Architectural Heritage, Character and Design

The University of Alabama is proud of its architectural heritage and seeks to maintain this heritage in all of its buildings. Designers who do work on the University of Alabama's campus need to be aware of this heritage because their building will become part of the fabric of the campus. This section briefly describes the University of Alabama's architectural history to aid designers in their design process.

The campus pre-dates the Civil War. Initially designed by William Nichols in 1828, the campus plan was based on an "academic village" design concept, modeled after the University of Virginia in Charlottesville, Virginia. The main Quadrangle, call "the Quad", is the "campus center" which has been preserved to maintain this concept. The era of Nichols design is known as the "Antebellum Campus" phase (1828-1865). Four buildings still remain and serve as wonderful examples of this period: Gorgas House, President's mansion, Old Observatory (Maxwell Hall), and The Guard House. These buildings survived a fire set by Union soldiers who sought to destroy the campus.

Following the Civil War, the Board of Trustees, with the influence of a renowned architect, Andrew Jackson Davis, adopted a plan similar to the Virginia Military Institute's campus plan. This development began the "Victorian Campus" phase (1865-1906). The initial buildings consisted of a main building, Clark Hall, and three barracks-style buildings, Garland Hall, Manley Hall and Woods Hall, which were flanked around a courtyard. Today this area is known as "Woods Quad". Barnard hall and Tuomey Hall, located south of these buildings on the main Quadrangle, were also built during this phase. All of the buildings are richly detailed in English Gothic style.

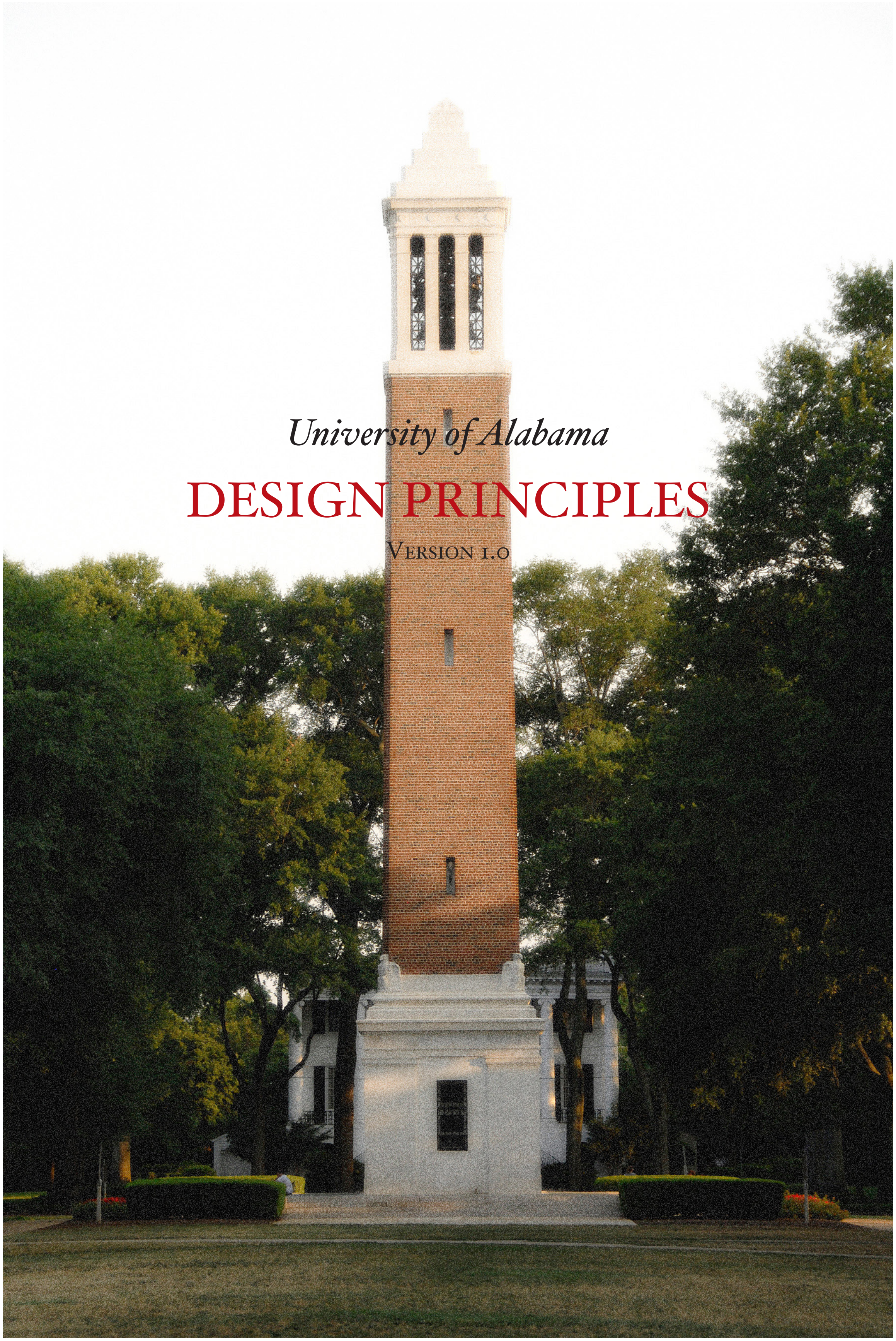
At the turn of the century, "The Greater University Plan" was developed by Parsons and Company, a landscape design firm. This plan was proposed to guide the growth of the University of Alabama for the next 50 years. State Architect, Frank Lockwood, designed several of these buildings, which were part of the "yellow brick campus". These buildings are prominently located north of the main Quadrangle. After the yellow brick buildings were built, a decision was made to change to "red brick" as the material of choice, since the bricks could be obtained locally. The present buildings surrounding the main Quadrangle were built during this era. These structures display the classic architectural detailing that has shaped the University of Alabama's architectural image: classical columned porticos with deep recessed entries and articulated red brick exteriors with stone trim. The University seeks to preserve this historical image and character on all future buildings.

Designers selected by the University of Alabama will need to design their building(s) to uphold the University's historical character, while also "blending" with the surrounding buildings. The design of "signature buildings", i.e. buildings that "pay homage" to the designer, will not be accepted by the University. The requirements contained in the Campus Master Plan are to be followed by the Designer in order to maintain the design integrity of our campus.

The "building vocabulary" of materials the University has adopted is as follows: red brick exterior, stone or pre-cast concrete trim, stone or pre-cast concrete columned entries where appropriate, and fenestration of single hung operable windows with divided lites. Detailed correctly and proportioned ornamentation for cornices and exterior surfaces are encouraged where appropriate. Mechanical and electrical equipment items located around the building are to be screened architecturally to reduce the visual impact to the campus, while maintaining service access to the equipment. All utilities servicing the buildings are required to be underground for maintenance and aesthetic reason.

In closing, the University of Alabama seeks to achieve quality building design that enhances and compliments the historical character of its campus as its guiding building design principle. The challenge for the designers is to embody this principle into their building design.

(Note: The historical information incorporated in this section was gathered from Dr. Robert O. Mellown's book, The University of Alabama: A Guide to the Campus, published in 1988 by University of Alabama Press.)



University of Alabama

DESIGN PRINCIPLES

Version 1.0

University of Alabama

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Mouzon Design
Miami Beach

Design, Photography, and Drawings

All material was created by the author, Steve Mouzon of Mouzon Design, Inc.
This publication was set using Hoefler Text fonts.

[Article #]

CONTENTS & CHECKLIST

Please use this Table of Contents as a checklist, checking off each item in the checkboxes (☐) below as you've checked your design against these Design Principles.

{1} INTRODUCTION

The University of Alabama is an exceptional place, and is loved by multitudes of people. We therefore have a high duty to maintain the beauty and integrity of our campus, which people travel from all parts of the world to see. Please join us in building within this rich historic tapestry for generations to come.

The patterns that follow are the top categories of architectural items we address during design reviews, so we are providing these design principles to both architects and contractors to help get these things right from the beginning so you don't have to re-draw or tear out and re-build these things.

Over time, the University hopes to build a community of like-minded designers and builders who all understand the principles behind what we build. In doing so, each can help the other get things right. Anyone, whether designer or builder, who sees something not designed or built according to University of Alabama principles should let the other party know so that this item can be corrected.

Complementary Documents

These *University of Alabama Design Principles* are intended to be complementary to other University documents, including the *University of Alabama Design Guide & Standards*.

General Principles

There are a few overriding principles that guide design and construction at the University of Alabama, including the following:

Build for the Ages

The University is likely to occupy its campus centuries into the future. It can occupy its buildings for centuries as well, provided they are built in a sustainable way.

The American design and construction industries are calibrated today to building throwaway buildings in temporary places, which is a very different proposition. Designing and building at the University therefore requires rethinking significant parts of the ways we design and build.

Know Where You Are

Architecture at the University should respect regional conditions, climate, and culture so that buildings here are not mistaken for being built in another region. Regional contions include being located on a hurricane border land that is rich in timber, iron, and clay for brick. The climate is hot and humid most of the year, suggesting tall ceilings and windows.

Honor the Traditions

Southern classical architectural traditions are some of the longest-loved anywhere in America, and the University's core campus is a textbook example of that collection of architectural languages. New work should not only respect this strong choice of the regional culture, but should also be fluent in those languages as well.

Respect the Context

The best designs blend architectural ideals with the local context. This takes skill, because while the ideals may be perfect, the surroundings and the programmatic requirements are almost always imperfect. Sometimes, a new building must be designed as part of an existing complex that is flawed. The new design should correct the errors of the existing design, but should not do so in such a way as to highlight those existing errors. The best way to do this is to change every detail slightly, not just those details that are flawed in the existing design.

If You Fake It, Fake It Well

Today's budgets do not always allow authentic construction, defaulting to systems like brick veneer instead of load-bearing masonry construction, for example. But building in an obviously fake way causes several problems. First, obvious fakes are not often well-suited to last for centuries, so they are not built for the ages. And obvious fakes do not often honor traditions. Construction systems that are intended to represent something they are not should be indiscernible from the system they are intended to represent.

The Classical–Vernacular Spectrum

Architecture varies from the Classical to the Vernacular on a spectrum that runs from the most Vernacular (or most Organic, exemplified by a simple barn) at a setting of 0 to the most Classical (or most Refined, exemplified by the US Supreme Court building) at a setting of 100. Architecture on the Quad should be 65 and above, while architecture further from the Quad may be lower on the Spectrum if desired, down to a low of 45 at the outer reaches of campus, although architecture anywhere on campus may be as high on the Spectrum as the use of the building warrants and as budget allows.

The cross-axis of the Classical-Vernacular Spectrum varies from the Austere in the left (exemplified by Brutalism) to the Romantic on the right (exemplified by Victorian). Architecture on the Quad should not vary appreciably to either the Austere or the Romantic, while architecture further from the core of campus may vary more.

The architect should decide at the beginning of the design process where their building design should fall on the Spectrum. This decision informs many choices thereafter in the review process, as it is important that the various elements of the design are in general agreement with each other. Some variation is permitted, but all parts of a design should generally fall within about 10 points on the Spectrum of all other parts of the building.

[2]
MASSING & WALLS

2.1 Brick Selection

Brick at the University should be timeless, meaning that it should not be visually identifiable with any particular era. This means it should not be obviously machine-made, as brick has only been mechanically manufactured in recent decades. The easiest way to meet this requirement is to select a wood mold brick.

There are other ways as well. A substantial number of brick available in central Alabama are machine-made but appear to be hand-made, so this is an option. To appear hand-made, extrusion striations should not be visible on the surface of the brick, and the brick should not appear to be too perfect. Neither, however, should it appear to be really brutalized, either. A sand finish on the brick surface can help it look more hand-made, as the sand finish is less mechanical.

Brick should be modular. Larger formats such as queen-size diminish all of the other details of the building because their pattern is more coarse than traditional modular brick.

2.2 Masonry Veneer

Masonry veneer is a classic case of a system that should be designed and built to be indiscernible from the system (load-bearing masonry) it is intended to represent. Several masonry veneer details are discussed at length in Doors & Windows, but general masonry veneer issues can be grouped as follows:

• Heavier wall materials should always be below lighter wall materials. Wood should be supported by brick, and brick should be supported by stone.

• Door & window openings should be supported by masonry spanning elements such as arches or lintels built of brick or stone. The fact that the spanning elements are only one brick deep (like the rest of the veneer) is not visible, and masonry spanning elements are not at risk of rusting, which is a threat to every steel lintel.

• Control joints are required much more often in masonry veneer than in load-bearing masonry, and are dead giveaways that the wall in question is not a real brick wall. Control joints should therefore be hidden as often as possible behind elements such as downspouts.

2.3 Coursing

Lay out masonry coursing as follows:

• Course brick to minimize or eliminate rips.

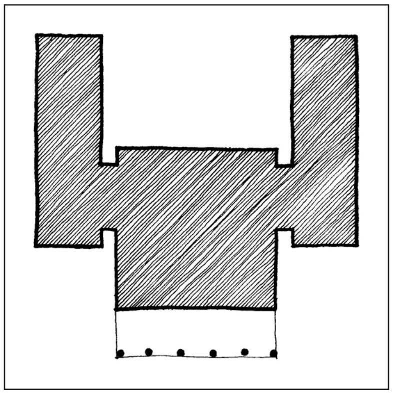
• Brick should course vertically to a 16" module and horizontally to an 8" module. Stone should course modularly as well.

• Design buildings whenever possible with building corners and door & window centerlines in plan set to a 4" module, and with the width of openings to outside edge of casing or panning set to a 4" module as well as well. When this is not possible, no brick adjacent to an opening shall be less than 3" wide.

• Size sills to make head and sill course evenly.

• Head joints shall be within 1/8" of plumb.

2.4 Fraternity & Sorority House Massing



Fraternity and sorority houses should look like houses. Because they are so large, the best models are large mansions, but even that has become quite a challenge in recent years as Greek house sizes have grown. The best general strategy for going wide is to arrange the house into a main body, two side wings, and usually two connectors between the main body and the wings.

The main body should ideally be no more than five bays wide, although it could be seven or even nine bays wide if a five-bay portico is the central element. Wings should be at least two bays, but more likely three bays each. Connectors may be one or two bays wide. A five-bay body, two two-bay connectors, and two three-bay wings totals fifteen bays. At eight feet per bay, that's 120'. Bays can be wider depending on the height of the building, so houses 150' wide can be achieved by using 10' bays. Please note that increasing the bay width might require increasing the building height as well. See Intercolumniation under Porches & Balconies for details.

There should be breaks in plan or in elevation (or both) between the main body, connectors, and wings. Setting connectors and side wings back 20' or more serves to accentuate the main body of the house and enhances the verticality, in addition to making the appearance more house-like instead of institutional.

2.5 Side Wall Openings

There should be a door or window within 8 feet of each front corner of each level of the building. This not only makes the street a friendlier place to walk than when the side walls are blank, but it also provides light on two sides of the corner rooms.

2.6 Running & Standing Trim

Running (horizontal) trim should interrupt standing (vertical) trim almost everywhere. This rule originated in wood frame construction, where the beam should rest on the columns and the columns should rest on the sill or threshold. But it also makes sense for other reasons as well. For example, as scaffolding is being built up the side of a building, it is more efficient to trim the building in horizontal lifts rather than running things like corner boards all the way up then coming back down to install running trim in between.

The single major exception to this is door panels and window sashes, where the vertical elements (stiles) should interrupt the horizontal elements (rails). This is because the vertical stiles are the structural backbones of most door panels and window sashes, serving as attachment points of hinges and riding vertical tracks in double-hung window frames.

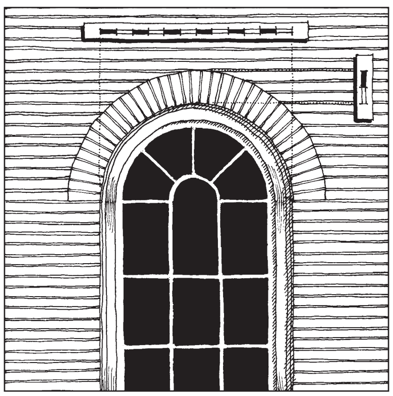
All of these rules originated with wood construction, but should be applied to trim, panel, and sash construction with other materials as well. This is done part to satisfy the requirement that "if you fake it, fake it well" when materials used are intended to represent wood trim. But this is also a good rule for new materials because the logic of installing as the building is scaffolded up makes sense for any material, not just wood.

[3]
DOORS & WINDOWS

3.1 Opening Heads

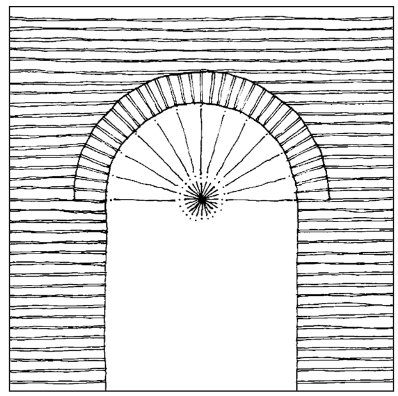
3.1.1 Arches

Depth



The depth of masonry arches must be at least 1/6 of the opening width because masonry arches of this width have demonstrated their structural ability to endure for centuries.

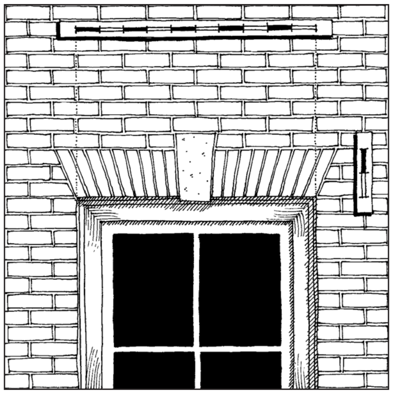
Radius Point



The centerlines of all joints in an arch must converge on a single radius point, which is also the radius point used to lay out the top and the bottom surfaces of the arch. This ensures that every brick and/or every stone in an arch acts as a structural wedge so that the arch is structural, supporting the load imposed upon it from the wall above.

3.1.2 Jack Arches

Depth



Jack arches may be built either of brick or stone masonry or of solid structural stone. In either case, the depth of jack arches must be at least 1/5 of the opening width because masonry jack arches of this proportion have demonstrated their structural ability to endure for centuries. This makes jack arches (and lintels) somewhat thicker than arches because the shape of the arch makes it more structurally efficient than a flat element like a jack arch or lintel.

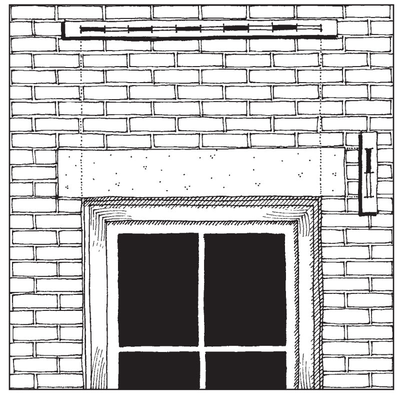
Radius Point

The centerlines of all joints in a jack arch must converge on a single radius point for the same reasons that they must converge in an arch. *(see illustration in Keystones.)*

End Angle

The angle of the end of the jack arch should be between 22.5° and 30° from vertical. *(see illustration in Keystones.)*

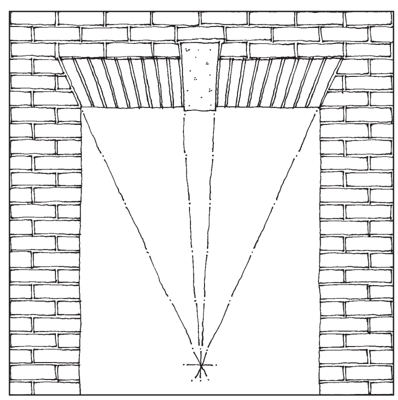
3.1.3 Lintels



The depth of stone lintels must be at least 1/5 of the opening width because structural stone lintels of this proportion have demonstrated their structural ability to endure for centuries. Please note that some stone is too weak to be used with this proportion, which is why it is not considered to be structural stone. Structural stone includes limestone and granite, quarried by competent structural quarries.

3.1.4 Keystones

Side Faces

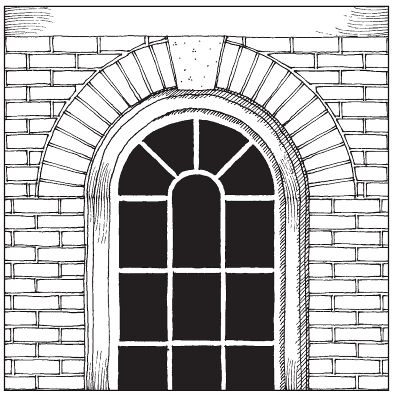


The side faces of all keystones must converge at the radius point of the arch or jack arch for the same structural reasons that joints must converge in an arch or jack arch.

Width

The width of keystones should be 1/9 of the arch or jack arch, measured radially. For example, if the end angle of a jack arch is 22.5°, the total sweep of the arch is 45°, so the keystone should be 5° wide. For a full Roman arch, the sweep of the arch is 180° so the keystone should be 20° wide. Please note that there are other systems of proportioning keystones that are acceptable as well, so if you would like to use one of those, simply submit the precedent examples you are using.

3.1.5 Arch/Eave Alignment



The top of an arch should either be at least 3 brick courses below the lowest part of the eave trim (or other architectural element) above or it should engage that element by touching it with the top of the keystone.

3.2 Windows

3.2.1 Pane Proportions

Window panes must be vertically proportioned or square. Pane proportions throughout a building should not vary by more than 15%.

3.2.2 Shutters

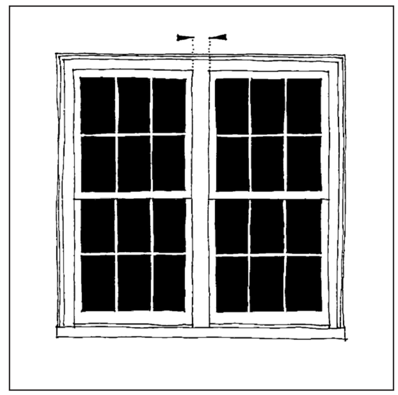
Operation

Shutters must shut. This means that they must be hinged, and have devices such as shutter dogs that hold them against the wall when they are open, and have some sort of latching element to secure them when they are closed.

Louver Direction

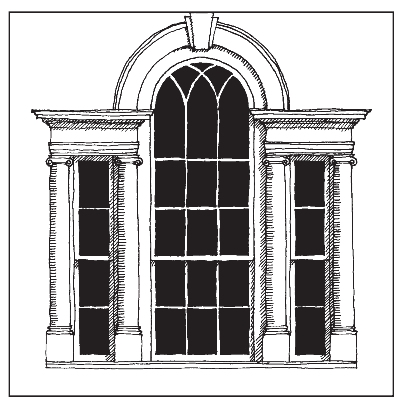
Louvered shutters should shed rain away from the window when they are closed, which means that they should slope toward the building when they are open.

3.2.3 Mullion Casing Width



All mullion casings between any opening elements (windows, doors, or transoms) shall be a minimum of 4" wide, measured from frame to frame.

3.2.4 Palladian Window Principles



It is beyond the scope of these guidelines to provide a full Palladian design manual, but do these things for a good start:

• Make both the top and bottom sashes of the two flanking windows 2 panes high.

• Make the top sash of the center window 3 panes high (not counting the arch).

• Lay out two pilasters surmounted by a classical entablature around each flanking window. The entablature should be 1/4 the height of the columns, so if the entablature aligns with the top square pane of the central window (just below the arch) then the pilasters should pretty much occupy the four panes below. It may not work out precisely even because of the thicknesses of muntins and window rails, so you may have to make the pilaster plinths extra tall like in this illustration to make up the difference.

• Make the thickness of the arch equal to the diameter of the pilaster. Make sure this leaves the arch at least 1/6 as deep as the opening width, as in *3.1.1 Arches*.

3.2.5 Transoms vs. Tall Windows

Transoms should be used only over doors or over windows acting as sidelites beside doors. Transoms over windows alone are appropriate only in romantic styles of architecture not present at the University. If you need a taller window, don't add a transom; just order a taller window. You'll likely save money and will definitely end up with a simpler design.

3.3 Doors

3.3.1 Glazed Doors

All glazed doors shall have at least one panel at the bottom of the door because panels increase the strength of the door against racking.

3.3.2 Transom Design

Do not align transom stiles with door stiles below, as this will result in unnaturally heavy transom sash members and transom panes that are smaller than necessary. Instead, use standard window stile and rail profiles even though these will not align with the door stiles below.

3.4 Casings & Surrounds

Door & window casings or surround profiles should be the same throughout a building except for the most important openings, where the casings and surrounds may be more elaborate.

[4] PORCHES & BALCONIES

4.1 Basic Principles of the Classical Orders

4.1.1 Why Tuscan?

Most buildings built at the University today employ the Tuscan order, so when only one order is illustrated in this section, it is typically Tuscan.

The Tuscan order is less expensive to build than the higher orders, and it is simpler as well. Today, we appear to be in the early years of a new Renaissance, so designers and builders tend to be more comfortable with Tuscan than with higher orders. It is appropriate, however, to employ higher orders in more refined buildings so it is hoped that higher orders will be used more in the future where appropriate.

4.1.2 Reference Books

Because these are general design principles, it is beyond their scope to set out anything close to a full set of principles of classical architecture. Many books have been written on the subject. For a simple expansion of this document, see *Traditional Construction Patterns*, McGraw-Hill, 2004 by Stephen A. Mouzon, the author of these Design Principles. For more information, the following books are excellent:

Classical Architecture, Robert Adam, Harry N. Abrams, 1990. This is one of three absolutely essential recent work on classical architecture (Chitham's & Gromort's being the other two).

Classical Orders of Architecture, The, Robert Chitham, Rizzoli, 1995. This book describes both the orders and the origins of classical architecture in as great of detail as any contemporary work.

Elements of Classical Architecture, The, Georges Gromort, W. W. Norton & Co., 2001. Be certain to have this book in your library if you are designing or building at the University.

Fundamentals of Architectural Design, W. W. Turner, McGraw-Hill, 1930. Long out of print, but well worth getting on the used book market.

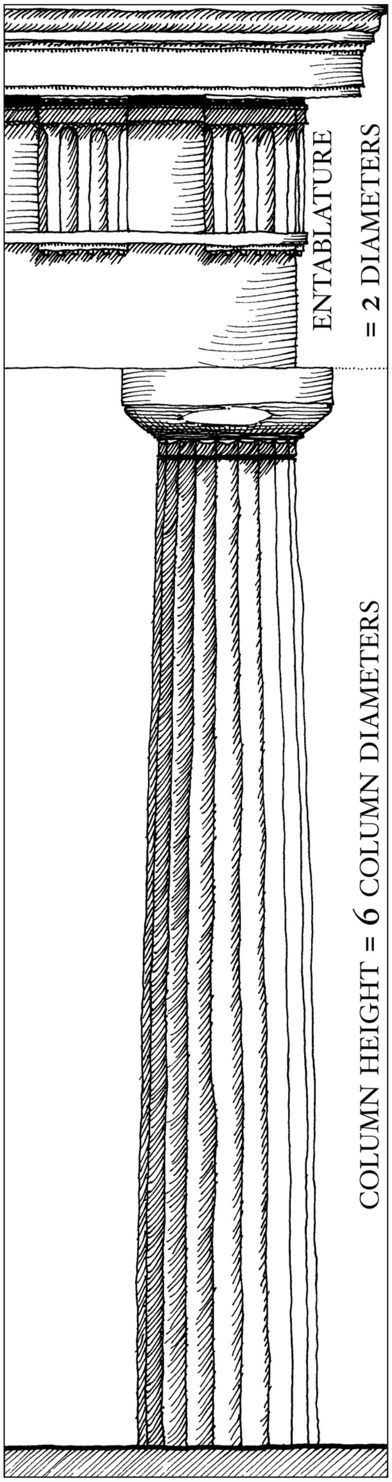
History of Architecture, A, Sir Banister Fletcher, Scribners, 1975. This is the greatest single history of architecture ever written, with numerous reprints and updates through the years.

Parallel of the Classical Orders of Architecture, Johann Matthaus von Mauch, Acanthus Press, 1998. This volume illustrates the range of the five orders in antiquity, dispelling the Renaissance myth that classicism was built on fixed canons.

4.2 The Orders

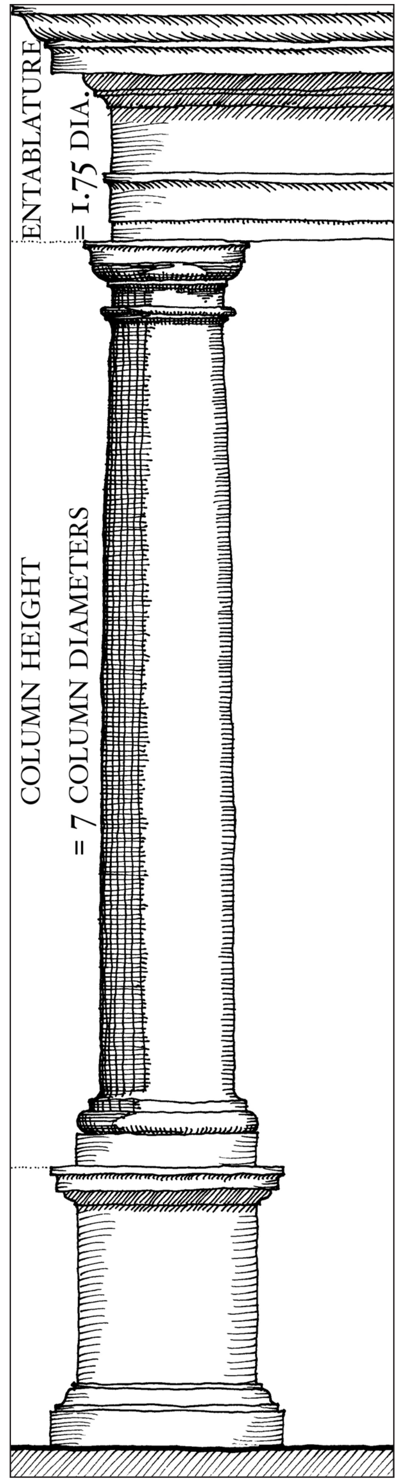
The six classical orders illustrated over the next three pages are arranged from heaviest to lightest (or shortest to tallest). Be sure to read the reference materials to learn which orders are most appropriate for which types of buildings. Each order is illustated with entablature, column, and pedestal except for Greek Doric, which has no pedestal. And pedestals are optional for most of the other orders as well, depending on how and where they are being used.

4.2.1 Greek Doric



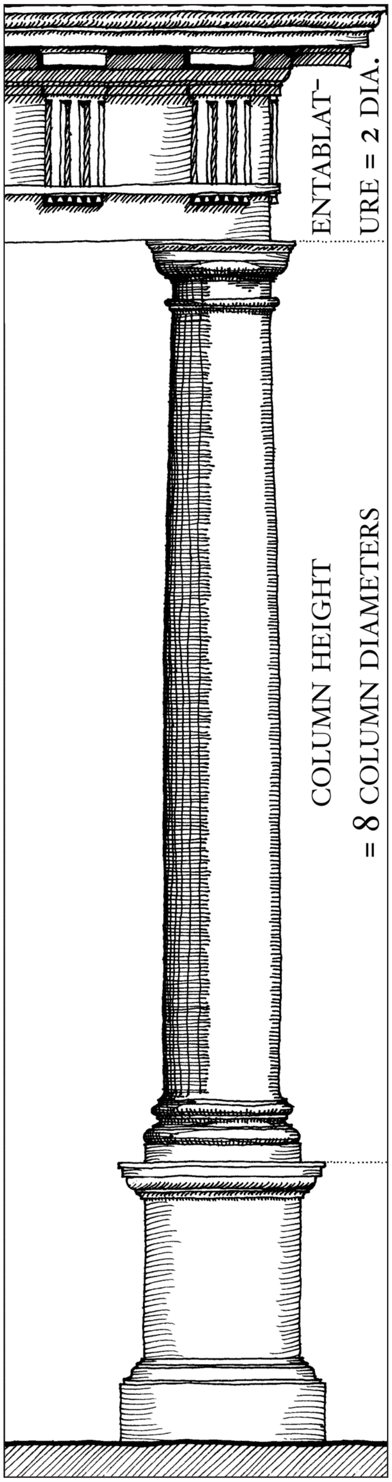
Proportions of the Greek Doric order vary more than other orders. The Greek Doric illustrated here is relatively slender, with a column height of 6 column diameters. Columns at the Parthenon are 5.5 diameters tall, and some examples are as heavy as 4 diameters. The proportion of the entablature to the column is variable as well. The other orders are remarkably consistent, with an entablature that is 1/4 of column height, but Greek Doric entablatures are heavier. The entablature illustrated here is 1/3 of the column height, but they are occasionally even heavier. The Greek Doric column has no base or pedestal, and the column is almost always fluted with flutes that run the full length of the shaft.

4.2.2 Tuscan



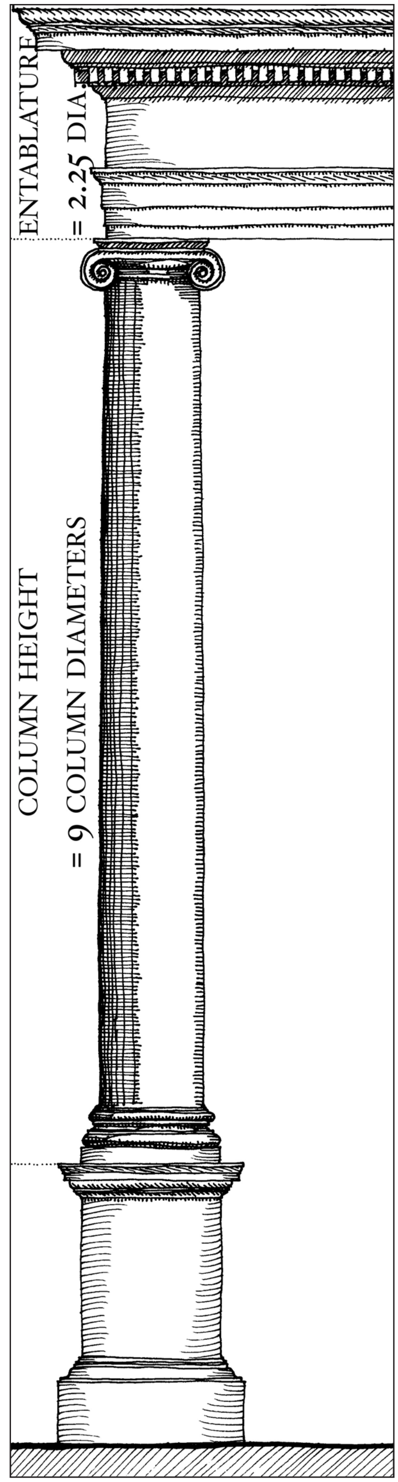
Tuscan columns are always smooth (un-fluted) and use the simplest classical capitals and bases. The pedestal is most often omitted. Pedestal heights also vary (shown at 3/10 column height), and are not noted for any of these orders. The Tuscan entablature is elemental and unadorned, while the cornice typically has no dentils or other such enrichments. As with all orders, there are numerous good ways of setting out the proportions of the parts. One good way of setting out the entablature is to divide it vertically into 7 parts, of which the major elements occupy these heights: cornce 3 parts, frieze 2 parts, architrave 2 parts. If you do the math, you'll see that each of these parts equals 1/4 of a column diameter.

4.2.3 Roman Doric



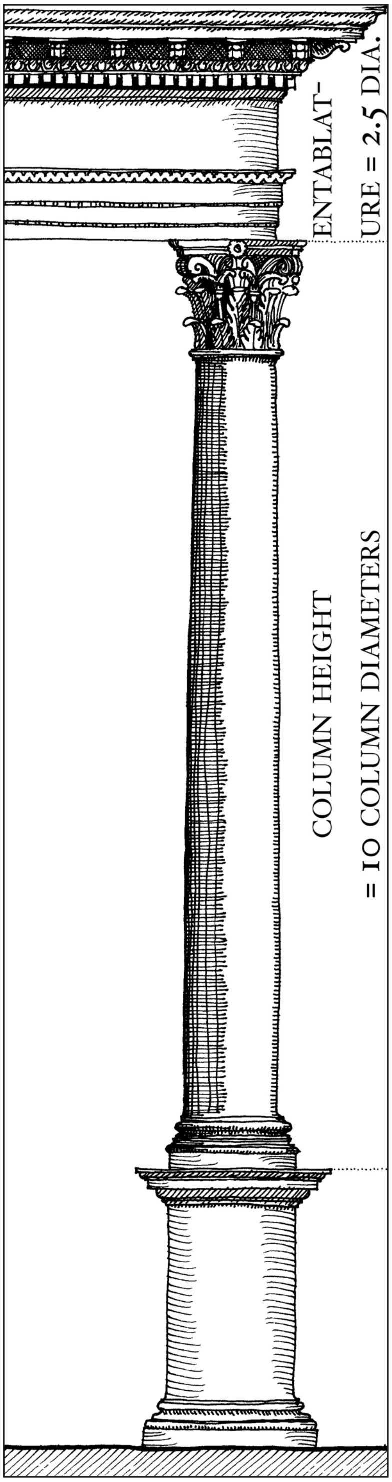
Roman Doric columns may be fluted or smooth (shown here). The entablature may be adorned in a number of ways. The most common is with triglyphs on the frieze with mutules in the cornice above and guttae affixed to the architrave below, all as shown here. Metopes (the spaces between the triglyps) should be square and may be plain as shown here, or adorned with decorative motifs. One good way of setting out the entablature is to divide it vertically into 8 parts (each part is 1/4 of a column diameter, as with Tuscan) of which the major elements occupy these heights: cornice 3 parts, frieze 3 parts, architrave 2 parts. As with all orders, the projection of the cornice should equal the height of the cornice.

4.2.4 Ionic



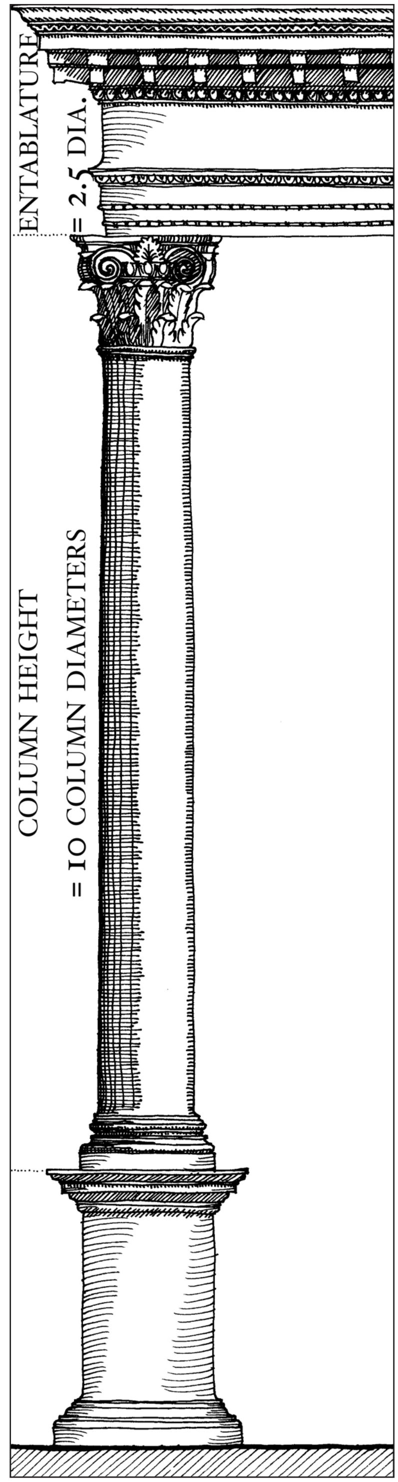
The Ionic order, contrary to the masculine proportions of the orders that preceded it, was developed to reflect the proportions of a woman, and the volutes of the column capital were meant to reflect a feminine hairdo. Columns may be smooth (shown here) or fluted. The Ionic frieze is often adorned with dentils (shown here) or other repetitive elements such as modillions. The frieze may be either flat as shown here, either with or without sculptural adornments, or it may be pulvinated (pillowed) so that it swells out in a circular arc. The entablature shown here is set out as follows: cornice 4 parts, frieze 2-1/2 parts, architrave 2-1/2 parts where each part is 1/4 of a column diameter.

4.2.5 Corinthian



The Corinthian and Composite are the slenderest of orders, and are also the most ornate. Legend has it that the Corinthian capital was inspired by the "tomb of the Corinthian maiden." A young girl fell ill and died, and her nurse put the precious things from her life into a basket and set it on her grave, covering it with a roofing slate to keep the contents dry. Over time, acanthus plants grew up around it, spiraling back at the roofing slate. The sculptor Callimachus was so moved by this scene while walking through the outskirts of Corinth, it is said, that he set about creating the Corinthian capital in its honor. Since this column has been entirely occupied with this story, you'll need to read the proportional rules under Composite, which are virtually the same.

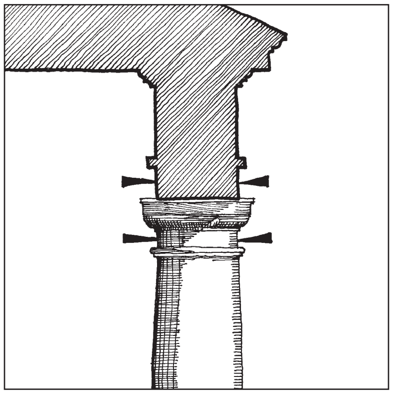
4.2.6 Composite



Corinthian and Composite entablatures are very elaborate, adorned with multiple repetitive elements such as dentils and modillions, and decorative patterns such as egg-and-dart moldings. The entablatures may be used almost interchangeably, with virtually no defining characteristics to differentiate between the orders. The primary difference is in the column capital, where the Composite capital often combines elements of Ionic and Corinthian capitals. The entablatures may be set out according to a number of proportional systems; the ones illustrated here is set out in 10 parts as follows: cornice 4 parts, frieze 3 parts, architrave 3 parts. As before, each part is 1/4 column diameter.

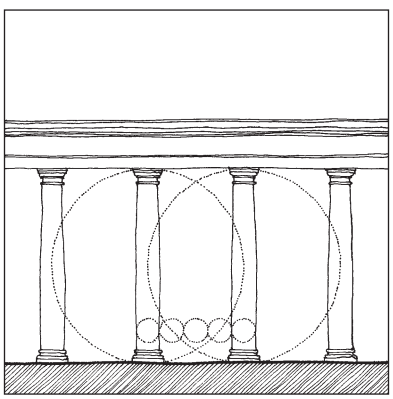
4.3 Column Principles

4.3.1 Column/Beam Alignment



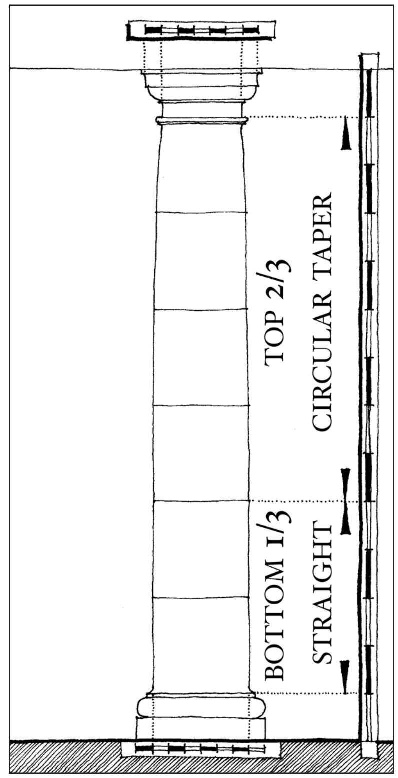
This is one of the most challenging details in classical architecture today, so please be sure to double-check that it is correct on your building. The face of the beam (the architrave, in a classical entablature) should be flush with the face of the column shaft at the necking (just above the astragal), both outside the beam and inside as well.

4.3.2 Intercolumniation



The space between columns (measured center to center) must be no greater than the height of the columns, but should be substantially less in most cases, such as the example here, where the space is half the height of the columns. The design is cleaner if the space between columns is an exact multiple of the column diameter as shown here.

4.3.3 Column Proportion & Taper



Whenever column diameter is referenced, it is the diameter of the column measured at the bottom of the shaft.

Both the column base height (measured to the top of the fillet) and capital height (measured from top of astragal) should each be 1/2 of the column diameter except for Ionic, Corinthian and Composite capitals, which are taller.

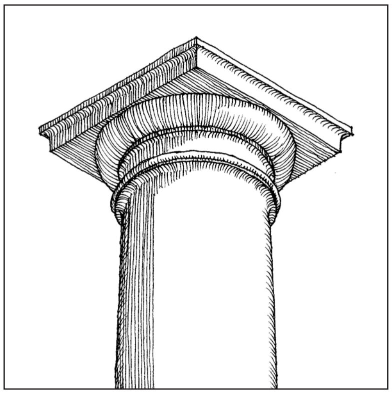
For all except Greek Doric columns (which are completely tapered), the bottom 1/3 of the shaft should be straight while the top 2/3 of the shaft should have a circular (half-bowspring) taper. The necking is the bottom part of the capital, just above the astragal, and it is straight as well.

For all except Greek Doric columns, the diameter of the shaft just below the astragal should be 5/6 of the column diameter.

If the shaft is built of stone, it may be divided into 3 parts or 6 parts (illustrated) to reduce the weight of each piece in order to simplify installation.

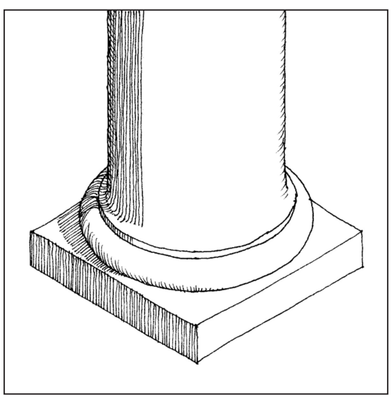
4.3.4 Columns: What's Round, What's Square

Capital



The abacus of a capital (the uppermost major element) is always square, while the echinus, necking, and shaft below it are round in a turned column. Obviously, if the column is square, all parts of it are square, not round (turned).

Base



The plinth of a base is square, while the torus, fillet, and all other elements of the base are round in a turned column. Again, if the column is square, all parts of the base are square, not round (turned).

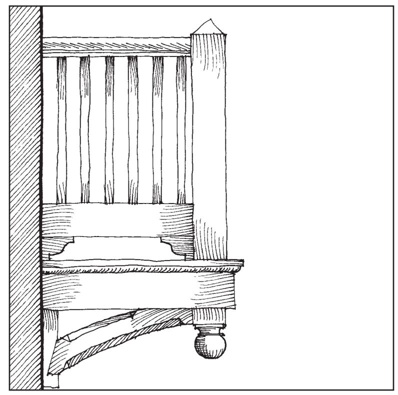
Note: the distinction between round and square elements is their shape in plan, not in elevation. Their profile in elevation does not change whether the column is round or square. The designer should clearly show what is round and what is square on their drawings, and the builder should ask for clarifications if there is any doubt.

4.4 Balconies

4.4.1 Balcony Depth

Balconies should not be greater than 36" deep in clear usable width.

4.4.2 Balcony Support



Balconies shall be visibly supported by architectural elements that extend the full depth of the balcony (less fascia width) and that are appropriate to the character of the building.

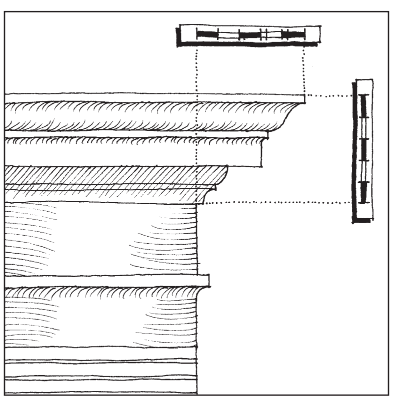
[5] EAVES & ROOFS

5.1 Roofing Materials

Roofing materials better than asphalt shingles are highly encouraged for all buildings at the University. Standing seam metal and slate shingles (natural or synthetic) are the most appropriate materials for University roofs, and have lifespans similar to that of other University building envelope materials.

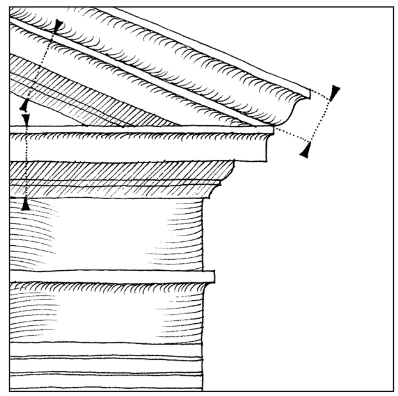
5.2 Cornices

5.2.1 Cornice Proportion



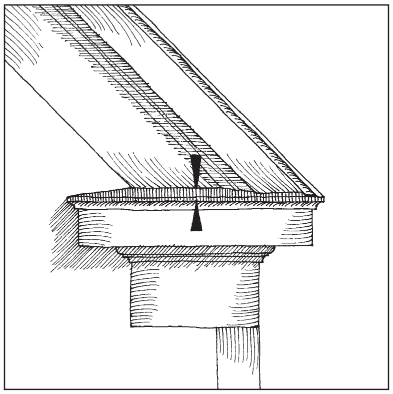
The overhang of the cornice should be equal to its height, measured from the top of the cymatium (bottom of the roof) to the bottom of the bed mold. If an ogee gutter is used, it should be measured as part of the cornice. Half-round gutters, on the other hand, are not subject to this limitation and may project beyond the cornice as measured here.

5.2.2 Raking Cornice



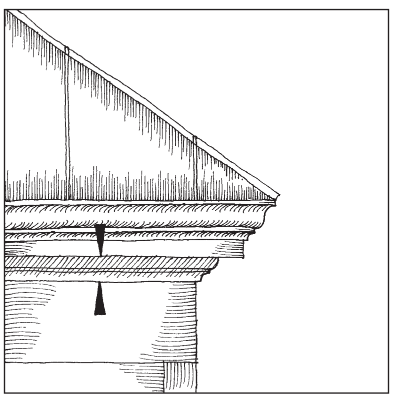
The cymatium (also known as the ogee, or the cyma recta) of the cornice runs only with the raking cornice on gable roofs. The cove immediately below the cymatium and the fascia and bed moldings below that run both with the raking cornice and the horizontal cornice return, and their profiles are equal in size and identical in profile.

5.2.3 Eave Return Cap



The eave return cap, whether for a partial return as illustrated here or for a full return across the bottom of the entire tympanum, shall be a simple piece of flashing on a low slope no greater than 2:12.

5.2.4 Trim at Bottom of Cornice



The trim profile at the bottom of the cornice shall be a bed mold, not a crown. Consult references in *4.1.2 Reference Books* for bed molding profiles appropriate to the order of architecture you are using.

5.3 Gutters

5.3.1 Half-Round Gutters

Half-round gutters are appropriate on any building at the University. They should be installed with hangers that run up under the roofing, and project the gutters out slightly beyond the cornice, leaving a gap through which clogged gutters may overflow instead of forcing water back into the cornice.

5.3.2 Ogee Gutters

Ogee gutters are appropriate as part of cornice designs for which they act as the cymatium profile. This limits them to large cornice designs, and they must be customized to the size of the cornice. A 5" ogee gutter, for example, is appropriate as the cymatium of a Tuscan cornice that is part of an entablature approximately 36" tall. They must also be used with a large cove immediately beneath, as the cove and the gutter should be designed to form the crown profile of the cornice.

5.3.3 Concealed Gutters

Concealed box gutters may be used with any order of architecture, but with caution: leaks in concealed gutters often drain water into the wall structure, doing significant damage.

5.4 Downspouts

5.4.1 Downspout Shapes

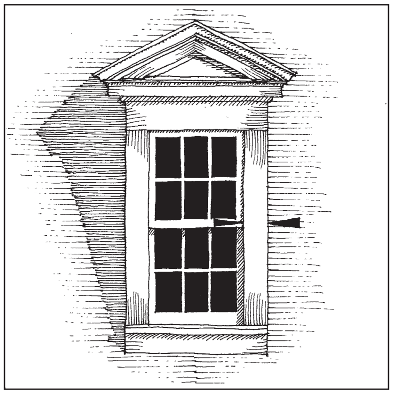
Downspouts shall be round. Cast metal downspout boots may be used at the foot of downspouts where appropriate to the architecture of the building.

5.4.2 Conductor Heads

Conductor heads should be considered at the top of downspouts because they allow a relief overflow when a downspout is clogged. Because the overflowing water splashes out on the wall rather than against the cornice, less damage is likely. Conductor head designs should be appropriate to the architecture of the building.

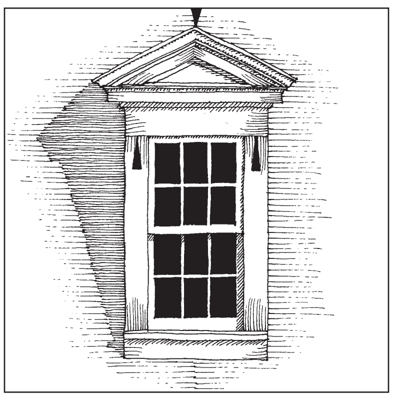
5.5 Dormers

5.5.1 Dormer Jamb



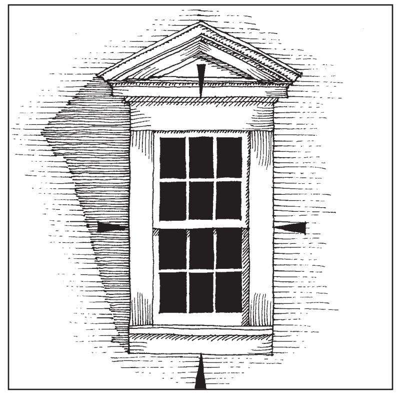
A dormer jamb shall be a single board that acts both as window casing and as dormer jamb.

5.5.2 Dormer Pediment & Frieze



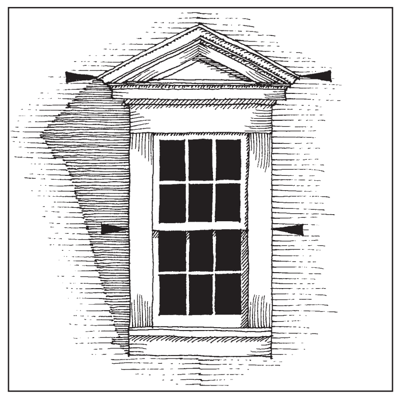
A dormer, from the top of the window, shall be composed of a frieze (which acts as a window head casing) and a cornice running horizontally, then (if a gabled dormer) a tympanum with raking cornice above. The raking cornice shall follow the rules of 5.2.2 Raking Cornice, with the cymatium (if any) running only on the rake. No standard siding shall be visible anywhere on the face of the dormer, including in the tympanum. If the tympanum is large enough to require siding instead of a single board, it should be a more refined siding such as smooth-face tongue & groove siding.

5.5.3 Dormer Body Proportion



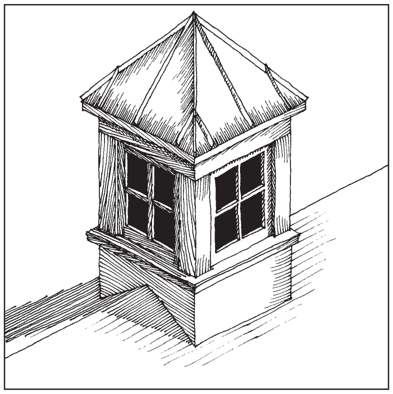
The body of a single-window dormer should be vertically-proportioned or square. Dormer windows should be proportioned similar to typical windows in the level below the eave.

5.5.4 Dormer Body to Roof Proportion



If dormer eaves are properly proportioned, the total width of the dormer roof of any architectural language used at the University should be 25% to 40% wider than the dormer body.

5.5.5 Lantern, Cupola, and Belvedere Principles



Lanterns, cupolas, and belvederes should sit on a low, unadorned base capped by a ledge that acts as a sill, shedding water out beyond the face of the base. The body of the lantern, cupola, or belvedere should be composed of windows or louvers trimmed at the sides by jambs acting as pilasters and a continuous head casing acting as a beam, with a roof (usually hipped) above. Lanterns, cupolas, and belvederes should typically include no siding.

[6]
ATTACHMENTS & SITEWORK

6.1 Signs

6.1.1 Frieze Signs

Signs located anywhere on an entablature shall be centered on the frieze, and should be incised into the frieze, ideally with a V-cut profile.

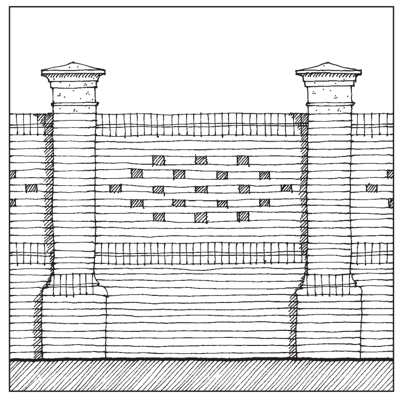
6.2 Fences

6.2.1 Metal Fences

Metal fences shall follow the University standard. They may vary in detail such as spear-tip design where appropriate to the architecture of the building. It is not the University's intent that all fences should be precisely identical, but rather than their designs should occur within a narrow range of each other.

6.3 Walls

6.3.1 Garden Walls



A garden wall is a masonry wall enclosing either inhabited courtyards or service courts. They should be built of the same brick as the building. Garden walls should be designed with vertical piers no more than 8 feet apart and in such a way that there are horizontal breaks dividing the wall so that there is no unbroken expanse of wall surface taller than 40 inches.