1.03 DESIGN CONSIDERATIONS

GENERAL DESIGN

A sound, functional plan is the single most important factor in obtaining an acceptable solution to the Building Program. This can best be achieved through a careful study of the space relationships and a thorough understanding of the needs of the users as expressed in the Building Program and in subsequent meetings and discussions held between the Architect and the Building Committee.

It must also be recognized that changing curricula and modifications of space are frequent occurrences in College operation. Flexibility should be a consideration in any plan to accommodate anticipated as well as unanticipated changes and future growth.

Exterior design of the building is expected to be compatible with neighboring buildings and with the campus as a whole. Exterior materials as well as the building form will be examined very carefully at every step of the process to ensure compliance with the requirements of the project and College standards. This will be reviewed and approved by the campus Design Review Board for compliance to the Long Range Development Plan, Campus Master Plan, Landscape Guidelines and Design Guidelines.

It is neither the policy nor the intent of the College to limit the creative individuality of the Architect in design or selection of materials. The guidelines and requirements presented in the Design Guidelines are based upon College experience with materials and construction methods and details that have resulted in the fewest problems in operation and maintenance, and in the best service and life of materials and equipment. Uniformity in the use of materials and equipment throughout the campus limits the range of cleaning and maintenance products and reduces the variety of parts and materials which must be stocked for repairs and replacements as well as providing a continuity of aesthetic and functional user-experiences.

New materials and products and new methods of construction, when proven sound, may justify changes from these standards. Special consideration shall be given to technology and careful analysis to accommodate future advancement. Design with building sustainability concepts shall be discussed, considered and integrated into the Project. Planning for technological flexibility within budgetary constraints is a primary task. Proposals to use such new applications shall be reviewed and approved by the Owner's Representative prior to presenting them to the entire Building Committee and incorporating them into the Documents. General durability of construction, selection of appropriate materials and long term maintenance shall be a primary concern during the design and shall be specifically identified in the Construction Documents.
The College’s East Campus properties on North Weber between Uintah and Cache la Poudre Streets are in the North Weber/Wahsatch Historic District. Design Guidelines are being developed by Winter Kramer and Jessup, for this area: the Architect shall conform to the guidelines and review the design with the Owner’s Representative and, if warranted, the Colorado State Historic Society.

Energy conservation must be given special consideration in the design of new or remodeled College buildings. The Colorado College requires a life cycle cost analysis, where appropriate, on major components of new facilities and renovation projects. A building operating cost analysis shall be reviewed with the Owner’s Representative at the Design Development and Construction Documents Phases.

The College and their Utility Consultants have an understanding of the functioning and future expansion of the Central Plant design, distribution and operations. In the beginning of all Projects, the Architect and their Engineers shall review the scope of the Project to understand the need and constraints of the Central Distribution System.

Colorado College supports and promotes sustainable and environmentally conscious building design, a systematic consideration of a project’s true cost to the environment and energy resources. Sustainable design concepts should be applied within the budgetary and programmatic constraints of the specific projects. A primary motivating premise for sustainability is to make wise resource decisions that will minimize our impact on future generation. Our college campus becomes a prominent forum for educating the public, promoting a higher community consciousness and leading by example. The building and associated landscape can have a substantial influences on teaching and learning. The benefits of improved indoor air quality, energy conservation and enhanced visual surroundings promote a healthy and productive environment for inhabitants.

During the design process, a reasonable and feasible analysis of possible strategies shall be developed and discussed to understand the financial and programmatic impact of the strategies on the entire Project. The level of analysis shall be proportional to the project and determined at the beginning of the project. The Consultants shall facilitate an integrated multi-disciplinary design process that evolves through the entire design and construction process. Discussion and review of potential strategies shall be conducted with the Building Committee at each design phase. A commissioning plan shall be produced and an implementation process developed for projects with substantial mechanical or electrical work: refer to Division 15 and 16 of these Guidelines. Consideration of mechanical and lighting system efficiency, daylighting schemes, reduction/elimination of environmentally harmful substances, regional material availability and indigenous or xeric plant usage are general strategies that should be evaluated. LEED may be used as the benchmark to evaluate a “Green Building” project, and, if so, will be identified in the start of design. If LEED certification is to be included in the Project Program, this design expertise and assistance will be required of the Architect and their Consultants.
THE BUILDING PROGRAM

For larger Project, the College will provide the Architect with a written Building Program. In some cases, the Architect for the project will be contracted to develop the Building Program. The typical Building Program includes the following:

Introduction

A statement of the nature and function of the end user of the facility, background information regarding development of the project to date, and identification of the site.

Design Considerations

A statement of general design considerations pertinent to the project.

Project Cost Considerations

An estimated Project Cost is included in the Building Program. The Architect should be especially concerned with the amount identified as Construction Cost. The heading "Construction Cost" normally includes all built-in or fixed equipment for the Project. It is the responsibility of the Architect to design within that estimated figure or immediately advise the Owner's Representative that this cannot be accomplished. The Owner may budget and provide certain aspects of the Project (furnishings, special equipment, etc.) The Architect shall thoroughly review these costs with the Building Committee and Owner’s Representative assisting in developing the overall Project Budget.

Project Time Considerations

The Building Program usually incorporates a tentative time schedule indicating when various phases of the work are expected to be completed. This schedule is based on a critical occupancy date(s) which in turn relate to other planned programs and the College academic calendar. A revised time schedule may be developed after discussions between the Architect and the Owner's Representative.

Space Requirements Summary

A tabulation of net areas required for assignable spaces. Net areas given in the Program shall be maintained in the Architect's design as closely as possible. Any significant deviation from the areas given or functional relationships shown in the program could result in rejection of the schematic design unless previously approved by the Owner's Representative.
NON-PROGRAMMED SPACE REQUIREMENTS

Corridors

Attention should be given to adequate corridor widths for the loads generated by the particular occupancy of each part of the Project. Obviously corridors serving classrooms must be wider than those to offices. When possible, doors opening in the direction of the exitway should be recessed in an alcove to prevent intrusion into the pedestrian flow. Provide drinking fountains and other public facilities such as benches to serve the building occupants. The area under drinking fountains and recycling bins shall have an impervious floor material.

Similar analysis shall be made for determination of number and size of elevators and number and size of public toilets.

Corridor walls shall be constructed of durable materials. Generally, Corridors will be of framed gypboard construction: use vandal resistant or plywood backing on the passage face of the partition.

Public Toilets

Provide adequate and Code compliant facilities to accommodate building occupants including physically handicapped. Particularly in remodel projects, toilet count shall be reviewed with the Code Official to provide a reasonable accommodation in an existing condition.

In large public toilets, provide pipe space behind water closets that shall be 3'-0” clear and shall be readily accessible. Include lighting and a separate 120-volt duplex receptacle in each pipe space.

The Code Officials will determine the required fixture count. It is particularly important in building renovation and/or addition projects to discuss and resolve this issue early in the design process.

Mail

Discuss with the Owner's Representative the nature of mail facilities for each individual building.
Custodian Closet

A Custodian Closet is preferred on each floor of the building for storage of cleaning equipment and supplies. The minimum size space required is 80 square feet. If it is possible to provide a larger custodian room on the main floor near the service entrance and near an elevator, (minimum size 120 square feet), the space requirements on other floors may be reduced to 50 square feet.

Each Custodian Closet shall be equipped curb-type utility floor sink, hose bibbs, hot and cold water, and shelves. Provide adequate ventilation where battery chargers and/or other similar devices are used. Each custodian space must have adequate electrical outlets.

Custodian Closets shall not be shared with other functions (Example: telecommunications boards, pipe chases, etc.).

Waste Disposal

Waste disposal is an almost continuous operation. Waste pick-up is on a daily or more frequent basis to each building, using packer type trucks into which containers are emptied. Building custodians take waste from individual spaces to the trash containers. Verify and accommodate for the container sizes as identified by the Owner’s Representative. Accommodation for recycling containers considered during the design process.

Biological wastes, chemical wastes and radioactive materials require special consideration and their requirements will be analyzed and programmed in specific buildings where it occurs.

The College has an extensive recycling program. The Architect shall review both internal and exterior trash collection requirements with the College and provide adequate space in their design to accomplish this efficiently.

Maintenance Personnel

When identified by the Owner’s Representative, provide a secure work area for building maintenance personnel with a service sink, workbench and/or space for tools. For HVAC Mechanics, this may be in a Mechanical Room if sound levels permit.
Maintenance Storage

Provide a storage space of 100 square feet for storage of maintenance items for the building such as spare floor tiles, etc. For public spaces, additional storage may be required for events furniture.

Utility Closets

Locate telecommunications equipment and electrical branch circuit panel boards in the same utility closet dedicated to this purpose when possible. Provide proper clearance around equipment. Refer to Part 1, Media and Telecommunications requirements for further information.

Elevators

To provide access in buildings over two stories, an ADA qualified elevator(s) shall be provided. In remodel projects, particularly in historic buildings, it may be difficult to find a reasonable shaft location. In such cases, a custom size elevator in accordance with ADAAG 4.1.9 or larger may be provided.

CLASSROOM DESIGN

Due to the nature of the Block Plan, classroom design will require flexibility and adaptability. Each professor and/or program will have unique teaching methods and classroom configurations, which may be modified for the new instructor of the next Block. The structured class will generally last the entire morning with one break at mid morning. The Architect shall discuss these unique needs with the Building Committee.

Classrooms need to be a friendly, desirable facility that promotes good relationships. A classroom design promoting interaction includes principle features as comfort, appearance and use of visual displays.

A general circulation plan of entryways and corridors shall accommodate for the students’ interaction and relaxation during break periods.

Materials should be primarily chosen with durability, cleanability, and acoustical properties in mind. Acoustical treatment is important to control sound within the room as well as reduce noise between rooms.
The specific technology needs, both current and future, shall be thoroughly reviewed with the Users. Generally, the College will hire Contractors directly for installation of Data/Com Systems and equipment. The Architect and their Consultants are responsible for assisting and coordinating these needs and accurate indicating what is needed to support the completed system.

**General Guidelines**

A. Normally, install chalkboard/markerboards/tackboards on the front and rear walls and a portion of one sidewall: review the specific placement with the Users. White markerboards are used in classrooms with computer installations. Above all chalkboards and markerboards, provide a cork tackstrip with spring clips and hooks. Usually a projector screen will be located centered in the front of the room.

B. Generally, classrooms should have effective, easily operated and durable closures over the windows allowing the room to be completely darkened for projection. Blackout blinds are preferred.

C. Audience entrances/exits should be at the back of the room.

D. Provide adequate wheelchair locations in fixed seating rooms.

E. Normally the instructor's table/lectern and students desks/tables will be moveable furniture unless utilities are required.

F. Provide College telecommunications voice-data jack near outlet on center front wall below chalkboard/whiteboard with exact location in consultation with Owner Representative Owner Representative and Audio Visual & Communications Departments.

G. Provide quiet and adequate mechanical systems.

H. Left-handed fixed seating writing tablets should be provided for about 10% of the seats. Exact location in consultation with Owner’s Representative.

I. Generally, classrooms with a seating capacity in excess of 50 and scheduled for fixed seating should be designed for the use of sloped floor and/or risers toward rear of room.

J. “Media Classrooms” shall be designated and include a minimum of the following: a console at the front of the room with a network computer cabling and adequate space for a variety of Audio/Visual sources (VCR, DVD, CD, etc.). These needs should be specifically discussed.

K. Lecture hall seats shall not be less than 20" in width with preference to 22". Folding tablet arms to have rattle-free mechanism.
L. Lighting general requirements to be reviewed with the specific user (see 3.16 subsection 16500 LIGHTING for Technical Requirements)

1. Student seating 50 foot-candles recommended.
2. Instructor-presenter area 100 foot-candles recommended.
3. Chalkboard 70-90 foot-candles recommended.
4. Aisle lights in Lecture Halls and as required by Code.
5. Note taking light level should be at 5 foot-candles-maximum without light spillage to projection screen.
6. All light switches should have clearly labeled functions.
7. Generally, Classrooms should have two lighting levels, one for general use and a lower level for projector use: dual level switched fluorescent lights are preferred. The row adjacent to the screen should be shut off with the lower level lighting.
8. Dimmable fluorescent lighting systems are generally NOT acceptable, without prior approval by the Owner’s Representative. Enhanced dimmable fluorescent lighting circuit systems that address “flickering” will be considered.
9. To avoid interference with a ceiling mounted projector, ceiling light fixture should not extend below 9 feet above the floor.
10. NOTE: Consideration for maintainability and efficiency incorporated into the lighting design. An excessive number of fixtures and/or types of fixtures/bulbs is not acceptable.

M. Electrical requirements to be reviewed with the specific User: refer to Appendix A, Drawing A-2

1. Provide three duplex boxes and one duplex outlet on the left or right side of the front wall for the media equipment rack approximately 24 inches x 24 inches x 42 inches high. Provide one box with one 1-inch conduit terminating above the ceiling for the data service. Provide one duplex outlet and one box with one 1½ inch empty conduit from a duplex box terminating in the ceiling approximately 14 feet from the front of the room for the data projector. Provide one box with two 1/2-inch empty conduits terminating outlet boxes approximately 8 feet above the floor and 9 to 12 feet apart on the front wall for speakers. Coordinate the layout of the Audio Visual system with the Building Committee and the College’s A/V Department.

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2. When required by the program, provide empty 1½” conduit between front and rear walls with blank faceplates for slide projectors.

3. For portable media devices and utility, provide one duplex outlet in the front center and on the side and rear walls.

4. All electrical circuits should be fed from "clean" legs from the contact panel.

5. Provide electrical operating projection screen in all classrooms with capacity of 30 or larger. Size, location and quantity will be determined during the planning process.

6. When requested by the User, provide one duplex outlet with adequate empty conduits terminating an outlet boxes at 6 foot high on a sidewall near the front of the room for a wall-mounted TV/VCR/DVD.

N. Audio-Visual recommended requirements to be reviewed with the specific user.

1. Specific requirements for conduit sizes, cable trays, etc. will be developed for individual projects with the Owner’s Representative and the College’s Audio/Visual and Communications Departments.

2. In auditorium and classrooms, controls for operation of equipment and for lights should be provided at and interconnected between the speaker's station at the front and the projector location at the rear of room. Separate projection rooms may be required.

3. Projection screens over eight feet wide used in large rooms are normally electrically operated. Screens seven feet or smaller may be manually operated.

O. Media Utilization Design Guidelines and Criteria

1. All group instructional facilities need to be designed to accommodate the following visual and audio educational practices:

   a. Proper viewing angles (sight lines for all students) and size of projection surfaces.

   b. Effective lighting control and levels.

   c. Quality audio listening levels and acoustics. The design of the room should be conducive to intelligible un-assisted listening.
d. Proper storage and installation of media equipment and general storage for special event. Security control of the media equipment for special events shall be considered in the design.

e. Control of installed media equipment from the front and rear of facilities.

f. Provision of standard, high quality and serviceable models of media equipment.

P. Sustainability in design, energy usage and materials selection is a concern for the College. Some Projects may be designated for LEED certification: this will be identified by the Building Committee. Sustainability, within the budgetary constraints, shall be a consideration through the entire design and construction process.

Specific Recommendations

A. Classroom (16-49 seats)

1. When a permanent installation is not requested by the Building Committee, provide space for a media rack as described in 1.03.M.1. In addition, provide one outlet duplex box with an empty ½ inch empty conduit from the rack location to the center of the front wall for a microphone.

2. Minimum workspace at front of room should allow 8 feet of distance between screen surface and transparency projector position.

3. Largest dimension should be from front to rear of the classroom. Depth of room is critical to proper viewing angle for projection. Seating outside of a 30 degree angle on each side of the room's center line is poor viewing for front screen viewing of overhead or other projection equipment.

4. To allow for unobstructed viewing, when feasible, classroom screens should be 72 inches high vertically with the bottom at 42 inches above the floor.

5. All interior and exterior windows shall have black-out shades.

6. Markerboard or tackboard shall be used adjacent to the media rack installation.
B. Lecture/Presentation Room (50 seats and larger)

1. When a permanent installation is not requested by the Building Committee, provide space for a media rack as described in 1.03.M.1. In addition, provide one outlet duplex box with an empty ½ inch empty conduit from the rack location to the center of the front wall for a microphone and one from the rack location to a ceiling box for speakers, then to a public address system location.

2. Front projection screens larger than 8 feet wide should utilize electrical models and controls.

3. Minimum workspace at front of room should allow 8 feet of distance between screen surface and transparency projector position.

4. Largest dimension should be from front to rear of the classroom. Depth of room is critical to proper viewing angle for projection. Seating outside of a 30 degree angle on each side of the room's center line is poor viewing for front screen viewing of overhead or other projection equipment.

5. Halls may need to utilize a riser at room front or sloped seating to allow proper viewing for halls larger than 80 seating capacity.

6. To allow for unobstructed viewing, the screens should be a minimum of 72 inches high vertically with the bottom at 42 inches above the floor. When feasible, size the screen using the formula $H = \frac{MDV}{6}$, where $H$ is the height and $MDV$ is the distance to the most distant viewer.

7. Provide one duplex ceiling outlet for a video/data projector located 14 to 20 feet from the front of the room. Coordinate required monitor bracket support. If the projector is placed in a Control Booth, provide a duplex outlet within 3 feet.

C. Auditoriums

1. Space (5' x 10' minimum) for an enclosed, secure projection booth should be provided at rear of auditorium. Provide space (10” x 20” min) to accommodate audio lighting and video controls. In primary performance spaces, the design criteria will vary and shall be reviewed in detail to determine the size and equipment needs.
Booth should contain:

a. fixed glass projection window.
b. all controls similar to those in front of auditorium
c. power outlets above counter surface.
d. two 1 1/2” conduits to front control panel.
e. two entrances (one to auditorium, one to foyer).
f. network data jack
g. intercom system connecting the booth with two locations backstage, two locations in front of house and additional location as required.

2. Minimum work space at front of auditorium should allow 10 feet of distance between screen surface and overhead projection position. Should utilize a second corner mounted 84” minimum screen for overhead projection.

3. Centered front projection screen should utilize electrical recessed ceiling models.

4. Largest dimension should be from front to rear of the classroom. Depth of room is critical to proper viewing angle for projection. Seating outside of a 30 degree angle on each side of the room's center line is poor viewing for front screen viewing of overhead or other projection equipment.

5. Auditoriums may need to utilize a riser at room front or loped seating to allow proper viewing.

6. Auditorium ceiling height should allow viewing of a vertical 96" image without obstruction from all seating positions.

7. Provide for a ceiling mounted video projector mount to be:

a. approximate 15 feet from front, centered screen.
b. minimum of a 2" conduit from projector position to front control panel location.

c. 110V AC power outlet at ceiling mount location.
8. Provide a control panel/storage cabinet at front/side of room. Panel should contain:
   a. all lighting, electrical, projection, voice/data, and audio controls and jacks.
   b. lockable storage compartment for video player, PA/sound system amplifier, and remote control unit for video projector.
   c. storage space for microphones.
   d. equipment controls should be duplicated in the control booth to enhance flexibility of the space.

9. Potential use of auditorium for remote video conference reception and origination should be reviewed with potential users, and Information Services Department. If usage is probable, the planning should include:
   a. conduit for remote camera locations.
   b. extra space and a switching console in projection booth.
   c. interconnects (conduit and cable runs) to building broad band and fiber band and fiber optics panel.
   d. extra conduit (2-3/4”) from projection booth to front control panel.
# Media Requirements Table

## GENERAL ENVIRONMENT

<table>
<thead>
<tr>
<th></th>
<th>Classrooms (16-50 Seats)</th>
<th>Lecture/Presentation (50-120 Seats)</th>
<th>Auditorium (120-400 Seats)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectern - mobile</td>
<td>When requested</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Projection Cabinet/Storage-Cabinet/Storage – rear of Room</td>
<td>When requested</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Projection Booth – fully enclosed/secure</td>
<td>When requested</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Projection Screen for slides/film/video (front surface, mat white)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Projection Screen for Overhead use</td>
<td>When requested</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Video projection Capabilities</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Control Switches at at Projection Booth</td>
<td>When requested</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>In wall panel the front of the room</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Control switches near exit door</td>
<td>When requested</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

## AUDIO REQUIREMENTS

<table>
<thead>
<tr>
<th></th>
<th>Classrooms (16-50 Seats)</th>
<th>Lecture/Presentation (50-120 Seats)</th>
<th>Auditorium (120-400 Seats)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA System</td>
<td>When requested</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Voice/data Communications</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Audio inputs to sound system (various levels)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
### VISUAL REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirement</th>
<th>When requested</th>
<th>Auditorium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slide projection</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Overhead projection</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Video recording with video Camera system</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Video Projection</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Live demo with video camera</td>
<td>When requested</td>
<td>X</td>
</tr>
</tbody>
</table>

### MEDIA EQUIPMENT

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Classrooms</th>
<th>Lecture/Presentation</th>
<th>Auditorium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhead Projector/Cart &amp; Screen</td>
<td>S, When requested</td>
<td>S, When requested</td>
<td>S/B</td>
</tr>
<tr>
<td>Film Strip Projector</td>
<td>When requested</td>
<td>When requested</td>
<td>When requested</td>
</tr>
<tr>
<td>16mm Film Projector</td>
<td>When requested</td>
<td>When requested</td>
<td>When requested</td>
</tr>
<tr>
<td>Video Projector</td>
<td>S/B</td>
<td>S/B</td>
<td>B</td>
</tr>
<tr>
<td>Slide Projector(s) and audio playback</td>
<td>When requested</td>
<td>When requested</td>
<td>When requested</td>
</tr>
<tr>
<td>DVD/Videotape system (VCR)</td>
<td>S/B</td>
<td>S/B</td>
<td>B</td>
</tr>
<tr>
<td>Video conferencing system</td>
<td>When requested</td>
<td>When requested</td>
<td>When requested</td>
</tr>
<tr>
<td>Interactive video (video &amp; computer)</td>
<td>S/B, When requested</td>
<td>S/B, When requested</td>
<td>B</td>
</tr>
<tr>
<td>Front surface projection Screen</td>
<td>B, (60” – 70”W)</td>
<td>B, (70” – 84”W)</td>
<td>B, (10’ – 14’ W)*</td>
</tr>
<tr>
<td>Sound system</td>
<td>S/B</td>
<td>B</td>
<td>B</td>
</tr>
</tbody>
</table>

S - Space and power provided for in facility only.
B - Item stored and/or built into facility.
* - Electrically operated
* - Size depends on distance from most distant viewer, ceiling height, etc.
FIX AND MOVABLE EQUIPMENT

Two classifications of equipment are identified on all projects, Fixed and Movable.

Fixed Equipment

This includes all built-in items such as laboratory casework, fume hoods, benches, wall cabinets and shelves, counters, chalkboards, tack boards, permanently installed projection screens, coat racks, etc. All such items shall be included in the specifications and shown on the working drawings. Their costs are included in the total construction cost for the project. "Owner supplied" fixed equipment/furnishings such as carpet, drapes, window blinds, etc. will be noted in the Project Budget during the Building Program or Schematic Design Phase.

The Architect shall prepare the drawings and specifications to ensure that all required utilities for fixed equipment items are called for and properly located. Specifications shall be so written that leave no question as to which of the several trades and suppliers has responsibility for making all necessary connections and installation of equipment and responsibility for unloading, uncrating and disposal of rubbish.

Movable Equipment

This includes such items as office furniture, file and storage cabinets, free-standing bookcases, scientific equipment, copying machines, etc. and are generally "Owner supplied". Any movable equipment included in the contract will be specified and shown on the drawings for the project.

The Architect shall show all movable equipment items on the Design Development drawings to demonstrate there is adequate space and appropriate utility services for their proper placement in each room. The Architect is not responsible for design or selection of such items.
PROVISIONS FOR THE HANDICAPPED

General

Attention is directed to the necessity of providing entrances and other architectural features of College buildings for the functional use by physically handicapped persons. See 1.03 for applicable codes and regulations. The following are College requirements in addition to those required by Code.

Entrance Doors

Electric door openers shall be considered for use by the physically handicapped at primary entrances to all major buildings. Entrances shall be located to provide direct access from an accessible route and/or handicapped parking. This shall be reviewed with the Owner’s Representative.

Elevators

All major buildings shall have an accessible elevator. In existing buildings, it may be difficult to reasonably locate a new shaft using the dimensions of a new full-sized elevator. In such cases, a cab size as identified in ADAAG 4.1.9, inside dimension of Elevators, is acceptable.

Restrooms

All major buildings shall have accessible restroom facilities. In existing buildings, it may be difficult to reasonably rearrange spaces as required in new construction. In such cases, creative reasonable solutions must be explored, including the use of Unisex facilities.

TELECOMMUNICATIONS REQUIREMENTS  UPDATE PER ITS

The following Standards are being used:

- EIA/TIA 569 Commercial Building Standard for Telecommunications Pathways and Spaces
- EIA/TIA 568A Commercial Building Telecommunications Cabling Standard

Contact Colorado College for additional telecommunication requirements.
SITE CONSIDERATIONS

General

The site for a proposed new building is determined, by the College and Campus Design Review Board, to conform to the campus Master Plan, Long Range Development Plan and Landscape Guidelines. The Architect shall design the building with attention not only to its relationship to nearby buildings, but to the open spaces and landscaping around it. Careful attention shall be given to entrances and their effect on pedestrian travel patterns, and to service drives and loading dock locations.

In the Schematic Design, the Architect shall be aware of the location of utility lines that will serve the building and locate the mechanical equipment room and transformer room in relation to those lines.

Site Design Criteria

A. The portion of walkway adjoining building entries shall have an appropriate “doormat” of specially designed materials consistent with the Landscape Master Plan as administered by the DRB.

B. Design sidewalks, terraces and patios to support snow removal equipment or Fire department access shall be designed in accordance with the Soils Engineer’s recommendations and of a material consistent with the Landscape Master Plan as administered by the DRB.

C. Locate walks away from walls, which may cause snow drifting. Where walls must adjoin walks or paved areas the walls should be designed with openings to allow for snow removal.

D. Avoid surface drainage of storm water across walks.

E. Primary entrances to buildings shall be wheelchair accessible. This shall be discussed with the Owner Representative and identified on the drawings, including the path to the building from the parking access and the primary accessible route(s) connecting to the Campus.

F. Fixed objects to be part of the landscaping of the building should be designed for ease of maintenance and snow removal.

G. Use of window wells and below grade open structures should be avoided possible. The proposed design of such features requires approval of the Owner's Representative prior to incorporation into the design.
H. Maximum slope for banks is 3:1 (Horizontal: Vertical). Use 4:1 or less where possible.

I. Provide for protection of existing plant material during construction.

J. Service drives shall have a minimum inside radius of 35 feet. Verify all requirements for Fire Department access including paving materials and Fire Lane location and configuration.

K. The College waste removal is provided by commercial companies. Container sizes and frequency of disposal shall be investigated by the Architect with the assistance from the College. Space for containers should be in service areas, and/or adjoining grade flush with front of dock in an appropriate trash enclosure construction. Provision shall be made for recycling containers. Trash Enclosure design and location is a requirement of the Development Plan.

L. Bicycles are major method of transportation on the campus. Bicycle parking area should be considered in the development of the site plan for the building. Appropriate standard bicycle rack and site accessories as identified in Appendix A are require and shall be located during the design process.

M. Submit Schematic Design/Design Development/Construction Documents site plan showing layout of new site utilities to the Owner's Representative for use by Facilities Services. The Owner will advise the Architect concerning the central utilities extension proximity to the project site and any required extensions that will be included in the project budget.

N. With LEED Certified Projects, there are several Credits associated with site utilization and proper consideration must be an integral part of the design process.

O. The entire Campus is considered a parking district by city Zoning. Additional parking requirements are usually minimal, but must be determined during the Schematic Design.

**Land Survey**

For most projects, the Owner's Representative will provide the Architect/Engineer a site survey created by a registered land surveyor as described in the Agreement Between Owner and Architect. These drawings will be created by referencing College maps and by actual utility locates. Invert elevations will be determined on existing utilities so that both plan and profile drawings can be created for new utility installations.

Exact location of the proposed building shall be discussed with the Building Committee and Owner's Representative who will review it with the Facilities Services and other College personnel for final approval.
**Subsurface Investigation**

As soon as the Architect has developed the design to the point where approximate foundation design loads can be determined, the Architect shall request, through the Owner's Representative, that test borings be made to determine subsurface conditions. This generally will occur during the Schematic Design phase. The Owner's Representative will arrange to have the necessary borings made and will provide the Architect with the Soil Engineer's report and recommendations.

**General Landscape & Irrigation Information**

The landscaping is a major contributing element to the overall campus presence, with some of the planting dating to the earliest planning. The historic elements and trees should be respected and modification should be specifically discussed with the College during the design process. The 1995 Thompson & Rose Architect’s “Recapturing the Commons” Master Plan speaks to the broader design issues and should be referenced for all future development. The Long Term Development Plan (LRPD) process has started and will continue for some time. The LRPD Document, once completed, will modify the Master Plan and, early in the Project planning, should be review with the Owner’s Representative. More specific Landscape Design Guidelines, including materials use, exterior site furnishing items, site lighting, elements signage/graphics, etc., are currently in development: consult with the Owner’s Representative for areas of concern to the College: see Appendix A. The Landscape Guideline may include design concepts pertaining to ground level public spaces and entries development of construction projects: the Architect shall incorporate these concepts into the building design. Paving materials vary throughout the Campus depending on the hierarchy of walkways. Major Projects shall have an entry “doormat” extending from the building to transition to the walkway paving material. The map of the Campus walkway system is available through the Design Review Board. The use of hardscape paving at building entrances for design expression and durability is generally acceptable, but should be limited. The Architect, Owner’s Representative, Building Committee and campus Design Review Board will review and approve these issues during the design process.

Colorado College, both in education and in practice, maintains an emphasis on environmental issues. The Architect and Consultants should consider xeriscape, native planting materials, energy/water conservation planting/grading techniques and other environmentally conscious concepts in developing the design.
The main campus has a central irrigation system. The College currently is adapting the existing system and designing future development with the intent of converting to this nonpotable supply network: consult with the College and our Campus Irrigation Consultant for system development and design criteria: see Appendix D. The City of Colorado Springs is expanding the existing nonpotable irrigation water system: refer to the Colorado Springs Utilities Water Resources Department “Standard Specification for Installation and Operation of the Nonpotable Water Distribution System” for the primary system technical requirements. Some of the smaller buildings, primarily residential “dorm” buildings located in the eastern and northern portion of the campus, have residential grade systems operated from individual house taps: this should be reviewed with the Owner’s Representative.

The City of Colorado Springs owns the trees, planting, curbs/gutters and sidewalks in the street right-of-ways and medians. Any removal or redesign must be approved by the Parks and Recreation/Forester and Public Works Departments. All city owned trees located in the construction limits must be adequately protected during construction to avoid damage assessments by the City. The College is responsible for the removal and replacement of damaged curbs/gutters and sidewalks: this shall be reviewed with the City and all associated costs shall be included in the project budget. Along the major streets, there is an abandoned subterranean concrete irrigation channel: sections have been eliminated and should be removed when directly related to a new construction project: this shall be reviewed with the Owner’s Representative.

The College’s East Campus properties on North Weber between Uintah and Cache la Poudre Streets are in the North Weber/Wahsatch Historic District. Design guidelines are being developed by Winter Kramer & Jessup for landscaping, including fences, grading, planting and signage, for this area: the Architect shall conform to the guidelines and review the design with the Owner’s Representative and, if warranted, the Colorado State Historic Society. In the entire East Campus area, the site lighting is installed and maintained under an agreement with the City of Colorado Springs.
CLIMATE AND WEATHER CONDITIONS

Temperature and humidity, rainfall, solar intensity and elevation should all be considered in building design. The following data shall be used for design purposes.

Colorado Springs, CO is located at latitude 38 degrees 49’ N and 104 degrees 43’ west longitude at an elevation of 6145 feet.

- Highest recorded temperature was 100 degrees on June/July 1954.
- Lowest recorded temperature was -27 degrees on February 1951.
- Sunshine frequency: 48% of possible in December to 75% in July.

Outdoor design conditions as specified by Pikes Peak Regional Planning Code are:

- Winter Design Dry-bulb: 2 degrees F
- Summer Design Dry-bulb: 88 degrees F
- Summer Design Wet-bulb: 57 degrees F
- Degree-days Heating: 6415

Appropriate safety factors should be used for critical spaces to ensure that required indoor air conditions are properly maintained.

Research completed by the Rocky Mountain Chapter of ASHRAE indicates that ASHRAE’s Solar Heat Gain Factors (SHGF) need to be adjusted by a multiplier of 1.173 to account for the higher elevation and lower moisture content and thus greater transmissivity of the air.

All psychometric, heat transfer and air movement calculations are to be adjusted for elevation above sea level.

Indoor Conditions

Indoor conditions shall be maintained as follows unless otherwise required by specific design requirements:

- Winter: 72 degrees F
- Summer: 78 degrees F

If humidification is provided in the winter it shall be to no more than 30% RH. De-humidification in the summer shall be no lower than 60% RH unless equipment operation is less energy consuming at a lower level.