APPENDIX 8
VOCABULARY OF BUILDING MATERIALS

The following list of building materials is presented as a guideline for decision-making concerning the standardization of materials and conformance to design and construction standards. Any proposed departures from these standards should be reviewed early with the Campus Architect.

SANDSTONE

Sandstone has been quarried locally along the front range since at least the 1880s. In 1912 the bottom fell out of the sandstone market, probably due to the wide-spread use of concrete, but it revived quickly in the early 1930s with another surge of popularity in the late 1940s after World War II. It is a relatively cheap and available -- lying in shallow layers near the surface. It has a high compression strength and it is relatively hard.

The color ranges from a deep dark red to almost white with the red colors found near Boulder and the lighter colors as far north as Loveland. The deep rich reds are getting scarce as are the buffs streaked with iron oxide (stain faced).

University buildings have sandstone walls that are laid up flat with the fractured face exposed beyond a common vertical wall line of mortar. The ends of each stone are clipped back to give a convex or "lip out" effect, also known as "shadowing." Front range masons have seen this as a distinct "University of Colorado Style." Wall patterns can be bold with short large "jumpers," or delicate with long small stones and few "jumpers." See the discussion in "Body and Soul" for further detail.

LIMESTONE

Limestone quarried in Indiana has been commonly used as window and door surrounds, lintels, coping, and other trim on buildings as a counterpoint to the red sandstone and red tile roofs. It is also used for carving sculptural elements of all kinds. There is a mix of gray and buff on campus with some sprinkling of examples from Kansas and Texas quarries. Indiana limestone is best for product, cutting, and price.

Precast concrete is used as a substitute material at a savings of perhaps $5 per sq. ft. However, it is a substitute material for the real thing. It does not weather over time into a warm rich material like limestone does, but remains constant in its surface appearance.

ROOF TILE

Roofs of campus buildings when exceeding 3:12 are covered with straight barrel mission tile. It is a vitreous clay product laid in a variety of styles including mission, thatch, regular, random, cabana, and others. Covers are nailed to sleepers lapping pans. Covers are fired in a natural color and glazed in other weathered and non-weathered colors. Most roofs are specified in five to six colors such as light and dark reds, rose, natural, and a sprinkling of buff.
Ludowici-Celadon is a common supplier of tile fired from clay quarried in southern Ohio. Other tile has been provided by Denver, Texas, and California suppliers. Older tile is 18" in length prior to the use of automatic machining which now comes 16" in length.

Campus roof tiles are long-lasting and resistant to rain and hail, but subject to breakage from wind and people walking on the roofs.

ARCHITECTURAL CONCRETE

Poured-in-place concrete walls have been used for building ground-stories and retaining walls on campus for many buildings. It involves great skill by concrete masons with forming and pouring techniques that provide a straight true wall under field conditions. In many cases, forms include projections that result in reveals that make the process even more difficult. Consequently, many architects fall back on precast concrete which can be poured under controlled conditions.

PRECAST CONCRETE

Concrete mixes poured in panels under controlled conditions is a common alternate to cutting and shaping slabs of limestone. Panels can be elaborately shaped with complex molds for elaborate shapes. The face can be etched or ground or polished to obtain a variety of desired finish characteristics. Color and pattern can be varied easily to match or harmonize with other building materials. Large one-story panels including window openings, ledges, coping, and other details are included in a single pour. The result is an even texture and color without blemish associated with natural quarried stone.

STEEL FIXTURES

Lamps and lanterns, balcony rails, decorative caps, and other wrought iron elements are usually painted "Tuscan Black," (See "Painted Surfaces" below.) Railings of all types that are used as barriers, and on steps and ramps are described in a standard handout called "Campus Railing Standards."

WOOD ITEMS

Doors and door trim, windows and window trim that are wood are painted "Tuscan Black." (See "Painted Surfaces" below.) Other wood items on campus include fences, visual barriers, and retaining walls which in almost every case, should be steel, and not wood.

WINDOWS AND GLAZING

Windows should meet University of Colorado Construction Standards for material, environmental criteria, and installation. Glazing is also covered in the Standard. In terms of visual appearance, all glazing shall be as clear and free of color and reflectivity as possible.

PAINTED SURFACES

Penetrations of red tile roofs, such as vent stacks, fan vents, etc., should not be painted tan or red
to attempt a match of the roof, but should be either painted "Tuscan Black" or "Warm Gray."

Doors, Trim, Railings, Light Fixtures, and other trim pieces on campus shall be: "Tuscan Black": Black enamel with a touch of red for warming.

The following colors were used to paint steel buildings at the CU-Boulder Research Park:
- Roofs: Glidden 71-99, LR 14.6 or other manufacturer's match. (Red)
- Building Sidewalls: Glidden 72-20, LR 44.5 (Tan)
- Doors and Trim: Glidden "Lifemaster Pro" Architectural Brown (Dark Bronze)

SURFACE PAVING

Concrete flatwork and asphalt paving are specified in the University of Colorado Standards. Concrete is used for sidewalks, plazas, courtyards, terraces, and other hard-surfaced areas where normal traffic is the pedestrian and the bicyclist. Asphalt paving is used for parking lots, streets, and drives where normal traffic is the motorized vehicle.

Sandstone paving surfaces have been used in a variety of locations for use of the pedestrian, mostly. The specifications for its installation are important to follow as described in the University of Colorado Construction Standards.

Configuration of surface paving in terms of control joints, color, and overall design is important to Facilities Planning.

RETAINING WALLS

Walls that exceed 24" in height and are exposed to the public ways should be faced with sandstone in the campus pattern and capped with limestone, precast concrete, or sandstone. Walls that are less than this height should be chamfered at the top edges and sloped to grade at the ends, rather than ended in a vertical fashion.

EQUIPMENT ENCLOSURES

Cabinets or screens that enclose equipment either on rooftops or on the ground shall be a standard paint color -- "Warm Gray." Benjamin Moore is one recommended manufacturer D.T.M. Acrylic Semi-Gloss. The Benjamin Moore one-gallon formula is Base 3-M29-3A, OY-1x1, RO-3, BK-8.5, GY-2x3.

A kynar paint used for extreme conditions of heat and weather is Carboline #0200. This product was used on the Power House rooftop equipment enclosures. It is the same color as the Benjamin Moore product described above. Carboline, Inc. 350 Hanley Industrial Court, St. Louis, MO 63144-1599 (314) 644-1000.

END OF SECTION APPENDIX 8