Program Plan for the
Student Recreation Center
at
Red Rocks Community College

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A. Overview

A.1. Executive summary

Red Rocks Community College (RRCC) presents this program plan a new for a new Student Recreation Center at the Lakewood Campus. This plan has been initiated and funded by the RRCC Student Government in response to student input regarding the inadequacy of existing fitness and recreation facilities on campus. The primary rationale and driver for a new Student Recreation Center is to provide students with opportunities for a robust and varied recreational experience, to enhance student health and wellness, provide activity and support areas that are accessible and inclusive, to offer facilities that take advantage of RRCC’s location and appeal to prospective students comparing peer institutions. This proposed facility, which will be connected to the existing Main Building, will allow the college to address facility deficiencies, provide a broad range of recreation opportunities to students, and establish a base for academic programs and activities related to indoor and outdoor recreation.

RRCC broke ground in 1971 for the Lakewood Campus on 140 acres in what was then unincorporated Golden (now Lakewood). The first phase was completed in 1973, and the east and west wings of the current facility were tied together with a link—The Bridge—constructed in 1975. Currently, the campus comprises a total of 220,025 assignable square feet (ASF).

The college has a growing student body, with a headcount nearly twice that of FTE. Demand for facilities for a wide range of fitness activities (indoor and outdoor) is strong, and RRCC must compete with peer institutions in the Denver metro area and the region for students considering these resources when they make enrollment decisions.

Fitness and recreation programs and facilities support the mission of Red Rocks Community College by providing students, faculty and staff with opportunities for improved health and wellness while building a strong campus community. Investment is needed in the size, quality and variety of RRCC fitness and recreation facilities in order to maximize student experiences and achieve desired recruitment and retention outcomes. Expansion of facilities as outlined in this program plan will enable this unit to expand its role and impact in achieving campus-wide goals. Through partnerships and collaborations with key stakeholders throughout the institution, e.g. Student Life, Admissions, Student Success, various Academic units and the Health Clinic, the RRCC Fitness Center will be positioned to effectively support campus efforts to engage prospective students while providing opportunities to enhance the quality of life of enrolled students.

In parallel with student fitness and recreation needs, Red Rocks Community College has identified five academic programs (Dance, Outdoor Education, Physical Education, Park Ranger, and Recreation) that share commonality in the types of spaces and amenities they require, and in the connections between classroom and other space needs (studio, exercise, storage, and equipment) they require. A source of support for this Student Government-led initiative is the student clubs that are outgrowths of these academic programs who are lobbying for improved and expanded facilities.
Fitness and recreation facilities available to the entire student body as well as these five academic programs currently present significant deficiencies today. The Fitness Center itself is markedly undersized. It lacks room for adequate equipment for student needs, is not fully accessible for use by the college’s disabled student community, doesn’t include accessory space for stretching or similar activities, has inadequate ventilation and undersized locker room facilities. Among the academic programs, Dance classes are held in a small annex to the Environmental Training Center (ETC) which lacks toilets, lockers, and other necessities and is without the high ceiling necessary for many dance maneuvers. Many of the classes in the four other programs must be held off campus, frequently resulting in self-directed programs over which the college has limited oversight. Furthermore, these limitations have prevented the college from offering or expanding other services in demand from students.

Although enrollment at RRCC has historically fluctuated with economic trends, both FTE and headcounts have recovered from a dip after 2008 and are projected to increase over the next five years. This will place a greater demand on the college for student recreation facilities and for appropriate space and amenities for the specialized programs in Fitness, Recreation, Dance, and outdoor training that students are seeking at Red Rocks Community College.

This program plan proposes a new addition of approximately 42,000 gross square feet (GSF), to be built as an addition to the East Wing of the Main Building, and a backfill renovation of 3,000 GSF to convert the existing Fitness Center to a flexible, multipurpose meeting space. Guided by student priorities expressed via surveys and workshop activities, the new Student Recreation Center addition will feature a gymnasium for recreation and intramural activities, which can function as a large multi-purpose space for the college. In addition, the facility will include: space for drop-in and programmed strength and conditioning fitness activities; studio space for dance, yoga, and other activities; outdoor equipment storage and rental; space for climbing and bouldering; two student club meet rooms/classrooms; storage; staging; and other support space to support both indoor and outdoor recreation.

Project costs for the Student Recreation Center are estimated at $15.8 million. The project will be financed through the sale of bonds backed by college student fees and thus will be cash funded without support from the State of Colorado. As is standard practice, student spaces utilized by academic programs will be leased from student life.

A.2. Program plan process

Campus recreation needs have been a topic of conversation for over a decade – the 2001 Facilities Master Plan included a stand-alone two- or three-story “Wellness Center”, which was intended to include recreational facilities among other program elements. That plan never came to fruition.

During the Spring 2013 semester, Student Government representatives took action. After conducting an informal polling process among their peers to gauge interest in a recreation center that would be built and supported by student fees, the group authorized the expenditure of student fee reserves to produce a formal program plan.
In October of 2013 an RFQ was issued for a design firm, with the list of activities developed during the informal polling process as the “wish list” which defined the programming statement of work. While that process was on-going, Student Life staff worked with students and the Facilities Services staff to get organized: a steering committee was formed, in-house discussions about possible building elements and funding were begun, and “field trips” were taken to other facilities to look at physical spaces and get input about operations, etc. After reviewing the qualifications of nine design teams that submitted qualification packets, a sub-committee of the steering committee interviewed three firms and selected the architect and programming team led by Davis Partnership Architects with Cornelius DuBois FAIA.

The development of the program plan began with a kick-off meeting held on January 7, 2014. This began an intense and interactive process of fact-finding, data-gathering, analysis, and exploration of program and site alternatives, including Steering Committee meetings held on January 17, January 31, and February 14, after which the group met every two weeks until completion of the final draft. Small group sessions were held between the meetings.

Student input was critical to the process. In addition to having a representative of student government as a member of the Steering Committee, the architects and programmers participated in the Student Welcome Day Fair on Tuesday, January 28. Three two-hour long Student Engagement Workshops were held on the Lakewood Campus on February 4th, 5th and 8th. A broad variety of workshop techniques were used to encourage student input and engage their participation in the process of defining programming priorities. These outreach efforts included hallway surveys during the Student Welcome Fair, on-line surveys conducted over three weeks, visual preference surveys, and prioritization activities. Student space and program priorities as defined by this program plan were consistent and clear. Student Engagement Surveys and Workshop results can be found in Appendix D.7, which is bound as a separate volume.

The Program Plan Steering Committee comprised representatives of Students, Administration, Facilities Services, Student Life, and Recreation/Physical Education. The architect’s team included the programming consultant, a sports planner, a recreation operations specialist, civil/structural engineer, mechanical/electrical/plumbing engineer, and the cost estimating consultant.

During the first Steering Committee workshop and following the kick-off meeting, the team reviewed a preliminary program space needs matrix. Available sites for the project were reviewed and sketch alternates were developed for each location, and the development potential of each site was evaluated. These alternates were explored further following the workshop, and the group tentatively selected three of these locations for further study and testing of potential footprints and massing on each site. Following review of these alternates, the optimal site and placement of the building, including blocking and stacking of physical space, was agreed upon.

utilization is based on two State of Colorado Documents: (1) the Colorado Community College System “Space Utilization Guidelines for Master Planning, 2010” and (2) the “Department of Higher Education Space Utilization Planning Guidelines,” April 5, 2007.

To provide more specific reference for higher education recreational facilities and to serve as a resource for peer institution comparison, the programming team also relied on several independent sources, including:

- AAHPERD (American Alliance for Health, Physical Education, Recreation, and Dance): “Facility Planning for Physical Education, Recreation and Athletics,” 1993; and

An independent architectural firm/programmer was identified by the college to conduct a third-party review of this document.

A.3. Description of Academic Program Being Affected

The impetus for a new Student Recreation Center comes from students via their elected Student Government officials, reflecting their desire for improved and expanded fitness and recreation opportunities on campus. The principal needs defined in this program plan are therefore not academic, as they relate directly to the Student Life component of the college. Some consideration of complementary academic programs is appropriate, nevertheless, in part to acknowledge the program plan standards in this area but also to define the relationship between Student Life and related academic offerings and how a new facility could optimally serve both.

The general population of students is looking for a well-rounded experience. This includes the academic classes in several areas that complement student experience in physical activity, both indoor and outdoor. These classes offer the opportunity for students to learn activities that they can participate in during their entire lives. Red Rocks Community College promotes health and wellness as well as civic responsibility: many of these classes conduct volunteer field days. Students are taught the industry standards for participating in activities in the field, which allows them to do the activities safely and to be well-prepared after completing the class. These programs encourage growth for the outdoor recreation industry, a $646 billion-dollar industry that generates 6.1 million direct jobs every year.
RRCC currently offers degree or certificate programs in five areas that relate to the Student Recreation Center Program. These are Dance (DAN), Outdoor Studies (OUT), Physical Education (PED), Park Ranger (PRA), and Recreation & Outdoor Studies (REC). Dance programs are administered separately, while the other four disciplines share the same administrative structure. While classified as academic, the courses offered in these areas present special requirements for facilities in terms of space. These include: the need for non-traditional classroom arrangements; higher ceilings for dance and other activities; storage, in particular for equipment for outdoor activities; maintenance and repair of equipment; specialized facilities, such as climbing and bouldering walls; and specialized finishes, such as dance floors or mirrors.

Many of these requirements either are not currently satisfied or are provided today in inconvenient and sometimes inadequate offsite facilities. However, these unique requirements could be provided in space within a new Student Recreation Center. Indeed, much of this course content would use the same facilities and equipment and connects to recreational activities, already identified by students as highly desirable. One of the goals of this program plan is to identify not just the limited, specific academic space (classrooms) that should logically be placed in the new facility, but also the student recreational facilities that would support the related academic programs.

The Dance program, the only such program currently offering an Associate’s degree in the Denver Metro area, is positioned to expand enrollment but is limited by the deficiencies of the current space. DAN is also going through a lengthy state approval process to become the center for a Dance Licensure program for K-12 teachers, but the realization of this program will be limited without significant facility improvements. Overall enrollment in DAN courses is steadily growing, and further growth is projected. Including two studio spaces in the Student Recreation Center that could be assigned to dance classes—and with flexibility for other uses when these classes are not being held—would allow this program to effectively serve current enrollment and also to expand programs to meet demand for a broader offering of courses and training.

A.4. Relationship to the Facilities Master Plan

As indicated in the 2013 Facilities Master Plan, Red Rocks Community College follows five values: Innovation, Teamwork, Diversity, Communication, and Integrity. In addressing these, the master plan states:

“Central to our mission is building community through student success. The genius of a comprehensive community college, such as RRCC, is found in how it does this by bringing together career and technical education, the first two years of a four-year degree, pre-collegiate remediation, workforce training, and personal development in life and career skills. The exchange among faculty, staff, and students with a variety of backgrounds and goals creates a unique type of learning community.”

RRCC recognizes the importance of the quality of student life, specifically, the role of both academic and recreational programs related to fitness, recreation, dance, and outdoor activities in furthering its mission. Opportunities are offered to students in the context of a
college beginning to participate in intercollegiate sports such as rugby, and must provide resources for all students to meet a variety of needs.

Currently, as recognized in the master plan, RRCC facilities for these programs are inadequate both in capacity and capability. Because the existing Fitness Center in the Main Building is undersized and over-utilized, some classes and activities must be given at remote locations off campus. Activities such as Dance and Fencing were relocated to facilities that are inconvenient and inadequate for their purpose. Furthermore, creative solutions to space shortages for these activities have resulted in a situation where Fitness and Recreation offerings are scattered—on campus and beyond—creating a distinct lack of identity and presence on the Lakewood Campus and a detachment from other Student Life facilities. Still other recreational opportunities, such as basketball or volleyball, are simply not available to RRCC students because of a lack of facilities.

Not only must RRCC contend with these current deficiencies, but the college must plan for future enrollment growth. The 2013 Facilities Master Plan indicates that “Population growth projections for the service area counties suggest modest growth rates in the future. Therefore it is likely that the trends of the past ten years will continue into at least the foreseeable future.” (16). Thus a FY 2011 enrollment of 4,442 for the Lakewood Campus is projected to reach 4,702 the fall of 2016. Current data (generated since completion of the Master Plan) indicates a Fall 2013 FTE of 3,704 and a five-year (2018) horizon projection of 4,004 Fall 2018 FTE.

In the conclusion of its 2013 review of existing facilities, the 2013 Master Plan indicates that: “The age and condition of facilities on both campuses suggest the pressing need for new facilities resources. The characteristics of the sites do not present any major barriers to developing these new resources.” (68). The proposal for a new Student Recreation Center as outlined in this program plan is a means to achieve the goal of addressing the specific programmatic and academic needs of students for recreation and fitness facilities.

The Master Plan makes specific reference to the goal of developing a new student recreation center, indicating that “RRCC students have also expressed an interest in using auxiliary funds to build new physical education space that would expand on the current fitness center. This is being addressed as part of a wider discussion of possible solutions to the need for increased student center space.” (80)

A.5. Relationship to the Institutional Strategic Plan

Following the Mission Statement of the college, the Red Rocks Community College Strategic Plan 2010-2013 identifies seven “Red Rocks Community College Strategic Initiatives. One of these is “Conduct facility master planning that supports accessible courses and programs.” The proposed Student Recreation Center would directly address this initiative by providing accessible fitness facilities, including adequate space for weights and equipment, in a building with wheelchair access to these areas. The development of a center with new spaces such as a gym, will also provide the opportunity for recreational programs, such as wheelchair basketball, that do not exist on campus today.
The Strategic Plan also lists eight “College Goals and Performance Metrics for 2012-2013.” One of these is:

**RRCC Goal #6 – Provide high-quality, cutting edge instruction and educational services through the development of health and wellness services to students.**

Fitness and recreation are crucial aspects of student wellness. Development of a new Student Recreation Center will enhance the ability of RRCC to address student wellness needs. Student Government funded a student health clinic in the summer of 2012, using student fee reserves after students voted for an additional fee to support basic health services for all students. A recreation center is a logical next step in terms of supporting student opportunities to attain and maintain a healthy lifestyle.

### A.6. Guiding Principles

The program plan Steering Group adopted several guiding principles. These should inform the ultimate design process and provide a metric by which the design process and outcome for the Student Recreation Center can be evaluated. They include:

a. The recreation center planning will be driven by the stated preferences of students to the greatest extent possible.

b. The recreation center will support future college recruitment and retention goals by providing students additional means of engaging with and building their community.

c. The planning will reflect good stewardship of student financial resources.

d. The planned building will incorporate the requirements of the State of Colorado’s High Performance Buildings Program, including the goal of LEED Gold status, high energy efficiency, and striving for operational efficiency and maintainability.

e. The building location should provide for effective connectivity to the main building for users and services, minimizing impacts on the existing buildings and site.

f. Planning will encompass the flexibility to adapt to future campus recreational, development and growth needs.
B. **Justification**

B.1. **Existing Conditions**

B.1.1. **Current Program Enrollment**

Enrollment at the Lakewood Campus of RRCC was 3,704 FTE for the fall semester of 2013 (FALL 2013), with a total on-campus headcount of 6,852. While enrollment tends to fluctuate up and down due to a number of forces (mainly economic trends), growth is projected over a five-year period to reach 4,004 FTE in Fall 2018, with an on-campus headcount of 7,556.

The program plan/design team drew upon both FTE and headcount data in forming projections for space requirements for the Student Recreation Center and for comparison with peer institutions. While FTE is a customary indicator, a facility such a recreation center will be available to and is likely to be used by all categories of students. Accordingly, the proposed student fee is based on headcount enrollment and not on credit hours.

While the ratio of headcount to FTE for the Lakewood Campus as a whole is just below 2:1 (1.84 Headcount/FTE in Fall 2013 and 1.87 Headcount/FTE projected for 2018) the ratio is much higher for some of the academic programs that will use facilities in the Recreation Center. Therefore, for Outdoor & Physical Education enrollment, which comprises OUT, PED, PRA, and REC courses, enrollment is as follows:

<table>
<thead>
<tr>
<th>Area</th>
<th>FALL 2013 (Actual)</th>
<th>FALL 2018 (Projected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor &amp; Physical Education</td>
<td>FTE 51, Headcount 445, 2013 Ratio 8.7</td>
<td>FTE 62, Headcount 541, 2018 Ratio 8.7</td>
</tr>
</tbody>
</table>

These ratios, which seem appropriate for programs that are, in part, designed to appeal to part-time and non-traditional students, underscore the importance of considering headcount as well as FTE. It should be noted that the 2018 projection is using the 2013 enrollment data as a baseline. As discussed below in section B.2.1 Enrollment Projections by Program or Department, several factors have contributed to a decline in enrollment, and these figures are expected to rebound. If this occurs quickly, the Fall 2018 projections could potentially be understated.

B.1.2. **Assessment of Space Functionality**

In the absence of appropriate spaces, some classes have been scheduled for spaces that are inadequate for these special uses. As noted in the 2013 Facilities Master Plan, fencing classes are held in a “dimly lit garage space with industrial heaters,” and that the emergency services fire truck must be moved to make space for the class.

The dance studio, in an annex to the Environmental Training Center (ETC), does not include restrooms or lockers, and students must exit and walk around the outside of the facility to access the restroom facilities in the ETC. Added to this inconvenience are the security concerns faced by students (especially pregnant women taking dance movement classes) when it is dark.
outside. The dance studio is small, poorly conditioned, and it cannot comfortably accommodate more than eight participants. There is no storage space for mats or equipment. Finally, the ceilings in the studio are too low to allow for dance maneuvers such as lifts.

The dance studio space is also remote from the Main Building and the center of Student Life activities and services. The outdoor pathway from the Main Building to the ETC annex is difficult to maintain—especially in winter—for students enrolled in multiple courses, it is very difficult to make the transition to and from the building within the class change time allowed. Some classes in the OUT/PED/PRA categories operate in the dance studio, and they must contend with the same challenges and limitations as do the dance classes.

The existing Fitness Center, in the West Wing of the Main Building, is a functional space with a high ceiling and a resilient athletic flooring material, but it is undersized and unable to accommodate the full demand for fitness activities. When the space is used for PED classes, it is not available for general recreation and fitness activities. Fitness and cardio equipment (machines, weights, treadmills, and climbers) is too closely spaced, and there is no adequate, designated area for stretching. Stretching activities do take place in the small wood-floored court, but it is not available any time someone is playing ricochet.

The existing Fitness Center space cannot functionally accommodate wheelchair access—especially to the free weights. Lockers (30 half-height lockers for men and 32 for women), showers, and storage are also significantly undersized. Although the showers have grab bars in one corner, there is not an ADA accessible shower stall in the men’s locker area, which would require a bench and grab bars. The women’s locker room does include a single accessible shower (in addition to two standard shower stalls) with bench and grab bars. Existing men’s shower facilities are a common, shared, gang configuration that no longer complies with public health codes.

The current facility does not support functional training, nor can it accommodate the needs of weight-lifting or body-building classes with current equipment or space. There is not adequate room in the Fitness Center for a class to use the facility without exceeding the capacity of the space and displacing other activity. Therefore, a number of classes are scheduled off campus in facilities that are remote from the campus and the center of Student Life. One of the limitations of this arrangement is that the instructor must give a student a syllabus and assignments for the course, and then the student goes off-campus to find a place—such as a local fee-based fitness center—in which to perform the activity in a self-directed setting. With this arrangement, the benefits of supervision at the venue and consistency of instruction and accurate assessment for all students enrolled in the course are difficult to implement.

By having better equipment in the Student Recreation Center—equipment that will be designated for student use in recreational activities as well as to support classes—each of these programs will be better equipped to teach classes effectively. One example is the climbing classes. Currently, there is an outdoor climbing wall, but it is offline, since there is not a record of a recent inspection and the wall and handholds have become home to nests of wasps. An outdoor wall is also not useful when it is raining or snowing. The college has been negotiating a contract with a local gym to use their wall, but these facilities are not as available or as up-to-
date as desired. Instructors also need a place to teach basic climbing skills before they go outside on natural rock. Having a bouldering wall and/or climbing wall would allow RRCC to more effectively teach climbing and belaying techniques that meet industry standards. Current facilities do not offer any opportunity for instruction in lead climbing, creating anchors, or rappelling, all essential skills.

**Storage**: Programs and facilities face a severe shortage of adequate and appropriate storage. The Fitness Center has negligible storage space and no area in which to stage or move equipment or mats. The OUT/PED/PRA and REC programs are reduced to two small closet-sized rooms for storage in which to store all equipment, and there is no room to set up test gear. The outcome of this is that items must be set up in the faculty parking lot, which is inadvisable when it is raining or snowing. Breaking down gear after backpacking or other outdoor activities takes longer than it should and doesn’t allow for proper drying and cleaning of tents, packs, and other equipment. Proper storage should be accessible to a convenient drive-up area, and it should be within a building that also includes facilities from which to check out equipment as well as to receive and maintain it.

**Maintenance**: Facilities are lacking for maintenance, clean-up, and repair of fitness, recreation, and outdoor equipment. This includes bicycle tune-ups, ski tune-ups, rope cleaning, tents, laundry of bags and other items, and repair and maintenance of fitness equipment.

**B.1.3. Current Space Utilization**

The primary rationale and driver for a new Student Recreation Center is to provide students with opportunities for a robust and varied recreational experience, to enhance student health and wellness, and to offer facilities that take advantage of RRCC’s location and appeal to prospective students comparing peer institutions.

Accordingly, analysis of current space utilization for the academic programs that will share space in the building, in a secondary role, should be seen in this perspective. To understand the factors affecting utilization, it is useful to consider two statements contained in the 2013 Facilities Master Plan:

- “The availability of instructional space on the Lakewood campus would become exacerbated if, as planned, the “temporary” annex buildings on the west side were demolished. These “temporary” buildings on the west side have exceeded their useful life, and include the grounds shop, annexes 1-6, and storage containers.” (57)

As this indicates, classroom space at the Lakewood campus, already deficient, will encounter a greater deficiency when these temporary buildings are removed.

- “Over the years, the Lakewood Campus program organization and adjacencies have deteriorated. As programs have developed, they have been placed in areas of the campus where there was available space. This lack of organization regarding program
adjacencies contributes to missed opportunities for synergies and space efficiency.” (58)

The disconnect in program adjacencies referenced here has particularly affected the OUT/PRA/PED and REC programs, which have had to take advantage of available space without consideration of adjacencies or the capabilities of the space.

And, finally:

- “Due to the lack of basic space on the Lakewood Campus, contemporary learning environments do not exist, except in selected areas. Because of the commuter characteristics of the student demographic, collaborative learning spaces are needed for group learning activities to support and enhance the academic experience of students.” (58)

The Outdoor and related academic programs are prime examples of courses that require non-traditional space arrangements and use. These programs necessitate varied configurations of students and furniture and the use of outdoor and other equipment in order to meet curricular requirements.

**Utilization of Fitness and Recreation**

The 2013 Facilities Master Plan evaluates the utilization of the Fitness Center as a part of the Student Center space category (52), which includes food service, bookstore, lounge, recreation space, meeting space, student government and club space, and related space categories. The Master plan indicates a “Guideline ASF” target of 35,495 for 2011 and a 2016 target of 37,998, against an existing space usage for this category of 23,376 or a deficit of 12,120 ASF in 2011 and 14,622 ASF for 2016.

These deficits do not account for program space such as an enclosed basketball/volleyball gym space or for multi-use space that can accommodate classes that require specialized space, such as Dance, Fencing, Yoga, and other uses, and as a result present an incomplete picture of space needs for this facility.

**Overall Utilization of the Lakewood Campus**

An overall space deficit of 50,839 ASF in 2011 and 67,505 ASF in 2016 is also identified in the Master Plan for the Lakewood Campus (55). A planned total of 21,624 ASF of backfill space is also identified (80) under “Capital Improvement Project 4 Lakewood Renovation of ‘Backfill’ Space Resulting from Program Moves to the Arvada Campus.” This backfill of the Main Building will become feasible if the new Arvada Health Professions and Sciences Building has been funded and constructed at the Arvada Campus and programs are relocated.

This projected backfill is primarily in instructional space and therefore does not present opportunities to resolve deficiencies in Student Center space, specifically those for fitness or recreational facilities.
Completion of this backfill project will still leave an overall calculated deficit at the Lakewood Campus of 45,881 ASF in 2016. Construction of a new Student Recreation Center, including relocation of the current Fitness Center functions to this space, would create opportunity for more backfill totaling 3,320 ASF (through repurposing of the current Fitness Center), thus reducing the overall deficit at the Lakewood Campus to 42,561 ASF. Because of the special characteristics of the Fitness Center Space (high ceiling, location near other Student Center spaces, the benefit of this potential backfill is likely to go towards reducing the specific (projected 2016) 14,622 ASF deficit in the Student Center space category. This program plan identifies specific multi-purpose and student meeting spaces to be built out in this area.

Utilization of Classroom/Instructional Space

Data received from the RRCC office of Planning, Research, & Effectiveness identifies Utilization and Guideline ASF for 35 classes in the DAN/OUT/PED/PRA categories in the fall of 2013. The formula used to calculate ASF is the CCCS Guidelines for Teaching Laboratory Space Factor of:

\[ 100 \text{ ASF} \times \text{Labs} = y \text{ ASF} \]

The total utilization generated by this analysis for these courses is 2,781.35 ASF. When rounded down to account for the five courses in Outdoor Education that are specifically outdoor activities (Kayaking, Backpacking, Survival Plants, Scuba Diving, and Open Water Diving), this total reduces to 2,649.09 ASF.

Although this requirement can be rounded up to an ASF required of 3,000, the particular space and finish requirements for Dance suggest that the requirements need to be split. A single Dance Studio, to accommodate 20 students and instructor, should require 2,000 ASF. Two classrooms, sized according to a maximum enrollment of 24 students, might be evaluated based on the CCCS guidelines of 22 ASF/student station plus factors for non-traditional configuration and use of equipment, for example:

<table>
<thead>
<tr>
<th>Classroom</th>
<th>ASF/Station</th>
<th>Quantity</th>
<th>Subtotal</th>
<th>No. Spaces</th>
<th>Total ASF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seating Capacity</td>
<td>22</td>
<td>24</td>
<td>528 sf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tables (for equipment)</td>
<td>2</td>
<td>100</td>
<td>200 sf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructor/demonstration area</td>
<td>1</td>
<td>40</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total per classroom</td>
<td></td>
<td></td>
<td>768</td>
<td>2</td>
<td>1536</td>
</tr>
</tbody>
</table>
B.1.4. Facilities Condition

B.1.4.1. Existing Program Space Condition

Programs and activities identified in this program plan for the Student Recreation Center fall into four categories:

- **Fitness Center**: Existing space totaling 3,170 gross square feet (GSF) in the West Wing of the Main Building, used for student recreation activities and limited classes
- **Dance Studio**: Space of approximately 1200 GSF in an annex to the west side of the Environmental Training Center (ETC), used by the DAN classes
- **Classroom space**: Academic classrooms in the Main Building used by some classes in the OUT/PED/PRA/REC programs
- **Off-campus studio or fitness activity space** used by these programs

The existing Fitness Center comprises a double-height space with athletic flooring and traffic mats. Several other spaces open onto this space, including a wood-floored activity space with a glass panel separating it from the exercise room, an office, a small storage space, and Men’s and Women’s locker rooms. The exercise area is filled with equipment, both exercise equipment and free weights, with pieces set very close to each other. The deficiencies of the space include inadequate size for equipment, stretching, accessibility, storage, and locker facilities. The shell of the space appears to be in good condition and would be appropriate for backfill for other uses in the Student Center space category. This backfill should take into consideration the possibilities of using the high ceiling central space to best advantage.

The existing dance studio, located in an annex to the ETC building has a number of deficiencies that render it inappropriate for this use. These are described above in B.1.2 Assessment of Space Functionality. Because this annex has poor heating and cooling, is undersized, and lacks hot and cold water, toilets, and locker or dressing room areas, and because it is detached from the ETC and remote from the Main Building, it is questionable whether this space could or should be used for other student activities or classes.

The classroom space used in the Main Building is part of the overall pool of academic space in that building, and, as the Facilities Condition Index (FCI) indicates, with an FCI of over 80% and minimal costs identified to remedy any deficiencies in interior finishes, these classrooms appear to be serviceable. Relocation of any classes to space in the Student Recreation Center would be to provide for greater convenience for students and the logical clustering of academic programs and not because of any identified classroom space condition deficiency.

The condition of spaces off-campus used by these programs is not under the purview of this program plan, except to note that by their very location it is difficult for RRCC to have oversight of either activities or the condition of the spaces in which they take place.
B.1.4.2. Facilities Condition Index

A recently completed Facilities Condition Index (FCI) for the West Wing of the Lakewood Campus Main Building indicates an index of 80.487 (see below). Based on an estimated replacement cost for the wing of $16.8 million, the FCI results in a project cost to address all deficiencies in the wing of $3,278,350. Upgrades to the existing Fitness Center, which at 3,170 GSF represents a very small portion (2.03%) of the total building area of the West Wing, would total approximately $66,550 if calculated pro rata from the total cost. This confirms that the rationale for the new Student Recreation Center is not the physical condition of the existing program space but the inadequacy of the space to accommodate current on-campus and off-campus recreational and classroom activities.

<table>
<thead>
<tr>
<th>Facility Condition Index</th>
<th>Main Building West Wing</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROSS SQUARE FOOTAGE</td>
<td>155,980</td>
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<tr>
<td>REPLACEMENT COST</td>
<td>$ 16,800,892</td>
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</table>

<table>
<thead>
<tr>
<th>SYSTEM CATEGORY</th>
<th>RATING</th>
<th>COMPONENT DEFICIENCY</th>
<th>RENEWAL COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOUNDATION</td>
<td>0.01</td>
<td>0.0002</td>
<td>$ 3,360</td>
</tr>
<tr>
<td>COLUMNS AND EXT WALLS</td>
<td>0.3</td>
<td>0.012</td>
<td>$ 201,611</td>
</tr>
<tr>
<td>FLOORS</td>
<td>0.187</td>
<td>0.02244</td>
<td>$ 377,012</td>
</tr>
<tr>
<td>ROOF</td>
<td>0.051</td>
<td>0.00153</td>
<td>$ 25,705</td>
</tr>
<tr>
<td>CEILING</td>
<td>0.1</td>
<td>0.003</td>
<td>$ 50,403</td>
</tr>
<tr>
<td>INTERIOR WALLS &amp; PARTITIONS</td>
<td>0.12</td>
<td>0.0072</td>
<td>$ 20,966</td>
</tr>
<tr>
<td>WINDOWS</td>
<td>0.31</td>
<td>0.0093</td>
<td>$ 156,248</td>
</tr>
<tr>
<td>DOORS</td>
<td>0.3505</td>
<td>0.01402</td>
<td>$ 235,549</td>
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<tr>
<td>COOLING &amp; VENTILATION</td>
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<td>0.02148</td>
<td>$ 360,883</td>
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<td>HEATING</td>
<td>0.167</td>
<td>0.01169</td>
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<td>PLUMBING</td>
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<td>0.00483</td>
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<td>ELECTRICAL</td>
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<td>0.048024</td>
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<tr>
<td>CONVEYING</td>
<td>0.057</td>
<td>0.00057</td>
<td>$ 9,577</td>
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<tr>
<td>SAFETY</td>
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<td>0.00908</td>
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<td>SUB TOTAL</td>
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<tr>
<td>AE/OP</td>
<td>0.18</td>
<td>0.02976552</td>
<td>$ 500,087</td>
</tr>
<tr>
<td>TOTAL COMPONENT DEFICIENCY</td>
<td>0.19512952</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL PROJECT COST $ 3,278,350 $ 3,278,350

FACILITY CONDITION INDEX 80.48
B.1.5. Specific Health/Life Safety Deficiencies

There are no major health or life safety issues relevant to this proposal.

B.2. Changes and Projections

B.2.1. Enrollment Projections by Program or Department

The 2013 Facilities Master Plan indicates an FY 2011 total enrollment on the Lakewood Campus of 76.26 for Outdoor and Physical Education, with an FY 2016 projected total of 77.40. Because so many part-time students take part in OUT/PED/PRA programs, some of which involve sporadic or seasonal outdoor activities, the total enrollment figures do not give a full picture of the demand for these programs. Breaking these numbers into FTE and On-campus Headcount, the Fall 2011 figures for Outdoor & Physical Education are 68 FTE and 597 total headcount, with a projection for 2016 of 73 FTE and 639 total headcount.

While the OUT/PED/PRA and REC programs have traditionally had strong enrollment, enrollment has declined in the past two years. This appears to be due to several reasons, including (1) Change in leadership: The original department chair retired after 18 years two years ago, followed by an interim director and the natural adjustment and learning curve for the program; (2) Catalog changes, and (3) The lack of adequate on-campus facilities to support and from which to base the outdoor activities that form the core of many of these courses. Also, the prefix of OUT/RED/REC changed in 2012-2013 from its previous designation of PER (Physical Education and Recreation). When the change was initially made, the catalog was not updated immediately, with the outcome that some students thought that they could not take OUT/REC classes to count for PED requirements. Following these adjustments, the program estimates that enrollment will soon reach the levels of two years ago.

B.2.2. New or Modified Academic Programs/Instructional Methodology

The principal impetus for the development of a new Student Recreation Center is to meet the demands of students already enrolled or considering enrolling at Red Rocks Community College for a viable and rich recreational experience. In addition, the academic programs that tie in to the recreation industry have a complementary relationship to Student Life activities. This suggests a natural tie-in for a minor portion of the space allocated in the facility—for two classrooms, space that can be used as a dance studio, and common storage and staging space. Understanding these space needs requires an assessment of current use but also consideration of future programs.

There is a strong demand for additional courses in the areas related—directly and indirectly—to the student recreation center. Colorado is a magnet for students who want to
pursue careers in the recreation industry, and Red Rocks Community College is well-positioned to allow students in its programs access to several things that are necessary for success in this field: (1) proximity to open space (Green Mountain, many state parks, and nearby National Parks); and (2) job opportunities in the field. Being close to Denver while at the same time having ready access to open space, students can get work or volunteer with businesses or organizations in the industry while also gaining valuable outdoor experience. Creating a new facility for these programs will demonstrate to students that these areas are vitally important to the college.

Red Rocks Community College is continuing to look at ways to add new and updated course offerings (such as stand-up paddle boarding) to gain students’ interest. The OUT/PED/REC programs are heavily promoting classes within the Red Rocks community and hope to promote more to the general public. This includes consideration of a new Outdoor Education online major that would allow those who work in the field (for instances as backpacking or river running guides) to be able to complete their degree at a flexible pace. There is also impetus to add an AA degree in Outdoor Education at some point in the future. The college is also working with several colleges and universities to create transfer (articulation) agreements so that RRCC students may transfer credits to similar programs at four-year institutions.

The Dance programs recognize a demand for several new programs. Planning is already underway for a Dance Licensure program for K-12 teachers, involving a lengthy state approval process. This program will not be effective without new facilities appropriate to the DAN classes. There are also courses that are tied to Theatre Arts programs (THE) that currently only use the dance studio for one class each year but could expand if facility size, scheduling, and availability allowed. These include a demand for stage combat and physical actor training courses.

DAN and THE are evolving by responding to changes in the creative industries and how these artists are being trained on all levels. In these programs, roughly one-half of the students are not interested in a four-year degree and thus want more from a two-year training program. This includes certifying teachers for private dance studios and actor training companies.

B.2.3. Changes to Class Sizes

Although enrollment for some OUT/PRA/REC classes has been down recently because of program changes, it is anticipated that they will rise to the levels of two years ago (2011-2012).

The current dance studio limits the number of students that can effectively be allowed in a class. A class size of only eight (8) plus an instructor is the maximum that can be accommodated safely for some dance formats. When there are larger numbers, such as the 18 recently enrolled for Ballroom Dance, students have to wait while others dance.
B.2.4. Trends and Peer Institution Comparison

National Trends in Collegiate Recreation

Research indicates a number of trends in the rapidly evolving world of collegiate recreation. Each of these trends has a bearing on the program for the RRCC Student Recreation Center and its likely impact on the college:

- Exponential growth in dedicated recreation facilities on campuses has occurred over the past decade.
- Outdoor programs and indoor climbing and boulder facilities may be connected or may operate independently. Space needs have increased as interest in rock climbing has grown over the past decade. Outdoor programs are more prolific nationally and are often tied to other campus-wide efforts such as new student orientation, recruitment, and retention.
- Multi-use flexible spaces have increased in number and size in proportion to facility size increases. Spaces are designed to adapt, with minimal infrastructure impact, as space needs and desired usage evolve over time.
- A greater percentage of activity programming is based on the individual instead of on teams or groups of students. This trend has a direct impact on the trend noted above for weight and cardio fitness space allocation.
- Users expect a higher-quality experience in locker rooms with better amenities and a greater degree of privacy.
- Wellness is a continuing trend, incorporating not only physical health in recreation programs, but also integrating mental and emotional health. On many campuses this requires multiple departments and programs to collaborate to leverage synergies of shared programs.
- New recreation centers provide informal gathering and social spaces that can be self-programmed by students for a variety of uses including studying, socializing, and non-traditional recreation like video game tournaments.
- Women’s participation in traditional team sports has declined, whereas women’s participation has accelerated exponentially in fitness-specific activities over the past decade.
- Gender inclusive space needs have come to the forefront of design for new and renovated facilities. These spaces serve families, special needs users, and nontraditional populations.
• Globalization of campus outreach and the associated change in student demographics creates the need for varied programming and flexible spaces.
• Users are increasingly technology driven, and equipment design has changed to reflect this demand. Stand-alone cardio equipment, for example, tends to require both power and data, impacting the infrastructure design of recreation spaces.
• The need for specialized staff based on unique recreation center offerings has increased the required amount of office space in new and renovated facilities. As spaces and programs grow, so do the staffing levels required to effectively operate the facility.

Comparison with Peer Institutions

While RRCC has not officially identified peer institutions, the college is a member of the Colorado Community College System; therefore, other Colorado Front Range community colleges serve as the starting point for comparison. In general, the offerings of Front Range community colleges vary widely based upon the demographic profile of their student population and their individual master plans. As competition for students increases, the amenities and service available to students will increasingly influence their decisions (Blumenthal, Kent J. “Collegiate Recreational Sports; Pivotal Players in Student Success.” Planning for Higher Education, Volume 37, Issue 2, 2009. 52-62).

Arapahoe Community College has a small gym, a pool, and a cardio-weight fitness area. Community College of Denver shares recreation facilities with the two other institutions on the Auraria Campus, and to meet demand, the campus is in the process of a feasibility study to investigate potential expansion options. Two of the three Front Range Community College campuses have fitness centers with gyms that serve the needs of their student populations. Pike’s Peak Community College has extensive recreation facilities including a gym, cardio and weight fitness space, and a track. On all of the local community college campuses, recreation has the potential to serve as a recruiting tool in realizing campus enrollment and retention goals. Investment in recreation and fitness facilities adds value to the student experience, supports the learning environment, and encourages students to become part of the campus community. (Blumenthal)

Outside of Colorado, facilities range from minimal at best to state-of-the-art, the latter exemplified by Kirkwood Community College in Cedar Rapids, Iowa. This 43,500 square foot facility, completed in August 2004, contains three basketball courts, a 4-lane 200 meter indoor track, an aerobics room, ample lounge space, a large fitness center, modern amenities, multiple outdoor sports fields, and a full slate of programs and activities.

National College Health Assessment data sets (2000-2013) indicate that stress is the number one impediment to academic success, closely followed by sleep difficulties. Through regular participation in fitness and recreation activities, students may lower their levels of stress, improve quality of sleep and make important social connections needed to persist and thrive in the academic setting. Additionally, a connection exists between the availability of quality recreational facilities and programs and the decision by students to attend a particular college. Recreation services and facilities affect the overall quality of student life and general satisfaction with the institution. [The National Intramural Recreational Sports Association (NIRSA)
commissioned study, *Value of Recreational Sports in Higher Education*, by Kerr & Downs Research, 2004]. Findings of this study include the following:

- Participation in Recreational Sports programs and activities is a key determinant of college satisfaction, success, recruitment and retention.
- Recreational Sports participation improves students’ overall sense of well-being, reduces students’ stress and helps them handle their workload at college, and improves students’ overall happiness.
- Identified factors which were found to increase with the frequency of students’ recreation participation included the following: sense of well-being; stress reduction; overall happiness; self-confidence; character building; sense of community; ability to get along with diverse groups; social life; team-building skills development; importance to the learning experience; time management; and leadership ability.

Based on local comparison and national trends, expanding the recreation and fitness facilities offered at RRCC would not only benefit the student population, but would also assist in attaining institutional goals. To fully realize the goal of RRCC becoming a school of choice for the defined service area and beyond, it is imperative that the institution creates unique facilities that complement the strong academic programs offered. Development of a premier recreation and fitness center will support RRCC recruitment and retention goals while improving student health and contributing to a greater sense of campus community. (Turman, James, Ph.D., *et al.* *Principles for College and University Recreation Facilities*, 2nd Edition. Ann Arbor. NIRSA National Center, 2004).

**B.3. Total Space Requirements**

The total space requirements for the Student Recreation Center were arrived at through discussions of the Steering Committee, input from students from open house sessions and questionnaires, review of national standards and peer institution facilities, and consideration of current and projected student recreational requirements and utilization, and those for compatible academic programs.

**B.3.1. Planned Program Space Utilization**

Based on national data and local recreation trends, it is projected that more than 70% of the campus population would use the recreation center during their tenure at RRCC. In a January 2014 survey of Red Rocks Community College students, more than 75% of those surveyed indicated that they would participate in new or improved recreation facilities two or more times a week, and nearly 80% of participating students identified campus recreation and fitness facilities on campus as a priority. In contrast to student support for expanded facilities and programs, 48% of students expressed dissatisfaction with existing facilities, and 17% were unaware that the campus even had such facilities.

Red Rocks Community College is dedicated to providing its students the ability to excel in both their academic and co-curricular pursuits. For the spring 2014 semester, Red Rocks has
27 study groups that meet outside of regular class times and 23 clubs that focus on providing students additional resources to further their education. Unfortunately the amount of meeting space for students in these two groups is insufficient at this time, especially during peak hours when the majority of students are on campus. With only three rooms specifically designated for these types of activities the study groups and clubs at Red Rocks are forced to do one of two things: (1) They can schedule their meeting times outside of peak hours and remain on campus longer than they would prefer; or (2) They can meet in common areas around the school where the amount of privacy is reduced and it is more difficult to focus. Study groups are only permitted to meet for two hours per week, which makes it difficult for some students to take advantage of this extra study time. As the student population at Red Rocks continues to grow, so will the problem of inadequate meeting space. By providing meeting rooms, multi-purpose space, and flexible use classroom space, the proposed Student Recreation Center will ensure that future students at Red Rocks Community College have the opportunity to participate in clubs and study groups at the times they prefer and in a setting that is designed for such activities.

B.3.1.1. Room Areas Needed by Function

Refer to Appendix Section D.3.1 Space Requirements for a description of program spaces, including room diagrams and a narrative of function and specific requirements for each space. The following section, B.3.2 Total ASF and GSF Needed/Space Tabulation, comprises a list of program spaces defined by assignable square feet (ASF) per station, number of stations, quantity of rooms, total ASF, and general room dimensions. Rooms have been grouped into three general categories (Common Areas, Recreation Program Areas, and Administration & Support Spaces), with each category broken into two or more sub-groups.
### B.3.2. Total ASF and GSF Needed/Space Tabulation

**RED ROCKS COMMUNITY COLLEGE**  
**STUDENT RECREATION CENTER**  
Space Program Tabulation  
**Option C**

<table>
<thead>
<tr>
<th>Gross Building Area</th>
<th>NEW</th>
<th>RENOVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>42,000 GSF</td>
<td>3,000 GSF</td>
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</table>

Gross building area includes corridors, wall thickness, stairways, elevator shafts, main mechanical and electrical rooms, mechanical shafts, and other non-assigned spaces.

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<thead>
<tr>
<th>Net Building Area</th>
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</tr>
</thead>
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<td></td>
<td>34,849 ASF</td>
<td>2,775 ASF</td>
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<th>Common Areas</th>
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<td>5,034 ASF</td>
<td>2,775 ASF</td>
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<th>Recreation Program Areas</th>
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</tr>
</thead>
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<td></td>
<td>25,165 ASF</td>
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<table>
<thead>
<tr>
<th>Administration &amp; Support Spaces</th>
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<tr>
<td></td>
<td>4,650 ASF</td>
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<td>Common Areas</td>
<td>ASF/Station</td>
<td># of Stations</td>
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<tr>
<td>----------------------</td>
<td>-------------</td>
<td>---------------</td>
</tr>
<tr>
<td><strong>Room Name</strong></td>
<td><strong>150</strong></td>
<td><strong>1</strong></td>
</tr>
<tr>
<td>Main Entry Vestibule</td>
<td><strong>300</strong></td>
<td><strong>1</strong></td>
</tr>
<tr>
<td>Main Entry Lobby</td>
<td><strong>1200</strong></td>
<td><strong>1</strong></td>
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<tr>
<td>Connection - East Entry</td>
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<td><strong>50</strong></td>
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<tr>
<td>Social Lounge</td>
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</tr>
<tr>
<td>Vending Alcove</td>
<td><strong>120</strong></td>
<td><strong>1</strong></td>
</tr>
<tr>
<td>Access Control/Recept.</td>
<td><strong>135</strong></td>
<td><strong>1</strong></td>
</tr>
<tr>
<td>Reception Wkrm.</td>
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<td><strong>24</strong></td>
</tr>
<tr>
<td>Classroom</td>
<td><strong>32</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

**Meeting Rooms & Classrooms** | **2064** |

<p>| Meeting Room | <strong>20</strong> | <strong>24</strong> | <strong>15.0' x 22.0'</strong> | <strong>1</strong> | <strong>400</strong> | <strong>400</strong> |
| Multi-purpose | <strong>50</strong> | <strong>40</strong> | <strong>15.0' x 22.0'</strong> | <strong>1</strong> | <strong>2000</strong> | <strong>2000</strong> |
| Catering/Pantry | <strong>140</strong> | <strong>1</strong> | <strong>27.5' x 28.0'</strong> | <strong>1</strong> | <strong>140</strong> | <strong>140</strong> |
| Furniture Storage | <strong>235</strong> | <strong>1</strong> | <strong>27.5' x 28.0'</strong> | <strong>1</strong> | <strong>235</strong> | <strong>235</strong> |</p>
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<thead>
<tr>
<th>Room Name</th>
<th>ASF/Station (if applicable)</th>
<th># of Stations</th>
<th>Clear Dim. (face of wall)</th>
<th>Quantity of Rooms</th>
<th>Clear Area (face of wall)</th>
<th>Assignable Area</th>
</tr>
</thead>
<tbody>
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<td>100.0' x 125.0'</td>
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<td>12500</td>
<td>12500</td>
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<td>Gymnasium - Two Court</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Multi use</td>
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<tr>
<td>Gym Storage</td>
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<td>20.0' x 20.0'</td>
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<td>400</td>
<td>400</td>
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<tr>
<td>Weight - Fitness</td>
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<tr>
<td>Cardio Fitness Area</td>
<td>48</td>
<td>65</td>
<td>52.0' x 60.0'</td>
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<td>3120</td>
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<td>Fitness Operations</td>
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<tr>
<td>Mgr. Desk</td>
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<tr>
<td>Cardio Storage</td>
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<td>10.0' x 15.0'</td>
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<td>Machine/Circuit Weight Area</td>
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<tr>
<td>Machine/Circuit Wt. Storage</td>
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<td>Free Weights Area</td>
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<td>Free Weights Storage</td>
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<td>10.0' x 16.0'</td>
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<td>150</td>
<td>150</td>
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<td>TRX/Functional Training Space</td>
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<td>300</td>
<td>300</td>
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<tr>
<td>TRX/Funct. Storage</td>
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Red Rocks Community College – Student Recreation Center
Page 28
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Red Rocks Community College – Student Recreation Center
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B.3.3. Alternatives Analysis

The primary needs for this project are student driven, specifically the requirement for adequate recreational facilities to support the goals of improved and expanded drop-in and programmed fitness and recreation opportunities on campus. The program plan team considered several options for meeting program needs. These included cutting back programs and services, maintaining status quo, moving more programs to off-site locations, and improving utilization of existing space. In addition to these alternatives, the team also considered several alternative sites for a new facility. All options are outlined below:

Option A: Cut Back Programs
Facility deficiencies have reached the point where, if not addressed, will begin to cause program cut-backs due to safety and comfort concerns in the Dance Studio and Fitness Center, as well as the difficulty of overseeing off-site performance.

Option B: Status Quo
The existing programs are already making highly efficient use of the spaces from which they are currently operating, including the Fitness Center in the West Wing of the Main Building. The inadequacy of the existing space results in a condition where Red Rocks Community College cannot effectively provide many of the recreational and academic programs and amenities that today’s prospective students demand. Recruitment and retention of faculty and staff for recreational programs would also suffer if the status quo is maintained.

Option C: Off-site Delivery
The college already delivers a number of student recreation and related academic programs at off-site venues. Because of the specific nature of some off-site facilities, it is likely that some programs will continue to be delivered off-site. However, the inconvenience posed by remote locations is likely to limit student enrollment and participation in some programs. This is likely to deter growth in overall program enrollment and to pose a barrier to expansion of programs. Some activities, such as kayaking and mountain climbing, can be supervised and coordinated in the appropriate setting. However, off-site scheduling of other classes such as weightlifting and body-building lead to a lack of supervision and inconsistent results for students who must pursue these courses in what is essentially a self-directed setting. Diffusion of more Student Life programs off campus will make the commitment of RRCC to this important aspect of attracting and keeping students less visible and less convenient.

Option D: Improved utilization of existing space
The existing space of the Fitness Center is already under-sized and over-utilized, resulting in a facility in which exercise equipment is too tightly packed. There is no additional room in the facility to make improved utilization a viable option, and the prominent location of the Fitness Center off the Great Hall make the deficiencies in the recreational opportunities offered to students immediately apparent. This space also will present a timely opportunity for backfill for partial remediation of the current deficit of Student Center space at the Main Building of the Lakewood Campus. Although construction of a new facility at the Arvada
Campus will also free up space at the Lakewood Campus, this will only address the deficit in academic space and will thus not enable the college to address the pressing need to improve student recreational facilities.

**Option E: A new Student Recreation Center**

Seven initial alternatives were explored and evaluated for the location of a new Student Recreation Center, including locations that could provide for a physical connection to the Main Building. Three options were determined to be preferred and were then developed in greater detail.

- **Option A:** Near the west Student Life entrance to the Main Building, extending to the south face of the west wing.
- **Option B:** To the north of the west end of the west wing.
- **Option C:** To the north of the northeast corner of the east wing of the Main Building

These alternatives are discussed below in Section B.3.3.1 Analysis of Three Options

**B.3.3.1 Analysis of Three Options**

Refer to the site plan “Student Recreation Center: Site Location Options,” in Appendix section D.1.2. The three options indicated on this plan were selected for more detailed study after initial exploration with the Steering Committee of multiple options and variations. Applying the same program and functional space requirements, preliminary blocking studies were developed and reviewed with the Steering Committee. Each option was evaluated on the basis of a matrix of criteria. At the conclusion of this review, Option C was selected for development into the site plans and blocking diagrams included in this program plan. This option also provides the basis for the program plan construction cost estimate.

**Option A – Southwest Corner:** This option placed the Student Recreation Center on the east side of the south leg of the Main Building – West Wing, with a building entry combined with the current entrance to the Bookstore and Student Life areas. This is a highly visible location, with opportunities to significantly improve a highly visible face of the campus, improve a significant, high-traffic entry, and place the Recreation Center close to the existing Student Life program. This site also offered good southern exposure and proximity to parking. The disadvantages of this site include remoteness from the existing playing field, the likely disruption of major utility routes around the Main Building, and significant disruption to space in the existing building, including the bookstore and loading dock, as well as space on the upper floor of the Main Building. This option was abandoned primarily due to these likely cost and disruption factors, many of which did not support the recreation programming needs and could be avoided with other site options.

**Option B – Northwest Corner:** Option B proposed either a two- or three-story scheme extending north, and possibly to the west of the northwest corner of the Main Building. It was felt that this scheme would include good service access and could be connected to
utilities without significant disruption of existing lines or easements. The location is also close to existing Student Life programs and spaces. Disadvantages of this site included: a lack of visibility from other parts of the campus and a resulting lack of identity; a difficult connection to the existing building; remoteness from the existing playing field; poor options for creating viable exterior space, and; disruption to existing classrooms and blocking of existing daylight and views from Main Building spaces, including offices on the upper floor. This option was abandoned because it was felt that these disadvantages greatly outweighed the positives of this site.

Option C – Northeast Corner: This location anchors the east end of the main corridor and potentially creates an improved entrance to this high-traffic campus entry point. As staffing of the Recreation Center would be separate from Student Life staffing, it was felt that this, more remote, location, would not be a concern. The new building would be positioned to the north of the east end of the Main Building, close to and in sight of parking and the existing playing field, which will be redeveloped and expanded under this program plan. By rotating the plan of the Student Recreation Center, the building would become more visible, providing an opportunity to improve the first impression of the campus from the primary approach, and would create pleasant exterior space, some of which would be used for program activities in connection with the function of the building. This rotation would also minimize the impact, both during and after construction, on spaces in the existing building and allow for a convenient connection to the Light Rail walking path. The fire lane would have to be re-routed to pass by the north side of the new facility.
C. Implementation and Design Criteria

C.1. Spatial Relationships

C.1.1. Stacking/Blocking Diagrams

Five building organizational schemes were reviewed by the Steering Committee. The merits of each scheme were consolidated into the following single organizational diagram for this Program Plan phase of development. The committee identified the following organization priorities in development of these schemes:

1. A clearly defined student commons, or ‘free-zone’ that all campus students, faculty and staff could access without having to show identification. The commons is envisioned as an eastern student life anchor to the campus and a counterpoint to the student life Great Hall on the west side of the College. The Student Commons is to provide unrestricted access to classrooms and meeting rooms, have direct access to the east parking lots, be the location for elevator and stairs serving the recreation center, and be supervised by the Recreation Center Reception desk. Access to the remaining portion of the recreation center beyond the reception desk would be controlled.

2. Maximizing northwest and north views of the foothills and South Table Mountain to the majority of building users as much as possible. As a result, high occupancy strength and conditioning spaces and group fitness studios are located to maximize the northwest orientation.

3. Providing a consolidated staff administrative suite behind the reception control desk maximizes facility and staff interaction, accessibility to students, and utilization of support staff and resources.

4. Locating the Outdoor Recreation Resources adjacent the fire lane on the north or west sides to facilitate access to supporting equipment storage space and to screen support ‘service-yard’ functions from main building view.

5. Maximizing views of recreation spaces and programming from adjacent uses in order to encourage program participation and building utilization.
Total – 42,000 GSF
C.2. Site Improvements and Requirements

C.2.1. Site Requirements

Site Clearing: Protect and maintain benchmarks, survey control points, monuments, property line pins and other reference points from disturbance during construction. Provide erosion control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust from leaving project site. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.

Remove sod and grass before stripping topsoil. Strip topsoil to whatever depths are encountered or as determined by Geotechnical Engineer in a manner to prevent intermingling with underlying subsoil or other waste materials. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

The disturbed area for the project is approximately 5.3 acres.

Tree Demolition: Install temporary fencing around tree protection zones to protect remaining trees and vegetation from construction damage. Maintain temporary fence and remove when construction is complete. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations. For trees to be removed, grind stump 18” below finished grade. Haul removed trees offsite.

Grading: Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.

Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated. Provide a smooth transition between adjacent existing grades and new grades. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances. Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 0.10 feet.
2. Walks: Plus or minus 0.10 feet.
3. Pavements: Plus or minus 0.10 feet.
4. Grading inside Building Lines: Finish subgrade to a tolerance of ½-inch (13 mm) when tested with a 10-foot (3-m) straightedge.
Excavation: Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades. Scarify subgrade soils beneath exterior slabs, sidewalks and pavements to a minimum depth of 8-inches, moisture condition and recompact as specified. Existing man-made fill shall be removed under walks and pavements as required by the Geotechnical Engineer.

Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to optimum or to 3 percent over optimum moisture content for clay soils, or within 2 percent of optimum moisture content for granular soils. Refer to geotechnical study for additional recommendations. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

Drives, Walks, Fire Lanes: The existing asphalt fire lane will be re-routed around the north side of the proposed building. The proposed fire lane is anticipated to be 26-feet wide full depth asphalt with an anticipated 6-inch minimum asphalt thickness and 18-inch curb and gutter on either side of the road to control drainage.

Concrete pedestrian only sidewalks will be 4-inch thick, 4000psi Portland Cement Concrete. Concrete sidewalks and plaza areas subject to vehicle traffic will be 6-inch thick, 4500psi Portland Cement Concrete. All concrete to utilize saw cut scoring in lieu of tooled joints. Standard, detached sidewalks to be standard gray concrete with broom finish.

Retaining Walls: No retaining walls are anticipated at this time.

Site Furnishings: Furnishings will consist of benches and litter and recycling receptacles at the entry plaza. Assume 5 benches and 3 litter receptacles for the project.

Fine Grading & Soil Preparation: A soils analysis will be required as part of the submittals process, to include testing and amendment recommendations for planting soil suitable to support plant growth. The current site is minimally disturbed so it’s possible the existing topsoil can be utilized with minimal amendments required; however, the analysis will provide conclusion as to the remediation options necessary. For now, pricing should assume pre-amended topsoil from offsite sources, as this will be a conservative approach to planting soils.

Athletic Field Soil Preparation: The entire area of the athletic field subgrade will be amended with 5 cuyd/ 1,000 sf of Premium 3 Compost, tilled 8” into the subgrade. On top of the prepared subgrade, assume 4” of Planters Mix (70% topsoil, 30% compost blend).

Athletic Field Perimeter Drain: Provide a 4” perforated pipe in a French drain around the perimeter of the field for drainage. Drain to tie into storm drain line on the south side of the field.

Erosion Control Measures: Slopes greater than 25% will require erosion control blanket. Erosion control blanket and hydromulching should be assumed.
Seeding and Sodding: Sodding will be used and the current intent is to use more drought tolerant sods than the typical Kentucky Bluegrass blend. Reveille Bluegrass or an approved equal should be assumed for all non-athletic field areas. For athletic field areas, assume a Sports Blend Bluegrass variety grown in a sandy loam mixture will be used.

Areas of disturbance north and west of the athletic field will be hydro seeded with a foothills native grass mix.

Planting: Trees of 2.5” or greater, 5-gallon shrubs (both deciduous and evergreen), 1-5 gallon ornamental grasses, and annual/perennials are intended to be used. Generally plants will be a mix of medium to low water requirement plant material. All planting beds will contain plant material, drip irrigation, combination of wood and rock mulch, and weed barrier fabric. Steel edger will be utilized to separate all sod/seed, planting beds, and existing landscape to remain (both onsite and offsite).

Irrigation Systems: The system will consist of drip irrigation in all planting beds, spray and/or rotor irrigation in sodded areas, and spray and/or rotor irrigation in all seeded areas (if used). In effort to reduce water consumption, assume a climate controlled irrigation controller with solar and rain-sync sensors. Other materials and equipment will be utilized to maximize watering efficiency.

Assume temporary irrigation will be used in native seed areas for establishment.

C.2.2. Site Context

Red Rocks Community College is located in Lakewood Colorado, on the northern flanks of Green Mountain and at the top of the Lakewood Gulch drainage basin. The College address is 13300 West 6th Avenue, Lakewood, Colorado 80228

The campus is accessed via West 6th Avenue Service Road and Arbutus Drive by car. Visibility of the campus and buildings is clear and direct from this location and aids in way-finding. Bus and light rail service are provided by the Regional Transportation District near this intersection with a connecting sidewalk that follows Arbutus to the campus. The entry drive from West 6th Avenue to the College climbs 75 feet in elevation along a serpentine Arbutus Drive, making pedestrian and bicycle access adventurous. Many pedestrians currently seek the shortest route of travel by cutting overland across the native landscape hillside and along the west edge of the recreation field to reach the campus east entry. Limited pedestrian and bicycle connections are provided to adjoining residential neighborhoods.

The existing College campus is dominated by two buildings, East and West, connected by a bridge over a drainage way that feeds into Lakewood Gulch. Multiple additions to each building have been completed over the last two decades. Functionally the buildings operate and are experienced by students, faculty and staff as a single monolithic building served by ‘The Bridge’ that runs east-west connecting the many building programs and departments. The
primary college entrances are at each east and west end of the building, with a main, formal building entrance is on the south side, in the middle of the building.

Campus parking is provided in three primary surface lots; one located to the east of the building, one that is south/central of the building and another to the southwest. Because of their proximity to building entries, the east and south/central parking lots are the most heavily used and often at capacity. Services and functional operations are generally located on the west end of the building. Existing fire access along the north side of the building is provided via a paved fire lane that dead ends with a hammerhead turnaround next to the east wing of the building. This fire lane also provides service access to the college dining facility, located one-story above grade.

The existing landscaping on the north side of campus is dominated by the topography, mature cottonwood trees, dense shrubbery, and native grasses as the campus nestles into the top of the drainage tributary that eventually becomes Lakewood Gulch about 500 feet north of the existing building.

The south side of the campus includes a more formal, collegiate lawn with mature trees spanning both sides of the drainage channel and framing the open lawn. This portion of the campus is the most visible and active outdoor space on campus. The natural solar orientation and protection from north-northwest winds by the existing building make it a highly usable space for outdoor activities. One challenge in this area is the bifurcation that the drainage channel creates making it difficult to move outdoors on foot from one end of the campus to the other. Current recreational programming of this area includes a sand volleyball court and concrete tennis courts.

A multi-purpose recreation field existing located off the northeast corner of the East Building is used for rugby, flag-football, soccer, and includes a perimeter walking path and covered stage. The stage is used as band shell and covered podium for special events, including the College commencement. From this location, views across the native landscaped campus and to farther mountains to the north and west are excellent. Strong winter winds can be problematic in this exposed location of the campus and the topography that drops away in most directions around this field challenged ball containment for sporting activities.

Views from the College are dominated along the north side of the building by broad panoramas to the north and northwest toward the foothills and South Table Mountain. Direct views east and west are limited to the uphill grassy open space of Green Mountain and largely residential uses. Views into the more contained landscaped lawn to the south are provided from facilities running the length of the south side of the building.
C.2.3. Site Plan – Design Intent & Views

Design Intent / Views
RRCC - Recreation Program Plan
C.3. Design Requirements

C.3.1. Civil Engineering Summary

General

The Red Rocks Community College (RRCC) campus is located at 13300 6th Avenue in Lakewood, Colorado. The proposed Recreation Center will be located adjacent to the northeast corner of the existing east building wing. The project will include the construction of a new Student Recreation Center building, fire lane relocation, and installation of new utilities, drainage facilities, and pedestrian outdoor spaces to serve the proposed building.

Please refer to the Civil program plans for preliminary overall utility and grading design.

Sanitary Sewer Systems

An existing 8-inch sanitary sewer main is available on the west side of the existing drainage tributary to Lakewood Gulch that flows under the existing building bridge between the east and west wings. A new sanitary sewer service line will be required to the southwest side of the proposed Recreation Center. The new sanitary service line will be routed from a new manhole on the existing main across the drainage tributary to Lakewood Gulch and along the existing fire lane to the proposed building. The new sanitary sewer service will be SDR 35 PVC pipe with an anticipated pipe size of 6-inches. Cleanouts will be used at all bends, at a maximum of 100-ft intervals and a two-way grade cleanout will be used at the connection to the building. All sanitary sewer construction shall be in accordance with the Consolidated Mutual Water District details and specifications.

Water Systems

There is an existing 12-inch Ductile Iron (DI) Consolidated Mutual Water Company (CWMC) water main east of the proposed building that continues north under the existing athletic field. An existing CMWC fire hydrant 7.1.11 and 8-inch DI hydrant lateral will be removed as part of this project to allow for the proposed building construction. A new 8-inch DI dead end water main and fire hydrant will be required to provide fire protection coverage on the west side of the proposed building. The proposed dead end water main alignment and hydrant location has been reviewed and preliminarily approved by CMWC and West Metro Fire. Meeting minutes with the West Metro Fire Department and email exchanges with CMWC have been documented with this programming effort. CMWC seems willing at this time to allow the proposed dead end water main and hydrant provided the athletic field expansion does not limit or inhibit access to their existing main. CMWC will require that the proposed domestic water service be tapped from the dead end main to provide turnover of the water in the dead end main. Furthermore, CMWC will require that the proposed fire service line be tapped from the existing looped water main east of the proposed building so that two fire suppression services (hydrant and sprinkler service) are not tapped from one dead end main. West Metro Fire has indicated
that the proposed location of the new hydrant is acceptable and that it appears adequate fire protection service can be provided by the proposed hydrant and the existing hydrant 7.1.8. This preliminary analysis assumes that the proposed building will be fully sprinklered.

The size of the new fire service tap is assumed at this time to be a 6-inch fully restrained DI fire service line. A backflow preventer will be required per fire code interior to the building. The proposed water main shall be 8-inch PVC C-900 or C909 with all bends, tees, and connections restrained and protected against thrust. The proposed fire hydrant lateral shall be a minimum 6-inch DIP and shall be fully restrained. The new domestic water tap has been sized by the plumbing engineer to be a 2-inch tap and meter. It is anticipated that irrigation water for landscaping around the building will be provided from the new 2-inch tap, while irrigation water for the athletic field will be provided from the existing campus irrigation system. The irrigation design shall be completed by the landscape architect/irrigation consultant in the design phase of the project. All work and materials shall be in conformance with CMWC Standards and Specifications.

The plumbing engineer is working with CMWC to evaluate the possibility of serving the proposed recreation center from the existing building plumbing. If the existing building tap and meter is adequate to serve the new building or if upgrades to the existing meter and tap size are possible, the need for a new 2-inch domestic water tap may be eliminated. CMWC would require that the new building is physically connected with roof, foundations and siding to the existing building to allow this scenario and would require a meeting with RRCC Facilities to confirm this approach will be allowed.

**Storm Drainage**

Roof drainage from the Recreation Center will be routed by the plumbing engineer to the west side of the building. Based on preliminary calculations, two 12-inch PVC pipes will be adequate to convey roof drainage from the proposed Recreation Center to the proposed water quality/detention pond. Two way cleanouts will be used at the roof drain connections to the building. Drainage from the new fire lane and athletic field will be routed around the north and west sides of the building in an anticipated 18-inch RCP storm sewer and will discharge to the proposed pond.

The water quality/detention pond will have concrete fore bays to a concrete outlet structure with integrated micropool. The pond will release to a grouted boulder outfall as indicated on the plans. Pond sides are assumed to be irrigated sod. Pond bottom is 4” – 8” river cobble with some 5 gallon water tolerant shrubs such as willows and some 1 gallon water tolerant ornamental grasses such as Heavy Metal Switchgrass. Assume (8) 2,000 lbs – 3,000 lbs river boulders placed in the bottom of the pond.

The grouted boulder outfall will prevent erosion as stormwater discharges to a tributary of Lakewood Gulch on the north side of the existing building. Existing roof drains from the north side of the East Wing will be routed around the proposed pond to the grouted boulder outfall. Stormwater runoff from the developed site will continue to follow historic drainage.
paths as much as possible. Overland and sheet drainage will be utilized as much as practicable to minimize storm sewer pipe, while maintaining the recommendations of the geotechnical report.

Area inlets may be needed around the building in landscape areas. Area inlets shall be Nyloplast drain basins with Urban Accessories grate covers. Type 16 Curb inlets will be used in the fire lane and the pond outlet structure will be a modified CDOT Type D inlet with wing walls. Sidewalk chases, if necessary, will have concrete collars and Urban Accessories grate covers. Storm sewer pipe is anticipated to be SDR 35 PVC for 12-inch and smaller storm lines, while Class III RCP will be required for storm sewer larger than 12-inches. Concrete manholes will be used at all bends and junctions that are not located at an inlet. A concrete headwall or flared end section will be used at storm sewer outfalls to the pond and grouted boulder outfall. A buried soil rip rap (Type L) will be utilized at the emergency overflow spillway should the pond outlet structure become plugged. The water quality/detention feature is anticipated to be an extended detention basin per Urban Drainage Flood Control District Criteria. The water quality/detention feature will be integrated into the landscape design for the project to ensure aesthetics and functionality are maintained.

A perimeter foundation drain is anticipated to be required by the geotechnical engineer to remove groundwater or surface water from the foundation perimeter and any below grade building spaces. We anticipate that a 4-inch perforated SDR 35 PVC pipe wrapped in washed gravel and geotextile fabric at a minimum slope of 1.0% will be required. The perimeter drain will likely discharge to deep manhole and sump pump system where water will be removed by pumping. Refer to the plumbing section for additional information regarding the sump pump system.

Other Utilities

The design and construction of new gas, electric, and communications services will be coordinated with the utility providers during construction. Refer to the following Mechanical and Electrical narratives for additional information.

The following information for site natural gas service was provided by the mechanical engineer:

A new gas line will be required for the building. The line will originate at the campus Gas House and run underground to the East Building. It will be run through the crawlspace of the East Building, then exit and run underground to the Recreation Center. The line pressure will be 2 psi. Pressure reducing valves will be required at the Gas House and the Recreation Center. A sub-meter will be required at the Recreation Center.
C.3.2. Architectural Design Summary

EXTERIOR BUILDING ENCLOSURE SYSTEMS

Exterior Architectural Assemblies

**Grade Beams:** Cold-applied emulsified-asphalt dampproofing on all concrete grade beams with 2” R-10 extruded polystyrene board insulation serving as the protection course and continuous insulation. If a perimeter drain is required by the soils report, a drainage panel will also be provided.

**Concrete Foundation Walls for below grade occupied spaces:** Self-adhering sheet waterproofing such as W.R. Grace’s Bituthene 4000, which is a 60 mil reinforced modified bituminous sheet, or cold fluid-applied waterproofing such as W.R. Grace’s Procor will be provided at below grade foundation walls. Seams of the sheet waterproofing will have an additional coating of mastic. The waterproofing will be covered with a continuous nonwoven-geotextile-faced, molded-sheet drainage panel extending to a perimeter drain system. Continuous insulation of 2” R-10 extruded polystyrene board insulation to a depth of 10’ below finished grade will be provided.

**Exterior Masonry Walls (brick veneer over cold formed metal framing):** The face brick will be Lakewood Brick color Primrose, Grade SW, Type FBX, and comply with ASTM C216. The masonry assembly will include mortar, grout, embedded flashings inclusive of stainless steel metal flashing and rubberized-asphalt flexible flashings, adjustable masonry veneer anchors, cellular plastic weep/vents, cavity drainage material, and compressible filler/joint sealant/joint sealant backing at expansion joints. Steel lintels and shelf angles will be galvanized and painted.

The masonry system will have a 1” minimum air gap and the remainder of the cavity will consist of 2” R-10 extruded polystyrene board insulation or 2” R8.4 mineral wool board insulation such as Thermafiber’s Rainbarrier rainscreen and cavity wall insulation for the code required continuous insulation. This will be over a building wrap weather barrier such as Tyvek Commercial Wrap with Flexwrap and StraightFlash flashings, or for superior performance, a fluid applied membrane air barrier such as Henry’s Air-Block 31 and 33 or BASF’s Enershield-HP with flashings, 5/8” glass-mat gypsum wall sheathing (Dens Glass Gold) with joint treatment to reduce air infiltration, 6” galvanized steel studs 16” o.c., cavity insulation consisting of either unfaced R-19 glass-fiber blanket insulation with a Certainteed “Membrain” vapor retarder which changes permeability depending on the humidity; or, for superior wall performance, 2” R-13 spray polyurethane foam insulation can be provided which will also act as the vapor retarder and better seals the wall from air infiltration.
The interior finished surface will be painted 5/8” Type X gypsum board. Exterior building enclosures shall be detailed to ensure continuity of insulation and vapor retarder at perimeter beams and intersections between the vertical wall plane and horizontal roof planes.

**Metal Wall Panels:** Prefinished corrugated sheet metal panels with exposed fasteners will be installed as a rainscreen over a subgirt framing system over 2” R-8.4 mineral wool board insulation such as Thermafiber’s Rainbarrier rainscreen and cavity wall insulation for the code required continuous insulation. This will be over a building wrap weather barrier such as Tyvek Commercial Wrap with Flexwrap or StraightFlash flashings, or for superior performance, a fluid applied membrane air barrier such as Henry’s Air-Block 31 and 33 or BASF’s Enershield-HP with flashings, 5/8” glass-mat gypsum wall sheathing (Dens Glass Gold) with joint treatment to reduce air infiltration, 6” galvanized steel studs 16” o.c., cavity insulation consisting of either unfaced R-19 glass-fiber blanket insulation with a Certainteed “Membrain” vapor retarder which changes permeability depending on the humidity; or, for superior wall performance, 2” R-13 spray polyurethane foam insulation can be provided which will also act as the vapor retarder and better seals the wall from air infiltration. The interior finished surface will be painted 5/8” gypsum board. Exterior building enclosures shall be detailed to ensure continuity of insulation and vapor retarder at perimeter beams and intersections between the vertical wall plane and horizontal roof planes.

**Exterior windows and doors:** Aluminum-framed storefront windows will be based on Kawneer’s Trifab 451 T windows which are thermally broken with a 2” wide sightline. The windows will be painted with ‘Kynar’ which is a high-performance coating to match the color of existing window systems. Windows shall be top hinged, awning type, operable windows, equipped with metal mesh screen. The aluminum-framed door entrances will be heavy duty use entrance doors set in an aluminum frame with 1” insulated glazing.

**Glazing:** One inch clear insulating glass units will be provided with a Low-E high performance coating. Tempered and safety glazing will be provided per code.

**Interior glazing:** Fire-rated glazing such as TGP’s Firelite Plus will be provided at fire rated door and window assemblies. The glazing must meet the International Building Code requirements for safety-glazing.

**Translucent wall panel systems:** To provide daylight to high bay gymnasium areas, a translucent wall panel system will be provided such as Kalwall’s lightweight structural sandwich panels which are fiberglass reinforced translucent facings bonded to an aluminum/composite I-beam inner structure and filled with clear nanogel to increase the insulating performance.

**Roofing Assemblies**

The roof consists of a built-up asphalt reinforced glass fiber SBS modified asphalt sheet roofing system. The four-ply asphalt-impregnated, glass-fiber felts will be hot mopped over 2 layers of 2-1/2” polyisocyanurate board insulation hot mopped over an asphalt primer which will serve as the vapor retarder. This insulation will provide an R-value of 28. The primer will be applied to a concrete composite roof deck. The structure should be sloped ¼”/ft where possible.
or else a ¼”/ft tapered insulation system will be required. Polyisocyanurate tapered insulation
crickets at ½”/ft between roof drains and 10’x10’ ½”/ft roof sumps will help ensure roof
drainage. Through-wall scuppers will provide the required overflow drainage. Perlite insulation
cants will be provided around the perimeter and at mechanical equipment such as air handling
units. A gravel aggregate surfacing layer will provide the final finish. The performance
requirements will meet FM Global 4450 or 4470, Class 1A-105, noncombustible construction,
with a SH hail resistance rating.

**Aluminum framed roof skylights**

Additional daylighting will be provided Kynar painted aluminum-framed skylights with
insulated glazing. The glazing will consist of ¼” tempered outboard lite with low e coating on
surface #2 with a laminated inner lite – 3/16” plus 3/16”.

**Applied Fireproofing**

Sprayed Fireproofing will consist of standard density cementitious fireproofing with
15pcf average density, 14pcf minimum, impact resistive, 150lbf bond strength. Acceptable
products are limited to Monokote by WR Grace and Cafco 300 by Isolatex. UL rated assemblies
will be provided for structural steel and metal deck assemblies with cementitious fireproofing.

**INTERIOR FINISH CONSTRUCTION**

**Interior wall systems and assemblies**

Metal fabrications inclusive of concrete filled metal pan steel stairs and pipe railing assemblies.

Provide custom fabricated non-rated and fire rated metal doors and frames, interior light and
sidelight frames.

Wood doors consisting of PC-5 Type, solid particle board core with red oak veneer and
hardwood styles.

Electrically operated overhead coiling door fabricated of interlocking galvanized metal slats,
insulated.

Gypsum wall board assemblies of non-combustible construction consisting of metal wall framing
and 5/8 inch type ‘x’ gypsum board throughout. Gypsum board shall extend to above ceiling
grid to structure. Partitions shall have a Level 4 gypsum board, non-textured wall finish.

Provide sound attenuation batt insulation at offices, group fitness rooms, and conference/meeting
room locations.

Provide one and two hour rated construction at corridors, stairs, shafts, mechanical and elevator
equipment rooms where indicated on plans and elsewhere as designated or required.
Provide paint coatings for normally stained or painted interior and exterior surfaces, with recommended primers and two finish coats as follows:

- **Gypsum Board Partitions**: Latex, semi-gloss finish.
- **Gypsum Board Ceiling**: Latex, semi-gloss finish.
- **Interior Metal and Wood**: Latex, semi-gloss finish.
- **Exterior Metal**: TNEMEC system with one coat spray-applied urethane primer and one coat acrylic polyurethane.
- **Finished Wood**: Filler coat. No stain. Two coats polyurethane finish.
- **Floor Sealer**: Two coats clear, colorless penetrating sealer.

**Interior ceiling assemblies**

Provide white suspended perforated and fissured acoustical lay-in ceiling tiles in 24”x24” and 24”x48” sizes suspended in a 1” wide exposed steel, double web heavy duty grid.

Ceiling assemblies over toilet areas, and wet and dry locker areas to be water resistant gypsum board with non-corrosive hanger wire.

Ceiling assemblies in gymnasiums, weight and fitness areas, climbing areas to be exposed painted structure.

**Flooring finishes**

Resilient sheet rubber flooring will be provided in workrooms, copy rooms, break rooms, kitchens.

Carpets to be low profile level loop nylon face fiber with rubber backing and direct glue installation.

Entrance Floor mats to consist of recessed ‘elephant-hair’ carpet squares extending within entry vestibules from wall to wall and 20ft beyond interior vestibule doors.

Resilient athletic flooring provided in various certified manufacturer synthetic assemblies designed to meet the different performance requirements established for each specific space designated to receive resilient athletic flooring:

- **Fitness (weights / cardio) & Stretching**: resilient athletic flooring, 18 mm thick, 4’ wide vulcanized rubber-rolled flooring, PLAE achieve or similar.
- **Climbing Wall Flooring**: climbing wall mfr. foam cell assembly with cover layer, Eldorado Climbing Wall, Pro-Tec flooring system.
- **Small Group Fitness Studio**: wood appearance resilient athletic flooring, Gerflor, Taraflex Sport M Plus.
Gymnasiums: Poured seamless urethane-based synthetic sports flooring, Robbins classic 90, striped to reflect basketball, volleyball, and indoor soccer.

Wood athletic flooring shall be MFMA Northern Hard Maple floor assemblies, provided in various certified manufacturer assemblies designed to meet the different performance requirements established for each specific space designated to receive wood athletic flooring. The following bases of assemblies shall establish the design intent for SD:

- Large Group Fitness Rooms & Dance studio: flat grain floating floor system, Robbins Bio Cushion Classic, 25/32 flat grain strip maple over dual layer subfloor and resilient bio pads.

Toilet Room and Locker Room Finishes

Full height porcelain wall tile not less than 7/16” thick, surface plain, slip resistant with abrasive admixture in multi-colored patterns at Toilet and Locker Rooms.

Poured epoxy seamless flooring with integral cove base.

Locker areas to consist of painted CMU walls and locker base support, integral benches.

Specialties and Equipment

Visual Display Surfaces consisting of coated steel marker and white boards in multipurpose and conference rooms.

Tack boards framed natural cork in public circulation areas, classrooms, conference rooms, lounges, workrooms.

Toilet Compartments consisting of Floor-mounted, overhead braced ½” thick solid phenolic partitions, panels, screens, doors.

Toilet Accessories to include mirror units, soap dispensers, coat hooks, semi-recessed paper towel dispensers and waste receptacles. Sanitary napkin dispensers and removable napkin waste receptacles will be provided at each women’s water closet or toilet room.

Grab bars and special fixtures shall be provided in handicapped stalls. All fixtures to be chrome or stainless steel No. 4 finish.

Mop rack, broom rack, and shelving unit will be provided at each janitor’s closet.
Signage, to match Owner’s existing, to include Interior panel signage complying with requirements of the ADA and consist of signage that identifies room name and number, door number, staff name when appropriate, accessibility requirements, code requirements, maximum room occupancy, life safety signage.

Lockers to include heavy duty ventilated metal lockers with baked enamel painted finish. Lockers will be provided in an assortment of various size/ arrangement configurations to address the specific use needs of the building. Lockers shall be provided with locking capability, internal convenience hooks, and sloping top.

Fire protection specialties shall include semi-recessed, rounded corner, fire extinguisher cabinets with painted steel and glass doors and multi-purpose, dry type 10 lbs extinguishers. Class: 4A:60B:C, Color: Red.

Gymnasium Equipment to include overhead supported basketball backboard frame: AALCO Model 2000 Series, braced T shaped, all welded construction w/ forward swinging support and Model 2000 So-Lo Glide-E internal height adjustment feature and backboard electric operator
  - Basketball backboard: AALCO Model 501-s rectangular tempered glass backboard with backboard safety pads
  - Basketball goals: AALCO Model 28HS-4T safe-release tube tie breakaway rim
  - Volleyball system: galvanized posts with adjustable collars. Powder coated finish, BN-10 net and floor sleeves.

Gymnasium Equipment Control system: Aalco Touchmate Athletic Equipment Control box.

Badminton equipment: Badminton system by Aalco Manufacturing. 2 3/8” O.D galvanized posts with adjustable collars. Powder coated finish, BN-10 net and floor sleeves.

Ballet Barre bracket: Anchored stainless steel wall bracket by Gibson, Inc.

Gymnasium Divider: Overhead electrically operated, fold up vinyl coated polyester mesh divider curtain: AALCO Model VSCM Fold-Up Divider Curtain.

Scoreboards: Multi-sport LED indoor scoreboard with wireless control: NEVCO Model 2700 scoreboard with NEVCO wireless controller Model MPCW

Residential Appliances including provision of residential dishwashers, microwave ovens, and refrigerators is anticipated in administrative break rooms and multi-purpose conference food service support room.

Laundry Equipment including Commercial grade washers, extractors, and high-temperature dryers are required in recreation laundry room

Projection Screens: Electrically operated recessed front projection screens will be provided in Classrooms and Conference Rooms. Front projection screens shall consist of a mildew resistant matte white viewing surface of seamless construction.
Waste and Recycling Totes consisting of moveable plastic totes, metal dumpsters for bio-waste and paper waste, and a roll-off trash compaction system are to be provided by the University (or it’s waste management company) in the loading dock trash/recycling area on the 1st level adjacent to the loading docks.

Window Coverings consisting of 1” horizontal metal “mini-blinds” at all office perimeter window openings. Fitness, Group Fitness and conference rooms will be provided with electrically operated perforated roller shades.

**Hydraulic Freight Elevator**

One (1) 3,500#, 2-stop holeless hydraulic elevators, with handicapped-accessible entrances and cabs, double-sided cab. Clear cab size – 5’-0” x 6’-9” to 5’-8” x 6’-9”. All elevator cabs door openings are to accommodate sports wheelchairs which require a 48” wide clear width opening. Elevator doors and frames shall be stainless steel, and elevator doors shall have chip guard edges.

**C.3.3. Building Systems Summary**

**C.3.3.1. Structural Engineering Summary**

**Structural Systems**

The new recreation addition will be a two-story building constructed adjacent to the existing multi-story Main Building. Where the new building abuts the existing structure, a structural separation joint will be used to isolate the two structures, to allow for independent movement, and to forgo the need to upgrade the existing building to current structural code provisions.

The new building will be framed using structural steel beams and columns for the two-story areas supporting a concrete slab on composite metal decking. Roofs will be framed using roof deck supported by metal bar joists spanning between steel framing in the two-story areas and load bearing walls around the Gym. Masonry load bearing walls around the Gym will support gravity and lateral loads. Steel braced frames will augment the masonry shear walls to resist lateral wind and seismic loads.

**Building Foundations**

Building foundations will likely consist of concrete drilled piers anchored into bedrock and designed in accordance with recommendations per a site specific geotechnical analysis to be developed prior to the design phase. Concrete grade beams spanning between drilled piers will support perimeter walls and interior masonry gym walls. A structural concrete slab-on-void may also be recommended by the geotechnical analysis depending on the existing site conditions.
Concrete

Concrete work will generally consist of the following 28-day compressive strengths:

- Drilled piers: 4,000 psi
- Foundations (grade beams, foundation walls, pier caps): 4,000 psi
- Slabs-on-grade: 3,500 psi
- Concrete topping on metal deck: 3,500 psi
- All other concrete not specified above: 4,000 psi

Concrete reinforcing: ASTM A615-60 ksi

Structural Steel

All structural steel work shall be detailed, fabricated and erected in accordance with the AISC Steel Construction Manual and the AISC Code of Standard Practice with exceptions as noted herein. Composite joists shall meet all applicable requirements of Steel Joist Institute (SJI) Standard Specifications for Composite Steel Joists, CJ-Series. Non-composite joists shall meet all applicable requirements of Steel Joist Institute (SJI) Standard Specifications for Longspan Steel Joists, LH-Series

C.3.3.2. Mechanical Engineering Summary

HEATING, VENTILATING AND AIR-CONDITIONING SYSTEM

Air-Handling Units

There will be one large AHU serving the entire building. This AHU will need to be able to meet the needs of all the different spaces in the building, from the multi-purpose gym spaces to conditioning spaces to meeting rooms. A traditional variable-air-volume unit (VAV) with multiple zones controlled with fan-powered VAV boxes will serve this type of application well.

For energy conservation, the source of cooling for the unit will be indirect and direct evaporative cooling. Indirect evaporative cooling does not add water vapor to the air, so it does not raise humidity levels. Direct evaporative cooling does add water vapor to the air. In this climate, evaporative cooling systems can provide a comfortable indoor environment nearly all the time. There are occasional periods, such as when a thunderstorm passes by on a hot summer day, when there are a few hours where the indoor humidity can rise to uncomfortable levels.

Where feasible, a displacement ventilation system of air delivery will be used. This type of system delivers air near floor level and the air rises as the temperature increases. With this arrangement, warmer air can be used for cooling compared to systems that deliver the air at ceiling level. It works well with an evaporative cooling system, which will often be producing warmer air than a conventional HVAC system.
Another energy conserving feature of the AHU will be an energy recovery wheel (ERW). This wheel exchanges energy between the air being exhausted from the building and fresh air entering the building. It provides energy savings both in the summer and winter. Supplemental heating needs will be provided by a hot water heating coil.

This type of AHU is divided into two air paths; a supply side and an exhaust/return side. The ERW sits between the two tunnels in order to communicate with both air streams. The components of the supply air side of the AHU, in the direction of airflow are listed below.

- Economizer
- Air Filter
- Energy Recovery Wheel
- Supply Fans (2)
- Heating Coil
- Direct Evaporative Cooler

The components of the exhaust/return air side of the AHU, in the direction of airflow are listed below.

- Air Filter
- Direct Evaporative Cooler (used for indirect cooling in conjunction with the ERW)
- Economizer
- Energy Recovery Wheel
- Exhaust Fans (2)

The unit will be mounted on the roof, in a location to minimize noise transmission problems to the space below. The need for sound attenuators in the ductwork will be evaluated during the design and included if necessary. All fans will incorporate variable frequency drives for speed control. Minimum outside air for ventilation will be measured with a flow measuring station and controlled with separate dampers. Zone heating will be provided with hot water coils mounted in the fan-powered VAV boxes. Using fan-powered VAV boxes will allow the main AHU to be turned off during unoccupied periods with the zone fans and heating coils providing any needed heat.

The AHU will also be provided with an empty slot to house a future chilled water coil. In case functions within the building change to the point where extra cooling is required beyond that which can be provide with evaporative cooling, the AHU will be ready for a chilled water coil installation.

**Heating System**

Heating for the building will be provided with hot water. The hot water will be generated with 95% efficient, gas fired, condensing boilers located in the Mechanical Room. There will be two boilers and each will be sized for 70% of the total heating load for the building. This provides economical additional backup heating in case one boiler is out of service, without oversizing the boilers.
To maximize performance of the boilers, by promoting condensation of water vapor in the combustion gases for greater energy efficiency, low heating water temperatures will be used. Supply heating water temperature will be 140°F and return water will be 100°F. All heating coils will be sized to handle the lower temperatures.

The heating water will be distributed to AHU heating coils, cabinet unit heaters, fan-powered VAV box heating coils and other heating devices. Cabinet unit heaters will be located in stairwells and entrance vestibules.

Two pumps will be used to distribute heating water around the building. Each pump will be sized for 100% of the flow needs, so there is full backup in case one pump fails. Only one pump will run at a time. The distribution system will be variable flow, with 2-way valves on all terminal units. Pumps will be controlled with variable frequency drives.

The heating water system will be filled with a 30% glycol solution for protecting coils from freezing in cold weather.

Restroom Exhaust Systems

Exhaust fans will be provided for restrooms. A flow rate of 1 CFM per square foot will be used.

Elevator and Data/Telecom Rooms

The elevator equipment room will be cooled with the central air-handling unit (AHU-1). The majority of the cooling needs for this space occur only when the building is occupied. AHU-1 will be operating during these times, so it can be used for cooling the room, without the need for a dedicated cooling system. During unoccupied hours, when the AHU is off, the only heat comes from the electronic controller. It can be cooled with a transfer fan pulling air from adjacent plenum spaces.

The amount of equipment in the data/telecom rooms has not been determined yet. It is anticipated that it will be minimal for a building such as this. However, to meet the 24/7 cooling needs for this type of equipment, a dedicated cooling unit will be used. It will be a small split system, to match Owner’s existing equipment, with the condensing unit mounted on the roof.

Gymnasiums

The two gymnasiums will also be heated and cooled from the main AHU with fan-powered VAV boxes for heating and cooling. In addition, large de-stratification fans will be mounted high in each room. There will be two fans per gymnasium. The fans will provide air movement for cooling occupants and also move warm air down to floor level for energy conservation during winter operation.
HVAC Controls

RRCC has standardized on ASI controls for the campus. The controllers will be networked within the building and connected to the campus network.

Each HVAC system will have a dedicated controller located in close proximity. The controllers will be powered from a dedicated circuit.

The field devices (valves, sensors, and actuators) will comply with the University standards. This allows simple stocking of replacement parts and simplifies maintenance.

Commissioning

The 2012 IMC and IECC codes require all HVAC systems to be commissioned. This provides assurance that the controls and mechanical system are working as designed. In addition, the building will receive Enhanced Commissioning as defined in the LEED standards to get an extra point to achieve a Gold Rating.

PLUMBING SYSTEM

Waste, Vent, Domestic Water

The waste and vent system will be a conventional system using cast iron piping to serve the plumbing fixtures. A gravity flow system can be employed to route the waste to the exterior for connection to the existing waste piping in the street. A 4” main waste line will meet the needs of the building.

Domestic water will come from the campus water supplier’s water distribution network. To meet the domestic water needs of the building, based on the current layout of plumbing fixtures, the calculated new water tap size is 2”, based on a maximum water flow rate of 94 GPM, calculated using 2012 IPC plumbing fixture water usage tables. A reduced pressure backflow preventer will be installed as well as a water pressure reducing station and meter on the incoming water line.

The domestic hot water needs for the new building be generated with high-efficiency, gas-fired, tank-type water heaters. Two units will be utilized so there is backup in case one unit fails. There will be a domestic hot water recirculation pump and piping running around the building to keep the lines hot.
Storm, Groundwater

Storm water from roof drains will be piped over to the west side of the building where it will connect to the new storm water sewer line. Overflow drains will be piped to grade level, near the point where the roof drain is located.

A foundation drainage system will be installed by the Civil Contractor. A groundwater sump and dual pumps will be located in the mechanical room to collect the water and lift it to the site drainage system.

Natural Gas

Natural gas will be utilized for heating the building and for heating domestic water. A 2 psi gas line will be routed to the building. A sub-meter and pressure reducing valve will be required at the building entrance.

FIRE PROTECTION SYSTEM

Fire Sprinklers

The building will be fully sprinkled. Standpipes will not be required in this building. The system will be a wet pipe system with pre-action coverage for the elevator machine room and hoistway. The sprinkler system will be zoned by floor and will have an additional zone for the elevator machine room.

The bulk of the building will be rated Light Hazard. Electrical rooms and mechanical rooms will be Ordinary Hazard Group 1.

A 6” fire main will be connected to the building from the campus water supplier’s water supply system. A double check valve type backflow preventer will be installed at the building entrance.

C.3.3.3. Electrical Engineering Summary

Site Utilities

The campus is currently served by an underground Xcel Energy 13.2KV feeder that supplies S&C medium voltage, metal clad, outdoor switchgear located on the south side of the East building. The S&C switchgear consists of a main fused switch and three fused switches used for feeders. The three fused switches each provide power to transformers that serve the
East Building, West Building and the Environmental Training Center (ETC) respectively. The S&C switchgear has no spare feeder sections remaining and due to lack of clearance space and the equipment’s age, expanding the switchgear would be costly and difficult. Since the fused switch feeding ETC is very lightly loaded, compared to the other two switches, it will be used to feed the new Recreation Center (and ETC). The ETC 13.2KV feeder will be disconnected from the fused switchgear and re-routed to the primary side of a new 500KVA, 13.2KV-480V transformer that will be installed to the west of the existing East Building transformer. A new 4/0 Cu 13.2kv (approximately 25’ long) feeder will be installed from the S&C switchgear to feed the new Recreation Center transformer. The 20 amp fuses that feed ETC will need to be replaced with 45 amp, 15KV, EPSE fuses. The new 500KVA pad-mounted transformer will have lugs and space for two sets of primary cables. The new transformer will also contain Envirotex-FR3, dielectric fluid which has a higher flashpoint and is biodegradable.

The new 480/277V, (3) phase, 600 amp electrical service will be routed via underground conduits [2(4#500MCM, 2/0G) 4”C)] from the new outdoor pad-mounted transformer through the basement and crawl space of the East Building to a new 600 amp distribution board in the new building (about 550’).

**Building Electrical System**

New electrical service equipment will consist of a 600 amp, 480/277V main distribution board located in the new main electrical room on the south west side of the first level. Power will be distributed via the main electrical room to three electrical closets. One electrical closet will be stacked above the main electrical room and the other two will be on the opposite side of the building and will be stacked as well. Each electrical closet will hold a 125 amp, 480/277V, 42 circuit panelboard, a 75KVA, 480-208/120V, 3 phase transformer and a two section, 225 amp, 208/120V, 84 circuit panelboard.

The 480V, 600 amp distribution board will power the 480/277V panels in each of the four electrical rooms as well as the elevator, large mechanical loads (air handlers) and a 480V, 400 amp panelboard for mechanical loads located in the penthouse. The lighting will be fed from the 480/277V panelboard in each electrical closet as will the 480-208/120V transformer that will power the 208/120V panelboards.

Transient voltage surge suppression (TVSS) equipment will be installed at the main distribution board.

The elevator will require a shunt trip disconnect switch that will be controlled by the fire alarm system to shut down prior to sprinkler flow. Additional requirements for the elevator’s fire alarm system components are discussed in the Fire Alarm System paragraph below.

Each IT closet will require a single phase, 208V, 30 amp circuit to power the Owner provided UPS systems.
Cardio/Weight Fitness areas need a very high receptacle load density. The 2000 square foot Cardio suite is expected to house 40 pieces of equipment. Each piece will need a receptacle and a data connection from either a floor box or wall mounted boxes depending on the equipment’s location.

The 4000 square foot free weight/circuit weight space allocation needs to have the same panel and infrastructure capacity as the Cardio space since this space might be reconfigured in the future. The newest circuit equipment model has card readers that track individual performance, so in the future more weight and circuit equipment will need power and data. A power inverter system similar to those made by Sports Art Invertor System (Green System) which connects to the Cardio equipment will be included in the project. This equipment captures some of the energy used by those exercising and sends it back to the electrical distribution system to lower the overall energy demand.

The two gymnasiums will need power provisions to support special events, guest speakers, commencement ceremonies, concerts, performances, career fairs and festivals. Since each of these events varies widely as far as power requirements, the power distribution for this space must be very flexible and easily adaptable while also being non-obtrusive. Duplex wall receptacles will be spaced along the walls at 12 foot intervals. No more than four receptacles will be allowed per 120V, 20 amp circuit. A junction box holding a spare 120V, 30 amp circuit will be installed at each end of the gymnasium.

Private offices will be provided with one receptacle on each wall, with one receptacle circuited separately to a computer circuit with no more than four computers per circuit. Multiple purpose rooms, group fitness rooms, studios, and other large spaces with minimal electrical loads will be provided with one receptacle per wall and a dedicated 20 amp circuit for an instructional podium or fitness instructor control station.

Having a 208/120V, 225 amp, two section panelboard (84 circuits) in each electrical closet will provide the necessary infrastructure to accommodate the anticipated future growth.

If proper maintenance is performed, the electrical distribution system will adequately serve the facility for 40-50 years. Proper maintenance would include following the manufacturer’s recommendations for preventative maintenance, visual inspections, re-torquing of lugs and bus bolts, periodic current injection testing for circuit breakers 400 amps and higher, and annual infrared scanning of distribution boards, panelboards and dry-type and pad-mounted oil/oil air transformers. Pad-mounted transformers should also be periodically inspected for damage and leaks and should have their oil tested which helps to forewarn of impending issues.

**Grounding System**

The grounding electrode system for the building will consist of a main ground bus bar located in the main electrical room with ground conductor sized and bonded per N.E.C. The main ground bus bar will be connected to a “UFER” ground installed in or below the building foundation, ground rods, building steel and the building main incoming cold water pipe. In
addition, all secondary electrical and telecommunications rooms shall have an auxiliary ground bus bar installed to enable a clean ground path to equipment within each room. Auxiliary ground bus bars will be interconnected by means of a vertical riser and shall continue on to the building main ground bus bar in the main electrical room.

Emergency/Critical Power System

There is no anticipated need for stand-by emergency generator power or large centralized UPS systems. UPS power, if needed for IT equipment or phone switches, will be provided locally with small packaged systems.

Photovoltaic (PV) System

It is anticipated that in the future the new building may incorporate a 30-50KVA, roof-mounted, PV system to lower energy consumption and to promote sustainability. The size of the future PV system will depend upon the amount of available roof space. A two inch (2”) conduit with pull string will be provided from the roof to an interconnection panel located in the main electrical room to facilitate connection in the future.

Lighting Systems

**General Recommendations:** Given the energy goals for the project, the interior lighting systems should be designed in coordination with the daylighting strategies for the building. The lighting systems should also be designed to conform to the illumination level standards as set by the College and the Illumination Engineering Society Handbook - Tenth Edition.

The gym lighting systems should be flexible to allow for multiple uses. These include the provisions for adding color mixing in the form of RGB LED lighting systems and dimming for special events. The gym lighting controls should be zoned to allow for different areas of the gym to be at different lighting levels depending upon the event.

The lighting for the Group Fitness and Weight Rooms spaces should be designed to avoid glare for users that may be looking up. Luminaires with low-brightness lenses or indirect lighting should be used in these areas. In addition, accent lighting and or wall sconces should be considered to add atmosphere for different types of exercise activities.

Give the steady improvements and affordability, the building should utilize LED lighting systems to reduce energy and maintenance cost. The LED systems will also be dimmable to allow for dimming in daylight areas and where lower lighting levels are required like conference and meeting rooms. It is also understood that the gym spaces will be used as multi-purpose spaces making the dimming function offered by LED systems an even greater benefit.
The following minimum standards should be used for evaluating the LED lighting systems.

**LED Luminaire Performance Requirements:**
LED luminaires shall meet the following performance requirements:
- Minimum 50,000 hour life rated using IES LM-80-2008 testing
- Photometric testing using IES LM-79-2008 testing
- 3000K and/or 4000K color temperature with 80+ CRI
- Five to ten year warranty

**LED Luminaire Driver Performance Requirements**
LED drivers shall meet the following performance requirements:
- Minimum efficiency of 85%
- Total harmonic distortion - 20% or lower
- Power factor of .9 or above
- Dimmable with 0-10 volt control signal
- Five to ten year warranty

Given the college’s PV curriculum, it is recommended that DC LED lighting be explored for the facility. The benefits to DC lighting include increased efficiency and flexibility. While these systems are relatively new, they should be considered given the extended schedule for the project.
See chart below for recommended lighting levels and target power densities for different program areas within the building.

<table>
<thead>
<tr>
<th>Room/Area Type</th>
<th>Light Level Avg. Foot-candles</th>
<th>Target Watts/SF</th>
<th>Controls</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry Lobby and Lounge Areas</td>
<td>10</td>
<td>.4</td>
<td>Key switching, occupancy sensors, time clock, photocell</td>
<td>1</td>
</tr>
<tr>
<td>Locker Areas and Restrooms</td>
<td>10-15</td>
<td>.4</td>
<td>Key switching, time clock, photocell</td>
<td></td>
</tr>
<tr>
<td>Offices</td>
<td>30 (see note 3)</td>
<td>.6</td>
<td>Local multi-level switching or dimming with occupancy sensors</td>
<td>3</td>
</tr>
<tr>
<td>Meeting Rooms, Classrooms and Group Fitness</td>
<td>35</td>
<td>.6</td>
<td>Local multi-level switching or dimming with occupancy sensors</td>
<td></td>
</tr>
<tr>
<td>Large Fitness and Weight Training Areas</td>
<td>20</td>
<td>.3</td>
<td>Local key switching, occupancy sensors, time clock, photocell</td>
<td>1</td>
</tr>
<tr>
<td>Gyms</td>
<td>10-75 (see note 2)</td>
<td>.8</td>
<td>Local dimming, occupancy sensors, time clock, photocell</td>
<td>1, 2, 5</td>
</tr>
<tr>
<td>Climbing Wall</td>
<td>5-10 (see note 4)</td>
<td>1</td>
<td>Key switching, occupancy sensors, time clock, photocell</td>
<td>1, 4</td>
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<tr>
<td>Utility Spaces</td>
<td>5</td>
<td>.4</td>
<td>Local switching</td>
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</tr>
<tr>
<td>Exterior Entries</td>
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<td>.5</td>
<td>Photocell</td>
<td></td>
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<tr>
<td>Exterior Pathways</td>
<td>.5</td>
<td>.05</td>
<td>Photocell</td>
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<td>1 (.01 min)</td>
<td>N/A</td>
<td>N/A</td>
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</tr>
</tbody>
</table>

Notes:
1 - Lighting should be zoned and dimmed via photocell for daylight harvesting wherever possible.
2 - Lighting level should be dimmed to achieve energy savings depending upon the class of play, (recreational versus competitive).
3 - Light level indicated is for general ambient room lighting. Local task lighting should be provide 50 foot-candles at work surfaces.
4 - Lighting level is vertical foot-candles on wall. Lighting should be located to minimize glare for participants and provide good visibility of wall features and textures.

**Lighting Controls**

The lighting control systems should be well coordinated with the room functions. The ability to dim LED lighting systems makes it advantageous in multi-purpose rooms where different lighting levels are required and where daylight is present.
Here are two control system options that should be considered:

**System Option 1:**
For large areas and corridors, provide programmable relay panels with integral 0-10 volt dimming capability for daylight harvesting and multi-function spaces where dimming is required. Relay panels will be networked to allow for system wide programming, and time clock functions. For smaller spaces like offices, storage rooms, conference rooms, and restrooms, local occupancy sensors should be used to control room lighting. These areas will not be connected to the relay panel system.

**System Option 2:**
Provide addressable web based digital control systems with a combination of luminaire and circuit control modules. Control modules, sensors and switches networked to system gateways and bridges for system zoning and 0-10 volt daylight harvesting dimming control and/or for multi-function spaces where dimming is required.

**Fire Alarm and Detection System**

The fire alarm detection and mass notification system will be a fully automatic intelligent reporting addressable type system, to meet the Red Rocks Community College standards and requirements. The new fire alarm system will report alarms back to the existing fire alarm system in the East Building. Photoelectric or thermal type smoke detection system will be incorporated into the design to comply with UBC, NFPA, NEC and Life Safety codes. Elevator recall and shutdown will be provided through the shaft, lobby and equipment room detectors. Heat detection devices in the elevator equipment room and shaft will be interlocked with a shunt trip circuit serving the elevator for elevator shutdown prior to sprinkler flow. The elevator will be recalled to designated floors by activation of the smoke detectors prior to emergency shutdown. Monitoring devices will be provided for tamper/flow switches and pre-action systems where required. Alarm notification devices (horns/strobes) will also be provided throughout the building. Due to intelligibility requirements for mass notification systems and the expected problems this creates in gymnasium type spaces, electronic signage bars that display emergency information will be needed in the two gyms to meet the requirements for mass notification/shelter in place.

Duct smoke detectors will be installed to shut down associated HVAC equipment. A remote graphic fire alarm annunciator panel will be installed near the main entry.

**C.3.3.4. Information Technology Summary**

**IT/Communication Systems**

The new facility will have a dedicated IT room with a rack of servers. Fiber optic cabling will be brought from the East Building to the new IT room. An 18” ladder-type cable
tray will be installed throughout the entire facility to distribute Cat5E data and other low voltage system wiring. The cable tray will be installed above the accessible ceilings in the corridors. Four (4”) conduits will be installed from the IT room up to the second level cable tray system for IT/communication wiring. The anticipated telephone service for the new facility will utilize VOIP. It is assumed that wireless access points will be placed throughout the facility so that the building is fully covered. Private offices, podiums in multiple purpose rooms, instructor stations in group fitness rooms and each piece of workout equipment will require a data connection.

Audio/Visual Systems

The full needs for audio visual elements will be better defined during design. It is anticipated that overhead projectors will be installed in all class room type spaces and conference rooms. Provisions for adding an auditorium type A/V system in the gymnasiuums will be assessed. At a minimum, power and empty conduits and boxes should be included for sound systems, special lighting, speakers and overhead monitors so that this space could be used for special events and ceremonies.

A public address (PA) and music system with the ability to override any independently controlled room’s sound system is required throughout all occupied spaces. Each meeting and group exercise studio will be equipped with a sound system for staff use and include an I-Pod dock for general users with on-off switch and preset sound levels.

C.3.3.5. Sustainable Design Summary

Sustainability is an integral aspect of the goals for the Student Recreation Center, and this project must be designed in accordance with the State of Colorado’s High Performance Building Program. This includes design to qualify for LEED® Gold certification as a minimum.

Green architecture affects all aspects of a building project and all members of the design, engineering and construction team support the desire by RRCC Facilities, Student Government and the student body to limit energy use, create a healthier environment and build responsibly.

Strategies for achieving these sustainability goals include lighting, day-lighting, heating, cooling, waste management, selection of building materials, and limiting waste during construction. These strategies will be further developed, evaluated and articulated in more detail in subsequent design and engineering phases, but are assumed to include the strategies indicated in the target LEED® credit matrix included below, which indicates probable credits required to achieve a minimum LEED® gold rating for the Student Recreation Center.
<table>
<thead>
<tr>
<th>Credit</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.3</td>
<td>Location and Transportation</td>
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<td>LEED for Neighborhood Development Location</td>
<td>16</td>
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<td>2</td>
<td>Sensitive Land Protection</td>
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</tr>
<tr>
<td>3</td>
<td>High Priority Site</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Surrounding Density and Diverse Uses</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Access to Quality Transit</td>
<td>5</td>
</tr>
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<td>1</td>
<td>Bicycle Facilities</td>
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</tr>
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<td>1</td>
<td>Reduced Parking Footprint</td>
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<tr>
<td>1</td>
<td>Green Vehicles</td>
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<td>7.1</td>
<td>Sustainable Sites</td>
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<td>Y</td>
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<td>Required</td>
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<td>1</td>
<td>Site Assessment</td>
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</tr>
<tr>
<td>1</td>
<td>Site Development–Protect or Restore Habitat</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>Open Space</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Rainwater Management</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Heat Island Reduction</td>
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</tr>
<tr>
<td>1</td>
<td>Light Pollution Reduction</td>
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<tr>
<td>6.2</td>
<td>Water Efficiency</td>
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<tr>
<td>Y</td>
<td>Outdoor Water Use Reduction</td>
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<tr>
<td>Y</td>
<td>Indoor Water Use Reduction</td>
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</tr>
<tr>
<td>Y</td>
<td>Building-Level Water Metering</td>
<td>Required</td>
</tr>
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<td>1</td>
<td>Outdoor Water Use Reduction</td>
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<td>4</td>
<td>Indoor Water Use Reduction</td>
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<tr>
<td>4</td>
<td>Cooling Tower Water Use</td>
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<td>33</td>
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<td>Y</td>
<td>Fundamental Commissioning and Verification</td>
<td>Required</td>
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<tr>
<td>Y</td>
<td>Minimum Energy Performance</td>
<td>Required</td>
</tr>
<tr>
<td>Y</td>
<td>Building-Level Energy Metering</td>
<td>Required</td>
</tr>
<tr>
<td>Y</td>
<td>Fundamental Refrigerant Management</td>
<td>Required</td>
</tr>
<tr>
<td>4</td>
<td>Enhanced Commissioning</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>Optimize Energy Performance</td>
<td>18</td>
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<tr>
<td>1</td>
<td>Advanced Energy Metering</td>
<td>1</td>
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<tr>
<td>2</td>
<td>Demand Response</td>
<td>2</td>
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<tr>
<td>2</td>
<td>Renewable Energy Production</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>Enhanced Refrigerant Management</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Green Power and Carbon Offsets</td>
<td>2</td>
</tr>
</tbody>
</table>
The LEED® credit matrix indicates probable credits in the “Y” column totaling 62, which is within the 60 – 79 range of credits needed for a Gold certification. The matrix also indicates 26 additional credits in the possible (“?”) column. The final sustainability strategy developed during the design phase for this project should confirm the credits in the probable category and then incorporate adequate additional credits in the possible column to secure a Gold certification. Practical experience suggests that not all initially targeted credits will be achieved or validated, and some credits may be rejected if determined not to provide an adequate benefit for the cost. Therefore, a wise strategy would target an additional 6-8 credits to ensure a final total of credits beyond the minimum LEED® gold rating threshold of 60.

Roof assemblies and electrical panels and conduit provisions will be designed to accommodate the possibility of an Owner provided photo-voltaic roof panel system. It should be noted that the LEED® credit matrix indicates two credits for “Renewable Energy Production” in the Y, or probable, column.
C.3.3.6. **Health, Life Safety, and Code Issues**

The following codes were adopted by State Buildings Programs (SBP) and other state agencies as the minimum requirements to be applied to all state-owned buildings and capital construction. The most current standards adopted by the state shall apply to this project.

- The 2012 edition of the International Building Code (IBC)
- The 2012 edition of the International Mechanical Code (IMC)
- The 2011 edition of the National Electrical Code (NEC)
- The 2009 edition of the International Plumbing Code (IPC)
- The National Fire Protection Association Standards (NFPA)
- The 2010 edition of the ASME Boiler and Pressure Vessel Code
- The 2011 edition of the National Boiler Inspection Code (NBIC)
- The 2012 edition of the Controls and Safety Devices for Automatically Fired Boilers CSD-1
- The 2007 edition of ASME A17.1 Safety Code for Elevators and Escalators
- The 2005 edition of ASME A17.3 Safety code for Existing Elevators and Escalators
- The 2005 edition of ASME A18.1 Safety Standard for Platform Lifts and Stairway Chairlifts
- The current edition of the Rules and Regulations Governing the Sanitation of Food Service Establishments

All design and documentation must follow the current codes and regulations adopted by the State Buildings Program (SBP) and in effect at the completion of the Construction Documents. Please refer to the Code Analysis in the appendices, section D.4.

The State Buildings Program reviews the documents for conformance with standards and SBP authorized codes during the design phase.

During the project design phase, the architects and engineers shall prepare a code analysis comparing the requirements of the above codes. Wherever regulations conflict, the more stringent requirement shall be followed. The SBP authorized code consultant will determine which regulation shall apply when conflict requires interpretation.

**Accessibility:** The Student Recreation Facility will be fully compliant with requirements for accessibility, including those of the Americans with Disabilities Act (ADA), the 2012 IBC, and the 2003 edition of ICC/ANSI A117.1, Accessible and Usable Buildings and Facilities. These include, but are not limited to, specific requirements such as those for: building entries, accessible routes, toilet rooms, graphics and signage, and doors and hardware. The building, in addition to meeting the letter of the ADA, must express the commitment of the college to providing access to all building occupants.
C.3.4. Construction

The project site will be subject to the same rules and requirements for construction applying to the entire RRCC campus. These include the requirements for the Contractor to provide a security fence around the site throughout construction and to coordinate with the college for any restrictions on acoustical/noise levels and times during operating hours on campus. There will likely be a specifications requirement for a five-day prior notification/approval for any interruption or outages of utilities or services.

Some requirements specific to the project and to the site will be included in the Construction/Bid Documents. These will include designation of parking spaces and drive areas that may be used during construction, and which trees and landscaping are designated for removal and which must be preserved. West Metro Fire District requirements for maintaining fire vehicle access around the project site at all times will be designated on the documents.

Temporary exiting and general construction phasing may be indicated in the Construction/Bid Documents, but the Contractor will also be required to maintain and to review with the college an exiting and access plan throughout the construction period.

C.4. Project Schedule

Commencement of design and/or construction on the Student Recreation Center project is not dependent on any other project. The following schedule, which also is dependent on a vote in support of a student bond fee for the project, is proposed:

- Program Plan Complete: April 2, 2014
- Student Vote Complete: May 4, 2014
- CCCS Board Approval, Final: May 2014
- CCHE Board Approval: August 2014
- CDC Approval: September 2014
- Bond issue: October 2014
- Funding available: November 2014
- RFQ for Design: November 2014-January 2015
- Design (9 months): February-November 2015
C.5. **Cost Estimates and Financial Analysis**

C.5.1. **Cost Estimates**

An independent cost estimate was prepared for this program plan, by RLB Rider Levett Bucknall: “Program Plan Cost Estimate, Red Rocks Community College Recreation Center,” March 27, 2014. A copy of this estimate is on file with RRCC. This estimate is the basis for the construction cost portion of the program plan cost model included below. Other costs have been developed by the Facilities Services department of the college.

Operating costs have been determined by the college based on this program plan and will be confirmed during the design phase for the Student Recreation Center, when final decisions have been made on building design, systems selection, and staffing strategy.
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<tr>
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<td>Updated 3/31/14</td>
<td>Construction Estimate Parameters</td>
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<tr>
<td>2</td>
<td></td>
<td>bidg assemblies to match existing; fdn, storefront, cmu, built up roofing</td>
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<tr>
<td>3</td>
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Red Rocks Community College – Student Recreation Center
Page 70
C.5.2. **Financing Explanation/Funding Sources**

This project will be cash funded without support from the State of Colorado. It will be financed through the sale of bonds backed by college student fees.
D. Appendices

D.1. Site Plan and Location Maps
D.1.1. Campus Location Map
D.1.2. Site Options Plan
D.1.3. Site Plans
D.2. Infrastructure Plans
D.2.1. Site Utility Plan
D.3. Architectural Program

D.3.1. Space Requirements

The following diagrams illustrate the space requirements for the principal program spaces for the Student Recreation Center:

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**Meeting Room**

Recreational and Programming Intent: Scheduled use for student meetings and student clubs, managed by Student Life, with incidental meeting room use by other college users as availability permits.

Finishes: Flooring to consist of carpet, base, chair rail. Wall finishes consisting of painted drywall. Ceilings to be 10'-0" high, with 2x4 acoustical ceiling tile.

Exterior windows and day-lighting are highly desirable. Mini-blind window coverings provided at all exterior windows.

Specialties: 4x6 white marker board, 4x4 cork tack board.

Furnishings and Equipment: Furnishing to include movable tables and chairs. Battery operated wall clock.

Technology: Ceiling mounted video/data projector, ceiling mounted electrically operated projection screen. Inclusion of a sound system with ceiling mounted speakers and iPod/MP3 docking station allows diverse recreational programming.
Classroom Room

Recreational and Programming Intent: Scheduled use for formal and informal student meetings and activities, with swing use as classrooms for OUT/PED/PRA and DANCE courses.

Finishes: Flooring to consist of carpet, rubber base. Wall finishes consisting of painted drywall. Ceilings to be 10'-0" high, to support recreation programming flexibility, with 2x4 acoustical ceiling tile.

Exterior windows and day-lighting are highly desirable. Mini-blind window coverings provided at all exterior windows. Each classroom to have supply closet with adjustable shelving for storage of program specific materials. Plastic laminate countertop and base cabinet. Battery operated wall clock.

Specialties: 4x6 white marker board, 4x4 cork tack board.

Furnishings and Equipment: Furnishing to include movable tables and chairs, movable lectern/podium.

Technology: Ceiling mounted video/data projector, ceiling mounted electrically operated projection screen. Inclusion of a sound system with ceiling mounted speakers and iPod/MP3 docking station allows diverse recreational programming.
Multi-Purpose Gym Space

Recreational and Programming Intent: Structured for drop-in use, instructional programming, club sports, and intramural uses.

Programming includes basketball, volleyball, indoor-soccer, badminton, floor-hockey, special events, activities, and general assembly events. Wall projections and offsets shall be minimized to support use of room by indoor soccer and field hockey. All projections and devices shall be caged.

Finishes: Multipurpose poured urethane based synthetic sports flooring with rubber base. Flooring to be striped for multiple sports. Wall finishes to be highly durable and impact resistant consisting of painted concrete block CMU construction. Corners of gym to be rounded for indoor soccer and floor hockey use. 30% of upper walls to have 1” acoustical wall panel. Ceilings to be painted exposed structure, acoustical structural deck, min 25'-0" high to bottom of structure.

Day-lighting and day-light harvesting are highly desirable. Exterior clerestory windows or translucent panel impact resistant wall systems, translucent glass skylights.


Technology: Public address system, music system, wall mounted mass notification LED text display.

Supporting Ancillary Spaces: Gym Equipment Storage Room
Strength & Conditioning Suite

Recreational and Programming Intent. Primarily structured for drop-in use and equipped to support general core training, general weight training, Functional Training, Stretching, TRX cross-training, and cardio conditioning. Instructional programming may consist of small group training and personal training. Program components can be used to support other College academic offerings.

Strength and Conditioning programming has seen explosive participation growth nationally and regionally. This program component is expected to have the highest participation rates and density of use. Strength and Conditioning areas can be rearranged and reconfigured, with new types of equipment added to keep pace with user demand and industry trends. Unique RRCC campus patterns and preferences that emerge will also drive the types and density of equipment offered to the to the student population.

A Functional and suspension training area will be located in a designated zone with medicine balls, plyometric boxes, battle ropes, fitness and Bosu balls, foam rollers and other functional training equipment. Areas for stretching can be included as part of functional training or dispersed through the strength and conditioning area.

Finishes: Resilient, rubber athletic flooring with rubber base. Wall finishes to be painted concrete CMU below 8'-0" in non-mirrored areas. Painted gypsum board to be provided behind mirrors and above CMU walls to structure. Incorporating painted CMU, painted concrete or resilient surfaces to 8'-10' aff construction in functional training areas is beneficial in supporting impact exercises such as medicine ball tossing. Ceilings to be painted exposed structure, structural deck, min 12'-0" to 14'-0" clearances to bottom of structure.

Exterior windows, views, and day-lighting and day light harvesting are highly desirable.

Specialties: Provide floor/wall anchors to accommodate heavy battle ropes. Blocking and structure at functional training areas to support chin-up bars and suspension training.

Furnishings and Equipment: Equipment to consist of free-weights, plate-loaded machine weights, and selectorize machine weights, with some selectorize equipment configured in circuits as well as cardio fitness equipment. Continuous mirrors to extend from 18" above finished floor to 8'-0" on two adjacent walls.

Technology: Public address system, music system, (8) CATV flat screens. Provide recessed floor boxes with dedicated power circuits and telecommunicate data and CATV connections at each cardio equipment station.

Supporting Ancillary Spaces:
Storage Room
Group Exercise Space/Studio

Recreational and Programming Intent: Academic programs to be accommodated include Dance. Otherwise, programming will be structured for drop-in use, instructional programming in a small, 20-person studio and a medium sized 40-person studio.

Programming to offer group fitness programming consisting of yoga, mat-Pilates, spinning, general group fitness formats, TRX-type activities, small group training. Studio design to be as flexible as possible and will accommodate multiple formats of exercise classes in both large and smaller studios.

These spaces can also be used for many non-fitness programming to increase space utilization, including meetings, banquets, arts and crafts.

Separate storage and sound system controls for Academic and Recreation/Fitness staff is required so that academic classes are not negatively impacted by items broken, etc., by Rec/Fit participants.

Finishes: Floating, resilient wood floor system with vented rubber base. Wall finishes to be painted drywall. Ceilings to be painted exposed structure, min 10'-0" high. Mirrors to be provided on two adjacent walls from 18' above finish floor to 8'. Exterior windows, views, and daylighting and day light harvesting are highly desirable. Windows to be provided with mini-blind wall coverings.

Specialties: Provide ballet bar along one mirrored wall. Wall mounted pull-up bars.

Technology: Music system/Public Address System including ceiling mounted speakers and iPod/MP3 docking station. Bench height storage cubbies for user personal belongings should be structured to support stretching and plyometric activities.

Supporting Ancillary Spaces:
Storage Room
Climbing & Bouldering Space

Recreational and Programming Intent: Structured for drop-in use, instructional programming, and club sports.

Climbing and Bouldering area to provide mix of visibility and privacy to meet needs of beginners and advanced climbers. Climbing walls will consist of a multi-faceted vertical wall providing 6 climbing lanes 4’-6’ in width for a total climbing width of 33’-0”, and a maximum height of 28’-30’ with belay bars and lead climbing capacity.

Bouldering area will be sufficient to allow for multiple users without interfering with top rope climbing. Topping out will not be part of the bouldering wall program, with a maximum height of 12’-13’.

Finishes: Structural floor slab recessed for impact floor system. Wall finishes to be painted impact resistant drywall where not concealed by climbing and bouldering wall systems. Ceilings to be painted exposed structure, acoustical structural deck, min 3’ above climbing wall maximum height. Exterior windows, views, and day-lighting and day light harvesting are highly desirable.

Specialties: Provide additional hand-holds and route setting materials. Provide (6) overhead supported auto-belay systems. Provide bench height storage cubbies for user personal belongings, storage, shoe changing. Day lockers to be provided for securing personal belongings.

Technology: Music system/Public Address System including ceiling mounted speakers and iPod/MP3 docking station.

Supporting Ancillary Spaces:
Storage Room
Administrative & Faculty Office Suite

Recreational and Programming Intent: Instructional support space for recreation programming, administrative organizational and supervision support space. Entry control, supervision of public and group activity areas.

Finishes: Carpeted floors with rubber base, painted gypsum board walls, suspended acoustical ceiling tile at 8'-0" aff min.

Exterior windows, views, and day-lighting and day light harvesting are highly desirable. Windows to be provided with mini-blind wall coverings.

Furnishings and Equipment: Office furnishing per college standards and conventions.
Outdoor Recreation Resource Suite

Recreational and Programming Intent: Support of formal and informal outdoor recreation activity programs and classes thorough provisions for outdoor recreation resource materials, equipment rental, education and training, and organized group activities and excursions.

The Outdoor Recreation Resource Suite includes dedicated, secure space for storage, large item bulk storage, wet areas for wash down of equipment, wet workrooms including dishwashers, refrigerators, clothes washers and dryers. Staff areas include a Coordinator’s Office and Control Counter/Equipment Check-out counter. A library/workroom/lounge for trip planning resource materials, guide books, maps.

College staff is evaluating outdoor equipment rental needs and scope. Student surveys indicate a strong interest in being able to rent outdoor equipment that may consist of Kayaks/Paddleboards, rock-climbing gear, bicycles, tents, sleeping bags, GPS locators, camping gear, fishing poles.

Architecturally, spaces are to be kept as open as possible to support flexible use of space. Ceilings to be open to structure in all storage areas to maximize usable height of space.

Finishes: Sealed concrete in wet areas, storage areas. Carpet in lounge/library/meeting room, staff office areas. Wall finishes to be painted concrete block for durability in wet areas, storage areas and painted drywall in office areas. Ceilings to be painted exposed structure, min 10'-0" high, except in staff office areas.

Exterior windows, views, and day-lighting and day light harvesting are highly desirable. Windows to be provided with mini-blind wall coverings.

Specialties: Large overhead, insulated, overhead coiling doors to storage areas and staging areas. Sleeping bag storage system.

Furnishings and Equipment: Adjustable storage racks, trolleys, and hold for sports and outdoor equipment. Workbenches with storage cabinets. Ventilated, flammable storage cabinet. Residential refrigerator, dishwasher, high capacity and high heat clothes washer and dryer.

Technology: Flat screen TV with computer station in trip planning library/lounge.
Locker Rooms / Toilet Rooms

Recreational and Programming Intent: Support of individual recreation users, intramural sports, and recreation center programming. Not envisioned as support for team sports.

Finishes: Poured, seamless, epoxy flooring with integral cove. Wall finishes to be largely painted concrete block with full height porcelain wall tile in wet areas, plumbing walls, shower areas. Ceilings to be painted exposed structure, min 10'-0" high in locker areas. Provide moisture resistant hard-lid ceilings in all wet areas.

Specialties: Toilet accessories, Mirrors, shower curtains with rods. Electric hand dryers and electric hair dryers. Vented metal lockers and fixed wood benches.
Multi-Purpose Meeting Room

Recreational and Programming Intent: Scheduled use for large assembly uses by student life, club sports, and College program meetings. Room to be sub-dividable into two sections of equal size.

Finishes: Flooring to consist of carpet, base, chair rail. Wall finishes consisting of painted drywall. 30% of walls to have 1” acoustical wall panel. Ceilings to be 10'-0" high, with 2x2 acoustical ceiling tile.

Exterior windows and day-lighting are highly desirable. Electrically operated perforated window coverings with 1-3% light transmission provided at all exterior windows.

Specialties: 1”-thick, overhead supported, folding-pair acoustical wall panel system with acoustical fabric covering, wall pocket with closing door. Modernfold, Durafold.


Technology: Ceiling mounted video/data projector, ceiling mounted electrically operated projection screen in each meeting room.

Supporting Ancillary Spaces:

Catering Pantry: Adjacent room for staging special event food service. Room includes one wall of plastic laminate cabinetry, solid surface countertop, double compartment sink, space for movable warming cabinets.

Furniture Storage Room: Adjacent room for storage of folding tables and stacking chairs.

Ideal configuration would co-locate Pantry and Storage adjacent each other so Pantry could expand into storage area to support large banquet events when tables and chairs are in use and storage room is empty.
D.3.2. Spatial Relationships

The affinity matrix below indicates the relationship desired between the program spaces for the Student Recreation Center.

| AFFINITY MATRIX: RRCC Student Recreation Center | Main Entry Lobby | Social Lounge | Access Control/Recept. | Access Control/Warm. | Meeting Rms | Multipurpose Conf Rm | Classrooms | Cafeteria/Pantry | Gymnasium | Cardio Fitness | Machine/Circuit Weight | Free Weights | Small Studio/Group Fitness | Medium Studio/Group Fitness | Functional Training | Boulder/Climbing | Outdoor Recreation Programs | Administration/Offices | Janitorial | Storage | Locker Rooms | Public Restrooms | Build/Support Services |
|------------------------------------------------|-----------------|--------------|-----------------------|---------------------|------------|--------------------|-----------|-------------------|----------|----------------|------------------------|------------|------------------------|----------------------------|-------------------|----------------|-----------------|-------------------|-----------------------|
| Main Entry Lobby                                |                 |              |                       |                     |            |                    |           |                   |          |                |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Social Lounge                                   |                 |              |                       |                     |            |                    |           |                   |          |                |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Access Control, Recept.                         | 3               |              |                       |                     |            |                    |           |                   |          |                |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Reception Wrm                                   |                 |              |                       |                     |            |                    |           |                   |          |                |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Meeting Rms                                    | 1               | 2           | 2                     |                     | 0          |                    |           |                   |          |                |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Multipurpose Conf Rm                            | 2               | 2           | 0                     | 0                  |            |                    |           |                   |          |                |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Classrooms                                     | 1               | 2           | 2                     | 0                  | 2          |                    |           |                   |          |                |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Catering/Pantry                                |                 | 0           | 0                     | 0                  | 0          | 3                  | 0         |                   |          |                |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Gymnasium                                      | 2               | 2           | 0                     | -1                 | -3         | -1                 | 0         |                   |          |                |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Cardio Fitness                                 | 0               | 0           | 0                     | -2                 | -3         | -2                 | 0         | 2                 |          |                |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Circuit Training                               | 0               | 0           | 0                     | -2                 | -3         | -2                 | 0         | 2                 | 3       |                |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Free Weight Training                           | 0               | 0           | 0                     | -2                 | -3         | -2                 | 0         | 2                 | 3       | 3              |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Small Studio / Group Fitness                   | 0               | 0           | 0                     | -3                 | 0          | 0                  | 2         | 2                 | 2       | 2              |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Medium Studio / Group Fitness                  | 0               | 0           | 0                     | -3                 | 0          | 0                  | 2         | 2                 | 2       | 2              |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Functional Training                            | 0               | 0           | 0                     | -3                 | 0          | 0                  | 3         | 3                 | 3       | 3              |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Boulder/Climbing                               | 0               | 0           | 0                     | -3                 | 0          | 2                  | 2         | 2                 | 0       | 0              |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Outdoor Recreation Programs                    | 0               | 0           | 0                     | -3                 | 0          | 1                  | 0         | 0                 | 0       | 0              |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Administration / Offices                       | 1               | 2           | 3                     | 2                 | 0          | 0                  | 0         | 0                 | 0       | 0              |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Laundry                                        |                 | 0           | 0                     | 0                  | 0          | 0                  | 0         | 0                 | 0       | 0              |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Storage                                        | 0               | 0           | 0                     | 0                  | 3          | 3                  | 3         | 3                 | 3       | 3              |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Locker Rooms                                   | 1               | 1           | 3                     | 0                 | 0          | 0                  | 2         | 2                 | 2       | 0              |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Public Restrooms                               | 2               | 2           | 0                     | 3                 | 3           | 3                  | 0         | 0                 | 0       | 0              |                        |            |                        |                             |                   |               |                 |                   |                       |                      |
| Build/Support Services                         | 0               | 0           | 0                     | 0                  | 0          | 1                  | 0         | 0                 | 0       | 0              |                        |            |                        |                             |                   |               |                 |                   |                       |                      |

**LEGEND**

- Should be adjacent to (3 - directly adjacent; 2 - nearby, 1 - on same floor)
- Neutral Relationship (0 - adjacency does not matter)
- Should not be adjacent to or near (-3 - very remote; -2 - remote; -1 - somewhat remote)
D.4. Code Analysis

This analysis was prepared for the program plan with the limited information available at the time and with reference to the 2012 International Building Code (IBC). The following outlines code issues related to the new Student Recreation Center, based on the applicable codes references in Section C.3.3.6 “Health, Life Safety, and Code Issues.” Further development of this project requires an independent analysis based on the final building design and configuration and with the applicable codes adopted at the time of construction.

1. APPROVED APPLICABLE STATE BUILDING CODES & STANDARDS

The 2012 edition of the International Building Code (IBC)
(as adopted by the Colorado State Buildings Program as follows: Chapter 1 as amended, Chapters 2-35 and Appendices C and I)

The 2012 edition of the International Mechanical Code (IMC)
(as adopted by the Colorado State Buildings Program as follows: Chapters 2-15 and Appendix A)

(as adopted by the Colorado State Buildings Program)

The National Electrical Code (NEC)
(National Fire Protection Association Standard 70) (as adopted by the Colorado State Electrical Board)

The 2009 edition of the International Plumbing Code (IPC)
(as adopted by the Colorado Examining Board of Plumbers as follows: Chapter 1 Section 101.2, 102, 105, 107, Chapters 2-13 and Appendices B, D, E, F and G)

The 2009 edition of the International Fuel Gas Code (IFGC)
(as adopted by the Colorado Examining Board of Plumbers as follows: Chapter 1 Section 101, 102, 105, 107, Chapters 2-8 and Appendices A, B, and C)

The National Fire Protection Association Standards (NFPA)

The 2010 edition of the ASME Boiler and Pressure Vessel Code
(as adopted by the Department of Labor and Employment/Boiler Inspection Section as follows: sections I, IV, V, VIII-Sections 1 and 2 and 3, 1X, X including the 2011 addenda and B31.1, 2010 edition.)

The 2011 edition of the National Boiler Inspection Code (NBIC)
(as adopted by the Department of Labor and Employment/Boiler Inspection Section)

The 2012 edition of the Controls and Safety Devices for Automatically Fired Boilers CSD-1
(as adopted by the Department of Labor and Employment/Boiler Inspection Section)

(as adopted by the Department of Labor and Employment/Boiler Inspection Section)

The 2007 edition of ASME A17.1 Safety Code for Elevators and Escalators
(as adopted by the Department of Labor and Employment/Conveyance Section and as amended by ASME International)

The 2005 edition of ASME A17.3 Safety Code for Existing Elevators and Escalators
(as adopted by the Department of Labor and Employment/Conveyance Section and as amended by ASME International)
Building Classification

Occupancy Classifications:
A-3 (gyms w/o bleacher seating, recreation, locker rooms, lounges, lobbies, conference rooms, etc.)
B (meeting rooms, classrooms, offices, etc.)
S-1 (storage, mechanical, maintenance, etc.)

Type of Construction Option 1: Type II-A Fully-Sprinklered Building

Assumptions: Two-story building, > 30’ separation on estimated 85% of building perimeter, non-separated uses, proposed 30,000 GSF 1st floor area.

Allowable Area per Floor:

\[ W = \frac{(L_1 \times w_1) + (L_2 \times w_2)}{F} \]
\[ = \frac{(25 \times 20) + (700 \times 30)}{725} = 29.66 \]

\[ I_f = \frac{F/P - 0.25}{W/30} \]
\[ = \frac{725/844 - 0.25}{29.66/30} = 0.61 \times 0.99 = 0.60 \]

\[ A_a = A_t + (A_t \times I_t) + (A_t \times I_s) \]
\[ = 15,500 + (15,500 \times 0.60) + (15,500 \times 2) \]
\[ = 15,500 + 9,300 + 31,000 \]
\[ = 55,800 \text{ GSF} > \text{proposed 30,000 SF 1st floor area, so OK.} \]

Total Allowable Building Area = 55,800 GSF x 2 = 111,600 SF.

Total Proposed Building Area = 42,000 GSF < 111,600, so OK.

Type of Construction Option 2: Type II-A Non-Sprinklered Building

Assumptions: Two-story building, > 30’ separation on estimated 83% of building perimeter, non-separated uses, proposed 30,000 GSF 1st floor area.

Allowable Area per Floor:

\[ W = \frac{(L_1 \times w_1) + (L_2 \times w_2)}{F} \]
\[ = \frac{(25 \times 20) + (700 \times 30)}{725} = 29.66 \]

\[ I_f = \frac{F/P - 0.25}{W/30} \]
\[ = \frac{725/844 - 0.25}{29.66/30} = 0.61 \times 0.99 = 0.60 \]

\[ A_a = A_t + (A_t \times I_t) + (A_t \times I_s) \]
\[ = 15,500 + (15,500 \times 0.60) + (15,500 \times 2) \]
\[ = 15,500 + 9,300 + 31,000 \]
\[ = 24,800 \text{ SF} < \text{proposed 30,000 GSF 1st floor area, so NOT OK.} \]
Type of Construction Option 3: Type I-B Non-sprinklered Building

Assumptions: Two-story building, > 30’ separation on estimated 83% of building perimeter, non-separated uses, proposed 30,000 GSF 1st floor area, 42,000 GSF total building area.

Allowable Area per Floor: Unlimited, so OK.

3. FIRE PROTECTION

Type II-A Construction:

<table>
<thead>
<tr>
<th>Structural Element</th>
<th>Type I-B Construction</th>
<th>Type II-A Construction</th>
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</thead>
<tbody>
<tr>
<td>Primary Structural Frame</td>
<td>2 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Exterior Bearing Walls</td>
<td>2 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Interior Bearing Walls</td>
<td>2 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Non-bearing Exterior Walls</td>
<td>1 HR &lt; 30’ fire sep. distance</td>
<td>1 HR</td>
</tr>
<tr>
<td>Non-bearing Interior Walls</td>
<td>0 HR</td>
<td>0 HR</td>
</tr>
<tr>
<td>Roofs &amp; Secondary Members</td>
<td>0 HR or 0 HR &gt; 20’</td>
<td></td>
</tr>
<tr>
<td>AFF</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mezzanines in fully-sprinklered, fire-alarmed Type I or II buildings can take up to 1/2 the floor area of the room.

4. OCCUPANT LOADS

<table>
<thead>
<tr>
<th>O.C.</th>
<th>USE</th>
<th>S.F.</th>
<th>O.L.F.*</th>
<th>O.L.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1</td>
<td>Storage, Janitor &amp; Mechanical Rooms</td>
<td>3,585</td>
<td>300</td>
<td>12</td>
</tr>
<tr>
<td>A-3</td>
<td>Assembly – unconcentrated</td>
<td>1,828</td>
<td>15</td>
<td>122</td>
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<tr>
<td>A-3</td>
<td>Exercise &amp; Locker Rooms</td>
<td>24,260</td>
<td>50</td>
<td>486</td>
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<tr>
<td>B</td>
<td>Business Areas</td>
<td>1,790</td>
<td>100</td>
<td>18</td>
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<tr>
<td>B</td>
<td>Classrooms</td>
<td>1,536</td>
<td>20</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>Total O.L.</td>
<td></td>
<td></td>
<td>715</td>
</tr>
</tbody>
</table>

O.C. = Occupancy Classification  S.F. = Square Footage  O.L.F. = Occupancy Load Factor  O.L. = Occupant Load  *OLF is based only on GSF per Occupant for this preliminary study.
5. **NUMBER OF EXITS:** Two exits required for 50 or more occupants in A and B Occupancies and for 29 or more occupants in S Occupancies. Exits shall be separated by min. 1/3 the diagonal distance of the space in sprinklered spaces and min. 1/2 the diagonal distance of the space in non-sprinklered spaces.

By Program, Occupant Load & Exit Requirements, the spaces requiring 2 exits are:
- Social Lounge
- Pre-Function Lobby
- Gymnasiums (both)
- Cardio Fitness Area
- Suspended Jogging Track
- Mezzanine or 2nd Floor

6. **REQUIRED TOILET FIXTURE COUNTS**

<table>
<thead>
<tr>
<th>OCC.</th>
<th>NO. OF MALES</th>
<th>NO. OF FEMALES</th>
<th>TOTAL OCC.</th>
<th>WATER CLOSETS</th>
<th>LAVATORIES</th>
<th>D.F.</th>
<th>SERVICE SINKS</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MALE</td>
<td>FEMALE</td>
<td>MALE</td>
<td>FEMALE</td>
</tr>
<tr>
<td>A-3</td>
<td>304</td>
<td>304</td>
<td>608</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>2</td>
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<tr>
<td>B</td>
<td>95</td>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>S-1</td>
<td>12</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Totals</td>
<td></td>
<td></td>
<td>715</td>
<td>6</td>
<td>8</td>
<td>5</td>
<td>5</td>
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</tbody>
</table>

D.5. **Third Party Review**

A Third Party Review, dated April 16, 2014, was prepared by Yon Tanner Architecture PC. A copy of this review follows, as well as the response from Red Rocks Community College and a Series 2014 Revenue Bond Analysis, March 19, 2014, prepared for the college by North Slope Capital Advisors.
April 16, 2014

Cathy Rock
Red Rocks Community College
13300 West 6th Avenue
Lakewood, CO 80228-1255

Re: Student Recreation Center Program Plan
Third Party Review

Dear Cathy,

I have reviewed the Program plan for the Student Recreation Center at Red Rocks Community college prepared by Davis Partnership Architects dated April 2, 2014. We reviewed this program plan for compliance with the following requirements:


The program plan is very comprehensive and well thought out.

The following items need to be addressed in the program plan:

- Section A.1 states that the funding will be provided through the sale of bonds backed by college student fees. A financial analysis should be provided for the cost, term, interest rates and the sources of repayment funds.
- Section C.5.1 does not contain money for the enhanced commissioning that is tentatively called for in the mechanical write up and the LEED checklist.

While not necessary at this stage of development of the project we have identified two items that should be addressed if the project moves forward.

- In section D.4 the occupant load calculations are using a load factor of 50 for the gymnasium, which is appropriate for a gymnasium. This could limit the
maximum occupancy of this space to 250 people. There is discussion in the program plan of this space being used for special events. Some consideration may want to be given to designing this space to accommodate larger groups as the design progresses.

- In section D.4 a type II-A and type I-B building construction were studied and were shown to allow the necessary square footage for the building. Both of these types of construction require the building to have a fire rated structure. This is consistent with the write up that is calling for the structure to have sprayed on fire proofing applied to the structure. This however may not be desirable as many of the spaces are called out to have painted exposed structures, and acoustical decking as their ceiling finishes. Utilizing a type II-B construction may be helpful.

Please let me know if you have any questions regarding these items.

Sincerely,

Yon Tanner, Architecture P.C.
Carmen M. Yon, Architect

Red Rocks Community College Student Recreation Center Program Plan
Follow up to Third Party Review

In reference to bullet point #1, funding referenced in Executive Summary section A.1, the North Slope Capital Advisors March 19, 2014 Series 2014 Revenue Bond analysis is attached. The student fee has been set after consultation with the Advisors to cover the debt service as projected in the attached, and also includes projected operational costs.

In reference to bullet point #2, Cost Estimates section C.5.1, the enhanced commissioning was not recommended by the consulting engineer, but remains a possible option if needed to reach LEED Gold certification for the project. The final determination on this individual feature/cost (as with all aspects of the building) will be made during the design phase.

Refer to following pages for Series 2014 Revenue Bond Analysis, prepared by North Slope Capital Advisors, March 19, 2014.
## SOURCES AND USES OF FUNDS

Colorado Community College System  
Series 2014 Revenue Bonds  
Red Rocks Community College Student Rec Center Financing  
4.75% Average Interest Rate

### Sources:

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
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<td>Bond Proceeds:</td>
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<td>Par Amount</td>
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<td><strong>Total</strong></td>
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### Uses:

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<td>Underwriter's Discount</td>
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<td><strong>Total</strong></td>
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<td>Other Uses of Funds:</td>
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<td>Additional Proceeds</td>
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</table>

Sources and Uses of Funds: Revenue Bond Analysis prepared by North Slope Capital Advisors, March 19, 2014.

Refer to following page for Bond Debt Service table.
## BOND DEBT SERVICE

Colorado Community College System  
Series 2014 Revenue Bonds  
Red Rocks Community College Student Rec Center Financing  
4.75% Average Interest Rate

<table>
<thead>
<tr>
<th>Period Ending</th>
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<th>Interest</th>
<th>Debt Service</th>
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<td>11/01/2017</td>
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<td>730,550.00</td>
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<td>11/01/2018</td>
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<td>717,487.50</td>
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<tr>
<td>11/01/2019</td>
<td>300,000</td>
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<td>703,712.50</td>
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D.6. Acknowledgements

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