamsburg, are only a few.

B. Publications

Dover Publications, Inc.
31 East Second Street
Mineola, NY 11501

Dover Publications has an incomparable listing of books which, for the most part, are reprintings of older publications; from Andrea Palladio's *Four Books of Architecture* to Augustus Charles Pugin's *Gothic Ornament* as well as handbooks and specialized subjects.

One invaluable Dover handbook is *Illustrated Dictionary of Historic Architecture* by Cyril M. Harris. It is from Harris that the definitions and many of the illustrations in the abbreviated Glossary in this Edition have been used with permission.

Three others which offer good illustrations are:

Colling, James K. *Medieval Decorative Ornament*, New York, (Reprint of 1874 edition); Dover Publications, Inc. 1995.

Griesbach, C.B. *Historic Ornament: A Pictorial Archive*, New York, Dover Publications, Inc., 1975.

Speltz, Alesander. *The Styles of Ornament*, (Reprint of German Edition of 1906), New York, Dover Publications, Inc., 1959.

Several books explaining in detail the orders of architecture are:

Adam, Robert. *Classical Architecture: A Comprehensive Handbook to the Tradition of Classical Style*, New York: Harry N. Abrams, Inc., Publishers, 1990.

Chitham, Robert. *The Classical Orders of Architecture*, New York: Rizzoli International Publications, Inc., 1985 (may be out of print).

Ware, William R. *The American Vignola: A Guide to the Making of Classical Architecture*, New York: Dover Publications, Inc., 1994.

A definitive history of architecture is:

Fletcher, Sir Banister. *A History of Architecture on the Comparative Method*, 20th edition ed., Dan Cruickshank and Andrew Saint, Oxford: Architectural Press, 1996.

For carving classical architectural elements:

Wilbur, Frederick. *Carving Architectural Detail in Wood: the Classical Tradition*, Lewes, UK: Guild of Master Craftsmen Publications, Ltd. 2000.



Technical Criteria

700-T-1

Specification Requirements

Architect or Design Professional shall ...

- specify the species and type of cut;
- specify the grain direction and articulated joints. In the absence of such indication, the grain direction of the panels shall be vertical, and the grain direction of articulated joints at manufacturer’s option;
- specify the cut and grain direction of lumber members. Grain direction should be along the length of the solid lumber member.
- specify the ornamental details and joinery which affect the aesthetics and function.
- specify the fire retardant rating, if required.
- specify the preservative treatment for exterior use, if required.

700

700-T-2

Materials

In the absence of specifications, the following standards will apply. Where more than one method or material is listed for a Grade, manufacturers will supply their choice from the alternatives. **Materials for Historic Work shall be solids and veneers of species, cut, grain, figure, etc. selected to be well matched with original materials.**

Materials	Premium		Custom		Economy	
	Transparent	Opaque	Transparent	Opaque	Transparent	Opaque
Lumber (see Section 100)	I	II	II	II	II	II
Panel Products (see Section 200)						
Core	Particleboard or fiberboard (veneer core only by direct specification)		Particleboard or fiberboard (veneer core only by direct specification)	Particleboard or fiberboard recommended (veneer core permitted)	Particleboard or fiberboard recommended (veneer core permitted)	Particleboard, fiberboard or veneer core
Face: Veneer grade for transparent finish and material for opaque finish	“AA” face veneer”	“B” veneer, plain fiberboard or medium density overlay	“A” face veneer”	“B” veneer, plain fiberboard or medium density overlay	“B” face veneer”	“B” veneer, plain fiberboard or medium density overlay

700-T-3

Machining and Joinery

In the absence of specifications, the following standards will apply. Where more than one method or material is listed for a Grade, woodworkers will supply their choice from the alternatives. The use of solid lumber elements for ornamental carving and deeply machined elements shall not be restricted in this section when required to complete the work specified.

Machining	Premium	Custom	Economy
Plant Machining Considerations			
Sizing	Plant sized except where field adjustments required	Plant sized except where field adjustments required	Plant sized except where field adjustments required
Panel retention note: Regardless of method of retention, panels must have freedom and room to expand and contract in reaction to ambient humidity changes.			
Column fabrication note: In the interests of sound environmental practice, solid lumber columns for opaque finish may utilize finger-jointed materials. No more than one joint per 2400 mm [96"] (or portion) shall be allowed in any individual board. Joints must be off set a minimum of 76 mm [3"] from adjacent joints, and must be made perpendicular to the face of the column resulting in the appearance of a single horizontal line at the joint with the column upright, prior to priming and painting. Maximum gap: Test C and flushness variation test shall apply to such joints.			
Joinery and Assembly Considerations			
Stiles, rails, and mullions	Joined with mortise and tenon, dowel, or spline joinery; glued under pressure.		Shipped without preparation
Solid lumber panels	Not permitted	Edge glued and planed/sanded to thickness (up to 10")	Edge glued and planed and/or sanded to thickness
Raised panel rims	Mitered, splined or doweled to panel body and glued under pressure	Mitered, and glued to panel body under pressure	Mitered, and glued to panel body under pressure
Panel product centers	Panel edge must be covered by veneer or concealed by moulding	Panel edge must be covered by veneer or concealed by moulding	No edge treatment required
Loose joints between sections	Plant assembled, if practical, utilizing mortise and tenon, dowel, or spline joinery	Plant prepared, utilizing mortise and tenon, dowel, or spline joinery	Shipped without preparation
Outside corners	Plant prepared and, if site conditions permit, glued and braced prior to shipping	Plant prepared and shipped loose for field fitting	Shipped without preparation
Inside corners	Shipped oversize for field fitting	Shipped oversize for field fitting	Shipped without preparation
Note: Site-applied mouldings are governed by Sections 300 and 1700. The following applies to mouldings contained wholly within an individual item or used as rim or panel retention members. Integral applied moulding: Acceptable with solid or veneered stiles and rails. Mouldings must be mitered. Mouldings must be fastened to stile or rail (not to panel to permit movement), utilizing not more than two positioning nails.			
Applied mouldings	Plant fastened; spot glued, fine finish nailed, set, filled and sanded	Plant fastened; spot glued, fine finish nailed	Shipped without preparation
Historic Repair, Machining, Joinery and Assembly Considerations			
Repairs	Use same machining, joinery and assembly methods as original, reversable adhesives, etc.		
New Work	To match existing, except when hand made non-uniform profiles occur, a similar machined uniform profile shall be selected by the architect, design professional, or conservator.		

700

700-T-4

Smoothness of Exposed Surfaces (Minimum Requirements)

In the absence of specifications, the following standards will apply. Where more than one method or material is listed for a Grade, woodworkers will supply their choice from the alternatives. The presence of tool marks and other evidence of hand work on ornamental architectural carving shall not be restricted by these criteria for Section 700, and shall be as agreed between buyer and seller through the process of communicating the requirements for the unique work specified.

Smoothness Table	Premium		Custom		Economy	
	Transparent	Opaque	Transparent	Opaque	Transparent	Opaque
Sharp edges (Arris)	Eased with fine abrasive		Eased with fine abrasive		Mill option	
Top flat surfaces	150 grit		120 grit		100 grit or 15 KCPI	
Moulded surfaces	120 grit		minimum 20 KCPI			
Shaped surfaces	120 grit		minimum 20 KCPI			
Turned surfaces	120 grit		100 grit			
Sanding cross scratches	None allowed	Not to exceed 6.4 mm [.25"]	None allowed	Not to exceed 6.4 mm [.25"]		

NOTE: No tearouts, knife nicks, or hit-or-miss finish allowed. No knife marks allowed where sanding is required. Surface variations as a result of multiple tool passes treated as turned surfaces above. Glue and filler, if used, must be inconspicuous and sanded as smoothly as the surrounding surface. Sanding before final stain and/or finish should be a consistent grit and scratch pattern, as it influences blend of color and sheen between components. Top Flat Surfaces are those which which can be sanded with a drum or wide belt sander. Turnings are customarily sanded on the lathe, and will exhibit cross scratches.

Before finishing, all exposed portions of architectural woodwork shall have handling marks or effects of exposure to humidity or moisture removed by a thorough uniform final sanding. The sanded surface shall then be cleaned and dust free, prior to proceeding with the first step in the finishing process. Veneer sand-through, with veneer sanded to the point where cross banding or core is visible, and/or core telegraphing (variation from a true plane in excess of 0.25 mm [0.010"] in any 76 mm [3"] span) is not allowed in any Grade.

700

700-T-5

Tightness of Plant Assembled Joints (Minimum Requirements)

Plant Assembled Joint Table	Premium		Custom		Economy	
	Interior	Exterior	Interior	Exterior	Interior	Exterior
Maximum gap: Test A	0.4 mm [.015"] wide by 20% of joint length	0.6 mm [.025"] wide by 30% of joint length	0.6 mm [.025"] wide by 20% of joint length	1.3 mm [.050"] wide by 30% of joint length	1.3 mm [.050"] wide by 20% of joint length	1.9 mm [.075"] wide by 30% of joint length
Maximum gap: Test B	0.4 mm [.015"] x 76 mm [3"], and no gap may occur within 1829 mm [72"] of a similar gap	0.6 mm [.025"] x 152 mm [6"], and no gap may occur within 762 mm [30"] of a similar gap	0.6 mm [.025"] x 152 mm [6"], and no gap may occur within 1524 mm [60"] of a similar gap	1.3 mm [.050"] x 203 mm [8"], and no gap may occur within 660 mm [26"] of a similar gap	1.3 mm [.050"] x 203 mm [8"], and no gap may occur within 1219 mm [48"] of a similar gap	1.9 mm [.075"] x 254 mm [10"], and no gap may occur within 610 mm [24"] of a similar gap
Maximum gap: Test C	0.4 mm [.015"]	0.6 mm [.025"]	0.6 mm [.025"]	1.3 mm [.050"]	1.3 mm [.050"]	1.9 mm [.075"]

Maximum gap between fixed components shall be tested at points designed to join; where members connect or touch.

Flushness Variation	0.03 mm [.001"]	0.4 mm [.015"]	0.1 mm [.005"]	0.6 mm [.025"]	0.6 mm [.025"]	1.3 mm [.050"]
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700-T-6

Selection for Grain and Color

For Transparent finish, adjacent members shall ...

- Premium Grade: ... be well matched for grain and color.
- Custom Grade: ... be compatible for color.
- Economy Grade: ... not be selected.

Visible finger joints not permitted in Premium and Custom Grades. No selection for grain or color is required for Opaque finish in any Grade.



Compliance Criteria

700-C-1

Tests for Smoothness of Exposed Surfaces

KCPI (Knife Cuts Per Inch) can be determined by holding the surfaced board at an angle to a strong light source and counting the visible ridges per inch, usually perpendicular to the profile.

SANDING can best be checked by sanding a sample piece of the same species with the required grit of abrasive. Observation with a hand lens of the prepared sample and the material in question will offer a comparison of the scratch marks of the abrasive grit. Reasonable assessment of the performance of the finished product will be weighed against absolute compliance with the standard.

700-C-2

Tightness and Flushness of Plant Assembled Joints

Joint tightness and/or flushness will meet the standard when tested with a feeler gauge at the points indicated in the illustration. Joint length will be measured with a ruler with a minimum division of 1 mm [$1/16$ "] and calculations made accordingly. Reasonable assessment of the performance of the finished product will be weighed against absolute compliance with the standard.



Design Ideas

700-D

Freedom of Expression

Custom-designed woodwork gives you complete freedom of expression.

- **Design flexibility:** The use of custom-designed woodwork in a building allows the design professional freedom of expression while meeting the functional needs of the client. A custom-designed building is enhanced by the use of custom-designed woodwork.
- **Cost effective:** Custom woodwork does compete favorably with mass-produced millwork, and offers practically limitless variations of design and material. Most woodwork lasts the life of the building a quality counts.
- **Complete adaptability:** By using custom woodwork, the architect or designer can readily conceal plumbing, electrical and other mechanical equipment without compromising the design criteria.
- **No restrictions:** Custom architectural woodwork permits complete freedom of selection of any of the numerous hardwoods and softwoods available for transparent or opaque finish. Other unique materials available from woodwork manufacturers require no further finishing at all, such as plastic laminates and decorative overlays. These materials can be fashioned into a wide variety of profiles, sizes, and configurations. The owner and design professional have the best of both worlds a high quality and freedom of choice.
- **Dimensional flexibility:** Since custom woodwork is normally produced by a specialty architectural woodwork firm, dimensions can easily be changed prior to actual fabrication, if required by job conditions. Special situations such as designing for the handicapped can readily be accommodated by the custom architectural woodwork manufacturer.
- **Quality assurance:** Adherence to the QSI and specifications will provide the design professional a quality product at a competitive price. Use of a qualified AWI/AWMAC member firm will help ensure the woodworker's understanding of the quality level required.

700-D-1

The American Vignola

With the permission of the publisher, Dover Publications, this section contains a number of illustrations from the turn-of-the-century publication *The American Vignola* by William R. Ware.

The forward to the Dover edition states:

“The American Renaissance in architecture, which flourished from 1890 to 1930, featured the classical principles of architecture. It was Giacomo Barozzi da Vignola who first codified the rules of classical architecture for the Italian Renaissance. These teachings were turned into a practical tool by William R. Ware, the outstanding teacher of American architecture at the turn of the century, and his instruction is embodied in *The American Vignola*, first published in 1903.”

Ware was an important force in architectural training in America. He headed America’s first architectural school at the Massachusetts Institute of Technology and later, Columbia University’s School of Architecture.

The following section is intended as an introduction to classical ornamental forms, shapes and combinations. While systems have been proposed by Alberti, Palladio, Scamozzi, Serlio, Sir William Chambers and others, the orders set forth by Vignola are generally accepted as the standard.

The proportions of the order, according to Vignola, are based on modules set by the lower diameter of the column. They vary in height from seven diameters to ten. Ware offers a memory help when he notes:

“... in ordinary handwriting, the T, for Tuscan, looks like a 7; D, for Doric, like an 8; I, for Ionic, like a 9; Co, for Corinthian and Composite reminds one of 10.”

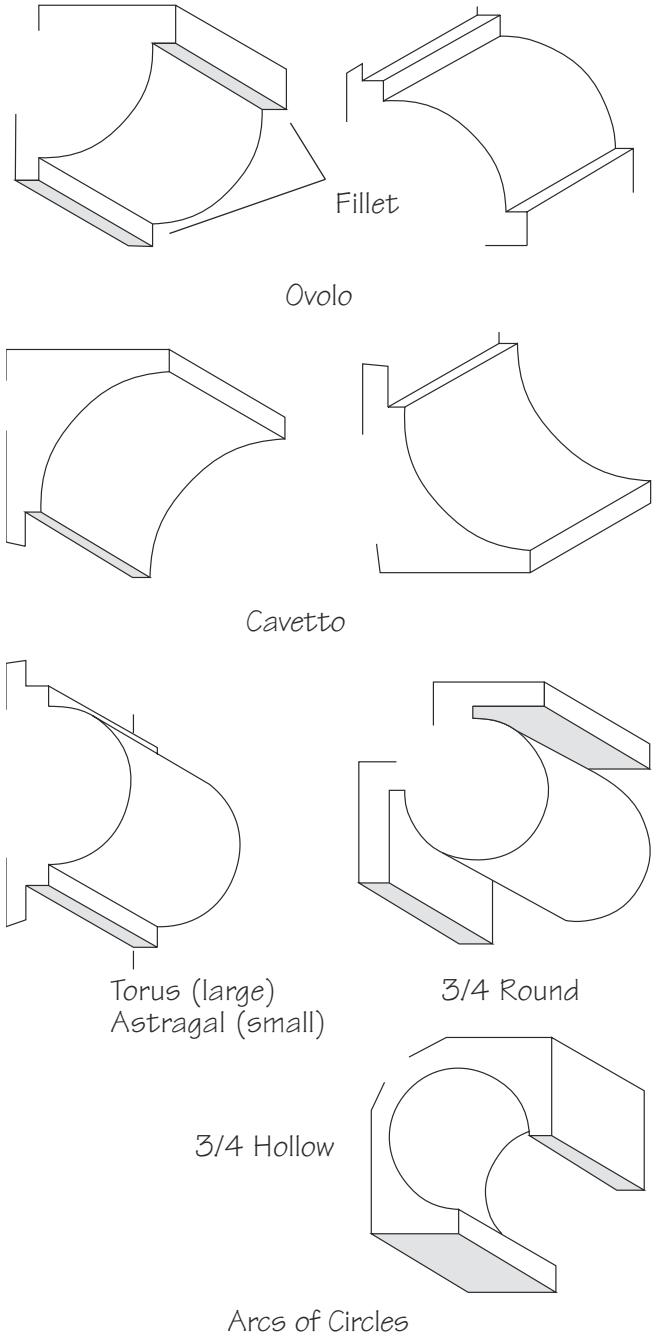
Since the relative size of all the parts is fixed, the whole order can be drawn if the size of one of the elements is known. When interested and/or appropriate, the reader is encouraged to continue the research independently.

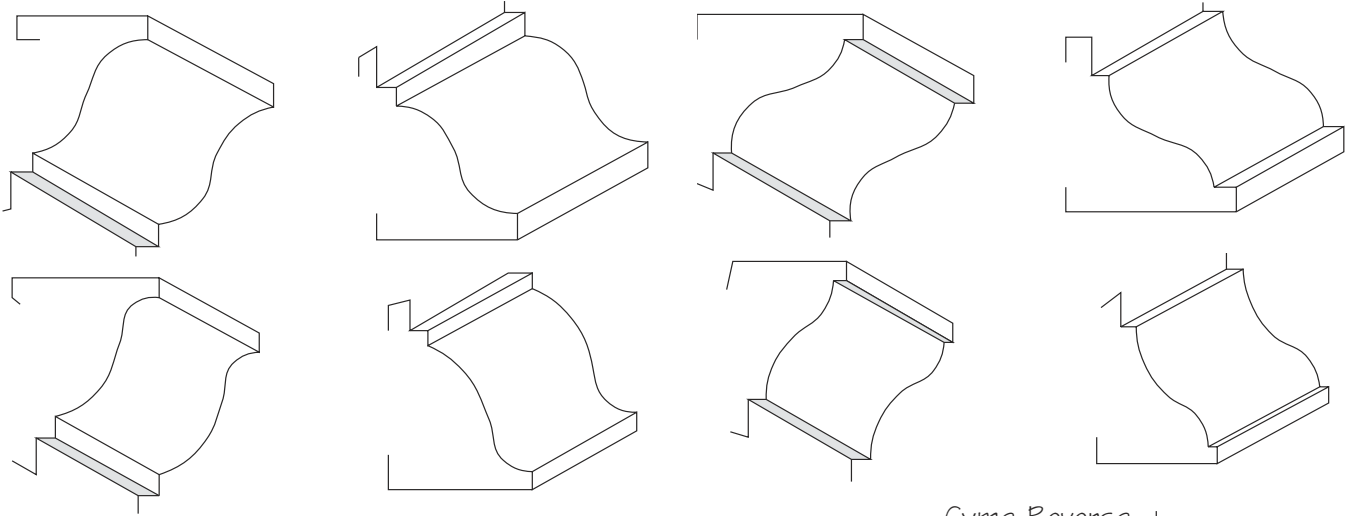
These sketches are just that, hand sketches, and not meant to be detailed or geometrically accurate representations of the actual profiles and shapes.

700-D-2

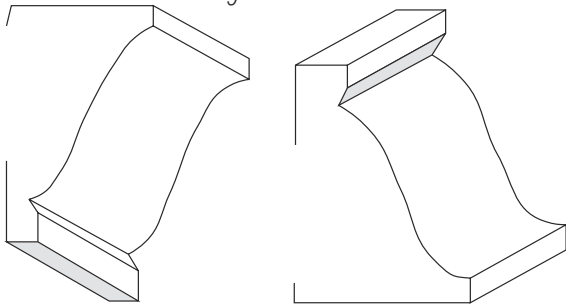
Classic Moulding Shapes

The next few pages illustrate the classic moulding shapes. Used alone and in combination, they form the basis for the classic proportions and arrangement of elements which appear in each order.



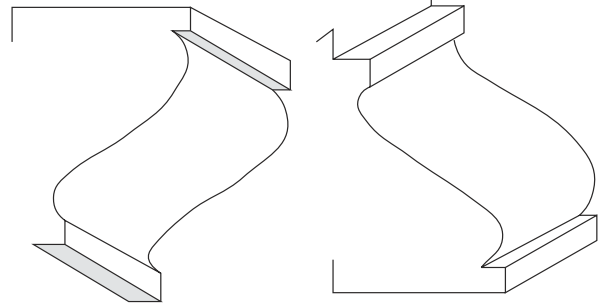


Cyma Recta



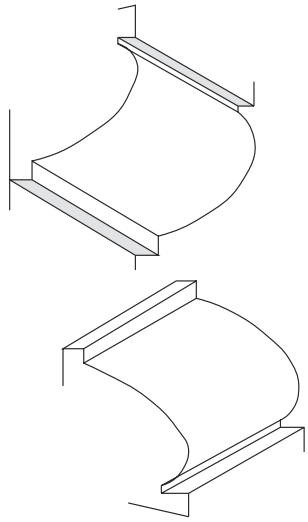
Quirked Cyma Recta

Cyma Reversa

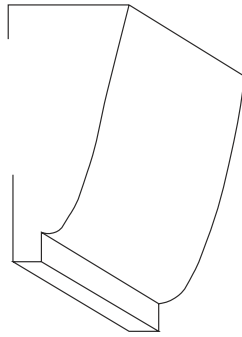


Quirked Cyma Reversa

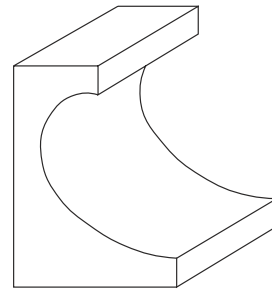
700



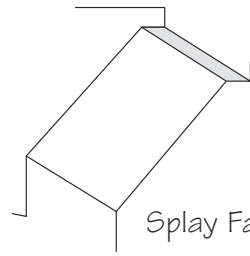
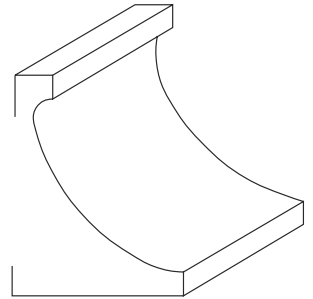
Thumb Mouldings



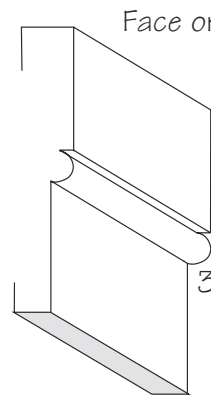
Venetian Moulding



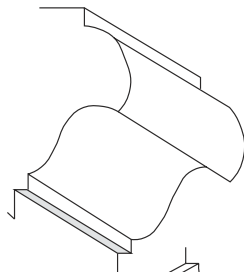
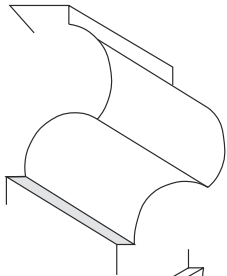
Scotia



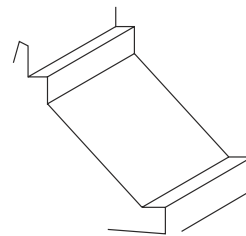
Splay Faces



Face or Facia

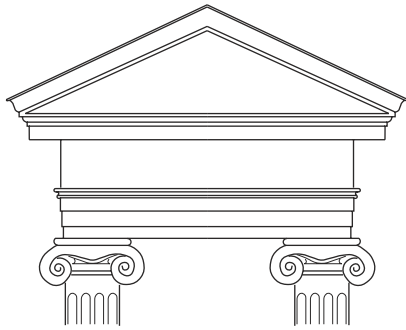


Beak Mouldings



3/4 Bead

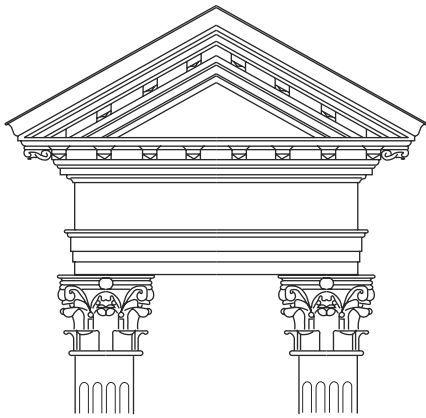
700-D-3
Pediments



Greek Ionic

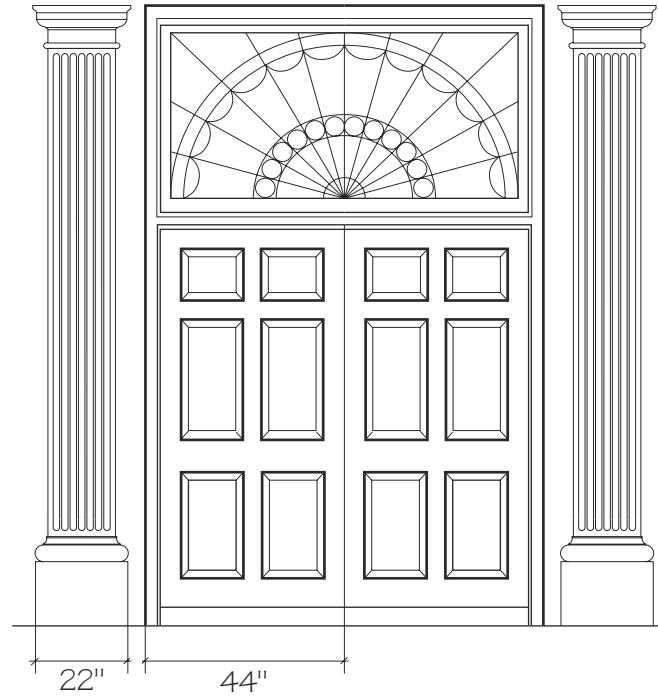


Roman Ionic

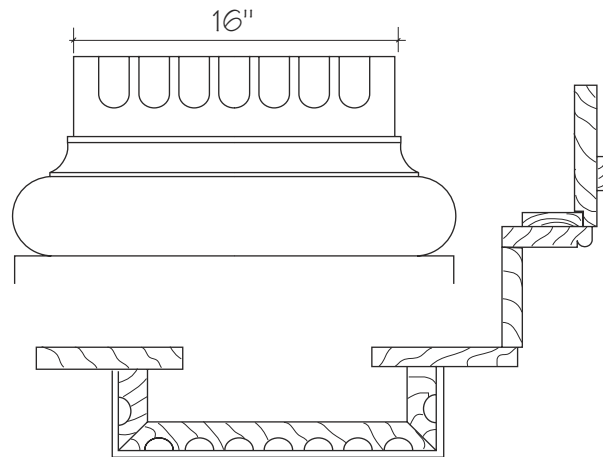


Roman Corinthian

700-D-4
Entrance and Details



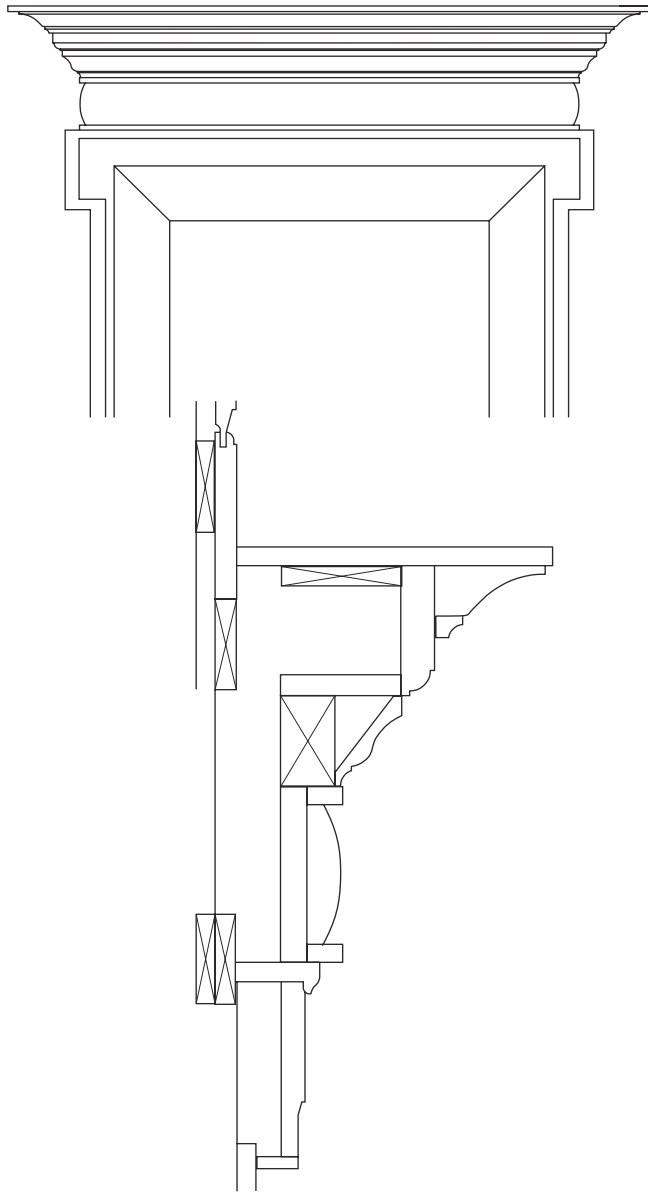
22" 44"



16"

700

700-D-5
Mantel and Details



700

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